

# **Investigating the Nature and Psychological Impact of Out-of-Body Experiences**

**By**

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*A thesis submitted in partial fulfilment of the University's requirements for  
the Degree of Doctor of Philosophy*

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**Buckinghamshire New University**

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## Abstract

A review of the literature investigating out-of-body experiences (OBE) identified a series of missing fundamental questions. Broadly, these are: (1) How can OBE experiences be explained across a diverse set of induction states and what are the accompanying foundational neurological mechanisms?; (2) What differentiates people who experience an OBE from those who do not?; (3) Why would a person, in a certain physiological state, have an OBE one day and not the next? In addressing the three questions, primarily drawing on contemporary neurobiological research, it led to the development of a novel neuropsychological theory for induction and formation. The theory was also influenced, in part by the research into the mechanisms resulting from the ingestion of psychotropic substances (including ayahuasca, a traditional psychoactive plant medicine brew made from several ingredients with the Amazon basin).

An extensive (136-question) online survey was undertaken which provided a much-needed general evaluation of the experience type. It also provided data, from 213 respondents, to explore hypotheses based on the aforementioned theory and investigate whether specific hallucinatory phenomena are associated with psychological outcomes. The survey analysis revealed statistical validation for the hypotheses, indicating OBE formation is influenced by induction state, eyelid position, body position, intention, level of self-perceived spirituality, whether having suffered with anxiety and depression, and chronic hallucinations.

The survey also highlighted key components all associated with psychological outcomes: hallucinatory phenomena of seeing lights around or at a distance, the ability to see 360 degrees, feeling an expansion of consciousness or non-physical body, seeing, or feeling the presence of spiritual entities or beings, or unknown non-physical beings, and feeling the presence of a deceased loved one or pet. A further study explored how OBE phenomena are causing psychological change. This was via qualitative interviews with seven individuals whose OBEs occurred during the consumption of ayahuasca within a ritualistic setting in Peru. Using Moustakas' (1994) transcendental phenomenological model of analysis, the interviews revealed deeper understandings regarding what can occur within the phenomenological process to bring about psychological changes through revealing structural relationships between the outcomes, experience of metaphysical entities, dissociation from physical body, and self-identity.

The findings are drawn together, and their implications are discussed, along with methodological and conceptual considerations.

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Finally, I am very grateful to the people who took part in the studies reported herein. Without their participation, this project would, of course, not have been possible.

## **Author's Declaration**

I declare that this thesis and the work presented in it are my own and have been generated by me as the result of my own original research.

I confirm that:

1. This work was done wholly or mainly while in candidature for a research degree at this University.
2. Where any part of this thesis has previously been submitted for a degree or any other qualification at this University or any other institution, this has been clearly stated.
3. Where I have consulted the published work of others, this is always clearly attributed.
4. Where I have quoted from the work of others, the source is always given. With the exception of such quotations, this thesis is entirely my own work.
5. Where elements of this work have been published or submitted for publication prior to submission, this is identified and references given at the end of the thesis.
6. This thesis has been prepared in accordance with the Staffordshire University and Buckinghamshire New University regulations.
7. I confirm that if the submission is based upon work that has been sponsored or supported by an agency or organisation that I have fulfilled any right of review or other obligations required by such contract or agreement.

*Ross William Bartlett*



## **Chapter 1: Introduction to Out-of-Body Experiences and the Thesis**

### **1.1 Overview of the Thesis**

Chapter 1 provides an overview of thesis. Firstly, explaining the background of the author and his motivations. Secondly, how the out-of-body experience (OBE) has been defined in basic terms as set in historical context. Lastly, breaking down the content of each chapter demonstrating how in its structure it provides an original contribution to knowledge towards research-based understanding of OBEs.

The aims of the project are summarised in the bullet points that follow. These were informed by a review of literature. The aims were selected due to their potential value in strengthening the academic understanding of the subject and related fields.

- To critically assess the terminology of the OBE within reviewed literature and how it is defined, and from this process formulate a terminological basis to navigate through the thesis. This work can be found in sections (2.1 – 2.1.5).
- To critically assess the literature on the nature of the phenomenon and via an appraisal of the current theories of OBE induction and formation highlight the tasks required to move the topic forward. This work can be found in sections (2.2 – 2.5).
- To critically assess and identify gaps within the research of the psychological outcomes of OBEs. This work can be found in sections (2.6 – 2.6.2).
- To explore through modern research (2000-2023), building a new theory of OBE induction and formation that can address the tasks required to move the subject forward. This work can be found as chapter 3 entitled, “Embodiment to Disembodiment: Moving Out-of-Body Experience Induction and Formation Theory Forward?”.

- To conduct research that can move OBE induction and formation theory forward, and further investigate the rate of occurrence of the phenomenology generally attributed to OBEs. This work can be found as Chapter 4 entitled, “A Survey on the Nature and Impact of Out-of-body Experiences”.
- To conduct research that investigates the psychological outcomes of OBEs and explores possible phenomenological relationships between OBEs and their psychological outcomes. This work can be found as Chapter 5 entitled, “A Phenomenological Analysis of the Essence and Psychological Outcomes of Dissociative and Hallucinatory Experiences From a Sample Engaged in Ritualistic Ayahuasca Consumption in Peru”.

At several points during this chapter and others the author asserts the originality within his work. The assertions arise from his knowledge gained through six years of intensive research on the subject to the date of submission.

### ***1.1.1 The Author and Their Motivations***

The author has over a decade of experience in phenomena that could be considered paranormal or transpersonal. The author has spent most of the last decade actively participating in practices from numerous religions and spiritual pathways. The author has written two books relating to paranormal / transpersonal phenomena. The first book is an autobiography about the author’s experiences of this nature. The second is a book that seeks to lightly explore a merger between certain spiritual, phenomenological based understandings, with modern scientific understanding and theory for a popular readership.

Due to his experiences to-date, in combination with a lack of conclusive evidence of the nature of consciousness the author remains open to non-materialistic perspectives of consciousness. However, the author wishes to make it clear that he

does not take a strictly dualist or any other perspective in relation to the topic of this thesis. OBEs are a phenomenon that can be considered paranormal / transpersonal. However, in respects to academic research in the areas explored here, the author was unfamiliar with work on the subject at the time of starting the thesis. The author takes the position that it is, quite likely, that all ranges of the OBE have a materialistic nature. By this the author means that he currently takes the position OBEs are purely results of material interactions of material things in the body and are not in any way a 'real' separation of consciousness from the body. Nevertheless, the underlying nature of the experience is not definitive, and its exact mechanics are far from such. Thus, the author remains open to all possibilities.

During his time exploring transpersonal phenomena the author has heard accounts from others of OBEs and has been aware of their lack of clarity on what the experience is and how it occurs. The author has also experienced the phenomenon himself and been left with similar uncertainty. The author has observed OBEs causing apparent psychological change in individuals and him but was left unclear as to why. It is reported that OBEs have occurred in up to 25% of the world's population (Blackmore, 2017b) with many of these individuals likely sharing the same uncertainty as the author and those he has engaged with on the subject. Unfortunately, academia does not fully understand what the phenomenon is, how it occurs, the psychological outcomes, and why these outcomes occur. It puzzles the author that given the frequency of the experience within the general population that more research has not taken place on the phenomenon. Overall, there is a great lack of clarity and completeness within research-based understanding of the experience. This is the case even though the understanding of embodiment / disembodiment linked the OBEs is a fundamental stepping-stone in understanding consciousness and the

spectrum of human experience. This need for understanding within the academic community, and the larger communities of the world, motivated the author to undertake and complete this thesis exploring the phenomenon.

### ***1.1.2 Introduction to Out-of-body Experiences and the Term Itself***

The OBE has been a topic of discussion in psychological, psychiatric, and, in particular, parapsychological literature for many years (Alvarado, 1989). Blackmore, (2017b) highlights that various phenomena and physiological circumstances can be incorporated into a definition of the experience.

Examples of simple definitions are, “any experience where the person believes that his consciousness is localized in space outside his physical body” (Palmer, 1978a in Rogo, p.35). “An out-of-body experience is one in which the center of consciousness appears to the experient to occupy temporarily a position which is spatially remote from his/her body” (Irwin, 1985, p.5). “An experience where you felt that your mind or awareness was separated from your physical body” (Gabbard & Twemlow, 1984, pp.3–4). Overall, there remains no consensus within the academic literature of how to best define an OBE.

The exact origin of the term out-of-body experience is unclear. The first use of the term the author could find is in esoteric literature and dates back to the early 20th century appearing as the title of a letter ‘*Out of the Body*’ Experiences published in the spiritualist journal *Light* (Hamilton, 1911). In this letter, Hamilton suggests she has had many experiences of ‘bi-location’ and acknowledges having stood by her physical body fully conscious and is as follows:

“Sir,—The articles on ‘ Bilocation ’ have been very interesting to me, and I think with ‘B. C. W’ that this phase of mediumship ought to be studied, for it is undoubtedly a form of mediumship, and in my own case I have had so many experiences of this kind that I never think of

the physical body as myself. It is difficult to write on this matter, but I have been shown how the body is linked to the spiritual and sustained by it just as simply and naturally as the unborn child is by the mother. I have stood by my body fully conscious and been given this lesson by an Egyptian friend just as naturally as a teacher in the body could give it, and I have been overjoyed at the beauty and order of all things spiritual. Our bodies can be made perfect mediums for soul and spirit in a practical and scientific way that will dispel all doubt of the reality of the spirit world. There are organs in different parts of the body, which can be developed, that put us in communion with different planes of spirit and, given the reverent, earnest desire, there is nothing we cannot learn at first hand. The body is the laboratory of the awakened spirit, the crucible where all things may be transmuted”  
(Hamilton, 1911, p. 480)

Her mention of B. C. W is in reference to the author of a previous article on bi-location in the same journal entitled *Significance of the Evidence for Bilocation* (B. C. W, 1911) To clarify, bi-location means the experience of one's consciousness being located in more than one location simultaneously (Alvarado, 2005). This is a phenomenon that could be seen as a part of some OBEs where an experiencer feels their consciousness is not fully separated from their physical body but believes part of their consciousness is also localized in space outside their physical body. Moreover, this phenomenon can also be seen as being part of an OBE in cases where the experiencer feels their consciousness or parts of it have become located in more than one position simultaneously when they perceive their consciousness as being fully out-of-body.

Hamilton, (1911) notably expressed a view of OBEs being a form of mediumship. Mediumship is defined as a set of experiences in which an individual has contact with or is under the control of someone else who has already died or of another immaterial being (Menezes et al., 2012). Surveys have found mediumship experiences can occur during OBEs typically via communication with disincarnate entities (e.g. Alvarado & Zingrone, 2015). However, based on the author's review of

the literature OBEs are not generally considered to be a form of mediumship within academic literature and are seldom considered as such in esoteric literature.

Seven years after Hamilton, (1911) the term OBE appeared again when it was used as the title of the fourth chapter in J.A. Hill's *Man is a Spirit* (Hill, 1918). In this chapter Hill suggests a viewpoint that certain accounts of OBEs indicate the body is a shell in which the spirit is imprisoned until death. Furthermore, that on certain occasions when a person's body has died but comes back to life, they can share accounts of a temporary detachment of the body and spirit. Hill goes on to detail four collected accounts of what he believes to be OBEs. The first of these accounts is as follows:

“He was an artilleryman, and was sitting on the ammunition chest of his gun when it was hit by a shell from the enemy's guns and exploded. The man was thrown into the air and his body fell to the ground. He said that he was up in the air, looking down at his own body which lay upon the ground at some distance from him. He seemed to be yet connected with the body by a slender cord of a clear silvery appearance, and, while he looked on, two surgeons came by, and after looking at the body remarked that he was dead. One of the medicos took hold of an arm and turned the body on its side, and remarked that he was dead; and they both passed on and left him. Soon after the stretcher-bearers came along and found there was life in the corpse, and carried him to the rear.”

“After the turning of the body, he said, ‘ I came down that silver cord and returned to the old body and reanimated it, although my body was blind as a bat and my right arm was torn from my shoulder’  
(Hill, 1918, pp. 67-68).

OBEs occurring within near-death contexts are acknowledged within the literature on near-death experiences (NDEs). NDEs can be most simply defined as a set of mental events which occur during an altered state of consciousness that typically include self-related, emotional, and mystical aspects, classically in the context of a life-threatening condition (Charland-Verville et al., 2018).

Whilst the core features vary in definition and number across the literature, an OBE is nearly exclusively found to be one of the main traits of an NDE (e.g., Morse



& Perry 1994). Specifically, Morse and Perry, (1994) proposed in the preface of *Transformed by the Light* that overall there are nine core features that generally constitute a full NDE, features that remain common within the literature to this day (e.g., Charland-Verville et al., 2016; Parnia et al., 2022).

- A sense of being dead: the sudden awareness that one has had a 'fatal' accident or not survived an operation.
- Peace and painlessness: a feeling that the ties that bind one to the world have been cut.
- An out-of-body experience: the sensation of peering down on one's body and, perhaps, seeing the doctors and nurses trying to resuscitate.
- Tunnel experience: the sense of moving up or through a narrow passageway.
- People of Light are being met at the end of the tunnel by others who are "glowing".
- A Being of Light, the presence of a God-like figure or a force of some kind.
- Life review: being shown one's life by the being of light.
- Reluctance to Return.
- Personality Transformation.

(Morse & Perry, 1994, pp. VIII-XI)

Unlike NDEs associated with impending death or coma, NDE-type experiences have also been reported in situations where there is not impending death. (Facco, & Agrillo, 2012; Gabbard, & Twemlow 1981; Gabbard, & Twemlow 1991; Owens et al., 1990).

For example, such accounts have also been reported in meditative states (Beauregard et al., 2009), during intense grief and anxiety (Kelly, 2001), in epileptic

patients (Hoepner et al, 2013), from syncope, (Lempert et al., 1994), and Cotard's syndrome (Mckay & Cipolotti, 2007).

The next appearance of the term OBE following on from Hill, (1918) is W. F. Prince's use within an article in the American Society for Psychical Research (Prince, 1923). The article details Prince asking an individual that he is interviewing, "Had your conversation during the previous day suggested out-of-body experiences?" (Prince, 1923, p. 106). The article explored experiences of individuals having dreams that share parallel features. These dreams by Miss Briggs and her daughter show incidents of what could be OBE-type experiences. For example:

"She dreamed of going out of the body and walking down-stairs" (Prince, 1923, p. 101).

"In mine, I seemed to be "out" leaving my body in bed, without conscious effort, or noting the moment of separation" (Prince, 1923, p. 104).

Acknowledgments also occur of apparent unknown veridical information being experienced, for example:

"She dreamed of an unexpected and unlikely fact - that her daughter left her coat and hat on a chair instead of following her custom" (Prince, 1923, p. 102).

Further, of interest is an acknowledgment that within the out-of-body dream experiences sometimes things are changed from actual reality. What follows is a quote from an experiencer acknowledging that the environment the person is in can be different from actual reality, in this case the experiencer was in what they considered to be their house in the out-of-body dream, "then, with the idea of seeing if the house was natural (sometimes in "out" dreams things are changed)." (Prince, 1923, p. 102). Moreover, there is an acknowledgment of during the experience of an attempt at changing wallpaper in their house that is not right in terms of matching with reality

outside of the out-of-body dream, but they were unable to do so, “it was a lighter tan, with a different pattern, but by no effort of will, could I make it change back to its colors.” (Prince, 1923, p. 104).

Levitan et al., (1999) analysed reports of lucid dreams (LDs) and found that LDs initiated during rapid eye movement (REM) sleep that occurred after recent awakenings were significantly more likely to be judged as OBEs than LDs initiated during uninterrupted REM sleep. LDs are experiences in which the dreamer becomes aware that they are dreaming and may gain control over parts or all of the experience. (Kahan & LaBerge, 1994). REM sleep is a sleep state characterized by skeletal muscle paralysis and cerebral cortical activation (Dong et al., 2022). Essentially, in REM sleep the body experiences a paralysis while activity within the brain is similar to activity during wakefulness.

The research of Levitan et al., (1999) revealed in non-lucid dreaming contexts and many cases during lucid dreaming contexts the dreamer does not normally perceive the experience of their consciousness having separated from the physical body.

However, there have been cultures and divergent belief systems that believe some or all dreams have an element of consciousness being in location spatially remote from the physical body with some influence from these remaining in the world today (Hughes, 2000). Importantly, from this research it is apparent that some people appear to be having dream-based experiences whilst sleeping and interpreting them as OBEs and some individuals may interpret all dreams to be OBEs. Thus, a larger question exists of how to include apparent dream-based experiences interpreted as OBEs within a definition of the phenomenon and research them. This question is explored in section (2.1.3).

From the early 20th century, the term out-of-body experience continued to appear sporadically. The term appeared in the book *The Projection of the Astral Body* with authors Muldoon and Carrington first using the term OBE within the preface. Muldoon within the book details numerous accounts of what he appears to consider OBEs under an overarching term of ‘astral projections’. His mention of the term is as follows:

“My first out-of-the-body experiences occurred. I was but twelve - so young and immature in mind that I did not realize their magnitude. The occurrences came about involuntarily and repeated themselves frequently, until I became so accustomed to them that, as a matter of fact, I soon regarded them as nothing extraordinary and seldom mentioned them even to members of my own family, to say nothing of keeping a record of them, although I had been urged to do so by many interested persons.”

(Muldoon & Carrington, 1929, p.11)

Astral projection is described as a process in which the soul or consciousness, in the form of what is referred to as an astral body, to varying extents, leaves the physical body and travels throughout the physical universe and potentially into other realms of existence (Muldoon & Carrington, 1929, 1951; Zusne & Jones, 1989). In this way, a person having an astral projection experience could be seen as having an OBE as part of the astral projection process.

The term out-of-body experience also features on Page 44 of *Les Métapsychoses: La Métapsychorragie, la Télépathie, la Hantise* (Bret, 1938), page 216 of *Phenomena of Astral Projection* (Muldoon & Carrington, 1951), page 147 of *Brief Darkness*, (Leonard, 1942) and within the articles *A Letter from England* (Fodor, 1937) and *‘Out of the Body Experiences* (Oaten, 1938). The context in which the term features within these references falls within the contexts previously mentioned within this section. From the middle 20th century onwards, the term started to become better known when the subject became researched more frequently

and researchers like G.N.M Tyrrell, C.E. Green, and Charles T. Tart adopted its use (e.g. Green, 1968; Tart, 1967; Tyrrell, 1946).

Reviewing surveys on the experiences indicates that the rough prevalence of OBEs in the general population ranges between 8-25% (Blackmore, 2017b) and it appears a person of any age can have the experience (Blackmore, 2015).

The experiences typically occur spontaneously, last only a short time, and may happen only once or twice in a lifetime (Irwin, 1985). However, research has found that people who report having had an OBE are more likely to report having multiple experiences (Alvarado, 1986, Palmer, 1979). For example, in Alvarado and Zingrone (1999) specifically, 65% of their participants were multiple OBErs.

### ***1.1.3 Overview of Chapter 2***

Chapter 2 presents a review of existing literature (i.e. the current understanding of the OBE). Within this review the author critically assesses the terminology of the OBE and how it is defined. From the review the author formulated a terminological basis to navigate through the thesis and on which future research can be undertaken more efficiently and fruitfully.

The author concluded in section (2.1.5) that OBEs are currently best defined as dissociative experiences where, to the individual, during the process, there is a sense of their consciousness having separated from the body.

The author also concluded in section (2.1.5) that in cases where an experience does not contain a sense of consciousness having separated from the physical body but afterward is interpreted to be an OBE; these experiences should be referred to as consciousness relocation interpretations (CRI), which is the author's own novel term.

The author within sections (2.2.1 – 2.3.5) critically assessed the literature on the nature of the OBE. Through the appraisal of the current research and theories of

OBE induction and formation the author highlights that there are numerous physiological states that appear to be OBE-conducive and a large range of OBE-related phenomena. However, there is a lack of research on whether different physiological starting states may induce slightly differing phenomenology or rates of certain OBE phenomena. This is this case even though some research has indicated that physiological induction factors can influence the formation of these phenomena within OBEs (e.g. Alvarado & Zingrone 2015; Twemlow et al., 1982; Zingrone et al., 2010).

Further, in sections (2.3 – 2.3.5) the author found that the weight of the research that indicates there may be an extracorporeal component to OBEs is currently minimal. Extracorporeal meaning occurring outside the body as opposed to corporeal meaning inside the body. Thus, the author felt comfortable at this time in setting aside OBEs being in any way a ‘real’ separation of consciousness from the body. Moreover, that an extracorporeal component is not required by the field at this time for a further developed theory on OBEs. Adequately directly addressing a corporeal or extracorporeal component to the nature of OBEs was felt to be beyond the scope of the work of this thesis.

The author highlights in section (2.3.6) that based on his review of theory on the induction and formation of OBEs a further developed theory would need to explain:

1. How these experiences can occur in all of the diverse sets of induction states, and what are the accompanying foundational neurological mechanisms?
2. What differentiates people who experience an OBE from those who do not in the same circumstances? For example, in the Greyson et al., (2014) study,

patients who did and did not report 'OBEs' were comparable in their seizure histories, including epilepsy syndrome, epilepsy aetiology, and seizure type.

3. Why might a person have an OBE in a certain physiological state one day and not the next?

Whilst OBE literature has moved on very little, the research and literature on the general understanding of consciousness as it pertains to phenomenal experience has moved on substantially more. Thus, the author's future task in the thesis was to use modern literature on phenomenal experience to attempt to solve the three theory-based tasks. This work would lead to a unified foundational process and mechanism that accounts for the wide range of phenomena within the experiences.

This set a basis for an extensive theoretical chapter on the induction and formation of OBEs, which is found in Chapter 3 and encompasses a substantial original contribution to the subject and related fields. The author felt that Chapter 3 would provide a deeper basis of understanding for theory development and empirical work within subsequent chapters of the thesis.

Chapter 2 also includes a review that critically assesses and identifies gaps within the research on the psychological outcomes of OBEs. This work highlights a lack of overall research on psychological outcomes. Moreover, there has been a specific greater lack of exploring possible relationships between psychological outcomes and the range of OBE phenomenology. This work can be found in sections (2.6 – 2.62).

The author found that it was clear much more research and time has been given towards investigating the nature of OBEs, and NDEs rather than their psychological impact.

However, the research that has taken place has highlighted several psychological outcomes present in OBEs and in NDEs that included OBEs. Specifically, those that stood out in the research to the author as detailed in section (2.6.2) are the following:

- Change in view of death.
- Reduction in fear of death.
- Change in relationship to the divine.
- Change in worldview.
- Change in relationship to other people.
- Change in view of self.
- Change in lifestyle.

(e.g., Alverado, 2000; Groth-Marnat & Summers, 1998; Kelmenc-Ketis 2013; Moody, 1975; Noyes, 1980; Ring, 1980; Schwaninger et al., 2002; Twemlow, Gabbard & Jones, 1982; Van Lommel et al., 2001).

The review within Chapter 2 has, through the content, formed a basis for empirical work to be carried out via a survey exploring the psychological outcomes of ‘OBEs’. Furthermore, the review highlighted how questions should be included in a survey on potential relationships these outcomes have to the range of ‘OBE’ phenomena. This survey work is found in Chapter 4, and further work on relationships between phenomena and psychological outcomes is subsequently followed up with a qualitative interview study that can be found in Chapter 5. When considering the sum of its parts this review is the first of its kind representing on its own a significant original contribution of work to the subject and related fields.

#### ***1.1.4 Overview of Chapter 3***

This chapter offers a detailed proposal of a theoretical description of OBE



induction and formation based on the author's exploration of potential physiological and psychological contributions to the experience of an OBE.

The neuropsychological approach taken within this chapter reimagines the OBE in a modern context as primarily a neurological process caused by certain physiological factors. Moreover, that these factors create significant changes in brain entropy and corresponding decoupling of the brain's default mode network (DMN). Furthermore, it postulates that these processes lead to an altered state of consciousness that is OBE induction conducive but, nevertheless, a state that can be brought on and influenced in part by certain psychological factors that lead to direct and indirect influences on brain entropy and DMN decoupling. As detailed in sections (3.13.1 – 3.15) the proposed mechanisms of change creating potential shifts within the brain's filtering reducing valve, shift in brain entropy, and corresponding DMN decoupling provide a neurological basis for OBE induction across all induction states. Furthermore, they provide a foundation on which to understand and develop the understanding of 'OBEs', dissociative phenomena, sense of embodiment, disembodiment, and could refocus future research.

Notably, the neuropsychological theory proposed by the author provides a potential deeper understanding of the concepts proposed within the three most established theories of the 'OBE' (Blackmore, 1984b; Irwin, 1985, 2000; Palmer, 1978b) overall forming a significant original contribution to the subject and related fields.

As detailed in section (3.12) the author felt when taking into account the content of Chapter 3 it would be an appropriate next step in the thesis to conduct a survey that explores OBE induction, the range of OBE phenomena and possible phenomenological relationships between the two. Furthermore, based on the

hypothesis within his neuropsychological theory of OBE induction and formation the author felt that the survey should also specifically explore the following:

- Frequency and impact of suffering with depression and anxiety in OBEs.
- Frequency and impact of suffering with chronic hallucination in OBEs.
- Frequency and impact of body position on OBEs.
- Frequency and impact of induction state on OBEs.
- Frequency and impact of eyelid position on OBEs.
- Frequency and impact of intentional and unintentional OBEs.
- The impact of perceived spirituality levels on OBEs.

This work is found in chapter 4.

#### ***1.1.5 Overview of Chapter 4***

This chapter describes the conduct of an on-line 136-question survey of 213 people who had experienced OBEs. It is an original contribution in that it achieves a general surveying of OBEs within this participant group and provides an extensive descriptive basis for the range of OBE phenomenon in one study.

For this investigation, the author also expanded a previously used OBE feature index (Alvarado & Zingrone 2015; Zingrone et al., 2010) to be more specific to the sensory modality of the phenomena being experienced. For example, separate categorised phenomena and questions of did a person (see, feel, or hear) certain information at an abnormal distance. This formatting was different to the previously used more simple did a person see or perceive at distance. Furthermore, the author included an expansion of the index to accommodate a larger number of phenomena overall, for example, an experience of feeling, or visual of spinning, which is found in many accounts of OBEs (e.g., Bulhman, Survey Results n.d). This expansion represents another original contribution to the subject and related fields.

Moreover, as detailed in section (4.3.1) and (4.4) the survey confirmed within the participant group the author's hypotheses that physiological and psychological factors bulleted in section 1.1.4 would be related to having an increased association with OBEs and or impact on the induction and formation of them. In this process it further strengthened the grounding for the author's theory and highlighted numerous directions of potentially fruitful research towards the potential establishment of the concepts within.

As detailed in section (4.3. 2 – 4.4) the survey confirmed OBEs could cause the range of psychological outcomes in OBEs highlighted in section (2.6.2). Further, the work confirmed the author's hypothesis that specific phenomena would be associated to these outcomes being induced in experiencers and in this way the survey provided a platform to conduct a deeper qualitative investigation. Moreover, it also brought to light that individuals, who experience their OBE while under the influence of DMT, and specifically ayahuasca, might be ideal candidates for qualitative investigation on potential relationships between the psychological outcomes and associated phenomena found in this study.

Analyses as detailed in sections (4.3.3 – 4.3.11) revealed that the changes in psychological outcomes 1 to 6 were all associated with connecting with metaphysical entities during the OBE. Expansion of consciousness or body to a larger than normal size was associated with change in relationship to other people, and seeing 360 degrees was associated with a change in view of the divine and change in worldview.

Further, being able to feel at an abnormal distance was also associated with a change in worldview. Moreover, the experiencer's surroundings being illuminated by something other than normal light were associated with a change in view of death,

and the experiencer's surroundings being illuminated by something other than normal light were associated with a reduction in fear of death.

Notably, when given the opportunity to detail any psychological outcomes not listed in the survey, 15 participants acknowledged a distinct psychological outcome that was not listed. It was apparent these participants were dealing with outcomes of changes in view and relationship to nature.

However, what is not clear from the survey data is how the experience of these phenomena led to the various psychological outcomes that were associated with. Furthermore, what was not investigated by the survey and similar studies that came before it is a potential role of the core phenomenon of OBEs that of-dissociation. As dissociation is always occurring simultaneously with other phenomena the author felt that investigating the roles of dissociation in specific psychological outcomes would be more appropriately and correctly explored in a deeper qualitative approach, where it can be better examined more separately to the other associated phenomena.

It is logical that deeper qualitative investigations into these areas should occur, and it seems possible that OBEs could perhaps even be used in therapeutic contexts if better understood and controlled.

#### ***1.1.6 Overview of Chapter 5***

Chapter 5 extends conclusions drawn from the quantitative survey by conducting qualitative research interviews of 7 individuals who experienced OBEs during the consumption of ayahuasca within a ritualistic setting in Peru. The author decided to interview a sample of participants that had their OBEs via ayahuasca consumption as the survey results found participants who had OBEs via this experience had all of the specified psychological outcomes aside from experiencing

negative psychological outcomes. Furthermore, these ayahuasca-induced OBE experiences produced a higher-than-average range of associated phenomena.

Ayahuasca is a traditional psychoactive plant medicine brew made from several ingredients within the Amazon basin. The name 'ayahuasca' derives from the indigenous Quechua language and translates to 'vine of the dead' a name most likely given due to the brew's particular propensity to stimulate experiences subjectively linked to themes of a transition of dying and death (Shanon, 2002).

The study achieved its aim within the participant group of investigating whether experiences of individual dissociation, connecting with metaphysical entities, expansion of consciousness, seeing lights around oneself or at a distance, and seeing ones surroundings illuminated by something other than normal light during OBEs can cause certain psychological outcomes found within the author's previous OBE survey.

The study also investigated if qualitative investigation of ayahuasca-based OBE phenomena would reveal if acute physiological changes, change in feeling, or other associated hallucinatory phenomena also cause psychological changes found within the author's previous OBE survey; the answer as detailed in sections (5.7 – 5.8) appeared to be that they do not.

Notably, as detailed in sections (5.9 – 5.9.14) the analysis revealed even deeper understandings on what can occur within the phenomenological process that leads to the psychological changes. This was achieved via the analysis highlighting the psychological perspectives that linked the hallucinatory phenomena to the eventual psychological outcome.

Via highlighting the psychological perspective that linked the hallucinatory phenomena to the eventual psychological outcome it became clear that certain

participant's hallucinatory experiences gave rise to psychological changes that were lasting at the point of interview.

As detailed in section (5.8) the psychological outcomes and phenomenological relationships for this participant group were as follows:

1. *Change in view and relationship to the divine* - Metaphysical entities - Dissociation from self-identity.
2. *Change in fear of death* - Metaphysical entities - Dissociation from physical body - Dissociation from self-identity.
3. *Change in view of self* - Dissociation from physical body - Dissociation from self-identity.
4. *Change in view and relationship to other people* - Dissociation from self-identity - Metaphysical entities.
5. *Change in worldview* - Dissociation from self-identity.
6. *Change in Lifestyle* - Dissociation from self-identity.
7. *Change in View and Relationship to Nature* - Dissociation from self-identity.

As detailed in section (5.12) the interview analysis also found several differences and contrasts to the survey analysis as follows:

1. Connecting with metaphysical entities during an OBE induced by ayahuasca was not linked to psychological changes in world view and view of self.
2. Connecting with metaphysical entities was linked to a change in relationship to other people.
3. Expansion of consciousness experiences was not linked to causing psychological outcomes by itself. However, it was clear that consciousness expansion type experiences in the form of feeling a transpersonal connection

beyond self were at times a subsequent experience of dissociation from self-identity.

4. Experiencing seeing lights around oneself or at a distance and seeing one's surroundings illuminated by something other than normal light causing were not linked to causing psychological outcomes by themselves. However, the participants' OBEs and connections to metaphysical entities within them at times include such anomalous light-based experiences, and, in this way, these light-based experiences, perhaps, share an indirect relationship with the psychological changes.

Lastly, through the qualitative process used within the study, a phenomenological essence of ritualistic ayahuasca consumption in Peru has been revealed. This qualitative study represents another significant original contribution to the subject and related fields.

### ***1.1.7 Overview of Chapter 6***

Chapter 6 reviews and concludes this project. It summarises and discusses the findings and limitations at each stage and proposes further work that may be undertaken to continue the exploration and understanding of OBEs. The author proposes that each step in this thesis, chapter 2 to 6, are an original contribution to the understanding and exploration of this field of experience.

## **Chapter 2: Established Concepts on the Nature of 'Out-of-Body Experiences' and Their Outcomes**

The chapter presents a review of existing literature i.e. the current understanding of the OBE. The author first critically assesses the literature on the terminology of the OBE and how it is defined. From there the circumstances that induce OBEs, and the wider phenomenology followed by the bulk of the concepts and experiments on the nature of the phenomenon are reviewed. The author then contextualises the concepts and research on the nature of NDEs before appraising the three most prominent theories to OBEs. The neural correlates to OBEs are next to be contextualised before finally reviewing research on the psychological outcomes of the phenomenon. The chapter ends with a summary of the key findings of the review and the next steps to be taken in the thesis.

### **2.1. Defining OBEs**

There is a long history within academic literature of OBEs being seen as a form of dissociative experience and this concept of OBEs continues to be acknowledged as such within modern literature (e.g. Braithwaite & David, 2016). This view is supported by studies that have found significant relationships between dissociation and OBEs (Alvarado & Zingrone, 1997a; Gow et al., 2004; Irwin, 2000; Murray & Fox, 2004; 2005a; 2005b, 2006; Parra, 2008; Richards, 1991), the dissociative disorder of depersonalisation (Lopez & Elzière 2018; Wolfradt & Watzke, 1999), and capacity for and tendency towards psychological absorption, which in itself is dissociative (Alvarado & Zingrone, 1997b; Dalton et al., 1999; Irwin, 1980, 1981, Glicksohn, 1990; Parra, 2008). Psychological absorption is a disposition and trait in which a person gets internally absorbed in their mental imagery, particularly fantasy (Roche & McKonkey, 1990).



Furthermore, the concept of OBEs as a form of dissociation is supported by the results of an analysis of the semantic similarity between 15,000 reports linked to the use of 165 psychoactive substances and 625 NDE narratives, which found use of dissociative drug and N-methyl-D-aspartate (NMDA) receptor antagonist ketamine consistently resulted in reports most similar to those associated with NDEs. This NMDA receptor antagonist is classified as a (dissociative) drug due to its strong ability to distort the user's perception and produce feelings of detachment from the environment and oneself, (Leshner, 2001).

As previously acknowledged whilst the core features vary in definition and number across the literature, an OBE is nearly exclusively found to be one of the main traits of an NDE (e.g., Morse & Perry 1994).

It appears clear at the core OBEs can be defined in the most basic way as a dissociative experience. However, further investigation into previous categorisation and core phenomenology as detailed from this section-to-section (2.1.5) can broaden this definition.

### ***2.1.1 Psychological Categorisation***

In psychological terms, an OBE is at times categorised as a form of autoscopic phenomena (AP), meaning an illusory visual experience during which the subject has the impression of seeing a second 'self' in extra-personal space (Blanke & Mohr, 2005). It appears this was originally suggested by Rawcliffe, (1952) who saw the OBE as a specific type of autoscopic hallucination, where at the moment the person saw his or her imaginary image, there was a delusion that this other image was the real self. However, these suggestions had no real basis within empirical research at the time or presently. Nevertheless, Blanke and Mohr, (2005) suggest AP consists of the OBE, autoscopic hallucination (AH), and heutoscopy (HAS).

Blackmore, (2015) suggests AH is, at times, incorrectly confused with OBEs, due to its similar nature. However, an AH is seeing a second ‘you’ from your embodied perspective that is outside of your physical body, without you feeling any sense of disembodiment or consciousness separation. HAS is the hallucination of seeing a second ‘you’ from your embodied perspective that is outside of your physical body, accompanied by an ambiguous sense of disembodiment, due to a shifting perspective between intra- and extracorporeal viewpoints. Whereas, an OBE is generally described as a vivid experience of disembodiment, the self-being outside the physical body, (on some occasions) looking back on your physical self and being visually aware of the environment from the continued perspective of the disembodied self (Blackmore, 2015).

Braithwaite et al., (2011) suggest it remains an open question whether these various forms of body image distortion are related or distinct phenomena. At this point, there is some basic similarity in the phenomenology of the OBE and the forms of AP, and there is an association with a similar neurological process to the OBE. However, the data on the neurological process of the OBE is inconclusive, as is the data on AP (Greyson et al., 2014). The inconclusiveness of the data on the neurological process of OBEs is discussed in more detail later in this chapter in section (2.4). Notably, it has arguably been clear since at least 1968 that, at times, people who perceive having an OBE, do not always suggest seeing or feeling a second body or self (Green, 1968). As noted, seeing or feeling a second body or self is a core characteristic of AP. Thus, at present, it appears that AP is an inadequate way of categorizing OBEs, but it is correct to say that AP is a feature of some OBEs.

Moreover, if one takes into account another notable common characteristic of an OBE, the subjective experience of traveling to distant locations (Blackmore,

2017a), the OBE appears to be further incompatible with forms of AP that do not seem to typically include the experience of traveling to distant locations.

Notably, in the psychological academic literature, the OBE has several specific common characteristics that can be incorporated into a definition or description of the phenomena. These characteristics are:

1. A feeling of their consciousness having separated from their physical body, which is sometimes described as a feeling of disembodiment.
2. Sensations of floating.
3. Seeing one's physical body from an external perspective.
4. Travelling to distant locations without the physical body.
5. The possession of a non-physical body.
6. A vividness to the experience that matches the real-world experience of regular conscious awareness.
7. The experiencer is convinced the experience was not a dream and was not a hallucination.

(Alvarado, 1984 Alvarado & Zingrone, 1999; Gabbard & Twemlow, 1984; Green 1968; Tart, 1967).

### ***2.1.2 Esoteric Categorisation***

Blackmore, (2017b) notes OBE literature has its roots in esoteric thought and is described in numerous religious texts as an account of a mystical experience typically without any more specific labelling. Whilst these esoteric sources are non-academic, in the case of OBEs this alternative literature is the origin of the term. The author suggests it is worth acknowledging the original definition and exploring what it has to offer toward an academic definition. Zusne and Jones, (1989) highlight that in more modern esoteric literature, the experience is, at times, associated with or

referred to as ‘astral projection’. Further, they note that astral projection is described as a process in which the soul or consciousness, in the form of what is referred to as an ‘astral body’ would leave the physical body and potentially travel throughout the physical universe and into other realms of existence.

What can be found here is a linking thread between the psychological literature and the esoteric literature of the core component of OBEs being a sense of one's consciousness has separated from the physical body. This sense arguably has to encapsulate the ultimate representation of the core of the experience, as it is the prime fundamental dissociative element of the phenomenon. This is the sense of dissociation from the physical manifestation of self i.e. a focal point of conscious awareness manifesting within an experience of space and place (with) a sense of one's physical body being separate from the experience, it is the... (out) of the (body).

Thus, the author suggests any altered state experience without this sense of one's consciousness manifesting in a space without the physical body is fundamentally different from an OBE. To clarify, these other experiences are all different from an OBE in that such occurrences do not include an experience of a ‘self’ i.e. a focal point of conscious awareness manifesting within an experience of space and place without a sense of a physical body being separated from this focal point. As such, they cannot be an OBE as there is no sense of separation from the body within the process.

It is easy to argue that innately someone not experiencing this sense of separation from the body is having some form of an alternative (embodied) experience to an OBE. These occurrences could encompass a range of states such as typical dreams and AP. Thus, this understanding can also bring clarification to where typical dreams place within a definition of OBEs.

### *2.1.3 Dreams Within a Definition of OBEs*

As previously noted in section (1.1) there are cultures and divergent belief systems that believe some or all dreams have an element of consciousness being in a location spatiality remote from the physical body.

Research by Levitan et al., (1999) has established that individuals interpret some of their 'dreams' as OBEs. Moreover, Levitan et al., (1999) note that in both lucid dreams and OBEs people often display lapses in critical thinking and rationality. They acknowledge how people who return to normal consciousness after dreams and OBEs often recognize that anomalies were present in the environment that indicated it was not veridical. This point also connects to previous research that has acknowledged, "The simplifications, distortions, and additions found in the experienced world can be similar in both experiences," (Blackmore, 1988, p. 374). By both experiences Blackmore means in lucid dreams and OBEs.

The author suggests these similarities are interesting and indicate dreaming and any potential physiological and psychological states linked to it produce an altered state that can clearly be OBE-induction conducive. However, when examining if any 'dream' should be defined as an OBE, the author suggests one has to purely follow the subjective sense of the dreamer during the process. If the individual has a subjective sense of their consciousness as (separated from the physical body) during a phase of dreaming, then that should be defined as an OBE. If the dream does not involve this sense, then innately the experience cannot be an OBE.

In cases where dreams do not contain a sense of consciousness being separated from the physical body but afterward are interpreted to be OBEs, these experiences should be referred to as consciousness relocation interpretations (CRI).

Moreover, this same ideal would stand for all experiences within altered states of consciousness. Notably, within this definition, lucid dreams where there is a sense of their consciousness having separated from their physical body would be classed as an OBE. To confirm CRI is new definitional term suggested by the author and is not found in previous literature.

#### ***2.1.4 Eccentric Categorisation Within Neurological and Psychological Experiments***

From the conclusions gathered in the previous sections exploring how to define an OBE, it is now important to acknowledge some prominent studies on OBE-type experiences that have perhaps used the term OBE eccentrically and how to better define the phenomena within them.

Some authors have added further confusion to the academic discussion on OBEs by what Greyson et al., (2014) refer to as “eccentric uses of the term” (p. 65).

For example, researchers studying sensations induced by external transcranial electrical stimulation to the brain have labelled forms of distortion of body image, as ‘out-of-body experiences’ regardless of whether it involved what is the most basic characteristic of the OBE, a subjective sense of their consciousness leaving the physical body (Blanke et al., 2002; De Ridder et al., 2007; Schutter et al., 2006).

Blanke et al., (2002) specifically appear to include an “out-of-body experience” sensation of sinking into the bed, seeing one's legs become shorter or moving quickly toward one's face, and feeling that one's upper body was moving toward the legs. They noted that a single participant reported at one point during the experiment seeing their own physical body from a location above their physical body, claiming to only be able to see their legs and lower trunk.

Greyson et al., (2014) note Blanke et al's participants, who reported body image distortions, did so when their eyes were open, not when their eyes are closed, something highlighted as untypical of OBEs. So far body image distortions elicited by brain stimulation are transitory, disappearing when the patient attempts to inspect the illusory body part. In spontaneous and other induced out-of-body experiences, visuals of the other body are maintained during perceived visual examination of the individual's physical body image (Neppe, 2002).

Greyson et al., (2014) further their case for experiences induced by transcranial electrical stimulation to the brain being eccentrically termed 'OBEs' through highlighting that the phenomena experienced via this stimulation appears limited to a fixed location; in that the experiencer continues to perceive the environment from the visual perspective of their physical body. Further, they perceive the event as illusory. This is, again, in contrast to many spontaneous OBEs that often involve the perception of the environment including the physical body from a perspective different and often distant from the physical body. Moreover, in OBEs the extracorporeal self, meaning the self that seems situated outside of the body appears to move about independently of the physical body and experiencers often perceive the event as exceedingly real (Greyson et al., 2008).

Persinger et al., (2010) suggest through very weak transcranial magnetic stimulation (TMS) of the temporal lobes, communication between the left and right senses of self are disturbed. Further, this disruption causes mystical and altered states, OBEs being one such state. When reviewing the article, the author found that the phenomena that were being attributed as being an OBE, was in just a single participant. The phenomena described was a feeling of lightness in the limbs, which was followed by a sense of floating as if the participant's body were oscillating

around the place in the chair. This was accompanied by rushes of anxiety, sensations of falling, and sensations that were described as similar to motion sickness, therefore, the subject felt the urge to vomit.

These sensations were followed by feelings of dissociation from the body, a loss of body image and awareness culminating with the subject feeling his head was floating above the spot where his body was sitting. Further, the subject could not distinguish between his limbs, his torso, or the surrounding space and objects in the room. Notably, the experience of their participant did not include many of the common characteristics of an OBE. For example, there did not appear to be a strong sense of consciousness becoming separated from the physical body and a general sense of disembodiment, the participant did not see their physical body from an extracorporeal perspective, and the participant did not travel to distant locations without the physical body. It is also unclear, from the data given, if the participant believed the experience was a hallucination or real.

Virtual reality (VR) has also been used to create what was termed an “out-of-body experience” by Ehrsson, (2007) who, via VR, created the illusion of body disownership through a setup where participants saw their real body sitting in front of where their viewpoint was located. To do this, Ehrsson had participants wear a stereo head-mounted display (HMD), to which video was streamed from a pair of cameras behind them. This led to the experience of the participants looking at themselves from behind; the experimenter tapped their (out-of-sight) chest while synchronously striking under the camera with a stick. Hence, from the viewpoint of participants, it seemed as if the stick striking under the camera was causing a feeling in their chest.

The outcome was that the participant’s sense of perception was moved behind where they saw their real body to be, resulting in an out-of-body illusion, where their



real body was disowned. Guterstam and Ehrsson, (2012) attempted to create a sense of bodily dis-ownership following a similar experimental setup as Ehrsson (2007) and related it to the Ehrsson (2007) study. Gutersman and Ehrsson (2012) used the term “out-of-body illusion” to describe the phenomena.

Lastly, a “Virtual Out-of-Body Experience” by Bourdin et al., (2017) had participants with an HMD first looking at themselves in a displayed virtual mirror to their front. In this virtual mirror, they would see that their virtual body was also wearing an HMD. The virtual body moved congruently with real body movements. This was followed by synchronous visuotactile stimulation, where virtual balls hit the virtual body, while participants felt corresponding vibrotactile stimulation on their real bodies. The viewpoint of the participant was lifted out of the virtual body towards the ceiling of the virtual room, and just behind the body, so that the body could be seen below. The vibrotactile process was then repeated. They found in the first viewing of the virtual body, in the mirror phase, led participants to feel ownership of the virtual body, and when the viewpoint was raised to look down on the virtual body, the participants disowned the virtual body.

Notably, none of these VR studies produced the common characteristic of the OBE of feeling that their consciousness had separated from their physical body with a strong sense of disembodiment, or any of the other less common phenomena, and the vividness of the experiences are, of course, extremely limited. Thus, they should not be considered actual OBEs.

### ***2.1.5 Conclusion on Terminology and Definitions***

Reviewing the terminological issues highlighted, the author suggests that anything where the experiencer does not feel, at some point, during the overall experience, as their consciousness has separated from their body should, arguably not,

be classified as an OBE. Doing so is too far removed from this core component of OBEs. Clarification is then needed on what these other phenomena should be referred to, if not as OBEs.

Thus, the author suggests the OBE should not be categorised as AP unless there becomes conclusive evidence of the full range of the OBE phenomenon, and the other phenomena categorised as AP have completely the same underlying mechanisms and phenomenology.

Until such a theoretical time, OBEs should be referred to by what academia knows them to be, a dissociative experience where, to the individual, during the process, there is a sense of their consciousness having separated from the body, which can be accompanied by some or all of the other common characteristics. A terminology that, at this time, appropriately keeps it separate from somewhat similar, but seemingly fundamentally, different subjective experiences. It is this definition the author will use to navigate through the rest of the thesis.

The author also concluded that in cases where an experience does not contain a sense of consciousness being separated from the physical body but afterward is interpreted to be an OBE that these experiences should be referred to as consciousness relocation interpretations (CRI). Notably, within this definition, dreams where there is a sense of their consciousness having separated from their physical body would be classed as an OBE.

The author has several of his own suggested terms to categorise experiences discussed within this section that he proposes should not be categorised as OBEs. If the experience leads to the illusion of the self-being in a different position than the actual location of the physical body, but not the feeling of being separate from the body, then this could be referred to as a visual relocation illusion (VRI). If VR is used

then it could be prefixed with VR, example VR-VRI. Should an experience produce illusions that the body is of a different shape then this phenomenon could be classified as a bodily dysmorphic illusion (BDI). If VR technology is used, it could be again prefixed with VR, for example, VR-BDI. These are the author's own suggested terms.

The author continues the thesis mindful that the concepts and research that follows contain a large variety of ways OBEs were defined, with some of these ways being clear, and in many cases, the exact definition used not being mentioned, nor the reliability of a participant's definitional view of OBEs being ascertained. Furthermore, due to the vagueness of the definitions used in OBE research on many occasions, the author suggests this has likely led to the contamination of experiences that may not constitute an OBE being mixed into experiences that do constitute an OBE by the author's definition.

This means that the research summary that follows is an eclectic mixture of phenomenology of different circumstances all under the label of a so-called OBE but may not fully represent the author's position of what should constitute an OBE. In turn, this leads in most cases to an unknown fluctuating degree of reliability and overall theoretical and empirical weight that each concept or study offers to our understanding of OBEs. Nevertheless, the concepts and research that follow are all included as they cover a range of OBE and OBE-type phenomena and that offer something of significance to our understanding of this little-researched phenomenon in comparison to other forms of phenomenal experience. To continue to acknowledge this issue throughout the thesis the author will put the term OBE in single inverted commas from this point forward.

Ideally, in the view of the author, moving forward all research on 'OBEs' would follow his suggested definition of 'OBEs' being a dissociative experience

where, to the individual, during the process, there is a sense of their consciousness having separated from the body. This definition should reduce vagueness within the research and most accurately produce research on the phenomenon and its surrounding phenomenology. Moreover, this definition would create a phenomenology that would not be excessively bastardised by phenomena that should be acknowledged as an ‘OBE-type’ experience and not an ‘OBE’ in itself.

A definition in which to navigate the rest of the thesis has been established along with a position of mindfulness with how the work is impacted by an eclectic definitional variance on concepts and research on ‘OBEs’. The next stage will be to review the full range of ways in which ‘OBEs’ are acknowledged as being induced.

## **2.2 Circumstances That Induce ‘OBEs’, and the Wider Phenomenology**

In this section, the author will detail physiological states known to produce ‘OBEs’, the range of ‘OBE’ phenomena, and research that explored relationships between the two.

### ***2.2.1 ‘OBE’ Induction States***

In many cases, those who report experiencing an ‘OBE’, describe being on the verge of sleep, or being already asleep shortly before the experience. In such cases, subjects often perceive themselves as being awake but often suggest feeling sleep paralysis (Blackmore, 1982a). Sleep paralysis is a state where, during awakening or falling asleep, a person appears to have a wakeful awareness but is unable to physically move (Sharpless, 2016). Suggesting that perhaps the hypnagogic, hypnopompic states and sleep paralysis provide a physiological state that leads to inducing ‘OBEs’.

‘OBEs’ have also been reported to spontaneously occur in cases of awareness during general anaesthesia, rapid bodily position changes, i.e. motor vehicle

accidents, rapid falling, etc. and extreme fear (Bünning & Blanke, 2005), migraines (Blanke & Mohr, 2005), seizures (Braithwaite et al., 2011; Greyson et al., 2014; Hoepner et al., 2013) and during cardiac arrest (CA) and clinical death (e.g., Moody, 1975; Greyson & Stevenson, 1980; Ring, 1980; Sleutjes et al., 2014). Notably, ‘OBEs’ in general typically occur when the eyes are closed (Giesler-Petersen, 2008),

Moreover, it appears ‘OBEs’ can be induced by the consumption of a number of drugs, most notably but perhaps not exclusively, Ketamine, psilocybin, N,N-dimethyltryptamine (DMT), 3,4-methylenedioxyamphetamine (MDA), tetrahydrocannabinol (THC), mescaline, opium, heroin, and lysergic acid diethylamide (LSD) (Aizenberg & Modai, 1985; Blackmore, 1992, 2005; Griffiths et al., 2006; Grof, 1970, 1972, 1980; Grüsser & Landis, 1991; Lhermitte, 1939; Luke & Kittenis, 2005; Overney et al., 2009; Shermer, 2002; Strassman, 2001; Tart, 1971; Wilkins et al., 2011).

Whilst, as noted previously, ‘OBEs’ often occur spontaneously, there have been a number of induction techniques reported to help induce an ‘OBE’ (Monroe, 1971). These are:

1. Falling asleep physically without losing normal mental awareness is often referred to as “Mind Awake Body Asleep” (Aardema, 2012).
2. Deliberately teetering between awake and asleep states causes spontaneous trance episodes, at the onset of sleep (Bruce, 2009).
3. Hypnotic induction in highly suggestible (HS) individuals (Nash et al., 1984; Pederzoli et al., 2016; Röder et al., 2007). This is achieved via an induction encouraging somatoform dissociation. Somatoform dissociation meaning a disruption of the processes that give rise to bodily sensation, control, and a unified representation of one's own body is used in combination with core

‘OBE’ phenomena suggestions (Cardena, 1997; Nijenhuis, 2004; Maaranen et al., 2005).

4. Deep trance, visualisation, and various meditative techniques. The types of visualisations vary, but generally, they promote the idea of one releasing themselves from their body, followed by floating out and away from one's body (Ophiel, 1961).
5. Binaural oscillations are used to induce specific brainwave frequencies, notably those predominant in various mind awake/body sleep states (Campbell, 2007).
6. Sensory deprivation techniques aimed to induce extreme disorientation by removal of space and time references, often using pink noise and flotation chambers (Nicholls, 2012).
7. Sensory overload is often achieved via the subject being rocked for a long period in a specially designed cradle or submitted to light forms of torture. (Irwin, 1985). ‘Light forms’ meaning stimulation tactile or auditory that should not typically leave physical markers.
8. Strong G-forces lead to blood being drained from various parts of the brain causing extreme disorientation (Newman, 2007).

It is also important to highlight that the dissociative conditions of depersonalisation and derealisation, which often co-occur, have clear links to ‘OBEs’. The symptoms of depersonalisation / derealisation disorders are known to produce these experiences and various ‘OBE’ related phenomena (Simeon, 2004). Together depersonalisation and derealisation are diagnosable disorders as identified in the DSM-V (American Psychiatric Association, 2013).

Depersonalisation symptoms are:

Experiences of unreality or detachment from one's mind, body, and feelings, relating to perceptual alterations in the physical body, e.g., (visual, auditory, tactile, 'OBEs' and not having a self), (American Psychiatric Association, 2013).

Derealisation symptoms are:

A detachment regarding the world where individuals or objects or the world, as a whole, are experienced as distorted or unreal via visual, auditory, or tactile experience (American Psychiatric Association, 2013).

### ***2.2.2 The Wider Range of 'OBE' Phenomena***

The author has previously noted multiple common characteristics of 'OBEs' in section (1.1). However, there are numerous other phenomena, which have been suggested to occur at varying rates during 'OBEs' e.g. (Bulhman, Survey Results n.d.; Alvarado & Zingrone, 2015). Bulhman, (Survey Results, n.d.) conducted a large web survey of 16,185 participants who believed they had an 'OBE' and visited his website and opted in. The Survey is the largest of its kind and results-suggest during a perceived 'OBE', individuals experience and associate a number of other phenomena together with their 'OBE'. It should be noted that these phenomena have also been associated with other experiences and on their own would most likely not be perceived as relating to an 'OBE'. The survey participants associated the following with their 'OBE' experience:

- Experienced a jolt or jerk awake - 98%
- Experienced sounds such as buzzing, humming, or roaring – 85%
- Experienced floating, sinking, or spinning sensations – 82%
- Experienced vibrations or high energy sensations - 56%
- Experienced sleep paralysis - 72%
- Flying in a dream - 81%

- Being touched or lifted - 33%
- Panic attack, overwhelming surge of fear created by strange vibrations or sounds - 46%
- Hearing voices or footsteps - 37%
- Seeing through closed eyelids - 49%
- Lucid dreaming - 79%
- Seeing or feeling the presence of an unknown non-physical being - 22%
- Seeing, hearing, or speaking to a deceased loved one - 24%

Notably, very little research has explored how the induction state potentially impacts the formation of ‘OBEs’.

### ***2.2.3 Research Exploring Potential Relationships Between ‘OBE’ Induction States and the Formation of the Experiences***

As noted, very little research has explored how the induction state potentially impacts the formation of ‘OBEs’.

However, even this small amount of research has provided interesting insight that is worthy of being expanded on. Twemlow et al., (1982) reported that ‘OBEs’ who were in a state of mental calmness had more positive experiences such as feelings of joy, calm, peace, and quiet. Further, those who were mentally calm had more detailed and vivid experiences than those who experienced fear at the time of their ‘OBE’. With the mentally calm group, the experience was seen to have a more dramatic and longer-lasting impact on their lives.

Zingrone, Alvarado, and Cardeña, (2010) found ‘OBEs’ occurring in passive states (compared to active states), and obtained a significantly higher number of ‘OBE’ features on an ‘OBE’ feature index. To do this, each participant was scored on an ‘OBE’ index made up of a number of phenomena that have been documented to



occur during ‘OBEs’ and was allocated 1 point for each answer in the survey, which indicated that they had experienced a certain phenomenon as part of their ‘OBE’. Then to test for a significant difference in ‘OBE’ feature index scores between populations of participants, they were grouped based on certain variables, (e.g. passive state)

Similarly, they found ‘OBEs’ occurring in a supine position obtained a significantly higher number of features compared to the experiences that took place standing (Zingrone et al., 2010). Moreover, Alvarado and Zingrone (2015), using an ‘OBE’ feature index found those who deliberately had ‘OBEs’ scored significantly higher on the index than those who unintentionally had these experiences.

Notably, they also compared scores relating to the level of prior knowledge of the experience. The analysis found those who had greater prior knowledge of ‘OBEs’ did not score significantly higher on the index than those who had less knowledge of the experience.

The results overall indicate that physiological induction factors e.g. body position can influence the formation of ‘OBEs’. The author believes the ‘OBE’ feature index used in these studies can be expanded on to be more specific to the sensory modality of the phenomena being experienced. For example, separate categorised phenomena and questions of did a person (see, feel, or hear) certain information at an abnormal distance as opposed to a simpler did a person perceive at distance. Further, there is space for expansion of the number of phenomena overall, for example, a sensation or visual of spinning, which is found in many accounts of ‘OBEs’ (e.g., Bulhman, Survey Results n.d).

The author suggests the benefits of these forms of expansion would be twofold. The first benefit would be a more detailed picture of the forms of phenomena

occurring within each experience. Secondly, this greater specificity would potentially lead to more refined data analysis pertaining to the phenomena experienced on the index and any relationships they have to other items e.g. induction states, and psychological outcomes. The author created his own expanded ‘OBE’ feature index, which was used for empirical survey research as detailed in Chapter 4. The author’s index can be found in Appendix B as Table B6 and the index used by Alvarado and Zingrone, (2015) and can found in Appendix G as Table G1. This expansion represents an original contribution and advancement to the subject and wider field.

### ***2.3. Concepts of ‘OBES’ and Research on the Corporeal vs. Extracorporeal Nature of the Phenomenon***

Within this section, the author will review the research and theory on the nature/cause/induction and formation of these experiences. The author will start with the psychological research moving through most of the work chronologically. This is aside from for research and theory on the nature of ‘OBES’ stemming from NDE research, and the three most prominent psychological theories on the nature of ‘OBES’ and how they are induced, which will both be discussed after. The author will then cover neurological research and concepts of ‘OBES’ and NDEs accessing what that offers toward the academic understanding of the subject matter.

The following sections (2.3.1 – 2.5) will be important to formulate what is required to move our academic understanding of the nature of ‘OBES’ forward. Moreover, it is important to ascertain if there is adequate research and grounding for there being an extracorporeal component to ‘OBES’. This work will reveal if a further developed theory of the phenomenon would need to incorporate such an extracorporeal component, or if, as things stand, a further developed theory can be

generated setting aside that ‘OBEs’ are in any way a ‘real’ separation of consciousness from the body.

### *2.3.1 Psychological Theories of ‘OBEs’*

The main bulk of theory and research on ‘OBEs’ has taken place in the field of psychology, starting from the 19th century. The majority of 19th-century writers suggested ‘OBEs’ were an illusory-based experience (Brierre de Boismont, 1853; Gurney et al., 1886; Morin, 1860; Tyrrell, 1946). Some writers, like Harrison (1879), were more open to the potential of the mind totally or at least in part leaving the body during ‘OBEs’, pointing to experiences involving what can be termed extra sensory perception (ESP) as evidence of this theory. ESP as highlighted by Sheehy et al., (2002) is a term that means the reception of information not gained through the recognized physical senses but sensed by the mind. Further, they note its use in academic literature became more widespread after it was adopted by psychologist J. B. Rhine in the 1930s (e.g., Rhine, 1934).

Some writers only saw ESP within ‘OBEs’ as a form of telepathic interaction between the people having the experience and the person or persons who become the focal point of the experience. They suggested this telepathic process created an illusion to the person having the perceived ‘OBE’ that they are at the other’s location. Suggesting ESP within an ‘OBE’ did not mean the mind had become externalised from the body (Gurney et al., 1886; Podmore 1894; Sidgwick, 1891).

As we moved into the 20th-century arguments for an illusory nature to the ‘OBE’ became more refined. Hyslop (1912) specifically suggested an ‘OBE’ appeared to be much like what a person can experience in a dream and for that reason was sceptical of the mind actually leaving the body in any form during the experience.

However, Hyslop (1912) suggested it is possible that an 'OBE' was caused by subconscious ESP-acquired information that took the form of a hallucination or dream.

Some writers like Richet (1922) felt ESP-related 'OBE' dream theory was incorrect and considered 'OBEs' as non-psi-based vivid dreams, (psi meaning having a psychic component). However, some writers, like Bret (1939), remained open to the potential of the mind totally or at least in part leaving the body during 'OBEs', and continued to point to 'OBEs' involving apparent ESP as evidence for this. Other writers still focused on ESP within 'OBEs' as a form of telepathic interaction between the individual having the experience and the person or persons who become the focal point (Osty 1933; Tyrell, 1946).

From the mid-20th century, the idea of interpreting the psychological root and nature of the 'OBE' became more popular. The most prominent speculations along psychodynamic lines are as follows:

'OBEs' are hallucinatory expressions of dramatizations of the fear of death and a re-enactment of a birth fantasy (Fodor, 1959). The former means a build-up of subconscious fear and anxiety of dying causing a hallucinatory expression of a dramatization of dying that takes the form of the 'OBE'. The latter means that an unresolved subconscious trauma related to the individual's birth causes a hallucinatory expression of a dramatization of being re-birthed; this dramatization takes the form of the 'OBE'.

'OBEs' are mental representations of personal acceptance. The mental images are caused by the mind at that moment fully accepting itself as a single unique being, whilst fully embracing one's individuality and egoic intricacies, (Jung, 1963).

‘OBEs’ are expressions of archetypal images that exist in a space-less and timeless state (Jaffe, 1963). This means ‘OBEs’ are mental expressions of psychic images from collectively inherited unconscious ideas and patterns of thought that are universally present, in individual psyches. These ideas and patterns are actualized when they enter consciousness as images or manifest in behaviour on interaction with the external world.

Notably, the concepts detailed so far are not based on any grounded empirical work but are developed from psychodynamic ideas or a range of other psychological theories.

Tart (1968), being aware of the speculation and being open to an extracorporeal nature to the ‘OBE’, explored gathering evidence of the mind becoming externalized during the ‘OBE’. He experimented with a participant referred to as Miss Z who claimed to have ‘OBEs’ during her sleep regularly. Tart’s research with Miss Z represents arguably the strongest empirical implication of externalisation of consciousness during an ‘OBE’ among only a handful of others.

Tart had Miss Z go to sleep at night with electrodes attached to measure EEG and eye movements. On the shelf above the bed, a card was placed with a randomly selected five-digit number written on it. Miss Z was tasked with leaving her body during the night, looking at the number from above and remembering it, then reporting it to Tart, ideally immediately after the ‘OBE’. Miss Z claimed to not be able to perceive the number on the first three experiment nights, but on the fourth, claimed to have viewed the number and listed the numbers in the correct sequence. The statistical chance of guessing this correctly on one attempt is less than 0.01%. The probability value, in this case, is arrived at by calculating the number of attempts the participant would need on average, through chance, to detail the numbers

correctly in sequence against the number of attempts that were required. Creating, in this case, a suggested value of ( $P = .0001$ ), meaning it would take an average of 10,000 attempts to be detailed correctly by chance on the first occasion.

Whilst on the surface this seems noteworthy, it should be highlighted that no one was observing Miss Z during the night and she was not visually monitored or recorded via camera, something that was notably criticised (Alcock, 1981). In the author's view not recording Miss Z during the night was a substantial methodological oversight. Palmer (2009) discusses the results of several studies that explored possible externalisation during 'OBEs' and offer evidence of externalisation in '*Psychological Scientific Perspectives on Out-of-body and Near-death Experiences*'. This book is arguably the most significant edited academic source on the range of 'OBE' phenomena and research history. Palmer (2009) acknowledges any attempt from Miss Z to get up and view the number with her eyes would have caused extreme fluctuations in the EEG recording and that no such extreme deflections were noted. However, Blackmore (1986) argues that an appropriate pattern of inference was recorded. Tart (1968) highlights the movement that required Miss Z to cheat and perceive the number with her physical eyes would result in a "tremendous" amount of sixty-cycle artifact. 'Artifact' means a recorded activity that is not of cerebral origin, and sixty-cycle means the electrical hertz level of interference corresponding to the activity. Common causes for Artifacts are physiological such as eye and jaw movements. Notably, on reporting on the EEG activity of the fourth evening, Tart does suggest that the EEG was poor on this night, being obscured with a "great deal" of sixty-cycle artifact and requiring rather heavy high-frequency filtering to make it clear, thus the EEG findings are subject to more error than usual. However, it appears

Tart did not believe the EEG activity recorded was enough to constitute the movement required for the form of cheating mentioned.

Tart (1968) also highlights that a clock in the room was reviewed to possibly have reflected the image of the number to Miss Z's eyes lying in bed. However, it was determined that this was very unlikely given the little amount of light available and the position of the clock. Tart noted that when he shone torchlight onto the clock the reflected numbers could be seen. In the journal and other literature, there is no information confirming how lit the room was when Tart entered the room and placed the number on the shelf with Miss Z already lying in bed hooked up to the measuring equipment. Having discovered the potential clock issue, it would have been worth Tart confirming the level of lighting when he entered the room and how often the torch was used. If extra light was used it would be more plausible that Miss Z did cheat in this way as she could have at least a few seconds to look at the reflective surface of the clock with enough light to reflect the numbers, before the light was then dimmed or removed for sleeping.

Palmer (2009) highlights that even if Miss Z did not cheat (and there are several other cheat methods proposed), the experiment cannot be taken as conclusive evidence of the mind becoming externalised because a similar magnitude of ESP has been shown to occur in RV experiments without a sense of disembodiment (e.g., May 1995).

The speculation on the nature of the 'OBE' continued to gain momentum from the 1960s into the 1970s with the majority of writers continuing to see the experience as a hallucinatory caused within the mind due to a variety of situations. For example, Horowitz, (1970) suggested that the cause of 'OBEs' was due to distortions in body image. Reed, (1974) suggested that 'OBEs' are the results of ego-splitting reactions to

cope with the loss of love. Ehrenwald, (1974) saw an 'OBE' as a form of psychological regression of the ego in response to the concept of death or the threat of dying. Fischer, (1975), suggested 'OBES' were a result of archetypal images.

Morris et al., (1978) tested the idea of using something physical to potentially detect a person's subtler non-physical body during an 'OBE'. The participant for the experiment was Keith Harary, who had suggested he could voluntarily induce 'OBES'. Morris designed an experiment to potentially detect the effect of the experiencer on their kitten, which was contained in a cage in a room that the experiencer was asked to take his non-physical self to. In each of the two independent trials, the kitten, as predicted, was significantly less active and meowed less during the randomly selected projection periods than at adjacent control times. In a second experiment, the kitten, when active, positioned its body in the direction of the apparent extracorporeal self significantly more often than in other directions. From the experiment results, Morris et al, suggested, at the very least, the experiment demonstrated a psi interaction between Harary and the kitten, at a distance.

Palmer (2009) highlights with Morris et al., (1978) that the psi discussed in the experiment is quite similar to ordinary telepathy that has been demonstrated with humans, and also animals, in a non-extracorporeal context. This suggests that perhaps the best example with animals is a series of experiments by Sheldrake, (1999) in which dogs behaviourally anticipated the randomly selected times their owner was about to leave to return home. Thus, the psi discussed cannot be seen as evidence of the mind becoming externalised.

Osis and McCormick, (1980) also looked to test the concept of using something physical to detect an 'OBE'. They used a box called an optical image device to try to detect the potential extracorporeal subtler non-physical body of Dr.



Alex Tanous, who had suggested he could induce an 'OBE' at will. Dr. Alex Tanous was at the time a noted psychic and parapsychologist. In the optical image box used by Osis and McCormick were three stimuli, each of which could be in any one of four orientations. Each target choice was positioned in a way that the three together could only be correctly observed by someone looking through the hole. Also adjacent to the box, was a strain gauge, which is a device, designed to detect physical pressure. The main finding was a significant tendency for the strain gauge to show the greatest deflections when Tanous correctly detailed one of the optical image targets. However, the task was to perceive all three targets simultaneously and detail them together. Perceiving only one target undermines the purpose of the configuration of the optical image device, in that it was supposed to show that the extracorporeal consciousness was looking through the hole perceiving all three stimuli together, seeing the whole target system. Further, the strain gauge would detect the pressure of the subtler non-psychical body as Tanous looking through the hole.

However, Osis reported that from the results of the strain gauge, in combination with the successful amount of hits on the system, it appeared Tanous had left his body and was present at the target location. One methodological issue with the experiment is that the baseline activity of the device was not measured, and Osis did not report the overall hit rate. Blackmore, (1982a) suggested from her calculation of the hit rate from the data that was provided to her that Tanous made no more hits than would be expected by chance and that her calculation demonstrated any hits made were likely due to chance alone and not an 'OBE'.

Palmer (2009) highlights that the success achieved by Tanous with the optical image device is comparable to standard forced-choice ESP, which has been demonstrated many times in non-extracorporeal contexts. Further, Palmer highlights

how influencing strain gauges has also been demonstrated in non-extracorporeal psychokinesis experiments (e.g. Hasted, 1981) and that due to the results of such experiments the results of Tanous cannot be taken as evidence of externalisation of consciousness. Psychokinesis (PK) sometimes referred to as telekinesis is an alleged ability to generate a physical impact on a physical system using only the will of the mind without the intermediation of any known physical energy (Xiong, 2010). Palmer (2009) notably criticises what he refers to as the Osis and McCormick (1980) assumption that the extracorporeal consciousness has a body corresponding to the physical one and indeed non-physical eyes to correspond with the physical eye.

Notably, Palmer (2009) acknowledges Osis and McCormick's (1980) attempt at a simultaneous demonstration of ESP and PK occurring would offer more evidence of externalisation within an 'OBE' than only ESP. Palmer, (2009) suggests, "further experiments of this type would be welcome in their own right, as if successful they would provide stronger, although not conclusive, evidence that ESP and PK are two expressions of the same underlying mechanism." (pp. 163-164).

Despite the purported findings, non-Psi explanations continued to be more commonly proposed. Honegger, (1983) suggested 'OBES' were a result of residual effects of birth experiences. Wilson and Barber, (1983) suggested 'OBES' were simply aspects of a personality that are prone to fantasy.

Notably from the 1980s to the present day, psychological research in relation to 'OBES' has largely focused on the relationships between the 'OBE' and other phenomena in an attempt to gain a greater understanding of the 'OBE'.

The two tables that follow highlight numerous studies that have found a positive relationship and connection between 'OBES' and certain phenomena.

**Table 2.1***Studies Finding a Positive Relationship Between ‘OBES’ and Certain Phenomena*

<b>Phenomenon</b>	<b>Studies</b>
<b>Psychological Absorption</b>	Irwin (1980, 1981); Glicksohn (1990); Alvarado and Zingrone (1997b); Dalton et al. (1999); Parra (2008)
<b>Body Image and Other Aspects</b>	Murray and Fox (2005a, 2005b, 2006a); Murray et al. (2006); Terhune (2006)
<b>Depersonalisation</b>	Steinberg (1995); Alvarado and Zingrone (1997a); Wolfradt and Watzke (1999)
<b>Dissociation</b>	Richards (1991); Alvarado and Zingrone (1997a); Irwin (2000); Gow et al. (2004); Murray and Fox (2005a, 2006b); Parra (2008)
<b>Dreams</b>	Blackmore (1982c); Levitan et al. (1999); Alvarado and Zingrone (1999)

**Table 2.2***Second Table of Studies Finding a Positive Relationship and Connection Between ‘OBES’ and Certain Phenomena*

<b>Phenomenon</b>	<b>Studies</b>
<b>Fantasy Proneness</b>	Alvarado and Zingrone (1994); Gow et al. (2004); Parra (2008)
<b>Hallucinations</b>	McCreery and Claridge (1996a, 2002); Parra (2008)
<b>Hypnotic Suggestibility</b>	Spanos and Moretti (1988); Pekala et al. (1992); Kohr (1980)
<b>Parapsychological Experiences</b>	Alvarado et al. (1998–1999); Alvarado and Zingrone (1999); Alvarado & Zingrone (2007–2008)
<b>Schizotypy</b>	McCreery and Claridge (1996b); Wolfradt and Watzke (1999); Parra (2008)
<b>Trauma</b>	Irwin (1996)

Tressoldi et al., (2014) also found positive results for veridical perception during hypnotically induced ‘OBES’, meaning verifiable perception of information coinciding with testable reality, which could not have been obtained by any natural means.

In the experiment, participants were taken through a hypnotic induction with suggestions related to having an 'OBE'. The participants were then asked to visit, observe and describe remote targets. The subjects were somewhat unclear about their perceptions; however, two independent judges confirmed that they correctly identified 66.7% of the targets. This is a figure, which is significantly higher than the 25% expected due to chance. However, the author suggests the results cannot be taken as conclusive evidence of externalisation because similar ESP has been shown to occur in non-externalisation remote viewing experiments (e.g., May 1995).

The bulk of the psychological concepts and research relating to the nature of 'OBES' has been reviewed. Due to the acknowledged link of the phenomenon being a core component of NDEs it is now important to review the research and theory exploring the nature of NDEs, which contextualises this work within the context of the thesis.

### ***2.3.2 Research Exploring an Extracorporeal Component to NDEs***

Notably, there are also a small number of experiments exploring a potential extracorporeal component to NDEs. A study involving 344 cardiac arrest survivors from 10 hospitals over a 2-year period found 12% reported experiences that could be classed as an NDE. One patient reported a sensation of separating from the body and observing the events from his resuscitation with the accuracy of his claims being corroborated by hospital staff (Van Lommel et al., 2001).

Two other studies have indicated conscious awareness might occur in the absence of brain functioning. One of the studies again indicated experiences in relation to cardiac arrest may not be hallucinatory via a patient suggesting they had separated from their body and observed events occurring around them. This was again in conjunction with hospital staff, corroborating the accuracy of her claims,

(Beauregard et al., 2012; Parnia et al., 2014) with Parnia et al., (2014) claiming a verifiable period of conscious awareness lasting ~3–5 min during cardiac arrest/stand still. It is worth noting however, the Parnia et al., (2014) study had set up resuscitation and operating rooms with shelves containing targets that would be possible to see only from an elevated perspective, which is often described by ‘OBEs’. However, from the 2% of the patients in the sample with explicit recall of “seeing” and “hearing” actual events related to their resuscitation, none of them could report seeing the targets.

The author suggests there are clear potential methodological weaknesses with this setup in that it assumes four things. Firstly, the ‘OBE’ will feature floating above the physical body and looking back down at the body. From reviewing the majority of surveys on ‘OBEs’, it is clear that the occurrence of this exact phenomenon during an ‘OBE’ varies greatly and it is unclear if there are certain reasons for its inclusion or absence during an ‘OBE’. Secondly, it is unclear if NDE-induced ‘OBEs’ are fruitful in forming the floating above phenomenon. Thirdly, it is possible information relating to targets would not be understood as significant compared to events related to their resuscitation and due to this the targets are not focused on or remembered. Lastly, it assumes the ‘OBE’ world corresponds exactly to the physical world from which that person appears to have become somewhat detached.

There are some interesting cases of blind people reporting visual experiences, (nearly half of them blind from birth), who during NDEs, experienced quasi-visual and sometimes the apparent veridical perception of objects and events. Some of these patients reporting that while out of the body, they became aware of events occurring at a distance beyond normal sensory perception (Ring & Cooper 1997). There are also interesting cases of “Peak of Darian” experiences where the person having a near-

death ‘OBE’ communicates with a person, who they were not aware, is deceased (Greyson, 2010).

Further, it was found in a review of over 90 reports of potentially verifiable out-of-body perceptions that occurred during NDEs that a large number of them had been subsequently corroborated by an independent informant (Holden, 2009). However, as these reports did not take place in controlled settings what they offer towards our academic understanding of ‘OBEs’ is quite limited evidence of externalisation of consciousness during NDEs. Ultimately, the evidence of externalisation during ‘OBEs’ remains lacking albeit with some interesting results in places and interesting methodologies that could be improved upon.

The author suggests at present these (potentially) deeper mysteries to conscious experience during ‘OBEs’ can be left to the side waiting for a more evolved neuropsychological theory on the induction and formation of these experiences to further ground our understanding of the phenomenon. This needs to be achieved in parameters easier to measure and establish, whilst theory that could account for externalisation of consciousness during ‘OBEs’ is further explored in time with any development of quantum consciousness approaches (e.g., Hameroff & Chopra, 2012).

Thus, moving forward in this thesis, when developing a theory of ‘OBE’ induction and formation the author will be setting aside that ‘OBEs’ are in any way a ‘real’ separation of consciousness from the mind, with a stance that at present an extracorporeal component to ‘OBEs’ does not need to be factored into a further developed theory of the phenomenon.

### ***2.3.3 Psychological Theory and Research on the Nature of NDEs***

This research is being included due to ‘OBEs’ nearly exclusively being found to be one of the main traits of an NDE (e.g., Morse & Perry, 1994). Thus, theory on

the induction and formation of NDEs, along with purported contextual factors can offer potential insight to these aspects of the 'OBE'.

In connection with NDE research and psychological theories of the experiences, there have been several notable suggestions. It has been suggested the phenomenon may be the result of false memories from the mind trying to retrospectively fill in a gap in awareness and experience after a period of unconsciousness (French, 2001). It has been proposed that NDEs are memories that originate from the experience of being born (Grof & Halifax, 1977, Sagan, 1979). Whilst both these concepts are interesting, currently they ultimately lack empirical data to ground them and a detailed explanation of the range of phenomena experienced as part of an 'OBE'.

Furthermore, there is the suggestion that there is a certain psychological influence on NDEs, and it is at least, in part, the cause of some related phenomena. This influence is the suggestion that when facing a life-threatening situation, as a defensive mechanism an individual disconnects from the external world and mentally immerses themselves into an internally generated fantasy to make their experience less distressing. This process is suggested to minimise potential psychological damage, and in turn, maximises continual human productivity (e.g. Greyson, 2000; Noyes & Slyman, 1979).

This concept certainly has some basic merit in that dissociation, as a psychological form of flight response even to the point of being out of the body during extremely traumatic events, is not seen as uncommon and might be important to limiting trauma as has been acknowledged in incidences of sexual abuse, (Fredrickson, 1992). The author suggests the concept of conscious or subconscious desire for dissociation being a factor in 'OBE' induction and formation should be

incorporated within further developed future theories to ‘OBE’ induction and formation. This is something the author does within Chapter 3.

#### *2.3.4 Contextual Factors to NDEs*

Research has shown that NDE phenomenology appears to reflect the system of beliefs and expectations of the experiencer on the process of dying and a possible afterlife e.g. (Appelby, 1989; Belanti et al., 2008; Blackmore, & Troscianko, 1989; Greyson, 2006; Kellehear, 2008; Knoblauch et al., 2001; Owens et al., 1990; Pasricha, & Stevenson, 1986).

Timmermann et al., (2018) highlight there is some evidence that NDEs appear to be influenced by contextual factors such as prior psychological traits, set (i.e. the expectations, motivations, and intentions of the individual), and setting (i.e. physical and interpersonal environment relating (Greyson, 2003a; Kohr, 1983).

Moreover, it appears NDEs and psychedelic experiences appear to have a similar sensitivity to the contextual factors (Metzner et al., 1965; Studerus et al., 2012) along with a sensitivity to the cultural context in which they are embedded (Wallace, 1959; Hartogsohn, 2017; Carhart-Harris et al., 2018).

Overall, if we accept that contextual factors such as, set, and setting have an impact on the phenomena experienced during NDEs and psychedelic experiences, we must accept it is likely that these items also impact ‘OBEs’ that occur outside of near-death and psychedelic states.

Charland-Verville et al., (2018) note that ‘deeper’ NDEs have been observed in women but only in one study (Van Lommel et al 2001), with deeper meaning expressing greater phenomenological abundance. Further, it appears that a number of demographic variables have not been shown to influence the frequency of reported NDEs, these being:



- Ethnicity.
- Education level.
- Social class.
- Prior psychiatric disorders.
- Suicidal behaviour or family history of suicide.
- Religiosity.

A study indicated people who have experienced childhood abuse or trauma from the home environment are more likely to have experienced NDE phenomena. This raises the notion that perhaps those who have naturally been prone to elements of fantasy and disassociation, brought on as a defence mechanism in times of crises, are better skilled at creating a dissociated environment during a near-death situation (Ring & Rosing, 1990). However, there was a methodological issue with this research.

Blackmore (1993) correctly highlights an issue with the methodology of Ring and Rosing, (1990) in that the appropriate control group to compare, to formulate such conclusions, would be a group of individuals who came close to death but did not experience an NDE, and not a group who were only interested in NDEs.

It is worth noting that research using the memory characteristic questionnaire (Johnson et al., 1988) demonstrated that when comparing the content of NDE memories with imagined and real-life events memories, NDEs are richer than both types of memories in terms of sensorial, contextual, emotional and self-related characteristics (Thonnard et al., 2013).

Authors have argued that NDEs would be culturally determined phenomena reflecting cultural and social influences (Belanti et al., 2008). Reviewing the research, it appears that there are clear cross-cultural similarities but greatly divergent imagery content. This is, for example, highlighted by Schröter-Kunhardt (1993) who

concluded that NDEs exhibit cross-cultural similarities of form, despite considerable diversity of imagery and content, that is, recurrent motifs, composite imagery, and a series of sequential events. The author suggests these findings are notable in that the different motifs and imagery related to cultural influence would theoretically have an impact on the formation of phenomena experienced during any 'OBE'. This divergence in NDE content has also been specifically linked to the influence of religiosity and cultural background in a recent study (Belanti et al., 2008). It has been acknowledged that specifically Western experiencers might describe a presence of spiritual entities during NDEs as 'guardian angels', whereas Hindus might see them as 'messengers of the god of death' (Kellehear, 2008; Pasricha & Stevenson, 1986).

For example, Salteaux Indian NDEs have also specifically been found to contain different motifs that are divergent from typical western NDEs, such as the vision of tipis (Hallowell, 1940). It has been highlighted that a life review and tunnel vision phenomena may be culture-bound, confined mostly to societies where historic religions are most prominent (Kellehear, 1993). Authors have suggested from reviewing NDE accounts before 1975 that the tunnel vision feature is a cultural addition that is not integral to NDEs (Athappilly et al., 2006).

A divergence in belief relating to phenomena that occurs within NDE states is echoed within the only study the author can find an exanimating cross-cultural influence on specifically general ('OBEs') where only some of the experiences occurred in a near-death state (Sheils, 1978). The study explored specifically beliefs about 'OBEs' in 70 non-Western cultures, finding that such beliefs appear in about 95% of the world's cultures and could be considered quite uniform as a whole. However, there were from some divergent beliefs relating to what the 'OBE'

phenomena exactly was or represented e.g., the nature of entities, the places travelled to (Sheils, 1978).

The author suggests the research in this section (2.3.4) indicates that prior psychological traits (set) and other contextual factors of (setting) are factors in ‘OBE’ induction and formation, which means they should be incorporated within further developed future theories to these parts of ‘OBES’. This is something the author does within Chapter 3.

### ***2.3.5 The Three Most Prominent Theories of ‘OBES’***

There are arguably three most prominent psychological theories of the ‘OBE’. The first of these is Palmer, (1978b) who suggested ‘OBES’ resulted from a reduction of proprioceptive information from the body, which leads to changes to the “body concept” that in some incidences triggered the ‘OBE’. Relating this hypothesis to Freudian theory, Palmer suggested that the individual’s change in body concept threatened their sense of identity or self-concept. Moreover, due to this threat, Freudian unconsciousness primary processes are theorised as activated in an attempt to re-establish one’s sense of personal identity. This manifests as an attempt at body-concept reintegration that sometimes formulates an ‘OBE’.

However, as noted by Murray, (2010) Palmer’s theory does not account for why some people are more prone to having an ‘OBE’. This is because Palmer, (1978b) does not explain the cause beyond a few general circumstances that surround the ‘OBE’. For example, being on the verge of sleep or being in a relaxed state, perhaps, in some cases under physical or psychological stress. Palmer suggests these states can cause an ‘OBE’ due to reduction or changes in body image from the former and psychologically conducive settings that could encourage a mental construct of

separation from the body, e.g. the threat of death and an adjoining concept of separation of the soul upon death.

The second of the most prominent theories is posed by Blackmore (1984b), who suggested 'OBEs' are related to an individual's cognitive system involved in creating models of reality based on internally generated cognitive maps, which refers to a hypothetical internal representation of the physical world around us based from sensory input and memory. Blackmore suggests that various other models could also be created using the internal resources of the individual. However, only one model could be used by the cognitive system, at one time, and the model used would be the one that is most coherent and stable at that moment. Furthermore, when certain conditions such as sensory deprivation, stress, anxiety, etc., distort and disrupt the sensory input model of reality, other models of reality take over the system, models based on cognitive maps from resources relating to memory and imagination. Moreover, if this illusory-based model of reality becomes stronger than the one based on sensory input, it is adopted by the system in such a way that it appears to the individual as the present view of reality.

Overall, 'OBEs' may be incorrectly adopted models of reality during disrupted sensory input where the model has shifted to one built from memory and imagination, likely forming a cognitive map seen in a bird's-eye view, as common with imagination. This led Blackmore (1984b) to speculate that 'OBEs' might have better imaginary skills than non-experiencers although it has been acknowledged research investigating this concept provides mixed results, (Alvarado, 2000; Murray, 2010).

It appears there are no clear differences in measures of imagery between 'OBEs' and non-experiencers when reviewing studies that have used the Vividness of Visual Imagery Questionnaire (Alvarado & Zingrone, 1994; Irwin, 1980,

1981,1985), the Betts' Questionnaire on mental Imagery Blackmore, (1982b), the Gordon's Control of Imagery Questionnaire (Blackmore 1983b, Irwin 1985), and the Necker Cube Fluctuation Test of imagery (Cook & Irwin, 1983).

Furthermore, it appears there are no clear differences in measures of imagery between 'OBEs' and non-experiencers when reviewing studies that used visualizer and verbalizer coding styles (Irwin 1980, 1985; McCreery, 1993), or explored possible connections between control imagery and 'OBEs' (Blackmore (1987), hypnagogic imagery and 'OBEs' (Blackmore, 1983a; Glicksohn 1989, 1990; McCreery & Claridge 1996a) and likewise for hypnopompic imagery (Glicksohn 1989, 1990). Hypnagogic is the state between being awake and falling asleep. Hypnopompic is the state between being asleep and waking (Waters et al., 2016). This research indicates that Blackmore's (1984b) thought that 'OBEs' might have better imaginary skills than non-experiencers is likely incorrect.

Relatedly, Blackmore, (1993) proposed NDE phenomenology might be influenced by the mixing of information available during the occurrence, remaining information from the standard functional senses of the experiencer, prior knowledge, sociocultural background, fantasies, and dreams. Further, Blackmore, (1996b) suggests NDEs and 'OBEs' have various core characteristics based on underlying physiological causes but once this altered state of consciousness has been induced by the physiological causes, the hallucinations experienced are then influenced by our sociocultural background and memories (Blackmore, 1996b, 1996c). Blackmore, (1996a) highlights two specific potential physiological components to NDEs. Firstly, tunnel vision and the perception of bright lights as potentially being linked to the loss of bilateral peripheral visual field and retinal ischemia. Secondly, the limbic system,

which is associated with emotional processing and memory, might cause life review experiences (Blackmore, 1996a).

These concepts lack empirical evidence, but the hypotheses of ‘OBEs’ being an experience caused by physiological sensory disruption to internal cognitive maps was a significant new theoretical concept introduced to the literature on ‘OBEs’ by Blackmore. This as a general concept can be found to have some further evidence within section (2.4) of this thesis. However, before the author’s later development within this thesis of a new further developed theory of ‘OBEs’ presented in Chapter 3, the base of Blackmore’s theory was lacking in further neuropsychological development and grounding.

Blackmore also acknowledges that when ‘OBEs’ are initiated via physiological sensory disruption the experiences are influenced by what can be referred to as differences in set and setting (Blackmore, 1984b). As acknowledged in section (2.3.4) this concept has merit in research and should be included in future further developed theories on ‘OBE’ induction and formation. This is something the author does in Chapter 3.

The third of the most prominent theories was put forward by Irwin (1985), who initially proposed that ‘OBEs’ occur when somatic and external sensory information is disrupted, producing a sensation of disconnect from the body, followed by an abstract perception of a disembodied consciousness, which through a process of synaesthesia is transformed into a visual image. Irwin (2000) later added to the theory based on the results of his logistic regression analysis involving 113 psychology students with an ‘OBE’ incidence rate of 38.9 percent, where he administered a Somatoform Dissociation Questionnaire. Somatoform dissociation proved to be the only predictor variable from the study, which included data for age, gender,

dissociative experiences, and psychological absorption. Irwin (2000) concludes that ‘OBEs’ occur as a result of dissociation from somatic input with simultaneous occurrence of high levels of psychological absorption.

This research further highlighted people who have experienced ‘OBEs’ have a high capacity for psychological absorption. Moreover, people with high levels of psychological absorption are perhaps more susceptible to experimentally-induced ‘OBEs’ (Irwin 1985, and 2000). Specifically, Irwin (2000) suggests that dissociation from somatic input with simultaneous occurrence of high levels of psychological absorption promotes a sense of the individual’s consciousness no longer being confined within the body, leading to the cognitive processing of a static floating self and the ‘OBE’. Further, through a process of synaesthesia and providing the experiencer with basic visuospatial ability, this somaesthetic image can be transformed into a visual experience.

Importantly, Irwin (2000) indicates that within his theory ‘OBEs’ might occur not just in the lack of sensory input but also from amplified sensory input such as pain, as appears to be common in ‘OBEs’. However, the theory lacks important detail on the mechanisms of ‘OBE’ induction and the cause for variation in induction and formation.

The author suggests that the research evidence is strong enough that the concept of psychological absorption being a factor in ‘OBE’ induction and formation should be incorporated within future further developed theories of ‘OBE’ induction, and this is something addressed in Chapter 3.

Murray (2010) highlights a proposed breakdown between sensory input and experience of this lack of input is central to all 3 of the main theories to ‘OBEs’. Noting that Irwin’s (2000) proposal is a fruitful newer line of enquiry and suggests a

pre-existing and potentially long-term difference between those who have not had and are unlikely to have an 'OBE' in comparison to those who have had an 'OBE' or are likely to. Furthermore, a number of studies have found a positive correlation between psychological absorption, which is in itself dissociative, and 'OBES' e.g. (Dalton et al., 1999; Glicksohn, 1990; Irwin, 1980; Murray & Fox, 2006b) and dissociation and 'OBES' e.g. (Alvarado & Zingrone, 1997; Murray & Fox, 2006b; Richards, 1991; Zingrone & Alvarado, 1994). Murray (2010) details that he and his colleagues have built upon Irwin's (2000) dissociational theory suggesting 'OBES' are most likely to occur in people who have an unusually weak sense of embodiment and are characterised by a general dissociation between their self and body (Murray & Fox, 2004; 2005a; 2005b).

Murray (2010) further notes that whilst Palmer (1978b) and Blackmore (1984b) suggest body image disturbance as an immediate precursor to 'OBES', he proposes there is an everyday qualitative body image difference between people who experience 'OBES' and those who do not. Respondents to an online questionnaire who reported having previously had an 'OBE' scored higher on measures of somatoform dissociation and that amplified sensation contributed significantly to a relationship between somatoform dissociation and 'OBES'. Further, 'OBES' had a significantly increased focus on the private or inner self and have a greater dissatisfaction with their bodies and lower confidence in the presentation of physical skills (Murray & Fox, 2004; 2005a).

A subsequent study of 64 participants, 34 of whom had previously experienced an 'OBE', found 'OBES' scored significantly higher on somatoform dissociation, were significantly more dissatisfied with their bodies, and scored significantly lower on physical self-presentation (Murray & Fox 2005b). Murray,



(2010) considers these studies to be evidence indicating that ‘OBers’ and non-experiencers have pre-existing differences in body image, which help to explain why some people are more prone to ‘OBEs’ than others. That said, the author of this thesis notes in Murray & Fox’s research (2004; 2005a; 2005b) it is not possible to tell if the experiencers had these body image differences before their ‘OBEs’ or if they are an outcome from the experience, if not at the very least accentuated by the ‘OBEs’. Thus, this methodological issue needs addressing for a further grounding on these concepts and addressing these concepts did not fit in within the research of this thesis, as doing so in the author’s opinion would require extensive experimental induction of ‘OBEs’ in a highly controlled setting.

