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Date

Effect of Enabling Resources and Risk Factors on the Relationship between Intimate Partner  
Violence and Anxiety in Ever-Married Women in Minya, Egypt

By

Annum Khan Shaikh

Master of Public Health

Global Epidemiology

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2011

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Rollins School of Public Health of Emory University  
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## Abstract

Effect of Enabling Resources and Risk Factors on the Relationship between Intimate Partner Violence and Anxiety in Ever-Married Women in Minya, Egypt

By Annum Khan Shaikh

**Background:** Gender inequalities in health exist globally and particularly in the Arab world where the patriarchal structures in place affect gender roles and power. While physical health manifestations may be easier to detect and are perceived to be important in the community, mental health manifestations often receive little attention. The effect of intimate partner violence (IPV) on mental health remains largely understudied in the Arab world. In this study, we conceptualized a model depicting the enabling resources and risk factors that may mitigate or moderate the effect of IPV on generalized anxiety in ever-married women in Minya, Egypt. We hypothesized that human, social and economic enabling resources would mitigate the effect of IPV on anxiety, whereas risk factors such as childhood exposure to trauma would exacerbate the effect.

**Methods:** Using data from 608 women who took part in the 2005 Egyptian Demographic Health Survey (EDHS) and a 2012 follow-up survey in rural Minya, linear reduced-form (without moderators) and multiple full-form mediation regression models were created to assess the influence of these moderators on generalized anxiety in 2012, associated with IPV.

**Results:** Proximity to natal kin, prior schooling, and engagement in market work 12 months prior to marriage all had a protective effect on generalized anxiety associated with IPV. Childhood abuse from mother also had a protective effect on this relationship. Childhood abuse from brother, a patriarchal model in the family, appeared to be protective against anxiety when no IPV was present but had an exacerbating effect in the presence of exposure to IPV.

**Conclusion:** Overall, women's access to education, work before marriage, and continued social support from her natal kin are imperative for their mental health, particularly lower generalized anxiety. Empowerment programs can encourage women to attend school and engage in market or subsistence work, while also suggesting strategies to improve relationship of women with natal kin.

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## INTRODUCTION

Intimate partner violence (IPV) is defined as “behavior by an intimate partner, or ex-partner that causes physical, sexual or psychological harm, including physical aggression, sexual coercion, psychological abuse and controlling behaviors” [1]. A comprehensive worldwide survey on women’s experience of IPV revealed that the prevalence of IPV in the North Africa/Middle Eastern region ranges from approximately 30 – 40% [2], with a reported prevalence ranging from 20-60% in Egypt [3].

World Health Organization defines mental health as ‘a state of complete physical, mental and social well-being, and not merely the absence of disease’ [4]. An Egypt national household survey assessing prevalence of mental disorders revealed that 16.93% of the adult population interviewed, was affected by mental disorders. Particularly, 4.75% of them experienced anxiety disorders [5]. Furthermore, the rates of these mental disorders were higher in women who were divorced, with low education and low level of participation in market work [5].

In Tunisia and Spain, physical and sexual violence have been associated with higher levels of depression, anxiety, phobias, PTSD, suicide and drug abuse among women [6-8]. Intimate partner violence, and its effect on mental health, remains understudied in the Arab world. In the few studies conducted, a positive association exists between IPV and high levels of depression and anxiety among Egyptian women [6, 9]. Considering the prevalence of IPV in the Arab world and its effects on mental health, it is of even more importance to explore the factors that protect or buffer against the adverse mental-health effects of IPV.



Research in the Western world suggests that social support can have a protective effect on the relationship between IPV and anxiety or depression [10, 11]. While some studies indicate that natal family support was associated with a lower likelihood of IPV reporting [12, 13], conflicting findings also exist which indicate that family support may be positively associated with IPV [14, 15]. In multiple population-based multi-country studies, education was also a protective factor against IPV [15, 16]. An Egypt national survey indicated that having secondary education or higher, respectively, was protective against anxiety (OR=0.74 and 0.59, respectively) [5]. Another study conducted in 2,400 married women in Iran found a significant positive association between IPV and low education [17]. Yet another study suggests that promotion of education can serve as a strategy for IPV prevention [18]. Various studies also suggest that a women's unemployment put her at greater risk to experience of intimate partner violence [15-18].

Based on studies conducted in Egypt, investments in women's social and economic capital may help mitigate risks for IPV [16, 19, 20]. In fact, Egyptian women who married later and maintained ties with natal kin had lower odds of experiencing physical IPV [19]. These are indicative of human, economic, and social resources having a protective effect for IPV, but little evidence in Egypt exists about whether these protective factors also mitigate IPV's effect on anxiety.

Similarly, certain risk factors may increase the risk of mental illness among those with IPV exposure. A cross-sectional study conducted amongst couples in California concluded that adverse childhood experiences mediates the association between IPV and psychosocial factors such as anxiety, depression and impulsivity [21].

Prior research findings reveal that women in Egypt who experience corporal punishment or maltreatment by a parent have greater odds of experiencing physical IPV [15, 19]. However, little to no research addresses how these risk factors moderate the effect of IPV on anxiety.

