Social determinants of child abuse: evidence of factors associated with maternal abuse from the Egypt demographic and health survey

AU1   Antai Diddy [a,b,*], Braithwaite P [b], Clerk G. [c]

[a] City University London, School of Health Sciences, Centre for Public Health Research, London, United Kingdom.
[b] Division of Global Health & Inequalities, The Angels Trust - Nigeria, Abuja, Nigeria.
[c] Department of Social and Historical Studies, University of Westminster, London, W1B 2UW, UK.

Abstract:

Background: Child abuse or maltreatment is a significant global public health problem of unknown global prevalence. About 40 million children aged 0 - 14 years require health and social care globally. The prevalence, determinants, and trends of national or global rates of child abuse and maltreatment are largely unknown.

Methods: Data for this retrospective cross-sectional study were derived from the 2005 Egyptian Demographic and Health Survey (2005 EDHS), and included 19474 women aged 15 - 49 years. Multivariate logistic regression analyses by stepwise regression, backward method were used to determine the independent contribution of the possible social determinants of child abuse, with the direction and magnitude of associations expressed as odds ratios (OR) and their 95% confident interval levels (95% CI).

Results: Identified determinants of child abuse included exposure to intimate partner violence (IPV), justifying wife beating, exposure to generational IPV, and such factors as younger age of the women, male sex, partners' lower education, poverty, residence in urban areas, younger children, and residence in households with 3 - 5 children.

Conclusions: Experience of IPV, mothers' justification of wife beating, and generational IPV were associated with elevated odds of child abuse. Findings indicate possible high levels of unmet child protection needs, and stress the need for professionals working with children to employ culturally-sensitive methods in investigating social determinants of child abuse.

*** Corresponding Author at:**
***Diddy Antai:** M.D, PhD, Centre for Public Health Research, School of Health Sciences, City University London, Northampton Square, London EC1V 0HB, United Kingdom. Telephone: +44 (0)20 7040 5060, Fax: +44 (0)20 7040 5808,*
Email: Diddy.Antai.1@city.ac.uk (Antai D.).

Introduction

Globally, child abuse (or child maltreatment) is a significant public health problem extending be-yond culture, social context and race.[1] Child abuse consists of any acts of commission or omission by a parent, caregiver or other adult resulting in harm, potential for,

or threat of harm to a child (0-18 years of age) even if the harm is unintentional.[2] The World Health Organization (WHO) estimates that 40 million children aged 0-14 years globally suffer from abuse and neglect that require health and social care.[3] The extent and trend of national or global rates, [4] and determinants of child abuse are largely unknown. Studies in Egypt are sparse, estimating that 37% of children in Egypt suffer physical punishment with varying degrees of severity;[5] these acts of punishment, presumably committed as acts of child discipline, are engendered by a culture that places a high premium on child obedience and the positive effects of discipline.[6, 7]

Social determinants of health (SDH) are conditions in which people are born, grow, live, work and age, including the health system.[8] These conditions provide the freedom people need to live lives they value,[9] and are shaped by the distribution of money, power and resources at global, national and local levels. SDH that perpetuate child abuse can be avoided by reasonable societal level action; however, that they are not avoided indicates that they are unfair, unnecessary, unjust, and therefore inequitable.[10] Given children's need for safe, healthy, nurturing, and responsive living environments, the SDH that perpetuate child abuse are numerous, and need to be examined to understand the association between child abuse and intimate partner violence (IPV).

Children exposed to child abuse are often exposed to co-occurring domestic violence (DV) and environmental stressors.[11] Households frequently experiencing IPV are commonly poor, undergo marital problems, life stressors, and other negative aspects of family life, including low parental education, unemployment, insufficient income, and substance abuse.[12, 13] Other factors associated with increased risk for child abuse include young child age, minority status, and parental stress,[14] immigrant families, single-parent families, stepfamilies, families with three or more children, children 0 - 3 years old,[15, 16] female sex, and older adolescence. Perpetrator-related risk factors such as parental mental health, chronic illness, criminal history, alcohol or drug abuse, and parental skills have also been implicated with child abuse and IPV.[11, 17, 18]

Knowledge of how the social determinants of child abuse operate and interact is an important first step towards developing interventions and policy-level change needed to improve the lives of affected children and families. To assess for associations, the following hypotheses were tested:

Hypothesis I: The risk of experiencing child abuse will be higher for children exposed to domestic violence, even after controlling for potential confounders;

Hypothesis II: Mothers with tolerant attitudes towards wife beating will be more likely to abuse their child than those who do not tolerate wife beating;

Hypothesis III: Women exposed to generational IPV i.e. who had witnessed domestic violence in childhood, will be more likely to perpetrating child abuse, compared to those who were not so exposed; and

Hypothesis IV: Children in families of higher socioeconomic position (SEP), as indicated by educational level of respondent or partner, and household wealth index, will be at lower risk of experiencing abuse compared to those of lower SEP.

The aim of this study was two-fold: i) to determine the prevalence of child abuse in Egypt; and ii) to investigate factors associated with maternal abuse as social determinants of child abuse.

Methods

The 2005 Egyptian Demographic and Health Survey (2005 EDHS) conducted between February and July 2005 was used for this study.[19] This nationally-representative household survey aimed at providing information about reproductive health and socio-economic characteristics was conducted by face-to-face interviews using a standard questionnaire in Arabic language.[20] We focused primarily on acts of child abuse by mothers, their exposure to IPV, and their attitude towards wife beating, as data on male adults in the household were not collected . Data on IPV was collected in accordance with the WHO's ethical and safety recommendations for research on domestic violence,[21] which ensures women's safety, maximizes disclosure of actual violence, ensures that informed consent is obtained, and guarantees the privacy of respondents.