### ***2.3.6 The Three Major Tasks for A Further Developed ‘OBE’ Theory***

Reviewing the theory on ‘OBE’ induction and formation so far and setting aside that the experiences are in any way a ‘real’ separation of the mind from the body, the author suggests that there are three major tasks facing academics theorizing on the nature of phenomenon. A further developed theory would need to explain:

- How these experiences can occur in all of the diverse sets of induction states and what are the accompanying foundational neurological mechanisms?
- What differentiates people who experience an ‘OBE’ from those who do not, in the same circumstances? For example, in the study of Greyson et al., (2014) patients who did and did not report ‘OBEs’ are comparable in their seizure histories, including epilepsy syndrome, epilepsy aetiology, and seizure type.
- Why might a person have an ‘OBE’ in a certain physiological state one day and not the next?

These will be referred to as tasks 1, 2, and 3 respectively throughout the remainder of the thesis.

### ***2.3.7 Do the Prominent Theories Address Tasks 1, 2, and 3?***

- *How these experiences can occur in all of the diverse sets of induction states and what are the accompanying foundational neurological mechanisms?*

Blackmore's, (1984b) and Irwin's (2000) theories only detail how these experiences occur across all the induction states from a standpoint of the 'OBE' being initiated via 'disruption' in sensory processing.

Palmer's (1978b) theory is similar apart from an acknowledgment of a few general circumstances that surround some 'OBEs'. For example, being on the verge of sleep and in some cases under physical or psychological stress. These occurrences are seen to cause an 'OBE' due to a reduction or change in body image and when coupled with psychologically conducive settings that could encourage a mental construct of separation from the body, e.g., the threat of death and an adjoining concept of separation of the soul upon death induce an 'OBE'. However, after reviewing the literature (e.g. Blackmore, 1982a) it is clear many 'OBEs' occur when there is no threat of death, (at least on a conscious level). Notably, Palmer's suggestion and focus on unconscious threats to identify as being able to induce 'OBEs' has a handicap of being exceedingly difficult to test empirically as acknowledged by other researchers (e.g., Alvarado, 2000). All three aforementioned theoretical approaches do not highlight an in-depth view of how the sensory disruption occurs within the brain and any foundational neurological mechanisms, although it should be acknowledged the theorists did not seek to establish such mechanisms at the outset.

Blackmore (1996a) noted potential physiological components for two phenomena experienced at times within 'OBEs'. She suggests tunnel vision and the perception of bright lights could be linked to the loss of bilateral peripheral visual

field and retinal ischemia, and the limbic system, which is associated with emotional processing and memory, might cause life review experiences. However, both these concepts are lacking in empirical evidence, leaving a plethora of ‘OBE’ phenomena unexplained along with foundational neurological mechanisms for the phenomenon itself and its core component of dissociation from the body.

Blackmore (2017a) has more recently appeared to interpret the results of Blanke et al., (2002) to suggest that all ‘OBEs’ are hallucinations related to sensory processing in the temporal-parietal junction (TPJ) in connection to her theory of disruption to cognitive maps. However, this remains a most basic neurological link, and Blackmore does not elaborate on how disruption of the TPJ could lead to the experiences occurring within the greatly diverse set of ‘OBE’ induction states.

Nicholls, (A Conversation with Skeptic Susan Blackmore, n.d.) remains notably sceptical of how much the phenomena found by electrical stimulation studies like that Blanke et al., (2002) truly offer to the understanding of the nature of the ‘OBE’.

Nicholls states these studies “show a relationship exists between brain function and our experiences of places, people and ourselves - a discovery that hardly seems revolutionary.” The author of this thesis takes the position that Blanke et al., (2002) produced interesting and relevant ‘OBE-type’ experiences that offer valuable insight into potential neurological ‘OBE’ mechanisms, however, do not constitute full ‘OBEs’ and should not be categorised as such.

Whilst within the work of Blanke et al., (2002), there appears to be a link between transcranial magnetic stimulation of the TPJ and ‘OBE-type’ experiences, there is no solid evidence that disruption on the TPJ alone can cause full or partial ‘OBEs’ in all circumstances or even any circumstance. The author suggests that TPJ disruption is likely a piece of the puzzle but far from an answer to task 1 on its own.

- *What differentiates people who experience an 'OBE' from those who do not, in the same circumstances?*

Palmer's (1978b) theory does not account for why some people are more prone to having an 'OBE' outside of a potential divergence amongst individuals in psychological reaction to a reduction in body concept, the threat of death and potential loss of identity. Blackmore's (1984b) theory tries to account for this differentiation via experiencers having better imaginary skills than non-experiencers. As noted in section (2.3.5) research investigating this concept has provided mixed results.

Notably, Blackmore, (1984b) also tries to account for the differentiation via differences in set and setting, which is supported by numerous studies as detailed in section (2.3.4). However, the author suggests the range of these differences and the degree of impact require being developed and understood further beyond what has been put forward.

Irwin's (2000) theory suggests experiencers who have a greater propensity towards psychological absorption and stronger ability in this way are more likely to experience 'OBEs'. This is an assertion that is supported by numerous studies that have found a positive correlation between 'OBEs' and psychological absorption (e.g., Alvarado & Zingrone, 1997b; Dalton et al., 1999; Glicksohn, 1990; Irwin, 1980, 1981; Parra, 2008). However, in the author's view it appears within the data it is very unlikely that this accounts for all variances.

Likewise, the research highlighted by Murray, (2010) indicating a weak sense of embodiment within 'OBEs', is unlikely to account for all variances.

- *Why might a person have an 'OBE' in a certain physiological state one day and not the next?*

All three main theories Palmer, (1978b), Blackmore, (1984b; 1996b; 1996c) Irwin, (1985; 2000) and Murray's (2010) additions to Irwin's theory do not adequately address the challenges of task 3. These theories only address task 3 somewhat vaguely, and indirectly through a potential change in the strength of the somewhat vague factors listed for tasks 1 and 2.

Overall, there has been little development of the three theories since their inception.

The author will now review the neurological work on 'OBEs' and NDEs to explore if there are any clues within this work that can offer insight into 'OBE' induction and formation theory and the three tasks highlighted by the author. To affirm the author suggests better addressing these tasks is what is required for a further developed theory of the nature of 'OBE' induction and formation, which is the next logical step in research on the nature of these experiences.

#### **2.4 Neurological Correlates of 'OBEs' and NDEs**

In this section, the author will review the neurological correlates of 'OBE-type' experiences and evaluate if they provide any clues to the three tasks to move 'OBE' induction and formation theory forward.

From a neurological perspective, Aspell et al., (2009) relate to the self as a multifaceted entity suggesting there are three aspects to bodily self-consciousness, these being ownership, self-location, and visuospatial perspective. The conventional bodily self includes the representation of an owned body, the sense of self being localized within the owned body, which leads to a sense of embodiment at a definitive location in space. (Arzy, Seeck et al., 2006; Aspell et al., 2009; Ehrsson, 2007; Lenggenhager et al., 2009; Lenggenhager et al., 2007; Petkova & Ehrsson, 2008).

Neurological investigation into ‘OBEs’ has found a potential relationship between ‘OBEs’ and various generalised and focalised diseases of the central nervous system. ‘OBEs’ connected with focalised damage generally occur in cases of traumatic brain injury, epilepsy, vascular brain damage, and migraine (Devinsky et al., 1989; Kölmel, 1985; Lippman, 1953; Todd & Dewhurst, 1955). Aspell et al., (2009) suggest generalised neurological aetiologies include epilepsy, cerebral infections, and intoxication citing numerous relevant studies (Blanke et al., 2004; Brugger et al., 1997; Dening & Berrios, 1994; Devinsky et al., 1989; Hecaen & Ajuriaguerra, 1952; Lhermitte, 1939).

Smith and Messier (2014) conducted the only functional magnetic resonance imaging (fMRI) study on an individual who was able to induce an ‘OBE-type’ of experience involving a mixture of visual imagery and kinaesthetic imagery relating to being in a location above their physical body. However, the individual did not perceive herself as being above her body, instead, she perceived her whole body moving up and did not appear to experience a strong sense of disembodiment. Smith and Messier (2014) found that the brain functional changes associated with the reported experience were different from those observed in motor imagery. Motor imagery is when individuals imagine themselves performing a movement without actually performing it or tensing the muscles. They concluded the experience reported represents an unusual type of kinaesthetic imagery that shares some features with previously described ‘OBEs’ and some features of more typical motor imagery.

The kinaesthetic component of the ‘OBE-type’ experience was most prominent. The prominence of kinaesthetic experience over the visual experience was consistent with a strong bilateral deactivation of the lingual gyrus and cuneus encompassing the primary visual cortex. Further, activations were mainly left-sided

and involved the left supplementary motor area, supramarginal, and posterior superior temporal gyri. The cerebellum also showed strong activation consistent with the participant's report of the impression of movement during the experience (Smith & Messier 2014).

Most notably Smith and Messier (2014) reported the TPJ activation that was observed during the 'OBE-type' experience was consistent with patient cases that report autoscopia, and 'OBEs' when the functional integrity of that area is altered (e.g., Blanke, 2012; Blanke et al., 2004; Blanke & Mohr, 2005). Overall, more research examining brain activity during an 'OBE' via fMRI is needed and is currently a gap in the literature.

Ultimately there remains no consensus within neurology the author can identify on whether the left or right hemisphere is more involved in an 'OBE', partly due to some researchers finding no hemispheric predominance (Denning & Berrios, 1994; Devinsky et al., 1989; Hecaen & Ajuriaguerra, 1952). However, some researchers suggest that the right hemisphere is more implicated (Brugger et al., 1997; Grüsser & Landis, 1991; Blanke et al., 2004). Blanke and colleagues suggest that their transcranial magnetic stimulation research demonstrates 'OBEs' are reliably associated with lesions in the right TPJ region (Blanke et al., 2004; Blanke et al., 2002; Blanke & Mohr, 2005). However, the use of the term 'OBE' in this incidence was seen as eccentric by Greyson et al., (2014) and the author of this thesis as noted in section (2.1.4). Aspell et al., (2009) highlight how electrical stimulation of the right TPJ region can cause 'OBE-type' experiences, (Blanke et al., 2002; De Ridder et al., 2007; Penfield et al., 1942) and that the right TPJ is activated during experiences of mental imagery of disembodied self-location (Arzy, Thut et al., 2006).

Persinger et al., (2010) suggest that through very weak transcranial magnetic stimulation (TMS) of the temporal lobes, communication between the left and right senses of self are disturbed. Further, this disruption causes mystical and altered states, an 'OBEs' being one such state. However, the author of this thesis found the use of the term 'OBE' to describe the phenomena as an eccentric use as detailed in section (2.1.4) and the conclusions provided in this study are limited in being based a single participant.

Granqvist et al, (2005) attempted to test Persinger's TMS helmet design to test and found no positive result. They also criticised the original experiment methodology of Richards, Persinger and Koren (1993) and suggested the results of the original experiment were down to improper blinding and the participant's suggestibility. Blinding being the process by which information that has the potential to influence study results is withheld from one or more parties involved in a research study.

Persinger, (2005) responded to Granqvist et al., (2005), suggesting that their replication was technically flawed as the fields used in the Granqvist research may not have been appropriate for eliciting a neurological response.

Schutter et al., (2006) followed a similar route in testing TMS over the cerebellum and reported an illusion that was classified as belonging to the class of 'OBEs', in which the patient felt her body falling sideways out of her chair, but did not describe any visual impressions associated with 'OBEs'. Aaen-Stockdale, (2012) later reviewed Persinger's TMS work also suggesting it is fundamentally flawed, and that it is not an actual example of TMS because the magnetic fields detailed, are too weak to penetrate the cranium.



Tinoca and Ortiz, (2014) sought to test Persinger's TMS concept and whether suggestion was a factor in Persinger's earlier work. They believed they succeeded in replicating the effects seen in Richards et al., (1993). Further, the results of their version of the experiment that used a control group and participants, with and without prior expectation, indicated that suggestibility was not the cause of the experiences. Importantly, none of the twenty participants in this study experienced a single common core characteristic of the 'OBE'.

Tinoca and Ortiz's, (2014) result indicating suggestibility is not the cause of apparent TMS experiences is far from conclusive. A link between suggestibility and people who report having an 'OBE' has been found elsewhere in that highly suggestible individuals report a greater prevalence of 'OBES' than people with low suggestibility (Kumar & Pekala 2001). Moreover, it has been found that individuals reporting spontaneous 'OBES', in their daily lives, exhibit increased hypnotic suggestibility (Spanos & Moretti, 1988). Further, that self-reported somatoform dissociative symptomatology, meaning, self-reported symptoms of dissociation from the physical body, which occurs more frequently in highly suggestible individuals could potentially significantly discriminate between individuals who have experienced 'OBES' and those who have not (Irwin, 2000).

Research on the vestibular system has provided some interesting insight into a possible explanation for the 'OBE' phenomenon or sense of 'floating away' from the location of the physical body. The vestibular organs, which are located within the middle ear, are known to be essential in contributing to our sense of ego-centric space, via processing information on linear and angular accelerations, head tilt, and direction of the force of gravity (Brandt & Dieterish, 1999; Gresty et al., 1992; Mittelstaedt, 1991, 1999; Tiliket et al., 1996).

Schwabe and Blanke (2008) note signals from the otolithic area of the vestibular system are inherently ambiguous and the way the brain performs this computation is somewhat unclear. However, it is likely that to estimate self-motion, the brain integrates vestibular bottom-up and top-down signals (MacNeilage et al., 2007). Bottom-up signals are signals cued by external sensory stimulus, are ambiguous for almost every sensory system and need to be disambiguated based on previous experience (e.g. Poggio et al., 1985). Top-down signals are signals related to information based on knowledge gained via previous experience.

Shwabe and Blanke (2008) investigated if a Bayesian inference can account for disembodied and elevated self-location during ‘OBEs’. Bayesian inference is a mathematical theory rooted in logic and statistics. In the model, you use probability to represent all uncertainty within the model, both the uncertainty regarding the output but also the uncertainty regarding the input. Notably, in a Bayesian model probability expresses a degree of belief, which may be based on prior knowledge about the event, such as the results of previous experiments, or on personal beliefs about the event (Cox, 1961; Jaynes, 2003). Shwabe and Blanke (2008) indicated that the Bayesian approach was selected due to its ability to formalize the brain’s task of inferring the location of the body and other objects in the world based on ambiguous and noisy sensory signals in terms of values of hidden variables that cannot be measured directly e.g. the orientation of the head relative to gravity.

To obtain quantitative estimates of the top-down prior experience information for the upright position, nine subjects were instructed to perform three natural movements for four to five minutes each.

Subjects were wearing a headband, on which infrared markers were mounted. Each condition started with a period of five seconds, during which the subjects were

standing and looking straight ahead. The time-averaged three-dimensional coordinates of the markers recorded during this period were then used as the base pose. Using this system, they measured for each time, the translation and rotation of the recorded marker position relative to the base pose.

They found a mismatch between the actual body position and an internally assumed upright body position can lead to illusory self-translations due to the otolithic ambiguity. Their data suggests that subjects who use a top-down acceleration prior experience corresponding to, for example, rapid sport-like movements may experience illusory self-translation in a supine body position. Overall, indicating that ambiguous bottom-up signals from the vestibular otoliths in the supine body position are integrated with a top-down prior experience to the upright body position and can lead to an illusionary sense of body position. Shwabe and Blanke (2008) suggested this may account for three common elements of an ‘OBE’:

- *Disembodied self-location* due to illusory self-translation affecting the perception of self-location while the actual body position is static.
- *Elevation of self-location* due to an illusory upright body position while in a supine position. They noted however this illusion could also be a consequence of the illusory self-translation in the forward direction.
- *Floating and flying* would be a direct consequence of the predicted illusory self-translation.

Shwabe and Blanke (2008) importantly note that in regular experience, however, being in a supine position and imagining oneself standing does not induce ‘OBE-like’ experiences and this is likely due to top-down prior experience of being in a supine position used to disambiguate the otolithic information. For example, visual signals and proprioceptive signals are used by the brain to infer self-location and self-

translation. Moreover, when healthy subjects are lying awake in a supine position, they typically know that they are lying, which naturally affects their interpretation of other sensory signals. Hence, their illusory model may only be appropriate when signals from other modalities are reduced, which provides a lack of reference for the correct interpretation of body position. Shwabe and Blanke (2008) hypothesized that such attenuation is the case in some neurological conditions leading to 'OBES' and also in dreams or transitions between wakefulness and sleep.

Overall, the Shwabe and Blanke (2008) model and findings provide an interesting explanation for common 'OBE' impressions relating to disembodied self-location, elevation, floating, and flying. However, the model does not explain how 'OBES' occur in states where there appears to be little, if any, relevant sensory information disruption or attenuated, or why some people appear to have 'OBES' in these situations and others do not. Further, the model does not explain how some 'OBES' appear to have a range of phenomena that go beyond disembodied self-location, elevation, floating, and flying e.g. travel to distant locations or communication with entities.

Marsh (2006) discusses, in particular, the common experience during an 'OBE' of rotation about the (vertical) z-axis by 180°, e.g. the experiencers turning over to look back at their physical body. He notes how a weightless astronaut might think himself and his craft are upside-down as resulting from otolithic functioning being disrupted within a zero-gravity environment, while other inner-ear components continue to function normally during weightlessness. Further, other subjects can be made to undergo a 90° or 180° illusory change in panorama by slow rotation about the z (head-to-foot) axis, which would be equivalent to a pilot's view of the horizon at

the nadir of a barrel-roll, with sky below and land above (Lackner, 1992; Mittelstaedt & Glasauer, 1993).

Moreover, it has been observed in patients with vascular insults to the brainstem, brain injuries, tumours, epilepsy, and lesions of the parietal cortex have been observed to cause body-to-horizon or horizon-to-body inversions (Brant, Dieterich, & Danek, 1994; Charles et al., 1992; Dieterich & Brandt, 1993; Mehler, 1988; Salvin & LoPinto, 1987).

Marsh (2006) highlights that these illusions of which there are numerous documentation (e.g. Bottini et al., 1994; Friberg et al., 1985; Slavin & LoPinto 1987; Smith, 1960; Solms et al., 1988; Steiner et al., 1987; Stracciari et al., 1993; Teuber & Mishkin, 1954) are deemed to arise from central otolith-ocular disconnections in the brainstem or cortex - and from within the posterior temporal and inferior parietal cortex. This is further suggesting that it is noticeable that many of the reports referred to involve trauma that would seriously interfere with the blood supply to these centres. Therefore, it is not improbable that a similar 180° reversal of the cortically-perceived visual horizon experienced during an 'OBE' could relate to a concurrent disturbance in this critical vascular region of the posterior cerebral cortex.

This, again, offers interesting potential insight into the formation of a basic 'OBE' phenomenon. However, it fails to explain how 'OBES' occur in states where there appears to be little, if any, relevant sensory information attenuated. Furthermore, it does not explain why some people appear to have such experiences in these situations and others do not, or how some 'OBES' appear to have a range of phenomena that goes beyond the basic formations of an 'OBE'.

It is also worth noting that in reviewing the literature on 'OBES' it appears many people do not experience a 180° reversal in body position. They instead find

themselves floating up facing whatever is directly about them; find themselves facing their physical body from a corner of a room or even in an entirely new location where their physical body is not present. It is also worth noting many people lay or sleep on their side or face down, yet typically do not describe floating sideways in the air during an 'OBE' or having the experience of being inside of or underneath what they are lying on at the time of their 'OBE', as would intuitively be expected with the discussed model.

Notably, neurology does not currently have an explanation for the results of studies like Greyson et al., (2014) designed to identify and characterise out-of-body-like subjective experiences associated with seizure activity. In this study patients who did and did not report 'OBES' were comparable in their seizure histories, including epilepsy syndrome, epilepsy aetiology, and seizure type. EEG findings, including lateralization and localization of abnormalities, did not differentiate those who reported 'OBES' from those who did not. This raises the question as to why people with similar brain lesions, anomalies and lateralization do not experience 'OBES' at a similar rate and why some profess to not experience them at all.

To the author, this neurological work grouped lends itself to the explanation of 'OBES' being induced via a disruption in multiple areas of the brain. Specifically, it is likely an 'OBE' is related to a disruption of normal functioning and in turn processing within an important large-scale brain network.

This general concept is found within neurobiological research and the theory of NDEs. Proponents of neurobiological theories about NDEs link the features of NDEs to changes in brain functioning from a compromised brain network due to various physiological causes related to the process of dying. The main suggested neurobiological cause for the NDE is a hallucination produced from anoxic effects,

which stems from research on motor phenomena of vasovagal syncope where the fainting was accompanied by memories, with 60% of the fainters in the study reporting vivid NDE features, which in many cases included ‘OBES’ (Lempert et al, 1994). People treated with carbon dioxide therapy have also reported features that occur during NDEs, which at times included ‘OBES’ (Meduna, 1950).

It has been suggested that NDEs that exhibit an abundance of phenomena are likely the result of anoxia affecting multiple parts of the brain, starting in the visual cortex and then spreading to other areas, e.g. (Blackmore, 1993; Saavedra-Aguilar & Gómez-Jeria, 1989; Woerlee, 2005).

Authors have implicated specific areas of the brain, notable examples are:

- Tunnel vision and the perception of bright lights could be linked to the loss of the bilateral peripheral visual field and retinal ischemia (Blackmore, 1996a).
- The limbic system, which is associated with emotional processing and memory, might cause life review experiences (Blackmore, 1996a).
- That anoxic disruption of the temporal lobes leading to seizures causes a variety of NDE phenomena (Appleton, 1993).
- That activation of the limbic system and temporal lobes through endorphins and endopsychosins could cause a range of typical NDE phenomena (Carr, 1982; Jansen, 1990, 2001; Jourdan, 1994). Specifically, on this concept, there is the suggestion that impending death would result in a massive release of endorphins which can cause positive feelings associated with NDEs and also disinhibit the hippocampus, leading to the lowering of the seizure threshold within the temporal lobe, which then leads to other NDE phenomena being the result of subsequent seizures in the limbic and temporal lobes (Carr, 1981). On this concept, Nichols (2017) highlights specifically Dynorphin, due to its very

high affinity for the kappa opioid receptor, which has been found to mediate hallucinations and ‘OBE-type’ experiences.

- That activation of neuronal connection in the temporal lobes via alteration of central serotonergic activity could cause a range of typical NDE phenomena (Morse et al., 1989).
- Behavioural findings have also indicated the left temporoparietal junction might cause feelings of a presence of a non-physical entity (Arzy Seeck et al., 2006).
- Endogenous DMT has been proposed to cause NDEs (Strassman, 2001). This process might be due to a loosening of control over brain processing resulting from DMT modulation of the 5-HT<sub>1A</sub> and 5-HT<sub>2A</sub> receptors (Carhart-Harris & Nutt, 2017). However, there is no empirical evidence that endogenous DMT is found in concentrations within the brain, or outside of the brain and capable of crossing the blood-brain barrier in concentrations required to produce such shifts in perception.
- Studies on the phenomenology of ketamine experience have highlighted many similar features with NDEs: such as peace and tranquillity, the conviction that one is dead, trips through dark tunnels into light, ‘OBEs’, seeing spirits, telepathic communion with God, and mystical states (Collier, 1972; Coyle et al., 2012). The observed neurophysiological effect of a blockade action on the glutamate N-methyl-D-aspartate (NMDA) receptors (e.g., Curran & Morgan, 2000) has led to speculation that conditions, which can precipitate NDEs (e.g., decreased brain oxygen) could increase the levels of glutamate release causing excite-toxic brain damage, stimulating the release of a ketamine-like neurotoxin (Jansen, 1989, 1996). Moreover, this process reduces functional



connectivity in the brain, which could lead to a range of NDE phenomena. This concept has received further support via a recent large-scale comparative analysis of near-death experiences and certain drug-induced altered states of consciousness. From the analysis of the semantic similarity between 15,000 reports linked to the use of 165 psychoactive substances and 625 NDE narratives, the NMDA receptor antagonist ketamine consistently resulted in reports most similar to those associated with NDEs. Ketamine was followed by *Salvia divinorum*, which is a plant containing a potent and selective K-opioid receptor agonist. However, serotonergic psychedelics, including the endogenous serotonin 5-HT<sub>2A</sub> receptor agonist DMT also showed strong similarity (Martial et al., 2019).

However, to date, no neurological, neuropsychological, or neuroimaging data exist to fully corroborate any of these hypotheses empirically. Nevertheless, it appears clear to the author that the research and theory on neurological correlates of ‘OBEs’ when grouped suggest the phenomenon is caused by a disruption in multiple areas of the brain impacting the processing of one or more large-scale brain networks. What remains unclear is the foundational neurological processes involved within the brain and how tasks 1, 2, and 3 are solved via these foundational neurological processes. A further developed theory of ‘OBE’ induction and formation should seek to provide the foundational neurological processes and use them to address the highlighted tasks. This is something the author does in Chapter 3.

### *2.4.1 Conclusion to the Neurological Correlates of 'OBEs'*

As detailed the neurological research on 'OBE' reveals no consensus on the nature of 'OBEs'. Overall, this neurological research on 'OBEs' cannot offer great insight into the answers to the three main tasks required to move 'OBE' induction and formation theory forward.

However, to the author, this neurological work grouped lends itself to the explanation of 'OBEs' being induced via a disruption in multiple areas of the brain. Specifically, it is likely an 'OBE' is related to a disruption of normal functioning and in turn processing within an important large-scale brain network where the functioning and processing within could be varied relatively easily and disrupted by various physiological and psychological factors.

Whilst the direct neurological research on 'OBEs' can hint at what areas of the brain the author needs to look at for such a network i.e. the TPJ, the author is aware that neurological research in other areas related to phenomenal experience has occurred before and post the research on 'OBEs' discussed in this (section). Notably, there has recently been resurgence in neurological research of psychedelics, which as detailed in section (2.2.1) are known to induce 'OBEs'. The author suggests that exploring modern research on how psychedelics affect the brain, and phenomenal experience could deepen our academic understanding of how 'OBEs' are induced and formed. Further, the scope of this work could generate a new deeper neuropsychological theory of the 'OBEs' by offering answers to the three main tasks to move 'OBE' induction and formation theory forward. Due to the scope of this work, it warrants its chapter within this thesis and can be found as Chapter 3.

### **2.5. Conclusion from the literature Review on the Nature of ‘OBES’**

What stands out to the author from the literature on the nature of ‘OBES’ is the lack of large general surveying that has occurred. Further, there have been very few surveys that tried to explore the range of phenomena experienced as part of an ‘OBE’. This is surprising given surveys on the experience indicate that the rough prevalence of ‘OBES’ in the general population ranges between 8-25% (Blackmore, 2017). Thus, there remains a merit in large general surveying of ‘OBES’ and in particular surveys that explore the range of phenomena experienced during an ‘OBE’ as part of that surveying.

There has been in recent times a more substantial amount of work done on finding a materialist nature to the ‘OBE’, and this research is on-going. However, there has been little done and even less continual research on whether there is an extracorporeal element to the ‘OBE’, even though research has indicated there might be, in the eye of some researchers. Furthermore, several researchers suggest there is continual merit in such research, (e.g., Palmer, 2009; Parnia et al., 2014) and the author agrees. However, the author suggests the weight of the research that indicates there may be an extracorporeal component to ‘OBES’ is currently minimal and thus it can be seen to not be required (at this time) for a further developed theory on ‘OBES’. Nevertheless, the concept should be explored further by researchers in connection to quantum approaches to consciousness as they potentially develop further. As such extracorporeal theory and research on ‘OBES’ should not take precedence over theory and research that can, within our current understanding of consciousness, explain the phenomenon of ‘OBES’.

Setting aside the possibility that ‘OBES’ are in any way a 'real' separation of consciousness the author suggests from reviewing the literature on the nature of these

experiences and specifically ‘OBE’ induction and formation that there are three major tasks facing academics theorizing on the subject. A further developed theory would need to explain:

1. How these experiences can occur in all of the diverse sets of induction states, and what are the accompanying foundational neurological mechanisms?
2. What differentiates people who experience an ‘OBE’ from those who do not in the same circumstances? For example, in the Greyson et al., (2014) study, patients who did and did not report ‘OBES’ were comparable in their seizure histories, including epilepsy syndrome, epilepsy aetiology, and seizure type.
3. Why might a person have an ‘OBE’ in a certain physiological state one day and not the next?

Clearly, the three prominent theories on ‘OBE’ induction and formation detailed in this chapter are lacking in explanation to fix the tasks (e.g., Blackmore, 1984b; Irwin 1985; 2000; Palmer 1978b), as are all other noted theories within the literature review. Neurological research has linked ‘OBE-type’ phenomena to areas within the brain. However, these links lack a unified foundational process and foundational mechanism; furthermore, they do not directly address these three tasks and account for the wide range of phenomena within the experiences. (e.g., Blanke et al., 2002; Dening & Berrios, 1994; De Ridder et al., 2007; Devinsky et al., 1989; Greyson et al., 2014; Hécaen & Ajuriaguerra, 1952; Schutter et al., 2006; Smith & Messier, 2014).

Thus, the author's future task in this thesis is to use modern literature on phenomenal experience to attempt to solve the three tasks and find a unified foundational process and mechanism that accounts for the wide range of phenomena within the experiences. The scope of this work warrants its own chapter and can be

found in Chapter 3. This work presents an original review of this area in relation to ‘OBES’ and will connect directly to later empirical work whilst providing deeper insight into the sensory disruption noted in other theories and modernising the academic approach to ‘OBES’.

In the following section of this chapter, the author shall momentarily deviate from the course on investigating the nature of ‘OBES’ before picking the line of enquiry back up in the following Chapter 3. The author does this in order to round off this review of the current concepts to the nature (and psychological outcomes of ‘OBES’) by reviewing the psychological research on the phenomenon, which due to the sparseness of it only adds up to a single section within the thesis literature review.

## **2.6 Psychological Research on ‘OBES’ and Their Outcomes**

Reviewing the literature, it is clear much more time has been given to investigating the causes of ‘OBES’ rather than their psychological impact. Furthermore, the majority of research related to the psychological outcomes of ‘OBES’ come somewhat indirectly via research on the psychological outcomes of NDEs. It appears that these experiences are generally associated with long-term positive transformational and psychological effects. In the case of NDEs, despite the perilous circumstance in which NDEs occur, NDEs are generally experienced as extremely pleasant and can induce life-changing consequences on the experiencers’ set of values and attitudes toward death. Further, this effect seems to generally reflect the impact of the anomalous phenomena rather than having come physically close to death (e.g., Van Lommel et al., 2001; Klemenc-Ketis, 2013).

NDEs have been associated with long-term positive changes in psychological well-being, for example:

- Greater concern for others.

- Reductions in distress associated with the prospect of dying.
- Increased appreciation for nature.
- Reduced interest in social status and possessions.
- Increased self-worth.

(Noyes, 1980; Ring, 1980).

Groth-Marnat and Summers, (1998) found NDErs were significantly more likely to:

- Have a raised concern for others.
- Reduced death anxiety.
- A strengthened belief in an afterlife.
- Increased transcendental experience.
- Reduced interest in material possessions.
- Increased self-worth.
- Increased appreciation for natural phenomenon.
- An enhanced awareness of the paranormal phenomenon.

Kelmenc-Ketis (2013) found patients who reported NDEs scored significantly higher against a control group in the following:

- Tolerance for others.
- Understanding of myself.
- Appreciation of nature.
- A sense that there is some inner meaning to my life.
- Concern with questions of social justice.

Another common apparent side effect is that experiences can become highly intuitive in nature and often report an increase in perceived psychic experiences

including telepathy (knowing what someone is thinking and feeling) and precognition (knowing when something is going to happen before it does). Furthermore, it has been shown that NDEs may have a protective effect against post-traumatic stress disorder (PTSD) and other psychological impairments (Greyson, 2001, 2003b).

A US study found that 23% of cardiac arrest survivors had an NDE and that, again, those with NDEs transformed in a positive manner relating to stronger religious beliefs, a decrease in the fear death, and an increase in feelings of loving and caring (Schwaninger et al., 2002).

In addition, the occurrence of NDEs during cardiac arrest appears to have life-enhancing effects. For example, in general, those who experience an NDE during cardiac arrest are:

- Happier.
- More socially orientated.
- Less materialistic.
- More selfless.
- Less afraid of death.

(Moody, 1975; Schwaninger et al., 2002; Van Lommel et al., 2001).

Noyes, Fenwick, Holden, and Christian (2009) highlight that NDEs can cause a new sense of self, increase in self-esteem, a sense of new awareness of the meaning of their life and purpose, a greater degree of openness, care, and love towards others and transcendence of the fear of death. The transcendence of fear of dying can be as strong as total cessation. Further, in certain cases, these changes appear to lead to the experiencer examining their existing relationships, terminating some that are now not compatible with their new attitude and beliefs. Ring (1982) found many experiencers interpret the experience religiously. The same was observed by McClenon (1993) in

his interviews with American and Japanese students. Moreover, multiple authors have found NDEers tend towards post-materialist values; with some believing that they have been chosen for some unique mission and that God or some other supernatural force was responsible for their new sense of destiny (e.g. Atwater 1988; Flynn, 1986; Ring, 1992; Sutherland 1990, 1992/1995).

It is also worth noting that there is evidence that NDEs can increase individual religiosity (Schröter-Kunhardt, 1990). However, potential cultural differences have been found with respect to this outcome. Knoblauch et al., (2001) comparing American NDEs to their study of German NDEs, found whilst in the case of American NDEs the experience seems to quite frequently strengthen religiosity and support existing religious beliefs, German NDEs appear to rarely be considered religious at all. Further, American NDEs often affect experiencers' morality and often lead to substantial changes in life.

However, reports from German NDEs, seem to affect only the experiencers' general outlook on life, without having greater moral consequences and religious viewpoints, and belief in God increased for only 28% of participants. Knoblauch et al., (2001) also found 70 percent of their participants reported an increased feeling of living more consciously, and 63 percent reported increased interest in the meaning of life. Unusually, fear of death decreased by only 40 percent, remained stable by 40 percent, and even increased by 20 percent.

Negative NDEs are thought to be very uncommon among Western experiencers with estimations being around 1-2% of experiences (Charland-Verville et al., 2015). However, when experienced are often extremely unpleasant and distressing experiences; for a review of such experiences see (Bush, 2002). It is possible that a lack of positive psychological outcomes and an increase in fear of



death could be related to the experience of more negatively perceived subjective phenomena that occurs during some NDEs (Greyson, 1992).

However, it has been suggested that the number of negative experiences is higher than thought as negative NDEs are understudied and possibly also underestimated through individuals' possible reluctance to disclose them due to its post-traumatic stress component (Bush, 2002; Fenwick & Fenwick, 1995; Greyson & Bush 1992). Hata in Hadfield, (1991) interestingly found five out of the eight participants (62.5%) in his Japanese study on NDEs had experienced an NDE that was considered a negative experience, and Charland-Verville et al (2015) found that patients with 'locked-in syndrome' typically reported less positive emotions than NDErs who had suffered supratentorial lesions and been in a coma.

Bush (2002) reviewing the literature on negative NDEs identified three types of frightening NDEs. First, the "inverse experience" described by Ring (1994) has a similar content as pleasant NDEs (e.g., light, presences, landscapes) but is perceived by the experiencer as an alien reality and a sense of being out of control. Overall, this is processed as extremely distressing. The second type involves perceptions of emptiness, aloneness, and non-existence. The third type is the "hellish" experience, with threatening entities, and various visual associations of traditional hellish depictions, adjoined by perceptions of impending judgment and torment.

Bush, (2002) notes that Barbara Rommer, (2000) described a fourth variety in which the person is profoundly disturbed and terrified, specifically during a life review due to an emphasis on judgment. However, this type could be considered a subset of the hellish experience. Whilst the cause of these unpleasant experiences remains unclear, Bush, (2002) suggests that there is evidence that exists across centuries and continents to support the concept that frightening experience merely

reflects the failure of an individual's ego to yield to the experience. Furthermore, what is perhaps of equal importance if not greater importance is the response of the experiencer to the NDE.

Bush (2002) highlights that survivors of frightening NDEs often face a difficult period of reintegration with society and reflection. These individuals are often facing not only a general failure of our society to accept the reality of their experience but also being alienated from the majority of NDErs who report more 'heavenly' experiences. This leads to such individuals often feel deliberately singled out for negative treatment by some higher force, an understanding that is often reinforced by theological interpretations of frightening NDEs. However, whether the experience was perceived as being pleasant or frightening, some individuals have reported psychological distress related to the difficulty in integrating the experience and its consequences into their lives (Bush, 1991).

From NDEs, Bush et al., (2002) highlight 3 main response types to the experience.

- The experience brings a sense of a need for change or turning around one's life. Specifically, fear is highlighted as a potential mechanism driving this need.
- The experience is reduced to only material terms, which is at times based on perceived scientific evidence. This leads to an interpretation of the phenomenon having no particular meaning and, in turn, cause for response or further interpretation.
- The experiencer struggles to assign meaning to the phenomenon or reduce the occurrence to having little or no meaning, often leading to a search for an explanation that brings both intellectual and emotional resolution. This

response often arises from an inability to accept a literal perception of the experience, in conjunction with a sense of a purely materialist explanation being inadequate. This can lead an experiencer to assign a cause but to not address the question of potential meaning, perhaps, inadequately addressing emotional needs stemming from the experience.

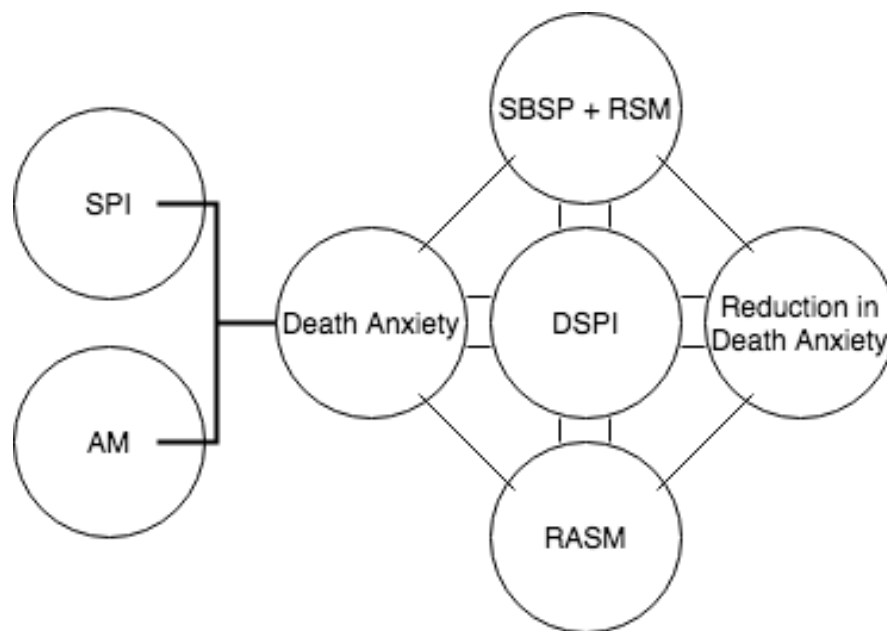
Whilst, as highlighted, a negative experience can lead to an increased fear of death, overall, among the plethora of psychological outcomes of NDEs it is perhaps the decrease in fear of death that is the most common or prominent effect found to occur. In addition to earlier references a plethora of other studies have found this particular outcome. For example, Greyson, (1992) found the threat of death was significantly lower among those with near-death experiences than among the two comparison groups. Sabom, (1982) found a reduced fear of death and an increased belief in an afterlife. Van Lommel et al., (2001) found NDErs showed a reduced fear of death and enhanced belief in life after death. Further, it has been specifically highlighted that the intensified belief in some form of life after death can include a belief in reincarnation (Wells, 1993).

### ***2.6.1 Terror Management Theory Within the Psychology of 'OBEs' / NDEs***

Terror management theory (TMT), which is rooted in insights from Becker's (1973) multidisciplinary work, could be a useful framework to understand how 'OBErs' and NDErs process death concerns at both conscious and unconscious levels. TMT proposes a theoretical framework for studying the effects of death concerns on human behaviour and perception, whilst describing processes occurring consciously and unconsciously to manage death anxiety (Greenberg et al., 1986). According to TMT, death anxiety arises from the juxtaposition of self-preservation instinct and humans' awareness of their own mortality (Becker, 1973; Greenberg et al., 1986;

Greenberg & Arndt, 2011). To this point, one may speculate three possible roots for a reduction in death anxiety. Firstly, via the acquisition of a strong belief in self-preservation and reduction in sense of mortality, something that could theoretically be acquired through a strong belief in an afterlife. Secondly, via a decrease in self-preservation instinct. Thirdly, via a reduction of one's awareness of mortality. The author has depicted this process as a diagram in the following Figure (2.1).

**Figure 2.1**  
*TMT Death Anxiety Diagram*



SPI = self-preservation instinct. AM = Awareness of morality. SBSP + RSM = Strong belief in self-preservation and reduction in sense of mortality. RASM = Reduction of Awareness of Morality. DSPI = Decrease in self-preservation instinct.

Examining these possibilities, it appears suicide survivors who had an NDE are less likely to develop suicidal ideations or to reattempt suicide, than those who survived a suicide attempt but did not have an NDE (Greyson, 1992). Moreover, NDErs typically express strong objections to the concept of suicide (Greyson, 1992) and often report greater appreciation of and zest for life (Greyson, 2013). This

suggests that after an NDE there is typically not a reduction of self-preservation instinct. It is possible that NDErs develop the capacity to focus more on the present moment avoiding pseudo-orientation to potential future death events and thereby avoiding existential conflict. The author suggests research investigating this concept would be fruitful in establishing how much of a factor this may be but will not be within the scope of this thesis.

Lastly, NDErs may maintain an existential conflict, but develop stronger beliefs of self-preservation associated with the NDE, which help in dealing with death concerns. Such changes in the cognitive and symbolic representations of death could lead to a reduction of emotional response to death concerns (Kelly, 1955; Neimeyer et al., 2002). For example, Testoni et al., (2015) found that people that represent death as annihilation exhibit higher scores of hopelessness and lower scores of resilience with respect to people who have a representation of death as a passage.

To the author's knowledge literature on TMT and 'OBEs' has not been directly connected. The concept is only indirectly connected to 'OBEs' within the sparse NDE literature where some researchers have suggested that TMT assumptions may be incomplete or cannot explain the transformative effects of NDEs if only NDE phenomena is taken into account (e.g., Tassell-Matamua & Lindsay, 2016). However, TMT offers the potential in testing hypotheses on the mechanism of reduction in death anxiety resulting from 'OBEs' and NDEs.

Unfortunately, there is relatively little work on the psychological consequences of 'OBEs' that occurred independently of NDEs. However, there is a survey of 339 respondents who had had an out-of-body experience, only 10% of which occurred in a near-death context (Twemlow et al., 1982). They found 81% felt that the experience was very pleasant, 84% wanted to have the experience again, and

71% said that it was of lasting benefit. Furthermore, relevant to the psychological outcomes, was the finding that 63% reported a change in their belief towards life after death after their 'OBE', compared to 32% of a control group of people who were interested in 'OBEs' but had never experienced one  $N = 81$ . Similar results are also reported in Alvarado (2000). Reviewing the literature, the most common effect of NDEs is the reduction in fear of death.

However, it remains somewhat unclear how frequently this occurs in 'OBEs' that are experienced outside of near-death contexts. Bourdin et al., (2017) induced what they referred to as a virtual 'OBE' through VR technology to create an illusion that the centre of participants' awareness was in a location removed from the physical body. As noted by the author in 2.1.4 this VR-VRI cannot be considered to constitute a full 'OBE'. However, it is worth noting that they found this basic component of an 'OBE' appeared to cause the fear of death in the experimental group to be lower than in the control group. The two groups who had a near identical VR experience excepting in that the experimental groups visuomotor and visuotactile synchrony remained through continual visuomotor and vibrotactile synchronous stimulation. This may suggest that fear of death can be reduced by a simple subjective experience of an 'OBE' and a near-death context is not required. This concept, however, does require being further established, specifically for non-VR contexts.

Murray and Fox (2005b) found participants reporting a previous 'OBE' scored significantly higher on measures of body dissatisfaction, social physique anxiety, and somatoform dissociation, and lower on a measure of physical self-presentation. 'OBE' experiencers also reported lower levels of body awareness during the use of an immersive virtual reality system than non-experiencers. However, it is unclear if these

were factors before the ‘OBES’, were a result of the ‘OBES’, or at least accentuated by the ‘OBES’.

Relatedly recent results from studies investigating the psychological impact of the consumption of psychedelic compounds have shown similar long-term positive changes. For example:

- Reduced death anxiety (Gasser et al., 2015; Griffiths et al., 2016; Grob et al., 2011; Ross et al., 2016).
- Pro-ecological behaviour (Forstmann & Sagioglou, 2017; Nour et al., 2017)
- Nature-relatedness (Lyons and Carhart-Harris, 2018).
- Significant clinical improvements in depressed patients (Carhart-Harris, Bolstridge et al., 2016; Osório et al., 2015; Palhano-Fontes et al., 2019).
- Significant clinical improvements in recovering addicts (Bogenschutz et al., 2015; Bogenschutz & Johnson, 2016; Johnson et al., 2014).
- Lasting improvements in psychological well-being in healthy populations (Carhart-Harris et al., 2017; Griffiths et al., 2011).

Thus, overlap between ‘OBES’; near-death and psychedelic experiences may extend beyond the acute experience into longer-term psychological changes.

### ***2.6.2 Conclusion of Psychological Research on ‘OBES’ and Their Outcomes***

It is abundantly clear much more time has been given to investigating the nature of ‘OBES’ and NDEs rather than their psychological impact.

However, the research that has taken place has highlighted several psychological outcomes present in ‘OBES’ and in NDEs that included ‘OBES’.

Specifically, those that stood out most in the research to the author are the following:

- Change in view of death.
- Reduction in fear of death.

- Change in relationship to the divine.
- Change in worldview.
- Change in relationship with other people.
- Change in view of self.
- Change in lifestyle.

It is clear quantitative research in the form of surveys further investigating the occurrence of these psychological outcomes from ‘OBEs’ would be fruitful.

Moreover, it is clear to the author that there is space for novel work to occur exploring if there are relationships between these psychological outcomes and specific ‘OBE’ phenomena. It is logical to think as with all experiences in life certain parts of them and certain phenomena correlate to certain psychological outcomes and through testing it is possible to reveal associations between phenomena and outcomes. This work would continue to expand our understanding of these psychological outcomes, and to the author represents the logical next step in further grounding our academic understanding of this area to the phenomenon.

Furthermore, work exploring if there are relationships between the psychological outcomes and specific ‘OBE’ phenomena could also be fruitful via qualitative research. Thus, the author believes a future step in the thesis should be to incorporate survey questions on the psychological outcomes of ‘OBEs’ and explore through the questions and subsequent analysis if there are relationships between these psychological outcomes and specific ‘OBE’ phenomena. This work would represent a significant original contribution to the field and can be found in Chapter 4 of this thesis. This work also forms an empirical basis to be followed up with a qualitative interview study to delve deeper into concepts highlighted within the survey results,



which also represent a significant original contribution to these areas of study and can be found within Chapter 5.

## **2.7 Conclusion of a Review of Currently Established Concepts on the Nature and Psychological Outcomes of ‘OBEs’**

The chapter literature review has critically assessed the terminology of the ‘OBE’ and how it is defined and from this process formulated a terminological basis to navigate through the thesis.

From the review, the author concluded ‘OBEs’ are currently best defined as dissociative experiences where, to the individual, during the process, there is a sense of their consciousness having separated from the body.

The author also concluded that in cases where an experience does not contain a sense of consciousness being separated from the physical body but afterward is interpreted to be an ‘OBE’, these experiences should be referred to as consciousness relocation interpretations (CRI).

Further, the review has critically assessed the literature on the nature of the ‘OBE’ and via an appraisal of the current theories of ‘OBE’ induction and formation highlights that the weight of the research that indicates there may be an extracorporeal component to ‘OBEs’ is currently minimal. Thus, it can be seen at this time to not be required for further developed theory on ‘OBEs’. As such, extracorporeal research on ‘OBEs’ should not take precedence over research that can within our current understanding of consciousness explain the phenomenon of ‘OBEs’. Thus, in setting aside ‘OBEs’ are in any way a ‘real’ separation of consciousness from the body a further developed theory would need to explain:

1. How these experiences can occur in all of the diverse sets of induction states, and what are the accompanying foundational neurological mechanisms?

2. What differentiates people who experience an ‘OBE’ from those who do not in the same circumstances? For example, in the Greyson et al., (2014) study, patients who did and did not report ‘OBEs’ were comparable in their seizure histories, including epilepsy syndrome, epilepsy aetiology, and seizure type.
3. Why might a person have an ‘OBE’ in a certain physiological state one day and not the next?

This has set a basis for an extensive theoretical chapter on the induction and formation of ‘OBEs’, which follows as Chapter 3 and encompasses a substantial original contribution to the field. This review has also critically assessed and identified gaps within the research on the psychological outcomes of ‘OBEs’, namely a lack of overall research and a lack of research exploring possible relationships between psychological outcomes listed in section (2.6.2) and the range of ‘OBE’ phenomenology.

Importantly, the review has, through the content, formed a basis for empirical work to be carried out via a survey on the nature of ‘OBEs’ explored quantitatively in tandem with the psychological outcomes of ‘OBEs’ and relationships these outcomes have to the range of ‘OBE’ phenomena and is found in Chapter 4. The latter is research that can and will subsequently be followed up with a qualitative interview study and can be found in Chapter 5.

When considering the sum of its parts this review is the first of its kind representing on its own a significant original contribution of work to the subject and related fields.

## **Chapter 3: Embodiment to Disembodiment: Moving ‘Out-of-Body Experience’**

### **Induction and Formation Theory Forward?**

#### **3.1 Introduction to Moving ‘Out-of-Body Experience’ Induction and Formation Theory Forward**

Within Chapter 2 the author reviewed the literature on the nature of ‘OBEs’ including their induction and formation. The author found that currently, researchers should set aside the possibility that ‘OBEs’ are in any way a 'real' separation of consciousness. Furthermore, three major tasks facing academics theorising on the subject were identified. A further developed theory would therefore need to explain:

1. How these experiences can occur in all of the diverse sets of induction states, and what are the accompanying foundational neurological mechanisms?
2. What differentiates people who experience an ‘OBE’ from those who do not in the same circumstances? For example, in the Greyson et al., (2014) study, patients who did and did not report ‘OBEs’ were comparable in their seizure histories, including epilepsy syndrome, epilepsy aetiology, and seizure type.
3. Why might a person have an ‘OBE’ in a certain physiological state one day and not the next?

The author found the three prominent theories on ‘OBE’ induction and formation detailed in section (2.3.5) lack explanations to fix the tasks (e.g., Blackmore, 1984b; Irwin 1985; 2000; Palmer 1978b) as with all other noted theories within the literature review of chapter 2. Moreover, the author found neurological research has linked ‘OBE-type’ phenomena to several areas within the brain. However, these links lack a unified foundational process and mechanism; furthermore, they do not directly address these three tasks and account for the wide range of phenomena within the experiences. e.g., Blanke et al., 2002; Dening &

Berrios, 1994; De Ridder et al., 2007; Devinsky et al., 1989; Greyson et al., 2014; Hécaen & Ajuriaguerra, 1952; Schutter, Kammers et al., 2006; Smith & Messier, 2014).

Nevertheless, the author concluded in section (2.4) that research lends itself to the explanation of ‘OBEs’ being induced via a disruption in multiple areas of the brain. Specifically, it is likely an ‘OBE’ is related to a disruption of normal functioning and in turn processing within an important large-scale brain network. A network where the functioning and processing within it could be varied relatively easily and disrupted by various physiological and psychological factors.

It was acknowledged that there has recently been resurgence in neurological research of psychedelics, which as detailed in section (2.2.1) are known to induce ‘OBEs’. The author suggested that exploring modern research on how psychedelics affect the brain, and phenomenal experience could deepen our academic understanding of how ‘OBEs’ are induced and formed.

The scope of this work could generate a new deeper neuropsychological theory of the phenomenon and offer answers to the three main tasks to move ‘OBE’ induction and formation theory forward. This work would represent a significant original contribution to the subject and related fields whilst providing deeper insight into the sensory disruption noted in other theories and would modernise the academic approach to ‘OBEs’. The author felt that if theory relating to task 1: “How these experiences can occur in all of the diverse set of induction states and what are the accompanying foundational neurological mechanisms”, is developed further it will also likely organically develop a theory of tasks 2 and 3.

Thus, the author's task in this chapter is to use modern literature (2000-2023) on how psychedelics affect the brain and phenomenal experience to attempt to solve

the three tasks. This endeavour should reveal a unified foundational process and mechanism that accounts for the wide range of phenomena within ‘OBES’. It follows that it is the author's proposition that this reimagining within a modern neuropsychological model will organically highlight hypotheses that can and should begin to be explored via empirical work.

### 3.2 Psychoactive Substances and ‘OBES’

It has been established that ‘OBES’ can be induced by the consumption of a number of psychoactive substances, most notably but not exclusively:

Ketamine, psilocybin, DMT, MDA, 3,4-methylenedioxymethamphetamine (MDMA),  $\Delta$ 9-tetrahydrocannabinol (THC), mescaline, nitrous oxide, diethyl ether, opium and opiate derivatives (e.g., diamorphine, dextromethorphan), methylphenidate, chlordiazepoxide, phencyclidine (PCP), 4-hydroxy-N-methyl-N-ethyltryptamine (4-HO-MET), ibogaine, and LSD. Some substances induce ‘OBES’ more frequently than others. See the following for some of the studies that acknowledge these substances causing ‘OBES’ (Aizenberg & Modai, 1985; Blackmore, 1992, 2005; Bianchi, 1997; Crookall, 1961, 1964; Ditman et al., 1969; Eastman, 1962; Griffiths, Richards et al., 2006; Grof, 1972 1980; Grüsser & Landis, 1991; Jansen, 1997, 1999, 2001; Kjellgren & Soussan, 2011; Lhermitte, 1939; Luke & Kittenis, 2005; Overney et al., 2009; Price and Lebel, 2000; Rudgley, 2000; Shermer, 2002; Strassman, 2001; Tart, 1971; White, 1997; Wilkins et al., 2011)

Further, ‘OBES’ are reported to occur through consumption of a number of psychoactive plants, such as *S. divinorum* (González et al., 2006), Pituri (Australian Institute of Parapsychological Research, 2004), harmaline and ayahuasca (Andritzky, 1989; Bianchi, 1994; Grob, 2002; Luna & White, 2000; Naranjo, 1967; Roney-

Dougal, 1986, 1989), and plethora of other known psychoactive plants (Schultes & Hofmann, 1992)

A number of these substances are widely classed as psychedelics as they are substances that typically “without causing physical addiction, craving, major physiological disturbances, delirium, disorientation, or amnesia, more or less reliably produces thought, mood, and perceptual changes otherwise rarely experienced except in dreams, contemplative and religious exaltation, flashes of vivid involuntary memory, and acute psychosis.” (Grinspoon & Bakalar, 1998, p.9).

There has been a recent resurgence in the study of psychedelics and this resurgence has begun to illuminate some aspects of ‘OBEs’ and associated phenomena.

For example, a recent study by Timmerman et al (2018) showed that NDE phenomena were significantly enhanced following the administering of DMT, as scored on the Greyson NDE scale (Greyson, 1983).

Additionally, 15 of the 16 NDE items in the scale were rated significantly higher under DMT compared to those reported in a placebo group, and a strong overlap with the DMT-induced NDE experiences and mystical-types experiences was also found (Timmerman et al., 2018).

The psychological state produced by psychedelics has generally been linked to themes of death and dying (Millière, 2017). For example, ayahuasca, an Amazonian brew containing DMT, has been linked to themes of death and dying (Shanon, 2005). Specifically, it is often the psychology of psychedelic-induced ‘ego death’ that is likened to that of actual death (Leary et al., 2008). Additionally, people who have consumed ayahuasca frequently report the occurrence of an ‘OBE’ whilst under the

influence of this psychedelic brew, (Grob, 2002), something that is explored in more depth in chapter 5 of this thesis.

There is some debate around the exact pharmacological mechanisms of various psychedelic substances. However, the general consensus is that psychedelics cause neurotransmitter receptor hyperactivation within a number of receptor sites. The focal receptors, and the extent of this activation will vary depending on the substance used (Ray, 2010). Historically, the most commonly accepted mode of primary activity for the 'classic' psychedelics e.g. tryptamines, such as psilocybin and DMT is the stimulation of serotonin 5-HT<sub>2A</sub> receptors on cortical neurons (Gonzalez-Maeso & Sealfon, 2009; Vollenweider, & Kometer, 2010). Moreover, Cortical 5-HT<sub>2A</sub> receptor hyperactivation may affect the functioning of the cortico-striato-thalamo-cortical loops causing a disruption in the thalamic gating of sensory and cognitive information. It has been proposed that this process triggers a breakdown of cognitive integrity and results in the subsequent occurrence of aberrant feelings and perceptions (Geyer & Vollenweider, 2008).

It has also been suggested that psychedelics induce the presynaptic release of glutamate from thalamic afferents, leading to a subsequent overload of internal information in the cortex (Vollenweider, 2001). However, this is not the case for all psychedelics e.g. mescaline (Ray, 2010). Studies have revealed that NMDA agonists (e.g. ketamine), and classical serotonergic psychedelics (e.g. LSD) may actually enhance glutamatergic transmission via non-NMDA receptors in the frontal cortex, This commonality might indicate a shared mode of chemical action within the brain responsible for similar experiences with these divergent molecules (Vollenweider, 2004). However, more research is required to understand this action and its role in the psychedelic experience, which as a whole remains lacking in research.

Ray's (2010) study of the interaction of 25 psychedelics at 51 receptors, transporters, and ion channels found an affinity of the psychedelic drugs for 18 different sites indicating that psychedelics may not be as selective mechanistically as previously thought. This research raises doubt over the action of psychedelics being mediated primarily by action at the serotonin-2 receptors and especially 5-HT<sub>2A</sub>.

Ray (2010, 2012, 2016) highlights the likelihood that diverse psychedelic drug profiles are due to interactions with many different receptors, with a variety of subjective effects associated with each psychedelic substance being a direct result of these diverse interactions.

Ray (2012) specifically suggests the diversity of phenomena within the psychedelic experience correlates to the effect of psychedelics on the brain, which involves a population of neurons that have common properties and provide a specific mental function through the expression of a specific modulatory receptor.

More research is required in order to gain a deeper understanding of the potential mechanisms of psychedelics, and their potential relationship to phenomenal experience. However, work that has taken place has led to an important deeper understanding of the foundational mechanics of phenomenal experience as discussed in the following section (3.3). The author suggests by nature these foundational mechanics serve to describe the foundational neurological mechanisms of 'OBES'. For a review of how various psychedelic pharmacological mechanisms connect to and potentially produce anomalistic experiences including 'OBES' see Luke (2012).

### **3.3 Brain Entropy, Phenomenal Experience, and the Brain as a Filter**

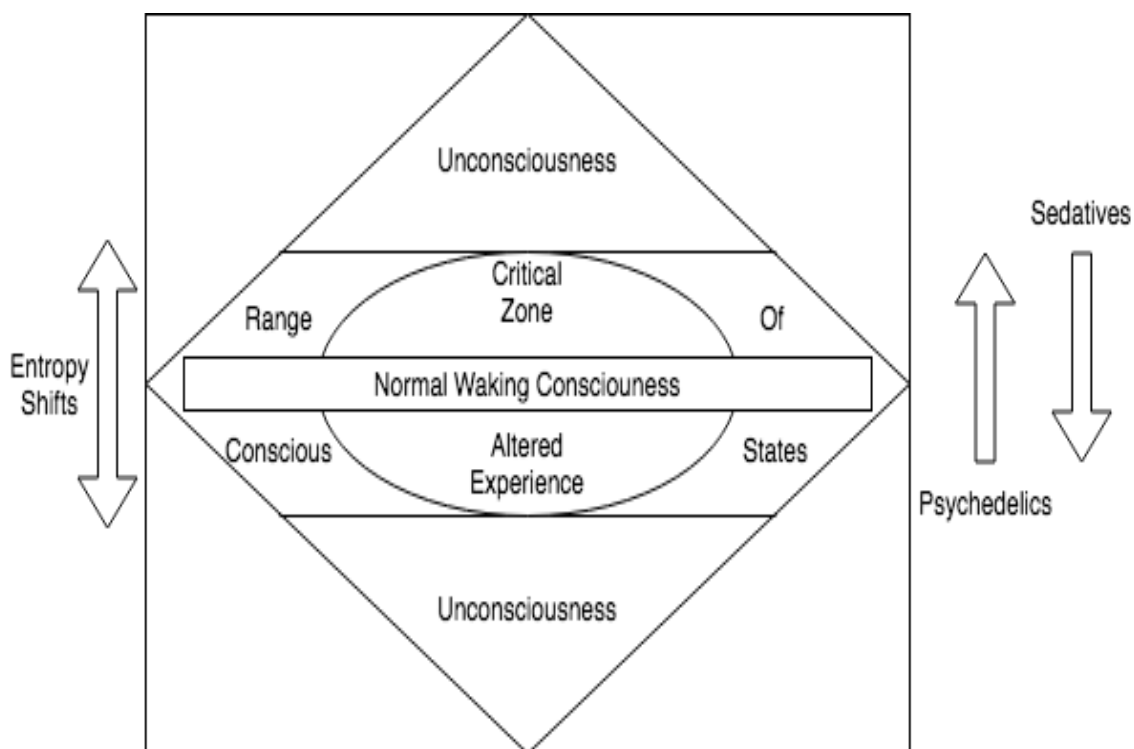
Important to the understanding of phenomenal experience, and in particular experiences within altered states of consciousness, e.g. 'OBES', is research on the mechanisms of psychedelics by Carhart-Harris et al., (2014). This research has led to



the suggestion that normal phenomenal experience lies within a critical zone at which the entropy of brain activity is neither too ordered nor disordered. This is illustrated in Figure (3.1) on the following page - a diagram, created by the author, depicting Carhart-Harris et al's (2014) theory, which resembles closely one that Carhart-Harris, (2018) presents. Moreover, they propose that psychoactive compounds can shift brain entropy upwards or downwards moving the brain outside of normal waking consciousness into a zone of criticality i.e., being poised at a "critical" point in a transitional zone between order and disorder causing a change of perception and eventual loss of consciousness.

**Figure 3.1**

*Brain Entropy Diagram*



(Carhart-Harris, 2018)

The hypothesis has gained further empirical support since its inception (e.g., Atasoy et al., 2017; Lebedev et al., 2016; Schartner et al., 2017; Tagliazucchi, Carhart-Harris et al., 2014; Viol, Palhano-Fontes et al., 2017).

Importantly, Carhart-Harris et al., (2014) suggest that when the brain is operating within the critical areas, cognitive processing and in turn, the phenomenal experience becomes easily biased by emotion, anxieties, wishes, and desires of the subconscious. For a recent review of entropic brain theory, see Carhart- Harris (2018).

So, from this research, we can set a foundational neurological process for the 'OBE'. Based on these understandings we can label 'OBES' as occurring due to a shift in brain entropy out of normal waking consciousness into a zone of criticality, which is an altered state that is easily biased by emotion, anxieties, wishes, and desires of the subconscious.

Taking this concept deeper, brain entropy theory has a similarity to Henri Bergson's (1896/1990) theory of the brain as a filter of memory and sensory experience. Bergson (1896/1990) proposed the brain at least partly acts to reduce the wealth of information available in order for people to avoid becoming overwhelmed by a mass of largely useless and irrelevant data not needed for survival. Bergson suggested that, if these filters were bypassed, humans would be capable of remembering everything that had ever been experienced and perceiving everything that has happened everywhere in the universe. Although this conclusion seems fantastical, it is at the least, one theoretical underpinning that explains the subjective experiences that appear to be reported in different formations during the psychedelic experience (Luke, 2012) and indeed during 'OBES' psychedelically induced or otherwise (e.g., Alverado & Zingrone 2015). The author suggests it would currently be more grounded to refer to this state as one that may lead a person to have a subjective experience of accessing information, they would otherwise be unable to access whether the information is transpersonal or purely personal.

Huxley, (1954) first applied Bergson's theory of psychedelics by suggesting that these drugs override the "reducing valve" of the brain (Huxley, 1954, p. 12).

The author suggests we can and should incorporate language from these concepts into our foundational neurological mechanism of 'OBEs'. Thus an 'OBE' becomes an altered state experience induced via the brains filtering-reducing valve shifting and impacting change in brain entropy to the point the brain moves into a zone of criticality away from normal consciousness, but not enough to bring unconsciousness. This process leads to an altered state that is easily biased by emotion, anxieties, wishes and desires of the subconscious. It is a state that may lead a person to have a subjective experience of accessing information they would otherwise be unable to access.

If we look further within research on psychedelics the author suggests we can also be more specific on areas within the brain important to this change in brain entropy and the 'OBE'.

### **3.4 The Role of the Default Mode Network in Phenomenal Experience**

Clear gaps remain in our understanding of the neurochemical action of psychedelics and their relationship to phenomenal experiences including exceptional human experiences like 'OBEs'. However, the work of Carhart-Harris et al., (2014) has modernised earlier concepts of the brain working as a complex filter modulating entropy within the brain. Moreover, this work has led Carhart-Harris et al., (2014) to further this understanding of the brain by highlighting altered functioning and coupling of the brain's default mode network (DMN), as important in the facilitation of the subjective effects of psychedelics and non-ordinary states of consciousness.

The DMN is a large-scale brain network of interacting brain regions known to be actively highly correlated with each other and distinct from other networks in the

brain (Buckner et al., 2008). The DMN, overall, is thought to be necessary for the maintenance of adult normal waking consciousness and is considered the neurological basis for the sense of self (Andrews-Hanna, 2012).

The DMN is comprised of:

- The midline core, including the anterior medial prefrontal cortex and posterior cingulate cortex/precuneus.
- The dorsal medial prefrontal cortex subsystem with the temporal pole, lateral temporal cortex, and temporoparietal junction.
- The medial temporal lobe subsystem with the ventral medial prefrontal cortex, posterior inferior parietal lobule, retrosplenial cortex, parahippocampal complex and hippocampal formation.

(Andrews-Hanna et al., 2010).

It appears likely that the hippocampus and parahippocampus, which belong to the medial temporal lobe (MTL) subsystem of the DMN and are known to dynamically interface with the rest of the network, also play a key role in the integration of sensory information and our experience of the self in egocentric and allocentric space (Andrews-Hanna et al., 2014). In particular, the parahippocampus appears to play a crucial role in mediating the functional connection between this MTL subsystem and the rest of the DMN, particularly in the absence of external stimulation (Huijbers et al., 2011; Ward et al., 2014).

#### ***3.4.1 Psychoactive Effects on the DMN and Links to ‘OBES’***

Carhart-Harris (2011) and Carhart-Harris et al (2012) reported that following the ingestion of psilocybin the usual positive coupling between the medial prefrontal cortex and the posterior cingulate cortex was reduced. Coupling means the relationship between oscillation phases between these two areas of the brain.

The connection between the medial prefrontal cortex and the posterior cingulate cortex has been suggested as important in introspection and high-level constructs such as the sense of self and human ego. Carhart-Harris et al., (2012) suggest this reduction in coupling leads to “a state of unconstrained cognition” (Carhart-Harris et al., 2012, p. 2138).

Carhart-Harris et al (2014) notably found that DMN-hippocampal coupling is decreased under psilocybin, and while DMN activity becomes desynchronous and therefore disorganised the amplitude of blood-oxygen-level dependent signal fluctuations increases in the hippocampus. This leads to the hypothesis that decreased MTL-DMN coupling allows the MTLs to function more independently of the DMN and this can result in unusual MTL activities, such as those recorded with depth electrodes in primary states (e.g., Grof, 1982; Bassett et al., 2008; Axmacher et al., 2010). Reports of similar phasic limbic activity have been observed in other altered states of consciousness, which are similar in phenomenology to the psychedelic state, e.g., acute psychosis, the “dreamy-state” of temporal lobe epilepsy, REM sleep, and electrical stimulation of the MTLs (Carhart-Harris, 2007; Carhart-Harris & Friston, 2010).

Research on ayahuasca consumption, has demonstrated that the psychedelic substances in the brew e.g. DMT lead to an increased frontal and paralimbic activation as measured via a single photon emission tomography (Riba et al., 2006) and also a decrease in the activity of core DMN structures as measured via fMRI (Palhano-Fontes et al., 2015). A similar decrease in the activity of core DMN structures has recently been observed with ketamine (Li et al., 2018; Scheidegger et al, 2012) as measured by fMRI. Likewise for LSD measured via three complementary

neuroimaging techniques: arterial spin labeling, blood oxygen level-dependent measures, and magnetoencephalography (Carhart-Harris et al., 2016).

The relevance of these findings and the understandings detailed in terms of the role of the DMN in phenomena experience (section 3.4) point towards an earlier proposal related to cortical functioning and phenomenal experience. Krystal et al., (1998) proposed integration between various cortical areas may be vital to the normal phenomenal experience, and dissociation might be caused via disruption of corticocortical, thalamocortical, amygdalocortical, and hippocampal cortical connectivity which may largely be NMDA receptor-mediated.

Here we can reaffirm within our theoretical understanding of ‘OBEs’ that they can occur due to changes in the filtering-reducing value of the brain in-turn causing shifts in brain entropy and bringing functional decoupling of the DMN leading to dissociation and other altered perceptions of reality. This connection is further supported by the established links between integral areas of the DMN e.g., parahippocampus, hippocampus, and temporoparietal junction to ‘OBEs’ and dissociative phenomena.

For example, the parahippocampus and hippocampus of the DMN have been implicated in the mammalian brain’s spatial mapping and memory. This implication appears to be now validated along with several brain areas, namely, the medial temporal lobe, posterior parietal cortex, prefrontal cortex, posterior cingulate cortex, and retrosplenial cortex (Herweg & Kahana, 2018).

Relatedly, temporoparietal junction (TPJ) activity is coupled with the hippocampus and related to other hallucinatory phenomena, sometimes associated with ‘OBEs’, such as an erroneous sense of presence (Wible, 2012). Moreover, transcranial magnetic stimulation of the TPJ was found to cause bodily distortions

that are sometimes associated with ‘OBEs’, with one participant reporting that at a point during the stimulation they were seeing their trunk and lower body from a location above that of their physical body (Blanke et al., 2002).

A similar study found disruption of the right TPJ using transcranial magnetic stimulation made the distinction between what may or may not be part of one's body on the basis of multisensory evidence more ambiguous. Therefore, this suggests that the TPJ is actively involved in maintaining a coherent sense of one's body, distinct from external objects (Tsakiris et al., 2008).

Further, a fMRI study was conducted on an individual who was able to induce an ‘OBE-type’ experience, which involved a mixture of visual and kinaesthetic perceptions of being in a location above their physical body. However, the individual did not perceive herself as being out of her body. Instead, she perceived her whole body as if it had moved up and did not appear to experience a strong sense of disembodiment (Smith & Messier, 2014). Relevantly, TPJ activation observed during the experience was consistent with patient cases that report autoscopy phenomena and out-of-body experiences when the functional integrity of that area is altered (Blanke, 2012; Blanke et al., 2004; Blanke & Mohr, 2005).

The link between DMN disruption and ‘OBEs’ is also found in research that highlights changes in the functioning of the DMN within ‘OBE’ induction conducive states as discussed in the next section.

### ***3.4.2 The DMN and ‘OBE’ Induction Conducive States***

If one attempts to explore further a possible disruption of connectivity within the DMN and physiological states that appear to facilitate ‘OBEs’, there appear to be three states that currently have enough DMN-based research to facilitate this: 1) sleep states; 2) meditative states; and 3) hypnotic states. The author will detail these links in

this section as further support for his hypotheses of a link between ‘OBEs’ and DMN disruption.

### Sleep States

Research has indicated via fMRI connectivity within the DMN is significantly decreased in individuals who are descending into sleep, (Larson-Prior et al., 2009; Sämann et al., 2011). Horovitz et al., (2009) found the same for participants who were deeply asleep, and this also appears to be the same for subjects who are lightly sedated (Greicius et al., 2008; Horovitz et al., 2008). Relatedly, Ward et al, (2013) found daytime somnolence, as measured by the Epworth Sleepiness Scale, is associated with a reduction in DMN functional connectivity. They also discuss results on sleep state research on the DMN suggesting that sleepiness, or a sleep-like state, correlates with decreased DMN connectivity. Further, this decrease in DMN connectivity may reflect a local sleep phenomenon, whereby parts of the brain enter a sleep state during consciousness as has been observed in rats (Vyazovskiy et al., 2011). Notably, sleep states encompass a set of altered states from which many ‘OBers’ report their experience commenced (Blackmore, 1982a).

### Meditative States

Specifically, during meditation, DMN brain regions have been shown to have relatively reduced activity compared to control conditions. This reduction appears most notably, in the angular gyrus, middle temporal gyrus, and precuneus (Tomasino et al., 2013). Relatedly, an earlier study found lower activity in the posterior cingulate cortex / precuneus during meditation compared to the resting condition (Brewer et al., 2011).

Garrison et al., (2016) more recently, found that during meditation DMN brain regions had relatively reduced activity within various regions, including the anterior



cingulate cortex, fusiform gyrus, middle temporal gyrus, and precuneus. Meditators also showed relatively lower activity in DMN regions than controls when at rest (i.e. not meditating). This result supports previous meditation-related research on functional connectivity in regions of the DMN, which has also been found to differ between meditators and controls, not only during meditation but also, at rest (Brewer et al., 2011; Pagnoni, 2012; Taylor et al., 2013). Furthermore, DMN connectivity was shown to be consistently reduced during meditation compared to control conditions across three standard mindfulness meditations: focused concentration, loving-kindness, and choiceless awareness (Brewer et al., 2011). This result was echoed when involving either focused attention meditation or the repetition of phrases (Tomasino et al., 2013). Notably, lasting reduced activation of functional connectivity of the DMN has been observed in long-term practitioners of meditation (Fox et al., 2014).

#### Hypnotic States

Surprisingly, there has been only a very small amount of research that has examined DMN during hypnotic states. Specifically, regarding the hypnotic state and DMN research, McGeown et al., (2015) found lower connectivity in the DMN during hypnosis facilitates experiences of greater hypnotic depth, which correlates to greater dissociation from the body in the hypnotised individual. Further, decreased DMN activity has been reported during hypnosis in high ‘hypnotisables’ meaning individuals who respond strongly to the majority of suggestions within hypnotic states (Deeley et al., 2012; McGeown et al., 2009).

The section highlights clear potential links to change in DMN functioning and the potential for ‘OBEs’.

### **3.5 The Foundational Neurological Mechanisms of ‘OBES’ so far**

The sections of this chapter so far have highlighted clear links between psychedelics and ‘OBES’, and have used the academic understanding of psychedelic experience to inform our theoretical understanding of the induction and formation of ‘OBES’. From this, we can gather that ‘OBES’ occur when the brain’s filtering-reducing value shifts impacting brain entropy to a degree that the brain moves outside of normal waking consciousness into a zone of criticality causing disruption in the DMN to such an extent that it causes significant functional decoupling of DMN leading to dissociation and other hallucinatory phenomena. What remains so far unclear within the theory the author is putting forward is during this disruption how are these altered perceptions accepted as real, form a new cognitive experience of reality, and what the filtering-reducing valve exactly is. These items will be discussed in the next sections (3.6) and (3.7).

### **3.6. The Cognitive Acceptance of the Altered Reality**

To answer how the altered perceptions during a shift in brain entropy and corresponding decoupling of the DMN are accepted as real forming a new cognitive altered experience of reality, the author suggests we must look at a neurological phenomenon that has an established relationship to ‘OBES’ but is somewhat better understood.

As noted in Sections 1.1, 2.1.3, and Table 2.1 there is an established relationship between dreaming, sleep states, and ‘OBES’. There are also established relationships between, dreaming, sleep states and the DMN.

The parts of the brain that are crucial for dreaming are areas previously noted to form part of the DMN. Firstly, the occipito-temporo-parietal junction is a part of the brain that performs the processing of perceptual information, abstract thinking,

and memorising of experiences. Dreaming as a whole appears to stop completely with damage at the highest level of the perceptual systems in the region of the occipito-temporo-junction (Bischof & Basset, 2004; Poza & Masso, 2006; Solms, 1997). Whereas only specific aspects of dream imagery are affected by damage at lower levels of the visual system, closer to the perceptual periphery in the region of the occipital lobe (Solms, 1997).

Secondly, crucial to dreaming is the deep matter of the frontal lobes of the brain in the ventral medial prefrontal cortex area, which contains a fibre pathway that transmits dopamine from the midbrain to the higher parts of the brain (Solms, 1997). Damage to this pathway renders dreaming impossible but it leaves the REM cycle completely unaffected (Jus et al., 1973).

Solms (1997) also notes that such damage leads to a massive reduction in motivated behaviour and to a reduction in some symptoms of psychotic illness, together with a cessation of dreaming (Frank, 1946, 1950; Partridge, 1953; Schindler, 1953).

In waking life, the brain is most active in the dorsolateral region at the front of the brain. During sleep activity it is concentrated in the memory and perceptual systems in the occipito-temporo-parietal region causing a shift from the motor end of the apparatus to the perceptual end. In dreams this path to the dorsolateral frontal convexity of the brain is blocked along with the motor output channels of the alpha motor neurons of the spinal cord (Braun et al, 1997, 1998; Pompeiano, 1980; Solms, 1997)

This block appears to be the immediate cause of the dream process assuming a regressive path, away from the motor systems of the brain, toward the perceptual systems. Moreover, this in combination with the relative inactivation of vital areas of

the reflective systems in the frontal parts of the limbic system leads to the imagined dream scene being accepted as real perception (Solms, 1997).

The author suggests that ‘OBEs’ follow this same fundamental process to acceptance within the cognitive system when there is enough of a shift in entropy to move the brain into a zone of criticality and corresponding DMN decoupling but not enough to bring unconsciousness. This process like in dreams causes a shift from the motor end of the apparatus to the perceptual end. The perceptual experience is then accepted as reality providing there is significant enough disruption / deactivation to:

1. The dorsolateral frontal convexity of the brain.
2. The motor output channels of the alpha motor neurons of the spinal cord.
3. Vital areas of the reflective systems in the frontal parts of the limbic system.

It is this process that creates a fully immersive ‘OBE’.

### **3.7 The Brain’s Filtering Reducing Valve**

Smythies, (2011) proposed that the NMDA receptor system, which runs continuously even when asleep, is the Bergson brain filter mechanism. However, it has been noted that the same could be proposed for the serotonergic system (Luke, 2012). Both the NMDA and serotonergic systems are considered a vital part of how the central nervous system processes stimuli and generates our phenomenal experience of reality. These systems form part of a larger overall neurochemical system that regulates our experience of reality (Deutch & Roth, 1999). Notably, the author suggests the concept that the filter-reducing system is endogenous neurotransmitter chemical systems known to influence our sense of awareness and subjective experience is a sensible suggestion.

These systems are how signals travel around the brain from one neuron to another via the release of neurochemicals at synapses that travel to other neurons to create a new electrical wave and thus communicate information around the brain modulating the running of the system (Sivadas & Broadie, 2022).

The author suggests it is more logical to view the whole neurochemical system as the valve filter system as opposed to one single chemical system.

What follows immediately is research that highlights several endogenous neurochemical systems that together theoretically form part of the filtration-reducing valve system broken down into 6 sections. Each section in the description makes a case for the role of each of the chemicals within this system and a case for them as direct potential factors in the induction and formation of 'OBES'. Ideally, there would be ranking of these from best case neurochemicals to least based on research with psychoactive drugs i.e., the neurochemicals most likely to have the biggest role in inducing and 'OBE' to the least. Unfortunately, such data does not currently exist and a large-scale study accessing the semantic similarity of written reports of psychoactive drugs and 'OBES' is beyond the scope of this thesis. However, a large-scale study accessing the semantic similarity of written reports of psychoactive drugs and NDEs has occurred (i.e., Martial et al., 2019). Whilst this is not an innate perfect phenomenological match, and, as has been noted, whilst the core features of NDEs vary in definition and number across the literature, an OBE is nearly exclusively found to be one of the main traits of an NDE (e.g., Morse & Perry 1994). Thus, this is the most relevant data available to make assessments regarding best case neurochemicals to induce 'OBES' currently. From reviewing Martial et al., (2019) and the data of various neurochemicals, the endogenous neurochemicals have been ranked below from most likely to influence 'OBE' induction to the least:

### 1. Glutamate and Gamma-Aminobutyric Acid.

Glutamate is responsible for sending signals between nerve cells and is the most abundant excitatory neurotransmitter in the vertebrate nervous system (Meldrum, 2000). Thus, it has obvious potential importance to theory relating to brain filtration valve and brain entropy.

Research has long indicated that glutamate might be relevant to dissociation in that sub-anaesthetic doses of the NMDA receptor antagonist, ketamine, have been found to induce subjective experiences characteristic of depersonalisation, including feelings of being out of the body (Krystal et al., 1994). On the basis of these findings, it has been hypothesised that stress, acting through NMDA receptors in the hippocampus, may mediate symptoms of dissociation (Chambers et al., 1999). Notably, Martial et al., (2019) found NMDA receptor antagonist ketamine consistently resulted in reports most similar to those associated with NDEs. Moreover, the category of drugs that have the strongest impact on the NMDA system are dissociative, which had highest group average ranking in semantic similarity to NDE narratives.

As mentioned previously, the integration between various cortical areas may be vital to normal phenomenal experience and dissociation might be caused via the disruption of connectivity between these areas, which may largely be NMDA receptor-mediated. It is understood that the altered state of consciousness, induced by ketamine, is produced via increased glutamate release in response to NMDA receptor blockades, with a consequent excess of glutamate activity at non-NMDA glutamate receptors (Abel et al., 2003; Pikwar, 2011).

Research has indicated that treatment with mGluR2/3 agonists reversed cognitive deficits induced by NMDA receptor antagonists in rodents (Moghaddam &

Adams, 1998). Further, presynaptic glutamate release antagonist, lamotrigine, blocked psychotomimetic effects of ketamine in normal human volunteers (Krystal et al., 2005). This indicates that blocking presynaptic glutamate may restore an important balance between glutamate and gamma-Aminobutyric acid (GABA) systems. Moreover, glutamate acts at several receptor types, in addition to NMDA, and it is the theoretical balance between these receptors, as well as the balance between the excitatory action of glutamatergic against the inhibitory GABAergic neurotransmission, which may be critical in phenomenal experience.

Pikwer, (2011) discusses the effects of the administration of low-dose ketamine, which mimic both clinical and gross neuroimaging of depersonalisation disorder. He suggests depersonalisation symptoms are perhaps caused by an imbalance between glutamate and GABA. Further, this results in long-term potentiation, at the postsynaptic glutamate receptors on the GABAergic interneurons along with the same receptor abnormality at the synapses on the intercalated GABAergic cells of the amygdala. This process forms a long-term depression in the case of either normal or high glutamate release. It is known that stress increases glucocorticoid levels, which, in turn, increase glutamate levels causing an imbalance between the chemical, and GABA. This process is believed to generate neuropsychiatric disorders and aberrant perceptions of reality (Popoli et al., 2012).

These concepts are supported by observations that benzodiazepines, which are GABA receptor agonists, can reduce symptoms of depersonalisation and derealisation. These include the benzodiazepine drugs phenazepam, (Nuller 1982), and clonazepam, (Stein & Uhde 1989), and likewise, a combination of benzodiazepines and serotonergic activity drugs citalopram-clonazepam (Sachdev, 2002).

Notably, a recent case report acknowledged depersonalisation and derealisation symptoms induced in one subject through consumption of a GABA receptor agonist (Abedini & Esmaeili, 2017). This further suggests the importance of a balance of glutamate and GABA receptor activation in the brain and that an imbalance favouring either can cause similar dissociative symptoms.

Furthermore, cannabinoids such as marijuana have been consistently shown to induce depersonalisation, with a study of 117 subjects with depersonalisation disorder finding 13% indicated acute triggering of chronic depersonalisation by marijuana use (Simeon et al., 2003). To be clear, within this thesis the word chronic means persisting for a long duration or consistently recurring. In addition to its action on cannabinoid receptors whose function remains unclear, cannabinoids have been found to block NMDA receptors at sites that are distinct from other non-competitive antagonists (Feigenbaum et al., 1989). As such, their dissociative effect may also be induced via NMDA receptors. Notably, there appears to be a strong relationship between acute anxiety and symptom onset in cannabis-induced depersonalisation-derealisation disorder (Sierra, 2009). Persons who experience prolonged depersonalisation-derealisation symptoms following cannabis use often report experiencing a panic attack during intoxication (Simeon et al., 2009), again suggesting a prominent role for the stress system, and stress-related hormones in the dissociative symptoms.

Altogether, this research and theory highlight a potential need for a balance between glutamate and GABA in order to produce the normal range of human phenomenal experience. Furthermore, that an imbalance could lead to theoretical changes in brain entropy and DMN decoupling resulting in dissociation and other aberrant perceptions.



Thus, glutamate and GABA have clear implications for brain filtering-reducing valve and brain entropy theory.

## 2. Opioids, Norepinephrine, Epinephrine.

In a review of the properties and role of endogenous opioids in the stress system, Valentino and Van Bockstaele (2015) highlight that the locus coeruleus-norepinephrine (LC-NE) stress response system is activated by stressors in parallel with the hypothalamic-pituitary-adrenal axis. Notably, norepinephrine, the precursor to epinephrine, is both vital in the body's fight or flight response and need for increased arousal and alertness, enhanced formation and retrieval of memory, and focused attention in such moments of stress. The activation of the LC-NE stress response plays an integral role in initiating and maintaining arousal, facilitating certain behavioural and cognitive responses to stress, and the fight or flight response.

The LC is a compact cluster of NE neurons in the pons that serves as the primary source of brain NE (Grzanna and Molliver, 1980). It is co-regulated by CRH and endogenous opioids e.g. ( $\beta$ -endorphin, dynorphin endomorphin and the enkephalins) as anti-stress mediators, in a manner that opposes pro-stress mediator CRH, perhaps, most notably enkephalins. Notably, Martial et al, (2019) found *S. divinorum*, which is a plant containing a potent and selective  $\kappa$  opioid receptor agonist, to produce reports second in similarity to NDEs.

Endogenous opioids serve to restrain stress-induced excitation and also promote recovery when the stressor is no longer present. Notably, opioids have been recognised for their strong analgesic quality and endogenous opioids have been recognised as having the same quality (Holden et al., 2005). The anti-stress activity of endogenous opioids is perhaps specifically mediated by the  $\mu$ -opioid receptor, the receptor that shows greater selectivity for  $\beta$ -endorphin, endomorphin, and enkephalins

(Akil et al., 1984, Sora et al., 1997, Drolet et al., 2001). Contrastingly, stress-like aversion has been associated with the dynorphin- $\kappa$ -opioid receptor system (Chavkin, 2013). It is considered essential to have such mechanisms in the human brain in order to limit the activity of stress response systems and promote prompt recovery to pre-stress levels. For example, activation of the hypothalamic-pituitary-adrenal axis by stress is known to be under tight feedback regulation, which serves to restrict and terminate the stress response (Dallman et al., 1972). Dysfunctions in this feedback, as a result of chronic stress, or even a single severe stress event, are thought to underlie the link between stress and many neuropsychiatric diseases.

Dysfunctions in the LC-NE system can lead to an imbalance of stress hormone activity. A prominent example here is in contrast to acute stress where CRH excitation predominates, and opioids act to calm this response and promote recovery. With repeated stress, the influence of CRH is diminished and the balance is tipped in favour of opioid regulation. The opposing influences of CRH and endogenous opioids on LC activity must be finely tuned for the system to maintain homeostasis. An imbalance between CRH and opioid influences may be a basis for individual resilience or vulnerability to stress (Valentino and Van Bockstaele, 2014).

Notably, research has also suggested endogenous opioids partly regulate hippocampal function via inhibiting GABA release from inhibitory interneurons (Simmons & Chackin, 1996), and via the reduction of neuronal excitability through presynaptic modulation of NE (Simmons et al., 1992).

Relevant to dissociative phenomena, research has found a marked basal NE decline associated with increasing severity of dissociation in participants with depersonalisation disorder (Simeon et al., 2003). This observation potentially indicates an increase of endogenous opioids and a decrease of CRH resulting in NE

decline is connected to an increase in dissociative phenomena. Furthermore, it suggests that endogenous opioids are perhaps a cause of depersonalisation symptoms. It is thought that endogenous opioid deregulation has the potential to induce opiate-modulated dissociative phenomena, including depersonalisation and derealisation. Furthermore, this hypothesis is supported by studies that have shown opioid receptor antagonists such as naltrexone and naloxone can reduce symptoms of depersonalisation and dissociation (Nuller et al., 2001; Pape & Wöller, 2015; Simeon, & Knutelska, 2005).

Endogenous opioids have been hypothesised as a potential cause for NDE phenomena, specifically, dynorphin, due to its very high affinity for the k-opioid receptor, which has been found to mediate hallucinations and ‘OBEs’ (Nichols, 2017). Overall, the role of endogenous opioids in the formation of dissociation, dissociative disorders, and ‘OBEs’ remains a very promising route for further exploration. It is quite surprising that more research has not taken place on this concept, given the success of opioid receptor antagonist research. Furthermore, research on the effect of opioids on the DMN could be quite fruitful and has clear implications for brain filtering-reducing valve, brain entropy, and ‘OBE’ theory.

### 3. Serotonin

As noted, many classic psychedelics that can profoundly affect mood, perception, cognition, and induce ‘OBEs’ are serotonin receptor agonists. Notably, Martial et al, (2019) found reports of a list of serotonergic psychedelics to follow *S. divinorum* in being most like ‘NDEs’ for example *Lophophora williamsii* (peyote), *Psilocybe* spp. (psilocybin mushrooms), DMT, iboga (*Tabernanthe iboga*), ibogaine, ayahuasca, mescaline (*Echinopsis peruviana*), LSD, 5-acetoxy-N,N-dimethyltryptamine (5-AcO-DMT), and N,N-dipropyltryptamine (DPT).

Further, in a study of 117 subjects with depersonalisation disorder, 6% reported the induction of chronic depersonalisation by acute psychedelic use (Simeon et al., 2003), suggesting a possible role of serotonin in depersonalisation and ‘OBES’. However, research has indicated that the dissociative effects of certain psychedelics are likely not directly mediated by the serotonin 5-HT<sub>2A</sub> receptors, e.g., MDMA (Puxty et al., 2017). Moreover, serotonin receptor agonists such as lisuride lack comparable psychoactive properties. Research has indicated this might be due to specific differences in the interaction between agonists and receptors (González-Maeso et al., 2007). Theoretically, these differences in interaction might result in variation of the activation of these receptors and thus, differences in effects on phenomenal experience.

Nevertheless, serotonin is known via its action on postsynaptic and presynaptic receptors to be involved in cognition, mood, impulse control, and motor functions by modulating the activity of different neuronal types and varying the release of other neurotransmitters, such as glutamate, GABA, dopamine, and acetylcholine (Celada et al., 2013). Thus, serotonin has a clear potential role in the formation of change in brain entropy, and DMN functioning, and as such a potential role in brain filtering-reducing valve theory along with the formation of dissociation and ‘OBES’.

#### 4. Acetylcholine

Acetylcholine functions in the central nervous system, where its projections from the basal forebrain to the cerebral cortex and hippocampus support the cognitive functions of those areas (Picciotto et al., 2012). Notably, Martial et al., (2019) found the category of drug deliriant to produce the second highest category score of reports

similar to NDEs. Deliriant are, for example, solanaceae plants rich in anticholinergic tropane alkaloid.

A disruption of the supply of acetylcholine to the hippocampus and adjacent cortical areas produces forgetting, comparable to anterograde amnesia in humans (Easton et al., 2002). Due to its relationship with the hippocampus and the discussed involvement of the hippocampus in the induction of ‘OBES’, acetylcholine has clear potential involvement in the induction and formation of ‘OBES’.

Further, to the possible involvement of acetylcholine in ‘OBES’, in the parasympathetic nervous system, acetylcholine release activates muscles and is the main neurotransmitter in the autonomic nervous system, where it activates nicotinic acetylcholine receptors on postganglionic neurons. In response to this stimulus, postganglionic neurons principally release norepinephrine, which facilitates a fight, or flight response (Rea, 2014). Due to its importance to the fight or flight response, acetylcholine has, again, clear potential involvement in the induction and formation of ‘OBES’. This involvement is via the previously mentioned potential role of the fight or flight response in the induction of ‘OBES’ related to cortisol and LC-CE stress response.

The role of acetylcholine in dissociation remains somewhat unexplored within academia. Nevertheless, from the available literature and corresponding research, it is clear that acetylcholine can have dramatic effects on brain entropy. Thus, theoretically, it can have an impact the induction of dissociation and ‘OBES’. Further, its importance to hippocampal functioning and the fight or flight response provides direct ways that acetylcholine levels and responses can have an impact on the induction and formation of dissociative phenomena and ‘OBES’.

##### 5. Dopamine

Notably, Martial et al., (2019) found the category of stimulants to be the sixth out of seven categories for producing reports most like NDEs. However, reports of NDE type phenomena and dopaminergic drugs were still present.

It is also important to acknowledge the existence of the “all dopamine” hypothesis, which suggests all hallucinations may be related to an excessive transmission of dopamine. (Rolland et al., 2014). Specifically, within the “all dopamine” hypothesis, activation of D2Rs is considered to be indispensable to induce any form of psychosis and hallucinations (Seeman et al., 2005), which would, of course, include ‘OBEs’ and dissociative phenomena.

An important role of dopamine in hallucinations has been further grounded by various imaging techniques, which have confirmed that the hallucinations were associated with an increase in dopaminergic activity in the striatum (Abi-Dargham et al., 1998).