Overall, this study will examine which enabling resources for these married women may modify or mitigate the effect of IPV on their generalized anxiety. It is hypothesized that enabling resources such as human, economic and social resources may mitigate the effect of IPV on anxiety, thus being protective. Additionally, the study will also examine whether risk factors such as maltreatment by a parent or sibling may amplify anxiety, as related to IPV exposure. Covariates in this study include age, woman's religion and total number of living children. It is hypothesized that older women may have a longer period during which exposure to IPV could occur, but they may also have gained status within the family, which could decrease chronicity of IPV and possibly counteract anxiety. In an Egyptian context, motherhood enhances a woman's social identity but it also exacerbates her dependency on her marriage to maintain custody of her children [13, 22, 23]. Thus, women with children are more likely to experience and to tolerate IPV and are less likely to seek divorce [13]. An Egyptian national survey measuring prevalence of mental health disorders revealed that having more children was protective against anxiety (OR = 0.73 if women had more than 3 children) [5]. Based on this literature, the number of living children is hypothesized to be positively correlated with IPV and negatively correlated with anxiety scores.

## **METHODS**

### *Study Sample:*

The study sample included 608 ever-married women, 22 – 65 years old, from rural Minya, Egypt who were first interviewed as part of the 2005 Egypt Demographic and Health Survey

(EDHS) and were re-interviewed in 2012. The method, sampling strategy and ethical considerations have been described elsewhere [9]. The follow-up response rate was 72%.

#### *Data Collected*

The variables in this study were gathered from both the 2005 EDHS and the follow-up 2012 survey [24]. The 2005 EDHS household questionnaire gathered data on respondents' demographics and household economic status indicators. Respondents receiving the woman questionnaire were asked questions about education, marital history, work status, fertility history and husband's characteristics. The follow-up survey in 2012 had similar components as the one from 2005 but the 2012 survey's woman questionnaire had focus on both the women's economic and non-economic activities (including but not limited to market work, family care, household chores), IPV and mental health (Table IV, Appendix).

#### *Variables:*

*Intimate Partner Violence (IPV)*: In this study, a woman's experience of any lifetime psychological, physical, or sexual IPV was the main exposure variable, measured through the IPV module (Table V, Appendix) of the 2012 woman questionnaire. The instrument used to measure IPV was adapted from the 2005 EDHS, which itself was based on Revised Conflict Tactics Scales [25], and measured woman's exposure (before and after her 2005 interview and in the prior year) to psychological IPV (3 items), physical IPV (7 items) and sexual IPV (2 items) by her current or former husband.

*Generalized anxiety*: Symptoms of generalized anxiety disorder were measured through the 20-item Kuwait University Anxiety Scale (KUAS) in the mental health module of the 2012 Woman questionnaire [26]. Developed by Arab psychologists in Arabic and validated in 10

Middle Eastern populations [26], the KUAS questionnaire consists of statements describing feelings that women are asked to associate themselves with, on a scale of 1 – 4 (1=Rarely, 2=Sometimes, 3=Often, 4=Always). All the item scores in KUAS are summed to produce a summative score, which is the outcome of this study. Lower scores indicated less anxiety, and higher scores indicated more anxiety.

*Enabling Resources:*

*Social Resource: Proximity to Natal Kin*

Proximity to natal kin, a moderator, served as an indicator for social support in this study. It was measured in terms of physical distance and frequency of meeting. Proximity to family of birth was particularly important for women in Minya because divorce is not a viable option, and thus, the natal home serves as a predominant avenue for recourse after an episode of IPV [27]. Recent studies have found a significant positive association of IPV with the score for generalized anxiety and a significant negative association of residential proximity to family of birth with this same score, among married women in rural Minya, Egypt [9, 24]. Thus, it is hypothesized that proximity of residency to natal kin may modify, or mitigate, the significant association of IPV with women's symptoms of generalized anxiety.

*Human resource: Schooling*

Schooling, a human resource, was measured in two ways -- whether the woman ever attended school and the highest level of school attended. A recent study conducted on the same set of married women, as in this study, in rural Minya, Egypt showed that schooling was associated with lower anxiety [9]. Thus, it is hypothesized that schooling will mitigate the effect of IPV on generalized anxiety.

Economic resource: Women's market work

Women's engagement in market or any subsistence work, skilled work outside home for cash or kind, 12 months before marriage was used as an indicator for economic resources. Women's market work before marriage is important because it occurs well in advance of the occurrence of IPV. A recent study conducted on the same set of married women as in this study, in rural Minya, Egypt showed that a woman's premarital work was associated with lower anxiety [9]. Likewise, it is hypothesized that a woman's market work before marriage will mitigate the effect of IPV on generalized anxiety.

Risk factor: Early childhood exposure to trauma

Early childhood exposure to trauma, both parental and personal, will be examined in this study: whether the woman respondent witnessed her father ever beating her mother, and whether she personally experienced any type of violence before the age of 16 from natal family, in-laws, friends or any other source. There is a strong association between a woman witnessing her father beat her mother, as a child, and any lifetime physical IPV, but only in a few communities [15, 19]. It is hypothesized that early childhood exposure to trauma will strengthen the effect of IPV on generalized anxiety.

Demographic controls included the woman's age in years, whether (=1) or not (=0) the woman identified herself as Muslim, and the total number of living children that she has.