Data was collected by multistage sampling; the first sampling stage selected 682 primary sampling units (PSU) (289 shiakhas/towns and 393 villages) from a list of shiakhas/towns and villages in each governorate (Urban Governorates, urban Lower Egypt, rural Lower Egypt, urban Upper Egypt, rural Upper Egypt and the Frontier Governorates). The second sampling stage selected two segments from each PSU, a household listing obtained from each segment. Using the household lists, a systematic sample of 22, 807 households was selected for interview. All ever-married women 15-49 present in the sampled households on the night before the interview were eligible for inclusion in the survey. A sub-sample of one-third of all households in each segment was selected for the anemia-testing component of the survey; one woman in each household

in this sub-sample was selected for questions about domestic violence. From the selected households, a total of 19, 565 eligible women aged 15 - 49 years were interviewed, resulting in a 99.5% response rate. Of this number, 19, 474 women were selected from the households, and these had 17,552 children at the time of the interviews.

The primary outcome variable was acts of child abuse by mothers, which were measured using responses to questions asked to the mothers about whether they had ever carried out the following acts of abuse against their child: *i)* shouting at their children; *ii)* striking their children; and *iii)* or slapping their children. Responses were in the form of dichotomous 'yes' or 'no' variables.

The main exposures included: (1) *Exposure to IPV*, assessed using the Conflict Tactics Scale,[22] and defined as any act of physical, emotional, or sexual abuse by a current or former husband or intimate partner, whether cohabiting or not.[23] A composite 'yes' or 'no' variable "any IPV" was created from responses to 11 questions asked respondents about ever experiencing one or several of the acts of abuse by a current or former husband or intimate partner namely: i) pushing, shaking or throwing something at her; ii) slapping her or twisting her arm; iii) punching or hitting her with something harmful; iv) kicking or dragging her; v) strangling or burning her; vi) threatening her with a weapon (e.g. gun or knife); vii) attacking her with a weapon; viii) humiliating her in public; ix) threatening her or someone close to her; and x) forced sexual intercourse, where "any IPV" was defined as exposure to one or several of the experiences perpetrated by a husband/partner ever. Reliability of "any IPV", indicated by Cronbach's alpha (α) was .798. (2) *Respondent justifies wife beating*, a composite 'yes' or 'no' variable created from responses to five questions enquiring whether respondents justify abuse of a woman for such reasons as: when she goes out without telling him, neglects the children, argues with him, refuses to have sex with him, and burns the food. 'Yes' was defined as the women's responses of 'yes' to one or several of these attitude questions, and 'no' as responses of 'no' to all the attitude questions. Cronbach's alpha (α) was .907. (3) *History of generational IPV*, a composite binary 'yes' or 'no' variable and created from responses to the questions "ever physically hurt by: mother" and "ever physically hurt by: father"; Cronbach's alpha (α) was .68.

Confounding variables included: (1) *Demographic variables,* including: i) Respondent's age (15-19, 20-24, 25-29, 30-34, 35-39, 40-44, and 45-49); ii) Marital status (formerly married, and currently married); iii) Sex of the child, (female, and male); iv) Age of child (years)

(0-4, 5-9, 10-14, and ≥ 15; and *v)* Number of children in family (≤ 2, 3-5, and ≥ 6). (2) *Socio-economic variables*, including: *i)* Respondent's educational level (no education, primary, and secondary or higher); *ii)* Partner's educational level (no education, primary, and secondary or higher); *iii)* Respondent's current working status, a measure of economic empowerment (not working, and working); *iv)* Partner's current working status (not working, and working); *v)* Household wealth index, a measure of respondents' economic status,[24] using principal component analysis to derive wealth index factor scores that are then divided into five percentiles (from the poorest 20% to the richest 20%); *vi)* Who decides how to spend money, an indicator of financial autonomy (respondent alone, respondent and husband/partner, and husband/partner and other); and *vii)* Type of earnings, an indicator of possible financial stress (not paid, cash and kind, in kind only, and cash only). (3) *Geographical variables*, including: *i)* Place of residence (urban, and rural).

To determine the social determinants of child abuse associated with maternal exposure to IPV, cross tabulations were performed to examine differences in the distribution of the outcome, exposure, and confounding variables. Bivariate logistic regression models included the confounding variables all entered in a single block to control for possible confounding between these variables. Multivariate analyses using a series of logistic regression models were run iteratively using stepwise regression (backward method), with the variable having the least level of significance being removed at each step until only significant variables remained since the goal of this study was to derive a model with the best fit.[25] By step 10 of the "any abuse" model, several variables had been dropped during the modeling process, and their subsequent reintroduction did not significantly affect other variables and, thus, they were removed from the model. Alternative analyses were performed with the "Enter" command i.e. entering all the variables in a block; this resulted in all the dropped variables being non-significant, therefore validating the making the backward method of stepwise regression and the retained variables as the best model fit. In the acts of child abuse models, variables not in the final model were dropped earlier in the modeling process, reintroduced, and were found to remain non-significant without changing other predictors; hence they were not retained in the final models. The direction and magnitude of associations were expressed as odds ratios (ORs) and their 95 percent confident interval levels (95% CI), with the analyses conducted using Predictive Analytics Software (PASW) version 18.