It has also been highlighted that a hyperdopaminergic state can lead to the impaired computation of prediction errors as well as the aberrant assignment of salience to elements from one’s personal experience (Heinz and Schlagenhauf, 2010). Hallucination could reflect the direct experience of these aberrantly salient experiences and attempts to make sense of them would result in delusion (Corlett et al., 2007; Kapur, 2003). This latter suggestion demonstrates how dopamine levels and activity could impact the induction and level of immersion into an ‘OBE’.

Notably, an excessive transmission of dopamine has become the main pharmacological model in schizophrenia (Van Os, & Kapur, 2009) and Glutamate-dopamine balance in the brain also appears important to cognition. Glutamate imbalances appear to cause abnormal functioning in dopamine. For example, when levels of glutamate are low, dopamine is overactive and results in the expression of

schizophrenic symptoms (Javitt, 2007). Whilst there is currently no direct connection between 'OBE's and schizophrenic hallucination research has found connections between schizotypal traits and the occurrence of 'OBEs' (McCreery, 1993; McCreery & Claridge, 1996b, 2002; Parra, 2008; Wolfradt & Watzke, 1999). However, there are no other studies specifically examining the frequency of 'OBEs' in a sample with a history of schizophrenia against a control group. It is clear such a study needs to take place to examine any possible relationship between hyperdopaminergic states, schizophrenia, and 'OBEs'.

Dopamine is clearly an important neurotransmitter, its release, and activity have a clear role in certain hallucinatory states, and may have a role in dissociative phenomena, 'OBEs' and phenomena known to occur as part of the phenomenon. Further, it would appear that an imbalance of dopamine in particular in the prefrontal cortex leads to a disruption in connectivity within this area of the brain and loss of integrity of brain networks. This results in unregulated cortical activity that can be experienced as hallucinations. A dopaminergic-induced change of neuronal connectivity in the prefrontal cortex is at least, at times, perhaps important in changing the experiencer's capacity to focus on perceptions of the external world, to think logically, and to make logical decisions. This could lead to a greater immersion into hallucinatory experiences, theoretically 'OBEs', and at times can lead to hallucinatory events being accepted as real leading to delusions.

Furthermore, as noted in Sections 1.1, 2.1.3, and Table 2.1 there is an established relationship between dreaming, sleep states, and 'OBEs'. The author expands theoretically on this relationship in Section 3.6. suggesting certain neurological mechanisms of, dreaming, sleep states and 'OBEs' in connection with DMN decoupling to be fundamentally similar if not matching processes. Thus, it is

important to note here established relationships between dopamine, dreaming, sleep states and the DMN.

The parts of the brain that are crucial for dreaming, as previously noted do form part of the DMN. Firstly, the occipito-temporo-parietal junction is a part of the brain that performs the processing of perceptual information, abstract thinking, and memorising of experiences.

Secondly, crucial to dreaming is the deep matter of the frontal lobes of the brain in the ventral medial prefrontal cortex area, which contains a fibre pathway that transmits dopamine from the midbrain to the higher parts of the brain (Solms, 1997). Damage to this pathway renders dreaming impossible but it leaves the REM cycle completely unaffected (Jus et al., 1973).

Solms (1997) also notes that such damage leads to a massive reduction in motivated behaviour and to a reduction in some symptoms of psychotic illness, together with a cessation of dreaming (Frank, 1946, 1950; Partridge, 1953; Schindler, 1953).

Relatedly, excessively frequent and vivid dreaming, which is caused by dopamine stimulants, can be stopped by drugs (like antipsychotics) which block the transmission of dopamine in this pathway (Sacks, 1985, 1990, 1991).

Solms, (2001) highlights that the function of the higher brain pathway is to instigate goal-seeking behaviours and to motivate the individual towards seeking out and engaging with the external environment in order to satisfy inner biological needs. This suggests that dreams are motivated phenomena, driven at least in part by our desires. These findings bear parallels to Sigmund Freud's theory of the cause of dreaming being the 'libidinal drive' (Freud, 1900). Indeed, dream reports also appear to be biased toward content with emotional and motivational value (e.g. fighting,



sexual or social activity), and less oriented toward life content with little to no libidinal value e.g. cleaning the home, (Schredl, 2010).

If we accept a potential relationship between dreaming, sleep states, dopamine, and ‘OBEs’ then we also must accept a potential relationship between ‘OBEs’ being at least in part a motivational behaviour. Moreover, we must accept the phenomenon as modulated in part by dopamine transmission through important points within this neurochemical’s system, which as noted by the author impact important regions of the DMN.

Overall, dopamine has clear implications for the theory on brain filtering-reducing valve, brain entropy, and ‘OBE’ theory.

#### 6. Corticotropin-Releasing Hormone, Adrenocorticotropin, and Cortisol

Corticotropin-releasing hormone (CRH) is a peptide hormone released within the brain in response to stress, which in turn raises the secretion of adrenocorticotropin from the pituitary gland with its primary effect being, raised production of cortisol from the adrenal gland. This process can effectively be seen as a pro-stress response where the brain is following an understanding of a need for increased arousal and alertness, enhanced formation and retrieval of memory, and focused attention (Smith & Vale, 2006). Thus, it could be theorised any ‘OBE’ occurring during a state of high stress would likely be occurring within heightened levels of cortisol. Notably, research on psychedelics has found a relationship between psychedelic consumption and accurate rise in cortisol e.g., (de Menezes Galvão et al, 2016; Mason et al., 2022; Strajhar et al., 2016), which means it may have a role in shifting brain entropy and the effects of the psychedelic substances.

Further, cortisol is perhaps a factor in inducing or amplifying dissociation and could be directly related to the emergence of ‘OBE’ phenomena. This suggestion is

based on research that has found relationships between cortisol, dissociation, and dissociative disorders (Bob et al., 2008; Giesbrecht et al., 2007; Koopman et al., 2003; Simeon et al., 2007). With this factor, it would be expected that individuals who have suffered from anxiety or depression would, perhaps, have ‘OBES’ more frequently than persons who have not suffered with these conditions as depression and anxiety are associated with high cortisol levels (Tirabassi et al., 2014). Furthermore, the major neuroendocrine system that controls reactions to stress the Hypothalamic–pituitary–adrenal axis, under chronic stress can become damaged, which results in deregulation of cortisol and potentially chronically high cortisol levels (Guilliams & Edwards, 2010). Increased cortisol levels normally return to the basal levels via feedback inhibition mechanisms through the hypothalamus, prefrontal cortex, and hippocampus (Mizoguchi et al., 2003). However, when stressful stimuli are repeated chronically, circulating cortisol is maintained at higher levels over a prolonged period. Chronically elevated cortisol levels can cause damage to hippocampal and cortical neurons (Sapolsky et al., 1986), and it is now clear that early life stressors can modulate Hypothalamic–pituitary–adrenal axis activity leading to increased susceptibility to psychopathology (van Bodegom et al., 2017).

As expected, there is evidence that anxiety and depression are related to the occurrence of dissociation (e.g. Ball et al., 1997; Boysan, 2014; Gleaves, & Eberenz, 1995; McCann & Pearlman, 1990; Molina-Serrano et al., 2008; Putnam, 1995; Soffer-Dudek, 2014; D. J. Stein et al., 2013; Warshaw et al., 1993).

However, to date, there has not been any research seeking to explore a direct relationship between cortisol and ‘OBES’. It is possible that chronic atypical cortisol levels, atypical cortisol levels in response to a stressful event, or a combination of the two could contribute to dissociative symptoms and in certain cases the induction of

‘OBES’. In particular this may occur via cortisol's ability to potentiate a stress response resulting in stronger and longer fight or flight reactions. However, the potential role of cortisol in dissociative symptoms remains unclear and requires investigation.

Overall, it is clear CRH, adrenocorticotropin, and cortisol have clear implications for brain filtering reducing valve, brain entropy, and ‘OBE’ theory.

### **3.8 Conclusion to FVEBD Neurochemical Component**

Regardless of whether the neurochemical system is or is not a filtering-reducing valve, it is clear that endogenous neurochemicals are well-documented regulators of neural dynamics and play a pivotal role in modulating brain states. There is clear potential from that for the endogenous neurochemicals to influence brain entropy, DMN decoupling, and dissociation to the extent of ‘OBES’. This model posits that these neurochemical fluctuations serve as a unifying mechanism linking these phenomena. This provides a first cohesive framework for understanding how endogenous neurochemicals that drive critical aspects of brain function and mental states, may be influencing ‘OBE’ induction and phenomenology. This offers new lines of investigation via the lens of this model that can offer new insight into this phenomenon.

### **3.9 Limitations of FVEBD Theory**

It is important to highlight the limitations of this new proposed model for ‘OBES’. Firstly, the model is based on the suggestion of the brain acting as a filtering-reducing valve. This hypothesis, as discussed previously, dates back to the work of Bergson (1896/1990) and then in connection to psychedelics via Huxley (1954) and the NMDA receptor system with Smythies (2011). All of these aforementioned approaches have limitations. From reviewing the hypotheses, they appear to lack

empirical evidence and potentially oversimplify brain function. The general theory acknowledges the brain as merely a limiter or reducer of consciousness. However, the modern perspective of the brain is one of it performing complex integrative functions, actively constructing rather than simply filtering experiences and this complexity is not fully accounted for in the reducing valve theory. Nevertheless, many idealists still prefer a filter theory for consciousness and in order to explain phenomenal experience (REFs?). This modern view is subject to similar criticisms of oversimplification, being descriptive rather than explanatory, and unable to address Chalmers' (1995) hard problem of consciousness (Masi, 2023).

Addressing the limitations of the filter-reducing valve theory would require integrating it with more detailed and mechanistic models of brain function, as well as rigorous empirical testing. Notably, the author has taken a step in this direction with integrating theory with the Carhart-Harris et al, (2014) and Carhart Harris, (2018) brain entropy theory in the context of 'OBEs', however their model has its own limitations which will be discussed within this section. Regarding gathering empirical evidence to support filtering reducing valve theory, this provides continual challenges relating to a lack of understanding of the nature of consciousness which mean the hypotheses can be seen more as a theoretical framework or philosophical metaphor for describing consciousness and phenomenal experience to which we can subjectively connect to research results. For example, research that suggests higher brain entropy is associated with a more unconstrained brain state, potentially corresponding to reduced filtering and greater access to a wider range of information (e.g., Carhart-Harris, et al 2014).

As noted, this model is also based on the Carhart-Harris et al, (2014; Carhart-Harris, 2018) brain entropy model which has its own limitations that carry over to

FVEBD. While entropy offers a quantitative marker, it does not explain how specific content of consciousness arises which includes ‘OBEs’. The model does not sufficiently address how brain entropy dynamically adjusts to the demands of specific cognitive tasks or behavioural contexts. In this way, without a detailed understanding of the neural basis, the model risks being descriptive rather than explanatory.

Relatedly, it does not clarify whether changes in entropy cause changes in consciousness or are merely correlated with them. Furthermore, their reliance on psychedelics may lead to an interpretation of brain entropy and findings that may not generalise to non-drug-induced states of altered consciousness.

Relatedly, the FVEBD’s reliance of the impact psychedelic and other psychoactive substances on the DMN may not generalise to non-drug induced states. Moreover, it requires further refinement via an understanding of the impact of variation in mechanisms of psychoactive substances in that all drugs that change entropy, lead to DMN decoupling, and that are associated with ‘OBE’ phenomena, do not induce dissociative phenomena like ‘OBEs’ to the same extent e.g., antidepressants with NDE phenomena (Martial et al.,2019). This variation which is likely caused via variation in distinct pharmacological mechanisms, as noted in section 3.2, is not something the model itself can directly establish.

Nevertheless, such variation in pharmacological effect might be explained through variation in entropy or DMN decoupling. Thus, a further refinement of the theory should seek, via testing, to establish specific ranges of drug levels that correlate to ranges of shift in entropy, DMN decoupling, and ranges of ‘OBE’ phenomena. Bearing in mind antidepressant and other drug categories have still been found to induce NDE like phenomena on occasion (e.g., Martial et al., 2019).

As it appears, both an increase and decrease in entropy can lead to DMN decoupling which provides a lack of a direct contrasting DMN state in which to test the immergence of ‘OBE’ phenomena. What is left is a neutral subjective non ‘OBE’ state and then a subjective state of the ‘OBE’. Lastly, due to how novel the model is, it lacks (direct) evidence of functional decoupling of the DMN during ‘OBES’. How the FVEBD model has testability and can gather direct evidence will be discussed in the following section 3.10.

### **3.10 How FVEBD Theory can be Tested**

In section 3.9 the current limitations with the FVEBD model were highlighted. However, these limitations do not make the model entirely untestable.

The direct testability will rely on measures used to establish the brain entropy of fMRI, EEG, and magnetoencephalography (MEG) as acknowledged in Carhart-Harris, (2018) to provide baseline measures of entropy outside of an ‘OBE’ state and confirm if entropy has changed during a drug induced, TMS or naturalistic ‘OBE’ state. Moreover, DMN functional coupling can provide a baseline measure of utility outside of such induced ‘OBE’ states and can confirm if coupling is reduced during the ‘OBE’ state. Doing so utilises measures used to establish DMN decoupling of fMRI, EEG, and MEG as acknowledged in Carhart-Harris et al (2014).

However, this testing work is outside of the scope of this thesis. What can be explored are correlations between the current proposal and physiological and psychological factors that could influence the degree of the decoupling within the DMN within FVEBD, and the abundance of ‘OBE’ phenomena experienced by individuals following a similar approach to Alvarado and Zingrone, (2015).

### **3.11 Conclusion on a Foundational Neurological Mechanism for ‘OBES’**

To conclude, based on the research from all sections (3.2+) it is proposed ‘OBES’ are caused by changes in the filtering-reducing value of the brain in-turn causing shifts in brain entropy, and bringing the brain into a zone of criticality, but not enough to bring unconsciousness.

This process causes decoupling of the DMN and a shift from the motor end of the apparatus to the perceptual end. Providing there is enough disruption / deactivation to the dorsolateral frontal convexity of the brain, the motor output channels of the alpha motor neurons of the spinal cord, and vital areas of the reflective systems in the frontal parts of the limbic brain, then the distorted information within the brain is accepted as the present view of reality creating a fully immersive ‘OBE’.

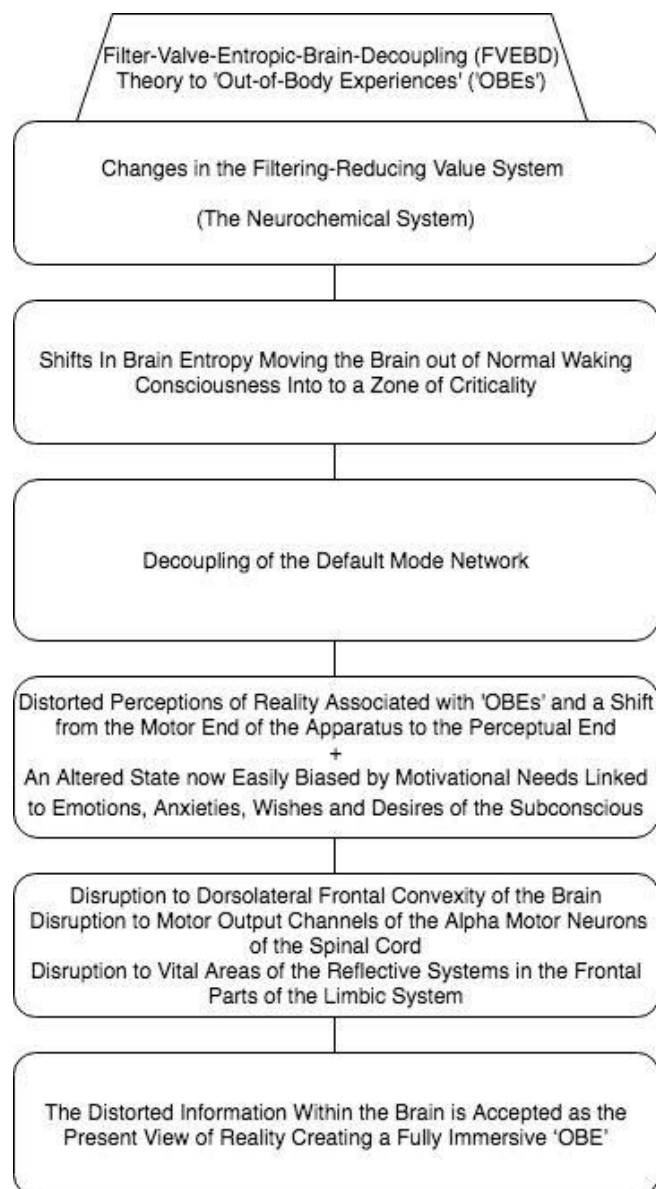
Further, the altered state created by moving out into a zone of criticality and DMN decoupling is one easily influenced by motivational needs linked to emotions, anxieties, wishes, and desires of the subconscious. A state that may lead a person to have a subjective experience of accessing information they would otherwise be unable to access. This is a theory that the author names Filter-Valve-Entropic-Brain-Decoupling (FVEBD) theory of be ‘OBES’. The author has included a diagram detailing FVEBD on the following page.

Whilst the theory has clear limitations, as described in detail in section 3.8, it has, at least in part, renewed cognitive and neurological understanding of ‘OBES’ and presented a new line of investigation via its lens, and provided testable relationships as discussed in section 3.9 with the mechanisms of prior theories being less refined than FVEBD. As acknowledged in section 3.8, this new theory fundamentally has no less of a descriptive basis than others when explaining phenomenal experience, and it

provides a new opportunity to explore hypotheses derived from it that can potentially help address 'OBE' theory tasks, 1, 2, and 3. This exploration via the model can help provide new insights, insights discussed further in the following sections of this chapter.

**Figure 3.2**

*FVEBD Theory of 'OBES'*



Now this modern and more developed neurological theory of 'OBES' is in place the author will explore if this new theory can help address 'OBE' theory tasks,



1, 2, and 3 and through this process organically expand on elements of the theory itself.

### **3.12 Addressing ‘OBE’ Theory Task 1 With FVEBD**

Task 1: How these experiences can occur in all of the diverse sets of induction states and what are the accompanying foundational neurological mechanisms?

FVEBD and the research within sections (3.2 – 3.15) have highlighted how the mechanisms of change in the brain's filter-reducing valve, brain entropy, and decoupling of the DMN provide a foundational neurological basis for ‘OBE’ induction and formation across all induction states. The various findings also provide a solid foundation on which to understand and further the understanding of ‘OBEs’ and dissociative phenomena.

### **3.13 Addressing ‘OBE’ Theory Task 2 With FVEBD**

Task 2: What differentiates people who experience an ‘OBE’ from those who do not, in the same circumstances?

The cause of induction of ‘OBEs’ within the author’s neuropsychological hypothesis is an appropriate degree of DMN decoupling influenced via changes in brain entropy influenced via shifts of the brain’s filtering-reducing valve. What follows immediately is the author's proposal that five physiological and three psychological factors would influence the degree of the decoupling within the DMN within FVEBD.

#### ***3.13.1 Physiological Factor 1: Innate Differences in Individuals DMN Connectivity, Sensitivity to Significant Changes in Brain Entropy and the Filtering-Reducing Valve***

It is possible that individual innate differences in DMN connectivity and sensitivity to significant changes in brain entropy, and the filter-reducing valve cause

such individuals to be more susceptible to dissociation and ‘OBEs’. This concept alone could determine why some individuals experience ‘OBEs’ during certain physiological states and others do not, and why some individuals seem to be altogether more prone to the experience. Such differences could represent a cause for different degrees of a sense of embodiment within individuals and correlate with the findings that indicate ‘OBEs’ are perhaps more likely to occur in people who have an unusually weak sense of embodiment (Murray & Fox, 2004; 2005a; 2005b). Such lack of embodiment might be related to reduced activation or functional connectivity of the DMN, for example, as found in long-term practitioners of meditation (Brewer et al., 2011) or the general DMN disruption as found in persons with chronic fatigue syndrome (Gay et al., 2015).

Further, the modern picture of brain activity can metaphorically be seen as a brain of many tiny dominos. Changing the position of a domino, knocking one into action, or changing the time one is knocked into action, can cause a domino effect potentially spawning large changes in the modulating, functioning, and criticality of the brain. In this way, the brain can be seen as a highly delicate system that at any time might only need a slight nudge in the wrong direction for entropic balance and normal perception to be lost. It is the suggestion of the author that this could occur with any over or under stimulation of the entropic DMN system including via changes or imbalance in the numerous neurochemicals highlighted within section (3.7).

Moreover, regarding neurochemical effects, it is also clear that atypical levels of any one of the chemicals mentioned could be, at least in part, a cause of an unusually weak sense of embodiment in persons who experience ‘OBEs’, as has found in previous research (Murray & Fox, 2004; 2005a; 2005b).

It is important to note that the use of drugs (including medications and herbal medicines) that influence the amount, or effect, of any of the neurochemicals mentioned in section (3.7) could play a significant role in the chemical composition of the brain being more conducive towards DMN decoupling, dissociation and ‘OBEs’. Individuals with atypical levels of the highlighted neurochemicals or atypical neurochemical responses may be more sensitive to a shift within the filter-reducing valve, a change in brain entropy, and DMN decoupling. For example, individuals who have suffered from depression, anxiety, and chronic hallucinations.

These differences in embodiment or sensitivity to DMN decoupling might also be related in part to structural changes in the brain, which notably has been observed in persons with depression (Schmaal et al., 2016) and persons who have suffered from stress, depression, and anxiety (Bremner, 2006). For a recent review on the effects of stress and anxiety on the hippocampus see (Kim et al., 2015) and for a review of structural changes from dissociative conditions, see (Krause-Utz et al., 2017).

Further, brain atrophy has been proposed as being caused by glucocorticoid levels associated with chronic hyperactivity of the hypothalamic–pituitary–adrenal axis in persons with a major depressive disorder via remodelling and down regulation of growth factors, including brain-derived neurotrophic factor (Campbell & MacQueen, 2004). This process may preferentially target the hippocampus, a major site in the glucocorticoid negative feedback loop of the hypothalamic–pituitary–adrenal axis with high expression of glucocorticoid receptors (Sapolsky et al., 1984). In animal models of depression, stress-induced increases in glucocorticoid levels may result in the regression of dendritic processes, inhibition of neurogenesis, and loss of neurons (Tata, & Anderson, 2010). Notably, individual differences in various

components of glucocorticoid feedback mechanisms have been acknowledged as points of potential resilience or vulnerability to stress.

A prime example is variations in early life, such as maternal care has been shown to determine individual sensitivity to this feedback via epigenetic mechanisms that determine glucocorticoid receptor expression (Weaver et al., 2004). Notably, it is thought that depersonalisation/derealisation disorder is caused largely by interpersonal trauma such as child abuse (Simeon, 2004). The disorders themselves, which often co-occur as highlighted in Chapter 1 section (2.2.1) have clear links to ‘OBES’, as the symptoms of depersonalisation/derealisation disorder are known to produce ‘OBES’ and ‘OBE-related’ phenomena (Simeon, 2004).

Furthermore, a higher incidence of child abuse and trauma has been found in people who have experienced NDEs in contrast to a control group of people who are interested in NDEs but have not experienced them (Ring & Rosing, 1990). This research again tentatively indicates a potential role for stress and vulnerability to stress in dissociative and ‘OBE-related’ phenomena. Research looking to explore and reaffirm a higher incidence of child abuse and trauma in people who have experienced ‘OBES’ and NDEs could be fruitful, although ethically challenging if a better control group is used e.g., individuals who have actually been in physiologically near-death situations.

Structural changes to the brain might also be induced by traumatic brain injuries, which produce a wide variety of injuries to the brain, in typical forms see (Mckee & Daneshvar, 2015). These injuries cause various degrees of acute and chronic cognitive impairment by disconnecting nodes in distributed brain networks including vital areas of the DMN, which of course leads to disruption in the processing and normal activity of the DMN (Sharp et al., 2014).

In some cases, traumatic brain injury leads to changes in the circulation of endogenous neurotransmitters e.g. (Guerriero et al., 2015; Jenkins et al., 2018; Yue et al., 2017). Structural changes can also occur via non-traumatic brain injury and affect the functioning of the DMN, for example via stroke (Tuladhar et al., 2013). Moreover, changes in the circulation of endogenous neurotransmitters have again been noted in individuals after strokes and might cause post stroke depression (see Feng et al., 2014, for a brief review).

Overall, on this factor, provided hallucination is related to changes in brain entropy and decoupling of the DMN then it is also clear that endogenous neurotransmitter chemicals and their receptor systems known to influence our sense of awareness and phenomenal experience could be a factor in the manifestation of dissociation and ‘OBEs’. Specifically, atypical chronic levels of these chemicals, atypical chemical responses to psychological interpretation of environment, or both could be factors. Moreover, as structural changes in the DMN occur based on mental health it may altogether make individuals who suffer or have suffered with depression, anxiety, stress, and chronic hallucinations more susceptible to ‘OBEs’ or more abundant experiences of this nature.

### ***3.13.2 Physiological Factor 2: Body Position***

Previous research that has indicated that the majority of ‘OBEs’ occur in a supine position and those that do occur in a supine position typically result in deeper more phenomena abundant experiences (Zingrone et al., 2010). Thus, the author suggests that body position during a DMN decoupling can provide differences in egocentric and allocentric processing leading to, more or less, of an immersion into the experience and an increase or decrease in hallucinatory phenomena.

### ***3.13.3 Physiological Factor 3: Eyelid Position and the Visual Field***

Previous research that indicates the majority of ‘OBEs’ occur when the eyes are shut (Giesler-Petersen, 2008). Thus, the author suggests the eyelids being closed during a DMN decoupling provides less egocentric and allocentric information leading to a greater hallucinatory immersion, as ‘real’ information is further removed or disrupted within the cognitive process and DMN.

Likewise, the author suggests if one is within a darkened space, where less visual information can be processed, a similar effect can occur, particularly if the individual is incapable of seeing anything due to the darkness. Notably, the author could not find a study that investigated the frequency of ‘OBEs’ occurring in a dark versus a well-illuminated space. Additional research could certainly take place examining not just the frequency of ‘OBEs’ within different levels of illumination but also if levels of illumination affect the depth and abundance of the experience.

### ***3.13.4 Physiological Factor 4: Sleep Quality and Fatigue***

It would be logical to think that sleep quality and fatigue would have an impact on DMN connectivity and studies have validated this in showing that sleep deprivation and reduced sleep quality cause reduced connectivity within the DMN (De Havas et al., 2012; Nilsson et al., 2017; Sämann et al, 2010; Yeo et al, 2015) and general DMN connectivity disruption was found in persons with chronic fatigue syndrome (Gay et al., 2015).

### ***3.13.5 Physiological Factor 5: DMN Disruptive State Stacking***

The author speculates based on the research presented in the chapter, which presents the entropic brain and DMN as being significantly impacted by multiple physiological factors occurring singularly that is it logical to think that states and factors occurring simultaneously could stack together in order to form greater disruption to the entropic brain and decoupling of the DMN. This process could lead

to the phenomenon being more frequently induced in circumstances that otherwise would not in a given individual and likewise can increase depth and abundance of experience.

For example, being in a sleep state, and also under the influence of atypical chemical levels that can cause dissociation and various hallucinations.

### ***3.13.6 Psychological Factor 1: Desire for Dissociation and Letting Go***

It has been proposed that abnormal functioning of the DMN can lead to a void of certain egocentric and allocentric processing creating a flexible primary conscious state easily biased by emotions, anxieties, desires and as described is “a state of unconstrained cognition” (Carhart-Harris et al., 2012, p2138). Thus, the author suggests psychological factors influencing DMN decoupling together with psychological factors driving formation of experience during a state of DMN decoupling would need to be taken into account in a merged neuropsychological approach.

It is logical to suggest that a psychological desire for dissociation and escapism could facilitate changes in volume of endogenous chemicals that potentially facilitate induction of dissociative symptoms and ‘OBEs’, or increase dissociation during a DMN decoupling. Moreover, when a significant DMN decoupling has been established via any number of means, whether a person has an ‘OBE’ might be influenced by their conscious or subconscious levels of desire for dissociation at that time. An acute or chronic conscious or subconscious desire for dissociation could, theoretically, manifest in any person who has a wish to escape immediate or consistent aspects of their experience. Within this factor, individuals who suffer with anxiety or depression would theoretically experience more ‘OBEs’ on average, perhaps, also ‘OBEs’ more abundant in phenomena. Thus, is theoretically due to such

individuals likely having at times higher acute and chronic levels of desire for dissociation in order to escape their conditions. Furthermore, they would be more likely to have atypical levels of neurochemicals and/or neurochemical responses to events.

Importantly, a desire for dissociation could theoretically be influenced and exacerbated due to atypical neurochemical levels that have now been well associated with depression for over 15 years e.g., serotonin, dopamine, NE, cortisol, (Dedovic & Ngiam, 2015; Delgado & Moreno 2000; Dunlop & Nemeroff, 2007; Meyer et al., 2006; Ruhé et al., 2007) and likewise, with anxiety e.g., serotonin, GABA, opioids, etc. (Charney & Drevets, 2002).

Furthermore, an acute desire would likely manifest most greatly in the case of an immediate threat. The desire of dissociation and escapism could also relate, at least in part, to tendencies towards actions of flight, as opposed to the fight, within a fight or flight response.

Dissociation, as a psychological form of flight response even to the point of being out of body during extremely traumatic events, is not seen as uncommon and might be important to limiting trauma as has been acknowledged in incidences of sexual abuse, for example:

Dissociation gets you through a brutal experience, letting your basic survival skills operate unimpeded...Your ability to survive is enhanced as the ability to feel is diminished...All feelings are blocked; you 'go away.' You are disconnected from the act, the perpetrator & yourself...Viewing the scene from up above or some other out-of-body perspective is common among sexual abuse survivors.

(Fredrickson, 1992, p. 59)

Krause-Utz et al., (2017) highlight states of subjective detachment (e.g., depersonalisation, derealisation) may represent a required psychological response to create an inner distance to an overwhelming experience by attenuating unbearable



emotions and reducing conscious awareness of the happenings. In relevant cases, somatoform symptoms, such as analgesia, and 'OBEs' may also serve to reduce awareness of physical injury (Schauer & Elbert, 2010). Notably, individuals who have learned to dissociate in response to traumatic/stressful situations may be more likely to do so in the presence of lesser stressors (Lanius et al., 2010). Such trauma-related states of consciousness include depersonalisation and 'OBEs' along with a range of associated phenomena (Frewen & Lanius, 2006, 2014). Moreover, the author suggests that it is possible that individuals who are more spirituality inclined in belief are innately more likely to let go further within the experience as they attribute spiritual elements to the phenomena leading to a greater desire for the experience to continue.

Likewise, individuals who have their 'OBE' intentionally theoretically would be more inclined to have a strong conscious and unconscious desire for dissociation and various 'OBE' phenomena.

Moreover, they too would likely be more inclined let go within the experience. Alvarado and Zingrone (2015) using an 'OBE' feature index analysed if those who had 'OBEs' more often deliberately scored significantly higher on the index than those who had 'OBEs' more often unintentionally. They found participants who deliberately induced an 'OBE' scored significantly higher than their counterparts on the index. It has been suggested by Blackmore, (1982a, 1984b) that such a correlation could exist, as those who typically have 'OBEs' intentionally will likely be having more 'OBEs', and this practice could lead to experiencing a larger range of phenomena within their 'OBEs'.

Further, Alvarado and Zingrone (2015) note this effect could be due to the experiencer developing certain controls of his or her cognitive system, which has an impact on the 'OBE' features and content. However, the same study found that there

was no significant correlation between frequency of having ‘OBEs’, or prior knowledge of ‘OBEs’ to the amount of phenomena experienced. This tentatively suggests that potentially something else related to having an ‘OBE’ intentionally is causing this impact. As noted, the author suggests it is due to these individuals having a greater desire for dissociation, and/or being more inclined to let go within the experience.

Interestingly, recent research on ‘OBEs’ in patients with dizziness and the vestibular system by Lopez and Elzière, (2018) indicated ‘OBEs’ in patients with dizziness might arise from a combination of perceptual incoherence evoked by the vestibular dysfunction (and psychological factors of depersonalisation-derealisation, depression and anxiety, offering support to the author’s proposed factor).

Klingner et al., (2014) found disrupted functional connectivity of the DMN due to an acute vestibular deficit and research has indicated that magnetic vestibular stimulation can modulate default mode network fluctuations (Boegle et al., 2016). The studies taken together indicate a physiological condition, in this case, a vestibular issue can lead to a DMN decoupling and subsequent dissociation from egocentric and allocentric processing, and the factors of depersonalisation-derealisation, depression and anxiety potentially influencing the rate of ‘OBE’ occurrence during a DMN decoupling.

Furthermore, the author suggests a letting go during an experience would likely partly perpetuate psychological absorption, which the author proposes deepens dissociative experience as discussed in the next section, psychological factor 2.

### ***3.13.7 Psychological Factor 2: Propensity and Ability Towards***

#### ***Psychological Absorption and Dissociation***

As previously noted, there are a number of studies which have found a positive correlation between psychological absorption, which is, in itself, dissociative, and ‘OBEs’ e.g., (Alvarado & Zingrone, 1997b; Dalton et al., 1999; Glicksohn, 1990; Irwin, 1980, 1981) and dissociation and ‘OBEs’ e.g., (Alvarado & Zingrone, 1997a; Irwin, 2000; Murray & Fox, 2004; 2005a; 2005b, 2006; Richards, 1991; Parra, 2008; Zingrone & Alvarado, 1994). The evidence of this relationship is such that it is highly likely that an individual’s ability of, and degree towards, psychological absorption and dissociation in a given moment during DMN decoupling play a role in augmenting dissociative feelings. Moreover, turning said feelings into fully immersive ‘OBEs’, and likewise, deepening the ‘OBE’ experience.

### ***3.13.8 Psychological Factor 3: Interpretation of set and Setting, Having an Expectation***

Timmermann et al., (2018) highlight there is some evidence that NDEs appear to be influenced by contextual factors such as prior psychological traits, set (i.e. the expectations, motivations, and intentions of the individual) and setting (i.e., physical and interpersonal environment relating (Greyson, 2003; Kohr, 1983). Notably, it appears NDEs and psychedelic experiences appear to have a similar sensitivity to these contextual factors (Metzner et al., 1965; Studerus et al., 2012) along with sensitivity to the cultural context in which they are embedded (Wallace, 1959; Hartogsohn, 2017; Carhart-Harris et al., 2018a).

The divergence of phenomena that occurs during NDEs has been specifically linked to the influence of religiosity and cultural background on the NDE content and interpretation (Belanti et al., 2008). For example, Western experiencers might

describe the presence of spiritual entities during NDEs as guardian angels, whereas Hindus might see them as messengers of the god of death (Kellehear, 2008; Pasricha & Stevenson, 1986). Salteaux Indian NDEs have also been found to contain different motifs that are divergent from typical western NDEs, such as the vision of tipis (Hallowell, 1940). Kellehear, (1996) highlighted very clear different interpretations between American and Marxist Chinese NDEs.

Kellehear, (1996) presented a systematic comparison of NDEs reported in Native America, China, India, Western New Britain, Guam, and New Zealand, concluding that only two features are universal to NDEs. The features he highlighted were a transition in a period of darkness and the meeting of other beings once having arrived in the other world, and see McClenon, (2006) for examples of meeting other beings). Kelleher found the experience of darkness was socially influenced and differed between cultures. For example, the Melanesians experienced the darkness as subterranean caverns unlike the darkness leading to a tunnel of light to a heavenly realm described by many westerners (Kellehear, 1996).

If we accept that contextual factors such as set, setting, expectation and the interpretation of altered states of consciousness are based on the context of these. Moreover, that interpretation can have a potential direct impact on the phenomena experienced during times of apparent DMN decoupling. It follows, that they can be a factor influencing in the induction of ‘OBEs’ and formation of the phenomena that accompanies them. In particular, during a DMN decoupling, if the individual is under the intention of having an ‘OBE’ this might cause a greater immersion into the dissociative state or likewise, if the individual’s interpretation of setting leads to an expectation consciously or subconsciously of dissociation and an ‘OBE’.

Thus, this aspect of the neuropsychological theory offers an important explanation for ‘OBEs’ being willingly induced via the establishment of the correct physiological conditions being met in disrupting the brain’s DMN, in company with a strong focused conscious desire for dissociation or an ‘OBE’. It is, perhaps, likely that if these factors align then an ‘OBE’ will be induced. Unsurprisingly, the practice of willingly inducing an ‘OBE’ is typically undertaken in physiological conditions that, as highlighted, disrupt typical wakeful processing and connectivity of the DMN. For example, deliberately teetering between awake and sleep states causing spontaneous trance episodes, at the onset of sleep (Bruce, 2009). Notably, it is clearly possible for spiritual and religious elements to become entwined within the experience and might also contribute to desire for dissociation and the experience of ‘OBE’ phenomena.

### **3.14 Addressing ‘OBE’ Theory Task 3 With FVEBD**

Once the complexity of addressing ‘OBE’ theory tasks 1 and 2 is worked through addressing ‘OBE’ theory task 3 becomes simple.

Task 3: Why is it a person might have an ‘OBE’ in a certain physiological state one-day and not the next.

The answer is innate differences in individuals DMN connectivity and sensitivity to significant changes in the brain’s filtering-reducing valve, and brain entropy. These items equating to differing levels of DMN decoupling caused via changes in the physiological factors of:

- Neurochemical levels and systems.
- DMN base functioning.
- Brain structure.
- Body position.
- Eyelid position and visual field.

- Sleep quality and fatigue.
- DMN disruptive state stacking.

Psychological factors of:

- Desire for dissociation and letting go.
- Ability of, and tendency towards, psychological absorption and dissociation.
- Interpretation of set and setting, and expectation.

A person's physiological and psychological factors will change one day or moment to the next, sometimes changing indefinitely.

Overall, this theory presents a view of a complex process with varying factors for individuals at varying moments in their life for the requirement of inducing an 'OBE'.

Notably, the author's neuropsychological theory of 'OBE' induction and formation also offers a unifying foundational mechanism to previous neurological research that has linked 'OBEs' to various areas of the brain, and it can also account for the wide range of phenomena within the experiences. Doing so via factoring that when there is enough disruption of the DMN coupled with a change in brain entropy, the DMN decoupling can cause a ripple effect to other areas of processing within the brain changing entropy and in turn processing in those key areas as well.

This decoupling importantly having already potentially triggered an unfiltered state of consciousness where aberrant perception is further influenced to varying degrees by motivational needs linked to emotions, anxieties, wishes and desires of the subconscious. This is a state the author would liken to a dream state producing a unique form of a wakeful dream. Further, this unfiltered subconscious wakeful dream state provides an explanation for experiencing a range of phenomena, e.g., seeing lights or whole scenes that occur during 'OBEs' when there is no obvious cause for

the visual areas of the brain to be malfunctioning to such a degree, and in cases where brain trauma of the visual areas of the brain varies from a significant amount to zero.

### **3.15 Conclusion on Moving ‘OBE’ Induction and Formation Theory**

#### **Forward**

The neuropsychological approach taken within this chapter, reimagines the ‘OBE’ in a modern context as primarily a neurological process caused by certain physiological factors formulating significant changes in brain entropy and corresponding decoupling of the DMN. Furthermore, it postulates that these processes can be brought on and influenced in part by certain psychological factors that lead to direct and indirect influences on brain entropy and DMN decoupling. The proposed mechanisms of change via potential shifts within the brain’s filtering-reducing valve, shift in brain entropy and corresponding DMN decoupling highlighted within this approach provide a neurological basis for ‘OBE’ induction across all induction states. Moreover, they provide a foundation on which to understand and further the understanding of ‘OBES’ and dissociative phenomena.

This approach provides numerous new routes of investigation for the further establishment and grounding of the hypotheses detailed throughout the chapter. Most notably, investigation into the role of the suggested physiological and psychological factors, routes that the author suggests could, and likely would, provide valuable insight into the mechanisms of ‘OBES’ and dissociative phenomena. Moreover, the neuropsychological theory proposed by the author provides a potential deeper understanding of the concepts proposed within the three most established theories to the ‘OBE’ (Blackmore, 1984b; Irwin, 1985, 2000; Palmer, 1978b).

Overall, this chapter sheds valuable new light on dissociative phenomena, ‘OBES’ and conversely, human embodiment. This work and theory proposed by the

author represent a large original contribution as the author has modernised psychological and neurological understanding of the 'OBE'. Through that process he has created a more refined and deeper theory of the induction and formation of the phenomenon. The theory provides a platform for a plethora of new research to be undertaken toward exploring the concepts and links proposed by the author. The work is a potential field shaker in terms of development in concept and understanding of 'OBEs', dissociation, embodiment, and disembodiment.

In section (2.5) the author acknowledged the merit for

- Continual larger general surveying of 'OBEs'.
- A survey explores the range of 'OBE' phenomena in one place.
- Surveying on psychological outcomes of 'OBEs'.

When taking into account the content of this chapter the author suggests it would be an appropriate next step in the thesis to conduct an 'OBE' survey that addresses these items. However, in particular, given the induction and formation theory proposed in this chapter, the survey should investigate the following:

- Frequency and impact of suffering with depression and anxiety in 'OBEs'.
- Frequency and impact of suffering with chronic hallucination in 'OBEs'.
- Frequency and impact of body position on 'OBEs'.
- Frequency and impact of induction state on 'OBEs'.
- Frequency and impact of eyelid position on 'OBEs'.
- Frequency and impact of intentional and non-intentional 'OBEs'.
- Frequency and impact of vestibular issues on 'OBEs'.
- The impact of perceived spirituality levels on 'OBEs'.



Investigation of these items could support or refute the neuropsychological theory for 'OBE' induction and formation argued in this chapter. This work can be found within the following chapter 4.

## **Chapter 4: A Survey on the Nature and Impact of ‘Out-of-body Experiences’**

### **4.1 Survey Introduction and Rationale**

‘OBEs’ in their simplest definition are any form of experience where, to the individual, it appears their consciousness has become localised outside of their physical body (Blackmore, 2017). However, it is clear that ‘OBEs’ have a very large range of associated phenomena (Zingrone et al., 2010; Alvarado & Zingrone, 2015). As highlighted in chapter 2 section (2.5) there is very little research on the range of phenomena experienced as part of an ‘OBE’. This is surprising given surveys on the experience indicate that the rough prevalence of ‘OBEs’ in the general population ranges between 8-25% (Blackmore, 2017). Thus, as highlighted in section (2.5) further general surveying of ‘OBEs’ has merit and, in particular, a survey that explores the range of ‘OBE’ phenomena in one place.

Moreover, as highlighted in section (2.6.2) surveying of the psychological outcomes of ‘OBEs’ is sparse, and further surveying of psychological outcomes has merit. Surveys can be used as a basis for further qualitative investigation on the psychological outcomes of ‘OBEs’, which is also sparse.

Furthermore, as noted in the previous chapter, whilst there are theories as to the induction and formation of ‘OBEs’ (e.g., Blackmore, 1984b; Irwin, 1985, 2000; Palmer, 1978b), there remains no consensus on what contributes to various disruptions mentioned within each theory resulting in the induction of an ‘OBE’.

Some researchers have explored the relationship between specific variables and the content of the ‘OBEs’ investigating whether these variables impact on the formation of ‘OBEs’ (e.g., Blackmore, 1984a). This includes the experiencer's belief that they were close to death during the ‘OBE’ (Gabbard et al., 1981), dreaming and parapsychological experiences (Alvarado & Zingrone, 1999), the relative activity and

position of the experiencer (Zingrone et al., 2010), and relationships with frequency, and previous knowledge about the experience (Alvarado & Zingrone, 2015). The latter two studies employed a 53 phenomena OBE feature index to test how the variables influenced the number of phenomena experienced. They did this via comparing OBE feature index mean rank scores between grouped participants corresponding to the variables of interest e.g., body position. This research found that these variables can impact the formation of ‘OBEs’ and the abundance of the phenomena experienced during them as indicated via statistically significant differences in OBE feature index mean rank scores.

The approach of Zingrone et al. (2010), and Alvarado and Zingrone (2015) is the only known approach in the field at this time for studying categorical relationships within such a large range of ‘OBE’ phenomena in a single study, a study which utilises a sound method that is, thus far, robust to criticism. Thus, the current approach offers a rare opportunity in the field to expand directly on a productive study and analytic approach building a further basis for work to be undertaken effectively within the same methodology strengthening the approach with each study. This is something that is virtually not existent thus far in the study of ‘OBEs’.

Thus, this approach should be employed by the author to explore how proposed variables related to their theory of ‘OBE’ induction impacting the formation of phenomenon. Notably, the author felt that the OBE feature index used in prior research (Zingrone et al., 2010; Alvarado & Zingrone 2015) could be expanded upon by separating categorised phenomena and corresponding questions: (1) did a person (see, feel, or hear) certain information at an abnormal distance?; as opposed to a simpler (2) did a person perceive at distance? This expansion can provide a more detailed picture of the forms of phenomena occurring within each experience, and a

greater specificity would potentially lead to more refined data analysis pertaining to the phenomena experienced on the index and any relationships they have to other items e.g. induction states.

This brought the creation of three broad research aims for the survey:

- Provide a relatively large general survey of ‘OBEs’ for statistical reference.
- Provide specific data for quantitative analysis related to proposed variables that may impact the formation of ‘OBEs’ based on the author’s initial predictions within his ‘OBE’ induction and formation theory expanding on the research approach used by Zingrone et al., (2010) and Alvarado & Zingrone, (2015) using an extended OBE feature index.
- Provide a survey of psychological outcomes of ‘OBEs’ for statistical reference and to inform further qualitative investigation.

In Chapter 3, a potential new neuropsychological theory of ‘OBE’ induction and formation was discussed, which highlighted several aspects that would be expected to be associated with increased experience of ‘OBEs’ and/or impact on the formation of phenomena experienced during them. For example:

- History of depression and anxiety.
- History of Chronic Hallucination.
- Body position.
- Eyelid position and visual field.
- DMN disruptive state stacking.
- Desire for dissociation and letting go.

Specifically, the author hypothesised that a higher percentage of individuals who have suffered with depression and anxiety would be found within a population of ‘OBEs’ compared to the general population. Moreover, a higher percentage of

individuals who have suffered with chronic hallucinations would be found within a population of ‘OBEs’ compared to the general population. This is due to the author’s hypothesises from his FVEBD theory of ‘OBE’ induction and formation that these conditions may make an individual more sensitive to or perpetuate larger shifts within the filter-reducing valve, change in brain entropy, and DMN decoupling, likely producing ‘OBEs’ more frequently. Furthermore, that various physiological and psychological factors would create conditions conducive to larger shifts within these areas mentioned likely correlating to significantly higher ‘OBE’ feature index scores. This created the specific hypotheses to be tested within this study of ‘OBE’ feature index scores will be statistically significantly higher when participants are:

- Starting the ‘OBE’ in a stacked induction state.
- Having the experience in a supine body position.
- Having the experience when the eyelids are closed.
- Having a history of depression and anxiety.
- Having a history of chronic hallucinations.
- Having a history of vestibular issues.
- Having the experience intentionally.
- Being a self-professed very spiritual person.

Furthermore, the author recognised that there is space for novel work to occur exploring if there are relationships between these psychological outcomes and specific ‘OBE’ phenomena. The author hypothesised that specific psychological outcomes might be found to be statistically associated with phenomena within the ‘OBE’ feature index, which would indicate that experiencing the phenomena increases the chance of the psychological outcomes occurring. This hypothesis was based on it being logical to think as with all experiences in life certain parts of them

and certain phenomena correlate to certain psychological outcomes and through testing it is possible to reveal associations between phenomena and outcomes can be revealed. The psychological outcomes highlighted from the literature reveal and to be explored in the survey are as follows:

- Change in view of death.
- Reduction in fear of death.
- Change in relationship to the divine.
- Change in worldview.
- Change in relationship with other people.
- Change in view of self.
- Change in lifestyle.

The author

## **4.2 Survey Methodology**

What follows is a description of the methodology used within the survey study.

### ***4.2.1 Survey Participants***

The main participant criteria were being over the age of 18 and that they had experienced a sense of their consciousness having separated from their body. The author's online survey generated a total of 213 responses from individuals who believed they had an 'OBE'. However, many questionnaires had missing answers, leaving 166 fully completed responses. Sample size is quite inconsistent throughout the survey questions. Within the tables of this chapter detailing participant's answers to survey questions N numbers add up to the number of responses received for that particular question. The questionnaire revealed the following distribution in how participants became aware of the survey.

The following table details how the survey participants became aware of the survey.

**Table 4.1**  
*How Participants Became Aware of the Survey*

<b>Source</b>	<b>Percentage (%)</b>	<b>N</b>
Social Media	45.4	84
Online Advert	2.2	4
Newspaper Advert	5.9	11
Magazine Advert	7.0	13
Poster Advert	1.1	2
Friend, Colleague, or Family Member	28.1	52
Other	10.3	19

*Note.* N = 185. Percentages are rounded to one decimal place.

The gender of participants in the sample from 202 responses was male 30.2%  $N = 61$ , female 66.8%  $N = 135$ , self-describe 3%  $N = 6$ . The age of participants at time of survey from 202 responses mean = 49.01, median = 49, mode = 57 occurring 11 times.

The number of 'OBEs' experienced by participants from 202 responses mean = 14, median = 3, mode = 1 occurring 55 times. Further data on how frequently 'OBEs' have occurred, and time span the experiences were most frequent can be found within Table 4.2 and Table 4.3 later within this chapter.

Age of participants at time of first 'OBE' from 201 responses mean = 20.77, median = 18.00, mode = 5 occurring 27 times. From these participants 53.8%  $N = 85$  believes 'OBEs' were possible before the experience. Further data on age range frequency of first 'OBE' can be found within Table 4.4 later within this chapter.

Age of participants at time of most vivid 'OBE' from 201 responses mean = 24.10, median = 24, mode = 4 Occurring 25 times. Further data on age range

frequency at time of most vivid 'OBE' can be found within Table 4.5 later within this chapter.

The majority of these most vivid 'OBEs' occurred in a semi passive state e.g., a state of stillness and silence 61.9%  $N = 112$ , followed by passive states e.g. unconscious 28.7%  $N = 52$  and lastly active states e.g. moving or talking 9.4%  $N = 17$ .

The ethnicity of participants as self-described in the survey revealed a range of 24 different ethnicities from 190 responses. The largest single ethnicity description was white 31%  $N = 59$ . This ethnicity range included several other descriptions that indicate or could indicate a white ethnicity, which clearly made up a majority of the sample. However, there were a minority of participants describing other ethnicities for example, African, Hispanic, and Native American. A table detailing the participant ethnicity data as described can be found as Table B1 within Appendix B.

The religious background of participants as self-described in the survey revealed a range of 24 different backgrounds from 173 responses. The largest single religious background description was none 27.7%  $N = 48$ . This background range included several descriptions that together would fall under the umbrella of Christianity e.g., Catholic, Protestant, and Church of England. When grouped together these backgrounds formulated the largest religious affiliation 43.9%  $N = 76$ . However, there were a minority of participants describing other religious backgrounds for example, Spiritualist, Buddhist, and Jewish. A table detailing the participant religious background data as described can be found as Table B2 within Appendix B

The occupation of participants as self-described in the survey revealed a diverse range of 132 different professions from 193 responses. The largest single occupation description was retired 11.9%  $N = 23$ . 108 professions were described



only once each representing 0.5% of the sample. This diverse occupation range included professions like hairdresser, pilot, doctor, musician, and librarian. A table detailing the participant occupation data as described can be found as Table B3 within Appendix B.

The participants perceived cognitive control during their most vivid ‘OBE’ ranged from feeling in control all of the time to having no control at all. The percentages for this can be found in Table 4.6 later within this chapter. The majority of participants 34.5%  $N = 63$  from 183 responses felt that they could never induce an ‘OBE’ at will. However, numerous participants felt they could to varying rates and frequency data for this can be found in Table 4.7 later within this chapter.

From 166 responses 77.7%  $N = 129$  participants felt a strong sense of disembodiment during the experience and only 26%  $N = 44$  of 165 participants were concerned for the well-being of their body during the ‘OBE’. From 166 responses 33.7%  $N = 56$  had what they considered to be a religious or spiritual experience as part of the phenomenon and only 12.2%  $N = 23$  of 188 responses experienced something they felt was against their belief system. Self-proclaimed level of spirituality prior to first ‘OBE’ varied from very spiritual to not spiritual at all.

The majority of participants from 180 responses perceived their ‘OBE’ to be a real experience just after it 73.9%  $N = 133$  as opposed to like a dream 13.9%  $N = 25$ , a hallucination 5%  $N = 9$  or being unsure 7.2%  $N = 13$ . At time of filling in the survey the majority of participants from 166 responses still perceived their experience as real 83.7%  $N = 139$  as opposed to like a dream 3%  $N = 5$ , like an hallucination 4.2%  $N = 7$  and unsure 9%  $N = 15$ . The overall descriptive realness of the experience at time of filling in the survey as compared to other experiences can be found as Table 4.8 later within this chapter. From 156 responses 34.6%  $N = 54$  of participants tried to check if

details of the experience were veridical post 'OBE'. The extent to which a veridical component was established varied and percentages for this can be found in Table 4.9 later within this chapter. Other frequency data relating to participants and their experiences can be found in Section 4.3 of this chapter and Appendix B Tables B1-B6. The author has included various frequency data in Section 4.3 section as it is important to the hypotheses proposed or are of interest to points within the survey discussion section.

#### ***4.2.2 Survey Materials and Procedure***

In light of the research aims, a survey questionnaire was created with the questions being largely geared towards gathering nominal data in order to categorize variables for comparative analysis, with some questions providing an opportunity for also gathering qualitative data. The questions were designed to gather descriptive data about participants, their 'OBEs' and the psychological outcomes of their experiences. The questionnaire was posted online on the Qualtrics data-gathering platform.

Many of the research questions were designed specifically to provide the author a means to investigate the physiological items of interest noted in section (3.12). This process led to the creation of an expanded 84 phenomena 'OBE' feature index as part of the survey. The questions were influenced by the author's findings within the literature and particularly by the 'OBE' feature index used by Zingrone et al., (2010), Alvarado and Zingrone (2015), the questions used in the Blackmore (1982b) study, and some additions based on anecdotal reports of 'OBEs' the author has heard via his work as a psychologist that were not included within the aforementioned studies (Alverado & Zingrone, 2015; Blackmore, 1982b; Zingrone et al, 2010). For example, a question added based on findings within the literature and an anecdotal report to the author is the question of feeling sadness or despair.

As part of the index expansion the author decided to separate the index out based on the senses e.g., seeing and feeling. For example, instead of asking did an individual experience a sensation of floating, the author breaks the experience into two asking did the individual experience a feeling of floating, and did they experience a visual of floating. The author felt the experiences were clearly multi-sensory, and in separating them out as different sensory experiences it could provide a greater richness of data. Moreover, the greater specificity in the index would potentially lead to more refined data analysis pertaining to the phenomena experienced on the index, and any relationships they have to other items e.g. induction states, and psychological outcomes. All the additions were an attempt to develop a more extensive index than had been used previously in order to allow a deeper exploration on the range of phenomena and to offer another original contribution to the field.

The full 136-question survey questionnaire can be found as an Appendix A. Questions on participant and 'OBE' background were asked in the typical formats for each respect question sort. 'OBE' feature index questions were asked in a nominal format to follow the research approach used by Zingrone et al., (2010) and Alvarado & Zingrone, (2015). Psychological outcomes questions were asked in a standard nominal format that provided a clear means to test for associations with the nominal 'OBE' feature index data as detailed in section (4.2.5). The questions of the survey covered the following in their respective formats.

#### *Participant Background*

Participant background questions covered a number of areas. Gender, suffering with anxiety, depression, vestibular issues, and chronic hallucinations were all each answered via three nominal multiple choices of yes, no, or unsure. Self-professed spirituality level was answered via four ordinal choices of very spiritual,

quite spiritual, somewhat spiritual, not spiritual at all, and the option of unsure. How the individual found out about the survey was answered via eight nominal choices of social media, an online advertisement, an advertisement in a printed newspaper, an advertisement in a printed magazine, through a friend, colleague or family member, an advertisement poster, radio, and other. Current age was answered via a discrete scale of 1 to 120+, and occupation, ethnicity, and religious background via unrestricted self-description.

#### 'OBE' Background

'OBE' background questions covered a number of areas. Number of 'OBES', age of at time of first 'OBE', and at time of most vivid 'OBE' were all each answered via a discrete scale choice of 1 to 120+. Age range when 'OBES' were most frequent was answered via a choice of 8 interval options of 0-10, 10-20, 20-30, 30-40, 40-50, 50-60, 60-70-70-80, and two other options of unsure, and N/A. The belief of if 'OBES' were possible before their first experience, if during their most vivid 'OBE' they had a religious or spiritual experience as part of the phenomenon, and if they experienced anything against their belief system during the 'OBE' were all each answered via 3 nominal multiple-choice answers of yes, no, or unsure. This was the same for if during their most vivid 'OBE' the individual felt concerned for the well-being of their physical body, if they were under the influence of drugs, and if they tried to seek validation regarding if the experience was veridical. Eyelid position during most vivid 'OBE' was answered via 3 nominal multiple-choices options of, open, closed, or unsure. Body position during most vivid 'OBE' was answered via 5 nominal multiple-choice options of, lying, sitting, standing, other, or unsure.

Activity state at time of most vivid 'OBE' was answered via 3 ordinal multiple-choice answers of passive, semi-passive, active, and the option of unsure. If

the individual felt the experience was real just after their most vivid 'OBE', and if they felt it was real at time of filling in the survey were both answered via 4 nominal multiple-choice answers of real, like a dream, a hallucination, or unsure. If the individual felt that they can induce 'OBEs' when desired was answered via 4 ordinal multiple-choice options of, all of the time, some of the time, occasionally, never, and the option of unsure. If they gained validation of their most vivid 'OBE' being veridical and what their body position was during the experience were answered by 5 nominal multiple-choice answers of real, not real, unsure, could not gain validation either way, and not applicable. How frequently 'OBEs' have occurred was answered via 5 ordinal multiple-choice answers of everyday / most days, somewhat regularly, somewhat irregularly, very rarely, only once, and the option of unsure. Likewise, the degree of cognitive control of the experience within their most vivid 'OBE' was answered via 5 ordinal multiple-choice answers of, control all of the time, control most of the time, control some of the time, minimal control, no control, and the option of unsure.

The perceived realness of their most vivid 'OBE' compared to other states of consciousness was answered via 7 nominal multiple-choice options of, a realness equal to a vivid dream, a psychedelic trip, hypnotic state, deep meditation, more real than a normal wakeful state, unsure, and a normal wakeful state where everything appeared, and behaved as normal, except that everything was observed from a disembodied position.

The physiological induction state of their most vivid 'OBE' was answered via 17 nominal choices that did not have a limit on the number that could be selected. The choices were as follows, just about to sleep, sleeping, just woken from sleep, intensely or very relaxed, meditative state, hypnotic state, trance state, drug state, near death

state, unconscious due to a physical trauma but not close to death, awake and experiencing a physical trauma or stress but not close to death, awake and not experiencing a physical trauma or stress, in a state of extensive physical exertion, in a state of extensive fatigue, in a state of emotional trauma, unconscious due to anaesthesia, and other.

The list of substances the individual was under the influence of during their most vivid ‘OBE’, what they were doing at the time, what they experienced against their belief system, why they had their perception of the reality of their experience immediately post ‘OBE’, and why the perception at the time of filling in the survey were all answered via unrestricted self-description.

*The Phenomena Experienced During Most Vivid ‘OBE’*

Which of the phenomena an individual experienced during their most vivid ‘OBE’ was answered via 84 nominal questions with 3 nominal multiple-choice answers each of yes, no, or unsure. These questions each correlated to phenomena within the author’s ‘OBE’ feature index, which is noted in earlier in this section is an expanded index designed and based mostly on the ‘OBE’ feature index from previous research (Zingrone et al., 2010; Alvarado & Zingrone 2015), questions used in the Blackmore (1982b) study, and with separations of experience based on the senses, e.g., seeing and feeling. Further additions were made based on anecdotal reports of ‘OBES’ the author has heard via his work as a psychologist and separations of experience based on the senses. The full index can be found in Table B6. If the individual was familiar with a room of location travelled to during the experience was answered via 4 nominal multiple-choice options of yes, no, unsure or N/A. The perception of the reality in which that location resides was answered via 5 nominal multiple-choice answer options of the physical world, an unearthly or metaphysical

world, both the physical and unearthly or metaphysical worlds, other, or did not travel.

A description of the locations travelled to and if the individual experienced any phenomena not included as a question was answered via unrestricted self-description.

*The Psychological Outcomes From Most Vivid 'OBE'*

Which psychological outcomes an individual experienced from their most vivid 'OBE' included 10 questions that were all each answered via 3 nominal multiple-choice options of yes, no, or unsure. These questions covered the psychological outcomes that stood out to the author from the literature review. The questions covered positive and negative impacts on mind and well-being, change in view of self, view of the world, relationship to the divine, relationship to other people, change in lifestyle, and change in fear of death, increase or decrease. If the individual had experienced any psychological outcomes not mentioned, it was answered via unrestricted self-description.

*Willingness to be Interviewed*

Lastly, if a participant was willing to be interviewed after the survey was answered via 2 nominal multiple-choice options of yes or no.

If participants had more than one 'OBE' they were asked questions related to their most vivid 'OBE'. This choice was made as the research goals were testing how specific factors may influence phenomena experienced within an 'OBE', and how specific phenomena experienced during an 'OBE' may influence psychological outcomes. Thus one 'OBE' must be focused on at a time to draw correlations between these factors, a given set of experiences during an 'OBE' and psychological outcomes. The author felt it would make the most sense to have the participant focus on their

most vivid 'OBE' as it would be easier for them to recall and answer information on that 'OBE' likely providing a greater richness of data.

Why the questions were asked as they are followed a design of previous work the author wanted to build on the research approach of (Zingrone et al., 2010; Alvarado & Zingrone 2015). This required the data on factors that may influence an 'OBE' to be gathered in categorical form to be tested for effect on an 'OBE' feature index that is generated via categorical data being converted to a ratio index score i.e. a continua as explained further in section (4.2.4). Moreover, the data on the phenomena experienced being gathered in categorical form created the possibility for that data to be compared to the categorical data gained via the psychological outcome questions to test for statistically significant associations between them.

Notably, the author highlighted in section (3.13.4) sleep quality and fatigue as physiological factors with a likely impact on induction and formation of 'OBES'. However, he elected not to include a question related to this in the survey. The author decided that sleep quality and fatigue are harder to subjectively measure than the other proposed physiological factors and is quite a large range of states that would require a larger number of answering options. Further, this factor would likely fit better a different answering format than the other factors. Thus, it was decided that the impact of sleep quality and fatigue would be more appropriately explored within a different study and survey format to the one the author undertook as part of this thesis.

The psychological outcome questions were also designed and included to provide data on which to base a later qualitative investigation, which was intended to form a subsequent part of this thesis and can be found as chapter 5. The questions were based on previous research that had indicated such outcomes can occur from



‘OBE-type’ experiences as discussed in chapter 2 (e.g., Alvarado 2000; Atwater, 1988; Bush, 1991, 2002; Charland-Verville et al., 2015; Fenwick & Fenwick, 1995; Flynn, 1986; Gallup & Proctor, 1982; Greyson, 1992, 2001, 2003b; Greyson & Bush 1992; Groth-Marnat and Summers, 1998; Hata in Hadfield, 1991; Kelmenc-Ketis, 2013; Knoblauch et al., 2001; Lindley et al., 1981; McClenon, 1993; Moody, 1975; Noyes, 1980; Noyes et al., 2009; Ring, 1980,1982 1984; 1992,1994; Rommer 2000; Sabom, 1982; Schröter-Kunhardt, 1990; Schwaninger et al., 2002; Sutherland 1990, 1992/1995; Twemlow et al., 1982; Van Lommel et al., 2001; Wells, 1993)

The questions were worded simply, namely did the experience cause a:

- Change in view of death
- Reduction in fear of death
- Increase in fear of death
- Change in relationship to the divine
- Change in worldview
- Relationship to other people
- View of self
- Change of lifestyle

A shorter 82-question version of the survey was piloted for feedback on response format in mind of later analysis and can be found as Appendix C. The questions in the survey were a mostly nominal multiple-choice 68 and 14 were unrestricted qualitative self-description options. The areas covered were as follows:

- Participant background.
- Number of ‘OBEs’.
- Age of participant during ‘OBEs’.
- Phenomena reported to be associated with or to occur during an ‘OBE’.

- Seeking and finding or not finding validation of their experience.
- Psychological outcomes of their 'OBE'.
- Willingness to be interviewed in the future along with if appropriate contact information.

The pilot survey received 22 completed responses out of 22 participant engagements within the four weeks the survey was live. This piloting was also done via the Qualtrics online data-gathering platform. The piloting brought confidence that 'OBErs' would be willing to fill in the entirety of a long questionnaire on 'OBEs' and provided the author with a means to explore the design of the questionnaire for improvement in functionality for participants and later analysis.

A website was created by the author ([www.outofbodyresearch.com](http://www.outofbodyresearch.com)) that consisted of a single webpage that listed the participant information sheets for the pilot survey and subsequent larger survey, which can both be found as Appendix D.

From this webpage, there was a link to the online questionnaire. The author advertised the pilot survey and full larger survey on relevant social media pages (e.g., pages themed to anomalous experiences and also on the Buckinghamshire New University social media pages. The name of the social media pages will remain anonymous to protect the anonymity of participants. Further, for the full larger survey, an advertisement was placed within the U.K. national newspaper, The Financial Times, on two occasions. An email was sent to several U.K. national newspapers, but the Financial Times were the only newspaper that responded. An advertisement was also posted on two national online free ad websites, [freads.co.uk](http://freads.co.uk) and [gumtree.co.uk](http://gumtree.co.uk). An advertisement was also placed in 2 anomalous experience themed magazines 'Soul and Spirit' and 'Supernatural' on two occasions. These publications and advertisement streams were selected as author wanted to attract

participants from the general population and also a population that have more experience, knowledge and interest of anomalous experiences.

At the end of the surveys, participants were asked to indicate if they were open to being interviewed about their experience at a later date. Should they select 'yes', it was made clear that they would be waiving their right to anonymity for the survey and were asked to fill in personal contact information. At the end of the surveys, participants were given a debrief sheet, which can be found as Appendix E indicating the purpose of the study being to help academia gain a greater understanding of the nature and psychological effects of the 'OBE'. Web links to various notable researchers of 'OBES' were provided for participants if they wished to broaden their knowledge on the subject. Web links to 'OBE' support / discussion groups were also provided. The survey debrief sheets can be found in Appendix E.

#### ***4.2.3. Survey Ethics***

All Participants for both the pilot survey and larger survey were 18 years of age or older and were not asked to give their name or any identification during the survey. As noted in section (4.2.2) at the end of the survey the participants were given a choice to indicate if they were open to being interviewed about their experience at a later date and provide contact information. They were informed that should they select 'yes', that they would be waiving their right to anonymity.

All information participants gave was confidential. The surveys were conducted in line with the British Psychological Society's Guidelines for Research involving Human Participants. The data was stored by the researcher in accordance with the Buckinghamshire New University policy on data security. All participants gave their informed consent digitally before beginning the survey via selecting 'yes' to the informed consent question at the start of the Qualtrics survey page. The

informed consent form can be found as Appendix F. All participants were given the right to withdraw at any time, up to two weeks after completing the survey, without giving a reason and without penalty. Participants were given the ability to do this via email, phone, or letter in ways that protected their anonymity. No participants elected to do this. The study was approved by the Buckinghamshire New University Research and Ethics committee. No unforeseen ethical issues arose.

#### ***4.2.4 Survey Research Design***

As mentioned in section (4.2.2) in order to examine how various physiological factors affect the induction and formation of an ‘OBE’, an 84 phenomena ‘OBE’ feature index was designed and based mostly on the ‘OBE’ feature index from previous research (Zingrone et al., 2010; Alvarado & Zingrone 2015), questions used in the Blackmore (1982b) study, and with separations of experience based on the senses, e.g., seeing and feeling. Further additions were made based on anecdotal reports of ‘OBEs’ the author has heard via his work as a psychologist and separations of experience based on the senses. These additions were made in attempt to develop a more extensive index for deeper exploration on the range of phenomena and to offer another original contribution to the field.

In order to test for a statistically significant difference in the ‘OBE’ feature index scores between populations of participants that have been grouped together based on certain variables, (e.g. body position) a similar approach was taken to that of previous studies (e.g., Zingrone et al., 2010; Alvarado & Zingrone 2015). To do this, each participant was scored on an ‘OBE’ index made up of the 84 phenomena that have been documented to occur during ‘OBEs’. Participants were allocated 1 point for each nominal yes answer in the survey, which indicated that they had experienced a certain phenomenon as part of their ‘OBE’. Each participant was then given an

individual 'OBE' feature index score equalling the total of their points gathered from yes answers. This creates the opportunity to group participants based on survey answers generating group mean rank scores that can be compared and tested.

To clarify, the nominal categorical data yes or no responses to experiencing 'OBE' phenomena has been converted to a ratio 'OBE' feature index score i.e. a continua. Participants have been grouped based on answers to the survey that are connected to hypotheses of the author e.g. eyelid position. The mean ranks of 'OBE' feature index scores for the groups have then been tested.

Data conversion in this way is somewhat unconventional in a purist model of statistics. However, the author believes it is the approach that should be taken for this study for three reasons.

1. The study seeks to expand on this research approach used by Zingrone et al., (2010) and Alvarado and Zingrone, (2015).
2. It appears to the author as the known approach in the field at this time for studying categorical relationships within such a large range of 'OBE' phenomena in a single study.
3. The author is unaware of evidence indicating the method is not statistically sound, and from his review of it, he considers the methodology to be sound.

As previously acknowledged participants were grouped together based on answers to various questions on the survey to establish group 'OBE' feature index scores that relate to the predictions of the author. As noted in chapter 3, the author felt variations in physiological factors would reveal significant differences in the 'OBE' feature index score. Specifically, the author hypothesised that various physiological and psychological factors would have statistically significant higher 'OBE' feature index scores. The factors of being:

- In a stacked induction state.
- A supine body position.
- Having closed eyelids.
- Having history of depression and anxiety.
- Having a history of chronic hallucinations.
- Having a history of vestibular issues.
- Having the experience intentionally.
- Being a self-professed very spiritual person.

The ‘OBE’ feature index would also be used to undertake an exploratory analysis based on the author hypothesising that specific psychological outcomes would be found to statistically associated with phenomena within the ‘OBE’ feature index.

The psychological outcome related questions in the survey were based on psychological outcomes found in previous research on ‘OBE-type’ experiences as detailed in section (2.7).

#### ***4.2.5 Survey Analysis Methods***

“Unsure” responses to questions were not included within the analyses as to not dilute the data.

As the usable data sample was non-normally distributed lacking in symmetry of response numbers it was clear the analysis would require non-parametric tests. Thus, the Mann-Whitney U method (Mann & Witney, 1947) was used to test the variance between two specific groups. This method also followed the research approach used by Zingrone et al., (2010) and Alvarado & Zingrone, (2015) fitting in well with a goal of the research to expand on the approach taken in this previous work.

In the cases of there being more than two groups to test, the standard method to use instead of Mann-Witney U (Mann & Witney, 1947), the Kruskal-Wallis method (Kruskal & Wallis, 1952) was used to test the variance. Subsequent pairwise analyses when the null hypothesis was rejected from a Kruskal-Wallis analysis were undertaken via the typical method paired with Kruskal-Wallis, the Dunn's test method (Dunn, 1964).

As the sample sizes in the cells were not equal, and the researcher prefers the effect size statistic to be as clear and understandable as possible. The classical formulation of  $\eta^2$  (Pearson, 1911; Fisher, 1928) was selected over others. The author did this with an awareness of the  $\eta^2$  limitations of overestimation of population effects and its sensitivity to design features that influence its relevance and interpretability. Where appropriate, a Bonferroni correction as developed by Dunn (1961) was used as a multiple-comparison correction when statistical tests were performed simultaneously.

Further, the author looked to do an exploratory analysis to ascertain whether specific phenomena within the 'OBE' feature index were statistically associated to incidences of psychological outcomes in participants.

As the data was nominal and the sample sizes of the ostensible groups to be compared within the analyses were unequal, it required the use of non-parametric tests in order to draw conclusions from the data. The author selected the Chi-Squared because as highlighted by Mchugh (2013), was originally developed in 1900 (Pearson, 1900) and is one of the most frequently used, recognised and useful statistical analysis methods for testing associations between categorical nominal variables.

Importantly for the data set, Chi-square does not require equality of variances among the study groups or homoscedasticity in the data. It permits evaluation of dichotomous independent variables. Unlike many other non-parametric and some parametric statistics, the calculations needed to compute the Chi-square provide information about how each of the groups performed in the study, which is done through comparing observed and expected frequencies in each given group to test if all groups contain the same proportion of values. Whilst other methods can provide a means to model determinates of variables and predict likelihood of outcome, a bivariate approach was chosen that identifies associations and would specifically highlight the strength of those associations. Furthermore, a chi-squared approach could provide appropriately clear statistical associations that would adequately form a basis to explore more deeply those associations in the planned follow up qualitative analysis.

When the Chi-square significance statistic highlighted that there is a significant association between the variables, suggesting the null hypothesis could be rejected, the Cramér's V strength statistic developed by Cramér (1946) was used by the author. Cramér's V is a common strength statistic paired with Chi-Squared used when there is a significant result to highlight the strength of the association.

With all Chi-square tests, a Bonferroni correction as developed by Dunn (1961) was used as a multiple-comparison correction for Chi-Squared tests performed simultaneously.

The analyses were undertaken with the use of SPSS software. In the tables that follow in this chapter where percentages may not add up to 100 due to rounding, in these cases the lower not shown decimal additions from several percentages accumulate to form the cumulative 100 percentile.



The analysis brought to light frequency data on participants and their ‘OBEs’ and statistically significance test results, which followed a research design as detailed within this section. Overall, the analyses revealed insightful relationships within the data pertaining to the areas of interest as discussed in the following section.

### **4.3 ‘OBE’ Survey Analyses**

What follows in sections (4.3.1 – 4.4) are the analyses of the survey data connected to the author’s hypotheses on conditions that will be associated with a higher ‘OBE’ feature index score, and analyses of statistically significant associations between psychological outcomes and index phenomena.

#### **4.3.1 ‘OBE’ Feature Index of Most Vivid ‘OBE’ Analysis**

The collective ‘OBE’ feature index mean, median and mode are included here for comparison in future ‘OBE’ feature index studies and are as follows:

Mean = 21.6885

Median = 19

Mode = 17 occurring 11 times.

An overview of the index results indicates the most prominent phenomena of ‘OBEs’ as being sensations of disembodiment, floating, and the experience of a non-physical body. Frequently, participants experienced sensations of exiting from their physical body and a feeling of an expansion of their consciousness or non-physical body to a larger than normal size. Many participants also reported encounters with non-physical or spiritual entities, and experiences of their surrounding being illuminated by something other than normal light. It was common to acquire the ability to perceive or interact with the environment in unusual ways. For example, the ability to transcend physical limitations such as seeing through or passing through physical matter. While many ‘OBEs’ were associated with positive or neutral feelings

(e.g., peace, bliss, oneness), there were also instances of fear and anxiety. To lesser extents participants reported abnormal sensory abilities, such as seeing, feeling, or hearing at abnormal distances, or perceiving their surroundings in altered ways, such as seeing their environment expand or contract. Other visual experiences that were frequently reported were seeing their surroundings from above and seeing lights. Various auditory phenomena were also reported, including buzzing, humming, or strange sounds and hearing voices. Many reported physical sensations such as vibrations or tingling and a feeling of floating or sinking. Many participants reported a sense of all knowing or understanding, and experiencing a sense of timelessness or time distortion was frequent, likewise the experience of a sensation of travelling through time. The findings reflect that ‘OBEs’ are a multifaceted experience, involving a mix of sensory, emotional, and perceived spiritual phenomena, with some variations in the frequency of occurrence.

The full frequency data of the ‘OBE’ feature index can be found within Table B6.

Frequency data findings that provide interesting points for discussion are as provided in the following Tables 4.2-4.9 and will be discussed within the survey discussion Section 4.4.

The following table details how frequently ‘OBEs’ occurred during participant life spans.

**Table 4.2**  
*How Frequently ‘OBEs’ Have Occurred*

<b>Frequency</b>	<b>Percentage (%)</b>	<b>N</b>
Everyday/Most Days	8.7	18
Somewhat Regularly	8.7	18
Somewhat Irregularly	23.8	49
Very Rarely	27.7	57

<b>Frequency</b>	<b>Percentage (%) N</b>	
Only Once	28.2	58
Unsure	2.9	6

*Note.* N = 206. Percentages are rounded to one decimal place.

The following table details the age of participants when ‘OBEs’ occurred most frequently.

**Table 4.3**  
*Time Span When ‘OBEs’ Were Most Frequent*

<b>Age Range (Years)</b>	<b>Percentage (%) N</b>	
1–10	9.4	11
10–20	18.8	22
20–30	19.7	23
30–40	23.1	27
40–50	10.3	12
50–60	7.7	9
60–70	1.7	2
Unsure	9.4	11

*Note.* N = 117. Percentages are rounded to one decimal place.

The following table details the age of participants when their first ‘OBE’ occurred.

**Table 4.4**  
*Age Range Frequencies of First ‘OBE’*

<b>Age Range (Years)</b>	<b>Percentage (%) N</b>	
1–12	36.2	77
13–19	18.2	39
20–29	18.8	40
30–39	14.0	30
40–49	7.5	16
50–69	5.2	11

*Note.* N = 213. Percentages are rounded to one decimal place.

The following table details the age of participants when they experienced their most vivid ‘OBE’.

**Table 4.5**

*Time Span When Most Vivid ‘OBE’ Occurred*

<b>Age Range (Years)</b>	<b>Percentage (%)</b>	<b>N</b>
1–12	27.6	51
13–19	14.0	26
20–29	18.9	35
30–39	23.2	43
40–49	9.7	18
50–59	3.8	7
60–69	2.7	5

*Note.* N = 185. Percentages are rounded to one decimal place.

The following table details how much cognitive control participants believed they had during their most vivid ‘OBE’.

**Table 4.6**

*Perceived Cognitive Control During Most Vivid ‘OBE’*

<b>Level of Cognitive Control</b>	<b>Percentage (%)</b>	<b>N</b>
Control All of the Time	5.3	9
Control Most of the Time	29.6	50
Control Some of the Time	14.8	25
Minimal Control	13.6	23
No Control	30.7	52
Unsure	5.9	10

*Note.* N = 169. Percentages are rounded to one decimal place.

The following table details participants' ability to induce 'OBEs'.

**Table 4.7**

*Ability to Induce an 'OBE' at Will*

<b>Ability to Induce</b>	<b>Percentage (%)</b>	<b>N</b>
Always	6.2	12
Sometimes	23.7	46
Occasionally	13.4	26
Never	34.5	67
Unsure	22.2	43

*Note.* N = 183. Percentages are rounded to one decimal place.

The following table details how real participants most vivid 'OBE' was in comparison to other states of consciousness.

**Table 4.8**

*Overall Descriptive Realness at Time of Filling in the Survey*

<b>Descriptive Realness</b>	<b>Percentage (%)</b>	<b>N</b>
Equal to a Normal Wakeful State	44.2	73
Equal to a Vivid Dream	18.2	30
Equal to a Psychedelic Trip	3.0	5
Equal to a Hypnotic State	2.4	4
Equal to a Deep Meditative State	3.0	5
More Real Than a Normal Wakeful State	19.3	32
Unsure	9.7	16

*Note.* N = 165. Percentages are rounded to one decimal place.

The following table details veridical prospects within participant's most vivid 'OBE'.

**Table 4.9**  
*Apparent Veridical Nature to Participant 'OBE'*

<b>Response</b>	<b>Percentage (%)</b>	<b>N</b>
Tried to check if details of the experience were veridical post-OBE	34.6	54
Believed they gained validation that the experience was veridical post-OBE	39.1	61
Found the experience was not veridical upon checking post-OBE	15.3	24
Were unsure if the experience was veridical upon checking post-OBE	4.5	7
Could not gain validation if the experience was veridical or not post-OBE	6.4	10

*Note.* N = 156. Percentages are rounded to one decimal place.

What follows in this section is a detailing of the results of statistical analyses testing how various physiological factors impacted on 'OBE' formation within the participant group as pertaining to predictions highlighted in chapter 3. To reconfirm group categorical data (yes or no responses) has been converted to (ratio group 'OBE' feature index scores) for the groups to be tested. In the Kruskal-Wallis and Mann Witney U tests that follow the dependent variables are ratio 'OBE' feature index scores a continua. The independent variables are categorical groups of for example, lying, sitting, or standing.

The mean rank ordinal 'OBE' feature index scores for the groups are being compared to test for a significant score difference between the categorical groups.

The first analysis concerns if the induction state or states participants considered themselves to be in at the beginning of their 'OBE' affected index score. The participant's answers led to participants being grouped into 7 major and distinct

physiological-based induction state categories, which matched the possible answers to the question within the survey and are as follows:

Sleep states – Sleeping, the altered states just prior to falling asleep (hypnagogic) or the state just after waking from sleep (hypnopompic).

MHT – the altered states of meditation, hypnosis, and trance.

Phy & EmoT – A state of physical and/or emotional trauma but not close to death.

Near Death – The physical state of being close to death.

Drug & Ana – Under the influence of drugs including anaesthesia.

Multi/Stacked – Experiencing more than one of the aforementioned states at once e.g. under the influence of drugs and falling asleep or in a state of physical and/or emotional trauma and waking from sleep etc.

Whilst a person in a near death state would also be experiencing physical and likely emotional trauma this was not counted as a multi state and seen as part of a natural near-death state by the author. However, near death states could be part of a multi/stacked state in other ways e.g. near death and also under the influence of drugs, near death and waking from sleep, or near death and in a meditative state etc.

Antos – Awake and not experience a trauma or stress.

**Table 4.10**

*Induction State Kruskal-Wallis Ranks*

<b>Induction State</b>	<b>N</b>	<b>Mean Rank</b>
Sleep States	67	92.72
MHT	15	89.20
Phy & EmoT	29	75.69
Near Death	13	82.81
Drug & Ana	22	95.50
Multi/Stacked	22	132.68
Antos	15	66.27

<b>Induction State</b>	<b>N</b>	<b>Mean Rank</b>
<b>Total</b>	183	

The test highlighted the variance in the mean ranks as seen in the previous table indicating the variance in general phenomenological abundance / depth of ‘OBEs’ via these induction states. The SPSS output can be found in Appendix B Figure B1.

The Kruskal-Wallis test showed statistically significant differences in ‘OBE’ feature index score ( $H = 19.830$ ,  $P = .003$   $DF = 6$ ,  $\eta^2 = 0.11$ ).

Subsequent pairwise comparisons via a Dunn’s test indicated a statistically significant dominance for the multi / stacked state pre-Bonferroni correction over all other states, ANTOS ( $P < .001$ ) Phy & emoT ( $P < .001$ ), Near Death ( $P = .007$ ), MHT ( $p = .014$ ), Sleep States ( $P = .002$ ) Drug & Ana ( $P = .020$ ). After the Bonferroni correction three results remained statistically significant, ANTOS ( $p = .004$ ), Phy & emoT ( $P = .003$ ), and sleep states ( $P = .045$ ).

These results highlight the greater abundance / depth of ‘OBEs’ via a multi/stacked induction state.

The next analysis concerns the effect body position during an ‘OBE’ has on index score.

**Table 4.11**  
*Body Position Kruskal-Wallis Ranks*

<b>Body Position</b>	<b>N</b>	<b>Mean Rank</b>
Lying	137	93.66
Sitting	28	78.13
Standing	11	50.59
<b>Total</b>	176	



The Kruskal-Wallis test showed statistically significant differences in ‘OBE’ feature index score ( $H = 8.668$ ,  $P = .013$ ,  $DF = 2$ ,  $\eta^2 = 0.049$ ). The SPSS output can be found in Appendix B Figure B2. Subsequent pairwise comparisons via a Dunn’s test indicated a statistically significant dominance for lying over standing before a Bonferroni correction ( $P = .007$ ) and after ( $P = .021$ ). The result supports previous research that had found ‘OBEs’ occurring in a supine position obtained a significantly higher number of ‘OBE’ features on an ‘OBE’ feature index than ‘OBEs’ that took place standing (Zingrone et al., 2010).

The next analysis concerns the effect eyelid position during an ‘OBE’ has on index score.

**Table 4.12**

*Eyelid Position Mann-Whitney U Ranks*

<b>Eyelid Position</b>	<b>N</b>	<b>Mean Rank</b>	<b>Sum of Ranks</b>
Open	36	64.01	2304.50
Closed	120	82.85	9941.50
<b>Total</b>	156		

The Mann-Whitney U test showed statistically significant differences in ‘OBE’ feature index score ( $U = 1638.000$ ,  $P = .028$ ,  $\eta^2 = 0.031$ ). The SPSS output can be found in Appendix B Figure B3. Further, indicating that the eyes closed group score significantly higher than the open eyes group.

The next analysis concerns the effect having suffering with anxiety and depression has on index score.

**Table 4.13**

*Anxiety/Depression Kruskal-Wallis Ranks*

<b>Anxiety/Depression</b>	<b>N</b>	<b>Mean Rank</b>
Anxiety Only	36	97.10

<b>Anxiety/Depression</b>	<b>N</b>	<b>Mean Rank</b>
Depression Only	9	69.22
Both Anxiety and Depression	88	101.10
Neither	49	74.23
<b>Total</b>	<b>182</b>	

The test highlighted variance in mean ranks, as seen in the previous table, which indicates the variance in general phenomenological abundance / depth of ‘OBEs’ via these mental health-related groups. The SPSS output can be found in Appendix B Figure B4.

The Kruskal-Wallis test showed significant differences in ‘OBE’ feature index score ( $H = 10.214$ ,  $P = .017$ ,  $DF = 3$ ,  $\eta^2 = 0.056$ ). Subsequent pairwise comparisons via a Dunn's test indicated a statistically significant dominance for anxiety only over neither before a Bonferroni correction ( $P = 0.48$ ) and both anxiety and depression over neither both before a Bonferroni correction ( $P = .004$ ) and after ( $P = .025$ ).

The next analysis concerns the effect having suffering with chronic hallucinations has on index score.

**Table 4.14**

*Chronic Hallucinations Mann-Whitney U Ranks*

<b>Chronic Hallucinations</b>	<b>N</b>	<b>Mean Rank</b>	<b>Sum of Ranks</b>
Yes	18	116.63	1866.00
No	165	88.52	14605.00
<b>Total</b>	<b>181</b>		

The Mann-Whitney U test showed statistically significant differences in ‘OBE’ feature index score ( $U = 910.000$ ,  $P = .040$ ,  $\eta^2 = 0.023$ ). Further, indicating that the group that has suffered with chronic hallucinations scores significantly higher than the group that has not. The SPSS output can be found in Appendix B Figure B5.

The next analysis concerns the effect having an ‘OBE’ intentionally has on index score.

**Table 4.15**

*Intentional vs. Not Intentional Mann-Whitney U Ranks*

<b>Intentional vs. Not Intentional</b>	<b>N</b>	<b>Mean Rank</b>	<b>Sum of Ranks</b>
Intentional	20	136.10	2722.00
Not Intentional	162	85.99	13931.00
<b>Total</b>	182		

The Mann-Whitney U test showed statistically significant differences in ‘OBE’ feature index score ( $U = 728.000$ ,  $P < .001$ ,  $\eta^2 = 0.089$ ) indicating that the intentional group scored significantly higher than the not intentional group. The SPSS output can be found in Appendix B Figure B6.

The next analysis concerns the effect spirituality level has on index score.

**Table 4.16**

*Spirituality Levels at Time of ‘OBE’ Kruskal-Wallis Ranks*

<b>Spirituality Levels</b>	<b>N</b>	<b>Mean Rank</b>
Very Spiritual	75	101.26
Quite Spiritual	59	95.03
Somewhat Spiritual	35	78.30
Not Spiritual at All	12	44.08
<b>Total</b>	181	

The Kruskal-Wallis test showed statistically significant differences in ‘OBE’ feature index score ( $H = 14.922$ ,  $P = .002$ ,  $DF = 3$ ,  $\eta^2 = 0.083$ ). The SPSS output can be found in Appendix B Figure B7.

Subsequent pairwise comparisons via a Dunn's test indicated a statistically significant dominance for ‘very spiritual’ over ‘somewhat spiritual’ ( $P = .032$ ) and ‘not spiritual at all’ ( $P < .001$ ) pre-Bonferroni correction. The result over ‘not spiritual

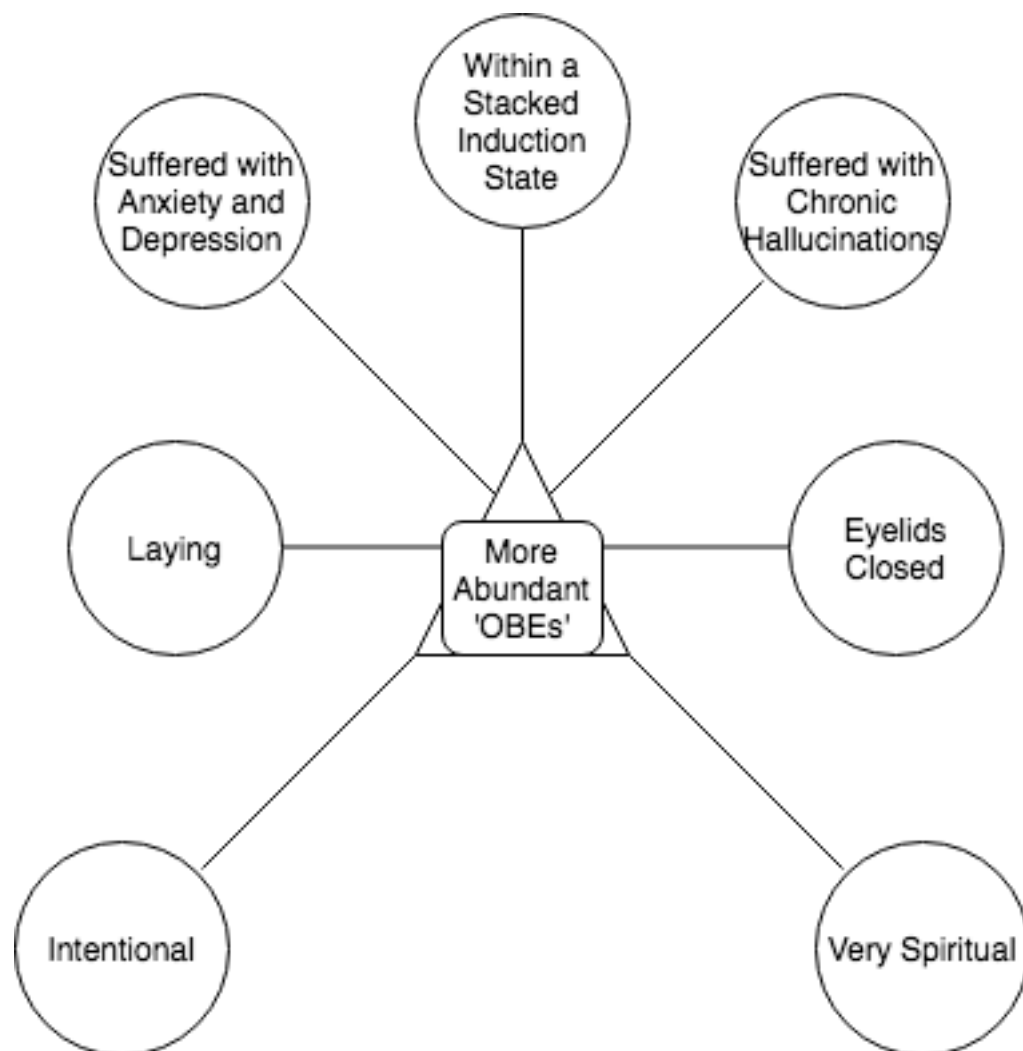
at all' remained statistically significant post-Bonferroni correction ( $P = .003$ ), as was the result for 'quite spiritual' over 'not spiritual at all' ( $P = .013$ ).

All  $\eta^2$  results indicate the conditions had a large effect on the index score aside from stacked induction state, which would be considered as having a medium to large effect on index score.

The Author has depicted the findings in figure 4.1 and 4.2.

**Figure 4.1**

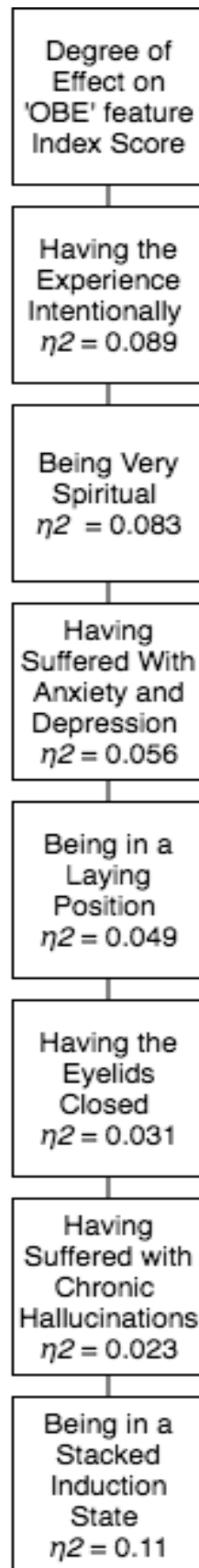
*Verified Relationships Between Physiological and Psychological Factors with Increase in 'OBE' Phenomena Experienced*



Within the figure (4.2) that follows the conditions are arranged in ascending rank order by measure of degree of effect on 'OBE' feature index score as measured by  $\eta^2$ . However, as these are the results of only a single study and all results were large or medium to large effect sizes one must have caution when interpreting the results. The author highlights the rank order in this way for ease of future comparison and reference.