Conceptual model building

The conceptual model (Figure 1) underlying this study is based on prior research on the relationships between IPV and mental health [9]. The framework indicates that (1) mental

health is negatively affected by lifetime exposure to any IPV; (2) the adverse effect of IPV is mitigated by enabling resources and exacerbated by other risk factors; and (3) individual characteristics (age, religion, and number of living children) can both affect the IPV and the outcome.

### *Statistical Analysis*

Using SAS 9.3, univariate descriptive analyses were initially performed to assess the completeness and distributions of all variables. Simple linear regressions of women's anxiety scores with each exposure variable, moderator and control, were estimated. Multiple linear regression models were estimated to assess the adjusted associations and pathways of interest. All four models estimates included the covariates to control for confounding. The reduced model included only the exposure IPV variable along with these covariates. Model 2 included the exposure variable and premarital enabling human, economic and social resources as moderators. Model 3 included the exposure variable and the risk factors as moderators. Model 4 included the exposure variable and only the significant moderators and significant interaction term. These models permitted testing whether any associations of IPV with women's generalized anxiety score were moderated by enabling resources or risk factors.

Model diagnostics were performed to assess model fit. All models were checked for multicollinearity and high Cook's D, leverage, and jackknife residual values. The variable generally indicative of whether the woman experienced maltreatment as a child was dropped due to its collinearity with other variables identifying sources of the child maltreatment. Outliers were identified based on high leverage and jackknife residuals but they were retained in the

models because the values were plausible. All the analyses conducted used sampling weights and adjusted standard errors to account for the complex survey design used [28].

## RESULTS

### *Sample characteristics*

The mean composite score for generalized anxiety was 41.5, with scores ranging from 20 to 66 (Table I). Majority of the women sampled (66.1%) reported lifetime exposure to physical, sexual or psychological IPV. The majority of the women reported (83.4%) living close enough to her birth family to visit in a day. More than half of the women interviewed (64.6%), reported not ever attending school. A smaller proportion (17.8%) reported attending less than secondary and about the same (17.1%) reported attending secondary or higher level of education. A majority of women (73.2%) also reported engaging in market or subsistence work 12 months before marriage.

Exposure to maltreatment as a child was reported by 35.4% of the respondents. Almost all of these women (35.2%) reported being hurt physically, before turning sixteen. The majority of these (19.6%) reported their mothers as the source of this trauma, while 4.3% reported father, 7.7% reported brother and 3.6% reported any other source including father in law, mother in law, aunt or uncle. Of all the women interviewed, 13.7% reported witnessing their father beating their mother. On average, women were 38 years old, mostly Muslim (85%) and on average, reported having 4 living children. The range of living children reported was from 0 – 13. Data also revealed a positive correlation ( $\beta = 2.45, p < 0.001$ ) between a woman's age and the number of living children she has.

### *Unadjusted associations with measures of generalized anxiety*

As expected, several enabling resources had significant unadjusted associations with generalized anxiety scores (Table II). The social resource of living with birth family or close

enough to visit them in a day was associated with lower scores of generalized anxiety ( $\beta = -4.63, p < 0.001$ ). Both human and economic resources of ever having attended school and engagement in market work before marriage, respectively, were also associated with lower scores of generalized anxiety ( $\beta = -2.05, p \leq 0.05$ ;  $\beta = -2.84, p \leq 0.001$ ). Child maltreatment when perpetrated by the mother ( $\beta = -3.57, p \leq 0.001$ ) had a protective effect on generalized anxiety. Other sources of childhood trauma and witnessing father hit mother as a child, did not have significant associations with generalized anxiety.



<b>Table I. Descriptive statistics, 608~ ever-married women ages 22-65 years in rural Minya, Egypt</b>			
	<b>Frequency (%)</b>	<b>Mean (SE)</b>	<b>Median (Range)</b>
<b>Exposure</b>			
Any lifetime exposure to IPV (ref: no) <sup>a</sup>	402 (66.1)		
Missing	3 (0.5)		
<b>Outcome</b>			
Score for symptoms of generalized anxiety (20 - 66)		41.53 (0.59)	40.47 (20 - 66)
<b>Moderators (human, economic, social resources; trauma)</b>			
Level of school attended			
None	393 (64.6)		
Less than secondary	108 (17.8)		
Secondary or higher	104 (17.1)		
Missing	3 (0.0)		
Market, subsistence work in year before marriage (ref: no)	445 (73.2)		
Missing	2 (0.0)		
Lives close enough to natal family to visit in a day (ref: no)	507 (83.4)		
Missing	5 (0.0)		
Exposure to child maltreatment (ref: no) <sup>b</sup>	215 (35.4)		
Main source of child maltreatment (ref: no exposure)			
Father (ref = no)	26 (4.3)		
Mother (ref = no)	119 (19.6)		
Brother (ref = no)	47 (7.7)		
Other (ref = no)	22 (3.6)		
Witnessed father hit mother (ref: no)	83 (13.7)		
Missing	6 (0.0)		
<b>Control Variables</b>			
Age, in years		38.39 (0.53)	36.71 (22 - 65)
Muslim (ref: Christian, other)	516 (84.9)		
Missing	3 (0.0)		
Total # of living children		4.26 (0.09)	3.58 (0 - 13)