Results

Of the 14,016 women in the study, 91% (n=12694) reported shouting, 69% (n=9684) striking, and 39% (n=5515) slapping their child/ children when they did mistakes during the 12 months prior to the study. The majority (n=9439, 54%) of children were male, aged 9 years or younger (n=13698, 78%), and were 5 or fewer in the family (n=17,572, 90%). Most women were 25 - 29 years old (n=3780, 20%), and resident in urban areas (n=11379, 58%). Other socio-demographic characteristics are shown in Table 1.

The vast majority of women who had experienced IPV shouted on (n=1401, 93%), and struck (n=1153, 77%) their child. Similarly, a majority of the women justified wife beating and experienced generational IPV (see Table 2). Among women who abused their children, the proportion of currently married women was generally higher than that of formerly married women. Majority of abused children were ≤4 years, and living ≤5 per household. Other socio-demographic characteristics are shown in Table 3.

In the multivariate logistic regression analyses, adjusting for potential confounders between child abuse and factors associated with maternal abuse, experience of IPV remained associated with elevated odds of mothers striking [adjusted odds ratio (AOR) = 1.57, 95% CI = 1.03 - 2.40; P = 0.035] and slapping [AOR = 1.57, 95% CI = 1.03 - 2.38; P = 0.034] their child compared to mothers with no experience of IPV. Women justifying wife beating was associated with higher odds of shouting at a child [AOR = 2.32, 95% CI = 1.02 - 5.28; P = 0.045], whilst generational IPV was associated with higher odds of shouting at [AOR = 2.95, 95% CI = 1.08 - 8.05; P = 0.034] and striking a child [AOR = 1.73, 95% CI = 1.09 - 2.75; P = 0.020], compared to not justifying wife beating and lack of generational IPV, respectively. The odds of women slapping their child decreased with increasing age; the highest odds were observed among women aged 30 - 34 years. In addition, women aged 20 - 24, 25 - 29, and 30 - 34 years were also at higher odds of striking their child compared to women aged 45 - 49 years. Female children [AOR = 0.57, 95% CI = 0.40 - 0.82; P = 0.002] were at lower odds of being slapped by their mother than male children.

Table 1: Socio-demographic characteristics of the study population.

Characteristics		N (%)
Sex of child		
Male		9439 (54)
Female		8113 (46)
	Total	17552 (100)
Age of child (years)		
0 - 4		9894 (56)
5 - 9		3804 (22)
10 - 14		2176 (12)
≥ 15		1678 (10)
	Total	17552
Number of children in family		
≤ 2		9052 (46)
3 - 5		8520 (44)
≥ 6		1902 (10)
	Total	19474
Women's age (groups)		
15 - 19		858 (4)
20 - 24		3008 (15)
25 - 29		3780 (20)
30 - 34		3189 (16)
35 - 39		3186 (16)
40 - 44		2827 (15)
45 - 49		2626 (14)
	Total	19474
Respondent's educational level		
No education		6934 (35)
Primary		3064 (16)
Secondary or higher		9476 (49)
	Total	19474
Partner's educational level		
No education		4603 (24)
Primary		3829 (20)
Secondary or higher		11008 (56)
	Total	19440
Marital status		
Formerly married		1340 (7)
Currently married		18134 (93)
	Total	19474
Respondent's Current working status		
Not working		15243 (78)
Working		4192 (22)
	Total	19435
Partner's current working status		
Not working		15180 (78)
Working		4294 (22)
	Total	19474
Wealth index		
Poorest		4227 (22)
Poorer		3882 (20)
Middle		3669 (19)
Richer		3791 (19)
Richest		3905 (20)
	Total	19474
Place of residence		
Rural		11379 (58)
Urban		8095 (42)
	Total	19474
Who decides how to spend money		
Respondent alone		712 (25)
Respondent and husband/partner		1938 (69)
Husband/partner and Other		174 (6)
	Total	2824
Type of earnings		
Not paid		867 (20)
Cash and kind		167 (4)
In kind only		116 (3)
Cash only		3151 (73)
	Total	4301

N = Total number; % = Percentage

Table 2: Proportion of children within each category of abuse by factors related to abuse among the women in the study.

Characteristics	Shouted at children			Struck children			Slapped children		
	No N (%)	Yes N (%)	Total	No N (%)	Yes N (%)	Total	No N (%)	Yes N (%)	Total
Intimate partner violence									
No	283 (11)	2362 (89)	**2645**	946 (36)	1700 (64)	**2646**	1741 (66)	904 (34)	**2645**
Yes	100 (7)	1401 (93)	**1501**	349 (23)	1153 (77)	**1502**	793 (53)	707 (47)	**1500**
Justifies wife beating									
No	700 (11)	5898 (89)	**6598**	2378 (36)	4221 (64)	**6599**	4453 (68)	2136 (32)	**6589**
Yes	620 (8)	6757 (92)	**7377**	1944 (26)	5434 (74)	**7378**	4024 (55)	3351 (45)	**7375**
Generational IPV									
No	323 (10)	2966 (90)	**3289**	1092 (33)	2199 (67)	**3291**	2038 (62)	1251 (38)	**3289**
Yes	61 (7)	792 (93)	**853**	200 (23)	653 (77)	**853**	492 (58)	360 (42)	**852**

P-value: *** *p*<0.001; **p<0.01; *p<0.05; ns = not significant

The odds of a mother slapping her child was highest among women in the poorest wealth quintile [AOR = 3.12, 95% CI = 1.27 - 7.65; *P* = 0.013] compared to the richest quintile; the odds decreased as the wealth quintile increased. Likewise, women in the poorer [AOR = 2.81, 95% CI = 1.20 - 6.59; *P* = 0.018] and richer wealth quintiles [AOR = 1.71, 95% CI = 1.09 - 2.69; *P* = 0.019] were at higher odds of striking their child compared to women in the richest quintile. Compared to children 15 years or older, children aged 0 - 4 years had the highest odds of experiencing all the forms of child abuse; these odds became lower the older (5 - 9 years) the child. With the exception of children who were slapped by their mother, households with 3 - 5 and 6 or more children were at higher odds of experiencing any abuse than households with ≤2 children. In contrast, women who decided along with their husband/partner how to spend money [AOR = 0.48, 95% CI = 0.32 - 0.72; *P*< 0.001] were at lower odds of slapping their child compared to those women who decided alone (Table 4).