**Figure 4.2**

*Conditions in Order of Degree of Effect on 'OBE' Feature Index Score*



### 4.3.2 Psychological Outcomes

What follows is a detailing of the frequency data of the psychological outcomes of 'OBEs' and statistical analyses testing for relationships between phenomenological variables and psychological outcomes of 'OBEs'.

**Table 4.17**

*Psychological Outcomes of 'OBE'*

<b>Psychological Outcome</b>	<b>Percentage</b>	<b>N</b>	<b>Total N</b>
Change in view of death	62.6%	102	163
Reduction in fear of death	66.3%	108	163
Increase in fear of death	3.4%	6	176
Change in relationship to the divine	46.4%	71	153
Change in worldview	68.2%	118	173
Change in relationship to other people	49.1%	78	159
Change in view of self	67.5%	114	169
Change in lifestyle	38.3%	64	193
Only positive outcomes	86.8%	112	132
Only negative outcomes	3.9%	4	102
Both positive and negative outcomes	9.3%	12	129

*Note.* Percentages and sample sizes (N) are based on varying total sample sizes for each psychological outcome.

### 4.3.3 Chi-Squared Tests

Chi-Squared tests of independence were calculated using the psychological outcome as one variable and the 84 index phenomena as the other variables. Resulting in 84 Chi-squared tests per psychological outcome aside for increase in fear of death where not tests were undertaken due to the lack of responses indicating this outcome.

A Bonferroni correction, as developed by Dunn (1961), was used as a multiple-comparison correction when statistical tests were performed simultaneously, was undertaken for each of the tests by dividing the critical P value ( $\alpha$ ) of 0.05 by the

number of comparisons being made. This resulted in an adjusted alpha value of 0.00060.

In the following sections (4.3.4 – 4.3.11) the author details the significant findings for each psychological outcome.

#### ***4.3.4 Change in View of Death***

Chi-squared tests of independence were performed to examine potential associations between the change in view of death and the frequency of experiencing ‘OBE’ feature index phenomena. Five results were statistically significant suggesting a change in view of death from an ‘OBE’ has a statistical association with the following:

Feeling the presence of an unknown non-physical being during an ‘OBE’  $\chi^2$  (2,  $N = 151$ ) = 16.717,  $P < .001$ ,  $V = .333$ . The SPSS output can be found in Appendix B Figure B8. The result remained statistically significant after a Bonferroni correction.

Experiencing of seeing an unknown non-physical being during an ‘OBE’  $\chi^2$  (2,  $N = 157$ ) = 15.455,  $P < .001$ ,  $V = .314$ . The SPSS output can be found in Appendix B Figure B9. The result remained statistically significant after a Bonferroni correction.

Feeling the presence of spiritual entities or beings during an ‘OBE’  $\chi^2$  (2,  $N = 146$ ) = 19.140,  $P < .001$ ,  $V = .362$ . The SPSS output can be found in Appendix B Figure B10. The result remained statistically significant after a Bonferroni correction.

Seeing spiritual entities or beings during an ‘OBE’  $\chi^2$  (2,  $N = 147$ ) = 18.393,  $P < .001$ ,  $V = .354$ . The SPSS output can be found in Appendix B Figure B11. The result remained statistically significant after a Bonferroni correction.



Experiencing one's surroundings illuminated by something other than normal light during an 'OBE'  $\chi^2 (2, N = 149) = 18.775, P < .001, V = .355$ . The SPSS output can be found in Appendix B Figure B12. The result remained statistically significant after a Bonferroni correction.

The crosstab percentages tables for these results can be found as Figures B8 – B12 in Appendix B.

#### ***4.3.5 Reduction in Fear of Death***

Chi-squared tests of independence were performed to examine potential associations between the reduction in fear of death and the frequency of experiencing 'OBE' feature index phenomena. Three results were statistically significant suggesting a change in fear of death from an 'OBE' has a statistical association with the following:

Feeling the presence of spiritual entities or beings during an 'OBE'  $\chi^2 (2, N = 148) = 12.322, P < .001, V = .355$ . The SPSS output can be found in Appendix B Figure B13. The result remained statistically significant after Bonferroni correction.

Seeing spiritual entities or beings being during an 'OBE'  $\chi^2 (2, N = 148) = 12.548, P < .001, V = .291$ . The SPSS output can be found in Appendix B Figure B14. The result remained statistically significant after Bonferroni correction.

Seeing lights around or at a distance during an 'OBE'  $\chi^2 (2, N = 150) = 12.604, P < .001, V = .290$ . The SPSS output can be found in Appendix B Figure B15. The result remained statistically significant after Bonferroni correction.

The crosstab percentages tables for these results can be found as Tables B13 – B15 in Appendix B.

#### ***4.3.6 Increase in Fear of Death***

Unfortunately, due to the lack of response indicating this outcome, it was impossible to adequately test association for this psychological outcome. The author suggests this result makes clear that in order to test for negative outcomes of ‘OBEs’, the sample must be focused on individuals who have experienced negatively framed ‘OBEs’.

#### ***4.3.7 Change in Relationship to the Divine***

Chi-squared tests of independence were performed to examine potential associations between change in relationship to the divine and the frequency of experiencing ‘OBE’ feature index phenomena. Six results were statistically significant suggesting a change in fear of death from an ‘OBE’ has a statistical association with the following:

Feeling the presence of an unknown non-physical being during an ‘OBE’  $\chi^2(2, N = 144) = 16.710, P < .001, V = .341$ . The SPSS output can be found in Appendix B Figure B16. The result remained statistically significant after a Bonferroni correction.

Feeling the presence of spiritual entities or beings during an ‘OBE’  $\chi^2(2, N = 142) = 19.930, P < .001, V = .375$ . The SPSS output can be found in Appendix B Figure B17. The result remained statistically significant after a Bonferroni correction.

Seeing spiritual entities or beings during an ‘OBE’  $\chi^2(2, N = 142) = 19.498, P < .001, V = .371$ . The SPSS output can be found in Appendix B Figure B18. The result remained significant after a Bonferroni correction.

Feeling the presence of a deceased loved one or pet during an ‘OBE’  $\chi^2(2, N = 149) = 7.493, P = .006, V = .224$ . The SPSS output can be found in Appendix B

Figure B19. The result did not remain statistically significant after Bonferroni correction.

The ability to see 360 degrees during an ‘OBE’  $\chi^2 (2, N = 130) = 14.983, P < .001, V = .339$ . The SPSS output can be found in Appendix B Figure B20. The result remained statistically significant after a Bonferroni correction.

The expansion of your consciousness or non-physical body to a larger than normal size  $\chi^2 (2, N = 139) = 13.175, P < .001, V = .308$ . The SPSS output can be found in Appendix B Figure B21. The result remained statistically significant after a Bonferroni correction.

The crosstab percentages tables for these results can be found as Figures B16 – B21 in appendix B.

#### ***4.3.8 Change in Worldview***

Chi-squared tests of independence were performed to examine potential associations between change in relationship to the divine and the frequency of experiencing ‘OBE’ feature index phenomena. Four results were statistically significant suggesting a change in fear of death from an ‘OBE’ has a statistical association with the following:

Feeling the presence of spiritual entities or beings during an ‘OBE’  $\chi^2 (2, N = 156) = 18.873, P < .001, V = .348$ . The SPSS output can be found in Appendix B Figure B22. The result remained statistically significant after a Bonferroni correction.

Seeing spiritual entities or beings during an ‘OBE’  $\chi^2 (2, N = 156) = 11.970, P = .001, V = .277$ . The SPSS output can be found in Appendix B Figure B23. The result did not remain statistically significant after a Bonferroni correction.

The ability to feel at an abnormal distance during an ‘OBE’.  $\chi^2 (2, N = 151) = 12.442, P < .001, V = .287$ . The SPSS output can be found in Appendix B Figure B24. The result remained statistically significant after a Bonferroni correction.

The ability to see 360 degrees during an ‘OBE’  $\chi^2 (2, N = 147) = 9.932, P = .002, V = .260$ . The SPSS output can be found in Appendix B Figure B25. The result did not remain statistically significant after a Bonferroni correction.

The crosstab percentages tables for these results can be found as Figures B22 – 25 in Appendix B.

#### ***4.3.9 Change in Relationship to Other People***

Chi-squared tests of independence were performed to examine potential associations between change in relationship to other people and the frequency of experiencing ‘OBE’ feature index phenomena. Two results were statistically significant suggesting a change in fear of death from an ‘OBE’ has a statistical association with the following:

An expansion of your consciousness or non-physical body to a larger than normal size during an ‘OBE’  $\chi^2 (2, N = 144) = 12.225, P < .001, V = .291$ . The SPSS output can be found in Appendix B Figure B26. The result remained statistically significant after a Bonferroni correction.

The ability to see 360 degrees during an ‘OBE’  $\chi^2 (2, N = 134) = 4.249, P = .039, V = .178$ . The SPSS output can be found in Appendix B Figure B27. The result did not remain statistically significant after a Bonferroni correction.

The crosstab percentages tables for these results can be found as Figures B26 – B27 in Appendix B.

#### ***4.3.10 Change in View of Self***

Chi-squared tests of independence were performed to examine potential associations between change in relationship to other people and the frequency of experiencing ‘OBE’ feature index phenomena. One result was statistically significant suggesting a change in fear of death from an ‘OBE’ has a statistical association with the following:

Seeing spiritual entities or beings during an ‘OBE’. A statistically significant result was found  $\chi^2(2, N = 155) = 7.449, P = .006, V = .219$ . The SPSS output can be found in Appendix B Figure B28. The result did not remain statistically significant after a Bonferroni correction.

The crosstab percentages tables for this result can be found as Figure B28 in Appendix B.

#### ***4.3.11 Change of Lifestyle***

This psychological outcome did not produce a significant Chi-squared result. The author wonders, again, within this psychological outcome if a change of lifestyle is typically not so much a direct result of certain phenomena within an ‘OBE’ but in some cases is a result of or follows on from the other psychological changes detailed in this section.

#### ***4.3.12 Chi-Squared Association Strength***

The *V* results indicate medium level associations between the various outcomes and phenomena aside from the following that would be considered as large associations:

1. A change in view of death with feelings the presence of spiritual entities or beings, surroundings illuminated but something other than normal light and seeing spiritual entities or beings.

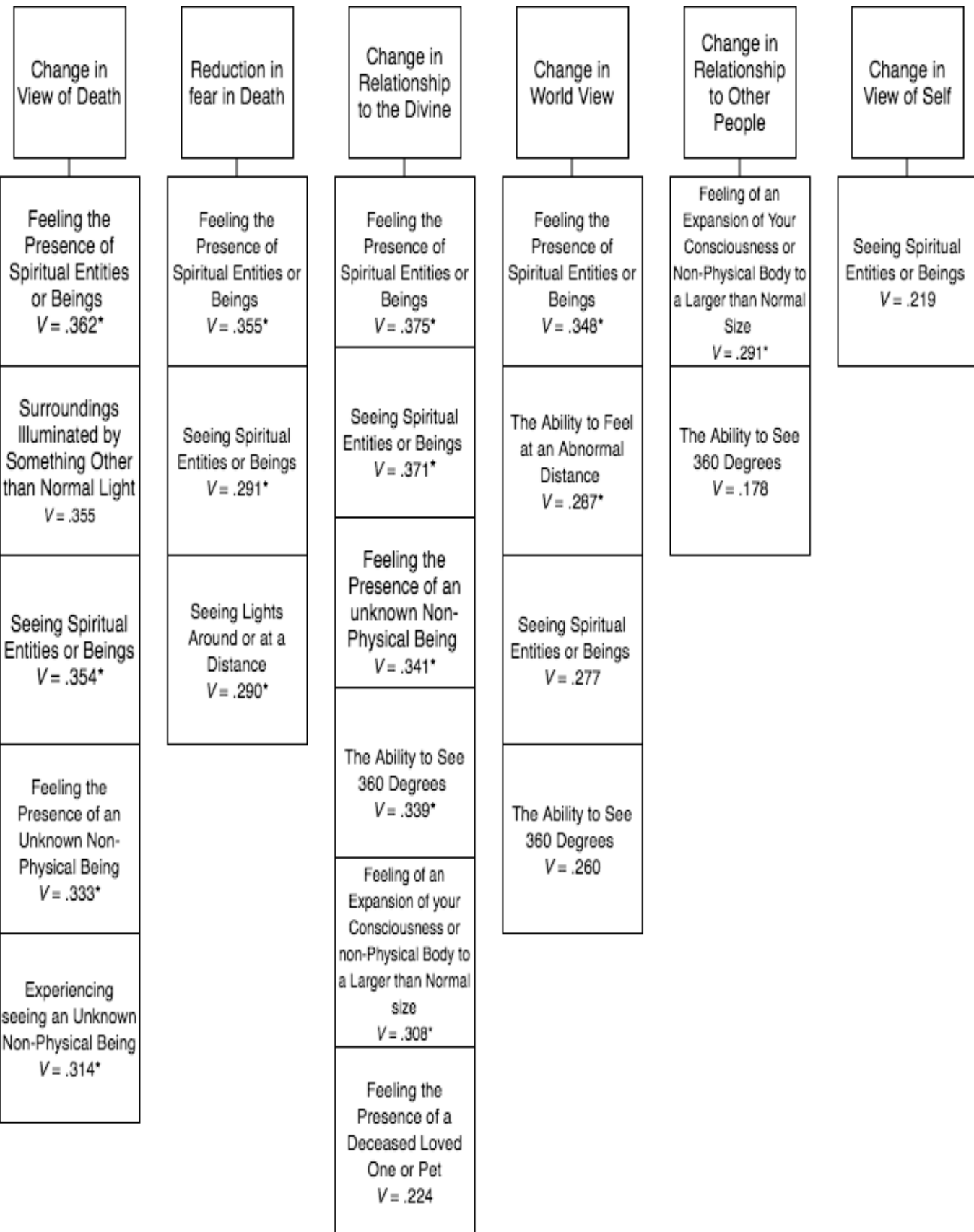
2. A reduction in fear of death with feeling the presence of spiritual entities or beings.
3. A change in relationship to the divine with feelings the presence of spiritual entities or beings and seeing spiritual entities or beings.

The author has depicted the findings in figure (4.3) on the following page.

Within the figure hallucinatory phenomena are arranged in ascending rank order by measure of degree of strength of statistical association via the Cramér's  $V$  statistic to the associated psychological outcome. Hallucinatory phenomena Cramér's  $V$  statistics marked with a (\*) are results that remained statistically significant after a Bonferroni correction.

However, as these are the results of only a single study and all results were medium to large effect sizes one must have caution when interpreting the results. The author highlights the rank order in this way for ease of future comparison and reference.

**Figure 4.3**  
*Verified Associations Between Phenomena and Psychological Outcomes*



#### 4.4. Survey Findings Discussion

The survey results within the participant group supported the author's hypothesised predictions relating to certain physiological and psychological factors generating 'OBEs' more frequently and / or more phenomenology abundant experiences of this nature the latter being measurable via higher 'OBE' feature index score. Thus, revealing apparent relationships between 'OBE' induction, and formation with the following as detailed in Tables 4.2 – 4.8:

- Suffering from depression and anxiety.
- Suffering from chronic hallucination.
- Body position.
- Induction state.
- Eyelid position.
- Intention.
- Level of spirituality.

Results indicate 'OBE' induction conducive states appear to have a capacity to occur at the same time and act cumulatively to form a more abundant phenomenological experience. Notably, one participant commented during the survey that they had noticed that during their drug induced experiences that they:

*“could at times vary the intensity of the experience based on if I was meditating, laying down, and closing my eyes. Doing these things seem to lead to quite a rapid increase in the vividness and depth to the experience.”*

As hypothesised the number of people who reported suffering from anxiety Table 4.13 was much higher than expected as according to large population surveys, the lifetime prevalence is up to 33.7% (Bandelow & Michaelis, 2015). Likewise, the number of people who reported suffering from depression Table 4.13 was also higher



than expected, with lifetime estimates around 14.6% (e.g., Bromet et al., 2011).

Notably, one participant also commented during the survey that,

*"As my anxiety and depression got worse, my 'OBEs' became more frequent, more detailed, and more intense."*

Further, it appears that suffering from anxiety and depression has an impact on the formation of 'OBEs'. Importantly, the result of suffering with anxiety and depression having a statistically significant impact on a 'OBE' feature index score supports the prediction within the author's proposed 'OBE' induction and formation theory that these conditions would through a combination of making an individual more sensitive to or perpetuating larger shifts within the filter-reducing valve, change in brain entropy, and DMN decoupling, will likely produce 'OBEs' more frequently and / or more phenomenology abundant experiences of this nature. The latter being measurable via increased 'OBE' feature index score. This highlights the need for an investigation into potential relationships between anxiety and depression with 'OBEs' in future empirical work beyond this thesis. Moreover, the closeness in mean rank scores between the anxiety only (97.10) and the anxiety and depression group (101.10), and the distance between these to depression only (69.22) Table 4.13 suggests that anxiety may have a larger impact on elements of formation and how abundant in phenomena 'OBEs' are rather than depression. Nevertheless, the addition of suffering with depression with anxiety did create a larger rank score, as noted there are multiple ways suffering depression might potentially cause increased rates of 'OBEs' as highlighted in chapter 3, and the amount of participants having suffered with depression within this survey tentatively indicates there is a possible relationships in the areas the author has suggested.

The author could not find percentages of lifetime prevalence of chronic hallucinations, but, for example, the prevalence of schizophrenia has been found to be 0.55 per 100 (Goldner et al., 2002). Schizophrenia is a chronic, frequently disabling mental disorder comprising of a collection of signs and symptoms predominantly defined by observed signs of psychosis. In its most common form, schizophrenia presents with paranoid delusions and auditory hallucinations (Insel, 2010). However, visual, smell, taste and touch hallucinations are also known to occur (Császár et al., 2019). It is the most common form of functional psychotic disorder (Patel et al., 2014).

The author is inclined to suggest the percentage of those who have suffered from chronic hallucinations Table 4.6 in this survey is higher than expected as hypothesised. Further, suffering from chronic hallucinations appears to impact the formation of 'OBEs'. Importantly, these results support the prediction within the author's proposed 'OBE' induction and formation theory that having suffered from this condition likely producing 'OBEs' more frequently and / or more phenomenology abundant experiences of this nature. The latter being measurable via increased 'OBE' feature index score.

These results of the survey offer further research grounding the concept of 'OBEs' being primarily a neurological process caused and influenced by certain physiological and psychological factors, which formulate significant changes in the brain's filtering reducing valve, brain entropy and corresponding decoupling of the DMN that leads to an altered state of consciousness that is 'OBE' induction conducive. However, it is a state that can also be brought on and influenced in part by certain psychological factors that lead to direct and indirect influences on the brain's filtering reducing valve, brain entropy and DMN decoupling.

The survey demonstrated within the participant group that ‘OBEs’ could cause a range of psychological outcomes in ‘OBErs’. Chi-squared analyses revealed as hypothesised psychological outcomes were statistically associated with ‘OBE’ index phenomena. These outcomes and relationships are as follows:

*Change in view of Death*

- Feeling the presence of an unknown non-physical being.
- Experiencing a visual of an unknown non-physical being.
- Feeling the presence of spiritual entities or beings.
- Seeing spiritual entities or beings.
- Experiencing one's surroundings illuminated by something other than normal light during.

*Reduction in fear of death*

- Feeling the presence of spiritual entities or beings.
- Seeing spiritual entities or beings.
- Seeing lights around or at a distance.

*Change in view of the divine*

- Feeling the presence of an unknown non-physical being.
- Feeling the presence of spiritual entities or beings.
- Seeing spiritual entities or beings.
- Feeling the presence of a deceased loved one or pet.
- The ability to see 360 degrees.
- The expansion of your consciousness or non-physical body to a larger than normal size.

*Change in worldview*

- Feeling the presence of spiritual entities or beings.

- Seeing spiritual entities or beings.
- The ability to feel at an abnormal distance.
- The ability to see 360 degrees.

*Change in relationship to other people*

- An expansion of your consciousness or non-physical body to a larger than normal size.
- The ability to see 360 degrees.

*Change in view of self*

- Seeing spiritual entities or beings.

However, several of these results were not statistically significant after the correction statistic was used. Multiple authors have acknowledged the debate in academia around the use of correction statistics (e.g., Feise, 2002; Mayo and Cox, 2006; Rothman, 1990). ‘Classicists’ believe the chance of a type 1 error that is incorrectly assigning a result as statistically significant due to chance increases as the number of comparative analyses are made on with variable. They hold a position that correction for multiple testing is mandatory. ‘Rationalists’ acknowledge corrected P-values reduce the chance of making type 1 errors but increase the chance of making a type 2 error that is incorrectly assigning a result as caused by chance when it is not. Moreover, that correction statistics bring a need to increase sample size. Furthermore, they argue that P-value adjustments are calculated based on how many tests are to be considered, and that number has been defined arbitrarily and fluctuate. Several notable ‘rationalists’ suggest a correction statistic is not needed (e.g., Perneger, 1998; Rothman, 1990). Several notable ‘Classicists’ have gone as far to suggest that the significance level at least in some cases should be dramatically reduced overall regardless of correction method used, Boos and Stefanski (2011) Johnson (2013),

0.001 and 0.005 respectively. There is some debate over which is potentially worse for academia, a higher rate of type 1 errors or a higher rate of type 2 (e.g., Rothman, 1990).

The Bonferroni correction used by the author of this thesis is sometimes criticised for being too conservative. Moreover, it can impose a fairly severe statistical line of significance when sample sizes are small or when many tests are being conducted (VanderWheele & Mathur, 2019), and indeed there are correction methods that are less conservative (e.g., Holm, 1979). However, the author elected to use the Bonferroni correction as he prefers to take a stricter approach to guard more against type 1 errors, and after analysis interpret how much weight to give the stricter line of significance based the logistics of the study. The author feels this approach should leave most ‘Classicists’ and ‘Rationalists’ that may review the results content with his approach.

In the author’s interpretation, based on the sample size, to amount of testing in his Chi-squared analyses that it is quite possible that a larger sample size for this study would have led to the results that became not statistically significant after Bonferroni correction to remain statistically significant. It is the author’s view that given sample size to number of Chi-squared analyses the adjusted alpha value for each test after a Bonferroni correction being 0.00060 was quite a severe statistical line of significance.

Therefore, the author does still subscribe substantial weight to all the results within the Chi-squared analyses that were statistically significant before Bonferroni correction. The author gives these results equal value moving forward in the thesis in terms of future research on potential relationships between hallucinatory phenomena during ‘OBEs’ and psychological outcomes.

On reflection the author feels that it is very possible that the Kruskal-Wallis test results that did not remain significant after a Bonferroni correction would have remained significant if the study had larger numbers. Thus, the author does still allocate substantial weight to all the results within the Kruskal-Wallis tests that were statistically significant before Bonferroni correction.

What is not clear from the survey data is how the experience of the hallucinatory phenomena led to the various psychological outcomes that they were associated with. Further, what was left not investigated by the survey and similar 'OBE' feature index studies that came before it is a potential role of the core phenomenon of 'OBES' towards these psychological changes, that phenomenon being dissociation. As dissociation is occurring simultaneously with the index phenomena, investigating the roles of dissociation in specific psychological outcomes would be more appropriately and correctly explored in a deeper qualitative approach within the author's view, which is work that was undertaken following the survey and can be found within chapter 5.

Overall, the extent of psychological change as a result of 'OBES' found within the survey arguably highlights how academia has not adequately explored the psychological impact of 'OBES' to date and perhaps, in doing so, has done a disservice to people who have been impacted by 'OBES'. It is logical that a deeper qualitative investigation into these areas should occur, and it seems possible that 'OBES' could perhaps even be used in therapeutic contexts if better understood and controlled.

Notably, when given the opportunity to detail any psychological outcomes not listed in the survey, 15 participants acknowledged an additional distinct psychological

outcome. It was apparent to the author that these participants were dealing with outcomes of changes in view and relationship to nature. For example:

"It completely changed how I viewed and experienced nature. I felt closer to nature after the experience, a more integrated part of it. I saw how the Divine and nature were connected."

"It was different for me after the 'OBE' in terms of how I viewed things in nature. How I viewed nature as a whole changed, and I wanted to be out surrounded by and experiencing nature much more."

Given this, I suggest that a question relating to the possible impact on view and relationship to nature be added to future surveys on 'OBEs' and also to qualitative investigations. The author does include a question related to this outcome and explore it qualitatively within his study found in chapter 5 of this thesis.

Of further note within the survey was that consciousness expansion experiences often did not occur during 'OBEs' that were induced in non-psychoactive ways, that entity encounter experiences were much more common from psychoactive induced 'OBEs', and in particular, these phenomena co-occurred were the main psychoactive substance taken was DMT.

Of further interest was 7 participants from the author's online 'OBE' survey who experienced their 'OBE' via ayahuasca-based DMT consumption acknowledging having all the experiences that have relationships to psychological outcomes acknowledged earlier within this section.

These participants' experiences produced some of the highest 'OBE' feature index scores meaning the greatest range of phenomena, and all 7 of these participants experienced all of the specified psychological outcomes aside from experiencing negative psychological outcomes.

This suggests that individuals who experience their ‘OBE’ while under the influence of DMT, and specifically ayahuasca, might be ideal candidates for qualitative investigation on potential relationships between the psychological outcomes and associated phenomena found in this study.

DMT is a powerful psychoactive substance that can be found endogenously in the human brain and body and is also found in all studied mammals, and many plant species. DMT remains one of the major psychoactive compounds found in various shamanistic brews (e.g., ayahuasca, hoasca, yagé) used in South America for centuries (Pochettino et al., 1999) and has now found its way into Europe and North America as a recreational drug (Tupper, 2008). When consumed from an external source, it produces some of the most extraordinary changes in consciousness of any naturally occurring psychedelic substance. Users of DMT consistently report a number of hallucinatory experiences, that at times, can lead to the complete replacement of awareness of the normal waking world, with a bizarre and complex reality filled with a variety of visual, auditory, tactile, olfactory and gustatory hallucinations (Strassman, 2001, Strassman et al., 2008; Luke, 2011; Gallimore, 2013). Several studies have linked DMT to the out of body experience, time space distortion and other such mystical states e.g. (Strassman et al., 1996).

The survey provided a general scope of frequency rates for a range of experiences associated with ‘OBES’ and those who experience them. From this frequency data, an extensive descriptive basis for the ‘OBE’ phenomenon can be found and is as follows:

The survey has indicated ‘OBES’ encompass at least 84 distinct phenomena with a strong feeling of disembodiment typically being experienced at the heart of the phenomenon. As noted in section (4.2.1) the dissociation from the body is such that



most 'OBEs' are frequently unconcerned with the well-being of the physical body for the duration of the experience. The hallucinatory phenomena are typically considered to be very 'real' by 'OBEs', often as real as a normal experience of reality. Notably, in some cases, 'OBEs' perceive the experience as more 'real' than a normal experience of reality Table 4.8. As noted in Section 4.2.1 the majority of 'OBEs' believe their experience to be a 'real' representation of reality both just after the event and on reflection days or years later. How 'real' these experiences feel and are processed by the experiencer further highlights the importance of understanding the psychological impact of 'OBEs'. The degree of perception of the experience being so 'real' even leads many 'OBEs' to check for veridical components of the experience, and many experiencers believe they gain validation that aspects of their experience were indeed veridical Table 4.9.

'OBEs' typically have little to no control over the perceptions and experiences within the 'OBE' and as a result lack the capacity to make and fulfil conscious decisions about what they want to experience as part of their 'OBE' Table 4.6. As noted in Section 4.2.1 sometimes 'OBEs' interpret aspects of their experience as being religious or spiritual. Moreover, 'OBEs' seem to follow the experiencer's belief systems in the sense that 'OBEs' typically do not experience anything that goes against any beliefs that they hold.

The survey highlighted that 'OBEs' are very typically unintentional, spontaneous experiences but also validated that there are individuals who have them intentionally and enough individuals who believe they have some control over inducing an 'OBE' to formulate participant groups for empirical research Table 4.7. For example, 12 participants from this survey alone believe that they can control when they have an 'OBE' all of the time. Surveys such as the author's can and in the

future should provide a means to recruit such individuals for further research investigating 'OBE' induction and formation.

Whilst cultural and religious influences have rarely been investigated in connection to 'OBEs', one study explored specifically beliefs of 'OBEs' in 70 non-Western cultures, finding that such beliefs appear in about 95% of the world's cultures and could be considered quite uniform as a whole, although there are clear divergent beliefs relating the numerous 'OBE' phenomena (Sheils, 1978). Apart from this study research has centred around near-death experiences, importantly, Schröter-Kunhardt (1993) concluded that NDEs exhibit cross-cultural similarities of form, despite considerable diversity of imagery and content, that is, recurrent motifs, composite imagery, and a series of sequential events. The divergence that occurs has been specifically linked to the influence of religiosity and cultural background on the NDE content and interpretation (Belanti et al., 2008). The survey analysis outcome seems to follow this understanding with 'OBEs' in general.

Notably, it appears that spirituality levels at the time of 'OBE' impact the formation of 'OBEs' Table 4.8. This result supports the predictions within the author's proposed 'OBE' induction and formation theory that spirituality level can make an individual more sensitive to or perpetuate larger shifts within the filter-reducing valve, change in brain entropy, and DMN decoupling, likely producing 'OBEs' more frequently and / or more phenomenology abundant experiences of this nature.

The author's thoughts are, again, that the more spiritual groups' result might be related to factors of being more likely to let go of the experience and thus, potentially have a deeper experience.

Previous investigation found no relationship between greater degree of prior knowledge of 'OBEs' and experiencing more phenomena during 'OBEs' (Alvarado &

Zingrone, 2015). Thus, the author at this time does not consider prior knowledge to have been a factor in why individuals with higher levels of spirituality experienced more phenomena.

However, the author does acknowledge that it is possible such an influence exists and was a factor. One previous study on the matter is far from conclusive, and the area certainly needs further investigation.

Furthermore, 'OBEs' appear to typically be an experience that does not occur whilst in an active state and most often occurs in a state of stillness between being active and unconscious, most likely when a person has their eyes closed, and most likely when a person is in a supine position Tables 4.3-4.4. Moreover, eyelid position and body position impact the formation of 'OBEs'. The latter two items being results that support the predictions within the author's proposed 'OBE' induction and formation theory that through a combination of making an individual more sensitive to or perpetuating larger shifts within the filter-reducing valve, change in brain entropy, and DMN decoupling, these states will likely produce 'OBEs' more frequently and / or more phenomenology abundant experiences of this nature. The latter being measurable via higher 'OBE' feature index score.

An 'OBE' will likely first occur early in life during childhood. The childhood years 1-12 accounting for a majority N=77 of first 'OBEs'. The survey highlighted a majority of the 'OBEs' in the survey, N=116 had their first 'OBE' before the age of 20 Table 4.3. This result highlights a need for research exploring the relationship between childhood and 'OBEs'. The author does not plan to address this area as part of the thesis as he is not aware of any research exploring that area, it is research that needs to be addressed and might also provide evidence towards to author's proposed neuropsychological theory of 'OBE' induction and formation.

Whilst the data indicated an individual in a population is most likely to have the 'OBE' one time, rather than (any other number) with the mode value as 1, the participants who selected 1  $N = 55$  only accounted for a minority of cases meaning in the majority of cases,  $N = 113$  survey participants had 'OBES' on more than one occasion Table 4.2. This indicates that in a population collectively you will find the majority having had more than one 'OBE'. This suggests that the cause of 'OBES' can reoccur, the appropriate conditions can be replicated, and thus the experience likely has the potential to in some cases be or become recurring. Notably, the number of 'OBES' experienced by the survey participants ranged from 1 to the highest option available to select on the survey 120+.

Whilst 'OBES' appear within the sample group to be a phenomenon that most frequently occurs during childhood, the result that those who have multiple 'OBES' are most likely to experience them most frequently between the ages of 10 to 40, after which there is a continual decline in experiences, was notable. Further, 'OBES' occurred on average most often during the participants' thirties, indicating that the conditions that cause an 'OBE' perhaps increase for a certain period of time between the ages of 10 to 40, are most prevalent during a person's 30s and decline after the age of 40 in this group Table 4.3. The author looked to see if there were any statistical patterns that could relate to his theory and follow this trend. There are many studies measuring anxiety by age, but the one that author gives the most weight to on the subject is one that estimated the share of people with anxiety disorders within the whole world, whether or not they are diagnosed, based on representative surveys. The study found a pattern between 1990 to 2018 of anxiety rising with age, peaking in the thirties/forties and decreasing from there with results varying somewhat based on country (Roth, 2018). So, perhaps, this result from author's study is at least in part

linked to general rates of anxiety experienced with age. Whilst 'OBES' were more frequent during participants' 30s, a majority of participants in the survey had their most vivid 'OBE' during their childhood years. The childhood years 1-12 accounted for a majority  $N = 51$  of the most vivid 'OBES'. The survey highlighted a majority of the 'OBES' in the survey,  $N = 77$  had their most vivid 'OBE' before the age of 20

Table 4.5.

This demonstrates that 'OBES' in the sample were substantially most vivid during childhood, which tentatively indicates the experiences as a whole are likely more vivid during these early years and reaffirms the aforementioned need for research exploring the relationship between childhood and the phenomenon. The author speculates that 'OBES' in childhood might typically be more vivid due to possible higher rates of psychological absorption in children when compared to adults. This being a disposition or personality trait in which a person becomes absorbed in their mental imagery, particularly fantasy. However, the author could not find research comparing levels of psychological absorption between children and adults.

What must be considered is the younger participants having not lived long enough to have the possibility of experiencing more vivid 'OBES' in their 40s.

However, as the current ages of participants for the study were Mean = 49.01 Median = 49 Mode = 57 occurring 11 times, meaning the majority of individuals in the study could select age range 40-50, the author's thoughts are that the variation was likely not excessively swayed due to a large number of participants not having lived longer. Whilst the author does not plan to address this area as part of the thesis as he is not aware of any research exploring that area, it is a research area that needs to be

addressed and might also provide evidence towards the author's proposed neuropsychological theory of 'OBE' induction and formation.

The survey highlighted within the sample that 'OBEs' are very typically unintentional spontaneous experiences Table 4.7 but also validated that there are individuals who have them intentionally, and individuals who believe they have some control over inducing an 'OBE' Table 4.7.

Notably, the result that those who have an 'OBE' intentionally have statistically significantly higher index scores demonstrating intention has an impact on the formation of 'OBEs' Table 4.15. This supports the prediction in the author's proposed 'OBE' induction and formation theory that having the experience intentionally will likely produce 'OBEs' more frequently and / or more phenomenology abundant experiences of this nature. The latter being measurable via higher 'OBE' feature index scores.

The author's thoughts are that the intentional group result is likely related to factors of stronger desire for dissociation and / or being likely to let go within the experience and thus potentially facilitating a deeper experience. Several anecdotes of letting go or surrendering were found in the comments participants gave during the survey regarding their 'OBE'. For example:

"I had fallen into a pool and was near to death. When I surrendered myself, I first saw all my life in images and then felt calm and surrendered to die, and then I was out of the pool looking at my body".

And one participant found their drug-induced 'OBEs' were more intense when trying:

"different meditations to see if some make the experience of DMT more intense, and I've found meditations related to being in the moment or letting go to have the biggest impact."

The author does not suggest that the result might be due to a greater degree of prior knowledge of 'OBEs' and influence through that knowledge to experience more phenomena due to a previous investigation indicating that is not a factor (Alvarado & Zingrone, 2015). However, the author does acknowledge that it is possible such an influence does exist and was perhaps a factor as just one previous study on the matter is far from conclusive, and the area certainly needs further investigation.

The survey suggests the majority of 'OBEs' that have been experienced have occurred during sleep states. As found within Table 4.10 the research also affirmed that 'OBEs' could occur during:

- Drug states including anaesthesia
- Meditative / Trance / Hypnotic
- Near-death states
- Physical or motional trauma but not near to death
- Awake and not experiencing a trauma or stress
- Experiences that are mixtures of these other states.

The number of participants who experienced their 'OBE' while under the influence of drugs was N=25 reaffirmed that several drugs appear to be 'OBE' induction conducive. The drugs listed by participants in the survey are as follows 3,4-MDMA, THC, ketamine, psilocybin, DMT, and LSD. In all cases the THC was consumed via cannabis use and, in some cases, the DMT was consumed via use of the Amazonian psychedelic plant brew ayahuasca.

Notably, the survey has created future research options for further grounding the author's proposed 'OBE' induction and formation theory via future surveying of this kind and also surveying specific to certain apparent influential factors. For example, a survey of the rates and formations of 'OBEs' in a sample consisting of only individuals who have suffered from anxiety and depression in comparison to a control sample of individuals who have not suffered from anxiety or depression. Notably, controlled experiments could also be undertaken to establish if, for example, individuals who have suffered from anxiety and depression are more prone to dissociation and 'OBEs' when receiving transcranial magnetic stimulation in an area of the DMN. Such an experiment could also easily investigate the impact of body position, eyelid position, spirituality, and intention concurrently.

#### **4.5. Survey Study Critique**

The survey content and design were shared across three people with experience of questionnaire design and the result reflects that, and the many conversations to design and polish the outcome. However, as with many surveys, the study is limited by the uncertain representativeness of a volunteer sample and the limitations of introspective reports after a potentially uncertain or extended amount of time (Cardeña, 2004).

In the author's view it is quite likely that with a larger sample size that Chi-squared tests that were no longer statistically significant after Bonferroni correction would have remained statistically significant. To be clear, this is an acknowledgement of a limitation based on sample size and not a critique of the analysis methodology.

Solfvin and Williams (2021) note on survey questionnaire research within parapsychological that such methods have great value but are laden with potential bias in selecting items, wording, response modes, and instructional texts, and



appropriate validation methods. Further, they highlight the challenge in creating a sample that is representative of experience within a general population and a sample that can generalise to cross-cultural contexts.

To try to manage these risks the author consulted with three supervisors to test the understanding of his choices and to eliminate ambiguities of meaning wherever possible.

This is clearly relevant to ‘OBEs’ as the author has highlighted issues over the categorization and use of the term ‘OBE’ and its associated phenomena in sections (2.1.2 – 2.1.5). Moreover, the author highlighted that there appear to be some cross-cultural differences in ‘OBEs’ in section (2.3.4).

A single survey can not fully reveal issues with sampling, responses, item wording, and statistical and distributional assumption. Only when a large number of studies are compared is further clarity found on these items and the impact revealed.

The survey sought to gather and analyse information on vestibular issues (meaning issues of the inner ear) and negatively processed ‘OBEs’, but this appears futile within a general surveying context without much larger participant numbers. In future surveys seeking to gather information on vestibular issues or negatively processed ‘OBEs’ will likely find it fruitful to survey specific to that goal.

It is important to highlight the potential of sample bias that may have influenced the survey results. The author suggests there is one clear potential relating to this. The number of female participants was over double the male within the sample. This is notable as women report higher levels of depression than males (Bromet et al., 2011) and likewise anxiety (Bandelow & Michaelis, 2015). Thus, this may have caused a bias to the result of the number of people who reported suffering

from anxiety in the participant group being much higher than expected as according to large population surveys and likewise with depression.

It is also worth noting some clear potential artefacts. The author acknowledges two potential artefacts, 'OBEs' may be innately conducive to lying down or having one's eyelids closed via their induction states. However, the author could not find statistics to demonstrate this artefact can intrinsically link sleep states, meditative states, drug induced, and near-death states as all are likely to involve at least short periods of closed eyes, and likewise periods of laying down. This could mean that laying down and having the eyelids closed are not so directly impactful in influencing 'OBE' phenomenology and the variation may be driven largely or exclusively by the induction state.

#### **4.6 Survey Conclusion**

In conclusion, the 'OBE' survey has achieved a general surveying of 'OBEs' within the participant group and provided an extensive descriptive basis for the range of 'OBE' phenomenon in one place. This is the first of its kind and represents an original contribution to the subject and related fields. For the survey the author created an expanded 'OBE' feature index that also represents an original contribution to the subject and related fields.

Furthermore, the survey within the participant group has supported the author's hypothesised predictions on items related to having an increased association with 'OBEs' and or impact on the induction and formation of them within his proposed new neuropsychological theory of 'OBEs'. In this process it has further established a developing grounding for the theory. Moreover, it has highlighted numerous directions of potentially fruitful research towards the further investigation

and potential establishment of the concepts within the theory. Both of these developments represent original contributions to the subject and surrounding fields.

The survey has highlighted ‘OBEs’ can cause a range of psychological outcomes in ‘OBErs’, that as hypothesised these outcomes were found to have a statistical association on ‘OBE’ feature index phenomena and in this way provided a platform to conduct a deeper qualitative investigation. The survey also revealed that individuals who experience their ‘OBE’ while under the influence of DMT, and specifically ayahuasca, might be ideal candidates for qualitative investigation on potential relationships between the psychological outcomes and associated phenomena found in this study. These developments represent original contributions to the subject and related fields.

At this point in the thesis, the research has presented options to explore further research on the induction and formation of ‘OBEs’ and likewise the psychological outcomes of ‘OBEs’. As the author’s, original intention within the thesis was to do a mixture of an investigation into the induction and formation of ‘OBEs’ and the psychological outcomes of the experiences, the author will follow on with the initial intention and focus next on an integrative qualitative investigation into the psychological outcomes of ‘OBEs’ as the next part of this thesis.

**Chapter 5: A Phenomenological Analysis of the Essence and Psychological Outcomes of Dissociative and Hallucinatory Experiences From a Sample Engaged in Ritualistic Ayahuasca Consumption in Peru**

**5.1. Introduction and Rationale for Interview Study**

In chapter 4, it was reported that a large number of an on-line survey participants acknowledged that having an ‘OBE’ caused a number of psychological outcomes:

- Change in view of death.
- Reduction in fear of death.
- Change in relationship to the divine.
- Change in worldview.
- Change in relationship to other people.
- Change in view of self.
- Change in lifestyle.

Chi squared analyses revealed that the changes in psychological outcomes 1 to 6 were all associated with connecting with metaphysical entities during the ‘OBE’. An expansion of consciousness or body to a larger than normal size was associated with change in relationship to other people; seeing 360 degrees was associated with change in relationship to the divine and change in worldview. Further, being able to feel at an abnormal distance was also associated with a change in worldview. Moreover, experiencer’s surroundings being illuminated by something other than normal light was associated with change in view of death and the experiencer’s surroundings being illuminated by something other than normal light was associated with a reduction in fear of death.

However, what was not investigated by the author's 'OBE' feature index analysis and similar 'OBE' feature index studies that came before it is the role of the core phenomenon of 'OBEs' towards these psychological changes, that phenomenon being dissociation. The reason being that this core phenomenon of 'OBEs' cannot be analysed independently from the other phenomena within the index format used, as it is the base of the experience. Thus, unlike other phenomena, dissociation will always be experienced and will be present from the start of the phenomenon. However, it can be isolated within deeper qualitative questioning.

Furthermore, was also left not investigated in the survey is exactly how the following cause psychological change in 'OBEs'.

- Connecting with metaphysical entities.
- An expansion of consciousness or body to a larger than normal size.
- Seeing 360 degrees.
- Having surroundings illuminated by something other than normal light.
- Seeing lights around oneself or at a distance.

Notably, when asked to detail any other psychological changes that had occurred from the 'OBE' several participants acknowledged that a change in view and relationship to nature had also occurred due to the 'OBE'.

The author proposes that all these topics require deeper investigation, and it is possible a qualitative investigation on the wide variety of phenomena that occurs within 'OBEs' may reveal that other phenomena can also cause psychological changes found within the author's online 'OBE' survey. Thus, overall, a deeper investigation of this kind on the phenomenology is relevant to address the aforementioned gaps in the literature on 'OBEs'. From these gaps, the research goal was created:

Qualitatively investigate psychological outcomes of ‘OBEs’. Further, within this investigation explore the potential role of phenomena that occurs within ‘OBEs’ in the psychological changes found in ‘OBErs’ within the author’s survey. Whilst having particular interest in the role of dissociation and the phenomena bulleted on the previous page, remain open to each acute physiological change, acute change of feeling, acute hallucinatory experience, having an equal role in generating psychological outcomes.

What appeared from the author’s online ‘OBE’ survey was that consciousness expansion experiences often did not occur during ‘OBEs’ that were induced in non-psychoactive ways, that entity encounter experiences were much more common from psychoactive induced ‘OBEs’ and in particular these phenomena co-occurred where the psychoactive substance taken was DMT.

All 7 participants from the author’s online ‘OBE’ survey who experienced their ‘OBE’ via ayahuasca-based DMT consumption acknowledged having experiences of all the phenomena found to be associated with the psychological outcomes from the author’s study found within chapter 4. These phenomena of association are bulleted on the previous page. Notably, all 7 of these ayahuasca induced experience participants had also experienced all of the specified psychological outcomes within the author’s survey aside from experiencing negative psychological outcomes. Ayahuasca induced ‘OBEs’ were the only circumstance of induction where all participants experienced all of the phenomena of association from the author’s chapter 4 study and all psychological outcomes from the author’s survey aside negative outcomes. Furthermore, these 7 ayahuasca-induced ‘OBE’ experiences produced some of the highest ‘OBE’ feature index scores meaning the greatest range of phenomena.

Ayahuasca is a traditional psychoactive plant medicine brew made from several ingredients within the Amazon basin. The name 'ayahuasca' derives from the indigenous Quechua language and translates to 'vine of the dead' a name most likely given due to the brew's particular propensity to stimulate experiences subjectively linked to themes of a transition of dying and death (Shanon, 2002). Specifically, it is often the psychology of psychedelic-induced 'ego-death' that is likened to that of actual death (Leary et al., 2008). The variety of plant mixtures for this brew is estimated to range between fifty-five to one hundred and twenty variations (Beyer, 2010).

However, the brew's primary psychedelic chemical is DMT derived from the shrub, *Psychotria viridis* (Riba et al., 2003). DMT is not normally orally active due to Monoamine oxidase (MAO) enzymes present in the stomach oxidizing DMT molecules rendering its psychoactive properties inactive (Cavnar, 2011). However, ayahuasca brews contain other plant additives, most notably *Banisteriopsis caapi*, which contains a range of harmala alkaloids that inhibit MAO and allow the ingested tryptamines to be active in the brain. The MAO inhibiting effect of the harmala alkaloids  $\beta$ -carbolines, harmine, harmaline, and tetrahydroharmine found in the *Banisteriopsis caapi* is thought to be the main reason for its inclusion within the brew (e.g., McKenna, 2004).

Notably, harmala alkaloids are also known to induce visions themselves Roney-Dougal (e.g., 2001). Furthermore, subjectively potent ayahuasca decoctions occasionally do not actually contain DMT when analysed (Callaway, 2005). It has been suggested that the  $\beta$ -carbolines may exert their psychedelic effects by potentiating the effects of ingested visionary tryptamines like DMT or 5-MeODMT when consumed in combination with them, as in ayahuasca (e.g. Roney-Dougal

2001). Thus, it is appropriate to acknowledge ayahuasca as containing two types of psychedelic chemicals, one type  $\beta$ -carbolines that helps to both create and potentiate the effects of the other type tryptamines, e.g., DMT (Luke, 2012).

Importantly, acute ayahuasca administration, as well as long-term consumption of the brew, does not seem to be toxic to humans (Trichter, 2010). Moreover, there is no evidence that ayahuasca has substantial or persistent abuse potential (Gable, 2007).

Notably, the author has experienced ‘OBEs’ induced via ayahuasca and via non-psychoactive means and only the ayahuasca-induced ‘OBEs’ included the experiences acknowledged to have association with the psychological outcomes earlier in this section of:

- Connecting with metaphysical entities.
- An expansion of consciousness or body to a larger than normal size.
- Seeing 360 degrees.
- Having surroundings illuminated by something other than normal light.

Seeing lights around oneself or at a distance.

Furthermore, they were notably more vivid than ‘OBEs’ the author has experienced outside of ayahuasca consumption and had a greater range of ‘OBE’ related phenomena.

The author ideally wanted qualitative data on experiences that covered all phenomena of association from his chapter 4 study and generated the noted psychological outcomes. Moreover, experiences with a large range of ‘OBE’ related phenomena where the phenomena of particular interest to the research goals appeared to have goal co-occurred in vivid detail. The author felt this would provide a data set where each of the phenomena had substantial opportunity to impact the



experiencer on a psychological level, and to be able to best investigate if the phenomena, in any way, had effects on or relationships to each other in formulating the psychological outcomes.

For these reasons, specifically, ayahuasca consumption-based dissociative and hallucinatory experiences were first considered for use in this study. On researching ayahuasca and its associated experiences, further, it became clear that ayahuasca-based dissociative and hallucinatory experiences were an ideal fit for investigating the research goals. This is because ayahuasca consumption experiences appear to be a phenomenon that, perhaps, more frequently produces the occurrence of the hallucinatory phenomena at the heart of the research goals within one experience.

The phenomenology of ayahuasca experience is known to be quite diverse but sparsely investigated. Notably, and relevant to this study, people who have consumed ayahuasca frequently report exceptionally strong dissociative experiences often including full ‘OBEs’ whilst under the influence of the brew (Grob, 2002). It is also frequently reported that individuals believe they gain access to higher dimensions of experience and make contact with various spiritual or extra-dimensional beings (Metzner, 1999). Further, consumers often experience an expansion of consciousness and awareness to a larger than normal size (Campos, 2011), see anomalous lights around themselves and at distance, as well as see their surroundings illuminated by something other than normal light (Shannon, 2002). The experience can elicit a very large range of other ‘OBE-related’ hallucinatory phenomena some that at times occur outside of an ‘OBE’ but often occur as part of an ‘OBE’ (Shanon 2002). The very little research that has taken place on psychological outcomes from ayahuasca consumption has demonstrated that

dramatic psychological shifts in view of death, relationship to the divine, worldview, view of self and lifestyle can occur (e.g. Shanon 2002). Specifically, these changes have also been connected to “god encounters” during ayahuasca consumption (Griffiths et al., 2019).

The experience is often very visual and activates a complicated network of vision and memory, which heightens the internal reality of the participants (de Araujo et al., 2012).

Other effects are euphoria, agitation, fear, panic, tremors, muscle spasms, nausea, vomiting, diarrhoea, autonomic instability, hot and cold flushes, hyperthermia, sweating, motor function impairment, vertigo, dizziness, sedation and relaxation (Dos Santos, 2012).

Notably, the consumption of the brew’s primary psychoactive ingredient DMT has been known to also cause dramatic psychological shifts when taken intravenously or via vaporisation in view of death, relationship to the divine, worldview, view of self and lifestyle when not mixed with other ingredients (e.g., Strassman 2001). Specifically, these changes have also been found to be connected to DMT induced entity encounter experiences (Davis et al., 2020).

However, when reading accounts of experiences that occurred during ayahuasca consumption and accounts with only DMT consumption given on online forums, it appeared to the author that ayahuasca-based dissociative and hallucinatory experiences, perhaps, typically provided a slightly greater degree of positive psychological outcomes and lasting psychological outcomes. Evidence of ayahuasca consumption producing higher rates of positive psychological outcome, and lasting psychological outcomes compared to only DMT consumption was later revealed within academic literature pertaining to specifically “god encounter” experiences

(Griffiths et al., 2019). The reason for these higher rates in ayahuasca is unknown. However, it could theoretically be related to the difference in length of experience with the effects of DMT-only consumptions being around fifteen to sixty minutes depending on dose and route (Barker, 2018) and the effects of ayahuasca lasting up to six hours (Lawn et al., 2017).

Further, demographic differences may have a role with ayahuasca consumers being found to be more likely to be older, female, college-educated, married, not residing in the U.S. and less likely to be atheist (Griffiths et al., 2019). Furthermore, an important consideration is the influence of both psychological set meaning the individuals psychological traits, and physical setting on the formation and experience of psychedelic experience, which has been shown to have an impact on the formation of the experience and its potential psychological outcomes (e.g., de Rios et al., 2002; Johnson et al., 2008; Metzner et al., 1965). The author is aware that in selecting to use only ayahuasca induced ‘OBEs’ for the study that it may limit what it tells us about the whole range of ‘OBE’ phenomena and psychological experience. However, as a first study to qualitatively explore relationships between ‘OBE’ phenomena and psychological outcomes of the experience, the author suggests it is better to go with a subset that appear to more frequently produce the phenomena and psychological outcomes important to the research goals. Furthermore, for initial exploration it is better to go with an experience subset that typically appears to have a richer range of phenomena. This research can hopefully provide an initial deeper grounded basis of understanding on relationships between ‘OBEs’ and their psychological outcomes, which can be followed up with work that expands to incorporate the broader range of ‘OBE’ induction states. For these

reasons the author decided to use ayahuasca-consumption experiences for his qualitative study.

## **5.2 Ayahuasca Legality and use**

Interviewing participants who have consumed ayahuasca raises ethical questions as DMT has for some time been considered a schedule 1 prohibited substance (U.N. Convention on Psychotropic Substances of 1971. 33). However, the convention did not prohibit the use of plants that contain DMT or harmala alkaloids (U.N. Convention on Psychotropic Substances, 1971. 32, para. 4).

This gave individual countries the right to have their own regulations on the plants that contain these chemicals, and ayahuasca brews. This decision was influenced by the various psychedelic compounds' religious use, which is present in several countries where it is taken, not recreationally, but ritualistically, within religious, often shamanic ceremonies. When taken in such contexts, it is believed they have properties that bring spiritual, psychological, and physical healing (Andritzky, 1989). Following the Convention on Psychotropic Substances of 1971, numerous countries have taken stern positions regarding many of the substances used in ayahuasca. For example, the U.K. formulated The Misuse of Drugs Act 1971 that classified DMT as a Class A drug. Thus, since this act came into force DMT use has been prohibited in the U.K. Further, more recent UK legislation, The Misuse of Drugs Act 2001, classified DMT as a schedule 1 drug, reaffirming the ban of its use. However, for example, in Peru, there remains no legislation prohibiting the use of ayahuasca brews that contain DMT or harmala alkaloids. Furthermore, in Peru ayahuasca is considered a national cultural heritage (Horák et al., 2016). Due to the potential ethical issues and to negate any legality issues with the consumption of ayahuasca, the author chose only to include participants in the study who had

consumed ayahuasca legally in Peru. Legal consumption of ayahuasca in the Amazon basin is becoming more popular with westerners who are drawn by its purported ‘*alternative*’ healing properties and such consumptions have also started to attract more enthusiastic media attention (e.g., Hill, 2016). As a whole, Ayahuasca use in Peru, Brazil, and Ecuador has expanded into a growing ‘shamanic tourism’ industry (Davidov 2010; Fotiou 2010; Holman, 2011). Further, syncretic Brazilian ayahuasca religions have expanded into parts of North America, Europe, Australasia, Southern Africa, and other territories (Labate and Jungaberle, 2011). The expansion of interest and practice has led to a rise in neo-shamanic and experimental ayahuasca groups, which do not adhere to specific religious doctrines and often incorporate non-traditional practices into ayahuasca ceremonies and sessions (Tupper 2009; Labate and Jungaberle 2011).

### **5.3 Traditional Amazonian use of Ayahuasca**

A major use of Ayahuasca was, and still is, in the training of shamanic healers. The traditional beliefs within the shamanic teachings require the trainee to adhere to many restrictions in behaviour and diet. These are followed in order to help maintain a pure state of being that permits the spirit of the plants used in training to impart knowledge, instruction and even spiritual powers on the trainee. In traditional practice, the violations of these prohibitions are believed to cause illness or even death (Luna, 1986). Ayahuasca consumption is not without risk. Anecdotal reports of anxiety, panic disorder, depression and trouble reintegrating with normal life and society following ayahuasca consumption are found on online forums, and death resulting from consumption has even been reported (e.g., Sklerov et al., 2005).

There were two main expressions of pre-modern Amazonian ayahuasca healing use. The first, being its use in one-to-one healing sessions between the

shamanic healer and the client. During such sessions, only the shamanic healer consumes ayahuasca in order to metaphysically 'look into' a patient's body, diagnose the cause of illness, and carry out shamanic healing methods to fix the issue often involving the shamanic healer attempting to metaphysically 'suck' the cause out of the client. The second formation of use is the communal consumption of ayahuasca by adults. In these group sessions, each participant has his or her own goal for the use, a personal experience and search for knowledge or information of importance to the individual (Andritzky, 1989).

#### **5.4 Modern Amazonian use of Ayahuasca**

In modern Amazonian use as is the case with the participants of this study it has become more popular for ayahuasca to be taken during group ceremonies, which are usually led by a shaman or an experienced person (Kjellgren et al., 2009).

An important characteristic of the ayahuasca experience is the process known as 'La Purga' (the purge). After drinking the brew, this initially often leads to vomiting and diarrhoea which is seen as a cleansing process, often relating to the removal of negative energies or entities from the participants' bodies (Kjellgren et al., 2009). It remains common for this process to be acted out through the shaman's practice of 'sucking out illness' and also by blowing the sacred mapacho smoke over affected parts of the body for metaphysical cleansing (Andritzky, 1989).

Another common approach for cleansing is the use of 'Agua de Florida' (a liquid mixture of flowers and herbs). This mixture is believed to wash away negativity that caused the spiritual, psychological or physical issue the individual is suffering with. Sometimes the liquid is applied on the forehead, chest and back of the participant. This is done by hand or by the shaman 'spritzing' the liquid with his or her mouth (Beyer, 2010). Traditional shamans may also sing 'Icaros' (sacred songs)

for a number of purposes; generally to facilitate healing and protection, to call spirits, and to modulate visions induced by ayahuasca (Fotiou, 2010). An ayahuasca ritualistic ceremonial session usually lasts approximately six hours (Kjellgren et al., 2009) coinciding with the brew's typical 6-hour effect duration (Lawn et al., 2017).

### **5.5. Motivations, Therapeutic Value, Focus and Intention of Present**

#### **Study**

Ayahuasca has been examined in a range of laboratory, clinical, and medicinal studies for its potential to contribute to modern medicine. One of the primary areas of interest is in addictions treatment (see Mabit, 2007). However, motivation to consume ayahuasca is varied but generally follows specific patterns. Attending the ceremonies to address personal substance abuse issues, to gain emotional healing, healing for mental health conditions is common. Likewise, it is common people attended who are seeking personal development, life direction, or to establish a greater spiritual understanding, connection and awareness. The benefits that respondents obtained from the ayahuasca phenomena typically followed the participants' intentions with many reporting that their experiences increased their personal development, provided insight into goals related to their consumption (Winkelman, 2005).

Notably, there is academically acknowledged potential roles for the ingredients in the ayahuasca brew for the treatment of a number of health issues such as depression (e.g., de Lima Osório et al., 2011; Galvão et al., 2018; Palhano-Fontes et al., 2019; Sanches et al., 2016), Parkinson's disease (e.g., Samoylenko et al., 2010; Serrano-Dueñas et al., 2001) and there is speculation around its ability to help anxiety and post traumatic stress disorder (e.g. Harris 2017; Inserra, 2018).

However, the intention of this study will be to focus primarily on building up a broad but detailed structure of participant's phenomenological ayahuasca-based

experiences with particular focus on those occurring during and around the time of ‘OBES’. Furthermore, the study will aim to establish what the participant found most profound and important within their experiences, and specifically if the psychological changes found within the author’s previous ‘OBE’ survey also appeared to have occurred in these participants. Lastly, how these psychological changes were related to ‘OBES’ within ayahuasca consumption and if possible, find a structure to how any psychological changes appeared to form based from the phenomena experienced.

## **5.6. Interview Study Methodology and Research Design**

What follows is a detailing of the methodology used within the interview study.

### ***5.6.1. Interview Study Participants***

The criteria for recruitment were that the individual had an ayahuasca consumption experience in ritualistic ceremonial setting in Peru, were over the age of eighteen and were open to being interviewed. This inclusion criteria insured that the participants had the important experience relating to the study but did not reveal the study aim in order to limit potential bias or influence in responses. It also provided the author with an appropriate chance to recruit participants within appropriate timescales. Moreover, the criteria adhere to the ethical standards of the British Psychological Society's Code of Human Research Ethics (2021) and avoids potential ethical issues around illegal use of schedule 1 substances.

The aim of a phenomenological qualitative enquiry is not to generalise findings to a population but instead to develop insights and provide an in-depth exploration of an under-researched phenomenon (Onwuegbuzie & Leech, 2007). Moustakas (1994) suggests that the number of participants in a phenomenological study to develop insights and provide an in-depth exploration can be from 1 to 20,



depending on the time frame. Due to the time constraints of the study in relation to author time and thesis submission deadline the author settled on a participant number of seven for this study.

Seven participants were interviewed as part of this study. The author had originally planned to interview only participants who had completed his online ‘OBE’ survey. However, only two participants from the online survey who had their ‘OBE’ via ayahuasca consumption had selected that they were open to being interviewed regarding their experience. These two individuals were recruited to take part in this study. Perchance, at the time the author was looking for participants for this study, he was invited to attend an ayahuasca ceremony retreat in Iquitos, Peru. The author attended the retreat and before individuals had consumed any substances, at this time, he spoke with them asking if they would be open to being interviewed regarding their ayahuasca consumption experiences.

Contact information was taken for the individuals open to this and in total four more participants were recruited via this means. One final participant was recruited via being an acquaintance of a participant. All participants fit the previously discussed ethical parameters and those detailed in section (5.6.3) that pertains to ethics. Further information on all participants can also be found within the participant information table within this section.

**Table 5.1**  
*Participant Background Information*

<b>Pseudonym</b>	<b>Gender</b>	<b>Age</b>	<b>Occupation</b>	<b>Religious Background</b>	<b>Number of Ayahuasca Consumptions</b>
Macaya	Male	50	Mining	Spiritism	11
Ampaya	Female	44	Housewife	Previously Catholic	Around 20
Walt	Male	46	Psychotherapist	Previously Lutheran	160

<b>Pseudonym</b>	<b>Gender</b>	<b>Age</b>	<b>Occupation</b>	<b>Religious Background</b>	<b>Number of Ayahuasca Consumptions</b>
Nathan	Male	24	Retail	Native American	Around 60
Paul	Male	18	Retail	None	3
John	Male	29	Student	Previously Mormon	3
Leon	Male	25	None	None	3

It is notable that some participants have consumed ayahuasca many times more than others in the study, and it is unclear if the amount of consumption of ayahuasca and subsequent amount of experiences impacts the answers a researcher would receive. In turn it raises the question of if amount of consumption and experience impact the phenomena experienced, the psychological outcomes, and how the outcomes occur. The author was content with the variation as found with his study, he felt that it would be the best starting point for initial qualitative investigation of this type as it could provide an initial insight into if the variation in consumption and experience appears to have an impact in these areas.

### ***5.6.2 Interview Procedure***

To conduct the interviews, a semi-structured interview schedule was drawn up in light of the explicit aim of the research to qualitatively investigate a broad but detailed structure of participant's ayahuasca-based phenomenological experiences with particular focus on those occurring during and around the time of 'OBEs'. Further, what the participant found most profound and important within their experiences and specifically if the psychological changes found within the author's previous 'OBE' survey also occurred in these participants. Moreover, if applicable how those psychological changes were related to 'OBEs' within the ayahuasca consumption and, if possible, find a structure to how any psychological changes appeared to form based on the phenomena experienced. The author had a particular

interest in the role that the items in the bullet points that follow may have towards the psychological outcomes of ‘OBEs’.

- Dissociation.
- Connecting with metaphysical entities.
- Expansion of consciousness experiences.
- Experiencing anomalous light-based phenomena.

The questions were designed to aid the researcher in a semi-structured, conversational interview. Each question was designed to gather relevant data and to assist the respondent in the difficult task of talking about experiences that might be hard to articulate.

Participants that knew each other were interviewed one immediately after the other to avoid a chance of discussion on an interview experience contaminating the responses.

The questions began with gathering participant background information and were followed by questions asking the participant to describe their ayahuasca experience as a whole in order to build up a broad but detailed structure of their phenomenological experiences. These questions were followed by asking the participant to describe what they felt was most profound and important within their ayahuasca experiences, bridging the way to the participant reflecting on specific parts of their experiences and how it had affected them. These questions were then followed by specific questions relating to the psychological changes found within the author’s previous ‘OBE’ survey.

At times, the author asked questions in slightly differing order and asked specific unplanned questions based on participant responses. The unplanned questions were typically related to gathering more detail on experiences, e.g. how

they linked to each other and various psychological outcomes. Moreover, at times the author did not need to ask a question as the participant had already answered that question within their overall comments. Notably, direct ‘OBE’ questions were not planned in the interview schedule as it was anticipated that these experiences would naturally occur and be detailed. The author did plan on questioning the participants directly on ‘OBEs’ if the phenomena were not brought up or linked to various psychological changes organically. The participants were asked to answer the questions based on their most vivid and profound ayahuasca consumption experience in Peru. The semi-structured interview schedule was as follows:

Age

Occupation

Religious background

Amount of times they have consumed ayahuasca

Please describe the first thing you remember experiencing within your most vivid ayahuasca experience.

What then followed? Tell me about the rest of your experience.

Can you identify the most profound experience, stemming from the overall ayahuasca experience?

Please describe what you consider to be the most important part of the ayahuasca experience.

Can you identify if the experience altered your view of the divine?

Can you describe the reason for that change?

Can you identify if the experience altered your relationship to the divine?

Can you describe the reason for that change?

Can you identify if the experience altered your fear of death?

Can you describe the reason for that change?

Can you identify if the experience altered your view of self?

Can you describe the reason for that change?

Can you identify if the experience altered your view of other people?

Can you describe the reason for that change?

Can you identify if the experience altered your relationship to other people?

Can you describe the reason for that change?

Can you identify if the experience altered your worldview?

Can you describe the reason for that change?

Can you identify if you experienced a change of lifestyle stemming from your experience?

Can you describe the reason for that change?

Can you identify if the experience a change in view of nature?

Can you describe the reason for that change?

Can you identify if the experience altered your relationship to nature?

Can you describe the reason for that change?

Can you identify the strongest psychological change stemming from your experience?

Can you describe the reason for that change?

As mentioned at times, based on the responses to these questions, the author asked relevant questions that came to mind, which were not included in the semi-structured interview schedule. In particular, the author asked follow-up questions relating to mentions of dissociation, ‘OBEs’, interaction with metaphysical entities, expansion of consciousness experiences, and experiences of anomalous lights. In all cases, interviews did not always follow the exact order of the questions. The interviews took place digitally via Skype or Facetime and were recorded using screen capture via Quicktime Player and later transcribed digitally into a Microsoft Word document.

### *5.6.3 Interview Study Ethics*

All Participants were 18 years of age or older. The research was conducted in line with the British Psychological Society's ethical guidelines for research on human participants. All participants were provided with a participant information sheet, which can be found as Appendix H and were briefed on their rights regarding confidentiality, anonymity and ability to withdraw from the study at any time up to data analysis, without giving a reason and without penalty. They were given the ability to do this via email, phone or letter. Informed consent with permission to record and use the data collected during the interview was obtained from all participants. The informed consent form for the study can be found as Appendix I. As previously acknowledged, the study only included participants who had consumed ayahuasca legally in Peru.

It was possible that when reflecting about their experiences during the interview process, the participants could lead themselves into talking about challenging or highly emotional events. Due to this, the author reminded the participant they could take a break from the interview process at any time if they wished. Further, when possible, the author continued to talk with them, addressing topics related and unrelated to the interview for a short space of time, after the interview process had finished. The author's intention was to ensure they appeared to be in a normal emotional state before the call had concluded. At the end of the interview, participants were verbally informed of the contents within the debrief sheet they would be receiving. The participants were promptly sent the debrief sheet with information on the study and relevant support groups, which is included as Appendix J. The study was approved by the Buckinghamshire New University Research and Ethics Committee. No unforeseen ethical issues arose.

#### 5.6.4 Interview Study Analysis Method

Moustakas' (1994) transcendental phenomenological model of analysis was selected for this study. The author has compiled a table detailing the significant terminology within this methodology and the page number where each part is explained for the reader's reference and can be found in the following table.

**Table 5.2**

*Key Terminology in Moustakas' Transcendental Phenomenological Analysis*

<b>Term</b>	<b>Definition</b>	<b>Page Reference</b>
<b>Epoche</b>	The name of the mental and writing exercise process that allows a researcher who has previous experience with the subject to set aside pre-judgments and bias.	Page 18
<b>Horizontalization</b>	The name of the process in which all statements are reviewed to highlight statements relating to the experience of the phenomenon.	Page 20
<b>Horizons</b>	The name of the significant statements that relate to the research questions.	Page 20
<b>Invariant Constituents</b>	The name of the core themes formed by grouping together 'horizon' statements.	Page 20
<b>Core Categories</b>	The name of the core categories of experience formed by grouping together the 'invariant constituents'.	Page 20
<b>Imaginative Variation</b>	The name of a four-step process of reviewing the data to find how the psychological changes occurred via the establishment of a structural description of the phenomenon.	Page 21
<b>Co-researchers</b>	The name given to participants within the research process.	Page 21

Several qualitative methods were considered, for example, Thematic analysis and Grounded theory. However, a phenomenological approach was chosen to strongly establish and highlight the essence of the lived experience on the phenomenon and bring a richness to the data, addressing the research goals through that lived experience. The Moustakas method was chosen over other phenomenological

approaches, for example, Interpretative Phenomenological Analysis (IPA), as it was felt the structured procedure within the Moustakas method would allow for a more direct addressing of the research questions. This is due to the Moustakas method allowing for the discovery of the essence of a lived experience based on reduction and constitution of meaning, followed up with the use of imaginative variation to recognise the underlying themes or contexts that account for the emergence of the phenomena important to the research question(s).

Moreover, the Epoche process would provide the author with a (structured) better means to limit bias during the research and analysis process. The author had experienced very strong emotional 'OBEs' during ayahuasca consumptions and thus felt it important to have a clear structured procedure to limit his emotional and other biases as much as possible. Having a structured procedure to limit bias is particularly important in the fields of parapsychology / transpersonal psychology / anomalistic psychology as it appears many researchers have strong lived experiences of what they are studying. The processes of the Moustakas method and how they helped the study goals are detailed further in following paragraphs.

The Moustakas approach would provide the necessary structure to first establish the wide variety of essence phenomena within the lived experience of ayahuasca consumption with as little bias as possible from the author's previous research and knowledge. Furthermore, this method would initially give each phenomena of interest equal potential value towards aspects of the research goals. Through this process, it should also reveal the essences of psychological change that took place due the experience of ayahuasca consumption and then thirdly through the use of imaginative variation the structure of experiences that caused the psychological changes within the participants would be revealed.



Furthermore, as noted the Moustakas' (1994) transcendental phenomenological model of analysis was also selected due to its specific use of an Epoche, which provided a means for the author who has previous personal experience with the subject matter, in this case ayahuasca consumption and 'OBES' to attempt to set aside prejudgments, also known as bracketing. Thus, the process is called transcendental because the researcher sees the phenomenon "freshly, as for the first time" and is open to its totality (p. 34).

The Epoche process requires the researcher before each interview and each review of the data to clear their mind via the preparatory Epoche process and recall their experience with the subject matter. Through this preparatory process the researcher reflectively meditates, letting the preconceptions enter and leave their mind freely. Through the process the researcher labels prejudgments and writes them out. The list is reviewed and meditated on until its hold is weakened and the researcher feels a readiness to enter into the research process freshly. The researcher should feel ready to receive whatever is identified with as little preconception and bias as possible. The Epoche moves the researcher towards receptiveness and a state that promotes receptiveness reducing the colouring of the communications or data with preconceived thinking. This meditative procedure is repeated until the researcher experiences an internal sense of closure on their removal of judgement and bias.

For the Epoche process, the author recalled his personal experience with 'OBES' and ayahuasca consumption experiences. The most prominent thoughts that entered the author's mind were consumptions of ayahuasca where the author experienced 'OBES' and a loss of self-identity during those moments, along with interactions with metaphysical entities, in particular a god-like presence, and dissociation from space and time. Additionally, how these experiences had changed

the author's personal views on the world, death, the divine, the self, view and relationship with other people, and changes in lifestyle that also stemmed from the experiences. Furthermore, removing personal prejudgements on the occurrence of these psychological changes. The author followed this process until he gained an internal sense of closure on the degree of his removal of prejudgement and bias.

Although it is natural to anticipate that the *Epoche* is rarely, if ever, perfectly achieved. The attention, and work involved in the reflection and self-dialogue, the intention that underlies the process, and the attitude and frame of reference, are seen to reduce the influence of preconceived thoughts, judgments, and biases (Moustakas, 1994). The author recognises that the researcher cannot be totally separated from the research, nor their experience with the topic, and this influences the data gathering process, and also the translation and analysis of the data (Flowers et al., 2009).

The second main step was undertaking semi-structured interviews with participants who are encouraged to detail their experience and respond to questions themed towards the research questions and key concepts from the literature. An example interview transcript for participant Paul is included as Appendix K.

In the analysis process, data derived from the interviews was then subjected to a reduction process, which involved first searching for significant statements, which were statements that informed the understanding of how participants experienced their ayahuasca consumption.

Every significant statement is initially treated as possessing equal value; this process is referred to as 'horizontalization'. The statements listed for each participant are then reviewed and deleted if irrelevant to the research goals and to ensure that there are no overlapping or repetitive statements. The statements that remain are called 'horizons'.

The research goals for this study were to explore the potential role of phenomena that occurs within ‘OBEs’ in the psychological changes found in ‘OBErs’ within the author’s survey. Whilst having particular interest in the role of dissociation and the phenomena found to be associated with psychological outcomes as detailed in chapter 4. However, remaining open to any acute physiological change, acute change of feeling, and other acute hallucinatory experience, having an equal role in generating psychological outcomes.

There is of course, data within the interview transcripts that could be coded and used for other research purposes. Such statements were removed within the horizon-coding for this study, as these statements were irrelevant to the research goal. The author’s horizon coding along with the rest of the methodological process remained focused on the research goals.

After the horizon coding is complete the statements are then clustered into core themes referred to as the ‘invariant constituents’ of the experience for each of the participants (Moustakas, 1994). For example, statements relating to nausea and vomiting:

[Paul:] “I felt I was going to be sick” (Line 146)

[Macaya:] “I did vomit a couple of times” (Lines 166-167)

were clustered together to form the invariant constituent of Nausea and Vomiting.

These invariant constituents revealed the ‘essences’ of the experience of ayahuasca consumption relevant to the research goal, which included ayahuasca-induced ‘OBE-based’ phenomena and the lasting psychological changes that occurred in the participants as originally found in the survey. The invariant constituents are

then grouped together into core categories of experience that together detail the grouped essence of the experience in relation to the research goal.

What follows in section (5.7) is the detailing of the invariant constituents gathered into four core categories as follows.

- Acute physiological change.
- Acute change in feeling.
- Acute hallucinatory experience.
- Lasting psychological change.

Furthermore, section (5.7) details how, through the process of ‘imaginative variation’, it was clear certain acute hallucinatory experience invariant constituents gave rise to the horizon statements and invariant constituents of lasting psychological change. The imaginative variation process has the researcher look at the data and try to account for all the different situations that could have influenced how the phenomenon occurred. To do this the author systematically reviews the invariant constituents and their horizons to recognise the underlying themes or contexts that account for (how) the phenomenon occurred. The researcher then provides exemplifications that vividly illustrate these themes and facilitates the development of a structural description of the phenomenon.

It is these combined processes within the analysis of a commitment to textural descriptions of describing what the participants experienced, to structural descriptions uncovering the underlying structures of how those experiences occurred that ensures the important multifaceted view of the phenomenon. This importantly links to the aim of the study of revealing the phenomena that underlies the essences of these rare experiences, and linking these to a structure of how the psychological outcomes occurred. These, in combination with the Epoche limiting researcher bias, makes this

transcendental phenomenological analysis approach perfect for addressing the study aims, and empowers the author via this structured process to conduct a better analysis in this study.

This dual approach provides a fuller understanding, offering both the richness of descriptive detail and the deeper structural context that shapes the participants' experiences. This comprehensive analysis provides the researcher with an opportunity to draw both commonalities and contrasts across participants, presenting a holistic view of the lived experience.

Regarding saturation, it is acknowledged that ultimate saturation at which data collection no longer yields new insights, themes, or information is hard to achieve considering all possible variables. However, saturation can be achieved more easily within a given sample that is limited by time constraint. Saturation was achieved when the data did not yield further descriptions, and the process of imaginative variation did not yield new insights to the phenomena and psychological outcomes of interest.

The analysis process was supported by the use of Quirkos qualitative analysis software. The Quirkos analysis software provided the author a means to digitally highlight significant statements, group these statements into invariant constituents and search through the data using keywords.

Notably, Moustakas (1994) felt that because the essence of the phenomena within the analysis is derived from participants' perceptions and experiences, that all research participants should be defined as co-researchers. Moustakas, (1994) explained participants' narratives of experiences provide the meaning of the phenomena to them as individuals and it is the role of the researcher to create the structural narratives with the researcher limiting their own subjectivity. Thus, the

transcendental analysis process aims to reduce interpretation by the researcher. Whilst the co-researchers are not involved in the study in terms of investigations that the researcher conducts, the researcher does inform them about how the research process answers the research questions based on their experience and personal narratives. Thus, from this point on the research participants of this study will be referred to as co-researchers within the thesis. Using this analysis method in the context of ‘OBE’ research represents an original contribution to the subject and related fields.

Whilst there are several other qualitative analysis methods that could theoretically have been used for the study the author felt the combination of the following would best empower him to produce as highest quality of research possible:

- The methodological process of horizontalization into invariant constituent clustering would help the author sift through the large range of experience and phenomena to keep focused on the phenomena and experience of interest to the research goals.
- The imaginative variation process would give the author the required flexible structure to discover relationships between phenomena and psychological outcomes.
- The Epoche meditative process would significantly help the researcher who has previous experience with the subject to set aside pre-judgments and bias maximising quality of research.

Moreover, using the Moustakas’ (1994) method for this study would provide another original contribution to the field that others would not. Notably, the author also resonates with Moustakas’ (1994) view of as the phenomena within the analysis is derived from participants’ perceptions and experiences, that all research

participants should be defined as co-researchers. This is a definition that would be foreign in other research methods.

## **5.7 Interview Study Analysis**

### ***5.7.1 Co-Researcher Invariant Constituents***

#### Acute Physiological Change

From the interviews, five physiological phenomena associated invariant constituents were identified. Not all phenomena were present in all interview transcripts. The following table details the acute physiological change invariant constituents and the corresponding co-researchers who experienced these various invariant constituents designated by the co-researcher's pseudonym initial letter.

**Table 5.3**

*Individual Acute Physiological Change Invariant Constituents*

<b>Physiological Change</b>	<b>Participants</b>
<b>Nausea and Vomiting</b>	M, A, W, P, J, L
<b>Crying</b>	M, A
<b>Body Shakes</b>	M, A, P
<b>Decreased Motor Function</b>	P, L
<b>Amnesia</b>	P, L

#### Acute Change in Feeling

In total, six associated feeling invariant constituents were identified. Not all feelings were present in all interview transcripts. The following table details the acute change in 'feeling' invariant constituents and the corresponding co-researchers who experienced these various invariant constituents designated by the co-researchers' pseudonym initial letter.

**Table 5.4***Individual Acute Change in Feeling Invariant Constituents*

<b>Feeling Change</b>	<b>Participants</b>
<b>Fear</b>	M, A, W, P, J, L
<b>Euphoria</b>	M, P, N, J
<b>Anxiety</b>	M, A, W
<b>Calmness</b>	M, A
<b>Out of Control</b>	M, P
<b>Feeling Insignificant in Being</b>	M, P

Acute Hallucinatory Experience

In all, seventeen associated hallucinatory experience-based invariant constituents were identified. Not all forms of hallucination were present in all interview transcripts. The following table details the acute hallucinatory experience invariant constituents and the corresponding co-researchers who experienced these various invariant constituents designated by the co-researcher's pseudonym initial letter.

**Table 5.5***Individual Acute Hallucinatory Experience Invariant Constituents*

<b>Hallucinatory Experience</b>	<b>Participants</b>
<b>Dissociation from Environment</b>	M, A, P, J, L
<b>Dissociation from Body</b>	M, A, W, N, P, J, L
<b>Dissociation from Self-Identity</b>	M, A, W, N, P, J, L
<b>Autoscopy</b>	M, P
<b>Consciousness Expansion</b>	M, A, W, P, L
<b>Metaphysical Entities</b>	M, A, N, P, L
<b>Telepathic Communication</b>	M, P, J, L
<b>Increased Sensory Capacity</b>	M, A, P
<b>Distortion in Time Perception</b>	M, W, P, L
<b>Seeing Past Events</b>	M, P
<b>Change in Weight Perception</b>	W, P, L



<b>Hallucinatory Experience</b>	<b>Participants</b>
<b>Reintegration with Body</b>	N, P, L
<b>Seeing Shapes and Patterns</b>	M, A, P, J, L
<b>Seeing Anomalous Lights</b> (not including those forming shapes or patterns)	M, A, W, N
<b>Bodily Dysmorphia</b>	M, A, N
<b>Hearing Anomalous Sounds</b>	M, A
<b>Tactile Misperceptions</b>	M, A, J

Notably, ‘OBE’ and ‘OBE-type’ experiences occurred as a result of hallucinatory dissociation from body and self-identity. Furthermore, the ‘OBEs’ in most cases included the hallucination of metaphysical entities, dissociation from environment, expansion of consciousness-type experiences and in several cases anomalous light phenomena.

#### Lasting Psychological Change

In all, six associated lasting psychological change invariant constituents were identified. Not all psychological changes were present in all interview transcripts. The following table details the psychological change invariant constituents and the corresponding co-researchers who experienced these various invariant constituents designated by the co-researcher’s pseudonym initial letter.

**Table 5.6**

*Lasting Psychological Change Invariant Constituents*

<b>Psychological Change</b>	<b>Participants</b>
<b>Change in View and Relationship of the Divine</b>	A, W, N, P, J
<b>Change in Fear of Death</b>	M, A, W, N, P, J, L
<b>Change in View of Self</b>	M, A, W, N, P, J, L
<b>Change in View and Relationship to Other People</b>	M, A, W, N, P, J, L
<b>Change in Worldview</b>	W, P, L
<b>Change in Lifestyle</b>	W, P, J, L
<b>Change in View and Relationship to Nature</b>	M, A, W, N, P, J, L

### 5.8 Next Steps in Interview Study Analysis

The analysis process thus far had revealed the essence of the experience of ayahuasca consumption and its psychological outcomes. Essentially this established (what) occurs with the phenomena including the psychological changes but has not yet addressed the research question of (how) these psychological changes occur. In order to answer that question, the next step of the analysis moves from the *what* of the experience to the *how* via the establishment of a structural description of the phenomenon gained via a broad examination of the context of the lived experience. For this next step, an ‘imaginative variation’ process of examining the data was used.

During this process, it became clear that in certain co-researchers a variety of hallucinatory invariant constituents gave rise to the invariant constituents of lasting psychological change. Leaving clear relationships between the invariant constituents of lasting psychological change and the acute hallucinatory experience invariant constituents. The invariant constituents that had relationships are detailed in the following table.

**Table 5.7**

*Lasting Psychological Change Invariant Constituents and Associated Acute Hallucinatory Invariant Constituents*

<b>Lasting Psychological Change Invariant Constituents</b>	<b>Acute Hallucinatory Invariant Constituents</b>
<b>Change in View and Relationship to the Divine</b>	Metaphysical Entities
	Dissociation from Self-Identity
<b>Change in Fear of Death</b>	Metaphysical Entities
	Dissociation from Physical Body
	Dissociation from Self-Identity
<b>Change in View of Self</b>	Dissociation from Physical Body
	Dissociation from Self-Identity

<b>Lasting Psychological Change Invariant Constituents</b>	<b>Acute Hallucinatory Invariant Constituents</b>
<b>Change in View and Relationship to Other People</b>	Dissociation from Self-Identity
	Metaphysical Entities
<b>Change in Worldview</b>	Dissociation from Self-Identity
<b>Change in Lifestyle</b>	Dissociation from Self-Identity
<b>Change in View and Relationship to Nature</b>	Dissociation from Self-Identity

### **5.9 Interview Study Deeper Findings and Discussion**

What follows is a detailing of the relationship between the lasting psychological change invariant constituents and acute hallucinatory invariant constituents detailed via examples of co-researcher's horizon statements.

#### ***5.9.1. Change in View and Relationship to the Divine***

This psychological change related to a shift in how the co-researcher viewed the divine. In total, two acute hallucinatory invariant constituents were associated with it.

##### ***The Hallucination of Metaphysical Entities***

The hallucinations of metaphysical entities<sup>1</sup> often occurred during 'OBEs' but sometimes outside of them and were varied and often bizarre in nature. For example:

[Leon:] it was a man's head and one hundred portals around it (Lines 41-42)

[Paul:] these entities, I think, are called clockwork elves or ghosts or aliens (Lines 88-89).

For others they felt the presence of God, for example:

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<sup>1</sup> For reference within this work a metaphysical entity is a metaphysical being that appears to transcend physical matter or the laws of nature, as we know them.

[Ampaya:] then, like the presence of God and peace (Lines 131-132).

With Ampaya, Leon and Paul these experiences were interpreted as messages to validate the existence of the Divine and appeared to foster a new lingering feeling of a transpersonal sense of connection to the Divine.

For example, for Leon, the interaction provided confirmation that something Divine exists:

[Leon:] so, it's not just an inkling in the mind. Having an experience with it, something you can feel and see and interact with (Lines 292-293).

Likewise, for Ampaya, the experience was interpreted as a message of confirmation towards experiencing God:

[Ampaya:] The message was to see and feel God everywhere (Line 254).

When asked what specifically he feels influenced his change in view and relationship of the Divine Paul acknowledged:

[Paul:] So, that was the biggest thing that influenced me, feeling the presence of others after death. (Lines 232-233).

#### *Dissociation from Self-Identity*

Dissociation from self-identity occurred as a part of several co-researcher's 'OBEs' for example:

[Walt:] The most profound is a union with the bigger thing where Walt dissolves into a sense of awareness. (Lines 69-70).

[John:] You take a psychedelic substance, have an out-of-body experience and your consciousness melds with the universe. (Lines 167-169).

With John, Walt and Nathan the dissociation of self-identity appeared to lead to an experience of feeling a transpersonal connection to the universe and

interestingly the term “God” was then used by all three. This specific focus on a connection to God differed slightly from a general or varying sense of relationship to the divine found from the co-researchers experiencing metaphysical entities and interpreting the experiences as messages to validate the existence of the divine. For example, it brought John a perspective of:

[John:] we are all made out of ‘star stuff’ but it’s more than that, star stuff that’s the universe, we are made out of the universe. It makes you feel closer to God and a part of creation. (Lines 180-183).

In bringing a connection to the universe and, in turn, God it appeared that it facilitated a change in perception of the Divine. For example, when Walt was asked if the dissociation from self-identity had an impact on his perception of the divine it was clear that it had:

[Walt:] It has terrified me and also given me a lot of peace so in coincidental ways it's not one way, it’s also shifted my perspective on God or this idea of God or the Divine. (Lines 141-144).

Interestingly, when asked the question of if his perception of the divine had changed John’s reply indicated his experience moved him closer to a deeper somewhat Buddhist-influenced understanding of God and a ‘nirvana like’ connection to the divine:

[John:] Yes, the Buddhists have a context of nirvana, like a state of happiness, it’s a kind of happiness that you can’t nullify. It has made me feel that the nirvana-type space is like a merger with God, a merger with everythingness. (Lines 165-172).

### *5.9.2 Summary of Change in View and Relationship to the Divine*

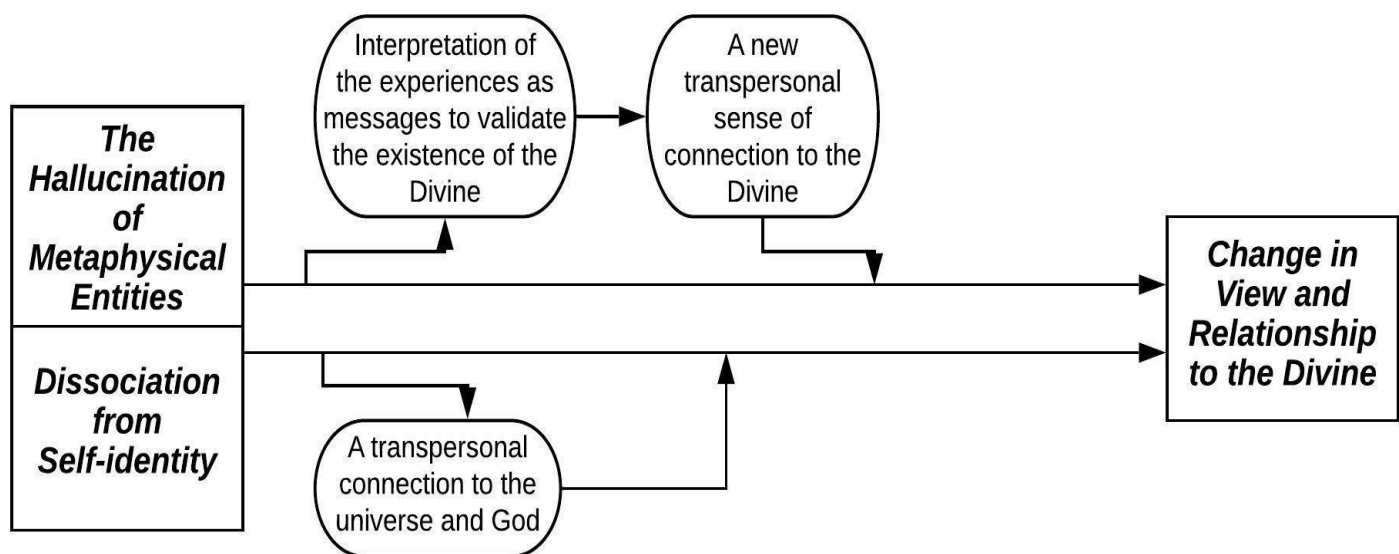
From the analysis of the co-researchers, it appears that a change in view of the divine can result from dissociative and hallucinatory experiences of ritualistic ayahuasca consumption in their experiences gained in Peru. It appears that a change can occur due to a perceived interaction with metaphysical entities during an 'OBE'. In the case of perceived interaction with metaphysical entities, changes were fostered by interpretation of the experiences as 'messages' to validate the existence of the divine, and from this a new transpersonal sense of connection and relationship to the divine. This sense of connection appeared as a lingering feeling towards a connection to the divine and was not something just intensely experienced in the moment.

Moreover, a change in view and relationship to the divine can also occur due to dissociation from self. Notably, at times, dissociation from self-identity experiences appeared to lead to consciousness expansion-type experiences of an intense feeling of a connection to either God, the universe, nature, or all of these. This experience resulted in a shift of perspective and was not always associated with a lingering feeling of a connection towards the object of connection. Consciousness expansion experiences that occurred independently from dissociation from self-identity did not appear to lead to any lasting psychological outcomes. However, it was clear when occurring within dissociation from self-identity they played a role in facilitating lasting psychological change as part of the dissociative experience. In the case of change of view and relationship to the divine, the dissociation from self-identity during an 'OBE' appeared to foster a sense of transpersonal connection to the universe and, in turn, God, which facilitated a change in perception of the divine and in certain cases, a change of relationship to experiencing the divine.

Whilst graphical explanation of the essences of experience and change is not typically used in the Moustakas (1994) method, the author elected to use graphical presentation. This choice was made to further detail, simply and clearly, the discovered relationships between the invariant constituents of lasting psychological change and the acute hallucinatory experience invariant constituents. The diagram details the acute hallucinatory phenomena along with its observed impact on co-researchers, and through that impact the genesis of various lasting psychological change. Essentially, summarising via depiction what has been highlighted within the section.

**Figure 5.1**

*The Change in View and Relationship to the Divine*



### ***5.9.3 Change in Fear of Death***

This psychological outcome related to a change in the co-researchers fear of death. In total, three acute hallucinatory invariant constituents were associated with it.

#### ***The Hallucination of Metaphysical Entities***

For two co-researchers, the perceived experience of interaction with metaphysical entities within an 'OBE' reduced their fear of death. For example:

[Nathan:] I see the ancestors, eagles, appearing to me, spirits appearing to me. In the ceremony, you dive into different states of consciousness, different awareness of this physical plane, life beyond this plane, most profound is when you get to really dive deep into this different state of consciousness and be guided by spirit. Just having the experience of spirit can bring great change to a person. Seeing the spirits has helped me be less fearful of death (Lines 74-81).

When asked specifically if the ayahuasca experience changed his view of death Paul replied:

[Paul:] I think so, I would say the experience of the entities made me feel like there is life out there in another dimension and that we can interact with it, it has made me feel calmer about death and dying. (Lines 251-254).

It appears that the perceived experience of life beyond the physical universe fostered the reduction in fear of death and a greater sense of calmness regarding the process of dying.

Notably, change in fear of death due to a perceived interaction with metaphysical entities appeared to cause only a reduction in fear of death.

#### *Dissociation from Physical Body*

For co-researchers John and Macaya, the perception of being out-of-body and still existing appeared to reduce fear of death via reaffirmation of spiritual belief.

[Macaya:] It reinforced my philosophical views, they were confirmed by the out-of-body experience that there is another dimension where these beings can live (Lines 293-296).



[John:] Leaving my body reaffirmed my belief that death is not the end and that makes me feel less fearful of dying. (Lines 125-127).