~Note. Cluster and weight of the sampling population were accounted for, in obtaining these statistics

<sup>a</sup> Psychological, physical, or sexual

<sup>b</sup> Slapped, kicked, or hurt in some way, before turning age 16, by anyone other than (last) husband

<b>Table II. Bivariate associations of score for generalized anxiety with IPV, moderators, and control variables. 608 ever-married women ages 22-65 years in rural Minya, Egypt</b>				
	<b>B</b>	<b>(se)</b>	<b>P</b>	<b>R<sup>2</sup></b>
<b>Exposure</b>				
Any lifetime exposure to IPV <sup>a</sup>	3.22	(0.70)	***	0.03
<b>Moderators (human, economic, social resources; trauma)</b>				
Ever attended school (ref = never)	-2.05	(1.05)	*	0.01
Market, subsistence work in 12 mos before marriage	-2.84	(0.77)	***	0.02
Lives with birth family or close enough to visit in a day (ref: no)	-4.63	(1.25)	***	0.04
Child Maltreatment (ref = no)	-1.74	(0.83)	*	0.01
Main source of child maltreatment (ref: no exposure)				
Father (ref = no)	0.64	(1.18)		0.00
Mother (ref = no)	-3.57	(0.99)	***	0.03
Brother (ref = no)	2.43	(1.57)		0.01
Other (ref = no)	-1.04	(1.52)		0.00
Witnessed father hit mother (ref: no)	-1.22	(1.05)		0.00
<b>Control Variables</b>				
Age, in years	-0.03	(0.04)		0.00
Muslim	-0.08	(1.21)		0.00
Total number of living children	0.24	(0.20)		0.00

Note. All estimates were obtained using analytic weights and specifying clustering at the primary sampling unit level.

<sup>a</sup> Psychological, physical, or sexual

\*  $p \leq 0.05$ , \*\*  $p \leq 0.01$ , \*\*\*  $p \leq 0.001$

*Multivariate results*

Table III displays the estimates from four hierarchical, multiple linear regression models which allow assessment of associations between IPV and generalized anxiety, and the effect of moderators, accounting for demographic controls (Table II).

In the reduced model, all IPV exposure variables were included (Table III). Compared to their counterparts, women who reported lifetime exposure to any type of IPV had significantly higher scores for generalized anxiety ( $\beta = 3.14$ ).

Based on the significant resource moderators and risk moderators in the second and third models, a final model was created with only significant moderator and interaction term (Table III). Any lifetime exposure to IPV was still associated with significantly higher scores ( $\beta = 2.16$ ) for generalized anxiety as in the reduced model, but less significantly, from  $p \leq 0.001$  in the reduced model to  $p \leq 0.01$  in the final model. The effects of lifetime exposure to any IPV on generalized anxiety was moderated through enabling resources such as schooling, market work in the year before marriage, living with birth family or close enough to visit in a day which all had an overall protective effect. Risk factors related to child maltreatment and witnessing father beating mother were also examined. In the final model, the sign of the regression coefficient for abuse from the mother was negative, suggesting a protective effect on anxiety. There is also significant interaction between lifetime exposure to any IPV and brother as the source of child maltreatment.

Table III. Linear regression models of IPV, enabling resources, and violence in childhood on generalized anxiety. 608 ever-married women ages 22-65 years, Rural Minya, Egypt												
	Base Model			Resource Moderators Only			Risk Moderators Only			Significant Moderators Only		
	R <sup>2</sup> = 0.050			R <sup>2</sup> = 0.096			R <sup>2</sup> = 0.128			R <sup>2</sup> = 0.096		
Exposure	$\beta$	(se)	p	$\beta$	(se)	p	B	(se)	p	$\beta$	(se)	p
Any lifetime exposure to IPV <sup>a</sup>	3.14	(0.71)	***	2.41	(0.72)	**	3.43	(0.70)	***	2.16	(0.72)	**
<b>Moderators (human, economic, social resources; trauma)</b>												
Ever attended school (ref = never)				-2.21	(0.97)	*				-2.36	(0.96)	*
Market, subsistence work in year before marriage (ref: no)				-3.01	(0.73)	***				-3.03	(0.68)	***
Lives with birth family or close enough to visit in a day (ref: no)				-4.09	(1.13)	***				-3.58	(1.10)	**
Sources of child maltreatment												
Father (ref = no)							0.14	(1.15)				
Mother (ref = no)							-3.43	(1.11)	**	-3.51	(0.95)	***
Brother (ref = no)							1.81	(1.42)		-4.22	(2.33)	
Other (ref = no)							-2.17	(1.51)				
Witnessed father hit mother (ref: no)							-1.46	(1.05)				
<b>Interaction</b>												
Any Lifetime exposure to IPV with Brother as source of child maltreatment										6.26	(2.64)	*

Notes. All models controlled for age, whether respondents were Muslim or not, and the total number of living children. None of these variables were significantly associated with the outcome.

<sup>a</sup> Psychological, physical, or sexual

\*  $p \leq 0.05$ , \*\*  $p \leq 0.01$ , \*\*\*  $p \leq 0.001$

## DISCUSSION

### *Summary*

This is the first longitudinal study in Minya, Egypt to explore the effect of enabling resources and exposure to childhood trauma, on anxiety associated with IPV.