Discussion

This study found that child abuse is relatively common in Egypt. Majority of the children had experienced some form of abusive act, and the least frequent act of abuse was slapping. These rates are comparable to those reported in other studies conducted in Egypt,[7, 8, 26] and elsewhere,[27] but are higher than those 4 - 36% among mothers in Chile, Egypt, India and the Philippines.[28]

The finding that mothers who experienced IPV were more likely to be abusive towards their children corroborates findings from other studies,[11, 29] suggesting an abused mother's inability to respond effectively to child misbehaviour due to the stress and psychological impact of IPV victimization,[30] or an abused mother's effort to avoid a misbehaving child angering an abusive partner, thus increasing the risk of both the woman and her abusive male partners,[31] perpetrating child abuse. This find-

ing provides support for our first hypothesis that the risk of experiencing child abuse, even after controlling for potential confounders. IPV exposure is reported to be the most potent factor for predicting parental abuse of a child;[7] this carries important implications for child abuse prevention efforts, which need to directly address existing IPV within families. However, not everyone agrees, as some studies suggest that women living with domestic abuse are no more likely than other women to abuse their children.[32] Support for our second hypothesis, that mothers with tolerant attitudes towards wife beating will be more likely to abuse their child, could be found in the results that women who justified wife beating were more likely to shout at their child. As far as the authours are aware, this is the first study with this finding, consistent with those previously reported,[26] as well as those reported in relation to corporal punishment.[33, 34] In Egypt, violent behaviour, including stern acts of discipline against children, is commonplace and a widely accepted cultural practice in contrast to high income countries. There is therefore a need to break the "invisibility" and social acceptance of child abuse by advocating for policies, laws, and services for prevention and response, in addition to educational campaigns aimed at changing social norms and individual attitudes that are harmful to children.

The association between exposure to generational IPV and child abuse (shouting at, and striking a child) is consistent with findings from studies that found that physically abused parents themselves had about 2.6 - 5 times higher risk of being physically abusive to their children.[35,36] In addition to validating our third hypothesis of that women's exposure to generational will be more likely to perpetrating child abuse, this finding appears to support a social learning approach to understanding the cycle of violence,[37] whereby the respondents may have learned and justified violent behaviour by directly witnessing or experiencing parental abuse.[38] Although about one-third of abused

Table 3: Proportion of children within each category of abuse by characteristics of women in the study.