Whereas for Paul and Ampaya it gave rise to new beliefs:

[Paul:] The out-of-body aspect shows there is so much more to reality and experiences that we don't know or perceive. Just the awareness that exists of being able to see my body from outside just shows that the physical body and the spirit and the soul are not intrinsically linked they can very much be separate and go back together (Lines 264-268).

[Ampaya:] When I was out of my body and I was the wind I was thinking this must be possible when you die and that makes me have less fear. It made me believe death can be a calm and happy thing. (Lines 484-487).

Notably, change in fear of death due to dissociation from the body appeared to cause only a reduction in fear of death.

#### *Dissociation from self-Identity*

For Walt and Leon, it was the dissociation from self-identify that brought dissolution of old beliefs and instalment of new ones that changed fear of death.

[Walt:] I have witnessed the death of the ego, the ego meaning who I think I am, I mean Walt, all the different stories and stuff (Lines 166-168).

Notably, this was a fearful experience for Walt, and it appeared more of a struggle for co-researchers to relinquish the egoic identity and accept new beliefs that were perceived as separate from ego-based beliefs. For example:

[Leon:] so, this struggle going on throughout the whole process of knowing I'm still here and I'm a person but then the ayahuasca dissolving that personality and sense of what this was (Lines 48-50).

In the case of dissociation from self-identity, the experiences for Walt, and Leon seemed to increase fear of death to such a degree that, at least for a time, it left the individual needing to work through their change in perspective. For example:

[Leon:] Ultimately, it stems back to the fear of death there were a lot of fears very present coming out of that experience that has taken me years to deal with (Lines 150-153).

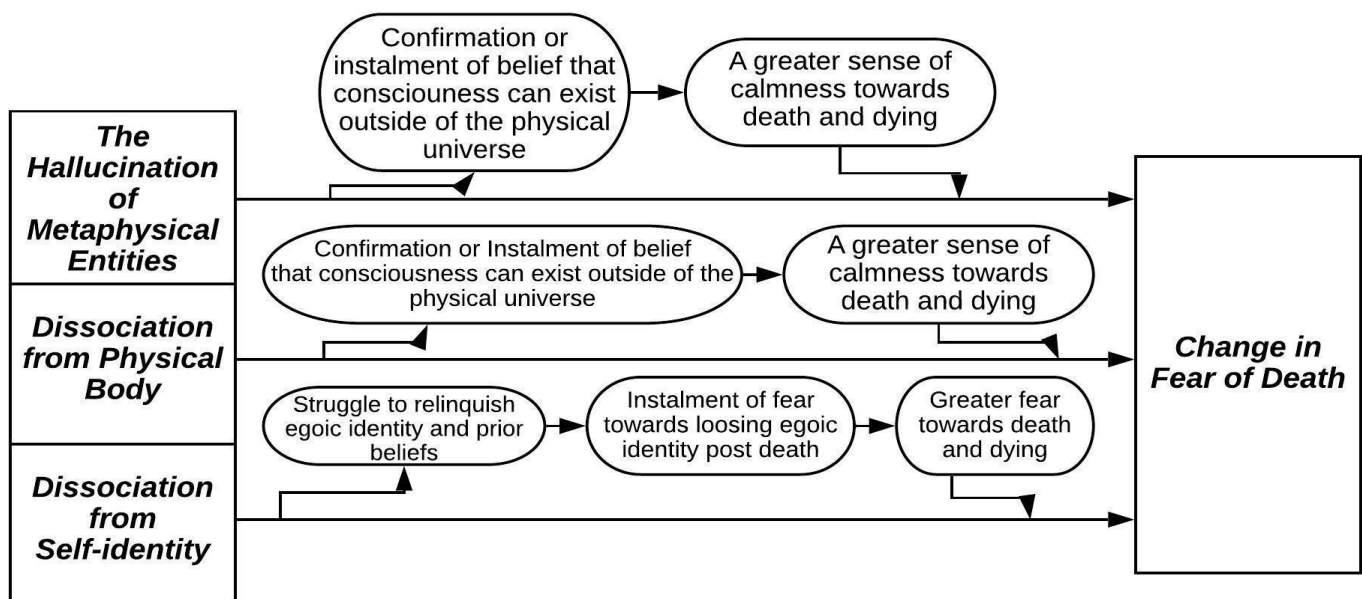
#### ***5.9.4 Summary of Change in Fear of Death***

From the analysis of the co-researchers' experience in Peru in the study, it appears that a change in fear of death can result from dissociative and hallucinatory experiences of ritualistic ayahuasca consumption. It appears that a change can occur due to a perceived interaction with metaphysical entities within an 'OBE'. In the case of perceived interaction with metaphysical entities, the changes were related to a reduction in fear of death, and fostered by the interaction leading to a belief that life can exist outside of the physical universe, which also brought a greater sense of calmness regarding the process of dying.

Moreover, this psychological outcome can also occur due to dissociation from the body during an 'OBE'. In the case of dissociation from body, the experience appeared to in some cases be interpreted as confirming beliefs. The beliefs present were regarding being able to exist in another dimension separate from the body, further, a belief in a continual existence after death, bringing a greater sense of calmness to the concept of death and the process of dying. In co-researchers who did not have such a prior belief it appeared to install this belief within them, having the same effect of bringing a greater sense of calmness to the concept of death and the process of dying.

Notably, dissociation from self-identity during an ‘OBE’ also appeared to facilitate a change in fear of death, but in contrast to the previous two elements of phenomenology and their mutual outcome, dissociation from self-identity appeared to foster greater fear towards death for Walt and Leon. This fear was also present with towards the process of dying via a struggle to relinquish egoic identity and prior beliefs, installing a fear of losing one’s identity at some junction post death.

**Figure 5.2**  
*The Change in Fear of Death*



**5.9.5 Change in View of Self**

This psychological outcome related to a change in how the co-researcher viewed their sense of self. In total, two acute hallucinatory invariant constituents were associated with it.

*Dissociation from Physical Body*

For four co-researchers, their sense of identity was changed by the dissociation from their bodies. This change was expressed in different ways.

For Nathan and Ampaya, it brought a feeling of themselves being less significant:

[Nathan:] There was an experience in one of the ceremonies, my body died, my body rotting away and I could feel the energy of that experience. I felt very dissociated from my body and it made me feel like my whole self was less significant. (Lines 215-218).

[Ampaya:] When I was the wind, I am everything. But then I'm also an individual, floating out of my body and being the wind taught me to cherish myself more, it taught me how special I am as a being but also that I'm not so significant. (Lines 414-417)

For Walt coming out of the body brought an increased sense of empathy through the realisation he is more than just an individual and this increase in empathy led to him viewing himself as a more of a compassionate being:

[Walt:] Coming out of my body has made me let go more to everything, people causing me problems, it has made me feel more empathic to others and that has shifted my view of self and who I am as a being. I am more than a body, I am compassion and many other things. (Lines 280-284).

For Paul, coming out of the body brought an increased empathy that made him view himself as being the same as everyone else:

[Paul:] I do also feel like coming out of my body made me more empathic and in turn view myself differently. It showed me I was not just flesh and bone, I'm a creature of feeling and being more in touch with other

people's feelings makes you see yourself as fundamentally the same as them.

(Lines 369-373).

#### *Dissociation from Self-Identity*

Macaya, John and Leon's view of self was changed from their dissociation from self-identity. They felt more of a greater sense of being an interconnected part of the universe and less separate from others. For example:

[Macaya:] Yes, I think it has for me more to analyse that I'm not an individuality. More of a part of a greater thing and that we are all connected.

(Lines 372-374).

This change was so impactful for Leon, that he felt his sense of self had been obliterated, which brought excessive questioning about the nature of oneself, confusion of self-identity and restlessness. For example, when asked if the dissociation from self-identity had impacted his view of self Leon replied:

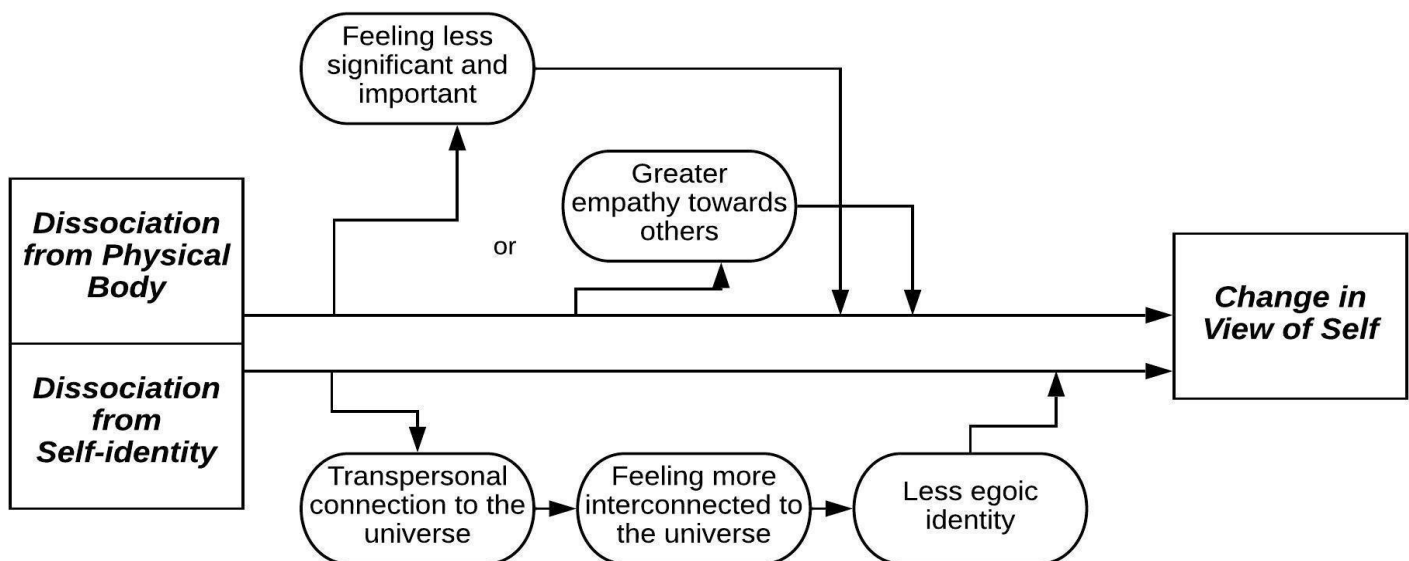
[Leon:] Yes, absolutely, completely obliterated, not to the point I could recognise my name was Leon and these are the things I like and the things I do but obliterated to a point of questioning all those things, henceforth sparking at the process of going through recreating the personality. (Lines 332-336).

#### ***5.9.6 Summary of Change in View of Self***

From the analysis of the co-researchers in the study, it appears that a change in view of self can result from dissociative and hallucinatory experiences of ritualistic ayahuasca consumption in Peru. It appears that a change can occur due to dissociation from the body during an 'OBE' as in two co-researchers this appeared to foster a sense of feeling less significant. However, in two other co-researchers it brought a sense of greater empathy, which shifted their view of self. In Walt's case this was being more than what he saw himself as being before, and in Paul's case it was seeing

himself as the same as everyone else. Furthermore, a change in view of self can also occur due to dissociation from self-identity during an ‘OBE’. In the case of dissociation from self-identity, the experience appeared to lead to a consciousness expansion experience of being connected to the universe, which then fostered a perspective of a greater sense of being interconnected with the universe. Notably this did not seem to elicit a fear-based response towards losing egoic identity. However, for Leon the adjustment to having less of an egoic identity appeared to cause excessive questioning about the nature of oneself, confusion of self-identity and restlessness.

**Figure 5.3**  
*The Change in View of Self*



### ***5.9.7. Change in View and Relationship to Other People***

This psychological outcome related to a change in the co-researchers' view and relationship to other people. In total, two acute hallucinatory invariant constituents were associated with it.

#### ***Dissociation from Self-identity***

For Macaya, Paul, John and Leon, the dissociation from self-identity and its already noted facilitation of a transpersonal connection to the universe appeared to make them feel more empathy towards others and changed the way they view and relate to them. For example:

[Paul:] In particular the dissociation from self, it has increased my empathy. It's made me think that when people are acting in any way other than pleasant, but just know that whatever their perspective is, they have reached that through their individual experience. (Lines 330-334).

[John:] Coming out of my body and losing my sense of self I feel in some strange way has helped me to understand now that people experience similar things to me. Their fear feels the same to them as mine feels to me, so I find it much easier to sympathise and empathise. I feel I understand what compassion is now. (Lines 268-273).

#### *Metaphysical Entities*

In cases of Nathan, Walt and Ampaya, a change in view and relationship to other people occurred based on interpretation of messages from metaphysical entities. In such incidences, it was not as strongly linked to empathy but instead more of a general understanding of other people's problems and not to be involved in them. For example, Nathan talking about his experience, indicated:

[Nathan:] It lets me see what other people's problems are, and not to get involved in their trauma. So, that has extended my sense of understanding of others. My experiences of and messages from my ancestors have taught me that. (Lines 287-291).

Ampaya talking about her experience indicated:

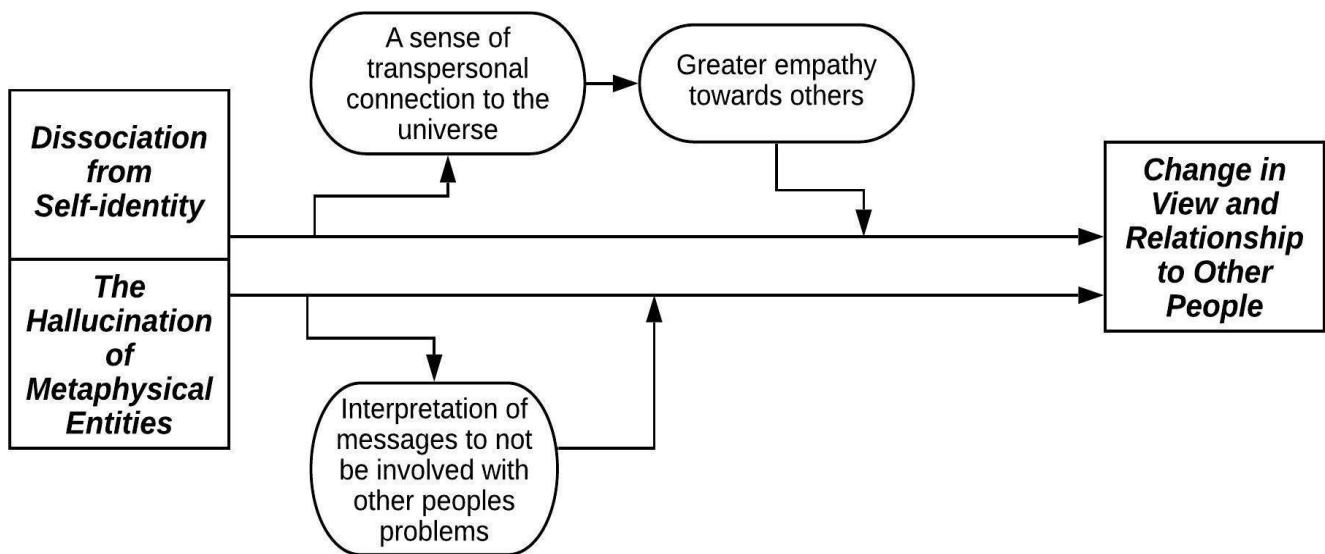
[Ampaya:] The entities have told me, I tell you, I need to focus just on me and not other people. That is my kind of lesson to stop living other people's problems and taking them to heart into myself. (Lines 417-420).

#### ***5.9.8 Summary of Change in View and Relationship to Other People***

From the analysis of the co-researchers' Peru-based experiences in the study, it appears that a change in view and relationship to other people can result from dissociative and hallucinatory experiences of ritualistic ayahuasca consumption. It appears that the change can occur due to dissociation from self-identity during an 'OBE' facilitating a form of transpersonal connection to the universe, which appeared to make several co-researchers feel more empathy towards others, changing the way they view and relate to them.

Moreover, this psychological outcome can also occur due to a perceived interaction with metaphysical entities during an 'OBE'. However, in such cases it was not as strongly linked to empathy but instead more of a general understanding of other people's problems and not to be involved in them, leading to a shift of emotional distancing away from others and change of how they view and relate to them.



**Figure 5.4***The Change in View and Relationship to Other People*

### 5.9.9. Change in Worldview

This psychological outcome related to a change in how the co-researcher viewed their sense of self. In total one acute hallucinatory invariant constituent was associated with it.

#### Dissociation from Self-Identity

For Walt, Paul and Leon, the level of dissociation caused by their dissociation of self-identity experience shook their egoic identity to such a degree that it impacted on their worldview. For example:

[Walt:] When you get to the point of losing the ego it can be a terrifying experience and that loss of self makes you question everything about yourself and about the world. It shifts your perspective on everything in the world all of a sudden you feel like your views are just made up ideas and you question everything in the world. (Lines 302-307)

[Paul:] It opens up a can of worms, political views and all the things that I have thought, worldly things, like prison things. (Lines 336-338)

[Paul:] A lot of things I had firm views on are less firm now, in terms of worldly things, like political topics. (Lines 342-343)

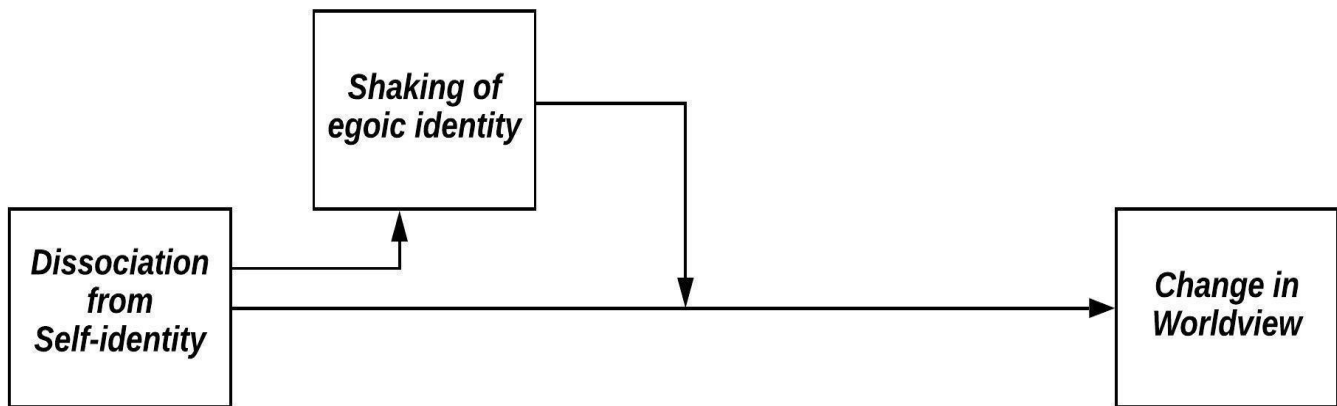
For Leon, the effect was such that it appeared to shift his entire worldly perspective. For example:

[Leon:] It was like you had been down a rabbit hole and seen what was on the other side. You can't just go back and switch that off, so it permanently changed everything, my entire perspective on everything of life, who I was and who other people are being shattered and it allowed me to build gradually. My political views changed, what I thought about love. (Lines 243-248)

#### ***5.9.10 Summary of Change in Worldview***

From the analysis of the co-researchers in the study, it appears that a change in view and relationship to other people can result from dissociative and hallucinatory experiences of ritualistic ayahuasca consumption in Peru. It appears that the change can occur due to dissociation from self-identity during an 'OBE' shaking the egoic identity to such a degree that it can greatly impact one's worldviews.

**Figure 5.5**  
*The Change in Worldview*



#### *5.9.11 Change of Lifestyle*

This psychological outcome related to a change of lifestyle in co-researchers.

In total, one acute hallucinatory invariant constituent was associated with it.

##### *Dissociation from Self-Identity*

For John, Paul, Leon and Walt the experience of dissociation from self-identity also facilitated an experience of a sense of transpersonal connection to the universe. This appeared to make the experiencer have a lingering feeling of greater empathy towards others which led to changes in living a more selfless, less materialistic and passive lifestyle, for example:

[John:] I felt afterwards that helping people is better than helping yourself (Lines 356-357)

[Leon:] That had to be brought out and developed and grown and cultivated. The capacity to surrender more to reality in a sense, right now, this moment, there is more ease in allowing that to happen. (Lines 747-750)

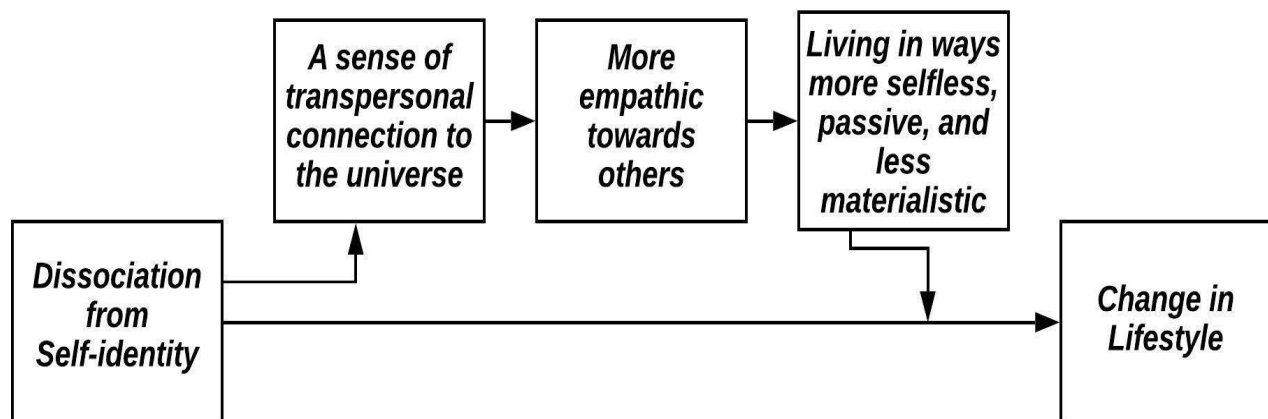
[Walt:] Obviously, there are material shifts and a point of view shift and obviously, the point of view shift has to happen first. I'm less materialistic now and more inclined to just let things be. (Lines 470-473)

### ***5.9.12 Summary of Change in Lifestyle***

From the analysis of the co-researchers' Peru-based experiences in the study, it appears that a change in lifestyle can result from dissociative and hallucinatory experiences of ritualistic ayahuasca consumption. It appears that the change can occur due to the facilitation of a sense of transpersonal connection to the universe, which appeared to make co-researchers feel more empathy towards others leading to changes in living a more selfless, less materialistic and passive lifestyle.

**Figure 5.6**

*The Change in Lifestyle*



### ***5.9.13 Change in View and Relationship to Nature***

This psychological outcome related to co-researchers developing a change in view and relationship to nature. In total one acute hallucinatory invariant constituent was associated with it.

#### ***Dissociation from Self-Identity***

For all seven co-researchers, the experience of dissociation from self-identity facilitated a sense of transpersonal connection to the universe that brought a change of relationship to nature, for example:

[Macaya:] I have a change of view on the experience of things in our relationship with the environment. I now have a greater appreciation for nature and a closer relationship to it now. (Lines 4 92-494)

In Leon's case, it brought a view that plants are conscious, for example:

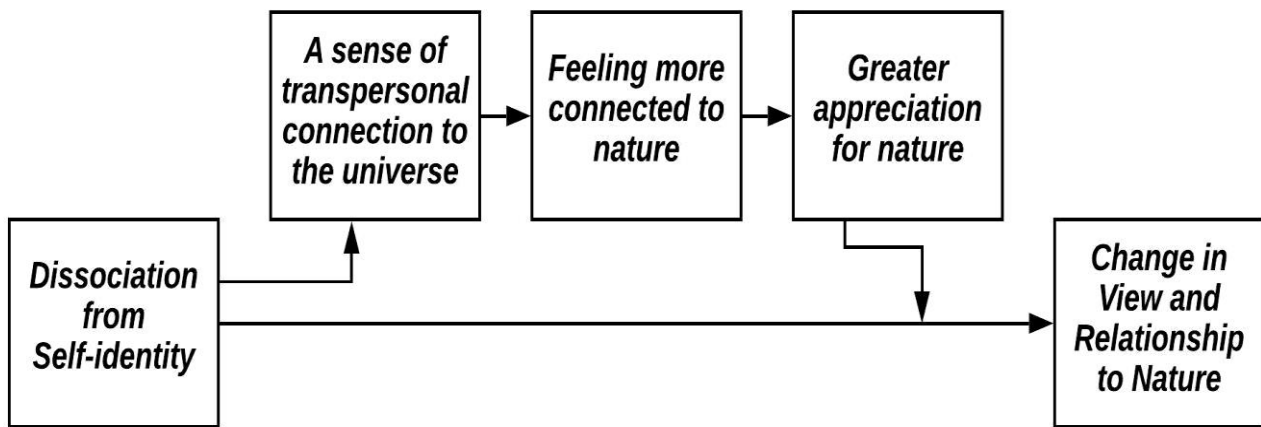
[Leon:] That plant sat in the corner of the room I now believe is conscious of the fact I am here and we can kind of feel each other (Lines 435-437)

In John's case, it was clear his change of view towards nature translated to a greater desire to be around nature and experiencing it, for example:

[John:] I didn't like going outside at all, but now I like to be outside on grass barefoot, smelling the flowers and it feels like it's one of those experiences everyone needs to have. (Lines 228-230)

#### ***5.9.14 Summary of Change in View and Relationship to Nature***

From the analysis of the co-researchers' Peru-based experiences in the study, it appears that a change in relationship to nature can result from dissociative and hallucinatory experiences of ritualistic ayahuasca consumption. It appears that the change can occur due to dissociation from self-identity leading to the facilitation of an experience of a sense of transpersonal connection to the universe. This sense appeared to make co-researchers feel more connected to nature, gain a greater appreciation for it and desire to interact with nature leading to changes in view and relationship to nature.

**Figure 5.7***The Change in View and Relationship to Nature*

### 5.10 Variation of Experience and Psychological Outcome Based on Number of Consumptions

Some co-researchers had consumed ayahuasca many times more than others. It is unclear if the amount of consumption of ayahuasca and subsequent number of experiences impacts the answers given by a researcher. Further, it is unclear if these items impact the essence experiences, the psychological outcomes experienced, and how the outcomes occur. However, the author could not see a noticeable difference in any of these areas within the analyses of this study between co-researchers who have consumed ayahuasca many times and those who had consumed ayahuasca much less.

### 5.11 Interview Study Critique

As number of co-researchers (participants) was small and the data was obtained and analysed through a qualitative procedure, as with all qualitative methods there is no means or intention to generalise the findings as the data tells only what has occurred with this sample. This is both a strength and a weakness of the approach (Hennink et al., 2020). Nevertheless, this is the first study the author can identify that

attempts to analyse the essence and psychological outcomes of dissociative and hallucinatory experiences from ritualistic ayahuasca consumption occurring in Peru, and it points towards experiences others might have. Further research would check and evaluate the likelihood of these findings being a common collection of responses.

The results should be considered as a preliminary exploration into this phenomenon as it pertains to 'OBEs' and as a whole. Moreover, this is the first study to analyse these components to 'OBE' phenomena within the Moustakas' (1994) transcendental phenomenological method.

The co-researchers' experiences occurred in Peru over varying amounts of time before the interviews, and not just prior to them. Despite targeted questions around the 'OBE' and associated phenomena, it cannot be ruled out that other life events since the experience could have impacted the areas of apparent psychological change. Thus, the reflections and statements of the co-researchers may have been coloured somewhat by other life events. Notably, as co-researchers had multiple experiences of a dissociative and hallucinatory nature, whilst the author tried where possible to have the co-researcher focus on one specific experience and phenomena at a time, it is possible that co-researchers unintentionally amalgamated thoughts, feelings, and outcomes of several experiences and phenomena.

As acknowledged in section (5.1) author is aware that in selecting to use only ayahuasca induced 'OBEs' for the study that it may limit what it tells us about the whole range of 'OBE' phenomena and psychological experience. However, as a first study to qualitatively explore relationships between 'OBE' phenomena and psychological outcomes of the experience, the author suggests it is better to go with a subset that appear to more frequently produce the phenomena and psychological outcomes important to the research goals. Furthermore, for initial exploration it is

better to go with an experience subset that typically appears to have a richer range of phenomena. This research has provided an initial deeper grounded basis of understanding on relationships between 'OBEs' and their psychological outcomes, which is work to be built upon to include broader ranges of 'OBE' induction.

Not informing the participants of the research aims provided a means to limit bias, but it did provide a risk that participants may not have had phenomenologically rich experience(s) relating to phenomena of interest or psychological outcomes.

Further limitations to the Moustakas (1994) phenomenological design are whilst the research method involves processes to limit unconscious bias through the research and analysis process e.g., the Epoche, it is recognised that the researcher cannot be totally separated from the research, nor their experience with the topic and that bracketing may be difficult to execute fully in practice, potentially leading to bias or misinterpretation of participants' experiences. The researcher's background, assumptions, and emotions may still subtly influence the data analysis, which could affect the credibility of the findings. This connection to the data and potential bias could have influenced the data-gathering process, and also the translation and analysis of the data (Flowers et al., 2009).

The limited sample size provides the possibility that a larger sample may increase the point of saturation and the emphasis on individual experiences means that despite efforts to reflect participants' experiences fully, there is always a risk of oversimplifying or reducing the complexity of lived experiences to a set of themes. Further, the method's focus on attempting to establish universal essences may not fully account for cultural or contextual differences in experience. This limitation can lead to incomplete or biased interpretations of participants' lived realities. Lastly, the reliance on verbal accounts may exclude critical aspects of experience that are non-



verbal, such as body language or emotional states, limiting the depth of the study's findings (Moustakas, 1994).

### **5.12 Interview Study Conclusion**

In conclusion the study achieved its aim of investigating if dissociation during 'OBEs' can cause certain psychological outcomes found within the author's previous 'OBE' survey. As such this work represents an original contribution to the subject and related fields. From the analysis of this sample group, it was clear that dissociation from the body during an 'OBE' can cause a change in:

- Fear of death.
- View of self.

Further, it was clear that dissociation from self-identity during an 'OBE' for this sample group can cause a change in:

- View and relationship of the divine.
- Fear of death.
- View of self.
- View and relationship to other people.
- Worldview.
- Lifestyle.
- View and relationship to nature.

Moreover, the analysis revealed how the dissociative phenomena appeared to lead to these psychological changes as detailed in sections (5.9.1 – 5.9.14) and figures (5.1 – 5.7).

The study also achieved its aim in investigating the role of connecting with metaphysical entities during 'OBEs' in the sample group has towards certain psychological outcomes found within the author's previous 'OBE' survey, and this

work represents an original contribution to the subject and related fields. From the analysis of this sample group, it was clear connecting with metaphysical entities during an ‘OBE’ can cause change in

- View and relationship of the divine.
- Change in fear of death.
- Change in view and relationship to other people.

Furthermore, the analysis revealed how connecting with metaphysical entities during an ‘OBE’ appeared to lead to these psychological changes as detailed in sections (5.9.1), (5.9.3), (5.9.7) and figures (5.1), (5.2), and (5.4).

Notably, Chi-squared analyses from the author’s previous ‘OBE’ survey indicated that connecting with metaphysical entities during an ‘OBE’ is also related to lasting psychological changes in worldview and view of self in a sample group. However, no such relationship was found within this qualitative analysis. Of further note, is a Chi-squared analysis from the author’s previous ‘OBE’ survey found that no significant relationship between connecting with metaphysical entities and change in relationship to other people occurred. However, as previously mentioned, this qualitative analysis in this sample group did find a significant relationship between the two.

The study also achieved its aim in investigating within the sample group the role an expansion of consciousness to a larger than normal size during ‘OBEs’ has towards certain psychological outcomes, and this work represents an original contribution to the subject and related fields.

Notably, the interview analysis did not find an expansion of consciousness causing certain psychological outcomes found within a previous ‘OBE’ survey by itself. However, it was clear that consciousness expansion-type experiences in the

form of feeling a transpersonal connection to either god, the universe, nature, or all of these were at times a subsequent experience of dissociation from self-identity and while not being the initial driver of psychological change, perhaps, played a role in facilitating change as part of the dissociative experience as detailed in sections (5.9.1), (5.9.5), (5.9.7), (5.9.11), (5.9.13) and figures (5.1), (5.3), (5.4), (5.6), and (5.7).

The study also achieved its aim in investigating in the sample group the role seeing lights around oneself, or at a distance, and seeing one's surroundings illuminated by something other than normal light has towards psychological outcomes found in the author's previous 'OBE' survey. This work represents an original contribution to the subject and related fields.

Notably, no direct relationship was found with these light related phenomena causing the detailed psychological outcomes. However, the co-researchers 'OBEs' and certain connections to metaphysical entities at times include such anomalous light-based experiences. Thus, it is possible anomalous light-based phenomena may have an association of occurring as part of experiences during 'OBEs' that have led to psychological outcomes but may not be a direct driver of psychological change themselves.

The study also achieved its aim in investigating the role of the seeing 360 degrees within the sample group has towards psychological outcomes found in the author's previous 'OBE' survey. This work represents an original contribution to the subject and related fields.

Notably, no direct relationship was found with seeing 360 degrees. However, the co-researchers 'OBEs' and certain connections to metaphysical entities at times include the phenomenon. Thus, it is possible the experience of seeing 360 degrees may have an association of occurring as part of experiences during 'OBEs' that have

led to psychological outcomes but may not be a direct driver of psychological change themselves.

The study also achieved investigating if qualitative investigation of ayahuasca-based 'OBE' phenomena would reveal if acute physiological changes, change in feeling, or other associated hallucinatory phenomena in the sample group also cause psychological changes found within a previous 'OBE' survey; the answer appeared to be negative. This work represents an original contribution to the subject and related fields. However, it is possible that specific questioning on these areas may lead to data that indicates, at least, occasional roles for these items in specific psychological outcomes. Naturally, these items were not the main focus on this particular study.

Notably, the analysis revealed even deeper understandings regarding what occurs within the phenomenological process that leads to the psychological changes via highlighting the psychological position that linked the hallucinatory phenomena to the eventual psychological outcome. It became clear that in certain co-researchers, various hallucinatory experiences gave rise to the apparently lasting psychological changes. This work represents an original contribution to the subject and related fields. The analysis of these components to 'OBEs' was undertaken successfully for the first time using the Moustakas' (1994) transcendental phenomenological analysis method, which represents an original contribution to the subject and related fields.

Through the qualitative process used within the study, a phenomenological essence of ritualistic ayahuasca consumption experience in Peru has been revealed, and this work represents an original contribution to the subject and related fields.

Lastly, the author could not see a noticeable difference in essence experiences, psychological outcomes, or how these outcomes occur between co-researchers who

had consumed ayahuasca many times and co-researchers who had consumed ayahuasca much less.

## **Chapter 6: Investigating the Nature and Psychological Impact of ‘Out-of-Body Experiences’ Summary and Conclusions**

### **6.1 The Research Problems and Research Aims**

For this thesis, the author undertook a literature review, and from this, the project's aims were selected. The aims were selected due to their potential value in strengthening the academic understanding of the subject and related fields. The aims are summarised as follows:

- To critically assess the terminology of the ‘OBE’ within reviewed literature and how it is defined, and from this process formulate a terminological basis to navigate through the thesis. This work can be found in sections (2.1 – 2.1.5).
- To critically assess the literature on the nature of the phenomenon and via an appraisal of the current theories of ‘OBE’ induction and formation highlight the tasks required to move the topic forward. This work can be found in sections (2.2 – 2.5).
- To critically assess and identify gaps within the research of the psychological outcomes of ‘OBES’. This work can be found in sections (2.6 – 2.6.2).
- To explore through modern research (2000-2023), building a new theory of ‘OBE’ induction and formation that can address the tasks required to move the subject forward. This work can be found as chapter 3 entitled, “Embodiment to Disembodiment: Moving ‘Out-of-Body Experience’ Induction and Formation Theory Forward?”.
- To conduct research that can move ‘OBE’ induction and formation theory forward and further investigate the rate of occurrence of the phenomenology

generally attributed to ‘OBEs’. This work can be found as chapter 4 entitled, “A Survey on the Nature and Impact of Out-of-body Experiences”.

- To conduct research that investigates the psychological outcomes of ‘OBEs’ and explores possible phenomenological relationships between ‘OBEs’ and their psychological outcomes. This work can be found as chapter 5 entitled, “A Phenomenological Analysis of the Essence and Psychological Outcomes of Dissociative and Hallucinatory Experiences From a Sample Engaged in Ritualistic Ayahuasca Consumption in Peru”.

It is the author's and his supervisor's opinion that these aims were met, and the body of work contained within this thesis is of doctoral standard. At several points during this chapter the author asserts the originality within his work. The assertions arise from his knowledge gained through six years of intensive research on the subject to date of thesis submission.

## **6.2 How the Research Problems and Project Aims Were Addressed**

This section will detail how the research problems and project aims were addressed moving through each one by one.

### ***6.2.1 To Critically Assess the Terminology of the ‘OBE’ Within Reviewed Literature and how it is Defined, and From This Process Formulate a Terminological Basis to Navigate Through the Thesis***

In sections (2.1 - 2.1.5), the author explored how the ‘OBE’ had been defined and categorised within notable psychological, neurological, and esoteric literature.

The author found it logical to see ‘OBEs’ as a form of dissociative experience, and this concept of ‘OBEs’ continues to be acknowledged as such within modern literature (e.g., Braithwaite & David, 2016).

The author found cases of clear miscategorisation (2.1.1) and many instances of eccentric use of the term ‘OBE’ (2.1.4). The author suggested that ‘OBES’ should not be categorised as autoscopic phenomena (AP) meaning an illusory visual experience during which the subject has the impression of seeing a second ‘self’ in extra-personal space. Further, that this should remain the case until a theoretical point of there being conclusive evidence of the full range of the ‘OBE’ phenomenon and the other phenomena categorised as AP have the same underlying mechanisms.

The author suggested anything where the experiencer does not feel, at some point, during the overall experience, as their consciousness is separated from their body, should, arguably not, be classified as an ‘OBE.’ Doing so is too far removed from this core component of ‘OBES.’ From this, as detailed in section (2.1.5) the author’s terminological basis on which to navigate through the remainder of the thesis became an ‘OBE’ being defined as a dissociative experience where, to the individual, during the process, there is a sense of their consciousness having separated from the body. Due to the proposed connections between the two, the author felt it important to highlight that lucid dreams, where there is a sense of one’s consciousness being separated from their physical body, would be classed as an ‘OBE’ within his definition.

The author also concluded in section (2.1.5) that in cases where an experience does not contain a sense of consciousness being separated from the physical body but afterward is interpreted to be an ‘OBE,’ these experiences should be referred to as consciousness relocation interpretations (CRI). This is the author’s term.

The author suggested in section (2.1.5) that if an experimental protocol leads to the illusion of the self-being in a different position than the actual location of the physical body but not the feeling of being separate from the body, then this could be



referred to as a visual relocation illusion (VRI). Moreover, if VR is used, then it could be prefixed with VR, example VR-VRI. Should an experiment produce illusions that the body is of a different shape, then this phenomenon could be classified as a bodily dysmorphic illusion (BDI). If VR technology is used, it could be again prefixed with VR, for example, VR-BDI.

In this work, sections (2.1 – 2.1.5) the author has compiled a unique review of the terminology and definition of ‘OBEs’, which led to the author producing an original definition of the ‘OBE’. Further, this endeavour led the author to produce original terms to categorise other phenomena associated with the experience. This work represents original contributions to the field.

***6.2.2 To Critically Assess the Literature on the Nature of the Phenomenon and via an Appraisal of the Current Theories of ‘OBE’ Induction and Formation Highlight the Tasks Required to Move the Topic Forward***

What stood out to the author from the literature on the nature of ‘OBEs’ is the small amount of large general surveying of experiencers. Further, very few surveys have tried to explore the range of phenomena experienced as part of an ‘OBE’ and how the phenomena may correlate to the formation of these experiences.

In recent times, there has been a more substantial amount of work done on finding a corporeal nature to the ‘OBE,’ and this research is on-going. However, as detailed in sections (2.3 – 2.3.5) there has been little done and even less continual research on whether there is an extracorporeal element to the ‘OBE’. This is the case even though research has indicated there might be, in the eye of some researchers. (e.g., Palmer, 2009; Parnia et al., 2014), and the author agrees. However, the author suggests the weight of the research that indicates there may be an extracorporeal component to ‘OBEs’ is currently minimal. Thus, an extracorporeal component can

be seen to not be required by the field at this time for a further developed theory on ‘OBEs.’ However, a potential extracorporeal component to the phenomenon should be explored further by researchers in connection to quantum approaches to consciousness as they potentially develop. The author concluded that extracorporeal research on ‘OBEs’ should not take precedence over research that can, within our current understanding of consciousness, explain the induction and formation of ‘OBEs.’

As detailed in section (2.3.6) the author identified via a critical appraisal of the current theories of ‘OBE’ induction and formation that the concepts on this aspect of the nature of the experience had moved forward little since the inception of each of the main theories to the phenomenon (e.g., Blackmore 1984b; Irwin 1985, 2000; Palmer 1978).

In particular, the author crucially identified three main tasks that would need to be undertaken to move ‘OBE’ induction and formation theory forward towards presenting a complete theory of the induction and formation process:

- How these experiences occur in all of the diverse sets of induction states, and what are the accompanying foundational neurological mechanisms?
- What differentiates people who experience an ‘OBE’ from those who do not in the same circumstances? For example, in the study of Greyson et al., (2014) study, patients who did and did not report ‘OBEs’ are comparable in their seizure histories, including epilepsy syndrome, epilepsy aetiology, and seizure type.
- Why might a person have an ‘OBE’ in a certain physiological state one day and not the next?

It was clear that the three prominent theories on ‘OBE’ induction and formation detailed in section (2.3.5) are lacking in explanation to fix the tasks (e.g., Blackmore, 1984b; Irwin 1985; 2000; Palmer 1978b), as are all other noted theories within the literature review.

As detailed in section (2.4) the author found that neurological research has linked ‘OBE-type’ phenomena to areas within the brain. However, these links lack a unified foundational process and mechanism. Moreover, they do not directly address these three tasks and account for the wide range of phenomena within the experiences (e.g., Blanke et al., 2002; Dening & Berrios, 1994; De Ridder et al., 2007; Devinsky et al., 1989; Greyson et al., 2014; Hécaen & Ajuriaguerra, 1952; Schutter et al., 2006; Smith & Messier, 2014). Nevertheless, the author felt that this neurological work grouped together lends itself to the explanation of ‘OBES’ being induced via disruption in multiple areas of the brain. Specifically, it is likely an ‘OBE’ is related to a functional decoupling and in turn processing within an important large-scale brain network.

### ***6.2.3 To Explore Through Modern Research (2000-2023), Building a new Theory of ‘OBE’ Induction and Formation That can Address the Tasks Required to Move the Subject Forward***

As the existing theories did not currently fully address explanations for the issues highlighted in tasks 1, 2, and 3, the author sought to explore these problems within modern neurobiological research (2000-2023). This work was undertaken in attempt to form a basis on which to structure further empirical research related to ‘OBE’ induction and formation.

This endeavour led to the formation of an extensive theoretical proposal (found as chapter 3) that highlights how a modern neuropsychological approach can

potentially address current gaps in approaches to ‘OBE’ induction and formation. The chapter draws on literature from the fields of psychopharmacology, neurobiology, and particularly neurochemistry.

As detailed in sections (3.3 – 3.15), from the review, the author suggests ‘OBEs’ are caused by changes in the filtering-reducing value of the brain in-turn causing shifts in brain entropy, and bringing the brain into a zone of criticality, but not enough to bring unconsciousness.

The author detailed several endogenous neurochemicals he suggested together form the brains filter-reducing valve:

- Glutamate.
- Gamma-Aminobutyric acid.
- Corticotropin-releasing hormone.
- Adrenocorticotropin.
- Cortisol.
- Norepinephrine.
- Epinephrine.
- Opioids.
- Acetylcholine.
- Dopamine.
- Serotonin.

The author suggests changes of the brain’s filtering-reducing valve impacts a change in brain entropy, which in turn causes decoupling of the default mode network (DMN) and a shift from the motor end of the apparatus to the perceptual end.

Providing there is enough disruption to the dorsolateral frontal convexity of the brain, the motor output channels of the alpha motor neurons of the spinal cord,

and vital areas of the reflective systems in the frontal parts of the limbic brain, then the distorted information within the brain is accepted as the present view of reality creating a fully immersive ‘OBE’.

Further, as acknowledged by Carhart-Harris et al., (2014) the altered state created by moving out of normal waking consciousness into a zone of criticality and DMN decoupling is one likely easily biased by motivational needs linked to emotions, anxieties, wishes, and desires of the subconscious. This is an altered state that may lead a person to have a subjective experience of accessing information they would otherwise be unable to access. The author named his theory of ‘OBEs’ the Filter-Valve-Entropic-Brain-Decoupling (FVEBD) theory.

The new neuropsychological approach presented by the author in chapter 3 potentially adds some validation and a neurological mechanism to the older ‘OBE’ theory and can shed valuable light on tasks 1, 2, and 3 as detailed in section (3.12).

In addressing task 1, how these experiences can occur in all of the diverse sets of induction states, and what are the accompanying foundational neurological mechanisms? The author noted how FVEBD and the research within sections (3.2 - 3.15) have highlighted how the mechanisms of change in the brain's filter-reducing valve, brain entropy, and functional decoupling of the DMN provide a neurological basis for ‘OBE’ induction and formation across all induction states. The various findings also provide a solid foundation on which to understand and further the understanding of ‘OBEs’ and dissociative phenomena.

In addressing Task 2 what differentiates people who experience an ‘OBE’ from those who do not, in the same circumstances? - the author highlights in sections (3.13 – 3.13.8) five physiological and three psychological factors that would influence

the degree of the decoupling within the DMN within FVEBD and in turn, cause the variation.

Physiological Factor 1: Innate Differences in Individuals DMN Connectivity, Sensitivity to Significant Changes in Brain Entropy and the Filtering Reducing Valve.

The author suggested in section (3.13.1) that differences in DMN connectivity and sensitivity to changes in brain entropy and the filtering-reducing valve might be connected in part to structural changes in the brain. Furthermore, these changes are potentially related to stress, depression, anxiety, traumatic brain injury, and injury via events such as a stroke. Moreover, providing that hallucination is related to changes in brain entropy and decoupling in the DMN then endogenous neurotransmitter chemicals known to influence our sense of awareness and subjective experience could be a factor in the level of disruption at any given time. This decoupling in-turn leading to the manifestation and formation of dissociation and 'OBE's'. Specifically, atypical chronic levels of these chemicals, atypical chemical responses to a psychological interpretation of environments, or both would be significant factors.

The author suggested that as atypical levels of these chemicals have been linked to depression, anxiety, and chronic hallucinations these conditions may share further links to sensitivity to change in brain entropy, DMN decoupling, and, in turn, 'OBE' induction and formation.

Physiological Factor 2: Body Position.

The author suggested in section (3.13.2) that body position during a DMN decoupling could provide differences in egocentric and allocentric processing, leading to, more or less, an immersion into the experience and an increase or decrease in hallucinatory phenomena.

Physiological Factor 3: Eyelid Position and the Visual Field.

The author suggested in section (3.13.3) the eyelids being closed during a DMN decoupling provides less egocentric and allocentric information leading to a greater hallucinatory immersion, as ‘real’ information is further removed or disrupted within the cognitive process and DMN.

Likewise, the author suggested being in a darkened space, where less visual information can be processed, could cause a similar effect to occur.

#### Physiological Factor 4: Sleep Quality and Fatigue.

The author suggested in section (3.13.4) that sleep quality and fatigue can have an impact on DMN connectivity, causing reduced connectivity within the DMN (e.g., De Havas et al., 2012; Gay et al., 2015; Nilsson et al., 2017; Sämann et al., 2010; Yeo et al., 2015) this could also impact the induction and formation of ‘OBES’.

#### Physiological Factor 5: DMN Disruptive State Stacking.

The author suggested in section (3.13.5) the combination of altered states that produce a change in the brain’s filtering-reducing valve, brain entropy, and are DMN disruptive and could stack together. This stacking could form more disruption to the DMN and more frequently induce decoupling and in turn the experience in circumstances that otherwise would not in a given individual and likewise can increase depth and abundance of experience.

For example, being in a sleep state, and also under the influence of atypical chemical levels that can cause dissociation.

#### Psychological factor 1: Desire for Dissociation and Letting Go.

The author suggested in section (3.13.6) that abnormal functioning of the DMN can lead to a void of certain egocentric and allocentric processing creating a flexible primary conscious state. Further, that due to this it is clear physiological factors influencing DMN decoupling coupled with psychological factors driving the

formation of experience during a state of DMN decoupling would also be potential factors within the process. Further, psychological desire for dissociation and escapism could facilitate changes in the volume of endogenous chemicals that potentially facilitate induction of dissociative symptoms and ‘OBEs’ or increase dissociation during a DMN decoupling. Moreover, when a DMN decoupling has been established, an acute or chronic conscious or subconscious desire for dissociation could, theoretically, manifest in any person who has the wish to escape immediate or consistent aspects of their experience.

Within this factor, individuals who suffer from anxiety or depression would theoretically experience more ‘OBEs’ on average as such individuals would likely have at times higher acute and chronic levels of desire for dissociation to escape their conditions.

Furthermore, an acute desire to escape their situation would likely manifest most greatly in the case of an immediate threat. The desire for dissociation and escapism could also relate, at least in part, to tendencies towards actions of flight, as opposed to the fight, within a fight or flight response. For example, does a person naturally seek to avoid a stressful situation when it's presented to them or do they naturally seek to combat the situation in some form.

Dissociation leading to ‘OBEs’ could, in part, stem from a required psychological response to create an inner distance to the overwhelming experience by attenuating unbearable emotions and reducing conscious awareness of the happenings. In relevant cases, somatoform symptoms, such as analgesia and ‘OBEs’, may serve to reduce awareness of physical injury (Schauer & Elbert, 2010). Within this factor, individuals who suffer from anxiety or depression would theoretically



experience more ‘OBES’ on average as such individuals would likely have at times higher acute and chronic levels of desire for dissociation to escape their conditions.

Moreover, it is possible that individuals who are more spirituality inclined in belief are innately more likely to let go further within the experience as they attribute spiritual elements to the phenomena. This letting go would theoretically drive and deepen the dissociation and hallucinatory phenomena.

Furthermore, letting go during an experience would likely specifically strengthen psychological absorption, which the author proposes deepens dissociative experience as discussed in the next section, psychological factor 2.

Psychological factor 2: Ability of, and Tendency Towards, Psychological Absorption, and Dissociation.

The author suggested in section (3.13.7) that based on previous research it is highly likely that an individual’s ability of and degree towards, psychological absorption and dissociation in a given moment during DMN decoupling plays a role in the induction and formation of ‘OBES’ e.g., (Alvarado & Zingrone, 1997b; Dalton, Zingrone, & Alvarado, 1999; Glicksohn, 1990; Irwin, 1980, 1981) and dissociation and ‘OBES’ e.g., (Alvarado & Zingrone, 1997a; Irwin, 2000; Murray & Fox, 2004; 2005a; 2005b, 2006; Richards, 1991; Parra, 2008; Zingrone & Alvarado, 1994).

Psychological factor 3: Interpretation of set and setting, having an expectation.

The author suggested in section (3.13.8) that contextual factors such as setting, expectation impact the interpretation of altered states of consciousness. Moreover, that interpretation can have a potential direct impact on the phenomena experienced during times of apparent DMN decoupling. It then follows that set, setting and expectation can be a factor influencing the induction of ‘OBES’ and the phenomena that accompanies them. In particular, during a DMN decoupling, if the individual has

the intention of having an ‘OBE’, this might cause a greater immersion into the dissociative state. Likewise, if the individual’s interpretation of setting leads to an expectation consciously or subconsciously of dissociation and an ‘OBE’.

Thus, this aspect of the neuropsychological theory offers an important explanation for ‘OBEs’ being willingly induced via the establishment of the correct physiological conditions being met in disrupting the brain’s DMN, and a strong focused conscious desire for dissociation and/or an ‘OBE’. In such cases it is possible an ‘OBE’ could be induced and providing enough factors align, perhaps, will likely be induced. Notably, it is possible for spiritual and religious elements to become entwined within the experience and might also contribute to the desire for dissociation.

In addressing task 3, why is it that a person might have an ‘OBE’ in a certain physiological state one day and not the next. The author proposed in section (3.11) that the answer involves innate differences in individuals’ DMN connectivity and sensitivity to significant changes in the brain’s filtering-reducing valve, and brain entropy. These items equate to differing levels of DMN decoupling caused by changes in the physiological factors of:

- Neurochemical levels and systems.
- DMN base functioning.
- Brain structure.
- Body position.
- Eyelid position and visual field.
- Sleep quality and fatigue.
- DMN disruptive state stacking.

Psychological factors of:

- A desire for dissociation and letting go.
- The ability of, and tendency towards, psychological absorption and dissociation.
- Interpretation of set and setting, and expectation.

As detailed in section (3.13.1 – 3.13.8) a person's physiological and psychological factors will change from one day or moment to the next, sometimes changing indefinitely.

Notably, the author's neuropsychological theory of 'OBE' induction and formation also offers a unifying mechanism to previous neurological research that has linked 'OBEs' to various areas of the brain, and it can also account for the wide range of phenomena within the experiences. Doing so via factoring that when there is enough decoupling of the DMN together with a change in brain entropy, not only will dissociation and various forms of hallucination innately follow due to this decoupling, but in theory, the DMN decoupling can cause a ripple effect to other areas of processing within the brain changing entropy, and in turn processing in those key areas as well.

Moreover, this decoupling potentially triggers an unfiltered state of consciousness where a disrupted perception is further influenced to varying degrees by motivational needs linked to emotions, anxieties, wishes, and desires of the subconscious. This is a state the author would liken to a dream state producing a unique form of a semi-wakeful dream. Further, this unfiltered subconscious semi-wakeful dream state offers a potential explanation to experiencing a range of phenomena, e.g., seeing lights or whole scenes that occur during 'OBEs' when there is no obvious cause for the visual areas of the brain to be malfunctioning to such a degree.

Overall, the new neuropsychological theory proposed by the author presented a view of a complex process with varying factors that could be investigated empirically as part of this thesis and beyond relating to the induction and formation of ‘OBES’.

This work and theory proposed by the author represent a large original contribution as the author has modernised psychological and neurological understanding of the ‘OBE’. Through that process he has created a more refined and deeper theory of the induction and formation of the phenomenon. The theory provides a platform for a plethora of new research to be undertaken toward exploring the concepts and links proposed by the author. The work is a potential field shaker in terms of development in concept and understanding of ‘OBES’, dissociation, embodiment, and disembodiment.

***6.2.4 To Conduct Research That can Move ‘OBE’ Induction and Formation Theory Forward, and Further Investigate the Rate of Occurrence of the Phenomenology Generally Attributed to ‘OBES’***

As detailed in section (3.12) when taking into account the content of the author's new proposed neuropsychological theory of 'OBES', the author felt it would be appropriate within the thesis to conduct a survey of people who have experienced ‘OBES’ and in particular, should aim to investigate the following:

- Frequency and impact of suffering from depression and anxiety in 'OBES'.
- Frequency and impact of suffering from chronic hallucination in 'OBES'.
- Frequency and impact of body position on 'OBES'.
- Frequency and impact of induction state on 'OBES'.
- Frequency and impact of eyelid position on 'OBES'.
- Frequency and impact of intentional and unintentional ‘OBES’.

- Frequency and impact of vestibular issues on 'OBES'.
- The impact of perceived spirituality levels on 'OBES'.

The author hypothesised from his FVEBD theory of 'OBE' induction and formation that these factors through a combination of making an individual more sensitive to or perpetuating larger shifts within the filter-reducing valve, change in brain entropy, and DMN decoupling, will likely produce 'OBES' more frequently and / or more phenomenologically abundant experiences of this nature. The latter can be tested via analysis of phenomena experienced within an 'OBE' feature index score with the factors proposed by the author likely being correlated to statistically significant higher index scores.

Investigation of these items could support or refute the neuropsychological theory for 'OBE' induction and formation the author argued for.

Notably, the author also felt the opportunity should be taken within the proposed 'OBE' survey to gather further general information about 'OBES' as there is still little general statistical data related to the experiences, experiencers, and logistics surrounding the experiences.

As detailed in section (4.2.2) a 136-question survey was created to:

- Provide a relatively large general surveying of 'OBES' for statistical reference.
- Provide specific data for quantitative analysis related to proposed variables that may impact the formation of 'OBES' based on the author's initial predictions within his 'OBE' induction and formation theory expanding on the research approach used by Zingrone et al., (2010) and Alvarado and Zingrone, (2015).
- Provide a survey of psychological outcomes to 'OBES' for statistical reference, analysis and further qualitative investigation.

An expanded 84 phenomena ‘OBE’ feature index was created for the survey. The questions were influenced by the author's findings within the literature and particularly by the ‘OBE’ feature index used by Zingrone et al., (2010), Alvarado and Zingrone (2015), the questions used in the Blackmore (1982b) study, and some additions based on anecdotal reports of ‘OBES’ the author has heard via his work as a psychologist that were not included within the aforementioned studies (Alverado & Zingrone, 2015; Blackmore, 1982b; Zingrone et al, 2010). For example, a question added based on findings within the literature and an anecdotal report to the author is the question of feeling anger or hostility.

As part of the index expansion the author decided to separate the index out based on the senses e.g., seeing and feeling. For example, instead of asking did an individual experience a stretching of the limbs, it was asked did the individual experience (seeing) stretching of the limbs, and as a separate question did they experience (feeling) stretching of the limbs. The author felt the experiences were clearly multi-sensory, and in separating them out in different sensory experiences would likely provide a greater richness of data. Moreover, the greater specificity in the index would potentially lead to more refined data analysis pertaining to the phenomena experienced, and any relationships they have to other items e.g. induction states, and psychological outcomes. All the additions were an attempt to develop a more extensive index than had been used previously to allow a deeper exploration on the range of phenomena and to offer another original contribution to the field.

To test for a significant difference in ‘OBE’ feature index scores between populations / samples of participants that have been grouped based on certain variables (e.g., body position), each participant was scored on an ‘OBE’ index made up of the 84 phenomena that have been documented to occur during 'OBES’.

Participants were grouped based on answers to various questions on the survey to establish group 'OBE' feature index scores that relate to the author's hypotheses. Specifically, the author hypothesised 'OBE' feature index scores will be statistically significantly higher when participants are:

- Starting the 'OBE' in a stacked induction state.
- Having the experience in a supine body position.
- Having the experience when the eyelids are closed.
- Having a history of depression and anxiety.
- Having a history of chronic hallucinations.
- Having a history of vestibular issues.
- Having the experience intentionally.
- Being a self-professed very spiritual person.

The 'OBE' feature index was also used to investigate whether there was a relationship between experiencing specific phenomena within the index and occurrences of psychological outcomes in participants as detailed with section (6.2.6) of this chapter.

As detailed in (4.2.5) The Mann-Whitney U method (Mann & Witney, 1947) was used to test the variance between two specific groups. In the cases of there being more than two groups to test, the Kruskal-Wallis method (Kruskal & Wallis, 1952) was used to test the variance. Subsequent pairwise analyses when the null hypothesis was rejected from a Kruskal-Wallis analysis were undertaken via the typical method paired with Kruskal-Wallis, the Dunn's test method (Dunn, 1964).

The classical formulation of  $\text{Eta}^2$  (Pearson, 1911; Fisher, 1928) was selected for the effect size statistic. Where appropriate, a Bonferroni correction developed by Dunn (1961) was used as a multiple-comparison correction when statistical tests were

performed simultaneously. The results of this work are detailed in section (6.3) of this chapter. The extension of the ‘OBE’ feature index and the data gathering and analysis within this work represents multiple original contributions to the field.

### ***6.2.5 To Critically Assess and Identify Gaps Within the Research of the Psychological Outcomes of ‘OBEs’***

In sections (2.6 – 2.62) the author highlighted that very little research had been undertaken to establish the psychological outcomes of ‘OBEs’, and most understanding on this topic comes somewhat indirectly through research on NDEs. In the case of NDEs, despite the perilous circumstance in which the phenomenon occur, NDEs are generally experienced as extremely pleasant and can induce life-changing consequences on the experiencers’ set of values and attitudes toward death. As detailed in section (2.6.2) the author found that research on ‘OBEs’/NDEs suggests the experiences generally cause:

- Change in view of death.
- Reduction in fear of death.
- Increase in fear of death.
- Change in relationship to the divine.
- Change in worldview.
- Relationship to other people.
- View of self.
- Change of lifestyle.

It was also apparent that some NDEs have been experienced as negative psychological events with some experiencers even seeing them as frightening events. It is possible that a lack of positive psychological outcomes and an increase in fear of



death could be related to the experience of more negatively perceived subjective phenomena that occur during some NDEs (e.g., Greyson, 1992).

Bush et al., (2002) highlight 3 main response types to the experience.

- The experience brings a sense of a need for change or turning around one's life. Specifically, fear is highlighted as a potential mechanism driving this need.
- The experience is reduced to only material terms, which is at times based on perceived scientific evidence. This leads to an interpretation of the phenomenon having no particular meaning and, in turn, cause for response or further interpretation.
- The experiencer struggles to assign meaning to the phenomenon or reduce the occurrence to having little or no meaning, often leading to a search for an explanation that brings both intellectual and emotional resolution. This response often arises from an inability to accept a literal perception of the experience, in conjunction with a sense of a purely materialist explanation being inadequate. This can lead an experiencer to assign a cause but to not address the question of potential meaning, perhaps inadequately addressing emotional needs stemming from the experience.

Whilst as highlighted, a negative experience can perhaps lead to an increased fear of death. Overall, among the plethora of psychological outcomes of NDEs it is perhaps the decrease in fear of death that is the most common or prominent effect found to occur and, aside from earlier references, this effect can be found in many other studies.

The author acknowledged that Terror Management Theory (TMT) could be used as a theoretical framework to understand some of the psychological

outcomes of ‘OBES’. To the author’s knowledge literature on TMT and ‘OBES’ suggests they have not been directly connected. The concept is only indirectly connected to ‘OBES’ within the sparse NDE literature where some researchers have suggested that TMT assumptions may be incomplete or can not explain the transformative effects of NDEs if only NDE phenomena is taken into account (Tassell-Matamua & Lindsay, 2016).

The TMT framework when referenced to ‘OBES’ appears to suggest a reduction in fear of death via ‘OBES’ stems from the acquisition of a strong belief in self-preservation and reduction in the sense of mortality.

Overall, the author found that, in particular, academia has not adequately explored if specific phenomena within ‘OBES’ are associated to the psychological outcomes highlighted in this section being induced in experiencers.

This work represents an original contribution to the field, as to the author’s knowledge it is the first to scrutinise in such depth the current state of academic understanding on the subject of psychological outcomes of ‘OBES’.

#### ***6.2.6 To Conduct Research that Investigates the Psychological Outcomes of ‘OBES’, and Explores Possible Phenomenological Relationships Between ‘OBES’ and Their Psychological Outcomes***

To address the lack of research regarding the psychological outcomes and if these outcomes can be linked to specific ‘OBE’ phenomena, as part of the author's 136-question survey, he put together a set of key questions. This was done to first be explored quantitatively and later act as the base for further qualitative investigation. The questions were based on previous research that had indicated such outcomes could occur from ‘OBE-type’ experiences as discussed (e.g., Alvarado, 2000; Atwater, 1988; Bush, 1991, 2002; Charland-Verville et al., 2015; Fenwick &

Fenwick, 1995; Flynn, 1986; Gallup & Proctor, 1982; Greyson, 1992, 2001, 2003b; Greyson & Bush, 1992; Groth-Marnat & Summers, 1998; Hata in Hadfield, 1991; Kelmenc-Ketis, 2013; Knoblauch et al., 2001; Lindley et al., 1981; McClenon, 1993; Moody, 1975; Noyes, 1980; Noyes et al., 2009; Ring, 1980,1982 1984; 1992,1994; Rommer, 2000; Sabom, 1982; Schröter-Kunhardt, 1990; Schwaninger et al., 2002; Sutherland 1990, 1992/1995; Twemlow et al., 1982; Van Lommel et al., 2001; Wells, 1993).

The questions were worded simply as did the experience cause a change in the outcomes listed in the previous section of (6.2.5).

The author hypothesised that the psychological outcomes found within the survey would be statistically associated with phenomena within the 'OBE' feature index, which indicates that experiencing a given phenomenon increases the chance of the psychological outcomes occurring.

The author used Chi-Squared analyses (Pearson, 1900) to test for statistically significant relationships between 'OBE' feature index phenomena and psychological outcomes. Statistically significant results were followed up with Bonferroni corrections (Dunn, 1961).

Following this study, a qualitative analysis was undertaken to more deeply explore the potential role of the phenomena that occurs within 'OBES' in a psychological change in 'OBEs'. This work is found as chapter 5. The study was undertaken with a particular interest in the potential role of the following in psychological outcomes:

- Dissociation.
- Connecting with metaphysical entities.
- Consciousness expansion-type experiences.

- Seeing 360 degrees.
- Seeing one's surroundings illuminated by something other than normal light.
- Seeing the light around oneself or at a distance.

Notably, what is not investigated by the author's 'OBES' feature index study and similar 'OBE' feature index studies that came before it is the role of the core phenomenon of 'OBES' towards these psychological changes, that phenomenon being disassociation. The core phenomenon of 'OBES' cannot essentially be analysed independently from the other phenomena within the index format used. However, it can be isolated within deeper qualitative questioning and analysis.

As detailed in section 5.1 the author ideally wanted qualitative data on experiences with an extensive range of 'OBE' related phenomena and experiences where the phenomena of particular interest to the research goal co-occurred in vivid detail. This was in order to have a data set where each phenomenon had a substantial opportunity to impact the experience on a psychological level. This approach would be helpful to investigate if the phenomena, in any way, had effects on or relationships to each other in formulating the psychological outcomes.

For these reasons, Amazonian psychoactive plant brew ayahuasca consumption-based dissociative and hallucinatory experiences were first considered for use in this study. This was due all 7 participants from the author's online 'OBE' survey who experienced their 'OBE' via ayahuasca-based DMT consumption acknowledged having experiences of all the phenomena found to be associated with the psychological outcomes from the author's study found within chapter 4. Notably, all 7 of these ayahuasca induced experience participants had also experienced all of the specified psychological outcomes within the author's survey aside from experiencing negative psychological outcomes. Ayahuasca induced 'OBES' were the

only circumstance of induction where all participants experienced all of the phenomena of association from the author's chapter 4 study and all psychological outcomes from the author's survey aside negative outcomes. Furthermore, these 7 ayahuasca-induced 'OBE' experiences produced some of the highest 'OBE' feature index scores meaning the greatest range of phenomena.

On researching ayahuasca and its associated experiences, further, it became clear that ayahuasca-based dissociative and hallucinatory experiences were an ideal fit for investigating the research goals. The ayahuasca experiences appeared to be a phenomenon that, perhaps, more frequently produces the occurrence of the hallucinatory phenomena at the heart of the research goals within one experience.

As detailed in section (5.6.2) to conduct the interviews for the data gathering process, a semi-structured interview schedule was drawn up in light of the explicit aims of the research to qualitatively investigate a broad but detailed structure of participant's ayahuasca-based phenomenological experiences, with a focus on those occurring during and around the time of 'OBEs.' Furthermore, to investigate further on how the psychological changes highlighted by the survey were related to 'OBEs'. Lastly, from this research, if possible, find a structure to how any psychological changes highlighted in the survey and investigated further within this approach appeared to form based on the phenomena experienced.

As detailed in section (5.6.4) the author used Moustakas' (1994) transcendental phenomenological analysis model to provide the necessary structure to establish the wide variety of essence phenomena within the lived experience of ayahuasca consumption whilst trying limit bias from the author's previous research and knowledge.

Moreover, the technique initially gives each of the phenomena of focus equal potential value towards aspects of the research goals, after which, through imaginative variation, the structure of experiences that caused the psychological changes within the co-researchers (participants) would be revealed. The author also used the standard Epoche process within this method to provide a means for himself, who, as mentioned, has previous personal experience with the subject matter, to attempt to limit prejudgments.

### **6.3 Research Findings**

This section will summarise the key research findings from the empirical work within the thesis. The key findings from the survey that follow detail the results of tests conducted within the methodology discussed in sections (4.2.5) and (6.2.4).

#### Survey:

The survey data revealed an ‘OBE’ will likely *first* occur early in life during childhood. Whilst ‘OBES’ appear within the sample group to be a phenomenon that most frequently occurs during childhood, the results also show that those who report multiple ‘OBES’ are most likely to experience them most frequently between the ages of 10 to 40, after which there is a continual decline in experiences. ‘OBES’ occurred on average most often during the participants' thirties, indicating that the necessary conditions that cause an ‘OBE’ perhaps increase for a certain period of time between the ages of 10 to 40, are most prevalent during a person's 30s and decline after the age of 40 in this group.

Whilst the data indicated an individual is most likely to have the ‘OBE’ one time, the participants who selected 1 only accounted for a minority of cases whereas, in the majority of cases, survey participants had ‘OBES’ on more than one occasion. This suggests that the cause of ‘OBES’ can reoccur, the appropriate conditions can be

replicated, and thus the experience has the potential to, in some cases, be or become a recurring experience. The number of 'OBEs' experienced by the respondents ranged from 1 to the highest option available, 120+.

The data was examined to see if there were any statistical patterns that could relate to the proposed theory. Roth, (2018) estimated the share of people with anxiety disorders within the whole world, whether or not they are diagnosed, based on representative surveys. They found a pattern between 1990 to 2018 of anxiety rising with age, peaking in the thirties/forties and decreasing from there with results varying somewhat based on country). So, perhaps, the result of the number of participants from author's study that had suffered with anxiety being higher than average is at least in part linked to general rates of anxiety experienced with age. Whilst 'OBEs' were more frequent during participants' 30s, the majority of participants in the survey had their most vivid 'OBE' during their childhood years. The childhood years (1-12 years old) accounted for the majority of the most vivid 'OBEs'. The survey highlighted a majority of the 'OBEs' in the survey, had their most vivid 'OBE' before the age of 20. This tentatively highlights that 'OBEs' are likely to be more vivid during these early years and reaffirms the aforementioned need for research exploring the relationship between childhood and the phenomenon. 'OBEs' in childhood might typically be more vivid due to possible higher rates of psychological absorption in children when compared to adults. This being a disposition or personality trait in which a person becomes absorbed in their mental imagery, particularly fantasy. However, there is no research comparing levels of psychological absorption between children and adults.

However, as the current ages of participants for the study were Mean = 49.01 (Median = 49 Mode = 57 occurring 11 times), meaning the majority of individuals in

the study could select age range 40-50, the variation was likely not excessively swayed due to a large number of participants not having lived longer.

The survey highlighted within the sample that ‘OBEs’ are very typically unintentional spontaneous experiences but also validated that there are individuals who have them intentionally, and individuals who believe they have some control over inducing an ‘OBE’.

The intentional group result is likely related to factors of stronger desire for dissociation and / or being likely to let go within the experience and thus potentially facilitating a deeper experience. Several anecdotes of letting go or surrendering were found in the comments participants gave during the survey regarding their ‘OBE’. For example:

"I had fallen into a pool and was near to death. When I surrendered myself, I first saw all my life in images and then felt calm and surrendered to die, and then I was out of the pool looking at my body".

And one participant found their drug-induced ‘OBEs’ were more intense when trying:

"different meditations to see if some make the experience of DMT more intense, and I've found meditations related to being in the moment or letting go to have the biggest impact."

It is not suggesting that the result might be due to a greater degree of prior knowledge of ‘OBEs’ and, therefore, influence through that knowledge to experience more phenomena. Alvarado and Zingrone (2015) found that such prior knowledge is not a factor. However, it should be acknowledged that such an influence could exist and could be a factor given only one previous study led to this conclusion.



The survey data indicates that ‘OBEs’ appear to typically be an experience that does not occur whilst in an active state and most often occurs in a state of stillness between being active and unconscious, most likely when a person has their eyes closed, and most likely when a person is in a supine position.

The survey suggests the majority of ‘OBEs’ that have been experienced have occurred during sleep states and affirmed that ‘OBEs’ could occur during:

- Drug states including anaesthesia
- Meditative / Trance / Hypnotic
- Near-death states
- Physical or motional trauma but not near to death
- Awake and not experiencing a trauma or stress
- Experiences that are mixtures of these other states.

The drugs listed by participants in the survey are as follows MDMA, THC, ketamine, psilocybin, DMT, and LSD. In all cases the THC was consumed via cannabis use and, in some cases, the DMT was consumed via use of the Amazonian psychedelic plant brew ayahuasca.

As detailed in section (4.3.1), the survey analyses (Kruskal-Wallis and Mann-Witney U) supported the hypotheses of statistically significant higher ‘OBE’ feature index scores in the sample group through variation in the highlighted physiological and psychological factors of induction: The group that suffered with *just* anxiety was statistically significant over the group who experienced *neither* anxiety or depression, before a Bonferroni correction. The group who had suffered with both anxiety and depression both before a Bonferroni correction and after. The group that suffered with chronic hallucinations was statistically significant over the group who had not.

Regarding body position, the group that was lying down was statistically significant over the group that was standing (before and after a Bonferroni correction). Regarding induction state, the group in multi/stacked state was statistically significant pre-Bonferroni correction over all other states (i.e. ANTOS, Phy & emoT, Near Death, MHT, Sleep States, Drug & Ana). After the Bonferroni correction, the group in multi/stacked state remained statistically significant over three groups, ANTOS, Phy & emoT, and sleep states. Regarding eyelid position the group whose eyelids were closed during the induction was statistically significant over the group who had their eyes open. The group who had the experiences intentionally were statistically significant over the group who had the experiences unintentionally. Regarding level of spirituality, the very spiritual group was statistically significant over somewhat spiritual group and the not spiritual at all pre-Bonferroni correction. This result remained significant post-Bonferroni correction,

The survey demonstrated for the sample group that 'OBEs' could cause a range of lasting psychological outcomes in 'OBErs.' These outcomes are:

1. Change in view of death
2. Reduction in fear of death
3. Change in relationship to the divine
4. Change in worldview
5. Change in relationship with other people
6. Change in view of self
7. Change in lifestyle

Chi-squared analyses undertaken with the methodology detailed in section (4.2.5) and (6.2.6) revealed that the changes in psychological outcomes 1 to 6 were all associated with connecting with metaphysical entities during the 'OBE.'

Consciousness expansion type experiences (such as an expansion of consciousness or body to a larger than normal size) were associated with a change in relation to other people. Seeing 360 degrees was associated with a change in view of the divine and a change in worldview.

Furthermore, feeling at an abnormal distance was also associated with a change in worldview. Moreover, the experiencer's surroundings being illuminated by something other than normal light was associated with a change in view of death and was associated with a reduction in fear of death.

Several results of the Chi-squared tests did not remain statistically significant after a Bonferroni Correction (Dunn, 1961). The results that did not remain significant were a change in relationship to the divine and feeling the presence of a deceased loved one or pet during an 'OBE. Additionally, the change in worldview and seeing spiritual entities or being during an 'OBE' and likewise with the ability to see 360 degrees. The change in relationship to other people and the ability to see 360 degrees. The change in view of self and seeing spiritual entities or beings during and 'OBE'.

Regarding the results that did not meet the mark of being statistically significant after correction was applied, the author acknowledged in section (4.4) the debate in academia on if correction statistic should be used. Furthermore, that the Bonferroni correction used by the author of this thesis is sometimes criticised for being too conservative, and it can impose a fairly severe statistical line of significance when sample sizes are small or when many tests are being conducted (VanderWheele & Mathur, 2019). Moreover, there are indeed correction methods that are less conservative (e.g., Holm, 1979). However, the author elected to use the Bonferroni correction as he prefers to take a stricter approach to guard more against type 1 errors,

and after analysis interpret how much weight to give the stricter line of significance based the logistics of the study.

In the author's interpretation it is quite possible that a larger sample size for this study would have led to the Chi-square results that became not statistically significant after a Bonferroni correction to remain statistically significant. It is the author's view that given sample size to number of Chi-squared analyses the adjusted P-value for each test after a Bonferroni correction being 0.00060 was quite a severe statistical line of significance.

Therefore, the author does still allocate substantial weight to all the results within the Chi-squared analyses that were statistically significant before Bonferroni correction. The author gave these results equal value moving forward in the thesis. The author still gives these results equal value in terms of future research on potential relationships between hallucinatory phenomena during 'OBEs' and psychological outcomes.

On reflection the author felt that it is very possible that the physiological and psychological factors of induction test results that did not remain significant after a Bonferroni correction would have remained significant if the study had larger numbers. Thus, the author does still allocate substantial weight to all the results within the Kruskal-Wallis tests that were statistically significant before Bonferroni correction. A notable finding was that all 7 participants from the survey who experienced their 'OBE' via ayahuasca-based DMT consumption acknowledged having experiences of all the phenomena found to be associated with the psychological outcomes from the author's study. Further, all 7 of these ayahuasca induced experience participants had also experienced all of the specified psychological outcomes within the author's survey aside from experiencing negative

psychological outcomes. Moreover, these 7 ayahuasca-induced 'OBE' experiences produced some of the highest 'OBE' feature index scores meaning the greatest range of phenomena.

Notably, when given the opportunity to detail any psychological outcomes not listed in the survey, 15 participants acknowledged a distinct psychological outcome that was not listed - outcomes of changes in view and relationship to nature.

The highlights of the frequency data were 'OBES' are likely to first occur early in life during childhood and are, on average, more vivid during childhood. However, those within the sample with multiple 'OBES' are most likely to experience these most frequently between the ages of 10 to 40, after which there is a continual decline in the number of experiences.

Further, 'OBES' occurred on average most often during the participants thirties, tentatively indicating that the conditions that cause an 'OBE' to perhaps increase for a certain period of time between the ages of 10 to 40 are most prevalent during a person's thirties and decline after the age of 40. The author looked to see if there were any statistical patterns that could relate to his theory and follow this trend. There are many studies measuring anxiety by age, but the one that author gives the most weight to on the subject is one that estimated the share of people with anxiety disorders within the whole world, whether or not they are diagnosed, based on representative surveys. The study found a pattern between 1990 to 2018 of anxiety rising with age, peaking in the thirties/forties and decreasing from there with results varying somewhat based on country (Roth, 2018). So, perhaps, this result from author's study is at least in part linked to general rates of anxiety experienced with age.

As detailed in section (4.4) as hypothesised the number of people who reported suffering from anxiety 68.1% in the participant group was much higher than expected as according to large population surveys, the lifetime prevalence is up to 33.7% (Bandelow & Michaelis, 2015). Likewise, the number of people in the participant group who reported suffering from depression 53.2% was also higher than expected, with lifetime estimates around 14.6% (e.g., Bromet et al., 2011). The number of people in the participant group who had suffered from chronic hallucinations was 9.9% N = 18.

The author could not find percentages of lifetime prevalence of chronic hallucinations, but, for example, the prevalence of schizophrenia has been found to be 0.55 per 100 (Goldner et al., 2002). Schizophrenia is a chronic, frequently disabling mental disorder comprising of a collection of signs and symptoms predominantly defined by observed signs of psychosis. In its most common form, schizophrenia presents with paranoid delusions and auditory hallucinations (Insel, 2010). However, visual, smell, taste and touch hallucinations are also known to occur (Császár et al., 2019). It is the most common form of functional psychotic disorder (Patel et al., 2014). The author is inclined to suggest the percentage of those who have suffered from chronic hallucinations (9.9%) in this survey is higher than expected as hypothesised.

In the bullet points that follow the author asserts originality within his work. The assertions arise from the author's knowledge gained through six years of intensive research on the subject to date of thesis submission.

This work represents a large significant contribution to the field via this sample group:

- It is the largest general survey of 'OBES' of its kind to date.

- It's novel extension of the 'OBE' feature index.
- Its investigation into the concepts proposed by the author relating to his theory of 'OBE' induction and formation.
- It is the largest survey of the psychological outcomes of 'OBES' to date.
- It was the first to use the Kruskal-Wallis method (Kruskal & Wallis, 1952) and Dunn's test (Dunn, 1964) to analyse 'OBE' features.
- It is the first to explore if a large range of 'OBE' phenomena could be linked to specific psychological outcomes of 'OBE'.
- It was the first to use Chi-Squared (Pearson, 1900) to test for relationships between 'OBE' phenomena and associated psychological outcomes.

Interviews:

As detailed in section (5.7.1) the analysis from the interviews of individuals who experienced 'OBES' via ayahuasca consumption highlighted numerous phenomena occurring as part of the experiences, including:

- Acute physiological changes.
- Acute changes in feeling.
- Acute hallucinatory experiences.
- Lasting psychological changes.

Notably, as detailed in sections (5.9 – 5.9.14) the analysis process revealed an even deeper understanding in the sample group of what occurs within the phenomenological process of 'OBES', leading to psychological changes. This was achieved via the analysis highlighting the psychological perspectives that linked the hallucinatory phenomena to the eventual psychological outcome.

As detailed in section (5.8) it became clear that certain co-researchers' hallucinatory experiences gave rise to so far lasting psychological changes.

The psychological outcomes and phenomenological relationships for this sample group were:

- *Change in view and relationship to the divine* - Metaphysical entities - Dissociation from self-identity.
- *Change in fear of death* - Metaphysical entities - Dissociation from the physical body - Dissociation from self-identity.
- *Change in view of self* - Dissociation from the physical body - Dissociation from self-identity.
- *Change in view and relationship with other people* - Dissociation from self-identity - Metaphysical entities.
- *Change in worldview* - Dissociation from self-identity.
- *Change in Lifestyle* - Dissociation from self-identity.
- *Change in View and Relationship to Nature* - Dissociation from Self-identity.

As detailed in section (5.12) the interview analysis data also found several differences and contrasts to the survey analysis.

Connecting with metaphysical entities during an ‘OBE’ was not linked to psychological changes in worldview and view of self. Connecting with metaphysical entities was linked to a change in relationships to other people. Expansion of consciousness experiences was not linked to causing psychological outcomes by itself. However, it was clear that consciousness expansion-type experiences in the form of feeling a transpersonal connection beyond self were, at times, a subsequent experience of dissociation from self-identity. Experiencing seeing lights around oneself or at a distance and seeing one's surroundings illuminated by something other than normal light caused were not linked to causing psychological outcomes by themselves. However, the co-researchers' ‘OBEs’ and connections to metaphysical



entities within them sometimes included such anomalous light-based experiences, and, in this way, these light-based experiences, perhaps, share an indirect relationship with the psychological changes. The nature of the indirect relationship being that they sometimes occurring as part of a phenomenon that generates psychological change but are not a main driver itself. Seeing 360 degrees was not linked to change in relationship to the divine, change in worldview, and change in relationship to other people.

This work represents an original contribution to the field via being, to the author's knowledge, the first qualitative study of a sample of interviews to directly investigate a range of psychological outcomes of 'OBEs,' the first qualitative study to directly investigate potential relationships within a large range of 'OBE' phenomena and associated psychological outcomes, and the first study to directly investigate the role of dissociation in these outcomes. Notably, the study is also the first to explore the psychological outcomes of ayahuasca-induced dissociative and hallucinatory experiences within 'OBEs,' the first to provide an essence of ritualistic use of ayahuasca in Peru, and the first to use the Moustakas' (1994) transcendental phenomenological model of analysis to investigate ayahuasca-induced experiences.

#### **6.4 The Significance and Implications of the Research and its Findings**

Within this section the author asserts the originality within his work. The assertions arise from his knowledge gained through six years of intensive research on the subject to date of thesis submission.

The author believes that this work represents the first doctoral thesis on the nature and psychological outcomes of 'OBEs'. Thus, it is the first thesis to bring together and organise the body of research on the subject from numerous fields into

one coherent piece of literature. It provides the most up-to-date extensive academic outlook on the phenomenon.

The author's neuropsychological theory of 'OBES,' extensively presented in chapter 3, is the first of its kind, and it presents a new and novel approach to understanding the 'OBE' and research on the phenomenon. As neuroscience has advanced significantly since the inception of the previous 'OBE' theories, a neuropsychological approach to the phenomenon has clear potential to address gaps within previous 'OBES' theories and create potential research related to them.

Notably, the author further developed the 'OBE' feature index demonstrating it can be used to gather a greater range and richness of data. The author believes that the survey was the first to use an 'OBE' feature index to explore:

- The impact of suffering from depression and anxiety on 'OBES'.
- The impact of suffering from chronic hallucinations on 'OBES'.
- The impact of induction state on 'OBES'.
- The impact of eyelid position on 'OBES'.
- The impact of perceived spirituality levels on 'OBES'.

The statistical validation of the author's hypotheses from the participant group in the survey relating to the points in the previous bulleted list, along with the predictions on the impact of body position and intention, add some initial grounding to his new neuropsychological approach and the possibility of solving tasks 1, 2, and 3. This was achieved through the results indicating these factors through a combination of making an individual more sensitive to or perpetuating larger shifts within the filter-reducing valve, change in brain entropy, and DMN decoupling, will likely produce 'OBES' more frequently and / or more phenomenology abundant

experiences of this nature the latter as demonstrated via the statistically significant higher 'OBE' feature index scores.

This work has established numerous routes for forms of empirical work to be undertaken to establish the dynamics of this theory further, and the 'OBE' induction and formation process as a whole. The impact of this new approach to 'OBES' is significant in that it breathes potential new life into, quite frankly, a somewhat stagnant research area that lacked appropriate mechanics to be fully understood and tested. The numerous routes for further empirical work will be discussed in detail within section (6.6) of this chapter.

It is important to highlight that as the author's theory of 'OBE' induction and formation is rooted in several more expansive fields of research, the development of the author's neuropsychological theory of 'OBE' will potentially not only develop an understanding of 'OBES' but also:

- Psychopharmacology.
- Neurobiology.
- Neurochemistry.
- Brain entropy.
- The default mode network.
- General dissociation and dissociative conditions, e.g., depersonalisation and derealisation.
- Our understanding of the psychology and neurology of embodiment and disembodiment.
- Mental health and mental health conditions e.g., anxiety, depression.
- Other altered states of consciousness.

Furthermore, as noted in section (6.3) the number of people in the survey expected to suffer from anxiety, depression, and chronic hallucinations was higher than expected in comparison to rates in large population surveys. This supported the author's hypotheses within his theory that these conditions may be linked to the occurrence of 'OBEs'. Thus, there appear to be clear links of interest in the author's theory and the survey analysis results to theory and research of anxiety, depression, chronic hallucinations, and in-turn mental health

The author believes the survey is the first to explore if an extensive range of 'OBE' phenomena could be linked to specific psychological outcomes of 'OBEs.' The results of the analyses highlight within the participant group previously undiscovered potential relationships between various 'OBE-related' phenomena and certain psychological outcomes of the phenomenon. The correlations found highlight the potential of a new direction for research on the psychological outcomes of 'OBEs,' which can move the academic understanding of these outcomes further toward understanding why the outcomes are taking place. Notably, the survey also highlighted within the participant group that a psychological outcome of a change in view and relationship to nature requires being acknowledged within research questions on the psychological outcomes of 'OBEs.'

The author believes the qualitative interview study is the first to explore if an extensive range of 'OBE' phenomena could be linked to specific psychological outcomes of 'OBEs.' Further, the author believes it is the first study to explore the psychological outcomes of ayahuasca-induced dissociative and hallucinatory experiences within 'OBEs.' The results of the analyses again highlighted previously undiscovered potential relationships between various 'OBE-related' phenomena and certain psychological outcomes of 'OBEs.' They offered, in particular, a first insight

into the role of dissociation in these psychological outcomes and what occurs within the phenomenological process that leads to psychological changes.

Moreover, these results provided further grounding for a rationale for research to explore and establish patterns of 'OBE' phenomena and psychological outcomes. Of further note is that the author believes the comprehensive phenomenological research and analysis approach taken for this qualitative study has not previously been used for research and analysis of ayahuasca consumption experiences.

The results demonstrate that this particular research and analysis method can be used fruitfully in pursuit of deeper qualitative analysis on 'OBES', and ayahuasca consumption experiences. Moreover, it can be of use in particular, when the researcher wishes to specifically investigate the impact of dissociative elements on 'OBES' concurrent to the range of other hallucinatory phenomena. Furthermore, the method can provide a means to help limit the bias and preconceived notions from previous knowledge and experience impacting the research, as is an issue with all forms of qualitative research. The author suggests that bias and preconceived notions are something that may naturally appear frequently in researchers within some of the academic fields that 'OBES' fall within as individuals may have strong psychological investments in the subject area, and personal experience of the phenomena of study. Lastly, ayahuasca consumption 'OBE' experiences are a strong candidate for further research that wishes to explore large ranges of 'OBE' phenomena.

Taking what is highlighted within this section together, it is clear the research provides a plethora of novel contributions to academia through the originality of the research questions, of the theory built from within the research, and of the methods used for the investigation of subject and theory.

## 6.5 Limitations of the Studies

### *The survey*

As with many surveys, the study is limited by the uncertain representativeness of a volunteer sample and the limitations of introspective reports after a potentially uncertain or extended amount of time (Cardeña, 2004). Whilst the sample size for the associated phenomenon was comparatively a normal to a larger size than previous survey work, a larger sample size will improve the data quality. In the author's view it is quite likely that with a larger sample size that Chi-squared tests and Kruskal-Wallis tests that were no longer statistically significant after Bonferroni correction would have remained statistically significant. To be clear, this is an acknowledgement of a limitation based on sample size and not a critique of the analysis methodology. The survey establishes data based on this sample group and would be explored or extended further in future research.

Solfvin and Williams (2021) note that survey methods have great value but are laden with problems of potential bias in selecting items, wording, response modes, instructional texts, and appropriate validation methods. Further, they highlight the challenge of creating a sample representative of experience within a general population and a sample that can generalize to cross-cultural contexts.

To try to manage these risks the author consulted with his three supervisors to test the understanding of his choices and to eliminate ambiguities of meaning wherever possible. This is clearly very relevant to 'OBEs' as the author has highlighted issues over categorizing and using the term 'OBE' and its associated phenomena in section (2.1.2 – 2.1.5). Moreover, the author highlighted that there appear to be some cross-cultural differences in 'OBEs' in section (2.3.4).

A single survey can not fully reveal issues with sampling, responses, item wording, and statistical and distributional assumption. Only when a large number of studies are compared is further clarity found on these items and the impact revealed.

Notably, the author highlighted sleep quality and fatigue as physiological factors impacting the induction and formation of 'OBEs.' However, he elected not to include a question related to this in the survey. The author made this decision, as he believes sleep quality and fatigue are harder to measure subjectively than the other proposed physiological factors. Moreover, this area presents quite an extensive range of states that would require a larger number of answering options. Further, this factor would likely better fit a different answering scale format than other factors. Thus, it was decided the impact of sleep quality and fatigue would be more appropriately explored within a different study and survey format to the one the author undertook as part of this thesis.

The survey sought to gather and analyse information on vestibular issues (meaning issues of the inner ear) and negatively processed 'OBEs,' but this appears futile within a general surveying context without much larger participant numbers. In future surveys seeking to gather information on vestibular issues or negatively processed 'OBEs' will likely find it fruitful to survey specific to that goal.

#### *Interview study*

As number of co-researchers (participants) was small and the data was obtained and analysed through a qualitative procedure, as with all qualitative methods there is no means to generalise the findings as the data tells only what has occurred with this sample, which is both a strength and a weakness of the approach (Hennink et al., 2020). Nevertheless, this is the first study to analyse the essence and psychological outcomes of dissociative and hallucinatory experiences from ritualistic

ayahuasca consumption in Peru. The results should be considered as a preliminary exploration into this phenomenon as it pertains to 'OBEs.'

As the co-researchers' experiences occurred over varying amounts of time previous to the interviews and not just prior to them despite targeted questions themed around the 'OBE' and associated phenomena, it cannot be ruled out that other life events since the experience could have impacted the areas of apparent psychological change. Thus, the reflections and statements of the co-researchers may have been coloured somewhat by life events. Notably, as co-researchers had multiple experiences of a dissociative and hallucinatory nature, whilst the author tried where possible to have the participant focus on one specific experience and phenomena at a time, it is possible that co-researchers unintentionally amalgamated thoughts, feelings, and outcomes of several experiences and phenomena.

The author is aware that in selecting to use only ayahuasca induced 'OBEs' for the study that it may limit what it tells us about the whole range of 'OBE' phenomena and psychological experience. However, as a first study to qualitatively explore relationships between 'OBE' phenomena and psychological outcomes of the experience, the author suggests it was better to go with a subset that appear to more frequently produce the phenomena and psychological outcomes important to the research goals. Furthermore, for initial exploration it is better to go with an experience subset that typically appears to have a richer range of phenomena. The research within chapter 5 has provided an initial deeper grounded basis of understanding on relationships between 'OBEs' and their psychological outcomes, which is work to be built upon to include broader ranges of 'OBE' induction.

Lastly, whilst it was attempted via bracketing to limit unconscious bias through the research and analysis process, which is an issue with all qualitative



approaches, the author recognises that the researcher cannot be separated from the research nor their experience with the topic, and this could have influenced the data gathering process, and the translation and analysis of the data (Flowers et al., 2009).

## **6.6 Suggestions for Further Research**

Suggestions for future research on ‘OBE’ induction and formation and the psychological outcomes of ‘OBES’ have been made at various stages throughout this thesis. However, they will be summarised together within this section.