The strengths of this study include use of a scale for measuring generalized anxiety, validated in various Middle Eastern populations. The moderator variables, including enabling resources and risk factors, are also very context-specific to Minya, Egypt. The longitudinal nature of this study design is also a strength as it establishes appropriate temporal ordering among variables of interest.

Findings of this study are consistent with the conceptual model that builds the foundation of this study. It supports the significant deleterious effect of IPV on mental health (as measured by generalized anxiety) from prior research [6, 9]. This study also corroborates other research that schooling, premarital market work and living close to natal kin all have a protective moderating effect on the relationship between IPV and generalized anxiety [13, 16, 19].

It is interesting that women who reported being slapped, kicked or having any other physical trauma by their mothers before turning sixteen, had significantly lower scores for generalized anxiety. In an Egyptian family, a mother holds high authority for her children and she is possibly her daughters' close confidante. Perhaps being exposed to this trauma by her mother normalizes trauma for the woman and in fact, improves her resiliency for dealing with this trauma in the future.

Findings also reveal a significant interaction of any lifetime exposure to IPV with brother as a source of child maltreatment. The least square means values revealed that childhood maltreatment from brother has a protective effect on anxiety if the woman was not exposed to any IPV. However, the same maltreatment exacerbates the effect on anxiety if the woman

was exposed to any IPV (Figure 2). The patriarchal society in Egypt demands the brothers to be responsible for protecting a woman in case of failure of maintenance, abandonment, or other mistreatment on the part of the husband. Perhaps the brother plays this role when the woman has no exposure to IPV, regardless of being a perpetrator of trauma in her childhood. However, if the woman has future exposure to IPV from her husband and faced maltreatment from her brother as a child, she has no one to protect her as both her sources of support are compromised. Perhaps the double source of trauma from important male figures in her life reduces her resilience and adversely affects her emotional health.

#### *Study Limitations*

It is worthwhile to note the limitations of this study. One of the primary limitations of this study is that the variables for exposure, premarital enabling resources, and childhood risk factors were measured retrospectively and thus they are subject to recall bias. These include variables for any lifetime exposure to IPV, schooling, premarital economic activity, proximity to birth family and exposure to childhood trauma. In order to control for this bias, the researchers tried to enhance temporal ordering by measuring explanatory variables, moderators and outcomes for a precise window of time. For instance, women's enabling resources were measured in 2012 but with respect to the period before marriage.

Another limitation of this study may be that it included asking questions on sensitive topics such as IPV, and hence exposure to IPV could be underreported. To control for this, interviewers were adequately trained to enhance disclosure. It is also worthy of note that there was disclosure of higher number of sensitive topics in 2012 than in 2005. Due to this high disclosure of sensitive topics, estimated associations of women's exposure to IPV with their anxiety may be an underestimation of the true relationship.

The information on demographic and socioeconomic conditions of women's birth families was also quite limited. This information could have played an important role in examining the woman's childhood exposure to trauma. Future research should try to get better estimates of the demographic and socioeconomic conditions of women's birth families.

### *Conclusion*

Despite the limitations, this study marks the first and most comprehensive effort to assess influences of women's enabling resources and childhood exposure to trauma on the relationship between IPV and generalized anxiety. Based on the findings, human, economic and social enabling resources such as schooling, premarital market work and living close to natal kin are all important for potential means to reduce the effects of IPV on mental health outcomes such as anxiety. Mother as the source of childhood trauma also has a protective effect.

The findings of this study may trigger politicians and practitioners of development to focus on increasing women's premarital access to enabling resources such as schooling and market work. Various empowerment programs, and society, in general, can focus on encouraging women to attend school and engage in market or subsistence work. Considering the influence of a brother on a woman's life, it may be important for the Islamic leaders, such as imams, in the mosque to encourage men – young brothers, male role models, and fathers -- to follow the proper teachings of the Qur'an and Hadith which discourage imposing any type of violence upon the women [29].