Characteristics	Shouted at children			Struck children			Slapped children		
	No	Yes	Total	No	Yes	Total	No	Yes	Total
	N (%)	N (%)	Total	N (%)	N (%)	Total	N (%)	N (%)	Total
Women's age (groups)	***			***			***		
15 - 19	3 (11)	25 (89)	**28**	4 (14)	24 (86)	**28**	16 (57)	12 (43)	**28**
20 - 24	47 (5)	960 (95)	**1007**	163 (16)	844 (84)	**1007**	485 (48)	522 (52)	**1007**
25 - 29	154 (6)	2571 (94)	**2725**	494 (18)	2231 (82)	**2725**	1391 (51)	1331 (49)	**2722**
30 - 34	172 (6)	2679 (94)	**2851**	609 (21)	2242 (79)	**2851**	1534 (54)	1315 (46)	**2849**
35 - 39	234 (8)	2737 (92)	**2971**	886 (30)	2086 (70)	**2972**	1823 (61)	1143 (39)	**2966**
40 - 44	329 (13)	2156 (87)	**2485**	1086 (44)	1399 (56)	**2485**	1742 (70)	743 (30)	**2485**
45 - 49	383 (20)	1565 (80)	**1948**	1090 (56)	858 (44)	**1948**	1503 (77)	443 (23)	**1946**
Sex of child	**			ns			*		
Male	666 (9)	6859 (91)	**7525**	2284 (30)	5243 (70)	**7527**	4498 (60)	3021 (40)	**7519**
Female	655 (10)	5834 (90)	**6489**	2048 (32)	4441 (68)	**6489**	3996 (62)	2488 (38)	**6484**
Respondent's educational level	ns			***			***		
No education	508 (10)	4792 (90)	**5300**	1488 (28)	3813 (72)	**5301**	2898 (55)	2396 (45)	**5294**
Primary	240 (10)	2155 (90)	**2395**	783 (33)	1612 (67)	**2395**	1425 (59)	969 (41)	**2394**
Secondary or higher	573 (9)	5746 (91)	**6319**	2061 (33)	4259 (67)	**6320**	4171 (66)	2144 (34)	**6315**
Partner's educational level	*			***			***		
No education	367 (10)	3128 (90)	**3495**	1063 (30)	2433 (70)	**3496**	1951 (56)	1540 (44)	**3491**
Primary	256 (9)	2707 (91)	**2963**	824 (28)	2139 (72)	**2963**	1673 (56)	1287 (44)	**2960**
Secondary or higher	694 (9)	6834 (91)	**7528**	2439 (32)	5090 (68)	**7529**	4858 (65)	2666 (35)	**7524**
Marital status	***			***			***		
Formerly married	150 (18)	694 (5)	**844**	400 (47)	444 (53)	**844**	605 (71)	238 (29)	**843**
Currently married	1171 (9)	11999 (91)	**13170**	3932 (30)	9240 (70)	**13172**	7889 (60)	5271 (40)	**13160**
Current working status	**			***			***		
Not working	994 (9)	9874 (91)	**10868**	3123 (29)	7746 (71)	**10869**	6399 (59)	4459 (41)	**10858**
Working	327 (10)	2818 (90)	**3145**	1209 (38)	1937 (62)	**3146**	2094 (67)	1050 (33)	**3144**
Partner's current working status	ns			***			***		
Not working	977 (9)	9643 (91)	**10620**	3060 (29)	7561 (71)	**10621**	6272 (51)	4338 (49)	**10610**
Working	344 (10)	3050 (90)	**3394**	1272 (37)	2123 (63)	**3395**	2222 (65)	1171 (35)	**3393**
Wealth index	***			***			***		
Poorest	304 (10)	2855 (22)	**3159**	746 (24)	2414 (76)	**3160**	1572 (50)	1585 (50)	**3157**
Poorer	238 (8)	2595 (92)	**2833**	760 (27)	2073 (73)	**2833**	1553 (55)	1278 (45)	**2831**
Middle	228 (9)	2355 (91)	**2583**	748 (30)	1835 (70)	**2583**	1553 (60)	1026 (40)	**2579**
Richer	226 (9)	2410 (91)	**2636**	816 (31)	1820 (69)	**2636**	1662 (63)	971 (37)	**2633**
Richest	325 (12)	2478 (88)	**2803**	1262 (45)	1542 (55)	**2804**	2154 (77)	649 (28)	**2803**
Place of residence	ns			***			***		
Rural	539 (9)	5303 (91)	**5842**	2046 (47)	3797 (39)	**5843**	3834 (66)	2005 (34)	**5839**
Urban	782 9)	7390 (91)	**8172**	2286 (28)	5887 (72)	**8173**	4660 (57)	3504 (43)	**8164**
Age of child (years)	***			***			***		
0 - 4	398 (5)	6788 (95)	**7186**	1401 (19)	5785 (81)	**7186**	3720 (52)	3460 (48)	**7180**
5 - 9	305 (8)	3330 (92)	**3635**	1081 (30)	2555 (70)	**3636**	2251 (62)	1383 (38)	**3634**
10 - 14	333 (17)	1689 (83)	**2022**	1070 (53)	953 (47)	**2023**	1563 (77)	455 (23)	**2018**
≥ 15	244 (29)	603 (71)	**847**	649 (77)	198 (23)	**847**	744 (88)	103 (12)	**847**
Number of children in family	***			**			ns		
≤ 2	363 (9)	3773 (91)	**4136**	1224 (28)	2912 (30)	**4136**	2536 (61)	1597 (39)	**4133**
3 - 5	726 (9)	7294 (91)	**8020**	2482 (57)	5540 (57)	**8022**	4864 (61)	3149 (39)	**8013**
≥ 6	232 (12)	1626 (88)	**1858**	626 (15)	1232 (13)	**1858**	1094 (59)	763 (41)	**1857**
Who decides how to spend money	*			*			***		
Respondent alone	49 (9)	503 (91)	**552**	11 (3)	341 (97)	**352**	211 (52)	194 (48)	**405**
Respondent & husband/partner	176 (11)	1397 (89)	**1573**	668 (42)	905 (58)	**1573**	668 (61)	420 (39)	**1088**
Husband/partner and Other	7 (5)	125 (95)	**132**	42 (32)	90 (68)	**132**	42 (42)	59 (58)	**101**
Type of earnings	*			***			***		
Not paid	50 (7)	640 (93)	**690**	166 (24)	525 (76)	**691**	348 (16)	342 (29)	**690**
Cash and kind	12 (8)	131 (92)	**143**	41 (29)	102 (71)	**143**	78 (3)	65 (6)	**143**
In kind only	9 (9)	88 (91)	**97**	22 (23)	74 (77)	**96**	38 (2)	59 (5)	**97**
Cash only	274 (11)	2198 (89)	**2472**	1049 (42)	1423 (58)	**2472**	1765 (79)	706 (60)	**2471**

P-value: *** *p*<0.001; ** *p*<0.01; * *p*<0.05; ns = not significant

Table 4: Adjusted Odds ratio (OR) for the social determinants of abuse against children in Egypt.