### ***6.6.1 ‘OBE’ Induction and Formation***

Notably, the survey results supporting the author's predictions concerning his ‘OBE’ induction and formation theory merit further investigation via quantitative and qualitative means. Firstly, to add more weight to the results, a survey of the same kind, ideally with a larger sample size, should be undertaken to see if the results are similar. It would also be helpful to survey the number of ‘OBES’ occurring within the following samples and compare them with a general sample:

- Individuals who have suffered from depression.
- Individuals who have suffered from anxiety.
- Individuals who have suffered from both depression and anxiety.
- Individuals who have suffered from chronic hallucinations.
- Individuals who have suffered from vestibular issues.
- Individuals who have suffered from chronic fatigue syndrome.
- Individuals who suggest having an above-average level of spirituality.

Suppose the results are similar within a duplicate survey with a larger sample or any of the surveys of the previously bulleted samples show statistically significant higher rates of ‘OBES’ to a general sample. In that case, the author suggests the next

step towards further validating these potential relationships would be through empirical experiments of inducing ‘OBE-type’ phenomena.

Specifically, although ethically challenging these experiments would induce ‘OBE-type’ phenomena and observe if individuals who fall into the categories of higher rates of ‘OBES’ to a general sample do experience ‘OBE-type’ phenomena more abundantly and vividly within the induced state compared to those who do not fit within those categories. The author suggests that an ideal way to induce the ‘OBE-type’ phenomena would be through non-invasive targeted transcranial magnetic stimulation (TMS) of the right temporal, parietal junction in the same format in which it has already shown promise in producing ‘OBE-type’ phenomena (e.g., Blanke et al., 2002). The abundance and vividness of the phenomena experienced by the individuals could be evaluated using the ‘OBE’ feature index and experience vividness scales.

Notably, suppose a sample of individuals who have suffered from depression, anxiety, or depression and anxiety have shown higher rates of ‘OBES’ compared to a general sample. In that case, the author suggests there is merit in inducing a measurable increase in adrenaline via a stress test or other potential means within a number of individuals who do and do not fall into those categories before the targeted TMS. This would be to observe if, during the TMS, the individuals with higher adrenaline levels experience ‘OBE-type’ phenomena more abundantly and vividly within the induced state compared to an appropriate control group, whom would also have their adrenaline levels measured pre-TMS. Suppose results suggest those with higher adrenaline levels experience phenomena more abundantly and vividly within the induced state than the control groups. In that case, the author suggests there would be further merit in similar experimental empirical work, which sort to more precisely

test correlations between levels of adrenaline, and other chemicals e.g., cortisol and the experience of ‘OBE-type’ phenomena with the induced state.

Notably, the base format of this experiment could also be used to explore if eyelid, body positioning, spirituality, letting go, desire for dissociation, and psychological absorption also impact the induction of ‘OBE-type’ phenomena and, likewise, the abundance and vividness of the phenomena whilst within this induced state.

A survey should be undertaken with a sample of individuals who had specifically suffered from vestibular issues to explore if individuals with vestibular issues experience ‘OBEs’ at a rate significantly higher than the general population and to test if vestibular issues appear to impact an ‘OBE’ feature index score. A survey should be undertaken to explore how greater sleep and fatigue potentially increase the occurrence of ‘OBEs’ and potentially impact an ‘OBE’ feature index score.

The author suggests that there would also be merit in a qualitative analysis interview study exploring how individuals who can frequently induce ‘OBE-type’ experience can do so with a particular interest in body position, eyelid position, techniques that may induce alterations in the vestibular system, neurochemistry, and default mode network functioning. Likewise, psychological techniques that may or may not relate to concepts of letting go, or some form of release. It could also be fruitful to use the data gathered on the process and the techniques to quantitatively score them on levels of psychological absorption. This research could potentially add validation to the author's ‘OBE’ induction and formation theory.

### ***6.6.2 'OBE' Psychological Outcomes***

The results regarding potential relationships between the psychological outcomes of 'OBEs' found within the survey merit further investigation via quantitative and qualitative means. Firstly, to add more weight to the survey results and to further ground the relationships discovered, a survey of the same kind, ideally with a larger sample size, should be undertaken to see if the results are similar. The survey should also include, as an addition to the previous questions, a question regarding a change of view and relationship to nature, an unforeseen psychological outcome found within the qualitative data of the survey.

Furthermore, a survey should be undertaken with a sample of individuals who had specifically negative psychological outcomes to their 'OBEs', which the author found can be better assessed outside of a more broad or general surveying format due to limitations on the number of individuals who have experienced negative psychological outcomes. This survey should also include 'OBE' feature index data gathering so that quantitative analysis can be undertaken to reveal potential relationships between the occurrence of certain 'OBE' phenomena and the negative psychological outcomes experienced. A duplicate qualitative interview analysis, such as the one done by the author of 'OBEs' experienced via ayahuasca consumption, should be undertaken to see if results are similar. Moreover, the research has laid a foundation for identical methodological studies on 'OBEs' experienced via various means, e.g., sleep states, near-death states, other drug states, etc. Such studies can first be explored with matching and then later divergent methodology to further develop and ground understandings that have been and will be revealed within the data.

Likewise, qualitative research in this mould should focus specifically on relationships between 'OBE' phenomena and negative psychological outcomes,

which would likely be best explored within its own specified study due to limitations on individuals who experienced adverse psychological outcomes to the phenomenon. The phenomena linked to the negative impact and the mechanics around that impact may be quite divergent from the positive. Notably, there would also be merit in taking the now highlighted psychological outcomes and mechanisms of change and conducting studies focusing on each individually. Doing so could illuminate potential further or more profound components to the psychological change process.

### **6.7 Final Summary and Comments**

The work represented in this thesis has explored the nature and psychological outcomes of ‘OBEs’. This chapter has identified the research aims, how the aims were addressed, the main findings of the research, has discussed the implications of these findings along with methodological considerations, and has suggested how future work might evolve.

The research results have identified several potential factors related to the induction and formation of ‘OBEs’. Furthermore, the research has established potential relationships between hallucinatory phenomena and psychological outcomes of the experiences. In this respect, the thesis has been successful in achieving its aims. Moving through the literature into the empirical work in the way the author has demonstrates that the author can review and access academic literature, and address gaps within the work creating original contributions to the field at doctoral standard. This chapter has identified the multiple original contributions to the field contained within this body of work.

Whilst the topic of study is not as common as other forms of human experience, the subject has fundamental implications for our understanding of consciousness, dissociation, embodiment and, in-turn, what it is to live certain aspects

of human experience. It is clear if we do not develop our understanding of 'OBES', we will be lacking in comprehension of a potentially vital part of a means to understand consciousness and the spectrum of human experience. Furthermore, it is clear that if we do not develop our understanding of the psychological outcomes of these experiences, we will miss out on understanding a valuable aspect of many people's psyche.

It is hoped that fundamentally the research within this thesis not only clarifies these statements but also provides a basis on which to move toward a greater understanding of this topic. Moreover, it is hoped this thesis stimulates others to explore the 'OBE' empirically. There is an experience of self out there, reader, but not as we typically know it.

### References

- Aaen-Stockdale, C. (2012). Neuroscience for the Soul. *Psychologist*, 25(7), 520-523.
- Aardema, F. (2012). *Explorations in Consciousness: A New Approach to Out-of-Body Experiences*. Montreal: Mount Royal Pub.
- Abedini, M. R., & Esmaeili, A. (2017). Zolpidem Induces Depersonalisation and Derealisation Symptoms: A Case Report. *Modern Care Journal*, 14(2).
- Abel, K. M., Allin, M. P., Kucharska-Pietura, K., Andrew, C., Williams, S., David, A. S., & Phillips, M. L. (2003). Ketamine and fMRI BOLD signal: distinguishing between effects mediated by change in blood flow versus change in cognitive state. *Human brain mapping*, 18(2), 135-145.
- Abi-Dargham, A., Gil, R., Krystal, J., Baldwin, R. M., Seibyl, J. P., Bowers, M., ... & Laruelle, M. (1998). Increased striatal dopamine transmission in schizophrenia: confirmation in a second cohort. *American Journal of Psychiatry*, 155(6), 761-767.
- Aizenberg, D., & Modai, I. (1985). Autoscopical and drug-induced perceptual disturbances. *Psychopathology*, 18(5-6), 237-240.
- Akil, H., Watson, S. J., Young, E., Lewis, M. E., Khachaturian, H., & Walker, J. M. (1984). Endogenous opioids: biology and function. *Annual review of neuroscience*, 7(1), 223-255.
- Alvarado, C. S. (1984). Phenomenological aspects of out-of-body experiences: A report of three studies. *Journal of the American Society for Psychical Research*, 78, 219-240.
- Alvarado, C. S. (1986). Research on spontaneous out-of-body experiences: a review of modern developments, 1960-1984. In B. Shapin & L. Coly (eds.), *Current Trends in Psi Research* (pp. 140-167). New York: Parapsychology Foundation.

- Alvarado, C. S. (1989). Trends in the study of out-of-body experiences: An overview of developments since the nineteenth century. *Journal of Scientific Exploration*, 3(1), 27-42.
- Alvarado, C. S. (2000). Out-of-body Experiences. In Cardeña, E. E., Lynn, S. J. E., & Krippner, S. E. (Eds.), *Varieties of anomalous experience: Examining the scientific evidence* (pp. 183-218). Washington, DC: American Psychological Association.
- Alvarado, C. S. (2005). Ernesto Bozzano on the phenomena of bilocation. *Journal of Near-Death Studies*, 23(4), 207-238.
- Alvarado CS, Zingrone NL (1999) Out-of-body experiences among readers of a Spanish New Age magazine. *J Soc Psych Res.* 63:65–85.
- Alvarado, C. S., & Zingrone, N. L. (1994). Individual differences in aura vision: Relationships to Visual Imagery and Imaginative-Fantasy Experiences. *European Journal of Parapsychology*, 10, 1-30.
- Alvarado, C. S., & Zingrone, N. (1997a). Out-of-body experiences and dissociation. Paper presented at the 40th Annual Convention of the Parapsychological Association, August, Brighton, England.
- Alvarado, C. S., & Zingrone, N. L. (1997b). Relación entre la experiencia fuera del cuerpo y la absorción: estudios con participantes puertorriqueños y norteamericanos. [Relationship between out-of-body experiences and absorption: Studies with Puerto Rican and North American participants] *Revista Argentina de Psicología Paranormal*, 8, 249-261.
- Alvarado, C. S., & Zingrone, N. L. (1999). Out-of-body experiences among readers of a Spanish new age magazine. *Journal of the Society for Psychological Research*, 63,65-85



Alvarado, C. S., & Zingrone, N. L. (2007-08). Interrelationships of parapsychological experiences, dream recall, and lucid dreams in a survey with predominantly Spanish participants. *Imagination, Cognition and Personality*, 27, 63-69.

Alvarado, C. S., & Zingrone, N. L. (2015). Features of out-of-body experiences: Relationships to frequency, wilfulness of and previous knowledge about the experience. *Journal of the Society for Psychical Research*, 79(919).

Alvarado, C. S., Zingrone, N. L., & Dalton, K. S. (1998-99). Out-of-body experiences: Alterations of consciousness and the Five-Factor Model of personality. *Imagination, Cognition and Personality*, 18(4), 297-317.

American Psychiatric Association, D., & American Psychiatric Association. (2013). Diagnostic and statistical manual of mental disorders: DSM-5 (Vol. 5, No. 5). Washington, DC: American psychiatric association.

Andrews-Hanna, J. R. (2012). The brain's default network and its adaptive role in internal mentation. *The Neuroscientist*, 18(3), 251-270.

Andrews-Hanna, J. R., Reidler, J. S., Sepulcre, J., Poulin, R., & Buckner, R. L. (2010). Functional-anatomic fractionation of the brain's default network. *Neuron*, 65(4), 550-562.

Andrews-Hanna, J. R., Smallwood, J., & Spreng, R. N. (2014). The default network and self-generated thought: component processes, dynamic control, and clinical relevance. *Annals of the New York Academy of Sciences*, 1316(1), 29-52.

Andritzky, W. (1989). Sociopsychotherapeutic functions of ayahuasca healing in Amazonia. *Journal of Psychoactive Drugs*, 21, 77-90.

Appelby, L. (1989). Near-death experience: analogous to other stress induced physiological phenomena. *British Medical Journal*, 298, 976-77.

- Appleton, R. E. (1993). Reflex anoxic seizures. *British Medical Journal*, *307*, 214–215.
- Arzy, S., Seeck, M., Ortigue, S., Spinelli, L., & Blanke, O. (2006). Induction of an illusory shadow person. *Nature*, *443*(7109), 287-287.
- Arzy, S., Thut, G., Mohr, C., Michel, C. M., & Blanke, O. (2006). Neural basis of embodiment: distinct contributions of temporoparietal junction and extrastriate body area. *Journal of Neuroscience*, *26*(31), 8074-8081
- Aspell, J. E., Lenggenhager, B., & Blanke, O. (2009). Keeping in touch with one's self: multisensory mechanisms of self-consciousness. *PloS one*, *4*(8), e6488.
- Atasoy, S., Roseman, L., Kaelen, M., Kringelbach, M. L., Deco, G., & Carhart-Harris, R. L. (2017). Connectome-harmonic decomposition of human brain activity reveals dynamical repertoire re-organization under LSD. *Scientific reports*, *7*(1), 17661.
- Athappilly, G. K., Greyson, B., & Stevenson, I. (2006). Do prevailing societal models influence reports of near-death experiences?: a comparison of accounts reported before and after 1975. *The Journal of nervous and mental disease*, *194*(3), 218-222.
- Atwater, P.M. H. (1988). *Coming back to life: The after-effects of the near-death experience*. New York, NY: Dodd, Mead.
- Australian Institute of Parapsychological Research (2004). AIPR fact sheet: Psychic and mystical experiences of the Aborigines. Retrieved from <http://www.aiprinc.org/aborig.html>
- Axmacher, N., Cohen, M. X., Fell, J., Haupt, S., Dimpelmann, M., Elger, C. E., et al. (2010). Intracranial EEG correlates of expectancy and memory formation in the human hippocampus and nucleus accumbens. *Neuron* *65*, 541–549.

- Ball, S., Robinson, A., Shekhar, A., & Walsh, K. (1997). Dissociative symptoms in panic disorder. *The Journal of nervous and mental disease*, 185(12), 755-760.
- Bandelow, B., & Michaelis, S. (2015). Epidemiology of anxiety disorders in the 21st century. *Dialogues in clinical neuroscience*, 17(3), 327.
- Barker, S. A. (2018). N, N-Dimethyltryptamine (DMT), an Endogenous Hallucinogen: Past, Present and Future Research to Determine Its Role and Function. *Frontiers in neuroscience*, 12, 536.
- Bassett, D. S., Bullmore, E., Verchinski, B. A., Mattay, V. S., Weinberger, D. R., and Meyer-Lindenberg, A. (2008). Hierarchical organization of human cortical networks in health and schizophrenia. *J. Neurosci.* 28, 9239–9248
- B. C. W. (1911) Significance of the Evidence of Bilocation . *Light*, 31, 447
- Beauregard, M., Courtemanche, J., & Paquette, V. (2009). Brain activity in near-death experiencers during a meditative state. *Resuscitation*. 80(9): 1006–10.
- Beauregard, M., St-Pierre, É. L., Rayburn, G., & Demers, P. (2012). Conscious mental activity during a deep hypothermic cardiocirculatory arrest?. *Resuscitation*, 83(1), e19.
- Becker, E. (1973). *The denial of death*. New York: The free press.
- Belanti, J., Perera, M., & Jagadheesan, K. (2008). Phenomenology of near-death experiences: a cross-cultural perspective. *Transcultural psychiatry*, 45(1), 121-133.
- Beyer, S.V., (2010) *Singing to the plants: a guide to mestizo shamanism in the upper Amazon*. Albuquerque: University of New Mexico Press.
- Bergson, H. (1896/1990). *Matter and memory* (N. M. Paul & W. S. Palmer, Trans). New York, NY: Zone Books. (Original work published 1896).

- Bianchi, A. (1994). I mistici del vegetale: Piante psicotrope e stati alterati di coscienza nella selva Amazzonica [A mystical vegetation: Psychotropic plants and altered states of consciousness in the Amazon jungle]. *Quaderni de Parapsychologia*, 25(2), 43-58.
- Bianchi, A. (1997). Comments on "The ketamine model of the near-death experience: A central role for the N-methyl-D-aspartate receptor." *Journal of Near-Death Studies*, 16, 71-78.
- Bischof, M., & Bassetti, C. L. (2004). Total dream loss: a distinct neuropsychological dysfunction after bilateral PCA stroke. *Annals of Neurology: Official Journal of the American Neurological Association and the Child Neurology Society*, 56(4), 583-586.
- Blackmore, S. J. (1982a). *Beyond the body: An investigation of out-of-the-body experiences*. London: Heinemann.
- Blackmore, S. J. (1982b). Have you ever had an OBE? The wording of the question. *Journal of the society for Psychical Research*, 51, 292-302.
- Blackmore, S. J. (1982c). Out-of-body experiences, lucid dreams, and imagery: Two surveys. *Journal of the American Society for Psychical Research*. 76, 301-307
- Blackmore, S. J. (1983a). Birth and the OBE: An unhelpful analogy. *American Society for Psychical Research*. 77(3), 229-238.
- Blackmore, S. J. (1983b). Imagery and the OBE. In W. G. Roll, J. Beloff & R. A. White (Eds.), *Research in Parapsychology 1982* (pp. 231-232). Metuchen, NJ: Scarecrow Press.
- Blackmore, S. J. (1984a). A postal survey of OBEs and other experiences. *Journal of the Society for Psychical Research*, 52(796), 225-244.

- Blackmore, S. J. (1984b). A psychological theory of the out-of-body experience. *The Journal of Parapsychology*, 48(3), 201.
- Blackmore, S. (1986). Out of body experiences in schizophrenia. *Journal of Nervous and Mental Disease*, 174(10), 615-19.
- Blackmore, S. J. (1987). Where am I? Perspectives in imagery and the out-of-body experience. *Journal of Mental Imagery*. 11(2), 53-66.
- Blackmore, S. (1988). *A theory of lucid dreams and OBEs*. In: J. Gackenbach & S. LaBerge (Eds.) *Conscious Mind: Sleeping Brain* (pp. 373-387). Boston, MA: Springer.
- Blackmore, S. J. (1992). Psychic experiences: Psychic illusions. 'Psychic Experiences: Psychic illusions'. *Skeptical Inquirer* 16, 367-76.
- Blackmore, S. J. (1993). *Dying to live: Science and the near-death experience*. London: Grafton.
- Blackmore, S. J. (1996a). Near-death Experiences. *Journal of the Royal Society of Medicine*, 89(2), 73-76.
- Blackmore, S. J. (1996b). Near-Death Experiences. In G Stein (Eds.), *The Encyclopedia of the Paranormal*. (pp.425-441). Amherst, NY: Prometheus Books.
- Blackmore, S. J. (1996c). Out-of-body Experiences. In G Stein (Eds.), *The Encyclopedia of the Paranormal*. (pp.471-483). Amherst, NY: Prometheus Books.
- Blackmore, S. J. (2005). Out-of-body experiences. *Parapsychology: Research on exceptional experiences*, 188-95.
- Blackmore, S. J. (2015, December 7) *The new science of Out-of-body Experiences*. [video file]. Retrieved from <https://vimeo.com/148914385>

Blackmore, S. J. (2017a June 15). Edge Question 2017. Originally suggested answer:

“*WHAT SCIENTIFIC TERM OR CONCEPT OUGHT TO BE MORE WIDELY KNOWN?*” ‘*Out-of-body experience*’. Retrieved from

<http://www.susanblackmore.co.uk/Chapters/Edge2017obe.htm>

Blackmore, S. (2017b). *Seeing Myself: The New Science of Out-of-body Experiences*.

London: Robinson.

Blackmore, S. J., & Troscianko, T. S. (1989). The physiology of the tunnel. *Journal of Near-Death Studies*, 8(1), 15-28.

Blanke, O. (2012). Multisensory brain mechanisms of bodily self-consciousness. *Nat. Rev. Neurosci.* 13, 556–571.

Blanke, O., Landis, T., Spinelli, L., & Seeck, M. (2004). Out-of-body experience and autoscopia of neurological origin. *Brain*, 127(2), 243-258

Blanke, O., & Mohr, C. (2005). Out-of-body experience, heautoscopy, and autoscopic hallucination of neurological origin: Implications for neurocognitive mechanisms of corporeal awareness and self-consciousness. *Brain Research Reviews*, 50(1), 184-199.

Blanke, O., Ortigue, S., Landis, T., & Seeck, M. (2002). Neuropsychology: Stimulating illusory own-body perceptions. *Nature*, 419(6904), 269-270.

Bob, P., Fedor-Freybergh, P., Jasova, D., Susta, M., Pavlat, J., Zima, T., ... & Miklosko, J. (2008). Depression, cortisol and somatoform dissociative symptoms. *Neuroendocrinology Letters*, 29(2), 235-239.

Boegle, R., Stephan, T., Ertl, M., Glasauer, S., & Dieterich, M. (2016). Magnetic vestibular stimulation modulates default mode network fluctuations. *Neuroimage*, 127, 409-421.

- Bogenschutz, M. P., Forcehimes, A. A., Pommy, J. A., Wilcox, C. E., Barbosa, P. C. R., & Strassman, R. J. (2015). Psilocybin-assisted treatment for alcohol dependence: a proof-of-concept study. *Journal of psychopharmacology*, 29(3), 289-299.
- Bogenschutz, M. P., & Johnson, M. W. (2016). Classic hallucinogens in the treatment of addictions. *Progress in Neuro-Psychopharmacology and Biological Psychiatry*, 64, 250-258.
- Boos, D. D., & Stefanski, L. A. (2013). *Essential statistical inference*. Springer,.
- Bourdin, P., Barberia, I., Oliva, R., & Slater, M. (2017). A virtual out-of-body experience reduces fear of death. *PloS one*, 12(1), e0169343.
- Bottini, G., Sterzi, R., Paulesu, E., Vallar, G., Cappa, S. F., Erminio, F., ... & Frackowiak, R. S. (1994). Identification of the central vestibular projections in man: a positron emission tomography activation study. *Experimental brain research*, 99(1), 164-169.
- Boysan, M. (2014). Dissociative experiences are associated with obsessive-compulsive symptoms in a non-clinical sample: a latent profile analysis. *Nöro Psikiyatri Arşivi*, 51(3), 253.
- Braithwaite, J. J., & David, A. S. (2016). Out of body, out of mind? An examination of out-of-body experiences and dissociative disorders. *Cognitive neuropsychiatry*, 21(5), 373-376.
- Braithwaite, J. J., Samson, D., Apperly, I., Broglio, E., & Hulleman, J. (2011). Cognitive correlates of the spontaneous out-of-body experience (OBE) in the psychologically normal population: evidence for an increased role of temporal-lobe instability, body-distortion processing, and impairments in own-body transformations. *Cortex*, 47(7), 839-853.

- Brandt, T., & Dieterich, M. (1999). The vestibular cortex: its locations, functions, and disorders. *Annals of the New York Academy of Sciences*, 871(1), 293-312.
- Braun, A. R., Balkin, T. J., Wesenten, N. J., Carson, R. E., Varga, M., Baldwin, P., ... & Herscovitch, P. (1997). Regional cerebral blood flow throughout the sleep-wake cycle. An H<sub>2</sub> (15) O PET study. *Brain: a journal of neurology*, 120(7), 1173-1197.
- Bremner, J. D. (2006). Traumatic stress: effects on the brain. *Dialogues in clinical neuroscience*, 8(4), 445.
- Bret, P. T. (1939) Les métapsychoses: La métapsychorrhagie, la télépathie, la han- tise. Vol. 1: Introduction et la métapsychorrhagie fantasmale [The metapsychoses: Metapsychorrhagy, telepathy, hauntings. Vol. 1: Introduction and phantasmal Metapsychorrhagy]. Paris: J. B. Bailliére.
- Brewer, J. A., Worhunsky, P. D., Gray, J. R., Tang, Y. Y., Weber, J., & Kober, H. (2011). Meditation experience is associated with differences in default mode network activity and connectivity. *Proceedings of the National Academy of Sciences*, 108(50), 20254-20259.
- Brierre de Boismont, A. (1853). Hallucinations; or, The Rational History of Apparitions, Visions, Dreams, Ecstasy, Magnetism and Somnambulism. (translated from the second French edition). Philadelphia, PA: Lindsay and Blakiston. (First edition published in French 1845)
- Bromet, E., Andrade, L. H., Hwang, I., Sampson, N. A., Alonso, J., De Girolamo, G., ... & Karam, A. N. (2011). Cross-national epidemiology of DSM-IV major depressive episode. *BMC medicine*, 9(1), 90
- Bruce, R. (2009). *Astral Dynamics: The Complete Book of Out-of-Body Experience*. Magic Light Press.



- Brugger, P., Regard, M., & Landis, T. (1997). Illusory reduplication of one's own body: phenomenology and classification of autoscopic phenomena. *Cognitive Neuropsychiatry*, 2(1), 19-38.
- Buckner, R. L., Andrews-Hanna, J. R., & Schacter, D. L. (2008). The brain's default network. *Annals of the New York Academy of Sciences*, 1124(1), 1-38.
- Bulhman, W. L. (n.d.). *Survey Results*. Retrieved from:  
<http://astralinfo.org:80/obesurvey.htm>
- Bünning, S., & Blanke, O. (2005). The out-of body experience: precipitating factors and neural correlates. *Progress in brain research*, 150, 331-606.
- Bush, N. E. (1991). Is ten years a life review?. *Journal of Near-Death Studies*, 10(1), 5-9.
- Bush, N. E. (2002). Afterward: making meaning after a frightening near-death experience. *Journal of Near-Death Studies*, 21(2), 99-133.
- Callaway, J. C. (2005). Various alkaloid profiles in decoctions of *Banisteriopsis caapi*. *Journal of Psychoactive Drugs*, 37(2), 151-155.
- Campbell, S., & MacQueen, G. (2004). The role of the hippocampus in the pathophysiology of major depression. *Journal of Psychiatry & Neuroscience*.
- Campos, D. J. (2011). *The Shaman & Ayahuasca: Journeys to Sacred Realms*. Divine Arts.
- Cardeña, E. (1997). The etiologies of dissociation. In S. Powers & S. Krippner (Eds.), *Broken images, broken selves: Dissociative narratives in clinical practice* (pp. 61-87). New York: Brunner.
- Cardeña, E. (2004). Introspection is alive and well: Current methodologies to study conscious experience. *5 Simpósio da Fundação Bial: Aquém e Alem: do Cérebro/Behind and Beyond the Brain*, 43-54.

- Carhart-Harris, R. (2007). Waves of the unconscious: the neurophysiology of dreamlike phenomena and its implications for the psychodynamic model of the mind. *Neuropsychoanalysis* 9, 183–211.
- Carhart-Harris, R. (2011). Using fMRI to investigate the effects of psilocybin on brain function. In *papers presented at Breaking Convention: A Multidisciplinary Meeting on Psychedelic Consciousness, University of Kent*, p.5.
- Carhart-Harris, R. L. (2018). The entropic brain-revisited. *Neuropharmacology*. 142, 167-178.
- Carhart-Harris, R. L., Bolstridge, M., Day, C. M. J., Rucker, J., Watts, R., Erritzoe, D. E., ... & Rickard, J. A. (2018). Psilocybin with psychological support for treatment-resistant depression: six-month follow-up. *Psychopharmacology*, 235(2), 399-408.
- Carhart-Harris, R. L., Bolstridge, M., Rucker, J., Day, C. M., Erritzoe, D., Kaelen, M., ... & Taylor, D. (2016). Psilocybin with psychological support for treatment-resistant depression: an open-label feasibility study. *The Lancet Psychiatry*, 3(7), 619-627.
- Carhart-Harris, R. L., Erritzoe, D., Williams, T., Stone, J. M., Reed, L. J., Colasanti, A., ... Nutt, D. J. (2012). Neural correlates of the psychedelic state as determined by fMRI studies with psilocybin. *Proceedings of the National Academy of Science*, 109, 2138-2143.
- Carhart-Harris, R. L., and Friston, K. J. (2010). The default-mode, ego-functions and free-energy: a neurobiological account of Freudian ideas. *Brain* 133, 1265–1283.
- Carhart-Harris, R. L., Leech, R., Hellyer, P. J., Shanahan, M., Feilding, A., Tagliazucchi, E., ... & Nutt, D. (2014). The entropic brain: a theory of

conscious states informed by neuroimaging research with psychedelic drugs. *Frontiers in human neuroscience*, 8, 20.

Carhart-Harris, R. L., Muthukumaraswamy, S., Roseman, L., Kaelen, M., Droog, W., Murphy, K., ... & Leech, R. (2016). Neural correlates of the LSD experience revealed by multimodal neuroimaging. *Proceedings of the National Academy of Sciences*, 113(17), 4853-4858.

Carhart-Harris, R. L., & Nutt, D. J. (2017). Serotonin and brain function: a tale of two receptors. *Journal of Psychopharmacology*, 31(9), 1091-1120.

Carhart-Harris, R., Roseman, L., Haijen, E., Erritzoe, D., Watts, R., Branchi, I., et al. (2018). Psychedelics and the essential importance of context. *J. Psychopharmacol.* 32, 725–731. doi: 10.1177/0269881118754710

Carr, D. (1981). Endorphins at the approach of death. *The Lancet*, 317(8216), 390.

Carr, D. (1982). Pathophysiology of stress-induced limbic lobe dysfunction: A hypothesis for NDEs. *Anabiosis: The Journal of Near-Death Studies*, 2, 75–90.

Celada, P., Puig, M., & Artigas, F. (2013). Serotonin modulation of cortical neurons and networks. *Frontiers in integrative neuroscience*, 7, 25.

Chalmers, D. J. (1995). Facing up to the problem of consciousness. *Journal of consciousness studies*, 2(3), 200-219.

Chambers, R. A., Bremner, J. D., Moghaddam, B., Southwick, S. M., Charney, D. S., & Krystal, J. H. (1999). Glutamate and post-traumatic stress disorder: toward a psychobiology of dissociation. In *Seminars in clinical neuropsychiatry* (Vol. 4, No. 4, pp. 274-281).

Charland-Verville, V., Lugo, Z., Jourdan, J. P., Donneau, A. F., & Laureys, S. (2015). Near-death experiences in patients with locked-in syndrome: Not always a blissful journey. *Consciousness and cognition*, 34, 28-32.

- Charland-Verville, V., Martial, C., Cassol, H., & Laureys, S. (2018). Near-Death Experiences: Actual Considerations. In *Coma and Disorders of Consciousness* (pp. 235-263). Springer, Cham.
- Charland-Verville, V., Martial, C., Jourdan, J. P., & Laureys, S. (2016, March). A retrospective analysis of self-reported near-death experiences. Eleventh World Congress on Brain Injury. The Hague, Netherlands.
- Charles, N., Froment, C., Rode, G., Vighetto, A., Turjman, F., Trillet, M., & Aimard, G. (1992). Vertigo and upside down vision due to an infarct in the territory of the medial branch of the posterior inferior cerebellar artery caused by dissection of a vertebral artery. *Journal of Neurology, Neurosurgery & Psychiatry*, 55(3), 188-189.
- Charney D. S., Drevets W. C., (2002). Neurobiological basis of anxiety disorders. In: K. L. Davis, D. S. Charney, J.T. Coyle, C.B. Nemeroff, (Eds). *Neuropsychopharmacology: the fifth generation of progress* (pp. 901–930). Philadelphia: Lippincott.
- Chavkin, C. (2013). Dynorphin—still an extraordinarily potent opioid peptide. *Molecular pharmacology*, 83(4), 729-736.
- Chiuccariello, L., Houle, S., Miler, L., Cooke, R. G., Rusjan, P. M., Rajkowska, G., ... & Wilson, A. A. (2014). Elevated Monoamine Oxidase A Binding During Major Depressive Episodes Is Associated with Greater Severity and Reversed Neurovegetative Symptoms. *Neuropsychopharmacology*, 39(4), 973.
- Collier, B. B. (1972). Ketamine and the conscious mind. *Anaesthesia*, 27(2), 120-134.
- Cook, A. M., & Irwin, H. J. (1983). Visuospatial skills and the out-of-body experience. *The Journal of Parapsychology*, 47(1), 23.

- Corlett, P. R., Murray, G. K., Honey, G. D., Aitken, M. R., Shanks, D. R., Robbins, T. W., ... & Fletcher, P. C. (2007). Disrupted prediction-error signal in psychosis: evidence for an associative account of delusions. *Brain*, *130*(9), 2387-2400.
- Cox R. T. (1961). *The Algebra of Probable Inference*. Baltimore, The Johns Hopkins Press.
- Coyle, J. T., Basu, A., Benneyworth, M., Balu, D., & Konopaske, G. (2012). Glutamatergic synaptic dysregulation in schizophrenia: therapeutic implications. In *Novel antischizophrenia treatments* (pp. 267-295). Springer, Berlin, Heidelberg.
- Crookall, R. (1961). *Astral projection*. London, UK: Aquarian Books.
- Császár, N., Kapócs, G., & Bókkon, I. (2019). A possible key role of vision in the development of schizophrenia. *Reviews in the Neurosciences*, *30*(4), 359-379.
- Curran, H. V., & Morgan, C. (2000). Cognitive, dissociative and psychotogenic effects of ketamine in recreational users on the night of drug use and 3 days later. *Addiction*, *95*(4), 575-590.
- Dallman, M. F., Jones, M. T., Vernikos-Danellis, J., & Ganong, W. F. (1972). Corticosteroid feedback control of ACTH secretion: rapid effects of bilateral adrenalectomy on plasma ACTH in the rat. *Endocrinology*, *91*(4), 961-968.
- Dalton, K. S., Zingrone, N. L., & Alvarado, C. S. (1999). Exploring Out-of-Body Experiences, Dissociation, Absorption, and Alterations of Consciousness with a Creative Population in the Ganzfeld. *The Journal of Parapsychology*, *63*(3), 202.
- Davidov, V. M. (2010). Shamans and shams: The discursive effects of ethnotourism in Ecuador. *The Journal of Latin American and Caribbean Anthropology*, *15*(2), 387-410.

- Davis, A. K., Clifton, J. M., Weaver, E. G., Hurwitz, E. S., Johnson, M. W., & Griffiths, R. R. (2020). Survey of entity encounter experiences occasioned by inhaled N, N-dimethyltryptamine: Phenomenology, interpretation, and enduring effects. *Journal of Psychopharmacology*, 34(9), 1008-1020.
- de Araujo, D. B., Ribeiro, S., Cecchi, G. A., Carvalho, F. M., Sanchez, T. A., Pinto, J. P., ... & Santos, A. C. (2012). Seeing with the eyes shut: neural basis of enhanced imagery following ayahuasca ingestion. *Human brain mapping*, 33(11), 2550-2560.
- Dedovic, K., Ngiam J. (14 May 2015). "The cortisol awakening response and major depression: examining the evidence". *Neuropsychiatric Disease and Treatment*. 11: 1181–89.
- Deeley, Q., Oakley, D. A., Toone, B., Giampietro, V., Brammer, M. J., Williams, S. C., & Halligan, P. W. (2012). Modulating the default mode network using hypnosis. *International Journal of Clinical and Experimental Hypnosis*, 60(2), 206-228.
- De Havas, J. A., Parimal, S., Soon, C. S., & Chee, M. W. (2012). Sleep deprivation reduces default mode network connectivity and anti-correlation during rest and task performance. *Neuroimage*, 59(2), 1745-1751.
- Delgado, P. L, Moreno F. A. (2000). "Role of norepinephrine in depression". *The Journal of Clinical Psychiatry*. 61 Suppl 1: 5–12.
- de Lima Osório, F., de Macedo, L. R. H., de Sousa, J. P. M., Pinto, J. P., Quevedo, J., de Souza Crippa, J. A., & Hallak, J. E. C. (2011). The therapeutic potential of harmine and ayahuasca in depression: Evidence from exploratory animal and human studies. *The ethnopharmacology of ayahuasca*, 75-85.

- de Menezes Galvão, A. C., de Almeida, R. N., dos Santos Silva, E. A., de Moraes Freire, F. A., Palhano-Fontes, F., Onias, H., ... & Galvão-Coelho, N. L. (2018). A single dose of ayahuasca modulates salivary cortisol in treatment-resistant depression. *bioRxiv*, 257238.
- Dening, T. R., & Berrios, G. E. (1994). Autoscopical phenomena. *The British Journal of Psychiatry*, 165(6), 808-817.
- de Rios, M. D., Grob, C. S., & Baker, J. R. (2002). Hallucinogens and redemption. *Journal of Psychoactive Drugs*, 34(3), 239-248.
- De Ridder, D., Van Laere, K., Dupont, P., Menovsky, T., & Van de Heyning, P. (2007). Visualizing out-of-body experience in the brain. *New England Journal of Medicine*, 357(18), 1829-1833.
- Deutch, A. Y., & Roth, R. H. (1999). Neurochemical systems in the central nervous system. *Neurobiology of mental illness*, 2, 12-28.
- Devinsky, O., Feldmann, E., Burrowes, K., & Bromfield, E. (1989). Autoscopical phenomena with seizures. *Archives of Neurology*, 46(10), 1080-1088.
- Dieterich, M., & Brandt, T. (1993). Thalamic infarctions: differential effects on vestibular function in the roll plane (35 patients). *Neurology*, 43(9), 1732-1732.
- Ditman, K. S., Moss, T., Forgy, E. W., Zunin, L. M., Lynch, R. D., & Funk, W. A. (1969). Dimensions of the LSD, methylphenidate and chlordiazepoxide experiences. *Psychopharmacologia*, 14, 1-11.
- Dong, Y., Li, J., Zhou, M., Du, Y., & Liu, D. (2022). Cortical regulation of two-stage rapid eye movement sleep. *Nature Neuroscience*, 25(12), 1675-1682.
- dos Santos, R. G. D. (2012). Ayahuasca physiological and subjective effects, comparison with d-amphetamine, and repeated dose assessment. (Doctoral

- dissertation, The Autonomous University of Barcelona).
- Douglas Bremner, J. (2006). Stress and brain atrophy. *CNS & Neurological Disorders-Drug Targets (Formerly Current Drug Targets-CNS & Neurological Disorders)*, 5(5), 503-512.
- Drolet, G., Dumont, É. C., Gosselin, I., Kinkead, R., Laforest, S., & Trottier, J. F. (2001). Role of endogenous opioid system in the regulation of the stress response. *Progress in Neuro-Psychopharmacology and Biological Psychiatry*, 25(4), 729-741.
- Dunlop B. W, Nemeroff C. B. (March 2007). "The role of dopamine in the pathophysiology of depression". *Archives of General Psychiatry*. **64** (3): 327–37.
- Eastman, M. (1962). Out-of-the-body experiences. *Proceedings of the Society for Psychical Research*, 53, 287-309.
- Easton, A., Ridley, R. M., Baker, H. F., & Gaffan, D. (2002). Unilateral lesions of the cholinergic basal forebrain and fornix in one hemisphere and inferior temporal cortex in the opposite hemisphere produce severe learning impairments in rhesus monkeys. *Cerebral Cortex*, 12(7), 729-736.
- Ehrenwald, J. (1974). OUT-OF-THE-BODY EXPERIENCES AND THE DENIAL OF DEATH. *The Journal of nervous and mental disease*, 159(4), 227-233.
- Ehrsson, H. H. (2007). The experimental induction of out-of-body experiences. *Science*, 317(5841), 1048-1048.
- Facco, E., & Agrillo, C. (2012). Near-death-like experiences without life-threatening conditions or brain disorders: a hypothesis from a case report. *Frontiers in psychology*, 3, 490.



- Feigenbaum, J. J., Bergmann, F., Richmond, S. A., Mechoulam, R., Nadler, V., Kloog, Y., & Sokolovsky, M. (1989). Nonpsychotropic cannabinoid acts as a functional N-methyl-D-aspartate receptor blocker. *Proceedings of the National Academy of Sciences*, 86(23), 9584-9587.
- Feise, R. J. (2002). Do multiple outcome measures require p-value adjustment?. *BMC medical research methodology*, 2, 1-4.
- Feng, C., Fang, M., & Liu, X. Y. (2014). The neurobiological pathogenesis of poststroke depression. *The Scientific World Journal*, 2014.
- Fenwick, P., & Fenwick, E. (1995). *The truth in the light*. London: Hodder Headline.
- Flowers, P. Larkin, M. Smith, J. (2009). *Interpretive Phenomenological Analysis*. Sage Publications Ltd.
- Flynn, C. F. (1986). *After the beyond: Human transformation and the near-death experience*. Englewood cliffs, NJ: Prentice-Hall.
- Fodor, N. (1937). A letter from England. *Journal of the American Society for Psychical Research*, 31, 118-123
- Fodor, N. (1959). *The haunted mind: A psychoanalyst looks at the supernatural*. New York: Helix Press.
- Forstmann, M., & Sagioglou, C. (2017). Lifetime experience with (classic) psychedelics predicts pro-environmental behavior through an increase in nature relatedness. *Journal of Psychopharmacology*, 31(8), 975-988.
- Fotiou, E. (2010). *From medicine men to day trippers: shamanic tourism in Iquitos, Perus* (pp. 136-138). University of Wisconsin-Madison.
- Fox, K. C., Nijeboer, S., Dixon, M. L., Floman, J. L., Ellamil, M., Rumak, S. P., ... & Christoff, K. (2014). Is meditation associated with altered brain structure? A

- systematic review and meta-analysis of morphometric neuroimaging in meditation practitioners. *Neuroscience & Biobehavioral Reviews*, 43, 48-73.
- Frank, J. (1946). Clinical survey and results of 200 cases of prefrontal leucotomy. *Journal of Mental Science*, 92(388), 497-508.
- Frank, J. (1950). Some aspects of lobotomy (prefrontal leucotomy) under psychoanalytic scrutiny. *Psychiatry*, 13(1), 35-42.
- Fredrickson, R. (1992). *Repressed Memories: A Journey to Recovery from Sexual Abuse*. New York, NY: Touchstone
- French, C. C. (2001). Dying to know the truth: visions of a dying brain, or false memories?. *The Lancet*, 358(9298), 2010-2011.
- Freud, S. (1900). *The interpretation of dreams*. (standard ed., Vols. IV–V; J. Strachey, Trans). London, England: Hogarth.
- Frewen, P. A., & Lanius, R. A. (2006). Neurobiology of dissociation: Unity and disunity in mind–body–brain. *Psychiatric Clinics*, 29(1), 113-128.
- Frewen, P. A., & Lanius, R. A. (2014). Trauma-related altered states of consciousness: Exploring the 4-D model. *Journal of Trauma & Dissociation*, 15(4), 436-456.
- Friberg, L., Olsen, T. S., Roland, P. E., Paulson, O. B., & Lassen, N. A. (1985). FOCAL INCREASE OF BLOOD FLOW IN THE CEREBRAL CORTEX OF MAIN DURING VESTIBULAR STIMULATION. *Brain*, 108(3), 609-623.
- Gabbard, G. O., & Twemlow, S. W. (1984). *With the eyes of the mind: An empirical analysis of out-of-body states*. New York: Praeger Publishers.
- Gabbard G, Twemlow S. (1991) Do “near-death experiences” occur only near-death? revisited. *J Near Death Stud*. 10 (1): 41–7. 23.

- Gabbard G.O., Twemlow SW, Jones FC. (1981) Do “near death experiences” occur only near death? *J Nerv Ment Dis.* 69(6): 374–7.
- Gable, R. S. (2007). Risk assessment of ritual use of oral dimethyltryptamine (DMT) and harmala alkaloids. *Addiction*, 102(1), 24-34.
- Gallimore, A. R. (2013). Building alien worlds-the neuropsychological and evolutionary implications of the Astonishing Psychoactive Effects of N, N-Dimethyltryptamine (DMT). *Journal of Scientific Exploration*, 27(3), 455-503.
- Gallup, G., & Proctor, W. (1982). *Adventures in immortality: A look beyond the threshold of death*. New York, NY: McGraw-Hill.
- Galvão, A. C., de Almeida, R. N., Silva, E. A., Freire, F. A., Palhano-Fontes, F., Onias, H., ... & Galvão-Coelho, N. L. (2018). Cortisol modulation by ayahuasca in patients with treatment resistant depression and healthy controls. *Frontiers in psychiatry*, 9, 185.
- Garrison, K. A., Zeffiro, T. A., Scheinost, D., Constable, R. T., & Brewer, J. A. (2015). Meditation leads to reduced default mode network activity beyond an active task. *Cognitive, Affective, & Behavioral Neuroscience*, 15(3), 712-720.
- Gasser, P., Kirchner, K., & Passie, T. (2015). LSD-assisted psychotherapy for anxiety associated with a life-threatening disease: a qualitative study of acute and sustained subjective effects. *Journal of Psychopharmacology*, 29(1), 57-68.
- Gay, C., O'Shea, A., Robinson, M., Craggs, J., & Staud, R. (2015). (315) Default mode network connectivity in chronic fatigue syndrome patients. *The Journal of Pain*, 16(4), S54.

- Geyer, M. A., & Vollenweider, F. X. (2008). Serotonin research: contributions to understanding psychoses. *Trends in pharmacological sciences*, 29(9), 445-453.
- Giesbrecht, T., Smeets, T., Merckelbach, H., & Jelicic, M. (2007). Depersonalisation experiences in undergraduates are related to heightened stress cortisol responses. *The Journal of nervous and mental disease*, 195(4), 282-287.
- Giesler-Petersen I. (2008). Further commentary on “induced OBEs.” *J. Near-Death Stud.* 26, 306–308
- Gleaves, D. H., & Eberenz, K. P. (1995). Assessing dissociative symptoms in eating disordered patients: Construct validation of two self-report measures. *International Journal of Eating Disorders*, 18(1), 99-102.
- Glicksohn, J. (1989). The structure of subjective experience: Interdependencies along the sleep-wakefulness continuum. *Journal of Mental Imagery*.
- Glicksohn, J. (1990). Belief in the paranormal and subjective paranormal experience. *Personality and Individual Differences*, 11(7), 675-683
- Goldner, E. M., Hsu, L., Waraich, P., & Somers, J. M. (2002). Prevalence and incidence studies of schizophrenic disorders: a systematic review of the literature. *The Canadian Journal of Psychiatry*, 47(9), 833-843.
- González, D., Riba, J., Bouso, J. C., Gómez-Jaraboa, G., & Barbanoj, M. J. (2006). Pattern of use and subjective effects of *Salvia divinorum* among recreational users. *Drug and Alcohol Dependence*, 85, 157-162.
- González-Maeso, J., Weisstaub, N. V., Zhou, M., Chan, P., Ivic, L., Ang, R., ... & Sealfon, S. C. (2007). Hallucinogens recruit specific cortical 5-HT<sub>2A</sub> receptor-mediated signaling pathways to affect behavior. *Neuron*, 53(3), 439-452.

- Gonzalez-Maeso, J., & Sealfon, S. C. (2009). Psychedelics and schizophrenia. *Trends in neurosciences*, 32(4), 225-232.
- Gorman, J., Liebowitz, M. R., Fyer, A. J., Levitt, M., Baron, M., Davies, S., & Klein, D. F. (1985). Platelet monoamine oxidase activity in patients with panic disorder. *Biological psychiatry*, 20(8), 852-857
- Gow, K., Lang, T., & Chant, D. (2004). Fantasy proneness, paranormal beliefs and personality features in out-of-body experiences. *Contemporary Hypnosis*, 21(3), 107-125.
- Granqvist, P., Fredrikson, M., Unge, P., Hagenfeldt, A., Valind, S., Larhammar, D., & Larsson, M. (2005). Sensed presence and mystical experiences are predicted by suggestibility, not by the application of transcranial weak complex magnetic fields. *Neuroscience letters*, 379(1), 1-6.
- Green, C. (1968). *Out-of-the-body experiences*. London: Hamish Hamilton.
- Greenberg, J., & Arndt, J. (2011). Terror management theory. In P. A. M. Van Lange, A. W. Kruglanski, E- T. Higgins (Eds.), *Handbook of theories of social psychology*, (vol. 1, pp. 398-415). London: Sage Publications.
- Greenberg, J., Pyszczynski, T., & Solomon, S. (1986). The causes and consequences of a need for self-esteem: A terror management theory. In *Public self and private self* (pp. 189-212). Springer New York.
- Greicius, M. D., Kiviniemi, V., Tervonen, O., Vainionpää, V., Alahuhta, S., Reiss, A. L., & Menon, V. (2008). Persistent default-mode network connectivity during light sedation. *Human brain mapping*, 29(7), 839-847.
- Gresty, M. A., Bronstein, A. M., Brandt, T., & Dieterich, M. (1992). Neurology of otolith function peripheral and central disorders. *Brain*, 115(3), 647-673.

- Greyson B. (1983) The near-death experience scale. Construction, reliability, and validity. *J Nerv Ment Dis.* 171(6): 369–75.
- Greyson, B. (1992). Reduced death threat in near-death experiencers. *Death Studies*, 16(6), 523-536.
- Greyson, B. (2000). Dissociation in people who have near-death experiences: out of their bodies or out of their minds?. *The Lancet*, 355(9202), 460-463.
- Greyson, B. (2001). Posttraumatic Stress Symptoms Following Near-Death Experiences. *American Journal of Orthopsychiatry*, 71(3), 368-373.
- Greyson, B. (2003a). Incidence and correlates of near-death experiences in a cardiac care unit. *General hospital psychiatry*, 25(4), 269-276.
- Greyson, B. (2003b). Near-death experiences in a psychiatric outpatient clinic population. *Psychiatric Services*, 54(12), 1649-1651.
- Greyson B. (2006). Near-death experiences and spirituality. *J Relig Sci*, 41(2):393–414.
- Greyson, B. (2010b). Seeing dead people not known to have died: “Peak in Darien” experiences. *Anthropology and Humanism*, 35(2), 159-171.
- Greyson, B. (2013). Getting Comfortable With Near Death Experiences. *Missouri Medicine*, 110(6), 471.
- Greyson, B., & Bush, N. (1992). Distressing near-death experiences. *Psychiatry*, 55, 95–110
- Greyson, B., Fountain, N. B., Derr, L. L., & Broshek, D. K. (2014). Out-of-body experiences associated with seizures. *Frontiers in human neuroscience*, 8, 65.
- Greyson, B., Parnia, S., & Fenwick, P. (2008). Visualizing out-of-body experience in the brain. *N. Engl. J. Med.* 358, 855–856.

- Greyson, B., & Stevenson, I. (1980). The phenomenology of near-death experiences. *The American journal of psychiatry*, 137(10), 1193-1196.
- Griffiths, R. R., Hurwitz, E. S., Davis, A. K., Johnson, M. W., & Jesse, R. (2019). Survey of subjective "God encounter experiences": Comparisons among naturally occurring experiences and those occasioned by the classic psychedelics psilocybin, LSD, ayahuasca, or DMT. *PloS one*, 14(4), e0214377.
- Griffiths, R. R., Johnson, M. W., Carducci, M. A., Umbricht, A., Richards, W. A., Richards, B. D., ... & Klinedinst, M. A. (2016). Psilocybin produces substantial and sustained decreases in depression and anxiety in patients with life-threatening cancer: A randomized double-blind trial. *Journal of psychopharmacology*, 30(12), 1181-1197.
- Griffiths, R. R., Johnson, M. W., Richards, W. A., Richards, B. D., McCann, U., & Jesse, R. (2011). Psilocybin occasioned mystical-type experiences: immediate and persisting dose-related effects. *Psychopharmacology*, 218(4), 649-665.
- Griffiths, R. R., Richards, W. A., McCann, U., & Jesse, R. (2006). Psilocybin can occasion mystical-type experiences having substantial and sustained personal meaning and spiritual significance. *Psychopharmacology*, 187(3), 268-283.
- Grinspoon, L., & Bakalar, J. B. (1998). *Psychedelic drugs reconsidered* (2nd ed.). New York, NY: Lindesmith Centre.
- Grob, C.S. (Ed.) 2002. *Hallucinogens: A Reader*. New York, NY: Jeremy P. Tarcher/Putnam
- Grob, C. S., Danforth, A. L., Chopra, G. S., Hagerty, M., McKay, C. R., Halberstadt, A. L., & Greer, G. R. (2011). Pilot study of psilocybin treatment for anxiety in

- patients with advanced-stage cancer. *Archives of general psychiatry*, 68(1), 71-78.
- Grof, S. (1970). Subjective experiences during the LSD training session. Unpublished manuscript, retrieved from <http://www.maps.org/research/cluster/psilolsd/grof1970.pdf>
- Grof, S. (1972). Varieties of transpersonal experiences: Observations from LSD psychotherapy. *The Journal of Transpersonal Psychology*, 4(1), 45.
- Grof, S. (1980). LSD psychotherapy. Pomona, CA: Hunter House.
- Grof, S. (1982). Realms of the unconscious - the enchanted frontier - nalimov, Vv. *J. Transpers. Psychol.* 14, 186–188.
- Grof, S., & Halifax, J. (1977). *The human encounter with death*. New York, NY: Dutton.
- Groth-Marnat, G., and Summers, R. (1998). Altered beliefs, attitudes, and behaviors following near-death experiences. *J. Hum. Psychol.* 38, 110–125. doi: 10.1177/00221678980383005
- Grüsser, O. J., & Landis, T. (1991). The splitting of “I” and “me”: heautoscopy and related phenomena. *Visual agnosias and other disturbances of visual perception and cognition*, 12, 297-303.
- Grzanna, R., & Molliver, M. E. (1980). The locus coeruleus in the rat: an immunohistochemical delineation. *Neuroscience*, 5(1), 21-40.
- Guerriero, R. M., Giza, C. C., & Rotenberg, A. (2015). Glutamate and GABA imbalance following traumatic brain injury. *Current neurology and neuroscience reports*, 15(5), 27.
- Guilliams, T. G., & Edwards, L. (2010). Chronic stress and the HPA axis. *The standard*, 9(2), 1-12.



- Gurney, E., Myers, F. W. H., & Podmore, F. (1886). *Phantasms of the Living*, (2 vols.). London: Trübner.
- Guterstam, A., & Ehrsson, H. H. (2012). Disowning one's seen real body during an out-of-body illusion. *Consciousness and cognition*, 21(2), 1037-1042.
- Hadfield, P. (1991). Japanese find near death a depressing experience. *New scientist*, 132 (1797), 11.
- Hallowell, I. (1940). The spirits of the dead in Salteaux life and thought. *Journal of the Royal Anthropological Institute*, 70, 29–51.
- Hameroff, S., & Chopra, D. (2012). *The "quantum soul": A scientific hypothesis. In Exploring frontiers of the mind-brain relationship* (pp. 79-93). Springer New York.
- Hamilton, M. (1911) 'Out of the Body' Experiences. *Light*, 31, 480
- Harris, R. (2017). *Listening to ayahuasca: New hope for depression, addiction, PTSD, and anxiety*. San Francisco bay, CA: New World Library.
- Harrison, W. (1979). *Spirits before our eyes*. London: W. H. Harrison.
- Hartogsohn, I. (2017). Constructing drug effects: A history of set and setting. *Drug Science, Policy and Law*, 3, 2050324516683325.
- Hasted, J. B. (1981). *The metal-benders*. London: Routledge. & Keegan Paul.
- Hécaen, H., & de Ajuriaguerra, J. (1952). *Méconnaissances et hallucinations corporelles: intégration et désintégration de la somatognosie* [Unconsciousness and bodily hallucinations: integration and disintegration of somatognosia]. Paris: Masson.
- Heinz, A., & Schlagenhauf, F. (2010). Dopaminergic dysfunction in schizophrenia: salience attribution revisited. *Schizophrenia bulletin*, 36(3), 472-485.

- Hennink, M., Hutter, I., & Bailey, A. (2020). *Qualitative research methods*. Sage Publications Ltd.
- Herweg, N. A., & Kahana, M. J. (2018). Spatial representations in the human brain. *Frontiers in human neuroscience*, 12: 297.
- Hill, D. (2016 June 7th). *Peru Ayahuasca industry booms as westerners search for alternative healing*. Retrieved from <https://www.theguardian.com/travel/2016/jun/07/peru-ayahuasca-drink-boom-amazon-spirituality-healing>
- Hill, J. A. (1918). *Man is a Spirit: A Collection of Spontaneous Cases of Dream, Vision, and Ecstasy*. London: Cassell.
- Hoepner, R., Labudda, K., May, T. W., Schoendienst, M., Woermann, F. G., Bien, C. G., & Brandt, C. (2013). Ictal autoscopic phenomena and near death experiences: a study of five patients with ictal autoscopies. *Journal of neurology*, 260(3), 742-749.
- Holden, J.M. (2009). Veridical perception in near-death experiences, in Holden, J.M., Greyson, B. & James, B. (Eds.), *The Handbook of Near-Death Experiences: Thirty Years of Investigation* (pp. 185–211). Santa Barbera, CA: Praeger/ABC-CLIO
- Holden, J. E., Jeong, Y., & Forrest, J. M. (2005). The endogenous opioid system and clinical pain management. *AACN Advanced Critical Care*, 16(3), 291-301.
- Holm, S. (1979). A simple sequentially rejective multiple test procedure. *Scandinavian journal of statistics*, 65-70.
- Holman, C. (2011). Surfing for a shaman: Analyzing an ayahuasca website. *Annals of Tourism Research*, 38(1), 90-109.

- Honegger, B. (1983). The OBE as a near-birth experience. In W. G. Roll (Ed.), *Research in Parapsychology 1982* (pp. 230–231). Metuchen, NJ: Scarecrow Press.
- Horák, M., Novák, P., & Wozáryová, W. (2016). Legal aspects of the ayahuasca consumption in the European Union. In *Sborník příspěvků z mezinárodní vědecké konference Region v rozvoji společnosti 2016* (pp. 276-283).
- Horowitz, S. G., Braun, A. R., Carr, W. S., Picchioni, D., Balkin, T. J., Fukunaga, M., & Duyn, J. H. (2009). Decoupling of the brain's default mode network during deep sleep. *Proceedings of the National Academy of Sciences*, *106*(27), 11376-11381.
- Horowitz, S. G., Fukunaga, M., de Zwart, J. A., van Gelderen, P., Fulton, S. C., Balkin, T. J., & Duyn, J. H. (2008). Low frequency BOLD fluctuations during resting wakefulness and light sleep: A simultaneous EEG-fMRI study. *Human brain mapping*, *29*(6), 671-682.
- Horowitz, M. J. (1970). *Image formation and cognition*. New York: Appleton-Century-Crofts.
- Hughes, J. D. (2000). Dream interpretation in ancient civilizations. *Dreaming*, *10*(1), 7.
- Huijbers, W., Pennartz, C. M., Cabeza, R., & Daselaar, S. M. (2011). The hippocampus is coupled with the default network during memory retrieval but not during memory encoding. *PloS one*, *6*(4), e17463.
- Huxley, A. (1954). *The doors of perception*. London, UK: Chatto & Windus.
- Hyslop, J. H. (1912). A review, a record and a discussion. *Journal of the American Society for Psychical Research*, *6*, 490-516.
- Insel, T. R. (2010). Rethinking schizophrenia. *Nature*, *468*(7321), 187-193.

- Inserra, A. (2018). Hypothesis: the psychedelic ayahuasca heals traumatic memories via a sigma 1 receptor-mediated epigenetic-mnemonic process. *Frontiers in pharmacology*, 9, 330.
- Irwin, H. J. (1980). Out of the body Down Under: Some cognitive characteristics of Australian students reporting OOBES. *Journal of the Society for Psychological Research*, 50, 448-459
- Irwin, H. (1981). Some psychological dimensions of the out-of-body experience. *Parapsychology Review*, 12,(4), 1-4
- Irwin, H. J. (1985). *Flight of mind: A psychological study of the out-of-body experience*. Metuchen, NJ: Scarecrow Press.
- Irwin, H. J. (1996). Childhood antecedents of out-of-body and Déjà Vu experiences. *Journal of the American Society for Psychological Research*, 90,157-173.
- Irwin, H. J. (2000). The disembodied self: An empirical study of dissociation and the out-of-body experience. *The Journal of Parapsychology*, 64(3), 261.
- Jaffe, A. (1963). *Apparitions and precognition*. New York: University Books.
- Jansen, K. (1989). Near death experience and the NMDA receptor. *BMJ: British Medical Journal*, 298(6689), 1708.
- Jansen, K. L. R. (1990). Neuroscience and the near-death experience: roles for the NMSA-PCP receptor, the sigma receptor and the endopsychosins. *Medical Hypotheses*, 31(1), 25-29.
- Jansen, K. L. (1996). Using ketamine to induce the near-death experience: mechanism of action and therapeutic potential. *Yearbook for Ethnomedicine and the Study of Consciousness*, 4, 51-81.
- Jansen, K. L. R. (1997). The ketamine model of the near-death experience: A central

- role for the NMDA receptor. *Journal of Near-Death Studies*, 16, 5-26.
- Jansen, K. L. R. (1999). Ketamine (K) and quantum psychiatry. *Asylum: The Journal for Democratic Psychiatry*, 11(3), 19-21.
- Jansen, K. L. (2001). *Ketamine: Dreams and realities*. Sarasota, FL: Multidisciplinary Association for Psychedelic Studies.
- Javitt, D. C. (2007). Glutamate and schizophrenia: phencyclidine, N-methyl-d-aspartate receptors, and dopamine–glutamate interactions. *International review of neurobiology*, 78, 69-108.
- Jaynes E. T. (2003). *Probability theory: the logic of science*. England: Cambridge University Press
- Jenkins, P. O., De Simoni, S., Bourke, N. J., Fleminger, J., Scott, G., Towey, D. J., ... & Cole, J. H. (2018). Dopaminergic abnormalities following traumatic brain injury. *Brain*, 141(3), 797-810.
- Johnson, M. K., Foley, M. A., Suengas, A. G., & Raye, C. L. (1988). Phenomenal characteristics of memories for perceived and imagined autobiographical events. *Journal of Experimental Psychology: General*, 117(4), 371.
- Johnson, M. W., Garcia-Romeu, A., Cosimano, M. P., & Griffiths, R. R. (2014). Pilot study of the 5-HT<sub>2A</sub>R agonist psilocybin in the treatment of tobacco addiction. *Journal of psychopharmacology*, 28(11), 983-992.
- Johnson, M. W., Richards, W. A., & Griffiths, R. R. (2008). Human hallucinogen research: guidelines for safety. *Journal of psychopharmacology*, 22(6), 603-620.
- Johnson, V. E. (2013). Revised standards for statistical evidence. *Proceedings of the National Academy of Sciences*, 110(48), 19313-19317.

- Jourdan, J. P. (1994). near Death experiences and Transcendental experiences: neurophysiological correlates and hypotheses. *Journal of Near Death Studies*, 12(3), 177-200.
- Jung, C. G. (1963). *Memories, dreams, reflections* A. Jaffe). New York: Vantage Pantheon Books.
- Jus, A., Jus, K., Villeneuve, A., Pires, A., Lachance, R., Fortier, J., & Villeneuve, R. (1973). Studies on dream recall in chronic schizophrenic patients after prefrontal lobotomy. *Biological Psychiatry*. 6(3), 275-293.
- Kahan, T. L., & LaBerge, S. (1994). Lucid dreaming as metacognition: Implications for cognitive science. *Consciousness and cognition*, 3(2), 246-264.
- Kapur, S. (2003). Psychosis as a state of aberrant salience: a framework linking biology, phenomenology, and pharmacology in schizophrenia. *American journal of Psychiatry*, 160(1), 13-23.
- Kellehear, A. (1993) Culture, biology and the near-death experience. A reappraisal. *J Nerv Ment Dis*. 181:148–156.
- Kellehear, A. (1996). *Experiences near death: Beyond medicine and religion*. New York, NY: Oxford University Press.
- Kellehear, A. (2008). Census of non-Western near-death experiences to 2005: Overview of the current data. *Journal of Near-Death Studies*.
- Kelly E. W. (2001) Near-death experiences with reports of meeting deceased people. *Death Stud*. 25 (3): 229–49.
- Kelly, G. A. (1955). *The psychology of personal constructs* (Vol. 1). New York: Norton.
- Kim, E. J., Pellman, B., & Kim, J. J. (2015). Stress effects on the hippocampus: a critical review. *Learning & memory*, 22(9), 411-416.

- Kjellgren, A., Eriksson, A., & Norlander, T. (2009). Experiences of encounters with ayahuasca—"the vine of the soul". *Journal of Psychoactive Drugs*, *41*(4), 309-315.
- Kjellgren, A., & Soussan, C. (2011). Heaven and hell: A phenomenological study of recreational use of 4-HO-MET in Sweden. *Journal of Psychoactive Drugs*, *43*, 211-219.
- Klemenc-Ketis, Z. (2013). Life changes in patients after out-of-hospital cardiac arrest. *International journal of behavioral medicine*, *20*(1), 7-12.
- Klingner, C. M., Volk, G. F., Brodoehl, S., Witte, O. W., & Guntinas-Lichius, O. (2014). Disrupted functional connectivity of the default mode network due to acute vestibular deficit. *NeuroImage: Clinical*, *6*, 109-114.
- Knoblauch, H., Schmied, I., Schnettler, B. (2001). Different kinds of near-death experience: a report on a survey of near-death experiences in Germany. *J Near Death Stud.* *20*:15–29.
- Kohr, R. L. (1980). A survey of psi experiences among members of a special population. *Journal of the American Society for Psychical Research.* *74*, 395-411.
- Kohr, R. L. (1983). Near-death experiences, altered states, and psi sensitivity. *J. Near Death Stud.* *3*, 157–176.
- Kölmel, H. W. (1985). Complex visual hallucinations in the hemianopic field. *Journal of Neurology, Neurosurgery & Psychiatry*, *48*(1), 29-38.
- Koopman, C., Sephton, S., Abercrombie, H. C., Classen, C., Butler, L. D., Gore-Felton, C., ... & Spiegel, D. (2003). Dissociative symptoms and cortisol responses to recounting traumatic experiences among childhood sexual abuse survivors with PTSD. *Journal of Trauma & Dissociation*, *4*(4), 29-46.

- Krause-Utz, A., Frost, R., Winter, D., & Elzinga, B. M. (2017). Dissociation and alterations in brain function and structure: implications for borderline personality disorder. *Current psychiatry reports*, *19*(1), 6.
- Kruskal, W. H., & Wallis, W. A. (1952). Use of ranks in one-criterion variance analysis. *Journal of the American statistical Association*, *47*(260), 583-621.
- Krystal, J. H., Abi-Saab, W., Perry, E., D'Souza, D. C., Liu, N., Gueorguieva, R., ... & Breier, A. (2005). Preliminary evidence of attenuation of the disruptive effects of the NMDA glutamate receptor antagonist, ketamine, on working memory by pretreatment with the group II metabotropic glutamate receptor agonist, LY354740, in healthy human subjects. *Psychopharmacology*, *179*(1), 303-309.
- Krystal, J., Bremner, D., Southwick, S. M., & Charney, D. S. (1998). The emerging neurobiology of dissociation: implications for treatment of posttraumatic stress disorder. In J. D. Bremner, C. R. Marmar (Eds.), *Trauma, memory, and dissociation*. Washington, DC: American Psychiatric Press Inc.
- Krystal, J. H., Karper, L. P., Seibyl, J. P., Freeman, G. K., Delaney, R., Bremner, J. D., ... & Charney, D. S. (1994). Subanesthetic effects of the noncompetitive NMDA antagonist, ketamine, in humans: psychotomimetic, perceptual, cognitive, and neuroendocrine responses. *Archives of general psychiatry*, *51*(3), 199-214.
- Kumar, V. K., & Pekala, R. J. (2001). Relation of hypnosis-specific attitudes and behaviors to paranormal beliefs and experiences: A technical review. *Hauntings and poltergeists: Multidisciplinary perspectives*, 260-279.
- Labate, B. C., & Jungaberle, H. (Eds.). (2011). *The internationalization of ayahuasca* (Vol. 16). LIT Verlag Münster.



- Lackner, J. R. (1992). Sense of Body Position in Parabolic Flight a. *Annals of the New York Academy of Sciences*, 656(1), 329-339.
- Lanius, R. A., Vermetten, E., Loewenstein, R. J., Brand, B., Schmahl, C., Bremner, J. D., & Spiegel, D. (2010). Emotion modulation in PTSD: Clinical and neurobiological evidence for a dissociative subtype. *American Journal of Psychiatry*, 167(6), 640-647.
- Larson-Prior, L. J., Zempel, J. M., Nolan, T. S., Prior, F. W., Snyder, A. Z., & Raichle, M. E. (2009). Cortical network functional connectivity in the descent to sleep. *Proceedings of the National Academy of Sciences*, 106(11), 4489-4494.
- Lawn, W., Hallak, J. E., Crippa, J. A., Santos, R., Porffy, L., Barratt, M. J., ... & Morgan, C. J. (2017). Well-being, problematic alcohol consumption and acute subjective drug effects in past-year ayahuasca users: a large, international, self-selecting online survey. *Scientific reports*, 7(1), 15201.
- Leary, T., Metzner, R., and Alpert, R. (2008). *The Psychedelic Experience: A Manual Based on the Tibetan Book of the Dead*. London: Penguin Classics.
- Lebedev, A. V., Kaelen, M., Lövdén, M., Nilsson, J., Feilding, A., Nutt, D. J., & Carhart-Harris, R. L. (2016). LSD-induced entropic brain activity predicts subsequent personality change. *Human brain mapping*, 37(9), 3203-3213.
- Lempert T., Bauer M., Schmidt D. (1994) Syncope and near-death experience. *Lancet*. 344 (8925): 829–30.
- Lenggenhager, B., Mouthon, M., & Blanke, O. (2009). Spatial aspects of bodily self-consciousness. *Consciousness and cognition*, 18(1), 110-117.
- Lenggenhager, B., Tadi, T., Metzinger, T., & Blanke, O. (2007). Video ergo sum: manipulating bodily self-consciousness. *Science*, 317(5841), 1096-1099.

- Leonard, G. O. (1942). *Brief Darkness*. Cassell.
- Leshner, A. I. (2001). Hallucinogens and Dissociative drugs. *NIDA Research Report Series 2007*.
- Levitan, L., LaBerge, S., DeGracia, D. J., & Zimbardo, P. G. (1999). Out-of-body experiences, dreams, and REM sleep. *Sleep and Hypnosis, 1*(3), 186-96.
- Lhermitte, J. (1939). *Les phénomènes héautoscopiques, les hallucinations spéculaires et autoscopiques. Lhermitte J. L'image de notre corps*. [Heautoscopic phenomena, specular and autoscopic hallucinations. Lhermitte J. The image of our body]. Paris: L'Harmattan, 170-227.
- Li, M., Woelfer, M., Colic, L., Safron, A., Chang, C., Heinze, H. J., ... & Fejtova, A. (2018). Default mode network connectivity change corresponds to ketamine's delayed glutamatergic effects. *European Archives of Psychiatry and Clinical Neuroscience, 1-10*.
- Lindley, J. H., Bryan, S., & Conley, B. (1981). Near-death experiences in a Pacific Northwest American population: The Evergreen study. *Anabiosis: The Journal of Near-Death Studies.1*: 104-204.
- Lippman, C. W. (1953). Hallucinations of physical duality in migraine. *The Journal of nervous and mental disease, 117*(4), 345-350.
- Lopez, C., & Elzière, M. (2018). Out-of-body experience in vestibular disorders—A prospective study of 210 patients with dizziness. *Cortex, 104*, 193-206.
- Luke, D. (2011). Discarnate Entities AND Dimethyltyramine (DMT): Psychopharmacolog, Phenomenology and Ontology. *Journal of the Society for Psychical Research, 75*(902).

- Luke, D. (2012). Psychoactive Substances and Paranormal Phenomena: A Comprehensive Review. *International Journal of Transpersonal Studies*, 31(1).
- Luke, D. P., & Kittenis, M. (2005). A preliminary survey of paranormal experiences with psychoactive drugs. *The Journal of Parapsychology*, 69(2), 305.
- Luna, L. E. (1986). *Vegetalismo: Shamanism among the Mestizo population of the Peruvian Amazon*. Stockholm: Acta Universitatis Stockholmiensis
- Luna, L. E., & White, S. F. (Eds.). (2000). *Ayahuasca reader: Encounters with the Amazon's sacred vine*. Sante Fe, NM: Synergetic Press.
- Lyons, T., & Carhart-Harris, R. L. (2018). Increased nature relatedness and decreased authoritarian political views after psilocybin for treatment-resistant depression. *Journal of Psychopharmacology*, 32(7), 811-819.
- Maaranen, P., Tanskanen, A., Haatainen, K., Honkalampi, K., Koivumaa-Honkanen, H., Hintikka, J., & Viinamäki, H. (2005). The relationship between psychological and somatoform dissociation in the general population. *The Journal of nervous and mental disease*, 193(10), 690-692.
- Mabit J. (2007). Ayahuasca in the treatment of addictions. In Winkelman M. J., Roberts T. B. (Eds), *Psychedelic Medicine New Evidence for Hallucinogenic Substances as Treatments* Vol. 2. Westport, CT: Praeger Publishers.
- MacNeilage, P. R., Banks, M. S., Berger, D. R., & Bühlhoff, H. H. (2007). A Bayesian model of the disambiguation of gravito-inertial force by visual cues. *Experimental Brain Research*, 179(2), 263-290.
- Mann, H. B., & Whitney, D. R. (1947). On a test of whether one of two random variables is stochastically larger than the other. *The annals of mathematical statistics*, 50-60.

- Marsh, M. N. (2006). OUT-OF-BODY AND NEAR-DEATH EXPERIENCES: BRAIN-STATE PHENOMENA OR GLIMPSES OF IMMORTALITY? Retrieved from [https://ora.ox.ac.uk/objects/uuid:09faa988-2080-4187-887e-3acadebe9558/download\\_file?safe\\_filename=602157130.pdf&file\\_format=application%2Fpdf&type\\_of\\_work=Thesis](https://ora.ox.ac.uk/objects/uuid:09faa988-2080-4187-887e-3acadebe9558/download_file?safe_filename=602157130.pdf&file_format=application%2Fpdf&type_of_work=Thesis)
- Martial, C., Cassol, H., Charland-Verville, V., Pallavicini, C., Sanz, C., Zamberlan, F., ... & Tagliazucchi, E. (2019). Neurochemical models of near-death experiences: A large-scale study based on the semantic similarity of written reports. *Consciousness and cognition*, 69, 52-69.
- Masi, M. (2023). An evidence-based critical review of the mind-brain identity theory. *Frontiers in Psychology*, 14, 1150605.
- Mason, N. L., Szabo, A., Kuypers, K. P. C., Mallaroni, P. A., de la Torre Fornell, R., Reckweg, J. T., ... & Ramaekers, J. G. (2022). Psilocybin induces acute and persisting alterations in immune status and the stress response in healthy volunteers. *MedRxiv*, 2022-10.
- May, E. C. (1995). AC Technical trials: Inspiration for the target entropy concept. *Proceedings of the parapsychological association*, 38, 193-211.
- Mayo, D. G., & Cox, D. R. (2006). Frequentist statistics as a theory of inductive inference. *Lecture Notes-Monograph Series*, 77-97.
- McCann, L., & Pearlman, L. A. (1990). *Psychological trauma and the adult survivor*. New York: Brunner/Mazel.
- McClenon, J. (1993). Surveys of anomalous experience in Chinese, Japanese, and American samples. *Sociology of Religion*, 54, 295-302
- McCreery, C. (1993). *Schizotypy and out-of-the-body experiences*. Unpublished Doctoral dissertation, Oxford University, Oxford University.

McCreery, C., & Claridge, G. (1996a). A study of hallucination in normal subjects—

I. Self-report data. *Personality and Individual Differences*, 21(5), 739-747.

McCreery, C., & Claridge, G. (1996b). Out-of-the-body experiences and

personality. *Journal of the Society for Psychical Research*, 60, 129-148

McCreery, C., & Claridge, G. (2002). Healthy schizotypy: The case of out-of-the-

body experiences. *Personality and Individual Differences*, 22, 141-154.

McGeown, W. J., Mazzoni, G., Vannucci, M., & Venneri, A. (2015). Structural and

functional correlates of hypnotic Depth and suggestibility. *Psychiatry*

*Research: Neuroimaging*, 231(2), 151-159.

McGeown, W. J., Mazzoni, G., Venneri, A., & Kirsch, I. (2009). Hypnotic induction

decreases anterior default mode activity. *Consciousness and Cognition*, 18(4),

848-855.

McHugh, M. L. (2013). The chi-square test of independence. *Biochemia*

*medica*, 23(2), 143-149

McKay R., & Cipolotti L (2007). Attributional style in a case of Cotard delusion.

*Conscious Cogn.* 16(2): 349–59.

McKee, A. C., & Daneshvar, D. H. (2015). The neuropathology of traumatic brain

injury. In *Handbook of clinical neurology* (Vol. 127, pp. 45-66). Elsevier.

McKenna, D. (2004). Clinical investigations of the therapeutic potential of ayahuasca:

Rationale

Meduna, L.T. (1950). *Carbon Dioxide Therapy: A Neurophysiological Treatment of*

*Nervous Disorders*. Springfield, IL: Charles C. Thomas.

Mehler, M. F. (1988). Complete visual inversion in vertebrobasilar ischaemic

disease. *Journal of neurology, neurosurgery, and psychiatry*, 51(9), 1236.

- Meldrum, B. S. (2000). Glutamate as a neurotransmitter in the brain: review of physiology and pathology. *The Journal of nutrition*, 130(4), 1007S-1015S.
- Menezes Jr, A., Alminhana, L., & Moreira-Almeida, A. (2012). Perfil sociodemográfico e de experiências anômalas em indivíduos com vivências psicóticas e dissociativas em grupos religiosos. *Archives of Clinical Psychiatry (São Paulo)*, 39, 203-207.
- Metzner, R. (1999). *Ayahuasca: Human consciousness and the spirit of nature*. New York, NY: Thunder's Mouth Press.
- Metzner, R., Litwin, G. H., and Weil, G. M. (1965). The relation of expectation and mood to psilocybin reactions: a questionnaire study. *Psychodelic Rev.* 5, 3–39.
- Meyer, J. H., Ginovart, N., Boovariwala, A., Sagrati, S., Hussey, D., Garcia, A., ... & Houle, S. (2006). Elevated monoamine oxidase a levels in the brain: an explanation for the monoamine imbalance of major depression. *Archives of general psychiatry*, 63(11), 1209-1216.
- Millière, R. (2017). Looking for the self: phenomenology, neurophysiology and philosophical significance of drug-induced ego dissolution. *Front. Hum. Neurosci.* 11:245.
- Mittelstaedt, H. (1991). The role of the otoliths in the perception of the orientation of self and world to the vertical. *Zoologische Jahrbücher/Abteilung für Allgemeine Zoologie und Physiologie der Tiere*, 95(3-4), 419-425.
- Mittelstaedt, H. (1999). The role of the otoliths in perception of the vertical and in path integration. *Annals of the New York Academy of Sciences*, 871(1), 334-344.
- Mittelstaedt, H., & Glasauer, S. (1993). Illusions of verticality in weightlessness. *The clinical investigator*, 71(9), 732-739.

- Mizoguchi, K., Ishige, A., Aburada, M., & Tabira, T. (2003). Chronic stress attenuates glucocorticoid negative feedback: involvement of the prefrontal cortex and hippocampus. *Neuroscience*, *119*(3), 887-897.
- Moghaddam, B., & Adams, B. W. (1998). Reversal of phencyclidine effects by a group II metabotropic glutamate receptor agonist in rats. *Science*, *281*(5381), 1349-1352.
- Molina-Serrano, A., Linotte, S., Amat, M., Souery, D., & Barreto, M. (2008). Dissociation in major depressive disorder: A pilot study. *Journal of Trauma & Dissociation*, *9*(3), 411-421.
- Monroe, R. A. (1971). *Journeys out of the body*. New York, NY: Doubleday.
- Moody, R. A. (1975). *Life After Life*. New York, NY: Bantam Press
- Morin, A. S. (1860). *Du magnétisme et des sciences occultes*. [Magnetism and occult sciences] Paris: Germer Baillière.
- Morris, R. L., Harary, S. B., Janis, J., Hartwell, J., & Roll, W. G. (1978). Studies of communication during out-of-body experiences. *Journal of the American Society for Psychological Research*, *72*(1), 1-21.
- Morse, M., & Perry, P. (1994). Preface. In *Transformed by the light: The powerful effect on people's lives of near-death experiences*. (pp. Viii-Xi). New York: Villiard Books.
- Morse, M. L., Venecia, D., & Milstein, J. (1989). Near-death experiences: A neurophysiologic explanatory model. *Journal of Near-death studies*, *8*(1), 45-53.
- Moustakas, C. (1994). *Phenomenological research methods*. Sage publications.
- Muldoon, S. J., & Carrington, H. (1929). *The projection of the astral body*. London: Rider.

- Muldoon, S. J., & Carrington, H. (1951). *The phenomena of astral projection*. London: Rider.
- Murphy, D. L., & Wyatt, R. J. (1972). Reduced monoamine oxidase activity in blood platelets from schizophrenic patients. *Nature*, 238(5361), 225-226.
- Murray, C. D. (2009). Introduction to Psychological Scientific Perspectives on Out-of-Body and near Death experiences. In C. D. Murray (Ed.), *Psychological scientific perspectives on out-of-body and near-death experiences* (pp. ix-xiii). New York: Nova Science.
- Murray, C. D. (2010). Developing a Dissociational Account of Out-of-Body Experiences. In M. D. Smith (Ed.), *Anomalous experiences: Essays from Parapsychological and Psychological Perspectives* (pp. 161-176). North Carolina: McFarland & Company, Inc.
- Murray, C. D., & Fox, J. (2004). Body image in respondents with and without out-of-body experiences. In *Proceedings of the Parapsychological Association, 47th Annual Convention* (pp. 145-156).
- Murray, C. D., & Fox, J. (2005a). Dissociational body experiences: Differences between respondents with and without prior out-of-body-experiences. *British Journal of Psychology*, 96(4), 441-456.
- Murray, C., & Fox, J. (2005b). The out-of-body experience and body image: Differences between experiencers and nonexperiencers. *The Journal of nervous and mental disease*, 193(1), 70-72.
- Murray, C. D., & Fox, J. (2006a). Differences in Body Image Between People Reporting Near-Death and Spontaneous Out-of-Body Experiences. *Journal of the Society for Psychical Research*, 70, 98-109.



- Murray, C. D., & Fox, J. (2006b). From dreams to (virtual) reality: Exploring behavioural embodiment in out-of-body experiences. *Australian Journal of Parapsychology*, 6(2), 125.
- Murray, C. D., Wilde, D., & Fox, J. (2006). Self-concept and body investment in out-of-body experiences. *European Journal of Parapsychology*, 21(1), 27.
- Naranjo, C. (1967). Psychotropic properties of the harmala alkaloids. In D. Efron (Ed.), *Ethnopharmacologic search for psychoactive drugs: Proceedings of symposium held in San Francisco, January 28-30, 1967* (pp. 385-391). Public Health Service Publication No. 1645. Washington, DC: US Department of Health, Education, and Welfare.
- Nash, M. R., Lynn, S. J., & Stanley, S. M. (1984). The direct hypnotic suggestion of altered mind/body perception. *American Journal of Clinical Hypnosis*, 27(2), 95-102.
- Neimeyer, R. A., Prigerson, H. G., & Davies, B. (2002). Mourning and meaning. *American Behavioral Scientist*, 46(2), 235-251.
- Neppe, V. M. (2002). Editorial Commentary: 'Out-of-body Experiences'(OBEs) and Brain Localisation. A Perspective. *Australian Journal of Parapsychology*, 2(2), 85.
- Newman, D. G. (2007). *An overview of spatial disorientation as a factor in aviation accidents and incidents* (No. B2007/0063). Canberra City, Australia: Australian Transport Safety Bureau. Retrieved from <https://www.atsb.gov.au/publications/2007/b20070063.aspx>
- Nicholls, G. (2012). *Navigating the out-of-body experience: Radical new techniques*. Woodbury, MN: Llewellyn Publications.

- Nicholls, G. (n.d.). *A conversation with skeptic Susan Blackmore*. Retrieved from <http://www.grahamnicholls.com/blog/a-conversation-with-skeptic-susan-blackmore#ftnt16>
- Nichols, D. E. (2017). N, N-dimethyltryptamine and the pineal gland: Separating fact from myth. *Journal of Psychopharmacology*, 32(1), 30-36.
- Nijenhuis, E. R. S. (2004). *Somatoform dissociation: Phenomena, measurement, and theoretical issues*. New York: WW Norton & Company.
- Nilssonne, G., Tamm, S., Schwarz, J., Almeida, R., Fischer, H., Kecklund, G., ... & Åkerstedt, T. (2017). Intrinsic brain connectivity after partial sleep deprivation in young and older adults: results from the Stockholm Sleepy Brain study. *Scientific reports*, 7(1), 9422.
- Nour, M. M., Evans, L., & Carhart-Harris, R. L. (2017). Psychedelics, personality and political perspectives. *Journal of psychoactive drugs*, 49(3), 182-191.
- Noyes, R. (1980). Attitude change following near-death experiences attitude change following near-death experiences. *Psychiatry* 43, 234–242. doi: 10.1080/00332747.1980.11024070
- Noyes, R., Fenwick, P., Holden, J. M., & Christian, R. (2009). Aftereffects of pleasurable Western adults near-death experiences. In J. M. Holden, B. Greyson, & D. James (Eds.), *The handbook of near-death experiences: Thirty years of investigation* (pp. 41–62). Santa Barbara, CA: Praeger/ABC-CLIO.
- Noyes, R., & Slymen, D. J. (1979). The subjective response to life-threatening danger. *OMEGA-Journal of Death and Dying*, 9(4), 313-321.
- Nuller, Y. L. (1982). Depersonalisation-symptoms, meaning, therapy. *Acta Psychiatrica Scandinavica*, 66(6), 451-458.

- Nuller, Y. L., Morozova, M. G., Kushnir, O. N., & Hamper, N. (2001). Effect of naloxone therapy on depersonalisation: a pilot study. *Journal of Psychopharmacology*, 15(2), 93-95.
- Oaten, E. W., (1938) 'Out of the Body' Experiences'. *Psychic Science*, 17, 64-72
- Onwuegbuzie, A. J., & Leech, N. L. (2007). Sampling designs in qualitative research: making the sampling process more public. *Qualitative Report*, 12(2), 238-254.
- Ophiel (1961). *The art and practice of astral projection*. New York: Weiser.
- Osis, K., & McCormick, D. (1980). Kinetic effects at the ostensible location of an out-of-body projection during perceptual testing. *Journal of the American Society for Psychical Research*, 74(3), 19-329.
- Osório, F. D. L., Sanches, R. F., Macedo, L. R., Dos Santos, R. G., Maia-de-Oliveira, J. P., Wichert-Ana, L., ... & Hallak, J. E. (2015). Antidepressant effects of a single dose of ayahuasca in patients with recurrent depression: a preliminary report. *Brazilian Journal of Psychiatry*, 37(1), 13-20.
- Osty, E. (1933). Transmission de pensée expérimentale et Télépathie spontanée. [experimental thought transmission and spontaneous telepathy]. *Revue Métapsychique*, No. 1, 1-40.
- Overney, L. S., Arzy, S., & Blanke, O. (2009). Deficient mental own-body imagery in a neurological patient with out-of-body experiences due to cannabis use. *cortex*, 45(2), 228-235.
- Owens J.E., Cook E.W., Stevenson I. (1990) Features of "near-death experience" in relation to whether or not patients were near death. *Lancet*. 336 (8724): 1175–7.

- Pagnoni, G. (2012). Dynamical properties of BOLD activity from the ventral posteromedial cortex associated with meditation and attentional skills. *Journal of Neuroscience*, 32(15), 5242-5249.
- Palhano-Fontes, F., Andrade, K. C., Tofoli, L. F., Santos, A. C., Crippa, J. A. S., Hallak, J. E., ... & de Araujo, D. B. (2015). The psychedelic state induced by ayahuasca modulates the activity and connectivity of the default mode network. *PloS one*, 10(2), e0118143.
- Palhano-Fontes, F., Barreto, D., Onias, H., Andrade, K. C., Novaes, M. M., Pessoa, J. A., ... & Tófoli, L. F. (2019). Rapid antidepressant effects of the psychedelic ayahuasca in treatment-resistant depression: a randomized placebo-controlled trial. *Psychological medicine*, 49(4), 655-663.
- Palmer, J. (1978a). Consciousness localized in space outside the body: in D. Scott Rogo (Ed.), *Mind Beyond the Body: The Mystery of ESP Projection*. New York, Penguin Books, 35-42.
- Palmer, J. (1978b). The out-of-body experience: A psychological theory. *Parapsychology Review*, 9(5), 19-22.
- Palmer, J. (1979). A community mail survey of psychic experiences. *Journal of the American Society for Psychical Research*, 73. 221-151.
- Palmer, J. (2009). Out-of-Body and Near-Death Experiences as Evidence for Externalisation. In C. D. Murray (Ed.), *Psychological scientific perspectives on out-of-body and near-death experiences* (pp. 159-169) New York: Nova Science.
- Pape, W., & Wöller, W. (2015). Low dose naltrexone in the treatment of dissociative symptoms. *Der Nervenarzt*, 86(3), 346-351.

- Parnia, S., Post, S. G., Lee, M. T., Lyubomirsky, S., Aufderheide, T. P., Deakin, C. D., ... & Shirazi, T. K. (2022). Guidelines and standards for the study of death and recalled experiences of death—a multidisciplinary consensus statement and proposed future directions. *Annals of the New York Academy of Sciences*, 1511(1), 5-21.
- Parnia, S., Spearpoint, K., de Vos, G., Fenwick, P., Goldberg, D., Yang, J., ... & Wood, M. (2014). AWARE—AWAREness during REsuscitation—A prospective study. *Resuscitation*, 85(12), 1799-1805.
- Parra, A. (2008) Esperienze fuori del corpo ed esperienze allucinatorie: Un approccio psicologico [Out-of-Body experiences and hallucinatory Experiences: A psychological approach]. *Quaderni di Parapsicologia*, 39, 32-51.
- Partridge, M. (1950). *Pre-Frontal Leucotomy: A Survey of 300 Cases Personally Followed for 1 ½ - 3 Years*. Oxford: Blackwells.
- Pasricha, S., & Stevenson, I. (1986). Near-death experiences in India: A preliminary report. *J Nerv Ment Dis*. 7:205–222.
- Patel, K. R., Cherian, J., Gohil, K., & Atkinson, D. (2014). Schizophrenia: overview and treatment options. *Pharmacy and Therapeutics*, 39(9), 638.
- Pearson, K. (1900). On the criterion that a given system of deviations from the probable in the case of a correlated system of variables is such that it can be reasonably supposed to have arisen from random sampling. *The London, Edinburgh, and Dublin Philosophical Magazine and Journal of Science*, 50(302), 157-175.
- Pearson, K. (1911). On a correction to be made to the correlation ratio  $\eta$ . *Biometrika*, 8(1/2), 254-256.

- Pederzoli, L., Giroladini, W., Duma, G. M., Mento, G., Prati, E., & Tressoldi, P. E. (2016). *Out-of-Body Experience Induced by Hypnotic Induction: A Neurophenomenological Study*. Retrieved from [https://papers.ssrn.com/sol3/papers.cfm?abstract\\_id=2820689](https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2820689)
- Pekala, R. J., Kumar, V. K., & Cummings, J. (1992). Types of high hypnotically-susceptible individuals and reported attitudes and experiences of the paranormal and the anomalous. *Journal of the American Society for Psychical Research*, 86, 135-150.
- Penfield, W., Erickson, T. C., Jasper, H. H., & Harrower-erickson, M. R. (1942). Epilepsy And Cerebral Localization. *The American Journal of the Medical Sciences*, 203(3), 431.
- Perneger, T. V. (1998). What's wrong with Bonferroni adjustments. *Bmj*, 316(7139), 1236-1238.
- Persinger, M. A., Saroka, K. S., Mulligan, B. P., & Murphy, T. R. (2010). Experimental elicitation of an out of body experience and concomitant cross-hemispheric electroencephalographic coherence. *NeuroQuantology*, 8(4).
- Petkova, V. I., & Ehrsson, H. H. (2008). If I were you: perceptual illusion of body swapping. *PloS one*, 3(12), e3832.
- Picciotto, M. R., Higley, M. J., & Mineur, Y. S. (2012). Acetylcholine as a neuromodulator: cholinergic signaling shapes nervous system function and behavior. *Neuron*, 76(1), 116-129.
- Pikwer, A. (2011). Depersonalisation disorder may be related to glutamate receptor activation imbalance. *Medical hypotheses*, 77(4), 593-594.
- Pochettino, M. L., Cortella, A. R., & Ruiz, M. (1999). Hallucinogenic snuff from Northwestern Argentina: microscopical identification of *Anadenanthera*

- colubrina var. cebil (Fabaceae) in powdered archaeological material. *Economic Botany*, 53(2), 127-132.
- Podmore, F. (1894). *Apparitions and thought-transference*, London: Walter Scott.
- Poggio, T., Torre, V., & Koch, C. (1985). <sup>a</sup>Computational Vision and Regularization Theory, ° Nature, vol. 317.
- Pompeiano, O. (1980). Cholinergic activation of reticular and vestibular mechanisms controlling posture and eye movements. In eds Hobson JA, Brazier MAB. The Reticular Formation Revisited, IBRO monograph Series, Vol. 6. *Raven Press, New York*, 16, 435-462.
- Popoli, M., Yan, Z., McEwen, B. S., & Sanacora, G. (2012). The stressed synapse: the impact of stress and glucocorticoids on glutamate transmission. *Nature Reviews Neuroscience*, 13(1), 22.
- Poza, J. J., & Martí, J. M. (2006). Total dream loss secondary to left temporo-occipital brain injury. *Neurologia (Barcelona, Spain)*, 21(3), 152-154.
- Price, L. H., & Lebel, J. (2000). Dextromethorphan-induced psychosis. *American Journal of Psychiatry*, 157, 304.
- Prince, W. F. (1923) Incidents: Four Peculiarly characterized dreams. *Journal of the American Society for Psychical Research*, 17, 82-107
- Putnam, F. W. (1995). Traumatic stress and pathological dissociation. *Annals of the New York Academy of Sciences*, 771(1), 708-715.
- Puxty, D. J., Ramaekers, J. G., de la Torre, R., Farré, M., Pizarro, N., Pujadas, M., & Kuypers, K. P. (2017). MDMA-induced dissociative state not mediated by the 5-HT<sub>2A</sub> receptor. *Frontiers in pharmacology*, 8, 455.
- Rawcliffe, D. H. (1952). *The psychology of the occult*. London: Derricke Ridway.
- Ray, T. S. (2010). Psychedelics and the human receptorome. *PloS one*, 5(2).