## APPENDICES

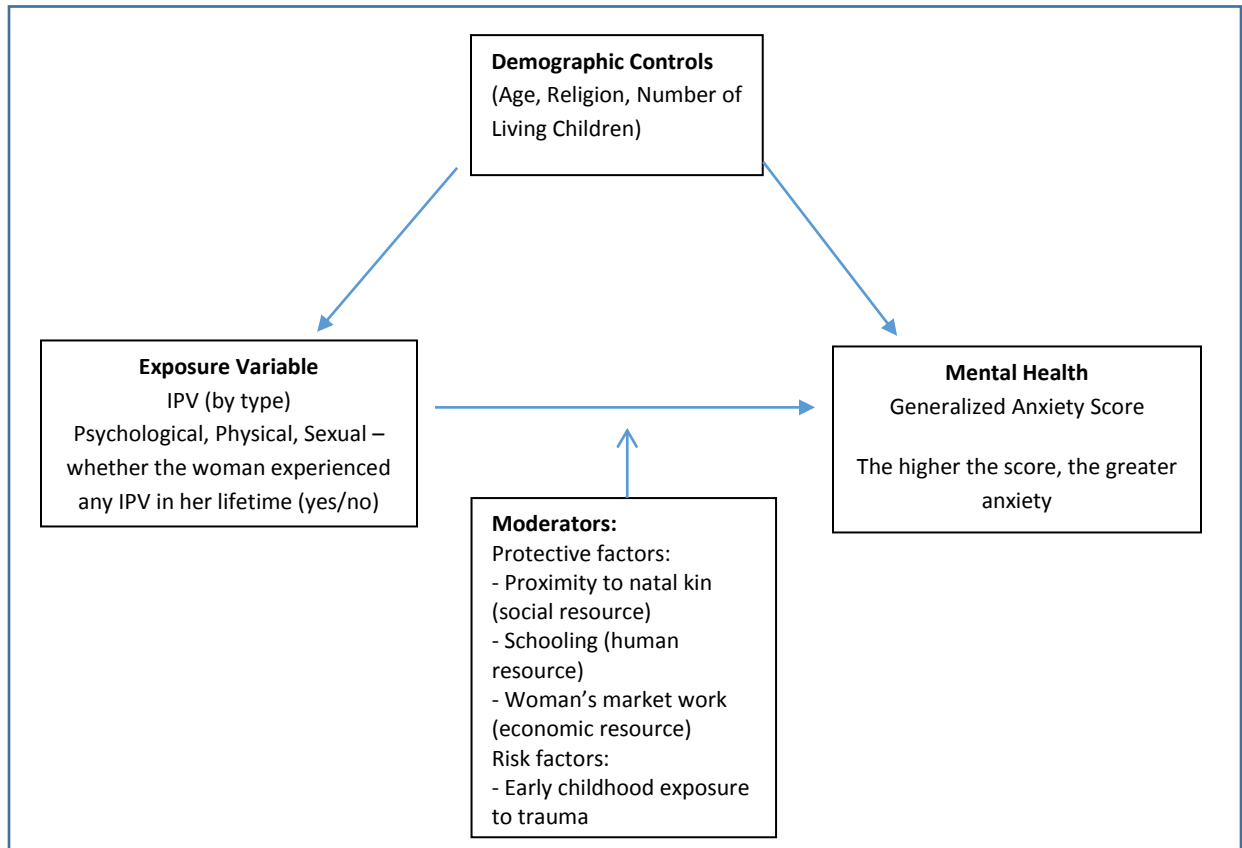


Figure 1. Effect of IPV on Mental Health: Conceptual Framework






<b>Table IV. Variables Collected in 2005 and 2012</b>	
<b>Variables Collected in 2005 EDHS (Household Questionnaire &amp; Woman Questionnaire)</b>	<b>Variables Collected in 2012 Follow-up Survey (Household and Woman Questionnaires, similar to that in 2005)</b>
<p><u>Household Questionnaire</u> asked all members' (22,807 sampled households)</p> <ul style="list-style-type: none"> <li>• Demographic attributes</li> <li>• Amenities of the dwelling</li> <li>• Household assets</li> </ul> <p>**In a 1/3 subsample of interviewed households, 1 ever-married woman was selected to complete IPV module (n=5,711)**</p> <p>- Prevalence of lifetime physical IPV was estimated by several questions about husband's perpetration of acts of physical, sexual, or psychological IPV</p> <p><u>Woman Questionnaire</u> asked about eligible respondents' (19,565 ever-married women)</p> <ul style="list-style-type: none"> <li>• Education</li> <li>• Marital history</li> <li>• Work status</li> <li>• Fertility history</li> <li>• Husband's characteristics</li> </ul>	<p>Sample drawn from 1,122 women who completed 2005 Woman Questionnaire</p> <p style="text-align: center;">↓</p> <p>Sub-sample selected for f/u included all 328 women who completed IPV module in 2005 (+) Additional 514 households randomly selected from remaining households for inclusion [and in households with &gt;1 eligible women, only 1 was selected**</p> <p style="text-align: center;">↓</p> <p>Of 842 selected women, 633 were located → 72% (or 608) completed follow-up interviews</p> <p>**Of the 608 women, 33 had missing data on IPV</p> <p>In-depth interviews about:</p> <ul style="list-style-type: none"> <li>• Women's work</li> <li>• Exposure to IPV</li> </ul> <p><u>Woman Questionnaire:</u></p> <ul style="list-style-type: none"> <li>- Module on women's economic and non-economic activities</li> <li>- Expanded module on IPV</li> <li>- Module on mental health</li> </ul> <p>**Only a subset of participants in 2012 received questions about IPV in 2005!! Hence, 2012 IPV module asked whether woman had experienced IPV before and after interview in 2005, and in the year prior</p>