Characteristics	Shouted at children OR (95% CI)	Struck children OR (95% CI)	Slapped children OR (95% CI)
Intimate partner violence (anyIPV)			
No	1	1	1
Yes	1.76 (0.79 - 3.92)	1.57 (1.03 - 2.40)	1.57 (1.03 - 2.38)
Respondent justifies wife beating			
No	1	1	1
Yes	2.32 (1.02 - 5.28)	1.11 (0.73 - 1.69)	0.90 (0.58 - 1.39)
Generational IPV			
No	1	1	1
Yes	2.95 (1.08 - 8.05)	1.73 (1.09 - 2.75)	1.41 (0.91 - 2.18)
Respondents' age (groups)			
15 - 19	‡	1.68 (0.38 - 7.35)	‡
20 - 24	1.84 (0.44 - 7.71)	3.94 (1.65 - 9.39)	2.95 (0.68 - 12.71)
25 - 29	2.45 (0.71 - 7.07)	2.70 (1.38 - 5.28)	2.54 (0.99 - 6.46)
30 - 34	1.82 (0.71 - 4.62)	2.84 (1.56 - 5.18)	3.35 (1.49 - 7.51)
35 - 39	1.53 (0.71 - 3.29)	1.58 (0.92 - 2.71)	2.80 (1.32 - 5.94)
40 - 44	0.77 (0.44 - 1.34)	0.90 (0.64 - 1.26)	2.10 (1.01 - 4.37)
45 - 49	1	1	1
Marital status	‡	‡	‡
Formerly married			
Currently married			
Sex of child			
Female	0.77 (0.44 - 1.34)	0.90 (0.64 - 1.26)	0.57 (0.40 - 0.82)
Male	1	1	1
Respondent's educational level			
No education	1.50 (0.34 - 6.69)	1.05 (0.41 - 2.35)	0.97 (0.41 - 2.02)
Primary	2.95 (0.45 - 19.35)	0.52 (0.21 - 1.30)	1.29 (0.54 - 3.05
Secondary or higher	1	1	1
Partner's educational level			
No education	0.73 (0.18 - 3.01)	1.36 (0.62 - 2.99)	1.59 (0.78 -3.27)
Primary	1.38 (0.34 - 5.59)	1.50 (0.69 - 3.25)	1.08 (0.54 - 2.15)
Secondary or higher	1	1	1
Respondent's current working status			
Not working	0.44 (0.07 - 2.74)	1.23 (0.32 - 4.75)	0.59 (0.18 - 1.91)
Working	1	1	1
Partner's current working status	‡		
Not working		0.36 (0.02 - 7.19)	1.84 (0.08 - 43.60)
Working		1	1
Wealth index			
Poorest	0.42 (0.09 - 1.98)	2.05 (0.79 - 5.31)	3.12 (1.27 - 7.65)
Poorer	1.09 (0.24 - 4.99)	2.81 (1.20 - 6.59)	2.58 (1.17 - 5.70)
Middle	1.67 (0.51 - 5.41)	1.37 (0.74 - 2.55)	1.84 (0.96 - 3.50)
Richer	0.78 (0.37 - 1.64)	1.71 (1.09 - 2.69)	1.80 (1.10 - 2.94)
Richest	1	1	1
Place of residence			
Rural	0.49 (0.23 - 1.04)	0.80 (0.51 - 1.26)	0.76 (0.48 - 1.20)
Urban	1	1	1
Age of child (years)			
0 - 4	5.84 (1.82 - 18.72)	4.71 (1.96 - 11.32)	4.70 (1.45 - 15.25)
5 - 9	2.97 (1.16 - 7.58)	3.39 (1.49 - 7.71)	2.46 (0.78 - 7.76)
10 - 14	2.13 (0.84 - 5.37)	1.26 (0.53 - 2.99)	1.07 (0.31 - 3.64)
≥ 15	1	1	1
Number of children in family			
≤ 2	1	1	1
3 - 5	2.56 (1.33 - 4.95)	1.67 (1.10 - 2.53)	1.25 (0.80 - 1.96)
≥ 6	1.07 (0.25 - 4.61)	2.81 (1.09 - 7.22)	2.14 (0.87 - 5.24)
Who decides how to spend money			
Respondent alone	1	1	1
Respondent and husband/partner	0.85 (0.41 - 1.59)	0.86 (0.57 - 1.30)	0.48 (0.32 - 0.72)
Husband/partner and Other	1.95 (0.82 - 4.67)	1.27 (0.52 - 3.08)	0.63 (0.27 - 1.46)
Type of earnings			
Not paid	3.70 (0.39 - 34.95)	1.89 (0.64 - 5.57)	1.61 (0.67 - 3.91)
Cash and kind	1.44 (0.75 - 2.77)	1.44 (0.75 - 2.77)	1.87 (0.88 - 3.96)
In kind only	1.20 (0.58 - 2.51)	1.20 (0.58 - 2.51)	1.20 (0.58 - 2.51)
Cash only	1	1	1

‡ Data not computed due to small number
1= reference category

individuals are reported to go on to abuse their children,[37] it is noteworthy that most abused people do not necessarily become abusive.

The finding that younger women were more likely to strike and slap their children than older women endorses other studies from elsewhere;[14] this may be linked to other factors, such as lower economic status, lack of social support, and higher stress levels compared to older mothers. We also found that female children were less likely to be slapped by their mother, corroborating findings from other studies.[34,39] Explanations for boys' increased vulnerability to physical abuse (slapping) is unclear; however such punishments may be seen as a preparation for future adult roles and responsibilities and the considered need more stricter physical discipline.[40] Wide cultural differences in norms between societies with respect to the role of women and the values attached to male and female children could account for a large part of these differences. The finding that living in households with poorer wealth quintile increased the likelihood of a child being struck and slapped is concordant with other studies,[6,41] but contradicting others where no association was observed.[42] Whilst poorer people do not all abuse their children, poverty tends to contribute to negative patterns of family functioning by interacting with other risk factors such as depression, substance abuse, and social isolation to increase the likelihood of abuse. In addition, this finding lends support to our fourth hypothesis that children in families of higher SEP will be at lower risk of experiencing abuse compared to those of lower SEP, although neither respondents' or their partners' educational level were non-significantly associated with the different acts of child abuse.