- Ray T. S. (2012). Mental organs and the origins of mind. In, Swan L., (Ed). *Origins of Mind* (pp. 301-326) New York, NY; Heidelberg: Springer.
- Ray, T. S. (2016). Constructing the ecstasy of MDMA from its component mental organs: proposing the primer/probe method. *Medical hypotheses*, 87, 48-60.
- Rea, P. (2014). *Clinical Anatomy of the Cranial Nerves*. Cambridge, MA: Academic press.
- Reed, G. (1974). *The psychology of anomalous experience*. Boston: Houghton-Mifflin.
- Rhine, J. B. (1934). *Extra-Sensory Perception*. Boston: Boston Society for Psychic Research
- Riba, J., Romero, S., Grasa, E., Mena, E., Carrió, I., & Barbanoj, M. J. (2006). Increased frontal and paralimbic activation following ayahuasca, the pan-Amazonian inebriant. *Psychopharmacology*, 186(1), 93-98.
- Riba, J., Valle, M., Urbano, G., Yritia, M., Morte, A., & Barbanoj, M. J. (2003). Human pharmacology of ayahuasca: subjective and cardiovascular effects, monoamine metabolite excretion, and pharmacokinetics. *Journal of Pharmacology and Experimental Therapeutics*, 306(1), 73-83.
- Richards, D. G. (1991). A study of the correlations between subjective psychic experiences and dissociative experiences. *Dissociation*, 4, 83-91
- Richards, P. M., Persinger, M. A., & Koren, S. A. (1993). Modification of activation and evaluation properties of narratives by weak complex magnetic field patterns that simulate limbic burst firing. *International journal of Neuroscience*, 71(1-4), 71-85.
- Richet, C. (1922). *Traité de métapsychique*. [Treatise on metapsychics]. Paris: Félix Alcan. (First edition published 1884)



- Ring, K. (1980). *Life at death: A scientific investigation of the near-death experience*.  
New York: Coward, McCann and Geoghegan.
- Ring, K. (1982). Frequency and stages of the prototypic near-death experience. In  
C. R. Lundahl (Ed.), *A collection of near-death research readings* (pp. 110-  
159). Chicago, IL: Nelson-Hall.
- Ring, K., (1984). *Heading toward omega: in search of the meaning of near-death  
experience*. New York, NY: William Morrow.
- Ring, K. (1992). *The Omega Project: Near-death experiences, UFO encounters,  
and mind at large*. New York, NY: William Morrow.
- Ring, K. (1994). Solving the riddle of frightening near-death experiences: Some  
testable hypotheses and a perspective based on A course in miracles. *Journal  
of Near Death Studies, 13*, 5-5.
- Ring, K., & Cooper, S. (1997). Near-death and out-of-body experiences in the blind:  
A study of apparent eyeless vision. *Journal of Near-Death Studies, 16*(2), 101-147.
- Ring, K., & Rosing, C. J. (1990). The Omega Project: An empirical study of the  
NDE-prone personality. *Journal of Near-Death Studies, 8*(4), 211-239.
- Roche, S. M., & McConkey, K. M. (1990). Absorption: Nature, assessment, and  
correlates. *Journal of personality and social psychology, 59*(1), 91.
- Röder, C. H., Michal, M., Overbeck, G., van de Ven, V. G., & Linden, D. E. (2007).  
Pain response in depersonalisation: a functional imaging study using hypnosis  
in healthy subjects. *Psychotherapy and psychosomatics, 76*(2), 115.
- Rolland, B., Jardri, R., Amad, A., Thomas, P., Cottencin, O., & Bordet, R. (2014).  
Pharmacology of hallucinations: several mechanisms for one single  
symptom?. *BioMed research international, 2014*.

- Rommer, B. R. (2000). *Blessing in disguise: Another side of the near-death experience*. St Paul: Llewellyn Publications.
- Roney-Dougal, S. M. (1986). Some speculations on a possible psychic effect of harmaline. In D. H. Weiner & D. H. Radin (Eds.), *Research in parapsychology: Abstracts and papers from the 28th Annual Convention of the Parapsychological Association, 1985* (pp. 120-123). Metuchen, NJ: Scarecrow Press.
- Roney-Dougal, S. M. (1989). Recent findings relating to the possible role of the pineal gland in affecting psychic ability. *Journal of the Society for Psychological Research*, 55, 313-328.
- Roney-Dougal, S. M. (2001). *Walking between the worlds: Links between psi, psychedelics, shamanism, and psychosis*. Unpublished manuscript, Psi Research
- Ross, S., Bossis, A., Guss, J., Agin-Liebes, G., Malone, T., Cohen, B., ... & Su, Z. (2016). Rapid and sustained symptom reduction following psilocybin treatment for anxiety and depression in patients with life-threatening cancer: a randomized controlled trial. *Journal of psychopharmacology*, 30(12), 1165-1180.
- Roth, G. (2018). Global Burden of Disease Collaborative Network. Global Burden of Disease Study 2017 (GBD 2017) Results. Seattle, United States: Institute for Health Metrics and Evaluation (IHME), 2018. *The Lancet*, 392, 1736-88.
- Rothman, K. J. (1990). No adjustments are needed for multiple comparisons. *Epidemiology*, 43-46.
- Rudgley, R. (2000). *The encyclopedia of psychoactive substances*. New York, NY: Thomas Dunne.

- Ruhé, H. G., Mason, N. S., & Schene, A. H. (2007). Mood is indirectly related to serotonin, norepinephrine and dopamine levels in humans: a meta-analysis of monoamine depletion studies. *Molecular psychiatry*, *12*(4), 331-359.
- Saavedra-Aguilar, J. C., & Gómez-Jeria, J. S. (1989). A neurobiological model for near-death experiences. *Journal of Near-Death Studies*, *7*(4), 205-222.
- Sabom, M. B. (1982). *Recollections of death: A medical investigation*. New York: Harper & Row.
- Sachdev, P. (2002). Citalopram-Clonazepam combination for primary depersonalisation disorder: a case report. *Australian and New Zealand Journal of Psychiatry*, *36*(3), 424-425.
- Sacks, O. (1985). *The Man Who Mistook His Wife for a Hat*. London; Duckworth.
- Sacks, O. (1990). *Awakenings*. New York: HarperCollins
- Sacks, O. (1991). Neurological dreams. *Medical Doctor*, *35*, 29-32.
- Sagan, C. (1979). *Broca's brain: Reflections on the romance of science*. New York, NY: Random House.
- Sämman, P. G., Tully, C., Spoormaker, V. I., Wetter, T. C., Holsboer, F., Wehrle, R., & Czisch, M. (2010). Increased sleep pressure reduces resting state functional connectivity. *Magnetic Resonance Materials in Physics, Biology and Medicine*, *23*(5-6), 375-389.
- Sämman, P. G., Wehrle, R., Hoehn, D., Spoormaker, V. I., Peters, H., Tully, C., ... & Czisch, M. (2011). Development of the brain's default mode network from wakefulness to slow wave sleep. *Cerebral cortex*, *21*(9), 2082-2093.
- Samoylenko, V., Rahman, M. M., Tekwani, B. L., Tripathi, L. M., Wang, Y. H., Khan, S. I., ... & Muhammad, I. (2010). *Banisteriopsis caapi*, a unique combination of MAO inhibitory and antioxidative constituents for the

activities relevant to neurodegenerative disorders and Parkinson's disease.

*Journal of ethnopharmacology*, 127(2), 357-367.

Sanches, R. F., de Lima Osório, F., dos Santos, R. G., Macedo, L. R., Maia-de-Oliveira, J. P., Wichert-Ana, L., ... & Hallak, J. E. (2016). Antidepressant effects of a single dose of ayahuasca in patients with recurrent depression: a SPECT study. *Journal of clinical psychopharmacology*, 36(1), 77-81.

Sapolsky, R. M., Krey, L. C., & McEwen, B. S. (1984). Glucocorticoid-sensitive hippocampal neurons are involved in terminating the adrenocortical stress response. *Proceedings of the National Academy of Sciences*, 81(19), 6174-6177.

Sapolsky, R. M., Krey, L. C., & McEwen, B. S. (1986). The neuroendocrinology of stress and aging: the glucocorticoid cascade hypothesis. *Endocrine reviews*, 7(3), 284-301.

Schartner, M. M., Carhart-Harris, R. L., Barrett, A. B., Seth, A. K., & Muthukumaraswamy, S. D. (2017). Increased spontaneous MEG signal diversity for psychoactive doses of ketamine, LSD and psilocybin. *Scientific reports*, 7, 46421.

Scheidegger, M., Walter, M., Lehmann, M., Metzger, C., Grimm, S., Boeker, H., ... & Seifritz, E. (2012). Ketamine decreases resting state functional network connectivity in healthy subjects: implications for antidepressant drug action. *PloS one*, 7(9), e44799.

Schindler, R. (1953). Das Traumleben der Leukotomierten. *Wien. Zeitschr. Nervenheil*, 6, 330.

Schmaal, L., Veltman, D. J., van Erp, T. G., Sämann, P. G., Frodl, T., Jahanshad, N., ... & Vernooij, M. W. (2016). Subcortical brain alterations in major depressive

- disorder: findings from the ENIGMA Major Depressive Disorder working group. *Molecular psychiatry*, 21(6), 806.
- Schredl, M. (2010). Characteristics and contents of dreams. In *International review of neurobiology* (Vol. 92, pp. 135-154). Academic Press.
- Schröter-Kunhardt, M. (1990). Erfahrungen Sterbender während des klinischen Todes: Eine Brücke zwischen Medizin und Religion. *Zeitschrift für Allgemeinmedizin* 66, 1014-1021.
- Schröter-Kunhardt, M. (1993). A review of near death experiences. *Journal of Scientific Exploration* 7, 219–239.
- Schultes, R. E., & Hofmann, A. (1992). *Plants of the Gods: Their sacred, healing, and hallucinogenic powers*. Rochester, VT: Healing Arts Press.
- Schutter, D. J., Kammers, M. P., Enter, D., & Van Honk, J. (2006). A case of illusory own-body perceptions after transcranial magnetic stimulation of the cerebellum. *The Cerebellum*, 5(3), 238-240.
- Schwabe, L., & Blanke, O. (2008). The vestibular component in out-of-body experiences: a computational approach. *Frontiers in human neuroscience*, 2, 17.
- Schwaninger, J., Eisenberg, P. R., Schechtman, K. B., & Weiss, A. N. (2002). A prospective analysis of near-death experiences in cardiac arrest patients. *Journal of Near-Death Studies*, 20(4), 215-232.
- Seeman, P., Weinshenker, D., Quirion, R., Srivastava, L. K., Bhardwaj, S. K., Grandy, D. K., ... & O'Dowd, B. F. (2005). Dopamine supersensitivity correlates with D2High states, implying many paths to psychosis. *Proceedings of the National Academy of Sciences*, 102(9), 3513-3518.

- Serrano-Dueñas, M., Cardozo-Pelaez, F., & Sánchez-Ramos, J. R. (2001). Effects of Banisteriopsis caapi extract on Parkinson's disease. *The Scientific Review of Alternative Medicine*, 5(3), 127-132.
- Shanon, B. (2002). *The Antipodes of the Mind: Charting the Phenomenology of the Ayahuasca Experience*. Oxford: Oxford University Press.
- Sharp, D. J., Scott, G., & Leech, R. (2014). Network dysfunction after traumatic brain injury. *Nature Reviews Neurology*, 10(3), 156.
- Sharpless, B. A. (2016). A clinician's guide to recurrent isolated sleep paralysis. *Neuropsychiatric disease and treatment*, 12, 1761.
- Sheehy, N., Chapman, A. J., & Conroy, W. A. (2002). Entries A-Z. In N. Sheehy, A. J. Chapman, & W. A. Conroy (Eds.), *Biographical dictionary of psychology* (pp. 1-640). Abingdon-on-Thames: Routledge
- Sheils, D. (1978). A cross-cultural study of beliefs in out-of-the-body experiences, waking and sleeping. *Journal of the Society for Psychical Research*.
- Sheldrake, R. (1999). *Dogs that know when their owners are coming home: And other unexplained powers of animals*. New York: Three Rivers Books.
- Shermer, M. (2002). *Why people believe weird things: Pseudoscience, superstition, and other confusions of our time*. New York: Holt Paperbacks.
- Sierra, M. (2009). *Depersonalisation: A new look at a neglected syndrome*. Cambridge University Press.
- Simeon, D. (2004). Depersonalisation disorder. *CNS drugs*, 18(6), 343-354.
- Simeon, D., Knutelska, M., Nelson, D., & Guralnik, O. (2003). *Feeling unreal: Depersonalisation disorder and the loss of the self*. New York: Oxford University Press.

- Simeon, D., & Knutelska, M. (2005). An open trial of naltrexone in the treatment of depersonalisation disorder. *Journal of clinical Psychopharmacology*, 25(3), 267-270.
- Simeon, D., Knutelska, M., Smith, L., Baker, B. R., & Hollander, E. (2007). A preliminary study of cortisol and norepinephrine reactivity to psychosocial stress in borderline personality disorder with high and low dissociation. *Psychiatry research*, 149(1-3), 177-184.
- Simeon, D., Kozin, D. S., Segal, K., & Lerch, B. (2009). Is depersonalisation disorder initiated by illicit drug use any different? A survey of 394 adults. *The Journal of clinical psychiatry*, 70(10), 1358-1364.
- Simmons, M. L., & Chavkin, C. (1996). Endogenous opioid regulation of hippocampal function. In *International review of neurobiology* (Vol. 39, pp. 145-196). Academic Press.
- Simmons, M. L., Wagner, J. J., Caudle, R. M., & Chavkin, C. (1992). Endogenous opioid regulation of norepinephrine release in guinea pig hippocampus. *Neuroscience letters*, 141(1), 84-88.
- Sivadas, A., & Broadie, K. (2020). How Does My Brain Communicate with My Body?. *Frontiers for young minds*, 8.
- Sklerov, J., Levine, B., Moore, K. A., King, T., & Fowler, D. (2005). A fatal intoxication following the ingestion of 5-methoxy-N, N-dimethyltryptamine in an ayahuasca preparation. *Journal of analytical toxicology*, 29(8), 838-841.
- Slavin, M. L., & LoPinto, R. J. (1987). Isolated environmental tilt associated with lateral medullary compression by dolichoectasia of the vertebral artery. Is there a cause and effect relationship?. *Journal of clinical neuro-ophthalmology*, 7(1), 29-33.

- Sleutjes, A., Moreira-Almeida, A., & Greyson, B. (2014). Almost 40 years investigating near-death experiences: An overview of mainstream scientific journals. *The Journal of nervous and mental disease*, 202(11), 833-836.
- Smith, A. M., & Messier, C. (2014). Voluntary Out-of-Body Experience: An fMRI Study. *Frontiers in Human Neuroscience*, 8. doi:10.3389/fnhum.2014.00070
- Smith, B. H. (1960). Vestibular disturbances in epilepsy. *Neurology*, 10(5), 465-465.
- Smith, S. M., & Vale, W. W. (2006). The role of the hypothalamic-pituitary-adrenal axis in neuroendocrine responses to stress. *Dialogues in clinical neuroscience*, 8(4), 383.
- Smythies, J. R. (2011). Ketamine, Bergson and NDEs. *Journal of the Society for Psychical Research*, 75, 148-150.
- Soffer-Dudek, N. (2014). Dissociation and dissociative mechanisms in panic disorder, obsessive-compulsive disorder, and depression: A review and heuristic framework. *Psychology of Consciousness: Theory, Research, and Practice*, 1(3), 243.
- Solfvin, J. F., & Williams, B. J. (2021). Is poltergeist a meaningless word? *Mindfield*, 13(2), 41-47.
- Solms, M. (1997). *Institute for Research in Behavioral Neuroscience. The neuropsychology of dreams: A clinico-anatomical study*. Mahwah, NJ, US: Lawrence Erlbaum Associates Publishers.
- Solms, M. (2001). The interpretation of dreams and the neurosciences. *Psychoanalysis and history*, 3(1), 79-91.
- Solms, M., Kaplan-Solms, K., Saling, M., & Miller, P. (1988). Inverted vision after frontal lobe disease. *Cortex*, 24(4), 499-509.



- Sora, I., Takahashi, N., Funada, M., Ujike, H., Revay, R. S., Donovan, D. M., ... & Uhl, G. R. (1997). Opiate receptor knockout mice define  $\mu$  receptor roles in endogenous nociceptive responses and morphine-induced analgesia. *Proceedings of the National Academy of Sciences*, *94*(4), 1544-1549.
- Spanos, N. P., & Moretti, P. (1988). Correlates of mystical and diabolical experiences in a sample of female university students. *Journal for the Scientific Study of Religion*, 105-116.
- Stein, D. J., Koenen, K. C., Friedman, M. J., Hill, E., McLaughlin, K. A., Petukhova, M., ... & Bunting, B. (2013). Dissociation in posttraumatic stress disorder: evidence from the world mental health surveys. *Biological psychiatry*, *73*(4), 302-312.
- Stein, M. B., & Uhde, T. W. (1989). Depersonalisation disorder: effects of caffeine and response to pharmacotherapy. *Biological psychiatry*, *26*(3), 315-320.
- Steinberg, M. (1995). *Handbook for the assessment of dissociation: A clinical guide*. Washington, DC: American Psychiatric Press.
- Steiner, I., Shahin, R., & Melamed, E. (1987). Acute “upside down” reversal of vision in transient vertebrobasilar ischemia. *Neurology*, *37*(10), 1685-1685.
- Stracciari, A., Guarino, M., Ciucci, G., & Pazzaglia, P. (1993). Acute upside down reversal of vision in vertebrobasilar ischaemia. *Journal of neurology, neurosurgery, and psychiatry*, *56*(4), 423.
- Strajhar, P., Schmid, Y., Liakoni, E., Dolder, P. C., Rentsch, K. M., Kratschmar, D. V., ... & Liechti, M. E. (2016). Acute effects of lysergic acid diethylamide on circulating steroid levels in healthy subjects. *Journal of neuroendocrinology*, *28*(3).

- Strassman, R. J. (1995). Human psychopharmacology of N, N-dimethyltryptamine. *Behavioural brain research*, 73(1-2), 121-124.
- Strassman, R. (2001). *DMT: The spirit molecule: A doctor's revolutionary research into the biology of near-death and mystical experiences*. Rochester, VT: Park Street Press.
- Strassman, R. J., Qualls, C. R., & Berg, L. M. (1996). Differential tolerance to biological and subjective effects of four closely spaced doses of N, N-dimethyltryptamine in humans. *Biological psychiatry*, 39(9), 784-795.
- Strassman, R., Wojtowicz, S., Luna, L. E., & Frecska, E. (2008). *Inner paths to outer space: Journeys to alien worlds through psychedelics and other spiritual technologies*. Simon and Schuster.
- Studerus, E., Gamma, A., Kometer, M., and Vollenweider, F. X. (2012). Prediction of psilocybin response in healthy volunteers. *PLoS One* 7:e30800. doi: 10.1371/journal.pone.0030800
- Sutherland, C. (1990). Changes in religious beliefs, attitudes, and practices following near-death experiences: An Australian study. *Journal of Near-Death Studies*, 9, 21-31.
- Sutherland, C. (1992/1995). *Reborn in the light: Life after near-death experiences*. New York, NY: Bantam. (Originally published in Australia in 1992 as *Transformed by the light*.)
- Tagliazucchi, E., Carhart-Harris, R., Leech, R., Nutt, D., & Chialvo, D. R. (2014). Enhanced repertoire of brain dynamical states during the psychedelic experience. *Human brain mapping*, 35(11), 5442-5456.

- Tart, C. T. (1967). A second psychophysiological study of out-of-the-body experiences in a gifted subject. *International Journal of Parapsychology*, 9(3), 251-258.
- Tart, C. T. (1968). A psychophysiological study of out-of-the-body experiences in a selected subject. *Journal of the American Society for Psychical Research*, 62, 3-27.
- Tart, C. T. (1971). *On being stoned: A psychological study of marijuana intoxication*. Palo Alto CA: Science and Behavior Books.
- Tassell-Matamua, N. A., & Lindsay, N. (2016). "I'm not afraid to die": the loss of the fear of death after a near-death experience. *Mortality*, 21(1), 71-87.
- Tata, D. A., & Anderson, B. J. (2010). The effects of chronic glucocorticoid exposure on dendritic length, synapse numbers and glial volume in animal models: implications for hippocampal volume reductions in depression. *Physiology & behavior*, 99(2), 186-193.
- Taylor, V. A., Daneault, V., Grant, J., Scavone, G., Breton, E., Roffe-Vidal, S., ... & Beaugard, M. (2013). Impact of meditation training on the default mode network during a restful state. *Social cognitive and affective neuroscience*, 8(1), 4-14.
- Terhune, D. B. (2006). Dissociative alterations in body image among individuals reporting out-of-body experiences: a conceptual replication. *Perceptual and motor skills*, 103(1), 76-80.
- Testoni, I., Ancona, D., & Ronconi, L. (2015). The Ontological Representation of Death A Scale to Measure the Idea of Annihilation Versus Passage. *OMEGA-Journal of death and dying*, 71(1), 60-81.

- Teuber, H. L., & Mishkin, M. (1954). Judgment of visual and postural vertical after brain injury. *The Journal of Psychology*, 38(1), 161-175.
- Thonnard, M., Charland-Verville, V., Brédart, S., Dehon, H., Ledoux, D., Laureys, S., & Vanhaudenhuyse, A. (2013). Characteristics of near-death experiences memories as compared to real and imagined events memories. *PloS one*, 8(3), e57620.
- Tiliket, C., Ventre-Dominey, J., Vighetto, A., & Grochowicki, M. (1996). Room tilt illusion: a central otolith dysfunction. *Archives of neurology*, 53(12), 1259-1264.
- Timmermann, C., Roseman, L., Williams, L., Erritzoe, D., Martial, C., Cassol, H., ... & Carhart-Harris, R. (2018). DMT models the near-death experience. *Frontiers in psychology*, 9, 1424.
- Tinoca, C. A., & Ortiz, J. P. (2014). Magnetic stimulation of the temporal cortex: A partial “God Helmet” replication study. *Journal of Consciousness Exploration & Research*, 5(3).
- Tirabassi, G., Boscaro, M., & Arnaldi, G. (2014). Harmful effects of functional hypercortisolism: a working hypothesis. *Endocrine*, 46(3), 370-386.
- Todd, J., & Dewhurst, K. (1955). The double: its psycho-pathology and psycho-physiology. *The Journal of nervous and mental disease*, 122(1), 47-55.
- Tomasino, B., Fregona, S., Skrap, M., & Fabbro, F. (2013). Meditation-related activations are modulated by the practices needed to obtain it and by the expertise: an ALE meta-analysis study. *Frontiers in Human Neuroscience*, 6, 346.
- Tressoldi, P. E., Pederzoli, L., Caini, P., Ferrini, A., Melloni, S., Richeldi, D., . . . Trabucco, A. (2014). Out of Body Experience Induced by Hypnotic

- Suggestion. Part 1: Phenomenology and Perceptual Characteristics. *SSRN Electronic Journal*. doi:10.2139/ssrn.2443719
- Trichter, S. (2010). Ayahuasca Beyond The Amazon: The Benefits And Risks Of A Spreading Tradition. *Journal of Transpersonal Psychology*, 42(2).
- Tsakiris, M., Costantini, M., & Haggard, P. (2008). The role of the right temporoparietal junction in maintaining a coherent sense of one's body. *Neuropsychologia*, 46(12), 3014-3018.
- Tuladhar, A. M., Snapphaan, L., Shumskaya, E., Rijpkema, M., Fernandez, G., Norris, D. G., & de Leeuw, F. E. (2013). Default mode network connectivity in stroke patients. *PloS one*, 8(6), e66556.
- Tupper, K. W. (2008). The globalization of ayahuasca: Harm reduction or benefit maximization?. *International Journal of Drug Policy*, 19(4), 297-303.
- Tupper, K. W. (2009). Ayahuasca healing beyond the Amazon: The globalization of a traditional indigenous entheogenic practice. *Global Networks*, 9(1), 117-136.
- Twemlow, S. W., Gabbard, G. O., & Jones, F. C. (1982). The out-of-body experience: A phenomenological typology based on questionnaire responses. *American Journal of Psychiatry*, 139(4), 450-455.
- Tyrrell, G. N. M. (1946). The modus operandi of paranormal cognition. *Proceedings of the Society for Psychical Research*, 48, 65-120.
- U.N. Convention on Psychotropic Substances, (1971). 33. Retrieved from [https://www.unodc.org/pdf/convention\\_1971\\_en.pdf](https://www.unodc.org/pdf/convention_1971_en.pdf)
- U.N. Convention on Psychotropic Substances, (1971). 32, para. 4. Retrieved from [https://www.unodc.org/pdf/convention\\_1971\\_en.pdf](https://www.unodc.org/pdf/convention_1971_en.pdf)
- Valentino, R. J., & Van Bockstaele, E. (2015). Endogenous opioids: the downside of opposing stress. *Neurobiology of stress*, 1, 23-32.

- van Bodegom, M., Homberg, J. R., & Henckens, M. J. (2017). Modulation of the hypothalamic-pituitary-adrenal axis by early life stress exposure. *Frontiers in cellular neuroscience, 11*, 87.
- VanderWeele, T. J., & Mathur, M. B. (2019). Some desirable properties of the Bonferroni correction: is the Bonferroni correction really so bad?. *American journal of epidemiology, 188*(3), 617-618.
- van Lommel P, van Wees R, Meyers V, Elfferich I. (2001). Near-death experience in survivors of cardiac arrest: a prospective study in the Netherlands. *Lancet. 358*(9298): 2039–45.
- van Os, J., & Kapur, S. (2009). “Schizophrenia,” *The Lancet, 374*, 9690, 635–645.
- Viol, A., Palhano-Fontes, F., Onias, H., de Araujo, D. B., & Viswanathan, G. M. (2017). Shannon entropy of brain functional complex networks under the influence of the psychedelic Ayahuasca. *Scientific reports, 7*(1), 7388.
- Vollenweider, F. X., & Kometer, M. (2010). The neurobiology of psychedelic drugs: implications for the treatment of mood disorders. *Nature Reviews Neuroscience, 11*(9), 642.
- Vyazovskiy, V. V., Olcese, U., Hanlon, E. C., Nir, Y., Cirelli, C., & Tononi, G. (2011). Local sleep in awake rats. *Nature, 472*(7344), 443.
- Wallace, A. F. C. (1959). Cultural Determinants of Response to Hallucinatory Experience. *Arch. Gen. Psychiatry 1*, 58–69.
- Ward, A. M., McLaren, D. G., Schultz, A. P., Chhatwal, J., Boot, B. P., Hedden, T., & Sperling, R. A. (2013). Daytime sleepiness is associated with decreased default mode network connectivity in both young and cognitively intact elderly subjects. *Sleep, 36*(11), 1609-1615.

- Ward, A. M., Schultz, A. P., Huijbers, W., Van Dijk, K. R., Hedden, T., & Sperling, R. A. (2014). The parahippocampal gyrus links the default-mode cortical network with the medial temporal lobe memory system. *Human brain mapping, 35*(3), 1061-1073.
- Warshaw, M. G., Fierman, E., Pratt, L., Hunt, M., Yonkers, K. A., Massion, A. A., & Keller, M. B. (1993). Quality of life and dissociation in anxiety disorder patients with histories of trauma or PTSD. *American Journal of Psychiatry, 150*, 1512-1512.
- Waters, F., Blom, J. D., Dang-Vu, T. T., Cheyne, A. J., Alderson-Day, B., Woodruff, P., & Collerton, D. (2016). What is the link between hallucinations, dreams, and hypnagogic–hypnopompic experiences?. *Schizophrenia bulletin, 42*(5), 1098-1109.
- Weaver, I. C., Diorio, J., Seckl, J. R., Szyf, M., & Meaney, M. J. (2004). Early environmental regulation of hippocampal glucocorticoid receptor gene expression: characterization of intracellular mediators and potential genomic target sites. *Annals of the New York Academy of Sciences, 1024*(1), 182-212.
- Wells, A. D. (1993). Reincarnation beliefs among near-death experiencers. *Journal of Near-Death Studies, 12*, 17-34.
- White, W. E. (1997). Altered states and paranormal experiences. In W. E. White, *The Dextromethorphan FAQ: Answers to frequently asked questions about DXM*, (version 4). Retrieved from [http://www.erowid.org/chemical/dxm/faq/dxm\\_paranormal.shtml](http://www.erowid.org/chemical/dxm/faq/dxm_paranormal.shtml)
- Wible, C. G. (2012). Hippocampal temporal-parietal junction interaction in the production of psychotic symptoms: a framework for understanding the schizophrenic syndrome. *Frontiers in human neuroscience, 6*, 180.

- Wilkins, L. K., Girard, T. A., & Cheyne, J. A. (2011). Ketamine as a primary predictor of out-of-body experiences associated with multiple substance use. *Consciousness and cognition*, *20*(3), 943-950.
- Wilson, S. C., & Barber, T. X. (1983). The fantasy-prone personality: Implications for understanding imagery, hypnosis, and parapsychological phenomena. In A. A. Sheikh (Ed.) *Imagery: Current theory, research and application* (pp. 340-387. New York: Wiley.
- Winkelman, M. (2005). Drug tourism or spiritual healing? Ayahuasca seekers in Amazonia. *Journal of psychoactive drugs*, *37*(2), 209-218.
- Woerlee, G. M. (2005). *Mortal minds: The biology of near death experiences*. Amherst, NY: Prometheus Books.
- Wolfradt, U., & Watzke, S. (1999). Deliberate out-of-body experiences, depersonalisation, schizotypal traits, and thinking styles. *Journal of the American Society for Psychological Research*, *93*(3), 249-257.
- Wyatt, R. J., & Murphy, D. L. (1976). Low platelet monoamine oxidase activity and schizophrenia. *Schizophrenia Bulletin*, *2*(1), 77.
- Wyatt, R. J., Potkin, S. G., Bridge, T. P., Phelps, B. H., & Wise, C. D. (1980). Monoamine oxidase in schizophrenia: An overview. *Schizophrenia Bulletin*, *6*(2), 199.
- Xiong, J. H. (2010). *The outline of parapsychology*. Rowman & Littlefield.
- Yeo, B. T., Tandi, J., & Chee, M. W. (2015). Functional connectivity during rested wakefulness predicts vulnerability to sleep deprivation. *Neuroimage*, *111*, 147-158.
- Yeung, A. W. K., Georgieva, M., Atanasov, A. G., Tzvetkov, D., & Nikolay, T. (2019). Monoamine oxidases (MAOs) as privileged molecular targets in



- neuroscience: Research literature analysis. *Frontiers in molecular neuroscience*, 12, 143.
- Yu, P. H., Bowen, R. C., Davis, B. A., & Boulton, A. A. (1983). Platelet monoamine oxidase activity and trace acid levels in plasma of agoraphobic patients. *Acta Psychiatrica Scandinavica*, 67(3), 188-194.
- Yue, J. K., Burke, J. F., Upadhyayula, P. S., Winkler, E. A., Deng, H., Robinson, C. K., ... & Ngwenya, L. B. (2017). Selective serotonin reuptake inhibitors for treating neurocognitive and neuropsychiatric disorders following traumatic brain injury: an evaluation of current evidence. *Brain sciences*, 7(8), 93.
- Zingrone, N. L., & Alvarado, C. S. (1994). Psychic and dissociative experiences: A preliminary report. In *The Parapsychological Association 37th Annual Convention: Proceedings of Presented Papers* (pp. 489-501).
- Zingrone, N. L., Alvarado, C. S., & Cardeña, E. (2010). Out-of-body experiences and physical body activity and posture: responses from a survey conducted in Scotland. *The Journal of nervous and mental disease*, 198(2), 163-165
- Zusne, L., & Jones, W. H. (1989). *Anomalistic psychology: A study of magical thinking*. 2<sup>nd</sup> edn. Hillsdale, NJ: Lawrence Erlbaum Associates.

## Appendix A - OBE Survey Questionnaire

A Survey to Explore the Nature and Effects of Out-of-Body Experiences.

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In the unlikely event that you feel negatively affected by any aspect of this questionnaire, and wish to know more about the subject and/or speak to a relevant support group, by clicking on the finished page buttons located at the very end of the pages, you can skip directly to the study debrief without completing the questionnaire, where you will find this information.

---

INFORMED CONSENT I confirm that I'm 18 or over, have read and understand the participant information for the study and have had the opportunity to ask questions. I understand that taking part in the project will involve being asked a number of questions exploring my out-of-body experience (OBE) and exploring possible characteristics of OBEs. I understand that my participation is voluntary and that I am free to withdraw at any time up to two week after completing the survey, without giving reason and without penalty. I understand that I can do this through sending the researcher my anonymity code and stating that I wish to withdraw from the study.

**I agree to take part in this study.**

I consent to the processing of my personal information for the purposes of this research study. I understand that such information will be treated as strictly confidential and handled in accordance with current UK data protection legislation.

I agree that my data gathered in this study may be stored after it has been anonymised in a specialist data centre and may be used for future research; and that any researcher who has access to these data may only do so if they agree to preserve the confidentiality of the data.

Please, click this to indicate that you are willing to take part in this survey

---

Please, create your anonymity code, for example, by entering the first and last letter of your mother's maiden name, the first and last digit of your birth date, and your favourite colour. Example: KT24Blue

---

How did you find out about this survey?

		I found out about this survey from:						
I found out about this survey from: (1)	Social Media	An online advertisement	An advertisement in a printed newspaper	An advertisement in a printed magazine	Through a friend, colleague, or family member.	An advertisement poster	Radio	Other
		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

The next three questions will gather participant background information.

Question 1

Gender

	Q1		
	Male	Female	Prefer to self describe
I am	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

If you selected that you prefer to describe your own gender in the previous question, please do so here. If you did not select that option, please type N/A for not applicable.

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Question 2

What is your current age?

Age

▼ 1 ... 120+

---

Question 3

Please list your:

- Occupation \_\_\_\_\_
  - Ethnicity \_\_\_\_\_
  - Religious Background \_\_\_\_\_
- 

Section A

Question 1

How many OBEs have you had? If you are unsure, please give the best estimate.

Number of OBEs

▼ 1 ... 120+

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Section A

Question 2

Q5

---



Section A

Question 5

	Q5				
	All of the time	Some of the time	Occasionally	Never	Unsure
Do you believe that you can control when you have an OBE?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Section A questions 6 and 7 will explore the role of beliefs in OBEs.

Question 6

	Q6		
	Yes	No	Unsure
Did you believe OBEs were possible before your first OBE?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Section A

Question 7

	Q7

	Very Spiritual	Quite Spiritual	Somewhat Spiritual	Not Spiritual at all	Unsure
How spiritual do you consider yourself to be?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

---

Section A questions 8, to 9, will explore the role of emotional and mental states in OBEs.

Section A

Question 8

	Q8		
	Yes	No	Unsure
Have you ever suffered with anxiety?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

---

Section A

Question 9

	Q9		
	Yes	No	Unsure
Have you ever suffered with depression?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

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## Section A

## Question 10

	Q10		
	Yes	No	Unsure
Have you ever suffered with chronic hallucinations?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

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## Section A

## Question 11

	Q10		
	Yes	No	Unsure
Have you ever suffered with vestibular issues? Meaning issues of the inner ear.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

---

Page Break



If you have had more than one OBE, please fill in the rest of the questionnaire based on only your most vivid OBE. If they all share a similar vividness, then please select the one you remember the clearest.

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## Section B

### Question 1

How old were you when you had this OBE? If you are unsure, please give a best estimate on the number.

Age (1)

▼ 1... 120+

---

## Section B

### Question 2

	Q2		
	Yes	No	Unsure
During your OBE did you feel a strong sensation of complete disembodiment?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

---

## Section B

The next two questions will explore the role of certain chemicals in OBEs.

### Question 3A

	Q3A		
	Yes	No	Unsure

During your OBE  
were you under the  
influence of any  
drugs?



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## Section B

3B

If yes, please list substance/substances. If no, or unsure, please type N/A for not applicable or unsure. This may help us explore if OBEs are influenced by certain chemicals. If you know, please also detail the amount of each drug that was consumed e.g., in grams/milligrams/micrograms.

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## Section B

Question 4

Please select **all** options that define your state when your OBE began.

- Just about to sleep
  - Sleeping
  - Just woken from sleep
  - Intensely or very relaxed
  - Meditative state
  - Hypnotic state
  - Trance state
  - Drug state
  - Near death state
  - Unconscious due to a physical trauma but not close to death
  - Awake and experiencing a physical trauma or stress but not close to death
  - Awake and not experiencing a physical trauma or stress
  - In a state of extensive physical exertion
  - In a state of extensive fatigue
  - In a state of emotional trauma
  - Unconscious due to anaesthesia
  - Other
-

Section B

Question 5

	Q5				
	Lying	Sitting	Standing	Other	Unsure
Entering your OBE, what was your body position?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

---

Section B

Question 6

	Q6			
	Passive e.g., unconscious	Semi-passive e.g., a state of stillness and silence	Active e.g., talking or moving	Unsure
Entering your OBE, which activity state was your body in?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

---

Section B

Question 7

	Q7		
	Open	Closed	Unsure
Entering your OBE, were your eyelids open or closed?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

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Section B

Question 8

Please describe briefly what you were doing when your OBE began?

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Section B

Question 9

Which best describes your experience?

- The experience had a realness equal to a vivid dream.
  - The experience had a realness equal to a psychedelic trip.
  - The experience had a realness equal to a normal wakeful state where everything appeared, and behaved as normal, except that everything was observed from a disembodied position.
  - The experience had a realness equal to a hypnotic state.
  - The experience was somehow more real than a normal wakeful state.
  - The experience had a realness equal to a deep meditation.
  - I'm unsure which best describes my experience
-

Section B

Question 10A

	10A			
	Real	Like a dream	A hallucination	Unsure
Immediately after the experience, did you believe that the experience was real, like a dream, or a hallucination?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Section B

10B

Please, explain briefly why.

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Section B

Question 11A

	Q11A			
	Real	Like a dream	An hallucination	Unsure

Considering the experience today, do you believe that the experience was real, like a dream, or a hallucination?

Section B

11B

Please, explain briefly why.

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Section B

Question 12A

	Q12A		
	Yes	No	Unsure
Did you experience anything that you later tried to validate or check was real?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Section B

Question 12B

	Q12B				
	Real	Not real	Unsure	Could not gain validation either way	Not applicable
If yes, upon investigation did it appear what you experienced was real or not real? If no, or unsure, please select not applicable.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Section B

Question 13

	Q13		
	Yes	No	Unsure
Were you concerned about the well-being of your physical body during the OBE?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Section B

Question 14

	Q14



	Total control at all times	Control most of the time	Control some of the time	Minimal control	No Control	Unsure
During your OBE, how much control did you have over the experience? E.g. the ability to MAKE and FULFILL conscious decisions regarding exactly what you wanted to do and experience?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Section B

Question 15

	Q15		
	Yes	No	Unsure
During your OBE, did you have a religious or spiritual experience?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Section B

Question 16A

	Q16A		
	Yes	No	Unsure

During your OBE, did you experience anything that is against your belief systems?



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## Section B

16B

If yes, please briefly detail this experience or type N/A for not applicable.

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Section C will explore seeing, feeling, hearing, smelling, and tasting impressions, which may occur during or as part of an OBE. Questions on each sensory-based phenomena will often be asked separately, as we have reason to believe that this is the most appropriate way to gather the data. Please be mindful of which sense we are asking about in each of the questions, and indicate, if during, or as part of your OBE, you experienced these phenomena, or if you did not. Please continue to fill in the rest of questionnaire based on only your most vivid or clear OBE.

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Section C

Question 1

	Q1		
	Yes	No	Unsure
During your OBE, did you experience SEEING your physical body?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

---

Section C

Question 2

	Q2		
	Yes	No	Unsure
During your OBE, did you experience a FEELING of having a non-physical body?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

---

Section C

Question 3

	Q3		
	Yes	No	Unsure
During your OBE, did you experience SEEING yourself as of having a non-physical body?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

---

Section C

Question 4

	Q4		
	Yes	No	Unsure
During your OBE, did you travel into a different room or any location away from your physical body?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Section C

Question 5

	Q5			
	Yes	No	Unsure	N/A
Were you familiar previously with this location? Please select N/A if not applicable.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Section C

Question 6A

	Q6A				
	The physical world	An unearthly or metaphysical world	Both the physical and unearthly or metaphysical worlds	Other	Did not travel
	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

The place or places you travelled to during your OBE, appeared to be located within which of these? If you did not travel, please select the did not travel box.

Section C

Question 6B

Please, describe briefly this location and if you are aware, its distance from where you started your OBE, or type N/A for not applicable.

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Section C

Question 7

	Q7		
	Yes	No	Unsure
During your OBE, did you experience a FEELING of stretching of your limbs?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Section C

Question 8

	Q8		
	Yes	No	Unsure
During your OBE, did you experience SEEING stretching of your limbs?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Section C

Question 9

	Q9		
	Yes	No	Unsure
During your OBE, did you experience a FEELING of having additional limbs?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Section C

Question 10

	Q10		
	Yes (1)	No (2)	Unsure (3)
During your OBE, did you experience SEEING yourself with additional limbs? (1)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

## Section C

## Question 11

	Q11		
	Yes	No	Unsure
During your OBE, did you experience HEARING sounds such as buzzing, humming, explosions or roaring?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

---

## Section C

## Question 12

	Q12		
	Yes	No	Unsure
During your OBE, did you experience a FEELING of floating?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

---

## Section C

## Question 13

	Q13		
	Yes	No	Unsure
During your OBE, did you have a VISUAL experience of floating?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

---

Section C

Question 14

	Q14		
	Yes	No	Unsure
During your OBE, did you experience a FEELING of sinking into the surface your physical body was on?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

---

Section C

Question 15

	Q15		
	Yes	No	Unsure
During your OBE, did you have a VISUAL experience of sinking into the surface your physical body was on?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

---

Section C

Question 16

	Q16		
	Yes	No	Unsure
During your OBE, did you experience a FEELING of spinning?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

---



## Section C

## Question 17

	Q17		
	Yes	No	Unsure
During your OBE, did you have a VISUAL experience of spinning?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

---

## Section C

## Question 18

	Q18		
	Yes	No	Unsure
During your OBE, did you experience a FEELING of timelessness or time distortion?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

---

## Section C

## Question 19

	Q19		
	Yes	No	Unsure
During your OBE, did you experience a FEELING of vibrations or tingling?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

---

Section C

Question 20

	Q20		
	Yes	No	Unsure
Just before, during, or after your OBE did you experience sleep paralysis? (Awakening or falling to sleep and appearing to have a wakeful awareness but are unable to physically move).	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

---

Section C

Question 21

	Q21		
	Yes	No	Unsure
During your OBE, did you experience being touched or lifted?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

---

Section C

Question 22

	Q22		
	Yes	No	Unsure
During your OBE, did you experience a panic attack, or overwhelming surge of fear?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

---

Section C

Question 23

	Q23		
	Yes	No	Unsure
During your OBE, did you experience HEARING voices of unknown origin?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

---

Section C

Question 24

	Q24		
	Yes	No	Unsure
During your OBE, did you experience HEARING footsteps of unknown origin?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

---

Section C

Question 25

	Q25		
	Yes	No	Unsure
During your OBE, did you experience HEARING strange vibrations of unknown origin?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

---

Section C

Question 26

	Q26		
	Yes	No	Unsure
During your OBE, did you experience SEEING through closed eyelids?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

---

Section C

Question 27

	Q27		
	Yes	No	Unsure
During you OBE, did you experience the ability to SEE in the dark?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

---

Section C

Question 28

	Q28		
	Yes	No	Unsure
During your OBE, did you experience FEELING the presence of an unknown non-physical being?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

---

Section C

Question 29

	Q29		
	Yes	No	Unsure
During your OBE, did you experience SEEING an unknown non-physical being?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

---

Section C

Question 30

	Q30		
	Yes	No	Unsure
During your OBE, did you experience FEELING the presence of spiritual entities of beings?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

---

Section C

Question 31

	Q31		
	Yes	No	Unsure
During your OBE, did you experience SEEING spiritual entities or beings?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

---

Section C

Question 32

	Q32		
	Yes	No	Unsure
During your OBE, did you experience FEELING the presence of negative or demonic entities or beings?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

---

Section C

Question 33

	Q33		
	Yes	No	Unsure
During your OBE, did you experience SEEING negative or demonic entities or beings?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

---

Section C

Question 34

	Q34		
	Yes	No	Unsure
During your OBE, did you experience FEELING the presence of alien entities or beings?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

---

Section C

Question 35

	Q35		
	Yes	No	Unsure
During your OBE, did you experience SEEING alien entities or beings?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

---

Section C

Question 36

	Q36		
	Yes	No	Unsure
During your OBE, did you experience FEELING the presence of a deceased loved one or pet?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

---

Section C

Question 37

	Q37		
	Yes	No	Unsure
During your OBE, did you experience HEARING or COMMUNICATING with a deceased loved one or pet?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

---

Section C

Question 38

	Q38		
	Yes	No	Unsure
During your OBE, did you experience SEEING a deceased loved one or pet?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

---

Section C

Question 39

	Q39		
	Yes	No	Unsure
As part of your OBE, did you experience a jolt or jerk awake?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

---

Section C

Question 40

	Q40		
	Yes	No	Unsure
As part of your OBE, did you experience a loss of consciousness?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

---



## Section C

## Question 41

	Q41		
	Yes	No	Unsure
During your OBE, did you experience a FEELING of falling?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

---

## Section C

## Question 42

	Q42		
	Yes	No	Unsure
During your OBE, did you have a VISUAL experience of falling?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

---

## Section C

## Question 43

	Q43		
	Yes	No	Unsure
During your OBE, did you have a VISUAL experience of seeing a tunnel of light, enclosure or place leaving the body?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

---

Section C

Question 44

	Q44		
	Yes	No	Unsure
During your OBE, did you experience a FEELING of passing through a tunnel, enclosure or place leaving the body?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

---

Section C

Question 45

	Q45		
	Yes	No	Unsure
During your OBE, did you experience SEEING your surroundings from above?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

---

Section C

Question 46

	Q46		
	Yes	No	Unsure
During your OBE, did you experience SEEING lights around you or at a distance?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

---

Section C

Question 47

	Q47		
	Yes	No	Unsure
During your OBE, did you experience SEEING a ray of light, cord, ribbon or rope connecting the non-physical self to the physical body?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

---

Section C

Question 48

	Q48		
	Yes	No	Unsure
During your OBE, did you experience SEEING past events of the location you were in?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

---

Section C

Question 49

	Q49		
	Yes	No	Unsure
During your OBE, did you experience SEEING past events or actions of your life?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

---

## Section C

## Question 50

	Q50		
	Yes	No	Unsure
During your OBE, did you experience SEEING future events of the location you were in?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

---

## Section C

## Question 51

	Q51		
	Yes	No	Unsure
During your OBE, did you experience SEEING future events or actions of your life?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

---

## Section C

## Question 52

	Q52		
	Yes	No	Unsure
During your OBE, did you experience the ability to HEAR at an abnormal distance?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

---

Section C

Question 53

	Q53		
	Yes	No	Unsure
During your OBE, did you experience the ability to FEEL at an abnormal distance?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

---

Section C

Question 54

	Q54		
	Yes	No	Unsure
During your OBE, did you experience the ability to SEE at an abnormal distance?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

---

Section C

Question 55

	Q55		
	Yes	No	Unsure
During your OBE, did you experience the ability to SEE through physical objects?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

---

## Section C

## Question 56

	Q56		
	Yes	No	Unsure
During your OBE, did you experience the ability to SEE around corners?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

---

## Section C

## Question 57

	Q57		
	Yes	No	Unsure
During your OBE, did you experience the ability to SEE 360 degrees?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

---

## Section C

## Question 58

	Q58		
	Yes	No	Unsure
During your OBE, did you experience the ability to obtain information about events at an abnormal distance?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

---

## Section C

## Question 59

	Q59		
	Yes	No	Unsure
During your OBE, did you experience the ability to affect physical matter with your mind?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

---

Page Break

## Section C

## Question 60

	Q60		
	Yes	No	Unsure
During your OBE, did you experience the ability to affect physical matter with your non-physical body?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

---

## Section C

## Question 61

	Q61		
	Yes	No	Unsure
During your OBE, did you experience the ability to affect metaphysical matter or energy with your mind?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

---

## Section C

## Question 62

	Q62		
	Yes	No	Unsure
During your OBE, did you experience the ability to affect metaphysical matter or energy with your non-physical body?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

---



## Section C

## Question 63

	Q63		
	Yes	No	Unsure
During your OBE, did you experience SEEING your surroundings being illuminated by something other than normal light?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

---

## Section C

## Question 64

	Q64		
	Yes	No	Unsure
During your OBE, did you experience SEEING mist, fog, or clouds?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

---

## Section C

## Question 65

	Q65		
	Yes	No	Unsure
During your OBE, did you experience HEARING music of unknown origin?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

---

## Section C

## Question 66

	Q66		
	Yes	No	Unsure
During your OBE, did you experience HEARING wind-like sounds of unknown origin?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

---

## Section C

## Question 67

	Q67		
	Yes	No	Unsure
During your OBE, did you experience HEARING clicking or snapping sounds of unknown origin?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

---

## Section C

## Question 68

	Q68		
	Yes	No	Unsure
During your OBE, did you experience ability to pass through physical matter?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

---

## Section C

## Question 69

	Q69		
	Yes	No	Unsure
During your OBE, did you experience a FEELING of oneness with your surroundings?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

---

## Section C

## Question 70

	Q70		
	Yes	No	Unsure
During your OBE, did you experience FEELING an expansion of your consciousness or non-physical body to a LARGER than normal size?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

---

## Section C

## Question 71

	Q71		
	Yes	No	Unsure
During your OBE, did you have a VISUAL experience of your consciousness or non-physical body being LARGER than normal size?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

## Section C

## Question 72

	Q72		
	Yes	No	Unsure
During your OBE, did you have a VISUAL experience of your consciousness or non-physical body being SMALLER than normal size?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

## Section C

## Question 73

	Q73		
	Yes	No	Unsure
During your OBE, did you experience FEELING an expansion of your consciousness or non-physical body to a SMALLER than normal size?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

## Section C

## Question 74

	Q74		
	Yes	No	Unsure

During your OBE, did you experience a FEELING of your surroundings expand or contract?




Section C

Question 75

	Q75		
	Yes	No	Unsure
During your OBE, did you experience SEEING your surroundings expand or contract?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Section C

Question 76

	Q76		
	Yes	No	Unsure
During your OBE, did you experience a FEELING of all-knowing and understanding?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Section C

Question 77

	Q77		
	Yes	No	Unsure

During your OBE, did you experience a FEELING of bliss or happiness?

Section C

Question 78

	Q78		
	Yes	No	Unsure
During your OBE, did you experience a FEELING of peace or serenity?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Section C

Question 79

	Q79		
	Yes	No	Unsure
During your OBE, did you experience a state of neither suffering, desire, nor sense of self?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Section C

Question 80

	Q80		
	Yes	No	Unsure

During your OBE, did you experience a FEELING of moving or travelling through time?




Section C

Question 81

	Q81		
	Yes	No	Unsure
During your OBE, did you have a VISUAL experience of moving or travelling through time?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Section C

Question 82

	Q82		
	Yes	No	Unsure
During your OBE, did you experience the ability to see, smell, taste, feel, or hear things that are not normally connected to that particular sense e.g., the ability to hear or taste colour.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Section C

Question 83

	Q83		
	Yes	No	Unsure
During your OBE, did you experience a FEELING of anger or hostility?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

---

Section C

Question 84

	Q83		
	Yes	No	Unsure
During your OBE, did you experience a FEELING of sadness or despair?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

---

Section C

Question 85

Did you experience anything not detailed above that you consider unusual or significant? If yes, please describe briefly this part of the experience. If no, please type N/A for not applicable.

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Section D will explore the potential psychological impact of OBEs impact. Please continue to fill in the rest of questionnaire based on only your most vivid or clear OBE.

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Section D

Question 1

	Q3		
	Yes	No	Unsure
Has the experience changed how you view death?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

---

Section D

Question 2

	Q3		
	Yes	No	Unsure
Has the experience reduced your fear of death?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

---

Section D

Question 3

	Q3		
	Yes	No	Unsure
Has the experience increased your fear of death?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

---

Section D

Question 4

	Q4		
	Yes	No	Unsure
Has the experience changed your relationship to the divine?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

---

Section D

Question 5

	Q5		
	Yes	No	Unsure
Has the experience changed how you view the world?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

---

Section D

Question 6

	Q6		
	Yes	No	Unsure
Has the experience changed your relationship to other people?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

---

## Section D

## Question 7

	Q7		
	Yes	No	Unsure
Has the experience changed how you view yourself?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

---

## Section D

## Question 8

	Q8		
	Yes	No	Unsure
Has the experience caused a change of lifestyle?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

---

## Section D

## Question 9

	Q9		
	Yes	No	Unsure
Did the experience have any positive impact on your mind and well-being?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

---

## Section D

Question 10

	Q10		
	Yes	No	Unsure
Did the experience have any negative impact on your mind and well-being?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Section D

Question 11

Did you experience any psychological changes not detailed above that you consider unusual or significant? If yes, please describe this change. If no, please type N/A for not applicable.

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Are you open to being interviewed, at a future date, regarding your OBE?

If you select yes, you will be waving your right to anonymity for this survey and will be asked to fill in personal contact information.

**If yes, please remember to fill in your contact information (email, phone number etc.) in box below the yes answer before clicking to finish.**

Yes \_\_\_\_\_

No \_\_\_\_\_

## Appendix B - Miscellaneous Survey Frequency Data and Chi-Squared

### Crosstab Tables

The following table details the participant ethnicity as self-described in an unrestricted format. The ethnicities are listed running left to right in descending commonality.

**Table B1**

*Participant Ethnicity as Self-Described*

<b>Ethnicity</b>	<b>Percentage</b>	<b>N</b>
<b>White</b>	31%	59
<b>White British</b>	18.4%	35
<b>British</b>	16.3%	31
<b>Caucasian</b>	10.5%	20
<b>English</b>	5.2%	10
<b>White English</b>	1.5%	3
<b>Hispanic</b>	1.5%	3
<b>Native American</b>	1.5%	3
<b>African</b>	1.5%	3
<b>Asian</b>	1%	2
<b>Scottish</b>	1%	2
<b>European</b>	1%	2
<b>White European</b>	1%	2
<b>Polish</b>	1%	2
<b>Danish</b>	1%	2
<b>Irish</b>	1%	2
<b>Indian</b>	1%	2
<b>Colombian</b>	0.5%	1
<b>German</b>	0.5%	1
<b>Italian</b>	0.5%	1
<b>Australian</b>	0.5%	1
<b>Dutch</b>	0.5%	1
<b>American</b>	0.5%	1
<b>White American</b>	0.5%	1

The following table details the participant religious background as self-described in an unrestricted format. The backgrounds are listed running left to right in descending commonality.

**Table B2**

*Participant Religious Background as Self-Described*

<b>Religious Background</b>	<b>Percentage</b>	<b>N</b>
<b>None</b>	27.7%	48
<b>Catholic</b>	17.3%	30
<b>Church of England</b>	11%	19
<b>Christian</b>	9.8%	17
<b>Spiritualist</b>	6.9%	12
<b>Spiritual</b>	6.9%	12
<b>Protestant</b>	2.9%	5
<b>Agnostic</b>	2.3%	4
<b>Pagan</b>	2.3%	4
<b>Buddhist</b>	1.7%	3
<b>Atheist</b>	1.7%	3
<b>Methodist</b>	1.1%	2
<b>Wiccan</b>	1.1%	2
<b>Jewish</b>	1.1%	2
<b>Sikh</b>	0.6%	1
<b>Muslim</b>	0.6%	1
<b>Anglican</b>	0.6%	1
<b>Native American Spirituality</b>	0.6%	1
<b>Mystic</b>	0.6%	1
<b>Holistic</b>	0.6%	1
<b>Theist</b>	0.6%	1
<b>Mormonism</b>	0.6%	1
<b>Hindu</b>	0.6%	1
<b>Baptist</b>	0.6%	1

The following table details the participant occupation as self-described in an unrestricted format. The occupations are listed running left to right in descending commonality.

**Table B3***Participant Occupation as Self-Described*

<b>Occupation</b>	<b>Percentage</b>	<b>N</b>
<b>Retired</b>	11.9%	23
<b>Nurse</b>	3.6%	7
<b>Writer</b>	3.1%	6
<b>Teacher</b>	2.5%	5
<b>Admin</b>	2.1%	4
<b>Student</b>	1.5%	3
<b>Housewife</b>	1.5%	3
<b>Therapist</b>	1%	2
<b>Mother</b>	1%	2
<b>Company Director</b>	1%	2
<b>Translator</b>	1%	2
<b>Self-employed</b>	1%	2
<b>Reiki Practitioner</b>	1%	2
<b>Lecturer</b>	1%	2
<b>Medium</b>	1%	2
<b>Beautician</b>	1%	2
<b>Unemployed</b>	1%	2
<b>Receptionist</b>	1%	2
<b>Midwife</b>	1%	2
<b>Artist</b>	1%	2
<b>Carer</b>	1%	2
<b>Driver</b>	1%	2
<b>Dentist</b>	1%	2
<b>None</b>	1%	2
<b>Window Cleaner</b>	0.5%	1
<b>Warehouse Manager</b>	0.5%	1
<b>Sailmaker</b>	0.5%	1
<b>Spiritual Advisor</b>	0.5%	1
<b>Counsellor</b>	0.5%	1
<b>Beauty Therapist</b>	0.5%	1
<b>Cleaner</b>	0.5%	1
<b>IT Manager</b>	0.5%	1
<b>Secretary</b>	0.5%	1
<b>Specification Technologist</b>	0.5%	1
<b>Homemaker</b>	0.5%	1

<b>Occupation</b>	<b>Percentage</b>	<b>N</b>
<b>Server Engineer</b>	0.5%	1
<b>Neuropath</b>	0.5%	1
<b>Biologist</b>	0.5%	1
<b>Travel Agent</b>	0.5%	1
<b>Police Officer</b>	0.5%	1
<b>DJ</b>	0.5%	1
<b>Science Manager</b>	0.5%	1
<b>Sales Associate</b>	0.5%	1
<b>Graphic Designer</b>	0.5%	1
<b>Photographer</b>	0.5%	1
<b>ROV Supervisor</b>	0.5%	1
<b>Civil Servant</b>	0.5%	1
<b>Holistic Therapist</b>	0.5%	1
<b>Employment Services</b>	0.5%	1
<b>Holistic Healer</b>	0.5%	1
<b>Manager</b>	0.5%	1
<b>Reiki Master</b>	0.5%	1
<b>Sales Agent</b>	0.5%	1
<b>Art Director</b>	0.5%	1
<b>Baker</b>	0.5%	1
<b>Voice Over Artist</b>	0.5%	1
<b>Hypnotist</b>	0.5%	1
<b>Bank Manager</b>	0.5%	1
<b>Support Worker</b>	0.5%	1
<b>Front End Supervisor</b>	0.5%	1
<b>Customer Service</b>	0.5%	1
<b>Designer</b>	0.5%	1
<b>Supervisor</b>	0.5%	1
<b>Energy Psychologist</b>	0.5%	1
<b>Progressive Mentor</b>	0.5%	1
<b>Bank Employee</b>	0.5%	1
<b>HR Representative</b>	0.5%	1
<b>Delivery Driver</b>	0.5%	1
<b>Case Manager</b>	0.5%	1
<b>Builder</b>	0.5%	1
<b>Dog Walker</b>	0.5%	1
<b>Project Manager</b>	0.5%	1
<b>Pet Sitter</b>	0.5%	1



<b>Occupation</b>	<b>Percentage</b>	<b>N</b>
<b>Sales Manager</b>	0.5%	1
<b>Service Level Manager</b>	0.5%	1
<b>Electrologist</b>	0.5%	1
<b>Author</b>	0.5%	1
<b>Unit Manager</b>	0.5%	1
<b>Procurement</b>	0.5%	1
<b>Business Owner</b>	0.5%	1
<b>Retail Manager</b>	0.5%	1
<b>Hairdresser</b>	0.5%	1
<b>School Assistant</b>	0.5%	1
<b>Engineering</b>	0.5%	1
<b>Sound Engineer</b>	0.5%	1
<b>Charity Trustee</b>	0.5%	1
<b>Complementary Therapist</b>	0.5%	1
<b>Marketing</b>	0.5%	1
<b>Surveyor</b>	0.5%	1
<b>Art Therapist</b>	0.5%	1
<b>Consultant</b>	0.5%	1
<b>Social Care Worker</b>	0.5%	1
<b>Manufacturing</b>	0.5%	1
<b>Podiatrist</b>	0.5%	1
<b>Doctor</b>	0.5%	1
<b>Yoga Instructor</b>	0.5%	1
<b>Lawyer</b>	0.5%	1
<b>Shop Keeper</b>	0.5%	1
<b>Filmmaker</b>	0.5%	1
<b>Professional</b>	0.5%	1
<b>Dressmaker</b>	0.5%	1
<b>Event Organiser</b>	0.5%	1
<b>Court Clerk</b>	0.5%	1
<b>Massage Therapist</b>	0.5%	1
<b>Lithographer</b>	0.5%	1
<b>Co-director</b>	0.5%	1
<b>Gardener</b>	0.5%	1
<b>Charity Worker</b>	0.5%	1
<b>Digital Manager</b>	0.5%	1
<b>Chef</b>	0.5%	1
<b>Data Entry</b>	0.5%	1

<b>Occupation</b>	<b>Percentage</b>	<b>N</b>
<b>Administrator</b>	0.5%	1
<b>Home Maker</b>	0.5%	1
<b>Church Worker</b>	0.5%	1
<b>Pilot</b>	0.5%	1
<b>Banker</b>	0.5%	1
<b>Stunt Driver</b>	0.5%	1
<b>Surgeon</b>	0.5%	1
<b>Crisis Management</b>	0.5%	1
<b>School Assistant</b>	0.5%	1
<b>Psychic Medium</b>	0.5%	1
<b>IT Trainer</b>	0.5%	1
<b>Office Worker</b>	0.5%	1
<b>Musician</b>	0.5%	1
<b>Librarian</b>	0.5%	1
<b>Retail</b>	0.5%	1
<b>Cook</b>	0.5%	1
<b>Waiter</b>	0.5%	1
<b>Fireman</b>	0.5%	1
<b>Lorry Driver</b>	0.5%	1
<b>English Teacher</b>	0.5%	1

The following table details if participants were familiar with a location travelled to as part of their 'OBE'.

**Table B4**

*If a Participant was Familiar with a Location Travelled to as Part of Their 'OBE'*

<b>Familiarity with Location</b>	<b>Percentage</b>	<b>N</b>
<b>Yes</b>	41%	75
<b>No</b>	33.9%	62
<b>Unsure</b>	4.9%	9
<b>N/A</b>	20.2%	37

The following table details the perceived reality of a location the experiencer travelled to during their 'OBE'.

**Table B5***The Perceived Reality in Which Locations Travelled to Reside*

<b>Perceived Reality</b>	<b>Percentage N</b>	
<b>The physical world</b>	31.7%	58
<b>An unearthly or metaphysical world</b>	11.4%	21
<b>Both the physical and earthly or metaphysical worlds</b>	24.6%	45
<b>Other</b>	9.3%	17
<b>Did not travel</b>	23%	42

The following table displays the results from the 'OBE' survey of the frequency the various hallucinatory phenomena occurred within participant's 'OBEs'.

**Table B6***Author's 'OBE' Feature Index Phenomena Frequency Table*

<b>Phenomenon</b>	<b>Percentage N</b>	
1. A strong sense of complete disembodiment	77.5%	145
2. A sensation of exiting, separating, or lifting out of the body	69.5%	98
3. Seeing their physical body	59%	105
4. Experienced a feeling of having a non-physical body	73.2%	134
5. Experienced seeing themselves as having a non-physical body	40.9%	74
6. Travelled to a different room or location away from the physical body	56.8%	104
7. A feeling of stretching of the limbs	10%	16
8. Seeing a stretching of their limbs	8.8%	16
9. A feeling of having additional limbs	2.7%	5
10. Seeing themselves as having additional limbs	1.1%	2
11. Sounds such as buzzing, humming, explosions, or roaring	29.1%	53
12. A feeling of floating	80.3%	147
13. A visual experience of floating	71.4%	130
14. A feeling of sinking into the surface their physical body was on	27.9%	51
15. Seeing themselves sinking into the surface their physical body was on	12.6%	23
16. A feeling of spinning	13.3%	24
17. A visual experience of spinning	8.8%	16
18. A feeling of timelessness or time distortion	54.6%	100
19. A feeling of vibrations and tingling	44.3%	81
20. Sleep paralysis before, during, or after their 'OBE'	31.9%	58
21. Being touched or lifted	29%	53

<b>Phenomenon</b>	<b>Percentage</b>	<b>N</b>
22. A panic attack or overwhelming surge of fear	22.4%	41
23. Hearing voices of unknown origin	20.8%	38
24. Hearing footsteps of unknown origin	8.2%	15
25. Hearing strange vibrations of unknown origin	19.8%	36
26. Seeing through closed eyelids	39%	71
27. The ability to see in the dark	45.1%	82
28. Feeling the presence of an unknown non-physical being	42.3%	77
29. Seeing an unknown non-physical being	25.8%	47
30. Feeling the presence of spiritual entities or beings	37.2%	68
31. Seeing spiritual entities or beings	25.4%	46
32. Feeling the presence of negative or demonic entities	11.5%	21
33. Seeing negative or demonic entities	4.9%	9
34. Feeling the presence of alien entities or beings	6.6%	12
35. Seeing alien entities or beings	5.5%	10
36. Feeling the presence of a deceased loved one or pet	17.5%	32
37. Hearing or communicating from a deceased loved one or pet	13.1%	24
38. Seeing a deceased loved one or pet	13.7%	25
39. A jolt or jerk awake	42.1%	77
40. A loss of consciousness	17.7%	32
41. A feeling of falling	25.8%	47
42. A visual experience of falling	15%	27
43. Seeing a tunnel of light, enclosure, or place when leaving the physical body	17.7%	32
44. A feeling of passing through a tunnel of light, enclosure, or place when leaving the physical body	17%	31
45. Seeing their surroundings from above	59.3%	108
46. Seeing lights around themselves or at a distance	30.2%	54
47. Seeing a ray of light, cord, ribbon, or rope connecting the non-physical self to the physical self	11.5%	21
48. Seeing past events of the location they were in	7.1%	13
49. Seeing past events or actions of their life	4.9%	9
50. Seeing future events of the location they were in	6%	11
51. Seeing future events or actions of their life	9.4%	17
52. The ability to hear at an abnormal distance	16.5%	30
53. The ability to feel at an abnormal distance	24.7%	45
54. The ability to see at an abnormal distance	23.1%	42
55. The ability to see through physical objects	16%	29
56. The ability to see around corners	11.5%	21

<b>Phenomenon</b>	<b>Percentage</b>	<b>N</b>
57. The ability to see 360 degrees	22%	30
58. The ability to obtain information about events at an abnormal distance	11.6%	21
59. The ability to affect physical matter with their mind	14.4%	26
60. The ability to affect physical matter with their non-physical body	12.7%	23
61. The ability to affect metaphysical matter or energy with their mind	12.7%	23
62. The ability to affect metaphysical matter or energy with their non-physical body	11.7%	21
63. Seeing their surroundings illuminated by something other than normal light	40.3%	73
64. Seeing mist, fog, or clouds	30.4%	55
65. Hearing music from an unknown origin	9.4%	17
66. Hearing wind-like sounds from an unknown origin	13.8%	25
67. Hearing clicking or snapping sounds of an unknown origin	9.4%	17
68. The ability to pass through physical matter	40.2%	72
69. A feeling of oneness with their surroundings	54.4%	98
70. A feeling of an expansion of their consciousness or non-physical body to a larger than normal size	40.9%	74
71. A visual experience of an expansion of their consciousness or non-physical body to a larger than normal size	18.3%	33
72. A feeling of an expansion of their consciousness or non-physical body to a smaller than normal size	8.3%	15
73. A visual experience of an expansion of their consciousness or non-physical body to a smaller than normal size	8.3%	15
74. A feeling of their surroundings expanding or contracting	23.5%	42
75. Seeing their surroundings expand or contract	17.1%	31
76. A feeling of all-knowing or understanding	35.4%	64
77. A feeling of bliss or happiness	47%	85
78. A feeling of peace or serenity	58.6%	106
79. A state of neither suffering, desire, nor a sense of self	39.7%	71
80. A feeling of moving or travelling through time	24.6%	44
81. A visual experience of moving or travelling through time	16.1%	29
82. The ability to see, smell, taste, feel, or hear things not normally connected to that sense (synaesthesia)	13.9%	25
83. A feeling of anger or hostility	7.3%	13
84. A feeling of sadness or despair	7.2%	13

The following figure details the statistically significant output of the Kruskal-Wallis induction state test.

**Figure B1**

*Kruskal-Wallis Induction State Output Significant Result*

<b>Ranks</b>			
	I_State	N	Mean Rank
OBE_Index	Sleep States	67	92.72
	MHT	15	89.20
	Phy&emoT	29	75.69
	Near Death	13	82.81
	Drug&Ana	22	95.50
	Multi/Stacked	22	132.68
	Antos	15	66.27
	Total	183	

**Test Statistics<sup>a,b</sup>**

OBE_Index	
Kruskal-Wallis H	19.830
df	6
Asymp. Sig.	.003

a. Kruskal Wallis Test

b. Grouping Variable:  
I\_State

The following figure details the statistically significant output of the Kruskal-Wallis body position test.

**Figure B2**

*Kruskal-Wallis Body Position Output Significant Result*

<b>Ranks</b>			
	Body_Position	N	Mean Rank
OBE_Index	Laying	137	93.66
	Sitting	28	78.13
	Standing	11	50.59
	Total	176	

**Test Statistics<sup>a,b</sup>**

	OBE_Index
Kruskal-Wallis H	8.668
df	2
Asymp. Sig.	.013

a. Kruskal Wallis Test

b. Grouping Variable:  
Body\_Position

The following figure details the statistically significant output of the Mann-Whitney U eyelid test.

**Figure B3**

*Mann-Whitney U Eyelid Output Significant Result*

		Ranks		
	Eyelids	N	Mean Rank	Sum of Ranks
OBE_Index	Open	36	64.01	2304.50
	Closed	120	82.85	9941.50
	Total	156		

**Test Statistics<sup>a</sup>**

	OBE_Index
Mann-Whitney U	1638.500
Wilcoxon W	2304.500
Z	-2.195
Asymp. Sig. (2-tailed)	.028

a. Grouping Variable: Eyelids



The following figure details the statistically significant output of the Kruskal-Wallis anxiety / depression test.

**Figure B4**

*Kruskal-Wallis Anxiety / Depression Output Significant Result*

<b>Ranks</b>			
	Anx_dep_B	N	Mean Rank
OBE_Index	Anxiety Only	36	97.10
	Depression Only	9	69.22
	Both Anx and Dep	88	101.10
	Neither	49	74.23
	Total	182	

**Test Statistics<sup>a,b</sup>**

	OBE_Index
Kruskal-Wallis H	10.214
df	3
Asymp. Sig.	.017

a. Kruskal Wallis Test

b. Grouping Variable:  
Anx\_dep\_B

The following figure details the statistically significant output of the Mann-Whitney U chronic hallucination test.

**Figure B5**

*Mann-Whitney U Chronic Hallucination Output Significant Result*

<b>Ranks</b>				
	Chronic_H	N	Mean Rank	Sum of Ranks
OBE_Index	Yes	18	116.63	1866.00
	No	165	88.52	14605.00
	Total	181		

<b>Test Statistics<sup>a</sup></b>	
	OBE_Index
Mann-Whitney U	910.000
Wilcoxon W	14605.000
Z	-2.050
Asymp. Sig. (2-tailed)	.040

a. Grouping Variable:  
Chronic\_H

The following figure details the statistically significant output of the Mann-Whitney U intentional vs. not intentional test.

**Figure B6**

*Mann-Whitney U Intentional vs. not Intentional Output Significant Result*

Ranks				
	IntelvsNon	N	Mean Rank	Sum of Ranks
OBE_Index	Intentional	20	136.10	2722.00
	Not Intentional	162	85.99	13931.00
	Total	182		

Test Statistics <sup>a</sup>	
	OBE_Index
Mann-Whitney U	728.000
Wilcoxon W	13931.000
Z	-4.051
Asymp. Sig. (2-tailed)	.000

a. Grouping Variable:  
IntelvsNon

The following figure details the statistically significant output of the Kruskal-Wallis spirituality levels test.

**Figure B7**

*Kruskal-Wallis Spirituality Levels Output Significant Result*

		<b>Ranks</b>	
		Section A Question 14 – Q14 – How spiritual do you consider yourself to be?	
		N	Mean Rank
OBE_Index	Very Spiritual	75	101.26
	Quite Spiritual	59	95.03
	Somewhat Spiritual	35	78.30
	Not Spiritual at all	12	44.08
	Total	181	

**Test Statistics<sup>a,b</sup>**

		OBE_Index
Kruskal-Wallis H		14.922
df		3
Asymp. Sig.		.002

a. Kruskal Wallis Test

b. Grouping Variable:  
Section A Question 14  
– Q14 – How spiritual  
do you consider  
yourself to be?

The following figure details the percentages of the crosstab and symmetric statistical output for change in view of death and seeing feeling the presence of an unknown non-physical being.

**Figure B8**  
*Chi-Squared Crosstab and Symmetric Output Significant Result 1*

		Section C Question 28 - Q28 - During your OBE, did you experience FEELING the presence of an unknown non- physical being?			
		Yes	No	Total	
Death_View	Changed	Count	53	39	92
		Expected Count	40.8	51.2	92.0
		% within Death_View	57.6%	42.4%	100.0%
		% within Section C Question 28 - Q28 - During your OBE, did you experience FEELING the presence of an unknown non-physical being?	79.1%	46.4%	60.9%
		% of Total	35.1%	25.8%	60.9%
	Not Changed	Count	14	45	59
		Expected Count	26.2	32.8	59.0
		% within Death_View	23.7%	76.3%	100.0%
		% within Section C Question 28 - Q28 - During your OBE, did you experience FEELING the presence of an unknown non-physical being?	20.9%	53.6%	39.1%
		% of Total	9.3%	29.8%	39.1%
Total	Count	67	84	151	
	Expected Count	67.0	84.0	151.0	
	% within Death_View	44.4%	55.6%	100.0%	
	% within Section C Question 28 - Q28 - During your OBE, did you experience FEELING the presence of an unknown non-physical being?	100.0%	100.0%	100.0%	
	% of Total	44.4%	55.6%	100.0%	

**Symmetric Measures**

		Value	Approximate Significance
Nominal by Nominal	Phi	.333	<.001
	Cramer's V	.333	<.001
N of Valid Cases		151	

The following figure details the percentages of the crosstab and symmetric statistical output for change in view of death and seeing an unknown non-physical being.

**Figure B9**  
*Chi-Squared Crosstab and Symmetric Output Significant Result 2*

		Section C Question 29 - Q29 - During your OBE, did you experience SEEING an unknown non-physical being?			
			Yes	No	Total
Death_View	Changed	Count	37	59	96
		Expected Count	26.3	69.7	96.0
		% within Death_View	38.5%	61.5%	100.0%
		% within Section C Question 29 - Q29 - During your OBE, did you experience SEEING an unknown non-physical being?	86.0%	51.8%	61.1%
		% of Total	23.6%	37.6%	61.1%
	Not Changed	Count	6	55	61
		Expected Count	16.7	44.3	61.0
		% within Death_View	9.8%	90.2%	100.0%
		% within Section C Question 29 - Q29 - During your OBE, did you experience SEEING an unknown non-physical being?	14.0%	48.2%	38.9%
		% of Total	3.8%	35.0%	38.9%
Total	Count	43	114	157	
	Expected Count	43.0	114.0	157.0	
	% within Death_View	27.4%	72.6%	100.0%	
	% within Section C Question 29 - Q29 - During your OBE, did you experience SEEING an unknown non-physical being?	100.0%	100.0%	100.0%	
	% of Total	27.4%	72.6%	100.0%	

**Symmetric Measures**

		Value	Approximate Significance
Nominal by Nominal	Phi	.314	<.001
	Cramer's V	.314	<.001
N of Valid Cases		157	

The following figure details the percentages of the crosstab and symmetric statistical output for change in view of death and feelings the presence of spiritual entities or beings.

**Figure B10**  
*Chi-Squared Crosstab and Symmetric Output Significant Result 3*

		Section C Question 30 - Q30 - During your OBE, did you experience FEELING the presence of spiritual entities of beings?			
			Yes	No	Total
Death_View	Changed	Count	50	41	91
		Expected Count	37.4	53.6	91.0
		% within Death_View	54.9%	45.1%	100.0%
		% within Section C Question 30 - Q30 - During your OBE, did you experience FEELING the presence of spiritual entities of beings?	83.3%	47.7%	62.3%
		% of Total	34.2%	28.1%	62.3%
	Not Changed	Count	10	45	55
		Expected Count	22.6	32.4	55.0
		% within Death_View	18.2%	81.8%	100.0%
		% within Section C Question 30 - Q30 - During your OBE, did you experience FEELING the presence of spiritual entities of beings?	16.7%	52.3%	37.7%
		% of Total	6.8%	30.8%	37.7%
Total	Count	60	86	146	
	Expected Count	60.0	86.0	146.0	
	% within Death_View	41.1%	58.9%	100.0%	
	% within Section C Question 30 - Q30 - During your OBE, did you experience FEELING the presence of spiritual entities of beings?	100.0%	100.0%	100.0%	
	% of Total	41.1%	58.9%	100.0%	

**Symmetric Measures**

		Value	Approximate Significance
Nominal by Nominal	Phi	.362	<.001
	Cramer's V	.362	<.001
N of Valid Cases		146	

The following figure details the percentages of the crosstab and symmetric statistical output for change in view of death and seeing spiritual entities or beings.

**Figure B11**  
*Chi-Squared Crosstab and Symmetric Output Significant Result 4*

		Section C Question 31 - Q31 - During your OBE, did you experience SEEING spiritual entities or beings?			
			Yes	No	Total
Death_View	Changed	Count	36	55	91
		Expected Count	24.8	66.2	91.0
		% within Death_View	39.6%	60.4%	100.0%
		% within Section C Question 31 - Q31 - During your OBE, did you experience SEEING spiritual entities or beings?	90.0%	51.4%	61.9%
		% of Total	24.5%	37.4%	61.9%
		Not Changed	Count	4	52
	Expected Count	15.2	40.8	56.0	
	% within Death_View	7.1%	92.9%	100.0%	
	% within Section C Question 31 - Q31 - During your OBE, did you experience SEEING spiritual entities or beings?	10.0%	48.6%	38.1%	
	% of Total	2.7%	35.4%	38.1%	
	Total	Count	40	107	147
	Expected Count	40.0	107.0	147.0	
% within Death_View	27.2%	72.8%	100.0%		
% within Section C Question 31 - Q31 - During your OBE, did you experience SEEING spiritual entities or beings?	100.0%	100.0%	100.0%		
% of Total	27.2%	72.8%	100.0%		

**Symmetric Measures**

		Value	Approximate Significance
Nominal by Nominal	Phi	.354	<.001
	Cramer's V	.354	<.001
N of Valid Cases		147	



The following figure details the percentages of the crosstab and symmetric statistical output for change in view of death and seeing surroundings being illuminated by something other than normal light.

**Figure B12**  
*Chi-Squared Crosstab and Symmetric Output Significant Result 5*

		Section C Question 63 - Q63 - During your OBE, did you experience SEEING your surroundings being illuminated by something other than normal light?			
		Yes	No	Total	
Death_View	Changed	Count	55	36	91
		Expected Count	42.1	48.9	91.0
		% within Death_View	60.4%	39.6%	100.0%
		% within Section C Question 63 - Q63 - During your OBE, did you experience SEEING your surroundings being illuminated by something other than normal light?	79.7%	45.0%	61.1%
		% of Total	36.9%	24.2%	61.1%
	Not Changed	Count	14	44	58
		Expected Count	26.9	31.1	58.0
		% within Death_View	24.1%	75.9%	100.0%
		% within Section C Question 63 - Q63 - During your OBE, did you experience SEEING your surroundings being illuminated by something other than normal light?	20.3%	55.0%	38.9%
		% of Total	9.4%	29.5%	38.9%
Total	Count	69	80	149	
	Expected Count	69.0	80.0	149.0	
	% within Death_View	46.3%	53.7%	100.0%	
	% within Section C Question 63 - Q63 - During your OBE, did you experience SEEING your surroundings being illuminated by something other than normal light?	100.0%	100.0%	100.0%	
	% of Total	46.3%	53.7%	100.0%	

**Symmetric Measures**

		Value	Approximate Significance
Nominal by Nominal	Phi	.355	<.001
	Cramer's V	.355	<.001
N of Valid Cases		149	

The following figure details the percentages of the crosstab and symmetric statistical output for the reduction in fear of death and feeling the presence of spiritual entities or beings.

**Figure B13**  
*Chi-Squared Crosstab and Symmetric Output Significant Result 6*

		Section C - Question 30 - Q30 - During your OBE, did you experience FEELING the presence of spiritual entities of beings?			
		Yes	No	Total	
RFD	A Reduction	Count	52	45	97
		Expected Count	41.9	55.1	97.0
		% within RFD	53.6%	46.4%	100.0%
		% within Section C - Question 30 - Q30 - During your OBE, did you experience FEELING the presence of spiritual entities of beings?	81.3%	53.6%	65.5%
		% of Total	35.1%	30.4%	65.5%
	Non Reduction	Count	12	39	51
		Expected Count	22.1	28.9	51.0
		% within RFD	23.5%	76.5%	100.0%
		% within Section C - Question 30 - Q30 - During your OBE, did you experience FEELING the presence of spiritual entities of beings?	18.8%	46.4%	34.5%
		% of Total	8.1%	26.4%	34.5%
Total	Count	64	84	148	
	Expected Count	64.0	84.0	148.0	
	% within RFD	43.2%	56.8%	100.0%	
	% within Section C - Question 30 - Q30 - During your OBE, did you experience FEELING the presence of spiritual entities of beings?	100.0%	100.0%	100.0%	
	% of Total	43.2%	56.8%	100.0%	

**Symmetric Measures**

		Value	Approximate Significance
Nominal by Nominal	Phi	.355	<.001
	Cramer's V	.355	<.001
N of Valid Cases		148	

The following figure details the percentages of the crosstab and symmetric statistical output for the reduction in fear of death and seeing spiritual entities or beings.

**Figure B14**  
*Chi-Squared Crosstab and Symmetric Output Significant Result 7*

		Section C Question 31 - Q31 - During your OBE, did you experience SEEING spiritual entities or beings?				
		Yes	No	Total		
RFD	A Reduction	Count	37	61	98	
		Expected Count	27.8	70.2	98.0	
		% within RFD	37.8%	62.2%	100.0%	
		% within Section C Question 31 - Q31 - During your OBE, did you experience SEEING spiritual entities or beings?	88.1%	57.5%	66.2%	
		% of Total	25.0%	41.2%	66.2%	
		Non Reduction	Count	5	45	50
			Expected Count	14.2	35.8	50.0
	% within RFD		10.0%	90.0%	100.0%	
	% within Section C Question 31 - Q31 - During your OBE, did you experience SEEING spiritual entities or beings?		11.9%	42.5%	33.8%	
	% of Total		3.4%	30.4%	33.8%	
	Total		Count	42	106	148
	Expected Count		42.0	106.0	148.0	
	% within RFD	28.4%	71.6%	100.0%		
	% within Section C Question 31 - Q31 - During your OBE, did you experience SEEING spiritual entities or beings?	100.0%	100.0%	100.0%		
% of Total	28.4%	71.6%	100.0%			

**Symmetric Measures**

		Value	Approximate Significance
Nominal by Nominal	Phi	.291	<.001
	Cramer's V	.291	<.001
N of Valid Cases		148	

The following figure details the percentages of the crosstab and symmetric statistical output for the reduction in fear of death and seeing lights around you or at distance.

**Figure B15**  
*Chi-Squared Crosstab and Symmetric Output Significant Result 8*

		Section C Question 46 - Q46 - During your OBE, did you experience SEEING lights around you or at a distance?			
		Yes	No	Total	
RFD	A Reduction	Count	42	57	99
		Expected Count	32.3	66.7	99.0
		% within RFD	42.4%	57.6%	100.0%
		% within Section C Question 46 - Q46 - During your OBE, did you experience SEEING lights around you or at a distance?	85.7%	56.4%	66.0%
		% of Total	28.0%	38.0%	66.0%
		Non Reduction	Count	7	44
	Expected Count	16.7	34.3	51.0	
	% within RFD	13.7%	86.3%	100.0%	
	% within Section C Question 46 - Q46 - During your OBE, did you experience SEEING lights around you or at a distance?	14.3%	43.6%	34.0%	
	% of Total	4.7%	29.3%	34.0%	
Total	Count	49	101	150	
	Expected Count	49.0	101.0	150.0	
	% within RFD	32.7%	67.3%	100.0%	
	% within Section C Question 46 - Q46 - During your OBE, did you experience SEEING lights around you or at a distance?	100.0%	100.0%	100.0%	
	% of Total	32.7%	67.3%	100.0%	

**Symmetric Measures**

		Value	Approximate Significance
Nominal by Nominal	Phi	.290	<.001
	Cramer's V	.290	<.001
N of Valid Cases		150	

The following figure details the percentages of the crosstab and symmetric statistical output for change in relationship to the divine and feeling the presence of an unknown non-physical being.

**Figure B16**  
*Chi-Squared Crosstab and Symmetric Output Significant Result 9*

		Section C Question 28 - Q28 - During your OBE, did you experience FEELING the presence of an unknown non- physical being?			
		Yes	No	Total	
R_Devine	A change	Count	41	25	66
		Expected Count	28.9	37.1	66.0
		% within R_Devine	62.1%	37.9%	100.0%
		% within Section C Question 28 - Q28 - During your OBE, did you experience FEELING the presence of an unknown non-physical being?	65.1%	30.9%	45.8%
		% of Total	28.5%	17.4%	45.8%
	No Change	Count	22	56	78
		Expected Count	34.1	43.9	78.0
		% within R_Devine	28.2%	71.8%	100.0%
		% within Section C Question 28 - Q28 - During your OBE, did you experience FEELING the presence of an unknown non-physical being?	34.9%	69.1%	54.2%
		% of Total	15.3%	38.9%	54.2%
Total	Count	63	81	144	
	Expected Count	63.0	81.0	144.0	
	% within R_Devine	43.8%	56.3%	100.0%	
	% within Section C Question 28 - Q28 - During your OBE, did you experience FEELING the presence of an unknown non-physical being?	100.0%	100.0%	100.0%	
	% of Total	43.8%	56.3%	100.0%	

**Symmetric Measures**

		Value	Approximate Significance
Nominal by Nominal	Phi	.341	<.001
	Cramer's V	.341	<.001
N of Valid Cases		144	

The following figure details the percentages of the crosstab and symmetric statistical output for change in relationship to the divine and feeling the presence of spiritual entities or beings.

**Figure B17**  
*Chi-Squared Crosstab and Symmetric Output Significant Result 10*

		Section C Question 30 - Q30 - During your OBE, did you experience FEELING the presence of spiritual entities of beings?			
		Yes	No	Total	
R_Devine	A change	Count	40	26	66
		Expected Count	27.0	39.0	66.0
		% within R_Devine	60.6%	39.4%	100.0%
		% within Section C Question 30 - Q30 - During your OBE, did you experience FEELING the presence of spiritual entities of beings?	69.0%	31.0%	46.5%
		% of Total	28.2%	18.3%	46.5%
	No Change	Count	18	58	76
		Expected Count	31.0	45.0	76.0
		% within R_Devine	23.7%	76.3%	100.0%
		% within Section C Question 30 - Q30 - During your OBE, did you experience FEELING the presence of spiritual entities of beings?	31.0%	69.0%	53.5%
		% of Total	12.7%	40.8%	53.5%
Total	Count	58	84	142	
	Expected Count	58.0	84.0	142.0	
	% within R_Devine	40.8%	59.2%	100.0%	
	% within Section C Question 30 - Q30 - During your OBE, did you experience FEELING the presence of spiritual entities of beings?	100.0%	100.0%	100.0%	
	% of Total	40.8%	59.2%	100.0%	

**Symmetric Measures**

		Value	Approximate Significance
Nominal by Nominal	Phi	.375	<.001
	Cramer's V	.375	<.001
N of Valid Cases		142	

The following figure details the percentages of the crosstab and symmetric statistical output for change in relationship to the divine and seeing spiritual entities or beings.

**Figure B18**  
*Chi-Squared Crosstab and Symmetric Output Significant Result 11*

		Section C Question 31 - Q31 - During your OBE, did you experience SEEING spiritual entities or beings?			
			Yes	No	Total
R_Devine	A change	Count	29	36	65
		Expected Count	17.4	47.6	65.0
		% within R_Devine	44.6%	55.4%	100.0%
		% within Section	76.3%	34.6%	45.8%
		C Question 31 - Q31 - During your OBE, did you experience SEEING spiritual entities or beings?			
		% of Total	20.4%	25.4%	45.8%
	No Change	Count	9	68	77
		Expected Count	20.6	56.4	77.0
		% within R_Devine	11.7%	88.3%	100.0%
		% within Section	23.7%	65.4%	54.2%
C Question 31 - Q31 - During your OBE, did you experience SEEING spiritual entities or beings?					
	% of Total	6.3%	47.9%	54.2%	
Total	Count	38	104	142	
	Expected Count	38.0	104.0	142.0	
	% within R_Devine	26.8%	73.2%	100.0%	
	% within Section	100.0%	100.0%	100.0%	
	C Question 31 - Q31 - During your OBE, did you experience SEEING spiritual entities or beings?				
	% of Total	26.8%	73.2%	100.0%	

**Symmetric Measures**

		Value	Approximate Significance
Nominal by Nominal	Phi	.371	<.001
	Cramer's V	.371	<.001
N of Valid Cases		142	

The following figure details the percentages of the crosstab and symmetric statistical output for change in relationship to the divine and feeling the presence of a deceased loved one or pet.

**Figure B19**  
*Chi-Squared Crosstab and Symmetric Output Significant Result 12*

		Section C Question 36 - Q36 - During your OBE, did you experience FEELING the presence of a deceased loved one or pet?			
		Yes	No	Total	
R_Devine	A change	Count	18	49	67
		Expected Count	11.7	55.3	67.0
		% within R_Devine	26.9%	73.1%	100.0%
		% within Section C Question 36 - Q36 - During your OBE, did you experience FEELING the presence of a deceased loved one or pet?	69.2%	39.8%	45.0%
		% of Total	12.1%	32.9%	45.0%
	No Change	Count	8	74	82
		Expected Count	14.3	67.7	82.0
		% within R_Devine	9.8%	90.2%	100.0%
		% within Section C Question 36 - Q36 - During your OBE, did you experience FEELING the presence of a deceased loved one or pet?	30.8%	60.2%	55.0%
		% of Total	5.4%	49.7%	55.0%
Total	Count	26	123	149	
	Expected Count	26.0	123.0	149.0	
	% within R_Devine	17.4%	82.6%	100.0%	
	% within Section C Question 36 - Q36 - During your OBE, did you experience FEELING the presence of a deceased loved one or pet?	100.0%	100.0%	100.0%	
	% of Total	17.4%	82.6%	100.0%	

**Symmetric Measures**

		Value	Approximate Significance
Nominal by Nominal	Phi	.224	.006
	Cramer's V	.224	.006
N of Valid Cases		149	



The following figure details the percentages of the crosstab and symmetric statistical output for change in relationship to the divine and the ability to see 360 degrees.