**Table V -- IPV Module** QUESTIONNAIRE NUMBER |\_\_|\_\_|\_\_|






NO.	QUESTIONS AND FILTERS	CODING CATEGORIES		SKIP
605	Now I would like you to think back on the years <u>before</u> you were last interviewed like this in  __ __  2005 (MONTH OF INTERVIEW),  __ __  years after you were first married, (when your last born child was  __ __  months/ years /  __ __  months/years before the birth of your first child). Did your (last) husband ever: a Say or do something to humiliate you in front of others? b Threaten to hurt or harm you or someone close to you? c Insult you or make you feel bad about yourself?	YES	NO	
		1	2	
		1	2	
		1	2	
606	Again, I would like you to think back on the years <u>before</u> you were last interviewed like this in  __ __  2005 (MONTH OF INTERVIEW),  __ __  years after you were first married, (when your last born child was  __ __  months/ years /  __ __  months/years before the birth of your first child). Did your (last) husband ever: a Push you, shake you, or throw something at you? b Slap you? c Twist your arm or pull your hair? d Punch you with his fist or with something that could hurt you? e Kick you, drag you or beat you up? f Try to choke you or burn you on purpose? g Threaten to attack you with a knife, gun, or any other weapon? h Physically force you to have sexual intercourse with him even when you did not want to? i Force you to perform any sexual acts you did not want to?	YES	NO	
		1	2	
		1	2	
		1	2	
		1	2	
		1	2	
		1	2	
		1	2	
		1	2	
		1	2	
607	CHECK 606(a-i):	AT LEAST ONE YES <input type="checkbox"/>	NOT A SINGLE YES <input type="checkbox"/>	613
608	Did any of the following things happen as a result of what your (last) husband did to you? a You had cuts, bruises or aches? b You has eye injuries, sprains, dislocations, or burns? c You had deep wounds, broken bones, broken teeth, or any other serious injury?	YES	NO	
		CUTS 1	2	
		INJURIES 1	2	
		WOUNDS 1	2	
609	At any time <u>before</u> you were last interviewed, when your husband did something to physically hurt you, did you try to get help to stop him from doing this to you again?	YES.....	.....	611
		.....	.....	1
		NO.....	.....	2

61 0	What is the main reason you did not try to get help?	DID NOT KNOW WHO TO GO TO.....	01	} 612
		NO USE.....	02	
		PART OF LIFE.....	03	
		AFRAID OF DIVORCE/DESERTION.....	04	
		AFRAID OF FURTHER BEATINGS.....	05	
		AFRAID TO GET PERSON INTO TROUBLE.....	06	
		EMBARRASSED.....	07	
		DID NOT WANT TO DISGRACE FAMILY.....	08	
		NOT IMPORTANT.....	09	
		OTHER (SPECIFY: _____)	96	
61 1	From whom did you try to get help?	FATHER.....	1	} 613
		FATHER IN LAW.....	1	
	Who else?	BROTHER.....	1	
	RECORD ALL MENTIONED	MOTHER.....	1	
		MOTHER IN LAW.....	1	
		SISTER.....	1	
		FRIEND.....	1	
		OTHER (SPECIFY: _____)	1	
61 2	Did you tell anyone about your experiences?	YES.....	1	
		NO.....	2	
61 3	I would like you to think back on the years <u>before</u> you were last interviewed like this in  __ __  2005			

(MONTH OF INTERVIEW),  __ __  years after you were first married, (when your last born child was		
__ __  months/ years /  __ __  months/years before the birth of your first child). Did you hit, kick or do	YES.....	1
anything else to physicaly hurt your (last) huband when he was not already physicaly hurting you?	NO.....	2

N O.	QUESTIONS AND FILTERS	CODING CATEGORIES	SKIP																												
614	<p>_1 Now I would like you to think back on the years <u>after</u> you were last interviewed like this</p> <p>in  __ __  2005 (MONTH OF INTERVIEW),  __ __  years after you were first married, (when your last born child</p> <p>was  __ __  months/years /  __ __  months/years before the birth of your first child). Did your (last) husband:</p> <p>a Say or do something to humiliate you in front of others? YES .... ....1</p> <p>NO.  .... ....2</p> <p>b Threaten to hurt or harm you or someone close to you? YES .... ....1</p> <p>NO.  .... ....2</p> <p>c Insult you or make you feel bad about yourself? YES .... ....1</p> <p>NO.  .... ....2</p>	<p>_2 How often did this happen during the last 12 months: often, only</p> <p>sometimes, or not at all?</p> <table border="0"> <tr> <td>O</td> <td>SO</td> <td>NO</td> <td></td> </tr> <tr> <td>FT</td> <td>ME</td> <td>T</td> <td>N</td> </tr> <tr> <td>E</td> <td>TIM</td> <td>AT</td> <td>A</td> </tr> <tr> <td>N</td> <td>ES</td> <td>ALL</td> <td></td> </tr> </table> <table border="0"> <tr> <td>1</td> <td>2</td> <td>3</td> <td>5</td> </tr> <tr> <td>1</td> <td>2</td> <td>3</td> <td>5</td> </tr> <tr> <td>1</td> <td>2</td> <td>3</td> <td>5</td> </tr> </table>	O	SO	NO		FT	ME	T	N	E	TIM	AT	A	N	ES	ALL		1	2	3	5	1	2	3	5	1	2	3	5	
O	SO	NO																													
FT	ME	T	N																												
E	TIM	AT	A																												
N	ES	ALL																													
1	2	3	5																												
1	2	3	5																												
1	2	3	5																												
615	<p>_1 Again, I would like you to think back on the years <u>after</u> you were last interviewed like this</p> <p>in  __ __  2005 (MONTH OF INTERVIEW),  __ __  years after you were first married, (when your last born child</p> <p>years /  __ __  months/years before the birth of your first child). Did your (last) husband:</p> <p>a Push you, shake you, or throw something at you? YES .... ....1</p>	<p>_2 How often did this happen during the last 12 months: often, only</p> <p>sometimes, or not at all?</p> <table border="0"> <tr> <td>O</td> <td>SO</td> <td>NO</td> <td></td> </tr> <tr> <td>FT</td> <td>ME</td> <td>T</td> <td>N</td> </tr> <tr> <td>E</td> <td>TIM</td> <td>AT</td> <td>A</td> </tr> <tr> <td>N</td> <td>ES</td> <td>ALL</td> <td></td> </tr> </table> <table border="0"> <tr> <td>1</td> <td>2</td> <td>3</td> <td>5</td> </tr> </table>	O	SO	NO		FT	ME	T	N	E	TIM	AT	A	N	ES	ALL		1	2	3	5									
O	SO	NO																													
FT	ME	T	N																												
E	TIM	AT	A																												
N	ES	ALL																													
1	2	3	5																												