Our finding that younger children (0 - 4, and 5 - 9 years), compared to older children ≥ 15 years were more likely to experience all the forms of child abuse is in agreement with other studies,[15, 16] that attribute higher risks for families with children less than three years old. As children are not responsible for being victims of abuse, their increased vulnerability is plausibly dependent on interactions between their small physical size, early development, constant need for care, and parental characteristics such as stress etc. We also found that families with 3 - 5 children were more likely to be abusive (except slapping) towards their children than parents with fewer children, supporting findings from other studies.[15,16] Plausible explanations include household overcrowding,[6] or unstable family environments with frequently changing (moving in and out) household composition. The finding that women who had joint financial autonomy i.e. partook jointly with their husband/partner

on how money was spent in the home were less likely than those who took decisions alone to abuse (slap) their child is a unique finding that needs further investigating. Plausible explanations could be that households in which women have joint financial autonomy are more egalitarian, providing children with more stable and stress-free environments with lower likelihood of abuse. This egalitarian relationship encourages couples to settle household disputes by negotiation,[43] rather than violence that could "spill over" to the children. In contrast, households where women had sole financial autonomy could appear more threatening to more traditional men that propagate IPV,[44] thereby increasing the likelihood of child abuse.

Our findings suggest a number of practice and policy implications. First, the possibility of a significant gap between the numbers of children with child protection needs may indicate a high level of unmet needs. Second, professionals at child services need to employ culturally-sensitive methods in investigating child abuse in order to facilitate timely identification and response to child abuse cases. Third, there is a need to enlighten parents about methods of positive corrective treatment of their children, which may necessitate change in societal norms of child disciplinary methods. The findings of this study should however be interpreted with caution, given that a complete picture of child abuse and neglect may not have emerged due to inability to study male adults in the household as a result of lack of data. This study has several limitations. Firstly, estimating the true prevalence rates for child abuse may require interviewing both the perpetrators and the victims since child abuse often occurs within the privacy of home or in private settings where detection and disclosure are more difficult. Secondly, data was based on respondents' self-report of abusive acts without accounting for fathers' or other caregivers' use of abusive acts or independent verification of these. Thirdly, the cross-sectional nature of the study precludes the drawing of causal inference between child abuse and IPV; prospective longitudinal studies would be required to disentangle the temporal ordering of abuse and determinants. Strengths include the low- and middle-income context of the study, the nationally-representative data, and the novel contribution of the findings.

In summary, experience of IPV, women justifying wife beating, and generational IPV were associated with elevated odds of child abuse. Findings indicate possible high levels of unmet child protection needs; the need for culturally-sensitive methods in investigating child abuse by professionals working with children and

young people so as to facilitate the timely identification and response to child abuse cases.

References

1. Pinheiro PS. World report on violence against children. Geneva, Switzerland: United Nations Secretary-General's Study on Violence Against Children, 2006.

2. Gilbert R, Widom CS, Browne K, Fergusson D, Webb E, Janson S. Burden and consequences of child maltreatment in high-income countries. Lancet. 2009 Jan 3;373(9657):68-81.

3. World Health Organization. Managing child abuse:A handbook of medical officers. WHO Regional Office for South-East Asia. New Delhi: WHO, 2004.

4. Finkelhor D, Turner H, Ormrod R, Hamby SL. Trends in childhood violence and abuse exposure: Evidence from two national surveys. Arch Pediatr Adolesc Med. 2010 Mar;164(3):238-42.

5. Gilbert R, Fluke J, O'Donnell M, Gonzalez-Izquierdo A, Brownell M, Gulliver P, et al. Child maltreatment: Variation in trends and policies in six developed countries. Lancet. 2012 Feb 25;379(9817):758-72.

6. Youssef RM, Attia MS, Kamel MI. Children experiencing violence. I: Parental use of corporal punishment. Child Abuse Negl. 1998 Oct;22(10):959-73.

7. Hassan F, Refaat A, El- Sayed H, El-Defrawi H. Disciplinary Practices and Child Maltreatment among Egyptian Families in an Urban Area in Ismailia. Egypt J Psychiat. 1999; 22:172-89.

8. CSDH. Closing the gap in a generation: health equity through action on the social determinants of health. Final Report of the Commission on Social Determinants of Health. Geneva: WHO, 2008.

9. Marmot M. Status syndrome: how your social standing directly affects your health and life expectancy. London: Bloomsbury, 2004.

10. Marmot M. Social determinants of health inequalities. Lancet. 2005 Mar 19-25;365(9464): 1099-104.

11. Herrenkohl TI, Sousa C, Tajima EA, Herrenkohl RC, Moylan CA. Intersection of child abuse and children's exposure to domestic violence. Trauma Violence Abuse. 2008 Apr;9(2):84-99.

12. Dong M, Anda RF, Felitti VJ, Dube SR, Williamson DF, Thompson TJ, et al. The interrelatedness of multiple forms of childhood abuse, neglect, and household dysfunction. Child Abuse Negl. 2004 Jul;28(7):771-84.

13. Herrenkohl TI, Herrenkohl RC. Examining the overlap and prediction of multiple forms of child maltreatment, stressors, and socioeconomic status: A longitudinal analysis of youth outcomes. J Fam Violence. 2007;22:553-62.

14. Stith SM, Liu T, Davies LC, Boykin EL, Alder MC, Harris JM, et al. Risk factors in child maltreatment: a meta-analytic review of the literature. Aggress Violent Behav. 2009;14(1):13-29.

15. Euser EM, Van Ijzendoorn MH, Prinzie P, Bakermans-Kranenburg MJ. Elevated child maltreatment rates in immigrant families and the role of socioeconomic differences. Child Maltreat. 2011 Feb;16(1):63-73.

16. Van Ijzendoorn MH, Euser EM, Prinzie P, Juffer F, Bakermans-Kranenburg MJ. Elevated risk of child maltreatment in families with stepparents but not with adoptive parents. Child Maltreat. 2009 Nov;14(4):369-75.