**Figure B20**  
*Chi-Squared Crosstab and Symmetric Output Significant Result 13*

		Section C Question 57 - Q57 - During your OBE, did you experience the ability to SEE 360 degrees?			
		Yes	No	Total	
R_Devine	A change	Count	24	33	57
		Expected Count	14.5	42.5	57.0
		% within R_Devine	42.1%	57.9%	100.0%
		% within Section C Question 57 - Q57 - During your OBE, did you experience the ability to SEE 360 degrees?	72.7%	34.0%	43.8%
		% of Total	18.5%	25.4%	43.8%
	No Change	Count	9	64	73
		Expected Count	18.5	54.5	73.0
		% within R_Devine	12.3%	87.7%	100.0%
		% within Section C Question 57 - Q57 - During your OBE, did you experience the ability to SEE 360 degrees?	27.3%	66.0%	56.2%
		% of Total	6.9%	49.2%	56.2%
Total	Count	33	97	130	
	Expected Count	33.0	97.0	130.0	
	% within R_Devine	25.4%	74.6%	100.0%	
	% within Section C Question 57 - Q57 - During your OBE, did you experience the ability to SEE 360 degrees?	100.0%	100.0%	100.0%	
	% of Total	25.4%	74.6%	100.0%	

**Symmetric Measures**

		Value	Approximate Significance
Nominal by Nominal	Phi	.339	<.001
	Cramer's V	.339	<.001
N of Valid Cases		130	

The following figure details the percentages of the crosstab and symmetric statistical output for change in relationship to the divine and the feeling of an expansion of consciousness to a larger than normal size.

**Figure B21**  
*Chi-Squared Crosstab and Symmetric Output Significant Result 14*

		Section C Question 70 - Q70 - During your OBE, did you experience FEELING an expansion of your consciousness or non-physical body to a LARGER than normal size?			
		Yes	No	Total	
R_Devine	A change	Count	42	25	67
		Expected Count	31.3	35.7	67.0
		% within R_Devine	62.7%	37.3%	100.0%
		% within Section C Question 70 - Q70 - During your OBE, did you experience FEELING an expansion of your consciousness or non- physical body to a LARGER than normal size?	64.6%	33.8%	48.2%
		% of Total	30.2%	18.0%	48.2%
	No Change	Count	23	49	72
		Expected Count	33.7	38.3	72.0
		% within R_Devine	31.9%	68.1%	100.0%
		% within Section C Question 70 - Q70 - During your OBE, did you experience FEELING an expansion of your consciousness or non- physical body to a LARGER than normal size?	35.4%	66.2%	51.8%
		% of Total	16.5%	35.3%	51.8%
Total	Count	65	74	139	
	Expected Count	65.0	74.0	139.0	
	% within R_Devine	46.8%	53.2%	100.0%	
	% within Section C Question 70 - Q70 - During your OBE, did you experience FEELING an expansion of your consciousness or non- physical body to a LARGER than normal size?	100.0%	100.0%	100.0%	
	% of Total	46.8%	53.2%	100.0%	

**Symmetric Measures**

		Value	Approximate Significance
Nominal by Nominal	Phi	.308	<.001
	Cramer's V	.308	<.001
N of Valid Cases		139	

The following figure details the percentages of the crosstab and symmetric statistical output for change in worldview and feeling the presence of spiritual entities or beings.

**Figure B22**  
*Chi-Squared Crosstab and Symmetric Output Significant Result 15*

		Section C Question 30 - Q30 - During your OBE, did you experience FEELING the presence of spiritual entities of beings?			
		Yes	No	Total	
World_View	A Change	Count	57	50	107
		Expected Count	44.6	62.4	107.0
		% within World_View	53.3%	46.7%	100.0%
		% within Section C Question 30 - Q30 - During your OBE, did you experience FEELING the presence of spiritual entities of beings?	87.7%	54.9%	68.6%
		% of Total	36.5%	32.1%	68.6%
	No Change	Count	8	41	49
		Expected Count	20.4	28.6	49.0
		% within World_View	16.3%	83.7%	100.0%
		% within Section C Question 30 - Q30 - During your OBE, did you experience FEELING the presence of spiritual entities of beings?	12.3%	45.1%	31.4%
		% of Total	5.1%	26.3%	31.4%
Total	Count	65	91	156	
	Expected Count	65.0	91.0	156.0	
	% within World_View	41.7%	58.3%	100.0%	
	% within Section C Question 30 - Q30 - During your OBE, did you experience FEELING the presence of spiritual entities of beings?	100.0%	100.0%	100.0%	
	% of Total	41.7%	58.3%	100.0%	

**Symmetric Measures**

		Value	Approximate Significance
Nominal by Nominal	Phi	.348	<.001
	Cramer's V	.348	<.001
N of Valid Cases		156	

The following figure details the percentages of the crosstab and symmetric statistical output for change in worldview and seeing spiritual entities or beings.

**Figure B23**  
*Chi-Squared Crosstab and Symmetric Output Significant Result 16*

		Section C Question 31 - Q31 - During your OBE, did you experience SEEING spiritual entities or beings?			
		Yes	No	Total	
World_View	A Change	Count	38	67	105
		Expected Count	28.9	76.1	105.0
		% within World_View	36.2%	63.8%	100.0%
		% within Section C Question 31 - Q31 - During your OBE, did you experience SEEING spiritual entities or beings?	88.4%	59.3%	67.3%
		% of Total	24.4%	42.9%	67.3%
	No Change	Count	5	46	51
		Expected Count	14.1	36.9	51.0
		% within World_View	9.8%	90.2%	100.0%
		% within Section C Question 31 - Q31 - During your OBE, did you experience SEEING spiritual entities or beings?	11.6%	40.7%	32.7%
		% of Total	3.2%	29.5%	32.7%
Total	Count	43	113	156	
	Expected Count	43.0	113.0	156.0	
	% within World_View	27.6%	72.4%	100.0%	
	% within Section C Question 31 - Q31 - During your OBE, did you experience SEEING spiritual entities or beings?	100.0%	100.0%	100.0%	
	% of Total	27.6%	72.4%	100.0%	
		Value	Approximate Significance		
Nominal by Nominal	Phi	.277	<.001		
	Cramer's V	.277	<.001		
N of Valid Cases		156			

The following figure details the percentages of the crosstab and symmetric statistical output for change in worldview and the ability to feel at an abnormal distance.

**Figure B24**  
*Chi-Squared Crosstab and Symmetric Output Significant Result 17*

		Section C Question 53 - Q53 - During your OBE, did you experience the ability to FEEL at an abnormal distance?			
		Yes	No	Total	
World_View	A Change	Count	37	63	100
		Expected Count	27.8	72.2	100.0
		% within World_View	37.0%	63.0%	100.0%
		% within Section	88.1%	57.8%	66.2%
		% of Total	24.5%	41.7%	66.2%
	No Change	Count	5	46	51
		Expected Count	14.2	36.8	51.0
		% within World_View	9.8%	90.2%	100.0%
		% within Section	11.9%	42.2%	33.8%
		% of Total	3.3%	30.5%	33.8%
Total	Count	42	109	151	
	Expected Count	42.0	109.0	151.0	
	% within World_View	27.8%	72.2%	100.0%	
	% within Section	100.0%	100.0%	100.0%	
	% of Total	27.8%	72.2%	100.0%	

**Symmetric Measures**

		Value	Approximate Significance
Nominal by Nominal	Phi	.287	<.001
	Cramer's V	.287	<.001
N of Valid Cases		151	

The following figure details the percentages of the crosstab and symmetric statistical output for change in worldview and the ability to see 360 degrees.

**Figure B25**  
*Chi-Squared Crosstab and Symmetric Output Significant Result 18*

		Section C Question 57 - Q57 - During your OBE, did you experience the ability to SEE 360 degrees?			
		Yes	No	Total	
World_View	A Change	Count	33	64	97
		Expected Count	25.1	71.9	97.0
		% within World_View	34.0%	66.0%	100.0%
		% within Section C Question 57 - Q57 - During your OBE, did you experience the ability to SEE 360 degrees?	86.8%	58.7%	66.0%
		% of Total	22.4%	43.5%	66.0%
	No Change	Count	5	45	50
		Expected Count	12.9	37.1	50.0
		% within World_View	10.0%	90.0%	100.0%
		% within Section C Question 57 - Q57 - During your OBE, did you experience the ability to SEE 360 degrees?	13.2%	41.3%	34.0%
		% of Total	3.4%	30.6%	34.0%
Total		Count	38	109	147
		Expected Count	38.0	109.0	147.0
		% within World_View	25.9%	74.1%	100.0%
		% within Section C Question 57 - Q57 - During your OBE, did you	100.0%	100.0%	100.0%

**Symmetric Measures**

		Value	Approximate Significance
Nominal by Nominal	Phi	.260	.002
	Cramer's V	.260	.002
N of Valid Cases		147	

The following figure details the percentages of the crosstab and symmetric statistical output for change in relationship to other people and feeling an expansion of consciousness or non-physical body to a larger than normal size.

**Figure B26**  
*Chi-Squared Crosstab and Symmetric Output Significant Result 19*

		Section C Question 70 - Q70 - During your OBE, did you experience FEELING an expansion of your consciousness or non-physical body to a LARGER than normal size?			
		Yes	No	Total	
R_People	A Change	Count	44	27	71
		Expected Count	33.5	37.5	71.0
		% within R_People	62.0%	38.0%	100.0%
		% within Section C Question 70 - Q70 - During your OBE, did you experience FEELING an expansion of your consciousness or non- physical body to a LARGER than normal size?	64.7%	35.5%	49.3%
		% of Total	30.6%	18.8%	49.3%
	No Change	Count	24	49	73
		Expected Count	34.5	38.5	73.0
		% within R_People	32.9%	67.1%	100.0%
		% within Section C Question 70 - Q70 - During your OBE, did you experience FEELING an expansion of your consciousness or non- physical body to a LARGER than normal size?	35.3%	64.5%	50.7%
		% of Total	16.7%	34.0%	50.7%
Total		Count	68	76	144
		Expected Count	68.0	76.0	144.0
		% within R_People	47.2%	52.8%	100.0%
		% within Section C Question 70 - Q70 - During your OBE, did you experience FEELING an expansion of your consciousness or non- physical body to a LARGER than normal size?	100.0%	100.0%	100.0%
		% of Total	47.2%	52.8%	100.0%

**Symmetric Measures**

		Value	Approximate Significance
Nominal by Nominal	Phi	.291	<.001
	Cramer's V	.291	<.001
N of Valid Cases		144	

The following figure details the percentages of the crosstab and symmetric statistical output for change in relationship to other people and the ability to see 360 degrees.

**Figure B27**  
*Chi-Squared Crosstab and Symmetric Output Significant Result 20*

		Section C Question 57 - Q57 - During your OBE, did you experience the ability to SEE 360 degrees?			
		Yes	No	Total	
R_People	A Change	Count	23	41	64
		Expected Count	17.7	46.3	64.0
		% within R_People	35.9%	64.1%	100.0%
		% within Section C Question 57 - Q57 - During your OBE, did you experience the ability to SEE 360 degrees?	62.2%	42.3%	47.8%
		% of Total	17.2%	30.6%	47.8%
	No Change	Count	14	56	70
		Expected Count	19.3	50.7	70.0
		% within R_People	20.0%	80.0%	100.0%
		% within Section C Question 57 - Q57 - During your OBE, did you experience the ability to SEE 360 degrees?	37.8%	57.7%	52.2%
		% of Total	10.4%	41.8%	52.2%
Total	Count	37	97	134	
	Expected Count	37.0	97.0	134.0	
	% within R_People	27.6%	72.4%	100.0%	
	% within Section C Question 57 - Q57 - During your OBE, did you experience the ability to SEE 360 degrees?	100.0%	100.0%	100.0%	
	% of Total	27.6%	72.4%	100.0%	

**Symmetric Measures**

		Value	Approximate Significance
Nominal by Nominal	Phi	.178	.039
	Cramer's V	.178	.039
N of Valid Cases		134	



The following figure details the percentages of the crosstab and symmetric statistical output for change in view of self and seeing spiritual entities or beings.

**Figure B28**  
*Chi-Squared Crosstab and Symmetric Output Significant Result 21*

		Section C Question 31 - Q31 - During your OBE, did you experience SEEING spiritual entities or beings?			
		Yes	No	Total	
View_of_Self	A change	Count	36	68	104
		Expected Count	28.9	75.1	104.0
		% within View_of_Self	34.6%	65.4%	100.0%
		% within Section C Question 31 - Q31 - During your OBE, did you experience SEEING spiritual entities or beings?	83.7%	60.7%	67.1%
	No Change	Count	7	44	51
		Expected Count	14.1	36.9	51.0
		% within View_of_Self	13.7%	86.3%	100.0%
		% within Section C Question 31 - Q31 - During your OBE, did you experience SEEING spiritual entities or beings?	16.3%	39.3%	32.9%
Total	Count	43	112	155	
	Expected Count	43.0	112.0	155.0	
	% within View_of_Self	27.7%	72.3%	100.0%	
	% within Section C Question 31 - Q31 - During your OBE, did you experience SEEING spiritual entities or beings?	100.0%	100.0%	100.0%	
		Value	Approximate Significance		
Nominal by Nominal	Phi	.219	.006		
	Cramer's V	.219	.006		
N of Valid Cases		155			

### Appendix C - Shortened Pilot 'OBE' Questionnaire

A Survey to Explore the Nature and Effects of the Out-of-Body Experience.

#### Participant Background Information

- Age \_\_\_\_\_
  - Occupation \_\_\_\_\_
  - Religious Background \_\_\_\_\_
- 

#### Section A

##### Question 1

How many OBEs have you had? If you are unsure, type unsure.

- \_\_\_\_\_
- 

#### Section A

##### Question 2

How old were you when you had your first OBE? If you are unsure, type unsure.

- \_\_\_\_\_
- 

#### Section A

##### Question 3



Section A

Question 6A

Which best describes your experience?

- The experience had a vividness and realness that was exceptionally strong. This was something that was as vivid as the experience of a normal real world wakeful conscious awareness.
- The experience had a vividness and realness similar to a vivid dream.
- The experience had a vividness and realness similar to a psychedelic trip.
- The experience had a vividness and realness similar to a hypnotic state.
- The experience had a vividness and realness similar to a deep meditation.
- I'm unsure which best describes my experience

Section A

Question 7A

	7A			
	Real	Like a dream	An hallucination	Unsure
Immediately after the experience did you believe that the experience was real, like a dream, or a hallucination?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Section A

7B

Please, explain briefly why.

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Section A

Question 8A

	Q8A			
	Real	Like a dream	An hallucination	Unsure
In present day, do you believe that the experience was real, like a dream, or a hallucination?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Section A

8B

Please, explain briefly why.

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Section A

Question 9A

	Q9A		
	Yes	No	Unsure
Did you travel to a location away from physical body?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

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Section A

9B

If yes, were you familiar previously with this location? If no, or unsure, please type N/A for not applicable.

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Section A

9C

Please, describe briefly this location and if you are aware, its distance from where you started your OBE, or type N/A for not applicable.

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Section A

Question 10

	Q10		
	Yes	No	Unsure
Did you experience anything that you later tried to validate or check real?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Section A

Question 11

	Q11				
	Real	Not real	Unsure	Could not gain validation either way	Not applicable
If yes, upon investigation did it appear what you experienced was real or not real? If no, or unsure, please select not applicable.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Section A

## Question 12

	Q12		
	Yes	No	Unsure
During your OBE did you experience seeing your physical body?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

---

## Section A

## Question 13

	Q13		
	Yes	No	Unsure
During your OBE did you experience having a non-physical body?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

---

## Section B

For this section, please click all boxes that are relevant from the 5 options. For



example, if you experienced something just before and during the OBE, please click both boxes.

	Just before	During	Just after	Did not experience	Unsure
Seeing your physical body	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
The feeling or visual experience of bodily distortions such as stretching of or addition of extra limbs.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Sounds such as buzzing, humming, explosions or roaring.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
A feeling of floating.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
A visual experience of floating.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
A feeling of sinking into the surface your physical body was on.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
A visual experience of sinking into the surface your physical body was on.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
A feeling of spinning.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
A visual experience of spinning.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
A feeling or sense of timelessness or time distortion.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

A feeling of vibrations or tingling.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Sleep paralysis (awakening or falling to sleep and appearing to have a wakeful awareness but are unable to physically move).	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Being touched or lifted.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Panic attack, or overwhelming surge of fear.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Hearing voices of unknown origin.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Hearing footsteps of unknown origin.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Hearing strange vibrations of unknown origin.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Seeing through closed eyelids.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Saw or felt the presence of spiritual entities or beings.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Seeing or feeling the presence of an unknown non-physical being.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Seeing, hearing or speaking to a deceased loved one.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
An epileptic fit.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
A jolt or jerk awake.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
A feeling of having a non-physical body.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Seeing yourself as having a non-physical body.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Loss of consciousness.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Sensations of falling.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Passed through tunnel, enclosure or place leaving the body.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Cardiac arrest.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Oxygen deprivation.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Saw surroundings from above.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Saw lights around or at a distance.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Saw a ray of light, cord, ribbon or rope connecting the non-physical self to the physical body.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Seeing images of past events or actions of your life.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Seeing through physical objects.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
The ability to see around corners.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
The ability to see 360 degrees.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Surroundings being illuminated by something other than normal light.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Seeing or perceived at an abnormal distance.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Obtained information about events at an abnormal distance.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Saw mist, fog, or clouds.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Hearing music of unknown origin.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Hearing wind-like sounds of unknown origin.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Hearing clicking or snapping sounds of unknown origin.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
The ability to pass through physical matter.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Sense of oneness with surroundings.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
The ability to effect physical objects with thought.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Expansion of consciousness or non-physical body to a larger than normal size.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Felt surroundings expand or contract.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Feeling of all-knowing and understanding.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Moving or travelling through time.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

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Section C

Question 1

Did you experience anything not detailed above that you consider unusual? If yes, please describe briefly this part of the experience. If no, please type N/A for not applicable.

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Section C

Question 2

Did you experience anything not detailed above that you consider significant? If yes, please describe briefly this part of the experience. If no, please type N/A for not applicable.

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Section C

Question 3

	Q3		
	Yes	No	Unsure
Has the experienced changed how you view death? (1)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Section C

Question 4

	Q4		
	Yes	No	Unsure

Has the experience  
changed your  
relationship to the  
divine?




Section C

Question 5

	Q5		
	Yes	No	Unsure
Has the experience changed how you view the world?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Section C

Question 6

	Q6		
	Yes	No	Unsure
Has the experience changed your relationship to other people?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Section C

Question 7

	Q7		
	Yes	No	Unsure



Has the experience changed how you view yourself?

Section C

Question 8

	Q8		
	Yes	No	Unsure
Has the experience caused a change of lifestyle?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Section C

Question 9

	Q9		
	Yes	No	Unsure
Did the experience have any positive impact on your mind and well-being?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Section C

Question 10

	Q10		
	Yes	No	Unsure

Did the experience  
have any negative  
impact on your  
mind and well-  
being?



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Are you open to being interviewed, at a future date, regarding your OBE?  
If you select yes, you will be waving your right to anonymity for this  
survey and will be asked to fill in personal contact information.  
Contact information (email, phone number etc.)

Yes \_\_\_\_\_

No

## Appendix D - Survey Participant Information Sheets

### Shortened Pilot Survey Participant Information Sheet

#### **PARTICIPANT INFORMATION SHEET**

[A Survey to Explore the Nature and Effects of the Out-of-Body Experience]

You are being invited to take part in a research project. Before you decide whether you want to take part, it is important for you to understand why the research is being done and what will be involved. Please take the time to read the following information carefully.

Who is conducting the research?

The project is being conducted by Ross Bartlett, as part of his research degree in psychology at Buckinghamshire New University.

What is the purpose of the study?

The Out-of-Body Experience (OBE) can be most simply defined as any form of experience where, to the individual, there is a sense of having separated from the body. This pilot survey will explore the nature and psychological effects of OBEs.

What is involved in participating?

You will be asked to answer a number of questions. There are no right or wrong answers and it is not a test. The questions will simply explore your OBE and explore possible characteristics of OBEs. It should only take between 20 to 25 minutes of your time.

Will what I say or do in this study be kept confidential?

You will not be asked to give your name or any identification during the questionnaire, nor will any IP addresses be saved, so all the information you give will be anonymous and confidential. Only the researcher and his supervisors will have access to the data, which will be stored by the researcher in accordance with the Buckinghamshire New University policy on data security.

The raw survey data will be stored securely on the *Qualtrics* research data-gathering platform, where it is protected by high-end firewall systems. Data files of the raw data will also be stored on a password-protected computer. The raw data will be analysed using the Statistical Package for the Social Sciences (SPSS) software. The resulting analysed data files will also be stored on a password-protected computer.

The anonymised data will be used for a thesis and may form part of a published article and/or conference/seminar paper. The data generated in the course of the research will be destroyed once the thesis has been examined, or if the data is likely to be used for a publication and/or conference/seminar paper, it will be transferred to a supervisor and kept for a period of ten years after the completion of the research project.

At the end of the questionnaire, you will be asked to indicate if you are open to being interviewed about your experience at a later date. Should you select yes, you will be waiving your right to anonymity for the survey and will be asked to fill in personal contact information. It is up to you to decide whether you are open to this, as participation is entirely voluntary. You are free to withdraw your consent to be contacted regarding being interviewed, at any time, by contacting the researcher and without giving a reason.

Do I have to take part in the survey?

No, it is up to you to decide whether to take part, as participation is entirely voluntary. If you do decide to take part you will be asked to indicate on the online questionnaire that you have read this and give consent to take part. You are still free to withdraw at any time, up to two weeks after completing the survey, without giving a reason and without penalty. To do this, you can email the researcher anonymously through: <http://anonymouse.org/anonemail.html> and quote your anonymity code, which will be generated at the start of the questionnaire and state you wish to withdraw from the study.

What are the possible benefits and risks of taking part?

Benefits of taking part in this study include aiding research into the understanding of OBEs and our understanding of the mind. The main beneficiary of the study is the researcher, who will use the data for his research degree programme. No risks are anticipated in taking part in this study.

Who has reviewed the study?

The Research and Ethics Committee at Buckinghamshire New University have approved this study.

If you have any questions regarding this study, please contact either:

Researcher: Ross Bartlett  
Email: [ross.bartlett@bucks.ac.uk](mailto:ross.bartlett@bucks.ac.uk)

Supervisor: Dr Matthew Smith  
Email: [matthew.smith@bucks.ac.uk](mailto:matthew.smith@bucks.ac.uk)

Supervisor: Dr Ciaran O'Keeffe  
Email: [Ciaran.okeeffe@bucks.ac.uk](mailto:Ciaran.okeeffe@bucks.ac.uk)

Supervisor: Dr Piers Worth  
Email: [piers.worth@bucks.ac.uk](mailto:piers.worth@bucks.ac.uk)

Department of Psychology  
Buckinghamshire New University  
Queen Alexandra Road  
High Wycombe  
Buckinghamshire HP11 2JZ  
Tel.: 01494 522 141

You can email the researcher or supervisor anonymously through <http://anonymouse.org/anonemail.html>

**If you would like to take the survey now, please click on this link to give your consent and begin.**

**Full Survey Participant Information Sheet**

**PARTICIPANT INFORMATION SHEET**

[A Survey to Explore the Nature and Effects of Out-of-Body Experiences]

You are being invited to take part in a research project. Before you decide whether you want to take part, it is important for you to understand why the research is being done and what will be involved. Please take the time to read the following information carefully.

**Who is conducting the research?**

The project is being conducted by Ross Bartlett, as part of his research degree in psychology at Buckinghamshire New University.

**What is the purpose of the study?**

The Out-of-Body Experience (OBE) can be most simply defined as any form of experience where, to the individual, there is a sense of having separated from the body. This survey will explore the nature and psychological effects of OBEs.

**What is involved in participating?**

You will be asked to answer a number of questions. There are no right or wrong answers and it is not a test. The questions will simply explore your OBE and explore possible characteristics of OBEs. There are 4 main sections named A,B,C,D. It should typically only take between 45 to 50 minutes of your time. There is a progress bar that will highlight how far you are towards completing the survey.

**Will what I say or do in this study be kept confidential?**

You will not be asked to give your name or any identification during the questionnaire, and all the information you give will be anonymous and confidential. Only the researcher and his supervisors will have access to the data, which will be stored by the researcher in accordance with the Buckinghamshire New University policy on data security.

The raw survey data will be stored securely on the *Qualtrics* research data-gathering platform, where it is protected by high-end firewall systems. Data files of the raw data will also be stored on a password-protected computer. The raw data will be analysed using the IBM SPSS Statistics software. The resulting analysed data files will also be stored on a password-protected computer.

The anonymised data will be used for a thesis and may form part of a published article and/or conference/seminar paper. The data generated in the course of the research will be destroyed once the thesis has been examined, or if the data is likely to be used for a

publication and/or conference/seminar paper, it will be transferred to a supervisor and kept for a period of ten years after the completion of the research project.

At the end of the questionnaire, you will be asked to indicate if you are open to being interviewed about your experience at a later date. Should you select yes, you will be waiving your right to anonymity for the survey and will be asked to fill in personal contact information. It is up to you to decide whether you are open to this, as participation is entirely voluntary. You are free to withdraw your consent to be contacted regarding being interviewed, at any time, by contacting the researcher and without giving a reason.

### **Do I have to take part in the survey?**

No, it is up to you to decide whether to take part, as participation is entirely voluntary. If you do decide to take part you will be asked to indicate on the online questionnaire that you have read this and give consent to take part. You are still free to withdraw at any time, up to two weeks after completing the survey, without giving a reason and without penalty. To do this, you can email the researcher anonymously through: <http://anonymouse.org/anonemail.html> and quote your anonymity code, which will be generated at the start of the questionnaire and state you wish to withdraw from the study.

### **What are the possible benefits and risks of taking part?**

Benefits of taking part in this study include aiding research into the understanding of OBEs and our understanding of the mind. The main beneficiary of the study is the researcher, who will use the data for his research degree programme. No risks are anticipated in taking part in this study.

### **Who has reviewed the study?**

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Supervisor: Dr Ciaran O'Keeffe  
Email: [Ciaran.okeeffe@bucks.ac.uk](mailto:Ciaran.okeeffe@bucks.ac.uk)

Supervisor: Dr Piers Worth  
Email: [piers.worth@bucks.ac.uk](mailto:piers.worth@bucks.ac.uk)

Department of Psychology  
Buckinghamshire New University  
Queen Alexandra Road  
High Wycombe

Buckinghamshire HP11 2JZ  
Tel.: 01494 522 141

You can email the researcher or supervisor anonymously through  
<http://anonymouse.org/anonemail.html>

**If you would like to take the survey now, please click on this link to give your consent and begin.**

[https://buckspsychology.eu.qualtrics.com/jfe/form/SV\\_cCQ86SFsYgMaSG1](https://buckspsychology.eu.qualtrics.com/jfe/form/SV_cCQ86SFsYgMaSG1)

## Appendix E - Survey Debrief Sheets

### Shortened Pilot Survey Debrief Sheet

Debrief statement (as found at the end of the questionnaire)

A Survey to Explore the Nature and Effects of the Out-of-Body Experience

Thank you very much for taking the time to participate in this study. The purpose of this study was to gain a greater understanding of the nature and psychological effects of the OBE.

It is hoped that the findings will contribute to the existing body of knowledge and, perhaps, be of help to people looking to find answers on their OBE.

If you would like to find out more about OBEs you might find these links useful:

<http://www.grahamnicholls.com/>

Website of researcher in OBEs where you will find information on various research, facts and opinions on OBEs

<https://www.susanblackmore.co.uk/>

Website of researcher in OBEs where you will find information on various research, facts and opinions on OBEs

<http://www.parapsych.org/users/carlos/profile.aspx>

Profile page of researcher in OBEs where you will find information on various OBE based research

[http://www.research.lancs.ac.uk/portal/en/people/craig-murray\(d748cb23-1ec9-4042-9119-7bf2962fd9a6\)/publications.html](http://www.research.lancs.ac.uk/portal/en/people/craig-murray(d748cb23-1ec9-4042-9119-7bf2962fd9a6)/publications.html)

Profile page of researcher in OBEs where you will find information on various OBE based research

<https://vimeo.com/7696775>

Video of a lecture on OBEs by Carlos Alvarado

<https://vimeo.com/148914385>

Video of a lecture on OBEs by Susan Blackmore

In the unlikely event that you feel negatively affected by any aspect of this study or wish to talk to someone other than the researcher about any related issues, please explore and contact the following:

<http://www.oberf.org/>

[https://www.meetup.com/topics/out-of-body-experience/?\\_cookie-check=e5LnE3\\_jbVfjkWoz](https://www.meetup.com/topics/out-of-body-experience/?_cookie-check=e5LnE3_jbVfjkWoz)

If you have any additional questions regarding this study, please contact either:

Researcher: Ross Bartlett



Email: ross.bartlett@bucks.ac.uk

Supervisor: Dr Matthew Smith  
Email: matthew.smith@bucks.ac.uk

Supervisor: Dr Ciaran O'Keeffe  
Email: ciaran.okeeffe@bucks.ac.uk

Supervisor: Dr Piers Worth  
Email: piers.worth@bucks.ac.uk

Department of Psychology  
Buckinghamshire New University  
Queen Alexandra Road  
High Wycombe  
Buckinghamshire HP11 2JZ  
Tel.: 01494 522 141

You can email the researcher or supervisor anonymously through  
<http://anonymouse.org/anonemail.htmlb>.

Please copy this information for future reference.

### **Full Survey Debrief Sheet**

Debrief Statement (as found at the end of the questionnaire)

#### A Survey to Explore the Nature and Effects of Out-of-Body Experiences

Thank you very much for taking the time to participate in this study. The purpose of this study was to gain a greater understanding of the nature and psychological effects of OBEs.

It is hoped that the findings will contribute to the existing body of knowledge and, perhaps, be of help to people looking to find answers on their OBE.

If you would like to find out more about OBEs you might find these links useful:

<http://www.grahamnicholls.com/>

Website of researcher in OBEs where you will find information on various research, facts and opinions on OBEs

<https://www.susanblackmore.co.uk/>

Website of researcher in OBEs where you will find information on various research, facts and opinions on OBEs

<http://www.parapsych.org/users/carlos/profile.aspx>

Profile page of researcher in OBEs where you will find information on various OBE based research

[http://www.research.lancs.ac.uk/portal/en/people/craig-murray\(d748cb23-1ec9-4042-9119-7bf2962fd9a6\)/publications.html](http://www.research.lancs.ac.uk/portal/en/people/craig-murray(d748cb23-1ec9-4042-9119-7bf2962fd9a6)/publications.html)

Profile page of researcher in OBEs where you will find information on various OBE based research

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In the unlikely event that you feel negatively affected by any aspect of this study or wish to talk to someone other than the researcher about any related issues, please explore and contact the following:

<http://www.oberf.org/>

[https://www.meetup.com/topics/out-of-body-experience/?\\_cookie-check=e5LnE3\\_jbVfjkWoz](https://www.meetup.com/topics/out-of-body-experience/?_cookie-check=e5LnE3_jbVfjkWoz)

If you have any additional questions regarding this study, please contact either:

Researcher: Ross Bartlett

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Supervisor: Dr Ciaran O'Keeffe

Email: [ciaranokeeffe@bucks.ac.uk](mailto:ciaranokeeffe@bucks.ac.uk)

Supervisor: Dr Piers Worth

Email: [piers.worth@bucks.ac.uk](mailto:piers.worth@bucks.ac.uk)

Department of Psychology  
Buckinghamshire New University  
Queen Alexandra Road  
High Wycombe  
Buckinghamshire HP11 2JZ  
Tel.: 01494 522 141

You can email the researcher or supervisor anonymously through  
<http://anonymouse.org/anonemail.htmlb>.

Please copy this information for future reference.

## Appendix F - Survey Informed Consent Forms

### Shortened Pilot Survey Informed Consent Form

Informed Consent Form (As it appears at the beginning of the questionnaire on *Qualtrics*)

#### INFORMED CONSENT

I confirm that I'm 18 or over, have read and understand the participant information for the study and have had the opportunity to ask questions.

I understand that taking part in the project will involve being asked a number of questions regarding exploring my Out-of-Body Experience (OBE) and exploring possible characteristics of OBEs.

I understand that my participation is voluntary and that I am free to withdraw, up to two weeks after completing the survey, without giving reason and without penalty. I understand that that I can do this by sending the researcher my anonymity code and stating that I wish to withdraw from the study.

I agree to take part in the study.

I consent to the processing of my personal information for the purposes of this research study. I understand that such information will be treated as strictly confidential and handled in accordance with the UK Data Protection Act 1998.

I agree that my data gathered in this study may be stored (after it has been anonymised) in a specialist data centre and may be used for future research; and that any researcher who has access to the data may only do so if they agree to preserve the confidentiality of the data.

Please click this to confirm you are willing to take part in this survey

### Full Survey Informed consent form

Informed Consent Form (as it appears at the beginning of the questionnaire on *Qualtrics*)

#### INFORMED CONSENT

I confirm that I am 18 or over, have read and understand the participant information for the study and have had the opportunity to ask questions.

I understand that taking part in the project will involve being asked a number of questions regarding exploring my Out-of-Body Experience (OBE) and exploring possible characteristics of OBEs.

I understand that my participation is voluntary and that I am free to withdraw, up to two weeks after completing the survey, without giving reason and without penalty. I understand that that I can do this by sending the researcher my anonymity code and stating that I wish to withdraw from the study.

**I agree to take part in the study.**

I consent to the processing of my personal information for the purposes of this research study. I understand that such information will be treated as strictly confidential and handled in accordance with the UK Data Protection Act 1998.

I agree that my data gathered in this study may be stored after it has been anonymised in a specialist data centre and may be used for future research; and that any researcher who has access to the data may only do so if they agree to preserve the confidentiality of the data.

Please click this to confirm you are willing to take part in this survey.

### Appendix G – The ‘OBE’ Feature Index the Author Expanded on

The following table displays the ‘OBE’ feature index used by Alverado and Zingrone (2015) that the author expanded on for his research.

**Table G1**

*The ‘OBE’ Feature Index the Author Expanded On*

<b>Phenomenon</b>
Saw the physical body
Could not move the physical body before OBE
Aware of sensations of leaving the body
Lost consciousness leaving the body
Sensation of falling leaving the body
Sensation of rising leaving the body
Passed through tunnel, enclosure, or place leaving the body
Felt vibrations or tingling sensations leaving the body
Heard sounds leaving the body
Entered place different from usual surroundings
Stayed in usual surroundings
Saw both the physical body and the second body while located in a third position
Saw surroundings from above
Saw lights around or at a distance
Saw ray of light, cord, ribbon, or rope connecting OB self to the physical body
Saw images of events or actions of person’s earlier life
Saw spiritual entities or beings
Could see through physical objects
Could see in 360 degrees
Could see around corners
Surroundings illuminated by something other than normal light
Obtained information about events at a distance
Seen or perceived at a distance
Saw mist, fog, or clouds
Heard music
Heard voices
Heard wind-like sounds
Heard clicking or snapping sounds
Heard buzzing sounds
Consciousness oscillated between OB location and physical body
Sensation of second OBE while OB

<b>Phenomenon</b>
Floating sensations
Passed through matter
Touched physical objects and felt they were physical
Moved physical objects
Could manipulate environment by thought
Felt connected to the physical body
Sense of energy
Sense of oneness with surroundings
Felt surroundings expand or contract
Feeling of all-knowing and understanding
Moving or travelling in time
Aware of sensations of returning to the body
Lost consciousness on return
Sensation of falling on return
Passed through tunnel, enclosure, or place on return
Felt vibrations on return
Heard sounds on return
Heard buzzing sounds on return
Heard clicking or snapping sounds on return
Heard wind-like sounds on return
Felt shock all over body on return
Could not move after returning to body

## **Appendix H - Ayahuasca Study Participant Information Sheet**

### **Participant Information Sheet**

#### **PARTICIPANT INFORMATION SHEET**

[A Study on the Phenomenology and Psychological Outcomes of Ritualistic Ayahuasca Induced Experiences in Peru.]

You are being invited to take part in a research project. Before you decide whether you want to take part, it is important for you to understand why the research is being done and what will be involved. Please take the time to read the following information carefully.

#### **Who is conducting the research?**

The project is being conducted by Ross Bartlett, as part of his research degree in psychology at Buckinghamshire New University.

#### **What is the purpose of the study?**

This study will investigate the happenings and mental outcomes of ayahuasca induced experiences. It is hoped that the findings of this study will contribute to the existing body of knowledge and, perhaps, be of help to people looking to find answers on their own experiences. Further, it should help add to the understanding of the potential therapeutic use of ayahuasca.

#### **What is involved in participating?**

You will be asked to answer a number of questions. There are no right or wrong answers and it is not a test. The questions will simply explore your experiences and possible psychological outcomes. In order to participate, it is required that you have a reasonable ability to read and speak English conversationally. All interviews will be conducted one on one and will be in a location within public view, but not within a distance that people could listen in on the interview. It is important that the information remains private.

#### **Will what I say or do in this study be kept confidential?**

You will not be asked to give your name or any identification during the interview, and all the information you give will be confidential. On the participant consent form you will be able to indicate a desired pseudonym for the study. Only the researcher and his supervisors will have access to the data, which will be stored by the researcher in accordance with the Buckinghamshire New University policy on data security.

The interview will be recoded onto a digital voice recorder, transcribed and stored on a password-protected computer. The interview recording will then be deleted and raw transcribed data will be analysed. The resulting analysed data files will also be stored on a password-protected computer.

The anonymised data will be used for a thesis and may form part of a published article and/or conference/seminar paper. The data generated in the course of the research will be destroyed once the thesis has been examined, or if the data is likely to be used for a publication and/or conference/seminar paper, it will be transferred to a supervisor and kept for a period of ten years after the completion of the research project.

**Do I have to take part in the study?**

No, it is up to you to decide whether to take part, as participation is entirely voluntary. If you do decide to take part you will be asked to indicate that you have read this sheet and give consent to take part. Further, you will then be asked to sign a second consent form just prior to the interview. You are still free to withdraw at any time, up to four weeks after completing the interview, without giving a reason and without penalty. To do this, you can email the researcher or phone or write to the psychology department and state your pseudonym and that you wish to withdraw from the study.

**What are the possible benefits and risks of taking part?**

Benefits of taking part in this study include aiding research into the understanding of ayahuasca and our understanding of the mind. The main beneficiary of the study is the researcher, who will use the data for his research degree programme. No risks are anticipated in taking part in this study.

**Can you make an informed decision?**

Due to your recent consumption of N,N-Dimethyltryptamine (DMT) derived from the shrub, *Psychotria viridis*, you should be aware that in signing the second consent form just prior to the interview, you are indicating that you believe you are able to make an informed decision on taking part in this study without an impairment of, or a disturbance in the functioning of, the mind or brain even if the nature of this impairment or disturbance is temporary.

**Who has reviewed the study?**

The Research and Ethics Committee at Buckinghamshire New University have approved this study.

If you have any questions regarding this study, please contact either:

Researcher: Ross Bartlett  
Email: ross.bartlett@bucks.ac.uk

Supervisor: Dr Matthew Smith  
Email: matthew.smith@bucks.ac.uk

Supervisor: Dr Ciaran O'Keeffe  
Email: Ciaran.okeeffe@bucks.ac.uk

Supervisor: Dr Piers Worth  
Email: piers.worth@bucks.ac.uk

Department of Psychology  
Buckinghamshire New University  
Queen Alexandra Road  
High Wycombe  
Buckinghamshire HP11 2JZ  
Tel.: 01494 522 141

Please keep this for your reference.



## Appendix I - Ayahuasca Study Informed Consent Form

### Informed Consent Form

**Full title of Project:** [A Study on the Phenomenology and Psychological Outcomes of Ritualistic Ayahuasca Induced Experiences in Peru.]

**Please tick box**

I confirm that I have read and understand the Participant Information Sheet for the above study and have had the opportunity to ask questions.

I understand that taking part in the study will involve being asked a number of questions regarding exploring my ayahuasca experience, which occurred during my participation in an ayahuasca ceremony.

I understand that my participation is voluntary and understand that I can refuse to answer questions and I can withdraw from the study at any time, without having to give a reason. I can withdraw my data from the study up to four weeks after completing the interview, without giving reason and without penalty.

I agree to take part in the above study.

I consent to the processing of my personal information for the purposes of this research study. I understand that such information will be treated as strictly confidential and handled in accordance with current UK Data Protection legislation.

I agree that my data gathered in this study may be stored (after it has been anonymised) in a specialist data centre and may be used for future research; and that any researcher who has access to these data may only do so if they agree to preserve the confidentiality of these data.

**Please tick box**

**Yes**

**No**

I agree to the interview being audio recorded.



I agree to the use of anonymised quotes in publications.




---

Desired pseudonym

---

Name of Participant

---

Date

---

Signature

---

Name of Researcher

---

Date

---

Signature

## Appendix J - Ayahuasca Study Debrief Sheet

### *Debrief Sheet*

[A Study on the Phenomenology and Psychological Outcomes of Recent Ayahuasca Induced Experiences in Peru.]

Thank you very much for taking the time to participate in this study. The purpose of this study was to gain a greater understanding of the nature and psychological effects of ayahuasca induced experiences. For example, it is known that out-of-body experiences (OBEs) can change an individual's fear of death, view of self, and lifestyle but the various mechanisms of these changes are not clear. It is hoped that the findings of this study will contribute to the existing body of knowledge and, perhaps, be of help to people looking to find answers on their own experiences. Further, it should help raise awareness of the potential therapeutic use of ayahuasca. We hope that you have found it interesting and have not been upset by any of the topics discussed. However, if you have found any part of this experience to be distressing or have any further questions you can speak to the researcher or one of the supervisors via the information below.

Researcher: Ross Bartlett  
Email: ross.bartlett@bucks.ac.uk

Supervisor: Dr Matthew Smith  
Email: matthew.smith@bucks.ac.uk

Supervisor: Dr Ciaran O'Keeffe  
Email: ciaran.okeeffe@bucks.ac.uk

Supervisor: Dr Piers Worth  
Email: piers.worth@bucks.ac.uk

Department of Psychology  
Buckinghamshire New University  
Queen Alexandra Road  
High Wycombe  
Buckinghamshire HP11 2JZ  
Tel.: 01494 522 141

There are also a number of organisations listed below that you can contact.

<b>Organisations on OBEs.</b>	<b>Organisations on Psychedelics and Ayahuasca.</b>
Out-of-body Experience Research Foundation <a href="https://www.oberf.org">https://www.oberf.org</a>	Psychedelic Support Network <a href="https://www.psychedellic.support/network/">https://www.psychedellic.support/network/</a>
Out-of-body Meet Up Group <a href="https://www.meetup.com/topics/out-of-body-experience/">https://www.meetup.com/topics/out-of-body-experience/</a>	Ayahuasca Meet Up Group <a href="https://www.meetup.com/topics/ayahuasca/">https://www.meetup.com/topics/ayahuasca/</a>

If you would like to find out more about OBEs you might find these webpages useful:

<http://www.grahamnicholls.com/>

Website of researcher in OBEs where you will find information on various research, facts and opinions on OBEs

<https://www.susanblackmore.co.uk/>

Website of researcher in OBEs where you will find information on various research, facts and opinions on OBEs

<http://www.parapsych.org/users/carlos/profile.aspx>

Profile page of researcher in OBEs where you will find information on various OBE based research

[http://www.research.lancs.ac.uk/portal/en/people/craig-murray\(d748cb23-1ec9-4042-9119-7bf2962fd9a6\)/publications.html](http://www.research.lancs.ac.uk/portal/en/people/craig-murray(d748cb23-1ec9-4042-9119-7bf2962fd9a6)/publications.html)

Profile page of researcher in OBEs where you will find information on various OBE based research

<https://vimeo.com/7696775>

Video of a lecture on OBEs by Carlos Alvarado

<https://vimeo.com/148914385>

Video of a lecture on OBEs by Susan Blackmore

Please keep this for your reference.

**Appendix K – Paul Interview Transcript**

1 RB: Paul interview  
2  
3 RB: LETS START WITH PARTICIPANT INFORMATION. COULD YOU PLEASE  
4 CONFIRM YOUR GENDER?  
5  
6 P: MALE.  
7  
8 RB: YOUR AGE?  
9  
10 P: 18.  
11  
12 RB: OCCUPATION?  
13  
14 P: FURNITURE SALESMAN.  
15  
16 RB: ANY RELIGIOUS BACKGROUND?  
17  
18 P: NO.  
19  
20 RB: AND HOW MANY TIMES HAVE YOU CONSUMED AYAHUASCA?  
21  
22 P: 3.  
23  
24 RB: CAN WE BRANCH OUT FROM THERE AND YOU CAN TELL ME YOUR MOST  
25 PROFOUND EXPERIENCE, DEPENDING ON HOW YOU FORMULATE  
26 EXPERIENCES, MIGHT BE DIFFICULT TO PICK ONE. JUST START FROM  
27 SOMEWHERE AND WE CAN BRANCH OUT FROM THERE?  
28  
29 P: WELL, I DID THE THREE EXPERIENCES, ONE AND AN OFF DAY, ONE AND AN  
30 OFF DAY, THEN ANOTHER. I THINK THE FIRST ONE WAS MOST PROFOUND  
31 AND THE THIRD ONE I WOULD SAY, BUT THE FIRST ONE I WOULD SAY  
32 SUBJECTIVELY BECAUSE IT WAS THE FIRST TIME I HAD THAT EXPERIENCE, A  
33 BIG LEAP, SO I WOULD SAY IT WAS THE FIRST ONE.  
34  
35 RB: WITH THE FIRST ONE COULD YOU TELL ME HOW THE EXPERIENCE  
36 STARTED?  
37  
38 P: IT WAS A GOOD CENTRE THAT I FOUND, I THINK ON THE FIRST SESSION  
39 THERE WERE NOT MANY OF US. WITH PEOPLES FIRST TIME THEY TEND TO  
40 WANT SMALLER GROUPS BECAUSE THEY CAN BE DIFFICULT TO WORK WITH.  
41 SO THERE WAS SIX OR SEVEN OF US AND THE SHAMAN, THE DOCTOR A  
42 CARDIOLOGIST AND PEOPLE LIKE THAT AND WE WERE GIVEN A CERTAIN  
43 AMOUNT BASED ON THE PSYCHOLOGICAL PROFILING DONE ON US TO  
44 DETERMINE THE RISK FACTOR AND I WAS GIVEN ABOUT HALF A CUP. IT  
45 TASTED AWFUL, ONE OF THE WORST THINGS I HAVE EVER TASTED. IT TOOK  
46 QUITE A LONG TIME BEFORE IT HAD ANY EFFECT. WE WERE IN THIS  
47 OUTDOOR HUT AND IT WAS QUITE WARM AND WE WERE IN SLEEPING BAGS

48 AND LOTS OF BLANKETS. I WAS SAT THERE IN A MEDITATIVE STATE, DOING  
49 THE BEST TO CONCENTRATE ON MY BREATHING, THE STANDARD APPROACH  
50 WHEN PEOPLE WOULD GO INTO IT, THEN WHAT THEY SAID THE FOLLOWING  
51 DAY WAS ABOUT AN HOUR AND A HALF. I THINK I WAS ONE OF THE LAST  
52 PEOPLE TO START FEELING THE EFFECT. I WAS IN A RAIN FOREST, I WASN'T  
53 SURE IF IT WAS JUST IN MY HEAD, ALL MY EARS JUST PICKING UP THE SOUNDS  
54 ALL AROUND. WE WERE IN THE SACRED VALLEY IN PERU, SO THERE WAS A  
55 LOT OF THINGS THAT COULD BE MAKING THAT NOISE LIKE DOGS BARKING.  
56 YOU COULD HEAR BIRDS AND NOISES LIKE THAT, LIKE A HUM LOUDER AND  
57 LOUDER LIKE A HIGH PITCH, LIKE A DOG WHISTLE THAT I HADN'T HEARD  
58 BEFORE. THAT WAS THE FIRST THING THAT I FELT IT WENT ON LONGER AND  
59 LONGER BUT IT PROBABLY DIDN'T. THEN I STARTED TO SEE AND I HAD MY  
60 EYES OPEN AND I HEARD THE NOISE AGAIN. IT WAS VERY DARK AND ALL YOU  
61 COULD SEE WAS THE FIRE AND THE SHAMAN WAS SINGING IN THE CENTRE  
62 AND MOVING ALONG TO EACH PERSON. HE HAD BEEN SINGING SO LONG THAT  
63 I WAS BLOCKING IT OUT OR GOT USED TO IT. ALL I COULD SEE WERE SOME  
64 SHADOWS, THE SHAMAN'S FACE IN THE FIRE AND A LITTLE OPENING IN THE  
65 HUT WE WERE IN WHERE I COULD SEE THE SKY WHICH WAS LIGHTER THAN  
66 IN THE HUT WE WERE IN. THEN I STARTED TO SEE ON TOP OF THAT MULTI  
67 COLOURED DOTS, RED, YELLOW AND OTHER COLOURS PULSING LIKE STATIC  
68 ON THE TELEVISION.

69

70 RB: IS THIS WITH YOUR EYES OPEN?

71

72 P: YES, WITH MY EYES OPEN, THEN I WAS A LITTLE CONFUSED AS TO  
73 WHETHER THEY WERE OPEN OR SHUT, SO I OPENED THEM AND THEN WHEN I  
74 SHUT THEM IT CAME A LOT MORE VIVID, IT TOOK OVER THE ENTIRE  
75 PERIPHERAL VISION AND THEY KEPT GROWING AND THE NOISE WAS  
76 GETTING LOUDER. IT WASN'T LIKE THREATENING OR SCARY BUT IT WAS  
77 GETTING LOUDER AND THEN I OPENED MY EYES AND IT SUBSIDED A BIT.  
78 SOMETHING THAT WASN'T PHYSICALLY THERE BUT I COULD SEE IT WITH MY  
79 EYES OPEN. THAT'S WHEN I FELT I WAS IN PSYCHEDELIC STATE THAT WAS  
80 BEYOND MY CONTROL. INTERNALLY AT LEAST I DIDN'T FEEL I WAS IN ANY  
81 DANGER BUT EXTERNALLY I FELT I WAS GETTING A BIT MORE LIKE THAT, MY  
82 BODY WAS REACTING EVEN THOUGH MY BRAIN WAS SAYING IT'S KIND OF  
83 FINE, MY BODY WAS SHAKING, I WAS SHAKING QUITE A LOT AND ONE OF THE  
84 NURSES ADVISED THAT I LAY DOWN IN THE SLEEPING BAG AND CLOSED MY  
85 EYES AND THEN IT REALLY STARTED TO TAKE OVER. I FELT FULLY DETACHED  
86 FROM MY BODY AND THE COLOURS BECAME MORE AND MORE VIVID AND  
87 THEY BECAME SHAPES AND THEN THEY BECAME THESE ENTITIES THAT I  
88 HEARD PEOPLE SAY THAT AYAHUASCA CAN DO THIS. THESE ENTITIES, I  
89 THINK, ARE CALLED CLOCKWORK ELVES OR GHOSTS OR ALIENS OR  
90 WHATEVER YOUR INTERPRETATIONS OF THEM ARE. THEY WEREN'T ANY  
91 PARTICULAR FORM, THEY WERE JUST PULSING IN AND OUT OF A SPIRALLY  
92 FRACTAL BACKGROUND, SO NOTHING WAS MATERIALISED AT ANY  
93 PARTICULAR TIME, THEY WERE JUST SHAPES, YOU COULD JUST ENVISAGE A  
94 HUMANOID SHAPE LIKE AN EYE, MAYBE A MOUTH, THEY WERE BECOMING  
95 MORE AND MORE VIVID, I COULD SEE THEM ALL AROUND ME LIKE 360  
96 DEGREES. I COULD TELL THEY WERE COMMUNICATING WITH EACH OTHER

97 BUT IT WASN'T VERBAL, LIKE IN A LANGUAGE IT WAS TELEPATHIC LIKE AN  
98 INSTANT LANGUAGE. I COULD TELL THEY WERE TALKING ABOUT ME SAYING  
99 HE IS NOT READY TO BE HIT YET, IT'S NOT HIS REALITY YET. I FELT I DIDN'T  
100 HAVE A SAY IN IT. I FELT HELPLESS LIKE AN OBJECT, WHAT SHALL WE DO  
101 WITH THIS THING, THEY WEREN'T BEING HOSTILE. IT WAS UNEMOTIONAL,  
102 WE DON'T NEED HIM. I HAD AN IDEA OF THEM PICKING ME UP AND  
103 THROWING ME AWAY AND I REALISED I HAD SPENT QUITE A LOT OF TIME  
104 NOT IN MY BODY. I DIDN'T KNOW WHERE I WAS, I COULDN'T FEEL MY HANDS,  
105 MY PHYSICAL BODY WAS NOWHERE TO BE FOUND. IT SNUCK UP ON ME I  
106 DIDN'T KNOW AT WHICH POINT I LEFT MY BODY AT THE POINT OF THEM  
107 THROWING ME I REALISED I HAD LEFT MY BODY AND HANG ON HOW LONG  
108 HAD I BEEN IN THIS PLACE AND MY WHOLE PERCEPTION COMPLETELY WENT  
109 OUT THE WINDOW AND I DIDN'T KNOW HOW LONG I HAD BEEN THERE. IT  
110 WAS SCARY BUT A BIT COOL BUT I STILL HAD IT IN MY HEAD THAT I WAS IN  
111 PERU DOING AYAHUASCA DOING THIS EXPERIENCE, I HAD NO IDEA WHERE I  
112 WAS OR WHO I WAS BUT I KNEW I HAD BEEN THROWN AND IT WAS LIKE  
113 TRAVELLING THROUGH LIGHT YEARS, DIFFERENT KINDS OF SPACE AND I WAS  
114 ON THIS JOURNEY, I WAS SEEING TWO THINGS AT ONCE, I WAS SEEING  
115 WHERE I WAS GOING, I WAS LIKE A BEAM OF LIGHT, I WAS IMMATERIAL, I  
116 WAS BEING THROWN INTO DIFFERENT REALITIES NOT ALIENS ON  
117 DIFFERENT PLANETS. IT WAS HARD TO EXPLAIN WITH HUMAN WORDS BUT  
118 DIFFERENT REALITIES. SHAPES THAT WE CAN'T PERCEIVE, I FELT LIKE WHAT  
119 PEOPLE CALL FOUR DIMENSIONAL, SHAPES THAT WOULD NOT EXIST IN OUR  
120 THREE DIMENSIONAL UNIVERSE, SEEING LOADS OF COLOURS THAT I HAD  
121 NOT SEEN BEFORE, DIFFERENT TO THE SPECTRUM THAT DOES EXIST AND AS  
122 I WAS GOING THROUGH I COULD SEE MY OWN LIFE, I COULD EXPERIENCE MY  
123 WHOLE LIFE IN REAL TIME AND AS I CAUGHT UP TO THAT TIME THEN THE  
124 WHOLE THING FLASHED AS IF I HAD BEEN THERE FIVE MINUTES, BUT AT THE  
125 TIME OF EXPERIENCING IT, IT FELT LIKE REAL TIME, IT BECAME WARPED  
126 AND TIME WENT COMPLETELY OUT THE WINDOW. THE SEQUENCE OF THESE  
127 EVENTS MIGHT NOT BE TOO ACCURATE BECAUSE I JUMPED FROM ONE TO  
128 ANOTHER BECAUSE I WAS GOING BACKWARDS AND FORWARDS BUT IT WAS  
129 ALL SIMULTANEOUS AND WHILE THIS WAS HAPPENING AS I WAS FLYING  
130 THROUGH THESE DIMENSIONS I WAS ABLE TO SEE IN THE DISTANCE BEHIND  
131 EVERYTHING WHICH WAS TWO DIMENSIONAL LAYERS AND I WAS ABLE TO  
132 SEE WHERE I PHYSICALLY WAS, I COULD SEE IT FROM ABOVE BUT NOT AS A  
133 POINT OF VIEW. I WAS SHAKING AND CONVULSING AND THROWING MY ARMS  
134 AROUND.

135  
136 RB: SO, YOU TALKED ABOUT SEEING DIFFERENT THINGS, WERE YOU AT ANY  
137 POINT ABLE TO LOOK BACK AT YOUR PHYSICAL BODY.

138  
139 P: MY OWN PHYSICAL BODY WHEN I WAS LOOKING AT IT LOOKED VERY  
140 NORMAL, BASIC AND LIKE REAL LIFE. SO THE STATE THAT I WAS IN LOOKING  
141 AT MY MATERIAL SELF AT THE SAME TIME WAS UNINTERESTING.

142  
143 RB: YOU WERE SEEING THAT FROM A DETACHED PERSPECTIVE?

144  
145 P: YES. I WAS LOOKING AT MYSELF, THE VERSION I COULD SEE WAS FLINGING

146 AROUND, I FELT I WAS GOING TO BE SICK BUT I WAS LAUGHING, I KNEW I WAS  
147 GOING TO BE ALRIGHT. BUT IN A WAY IF HE DIES I KNOW THAT IS GOING TO  
148 BE ME. BUT I WAS FINE IT DIDN'T FEEL VERY SIGNIFICANT. THE NEXT DAY  
149 WHEN I SAW EVERYONE I HAD BEEN TAKEN ME TO AN ON-SITE HOSPITAL. IT  
150 TOOK ABOUT THREE PEOPLE TO PICK ME UP BECAUSE I WAS FIGHTING THEM  
151 OFF, TRYING TO STAND UP AND THEN I FELL ONTO SOMEONE ELSE, I WAS  
152 JUST MAKING A NOISE AND BEING DISRUPTIVE. I WALKED INTO THIS  
153 HOSPITAL AND THEY GAVE ME MORPHINE AND THAT CALMED ME DOWN. I  
154 DO HAVE A MEMORY OF THE AYAHUASCA WEARING OFF. I DON'T KNOW IF  
155 THAT WAS THE RESULT OF THE MORPHINE BUT IT WAS JUST SILLY STUFF  
156 AND I WAS TALKING ABOUT POP CULTURE, I WAS TALKING ABOUT MICHAEL  
157 JACKSON. ALL THE NURSES ONLY SPOKE SPANISH AND I DON'T, BUT I WAS  
158 TRYING TO GET THEIR ATTENTION BUT NOBODY WOULD ANSWER ME I WAS  
159 LYING ON THE BED WITH PILES OF BLANKETS AND I WAS BITING THEM, THEN  
160 I SAID MICHAEL JACKSON AND THE PERUVIAN NURSE UNDERSTOOD THAT  
161 AND WAS LAUGHING, I THINK IT WAS THE MORPHINE.

162

163 RB: DURING THE TIME OF GOING FROM THE CEREMONY TO THE HOSPITAL, DO  
164 YOU HAVE ANY RECOLLECTION OR AWARENESS OF THAT?

165

166 P: YES. MOMENTS OF IT. THE WHOLE SEQUENCE OF THAT EVENING PLAYED  
167 OUT A FEW TIMES FROM DIFFERENT PERSPECTIVES , SO I DO HAVE A VAGUE  
168 RECOLLECTION OF THE WHOLE THING, BUT BIG CHUNKS OF IT ARE NOT  
169 THERE. THAT WAS WHEN I HAD NO ATTENTION ON IT, IT WAS ALL INWARD  
170 BUT I DO JUST REMEMBER FEELING VERY HEAVY AND VERY ODD. I CAN WALK,  
171 IT WILL BE FINE. NOT HAVING ANY EXPERIENCE BEFORE WITH MY MOTOR  
172 FUNCTION WAS REALLY IMPACTED AS MUCH AS THE AYAHUASCA, MUCH  
173 MORE SEVERE THAN OTHER EXPERIENCES FROM SUBSTANCES. I WAS BARELY  
174 ABLE TO STAND, MY LEGS FELT LIKE JELLY AND KEPT COLLAPSING AND  
175 EVENTUALLY THEY HAD ENOUGH PEOPLE TO PICK ME UP AND WALK ME  
176 THROUGH. GOING OUTSIDE FELT REALLY REFRESHING AND I WAS TOUCHING  
177 MY FACE, LOOKING AT MY HANDS, REAL PSYCHEDELIC STUFF, MY SENSES  
178 WERE OVERWHELMED WITH STUFF, LIKE HEARING, SENSES AND SMELLS.  
179 THE ONLY PART BEING SICK FOR THE FIRST TIME I REALLY CAN'T PLACE, THE  
180 SECOND AND THIRD TIME, I CAN. WHERE IN THE SEQUENCE I WAS SICK BUT I  
181 KNEW I COULDN'T FIND THE BUCKET. I HAVE NO RECOLLECTION BUT I HAVE  
182 THE RECOLLECTION OF BEING SICK. I MADE QUITE A MESS AND THEY HAD TO  
183 CLEAN IT AND I FELT QUITE EMBARRASSED THE NEXT DAY. EARLY IN THE  
184 MORNING I HAD NO RECOLLECTION BUT AS THE DAY WENT ON IT CAME  
185 BACK, BEING SICK YOUR SENSES ARE INTENSIFIED IT FELT SO REAL I WASN'T  
186 LOOKING AT ANYTHING. IT FELT LIKE THERE WAS A DEGREE OF HAVING TO  
187 LET GO IN THE BEING SICK THE FIRST TIME, I REALLY DIDN'T FEEL I  
188 ACHIEVED MUCH I DIDN'T DO MUCH WORK, THE EMPHASIS WERE IN THIS  
189 RETREAT ABOUT DOING SOME WORK, IMPROVEMENT AND INTENTIONS BUT I  
190 FELT MY FIRST TIME IT WAS WILD AND I JUMPED STRAIGHT INTO THE DEEP  
191 END, THERE WASN'T MUCH WORK DONE, IT WAS LIKE A SPECTACLE. THE  
192 SECOND ONE WAS NOT SO INTENSE BUT THE THIRD ONE WHEN I WAS BEING  
193 SICK, I JUST REMEMBER SEEING DIFFERENT MOMENTS FROM MY LIFE,  
194 DIFFERENT UNIVERSES I MIGHT HAVE SEEN STUFF THAT WAS ON EARTH,



195 THINGS IN THE PAST OR THE FUTURE, IT ALL FELT INSIGNIFICANT IN THE  
196 HUGE WEB OF EVERYTHING. IT WAS SO MINUTE BECAUSE THERE WAS BIGGER  
197 STUFF.

198

199 RB: THAT'S GREAT STUFF, VERY VIVID. WE WILL MOVE ON TO QUESTIONS  
200 FROM THAT. DO YOU FEEL THAT YOUR EXPERIENCE HAS CHANGED YOUR  
201 VIEW IN ANY WAY OF THE DIVINE?

202

203 P: YES, IT HAS. I DON'T COME FROM A RELIGIOUS BACKGROUND, I WOULD SAY  
204 THAT I BELIEVE IN GOD BUT I DON'T KNOW WHAT GOD IS, I THINK IT IS A  
205 SUBJECTIVE THING A FLUID THING. DIFFERENT THINGS AT DIFFERENT TIMES.  
206 THERE IS ALL DIFFERENT THINGS IN MY EYES THAT ARE THE SAME. SO I  
207 BELIEVED IN MY LIFE DIFFERENT CIRCUMSTANCES, LIKE MEDITATION AND I  
208 JUST FELT CONNECTED TO IT. I FELT THERE IS SOMETHING BEYOND,  
209 SOMETHING HUGE THAT WE ARE UNABLE TO PERCEIVE. SO I DID BELIEVE  
210 THAT GOING IN, SO I DID HAVE AN OPEN MIND GOING IN, SO I DO FEEL IN A  
211 SENSE THAT THERE ARE MORE QUESTIONS THAN ANSWERS, BUT IT HAS  
212 DEEPENED MY BELIEF. IT HAS MAYBE ENFORCED MY BELIEFS BUT THERE  
213 WAS A LOT OF THINGS ON DEATH AND REBIRTH AND THAT REINFORCED TO  
214 ME THAT THERE WAS AN AFTERLIFE, BUT WHICH I HADN'T BEEN SURE  
215 ABOUT BEFORE, BUT WITHOUT A SHADOW OF DOUBT THERE IS SOMETHING  
216 MORE THAN WHAT WE KNOW.

217

218 RB: WAS THERE ANYTHING SPECIFICALLY ABOUT THE EXPERIENCE, PERHAPS  
219 SEEING SOMETHING, HEARING SOMETHING OR COMING OUT OF YOUR BODY  
220 THAT YOU FEEL TOWARDS THE DEEPENING OR THE EXPANSION OF YOUR  
221 RELATIONSHIP WITH THE DIVINE?

222

223 P: ONE PART OF IT INVOLVED ME DYING, I DO IN A SENSE FEEL THAT  
224 HAPPENED, MY HEART PHYSICALLY STOPPED IN THIS INCARNATION ON A  
225 BIOLOGICAL LEVEL BUT I FELT IN A SPIRITUAL LEVEL I HAD DIED IN PART OF  
226 IT AND FOR A WHILE I WAS IN THIS STATE OF NOTHING. IT WAS OK, I WAS  
227 ALRIGHT THERE WAS NOTHING BUT A LOAD OF STUFF CAME AFTERWARDS. I  
228 THINK THAT REALLY AFFECTED MY VIEW ON IT BECAUSE I FELT WHAT IS  
229 THERE BEYOND LIFE, THAT SPECIFIC PART OF ME SEEING THE PERCEIVED  
230 SENSE OF DEATH. IT FELT LIKE AT RANDOM I WENT BACK INTO THE  
231 REINCARNATION I WAS IN, BUT BY CHANCE I COULD EASILY COME BACK AS  
232 SOMETHING ELSE. SO, THAT WAS THE BIGGEST THING THAT INFLUENCED ME,  
233 FEELING THE PRESENCE OF OTHERS AFTER DEATH.

234

235 RB: IN THAT PRESENCE DID YOU FEEL SOMETHING GREATER, SOMETHING  
236 DIVINE OR A GREATER ENTITY?

237

238 P: YES I CERTAINLY DID BUT I FELT THAT WAS MYSELF, THE ENTITY I WAS IN  
239 CONTROL OF ALTHOUGH I DIDN'T FEEL MUCH CONTROL IN THE FIRST  
240 EXPERIENCE AND THE ENTITIES ALL AROUND ME WERE ALL CONTROLLED BY  
241 THE SAME INTELLIGENCE AND ALIEN GHOST LIKE FELT VERY DIVINE, LIKE  
242 THOUSANDS OF THEM, THEY WERE ALL TELEPATHICALLY LINKED AND ON  
243 THE SAME PAGE, THEY WERE ALL GODLIKE.

244

245 RB: SO THEY WERE ALL INTERCONNECTED THESE FEELINGS AND THINGS?

246

247 P: YES.

248

249 RB: DID THAT EXPERIENCE CHANGE YOUR VIEW OF DEATH AT ALL?

250

251 P: I THINK SO, I WOULD SAY THE EXPERIENCE OF THE ENTITIES MADE ME  
252 FEEL LIKE THERE IS LIFE OUT THERE IN ANOTHER DIMENSION AND THAT WE  
253 CAN INTERACT WITH IT, IT HAS MADE ME FEEL CALMER ABOUT DEATH AND  
254 DYING.

255

256 RB: WITH THE OUT OF BODY EXPERIENCE HAS IT EXPANDED YOUR VIEW OF  
257 DEATH?

258

259 P: YES ON A PHYSICAL LEVEL, BUT IF I WAS ON A TALL BUILDING, THE FEAR  
260 OF THE HEIGHT BUT ON A CONCEPTUAL LEVEL I HAVEN'T GOT THE FEAR OF  
261 DEATH AFTER THAT BUT IF I WAS ON A LEDGE OF A BUILDING I WOULD HAVE  
262 A FEAR BUT I DON'T HAVE A FEAR OF DEATH, BECAUSE THERE IS SOMETHING  
263 AFTER BUT IF THERE ISN'T FOR SURE AFTER IT I KNOW WHAT I HAVE  
264 GLEANED IT'S OK, IT'S JUST THE NEXT STAGE. THE OUT-OF-BODY ASPECT  
265 SHOWS THERE IS SO MUCH MORE TO REALITY AND EXPERIENCES THAT WE  
266 DON'T KNOW OR PERCEIVE. JUST THE AWARENESS THAT EXISTS OF BEING  
267 ABLE TO SEE MY BODY FROM OUTSIDE JUST SHOWS THAT THE PHYSICAL  
268 BODY AND THE SPIRIT AND THE SOUL ARE NOT INTRINSICALLY LINKED THEY  
269 CAN BE VERY MUCH SEPARATE AND CAN GO BACK TOGETHER AND IT  
270 DOESN'T FEEL IMPORTANT TO THE PHYSICAL BODY IT'S ONLY TEMPORARY.

271

272 RB: CAN YOU CLARIFY THAT SPECIFIC THING ABOUT THE SOUL LEAVING THE  
273 BODY POTENTIALLY SURVIVING THE DEATH OF THE PHYSICAL BODY, WAS  
274 THAT AN UNDERSTANDING OR A BELIEF HAS SPECIFICALLY BEEN  
275 IMPLEMENTED BY THE OUT OF BODY AND AYAHUASCA EXPERIENCE OR WAS  
276 THAT SOMETHING YOU HAD REAFFIRMED?

277

278 P: THIS PART OF IT IS SOMETHING I HAVE BEEN QUESTIONING FOR SOME  
279 TIME SINCE THE LAST EXPERIENCE. THAT'S HARD TO SAY BUT I HAVE DONE A  
280 LOT OF RESEARCH ON IT MYSELF. I HAVE HEARD A LOT OF PEOPLE TALKING  
281 ABOUT IT AND MAYBE IT'S JUST A SENSE OF GOING INTO IT WITH  
282 EXPECTATIONS AND THOSE EXPECTATIONS JUST MANIFESTING FOR ME  
283 BECAUSE I WANTED TO SEE AND I WENT INTO IT WITH AN OPEN MIND OR  
284 IT'S JUST A CASE THAT DIFFERENT PEOPLE SEE DIFFERENT THINGS. SOME OF  
285 THE STUFF I HAD HEARD ABOUT I DEFINITELY DIDN'T EXPERIENCE. BUT I DID  
286 EXPERIENCE SOME THINGS THAT I HADN'T HEARD OF, SO SUBJECTIVELY IT'S  
287 IMPOSSIBLE TO MAKE THAT DISCERNMENT. SORRY, WHAT WAS THE  
288 QUESTION?

289

290 RB: DO YOU FEEL THE OUT OF BODY PROCESS AND INSTILLING AND RELATING  
291 TO YOU HAVING AN UNDERSTANDING THAT THE SOUL CAN LEAVE THE BODY  
292 AND TRANSCENDING AND SOMETIMES COMING IN. WAS THAT REAFFIRMED

293 OR WAS THAT SOMETHING THAT AROSE FROM THE EXPERIENCE?  
294

295 P: I FEEL LIKE I WAS OPEN TO THE CASE, I DON'T KNOW IF I NECESSARILY  
296 BELIEVED IN IT. IF SOMEBODY PRESSED ME I PROBABLY WOULD SAY YES. NOT  
297 IN A SENSE I WAS COMFORTABLE IN IT, ZERO CONFIDENCE IN IT, BUT AT A  
298 GUESS THAT'S ME. AFTER IT I FEEL MUCH MORE COMFORTABLE IN IT, STILL  
299 NOT A HUNDRED PERCENT IN IT, IT COULD ALL HAVE BEEN A  
300 HALLUCINATION, BUT IT DEFINITELY FELT VERY REAL. SO IT WASN'T THE  
301 AYAHUASCA THAT STARTED THE IDEA, IN A VARIETY OF OTHER PRINCIPLES  
302 AND TEXTS AND DIFFERENT IDEAS. I WAS INCLINED TO BELIEVE IT. BUT IT  
303 COULD BE THE AYAHUASCA THAT CONFIRMED IT. THE EXPERIENCE MADE IT  
304 FEEL MUCH MORE REAL. I DON'T KNOW IF YOU CAN TRUST YOUR  
305 EXPERIENCES OR WHAT SOMEONE ELSE IS SAYING.  
306

307 RB: GOOD ANSWER. MOVING ON TO THE NEXT QUESTION. HAS THE  
308 EXPERIENCE EXPANDED YOUR SENSE OF YOUR BODY, YOU HAVE TOUCHED ON  
309 THIS BEFORE IN DIFFERENT WAYS, THAT THERE WAS A REDUCTION IN THE  
310 FEAR OF DEATH, YOU TALKED ABOUT SEEING YOUR CONSCIOUSNESS AND  
311 YOUR BODY AS A SEPARATE ENTITY, IS THERE ANY OTHER WAY THAT THINGS  
312 EXPANDED YOUR VIEW OR RELATIONSHIP TO YOUR PHYSICAL BODY, DO YOU  
313 FEEL LESS CONNECTED TO IT OR MORE APPRECIATE OF IT OR LESS. YOU SAID  
314 IN THE EXPERIENCE A LOT OF THINGS SEEMED LESS IMPORTANT AND THINGS  
315 THAT STAYED WITH YOU?  
316

317 P: IT'S LIKE A PARADOX OR A CONTRADICTION, MY THINGS OF MY INDIVIDUAL  
318 SELF AND MY BODY FEEL LESS SIGNIFICANT THAT ISN'T IN A SENSE THAT'S  
319 IT'S WORTH NEGLECTING. IT'S LIKE THE OPPOSITE, IT'S GOING TO BE GONE SO  
320 MAKE THE MOST OF IT. ALL THERE IS TO IT IS TO LIVE WELL AND THAT LOVE  
321 IS THE KEY FOCUS. KINDNESS TOWARDS OTHERS AND YOURSELF SHOULD BE  
322 THE PRIMARY FOCUS AT ANY TIME, IN THAT BECOMES SELF LOVE AND  
323 EATING HEALTHILY. IT JUST PUTS STUFF INTO PERSPECTIVE. I WOULDN'T SAY  
324 I FEEL LESS CONNECTED TO MY PHYSICAL BODY, THERE IS A LOT MORE TO IT  
325 THAN IT. IT'S LIKE YOU HAVE ONE CAR AND YOU BUY SIX CARS AND DRIVE  
326 THEM ALL EQUALLY. THERE ARE JUST MORE OPTIONS.  
327

328 RB: AND HAS THE EXPERIENCE EXPANDED YOUR VIEW OF OTHER PEOPLE?  
329

330 P: YES, IT DEFINITELY HAS, IN PARTICULAR THE DISSOCIATION FROM SELF, IT  
331 HAS INCREASED MY EMPATHY. IT'S MADE ME THINK THAT WHEN PEOPLE  
332 ARE ACTING IN ANY WAY OTHER THAN PLEASANT, BUT JUST KNOW THAT  
333 WHATEVER THEIR PERSPECTIVE IS, THEY HAVE REACHED THAT THROUGH  
334 THEIR INDIVIDUAL EXPERIENCE AND EVERYONE IS DOING THEIR BEST NO  
335 MATTER HOW THEY ARE DOING THEIR OWN THING ON THE INFORMATION  
336 THEY HAVE. I THINK THAT IS ABSOLUTELY THE CASE AND IT OPENS UP A CAN  
337 OF WORMS, POLITICAL VIEWS AND ALL THE THINGS THAT I HAVE THOUGHT,  
338 WORLDLY THINGS, LIKE PRISON THINGS. I'M JUST AS LIKELY TO THINK THAT  
339 THEY DESERVE ANY KIND OF PUNISHMENT. I'M NOT SAYING I BELIEVE IN  
340 PRISON OR NO PRISON BUT FOR EXAMPLE I'M INCLINED TO HAVE A VIEW  
341 BECAUSE WHEN YOUR EMPATHY INCREASES IT MAKES IT EASIER TO SEE

342 THINGS FROM BOTH SIDES. A LOT OF THINGS I HAD FIRM VIEWS ON ARE LESS  
343 FIRM NOW, IN TERMS OF WORLDLY THINGS, LIKE POLITICAL TOPICS. JUST IN  
344 THE WAY OF FEELING I FELT ANGRY WITH PEOPLE SINCE, I HAVE NOT HAD A  
345 PERSONALITY CHANGE LONG TERM BUT JUST A SENSE OF EMPATHY. PEOPLE  
346 ARE NOT AS IMPORTANT AS THEY SEEM, SO IF SOMEBODY DIES IN A SENSE I  
347 AM LESS CONCERNED, I HAVE NOT HAD ANY MAJOR FAMILY DEATHS SINCE  
348 THE EXPERIENCE I'M NOT SURE HOW IT IS GOING TO IMPACT THAT BUT I DO  
349 FEEL MORE PREPARED FOR IT, AND I'M GOING TO HAVE A NATURAL GRIEVING  
350 BUT IT'S NOT GOING TO LINGER AND BE TOXICALLY BAD AS IT WOULD HAVE.

351

352 RB: CAN YOU IDENTIFY ANYTHING SPECIFICALLY ABOUT THE AYAHUASCA  
353 EXPERIENCE HAS LED TO THAT FEELING OF GREATER EMPATHY?

354

355 P: I THINK IT IS JUST THE ENTITIES THAT WERE SHOWING ME ALL THIS  
356 STUFF, BUT I FELT I CREPT IN THROUGH THE BACK DOOR, I DIDN'T MEAN TO  
357 CREEP IN IT JUST HAPPENED, I JUST APPEARED THERE IN THE MIDDLE OF A  
358 STAGE, I FELT I HAD GONE TOO FAR AND THE ONLY WAY TO GET ME BACK  
359 WAS TO THROW ME BACK THROUGH THE MIDDLE AND SHOW ME  
360 EVERYTHING. THEY WERE TRYING TO LIMIT EVERYTHING I COULD SEE, SO I  
361 COULDN'T SEE EVERYTHING, SO EVERYTHING THAT I SAW INFINITE PEOPLE,  
362 THEY WERE ALL DOING THEIR OWN THING, THEY WERE ALL LIVING THEIR  
363 OWN LIVES AND DIFFERENT ENTITIES DOING THEIR OWN THING AND  
364 THOUGHTS AND PERSPECTIVES AND THERE WERE SO MANY OF THEM, AND IT  
365 WAS LIKE ONE SYMPATHY AND TWO EMPATHY. IT FEELS LIKE A  
366 CONTRADICTION BECAUSE IF YOU FELT MORE EMPATHY TO SOMEONE IT  
367 WOULD BE MORE IMPORTANT BUT IT WASN'T, IT WAS THE SAME THING. YOU  
368 ARE ONLY HURTING YOURSELF IF YOU ARE ACTING NEGATIVELY TOWARDS  
369 SOMEONE BECAUSE THEY ARE YOU. I DO ALSO FEEL LIKE COMING OUT OF MY  
370 BODY MADE ME MORE EMPATHIC AND IN TURN VIEW MYSELF DIFFERENTLY.  
371 IT SHOWED ME I WAS NOT JUST FLESH AND BONE, I'M A CREATURE OF  
372 FEELING AND BEING MORE IN TOUCH WITH OTHER PEOPLE'S FEELINGS  
373 MAKES YOU SEE YOURSELF AS FUNDAMENTALLY THE SAME AS THEM.

374

375 RB: GOOD STUFF. HAS YOUR EXPERIENCE EXPANDED YOUR VIEW TO NATURE?

376

377 P: YES DEFINITELY, IT'S MADE ME APPRECIATE MUCH MORE, A CLEAR  
378 DIFFERENCE.

379

380 RB: CAN YOU IDENTIFY SOMETHING SPECIFICALLY, WAS THERE ANY  
381 INTERCONNECTEDNESS WITH SOMETHING. NOT JUST WITH HUMAN LIFE BUT  
382 WITH OTHER LIFE, DID YOU FEEL CONNECTED TO NATURE?

383

384 P: WHEN I TALK ABOUT THESE OTHER PEOPLE I FEEL I'M TALKING ABOUT  
385 TREES, GRASSES, WAVES AND SAND, BEFORE I CAME TO THE AYAHUASCA I  
386 DIDN'T LIKE SAND, BUT I LIKE SAND NOW. IT'S DIFFICULT TO PINPOINT THE  
387 AYAHUASCA BECAUSE MY WHOLE TIME IN PERU, BACK PACKING HAS  
388 CHANGED THIS. IN THE RETREAT CENTRE THERE WERE HAMMOCKS AND  
389 GRASS AND MY SENSE PERCEPTIONS WERE MASSIVELY INCREASED, SO  
390 FEELING TEXTURES AND STONES ON THE FLOOR AND THERE WERE DOGS

391 WHICH I HAD A REALLY DEEP CONNECTION WITH, AND ON MY FINAL TIME I  
392 WAS WALKING AROUND WITH THIS BIG LABRADOR WHICH WAS HUGE AND  
393 EVERYONE LOVED HIM, I ENDED UP LYING ON THE FLOOR WITH HIM, SPENT  
394 FOUR OR FIVE HOURS SLEEPING WITH HIM AND JUST WALKING AROUND THE  
395 AREA ON THE FINAL TIME AT NIGHT AND IT WAS QUITE COLD AND I WAS  
396 ENJOYING IT. WALKING WITH A BLANKET AROUND ME PAST THE TREES,  
397 SITTING IN THE HAMMOCK AND YOU DO THE THING WHERE YOU DON'T EAT  
398 FOR CERTAIN DAYS, IT MAKES YOUR HUNGER GO UP AND MY APPRECIATION  
399 FOR FRUIT REALLY WENT UP AND AN APPLE WAS THE FIRST THING I BIT  
400 INTO AFTER MY FIRST AYAHUASCA AND IT TASTED COMPLETELY DIFFERENT  
401 TO WHAT I HAVE TASTED BEFORE, INSANELY DIFFERENT. IT WAS ONLY  
402 AFTER THE AYAHUASCA THAT I WAS ONLY TRULY ABLE TO TASTE APPLE,  
403 BREAD AND SOUP AND THINGS LIKE THAT. THEY HAD ALL SORTS OF  
404 PERUVIAN FRUIT, THINGS I HADN'T TASTED BEFORE. I GUESS MY EXPOSURE  
405 WHILST UNDER THE INFLUENCE OF AYAHUASCA JUST REMINDED ME OF  
406 THINGS I HAD ALREADY KNOWN AND FORGOTTEN. LIVING IN A CITY ALL MY  
407 LIFE. DURING THE AYAHUASCA I DIDN'T THINK AT ANY STAGE THAT THIS  
408 WAS EXCLUSIVE, I JUST FELT THAT THIS WAS PART OF IT, THERE WAS A  
409 POINT OUT OF MY BODY WHERE I WAS NOT ME ANYMORE AND THERE WAS  
410 JUST THIS FEELING OF INTERCONNECTEDNESS WITH EVERYTHING, IT WAS  
411 LIKE NATURE INCLUDES EVERYTHING. NATURE INCLUDES A BIG FACTORY  
412 THAT IS POLLUTING THE WORLD, IT WAS MADE BY HUMANS OUT OF STUFF IN  
413 A SENSE THAT EVERYTHING IS NATURAL, THE ORGANIC BECAUSE SOME  
414 THINGS ARE MANMADE BECAUSE EVERYTHING THAT HAPPENS IS NATURAL.  
415 NATURE JUST MEANS WHAT IS, IN A WAY IT JUST CHANGED MY VIEW OF  
416 WHAT NATURE IS. IT HAS ALSO MADE ME LIVE A LESS MATERIALISTIC LIFE, IM  
417 MORE UNDERSTANDING AND LESS SELF CENTRED, I'M MORE CAPABLE OF  
418 LETTING THINGS GO.

419

420 RB: CAN YOU IDENTIFY ANY NEGATIVE EXPERIENCES OUT OF THE  
421 EXPERIENCE?

422

423 P: ONLY THAT I WANT TO GO BACK AND DO IT ALL AGAIN. I GIVE MYSELF A  
424 FIVE YEAR MINIMUM, I DON'T KNOW WHAT IS GOING TO HAPPEN TO ALLOW  
425 ME OR NOT ALLOW ME TO DO IT AGAIN. AT LEAST ONCE A MONTH I WILL  
426 THINK ABOUT IT WHY I WANT TO GO BACK AND REACH THAT STATE AGAIN.  
427 JUST A LONGING BECAUSE I FEEL AT HOME THERE, AT PEACE AND AWAY  
428 FROM STRESS WHERE IT'S SO IMPORTANT TO HAVE YOUR WORK DONE ON  
429 TIME. THERE WERE MOMENTS IN IT WHERE IT FELT SCARY BUT AT NO TIME  
430 DID I FEEL IT WASN'T A GOOD EXPERIENCE AFTER ALL. I DON'T FEEL IT HAS  
431 LED TO ANYTHING NEGATIVE LONG TERM IN MY LIFE. THE EFFECT OF THE  
432 AYAHUASCA HAS IMPROVED ME IN MANY WAYS BUT IT HASN'T MADE ME  
433 PERFECT LIKE JESUS, BUT IT DIDN'T REACH THAT FAR WHICH I AM NOT  
434 SURPRISED ABOUT IN THE THREE TIMES AND I FEEL THERE IS A LOT MORE  
435 WORK TO BE DONE.

436

437 RB: CAN YOU IDENTIFY ANY OTHER POSITIVE EXPERIENCES THAT WE HAVE  
438 NOT TALKED ABOUT?

439

440 P: I FEEL USING THE WORD INSIGNIFICANT ABOUT LIFE, THE CONNOTATIONS  
441 MAKES IT FEEL IT'S INFERIOR IF YOU DIDN'T SAY IT WAS INSIGNIFICANT. IT  
442 DOESN'T MEAN YOU SHOULDN'T CARE, IT IS A FINE LINE AND  
443 PARADOXICALLY IT'S MADE ME FEEL IT'S NOT AS SIGNIFICANT AS PEOPLE  
444 JUDGE IT TO BE. WHERE THERE IS NOTHING FOR ME TO DO AND I'M NOT  
445 WITH PEOPLE WHO ARE VERY INTERESTING, THE EMPATHY HELPS WITH  
446 THAT AND IF I'M IN A HOSTILE POSITION THE EMPATHY HELPS. THE SENSE OF  
447 EVERYTHING BEING LESS IMPORTANT THAN WE NEED AND IN MANAGEMENT  
448 TIME I DON'T WANT TO BE DOING ANYTHING THAT IS NOT IMPORTANT TO  
449 ME. I FEEL THAT IS MUCH LESS OF A STRESS ON ME, I CAN BE IN AN  
450 ENVIRONMENT THAT I DON'T FEEL VERY HAPPY IN AND DOESN'T STIMULATE  
451 ME I FEEL THAT'S FINE AND IT DOESN'T MATTER, IN THE GRAND SCHEME OF  
452 THINGS IT'S NOT IMPORTANT BUT IT COULD LEAD TO A NIHILISTIC OUTLOOK  
453 ON LIFE BUT IN MY CASE IT ALLOW ME TO BE A BIT MORE NEUTRAL IN  
454 SITUATIONS WHERE I WOULD NORMALLY BE GETTING CAUGHT UP IN THE  
455 ATMOSPHERE. LIKE IF EVERYBODY IS STRESSED OUT I CAN JUST SIT THERE  
456 AND DRINK TEA, IT DOESN'T MEAN I'M AWAY WITH THE FAIRIES AND READY  
457 TO STEP INTO ACTION IF IT IS REQUIRED I WOULD BE STRAIGHT ON IT, BUT IN  
458 MOMENTS WHEN IT IS CALM AND I DON'T NEED TO DO ANYTHING I CAN  
459 HAPPILY DO THAT, MUCH EASIER THAN BEFORE.

460

461 RB: IS THERE ANYTHING IMPORTANT THAT WE HAVE NOT DISCUSSED OR  
462 THAT YOU WOULD LIKE TO SHARE?

463

464 P: THERE ARE LOTS OF THINGS WE HAVEN'T GONE INTO AND I DID WRITE  
465 NOTES, BUT I FEEL A LOT OF THE EXPERIENCES I HAD WERE TOO MUCH FOR  
466 MY MIND. NOT TOO MUCH AT THE TIME BUT TOO MUCH FOR ME TO  
467 COMPARTMENTALISE. THERE ARE BLANKS AND BLURS IT WAS LIKE A SUPER  
468 HIGH VISION BUT MY MIND ONLY RECALLS A SMALL AMOUNT. IT WAS VERY  
469 HARD TO TELL WHAT WAS REAL AND WHAT WASN'T. I FEEL LIKE  
470 EVERYTHING I SAW AND THINK SHOULD BE TAKEN WITH A PINCH OF SALT,  
471 SUCH SUBJECTIVE STUFF AND THAT'S WHY I FIND IT INTERESTING TO LOOK  
472 AT PATTERNS AND DIFFERENT PEOPLE'S EXPERIENCE THAT'S CONSTANT BUT  
473 I WITNESSED TESTIMONY SO THERE WAS DEFINITELY A LOT MORE IT WAS  
474 LIKE A FLAVOUR OF THE 3 EXPERIENCES, THE FIRST ONE FELT LIKE AN  
475 EXPLOSION. I DID MENTION THE DOSES, THE FIRST TIME I HAD A VERY HIGH  
476 DOSE, THE SECOND TIME THEY HALVED THE DOSE AND THE THIRD TIME  
477 THEY PUT IT HIGHER THAN THE FIRST ONE. BUT I FELT THAT BY THE THIRD  
478 TIME I HAD THE ABILITY TO HANDLE IT AND MASTER IT AND HAVE CONTROL  
479 OF THE EXPERIENCE AND I FELT VERY MUCH IN CONTROL IN THAT STATE OF  
480 AWARENESS AND CONSCIOUSNESS BUT CONTROL WAS GOING ON, IT WAS  
481 COMFORTABLE. THE FIRST TIME I FELT I WAS THROWN IN AT THE DEEP END,  
482 IT WAS JUST LIKE CRAZY AND I ENDED UP HAVING THAT SEIZURE AND  
483 EVERYONE WAS CONCERNED ABOUT ME, BUT I WAS FINE. THE SECOND TIME  
484 DUE TO THAT THEY HALVED THE DOSE AND TOLD ME HOW TO HOLD  
485 CONTROL AND IT WAS LIKE LEARNING HOW TO SWIM AND I FELT IN LONG  
486 TERM PSYCHOLOGICAL EFFECT THERE WAS THE MOST EXPERIENCE THERE,  
487 THAT ONE HAD THE LEAST HALLUCINOGENIC EFFECTS IT WAS DEFINITELY A  
488 DEEP SENSE OF EFFECTIVENESS AND A LOT OF WORK WENT ON IN THAT

489 SECOND ONE AND I FELT I DEALT WITH A LOT OF PSYCHOLOGICAL  
490 COMPLEXES THAT I HAVE. I WAS ABLE TO HEAL IN THE SECOND ONE AND I  
491 FELT THAT WAS MASSIVELY BENEFICIAL AND I REALLY DID WELL IN THAT  
492 ONE AND THE LAST ONE I FELT I WAS A MASTER AT THAT STAGE AND I WAS  
493 ABLE TO DRINK A LOT MORE AND HAVE A LOT OF EXPERIENCES AND HAVE A  
494 LOT OF EXPERIENCES LIKE THE FIRST TIME BUT NOT BEING THROWN INTO  
495 THE THING AND FEELING MY ARMS WERE TIED, I ALSO HAD CONTROL OVER  
496 MY PHYSICAL BODY AND I WAS ABLE TO WALK ABOUT IN THE PLACE AND I  
497 DIDN'T EVEN SLEEP THE WHOLE NIGHT OR PURGING OR VOMITING THE  
498 THIRD TIME, I JUST KEPT IT IN AND STAYED AWAKE AND FELT FINE THE  
499 NEXT DAY. IT STAYED IN ME AND I WAS ABLE TO MANIPULATE MY REALITY. I  
500 FELT SENSATIONS OF FLYING AND BEING ABLE TO LEVITATE BUT THAT WAS  
501 AT A TIME WHEN EVERYONE HAD GONE TO SLEEP AND I WAS BY MYSELF. I  
502 COULDN'T ASK ANYONE IF I WAS ACTUALLY FLYING, YES THERE WAS LOTS OF  
503 STUFF.

504

505 RB: WERE THOSE SENSATIONS DURING THE LAST CEREMONY?

506

507 P: YES, DURING THE FINAL CEREMONY WHILE IT WAS AFTER THE CEREMONY,  
508 BUT I FELT THAT BECAUSE I HADN'T BEEN SICK THE SENSATIONS WERE  
509 GOING TO CARRY ON. THEY SAID YOU WERE WELCOME TO STAY ON BUT THEY  
510 WERE GOING TO BED. THEY DID BLOOD TESTS ON ME AND THEY WERE  
511 NORMAL. EVERYTHING WAS NORMAL BUT I WAS STILL IN MY HEAD AND IT  
512 WAS CRAZY. AT MOMENTS IT FELT LIKE MY BODY WAS BEING PULLED, I  
513 COULD CHOOSE TO RESIST IT OR JUST STAY FOR LONGER AND JUST DO WHAT  
514 IT WAS MAKING ME DO. MAKING ME GO AND DO DIFFERENT THINGS AND SAY  
515 THINGS TO DIFFERENT PEOPLE, BECAUSE I MADE LOTS OF FRIENDS OVER  
516 THERE, GO TO GET A PIECE OF BREAD OR STAND ON ONE LEG, I FELT I WAS  
517 JUST GOING ALONG WITH IT AND A LOT OF LAUGHTER. I WAS HAPPY AND  
518 CONTENT AND IT FELT LIKE A GOOD ENDING AND CLOSURE, BUT IT  
519 DEFINITELY FELT THAT THERE WAS MORE AND IT REALLY STUCK WITH ME  
520 WHAT THEY WERE SAYING THAT HE IS NOT READY FOR THIS YET OR JUST  
521 DOESN'T NEED TO BE HERE YET, IT WAS ALMOST LIKE A SENSE I DIDN'T HAVE  
522 ENOUGH DAMAGE THAT NEEDED HEALING. I FELT I WENT INTO IT VERY OPEN  
523 MINDED AND I WAS IN A VERY GOOD PLACE AT THAT TIME. IT WAS WHEN I  
524 TURNED EIGHTEEN THAT I WAS GOING TO DO BACK PACKING AND BUNGEE  
525 JUMPING, AND I JUST WENT INTO IT AND FELT HAPPY. I DIDN'T HAVE A LOT  
526 THAT NEEDED HEALING AND I NEEDED TO GO BACK LATER. I WOULD GO  
527 BACK TO IT I DON'T KNOW IF IT WILL BE YEARS OR DECADES.

528 END RECORDING