17. Holmes MR. Aggressive behavior of children exposed to intimate partner violence: an examination of maternal mental health, maternal warmth and child maltreatment. Child Abuse Negl. 2013 Aug;37(8):520-30.

18. Tajima EA. Correlates of the co-occurrence of wife abuse and child abuse among a representative sample. J Fam Violence. 2004 Dec;19(6):391-402.

19. El-Zanaty F, Way A. Egypt Demographic and Health Survey 2005. Egypt: Final Report. In: Report Cairo, Egypt, Ministry of Health and Population, National Population Council, El-Zanaty and Associates and ORC Macro, 2006.

20. Measure DHS. Demographic and Health Surveys. Calverton, USA: Macro International, 2006.

21. World Health Organization. Putting women first: Ethical and safety recommendations for research on domestic violence against women. Geneva, Switzerland:WHO, 2001.

22. Straus MA. Measuring intrafamily conflict and violence: the Conflict Tactics (CT) Scales. J Marriage Fam. 1979; 41(1):75-88.

23. World Health Organization ,International Society for Prevention of Child Abuse and Neglect. Preventing child maltreatment: a guide to taking action and generating evidence. Geneva: WHO, 2006.

24. Rutstein SO, Johnson K. The DHS Wealth Index. DHS Comparative Reports No. 6. Calverton, Maryland: ORC Macro, 2004.

25. Menard S. Applied logistic regression analysis. Sage University paper series on quantitative applications in the social sciences, 07-106. Thousand Oaks, CA: Sage, 1995.

26. Dalal K, Lawoko S, Jansson B. The relationship between intimate partner violence and maternal practices to correct child behavior: a study on women in Egypt. J Inj Violence Res. 2010 Jan;2(1):25-33.

27. Tang CS. The rate of physical child abuse in Chinese families: a community survey in Hong Kong. Child Abuse Negl. 1998 May;22(5):381-91.

28. Sadowski LS, Hunter WM, Bangdiwala SI, Muñoz SR. The world studies of abuse in the family environment (WorldSAFE): a model of a multi-national study of family violence. Inj Control Saf Promot. 2004 Jun;11(2):81-90.

29. Taylor CA, Guterman NB, Lee SJ, Rathouz PJ. Intimate partner violence, maternal stress, nativity, and risk for maternal maltreatment of young children. Am J Public Health. 2009 Jan;99 (1):175-83.

30. Slep AM, O'Leary SG. Examining partner and child abuse: are we ready for a more integrated approach to family violence? Clin Child Fam Psychol Rev. 2001 Jun;4(2):87-107.

31. Tajima EA. The relative importance of wife abuse as a risk factor for violence against children. Child Abuse Negl. 2000 Nov;24(11):1383-98.

32. Radford L, Hester M. Overcoming mother blaming? Future directions for research on mothering and domestic violence. In: Graham-Bermann S, Edleson JL, (eds): Domestic Violence in the Lives of Children: The Future of Research. Intervention and Social Policy. Washington, D.C.: American Psychological Association, 2001.

33. Gagné MH, Tourigny M, Joly J, Pouliot-Lapointe J. Predictors of adult attitudes toward corporal punishment of children. J Interpers Violence. 2007 Oct;22(10):1285-304.

34. Akmatov MK. Child abuse in 28 developing and transitional countries--results from the Multiple Indicator Cluster Surveys. Int J Epidemiol. 2011 Feb;40(1):219-27.

35. Pears KC, Capaldi DM. Intergenerational transmission of abuse: a two-generational prospective study of an at-risk sample. Child Abuse Negl. 2001 Nov;25(11):1439-61.

36. Kim J. Type-specific intergenerational transmission of neglectful and physically abusive parenting behaviors among young parents. Child Youth Serv Rev. 2009;31(7):761-7.

37. Bandura A. Aggression: A Social Learning Analysis. Englewood Cliffs, NJ: Prentice-Hall, 1973.

38. Gelles RJ. The youngest victims: Violence toward children. In: Bergen R, (ed): Issues in intimate violence. Thousand Oaks, CA: Sage, 1998.

39. Shumba A. Epidemiology and etiology of reported cases of child physical abuse in Zimbabwean primary schools. Child Abuse Negl. 2001 Feb;25(2):265-77.

40. Krug EG, Dahlberg LL, Mercy JA, Zwi AB, Lozano R. Chapter 3: child abuse and neglect by parents and other caregivers. In: World report on violence and health. Geneva: World Health Organization, 2002.

41. Gilbert R, Widom CS, Browne K, Fergusson D, Webb E, Janson S. Burden and consequences of child maltreatment in high-income countries. Lancet. 2009 Jan 3;373(9657):68-81.

42. Maker AH, Shah PV, Agha Z. Child physical abuse: prevalence, characteristics, predictors, and beliefs about parent-child violence in South Asian, Middle Eastern, East Asian, and Latina women in the United States. J Interpers Violence. 2005 Nov;20(11):1406-28.

43. Antai D, Antai J. Collective violence and attitudes of women toward intimate partner violence: Evidence from the Niger Delta. BMC Int Health Hum Rights. 2009 Jun 9;9:12.

44. Antai D. Traumatic physical health consequences of intimate partner violence against women: what is the role of community-level factors? BMC Womens Health. 2011 Dec 20;11:56.

AUTHOR QUERIES
AUTHOR PLEASE ANSWER ALL QUERIES

AU1:Author's First name is abbreviate.Please provide all author's full name.