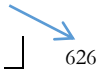
		NO. .... ....2							
b	Slap you?	YES .... ....1		1	2	3	5		
		NO. .... ....2							
c	Twist your arm or pull your hair?	YES .... ....1		1	2	3	5		
		NO. .... ....2							
d	Punch you with his fist or with something that could hurt you?	YES .... ....1		1	2	3	5		
		NO. .... ....2							
e	Kick you, drag you or beat you up?	YES .... ....1		1	2	3	5		
		NO. .... ....2							
f	Try to choke you or burn you on purpose?	YES .... ....1		1	2	3	5		
		NO. .... ....2							
g	Threaten to attack you with a knife, gun, or any other weapon?	YES .... ....1		1	2	3	5		
		NO. .... ....2							

h	Physically force you to have sexual intercourse	YES .... ....1	1	2	3	5	
	with him even when you did not want to?	NO.  .... ....2					
i	Force you to perform any sexual acts you did not want to?	YES .... ....1	1	2	3	5	
		NO.  .... ....2					
616	CHECK 615_1	AT LEAST ONE YES <input type="checkbox"/> 			NOT A SINGLE YES	<input type="checkbox"/>	<input type="checkbox"/> 622 
617	I would like you to think back on the years after you were last interviewed like this in  __ __  2005 (MONTH OF INTERVIEW),  __ __  years after you were first married, (when your last born child was  __ __  months/years /  __ __  months/years before the birth of your first child). Did any of the following things happen as a result of what your (last) husband did to you?						
	a	you had cuts, bruises or aches?	CUTS	YES	NO	N A	
	b	you had eye injuries, sprains, dislocations or burns?	INJURIES	1	2	5	
	c	you had deep wounds, broken bones, broken teeth or any other serious injury?	WOUNDS	1	2	5	
618	At any time since you were last interviewed, when your (last) husband did something to physically	YES..... .....				1	620 
	hurt you, did you try to get help to stop him from doing this to you again?	NO..... .....				2	
619	What is the main reason you did not try to get help?	DID NOT KNOW WHO TO GO TO.....				0	
		NO USE.....				1 0 2	

		PART OF LIFE.....	0	
		AFRAID OF DIVORCE/DESERTION.....	3	
		AFRAID OF FURTHER BEATINGS.....	0	
		AFRAID OF GETTING PERSON INTO TROUBLE.....	4	
		AFRAID OF FURTHER BEATINGS.....	0	621
		AFRAID OF GETTING PERSON INTO TROUBLE.....	5	
		EMBARRASSED.....	0	
		DID NOT WANT TO DISGRACE FAMILY.....	6	
		NOT IMPORTANT.....	0	
		OTHER (SPECIFY: _____)	7	
		OTHER (SPECIFY: _____)	0	
		OTHER (SPECIFY: _____)	8	
		OTHER (SPECIFY: _____)	0	
		OTHER (SPECIFY: _____)	9	
		OTHER (SPECIFY: _____)	9	
		OTHER (SPECIFY: _____)	6	
620	From whom did you try to get help ?	FATHER.....	1	} 6 2 2
	Who else?	FATHER IN LAW.....	1	
	RECORD ALL MENTIONED	BROTHER.....	1	
		MOTHER.....	1	
		MOTHER IN LAW.....	1	
		SISTER.....	1	
		FRIEND.....	1	
		OTHER (SPECIFY: _____)	1	
621	Have you told anyone about your experiences?	YES.....	1	
		NO.....	2	
622	Now I would like you to think back on the years <u>after</u> you were last interviewed like this in  __ __  2005 (MONTH OF INTERVIEW),  __ __  years after you were first married, (when your last born child was  __ __  months/ years /  __ __  months/years before the birth of your first child). Did you hit, kick, or do anything else to physically hurt your (last) husband when he was not already beating or physically hurting you?	YES.....	1	
		NO.....	2	624
		NOT	5	624



		APPLICABLE..... ..... .....	
623	In the last 12 months, how often have you done this to your (last) husband:	OFTEN..... ..... .....	1
	Often, only sometimes or not at all?	SOMETIMES..... ..... .....	2
		NOT AT ALL..... ..... .....	3
		NOT APPLICABLE..... ..... .....	5
624	CHECK 606 AND 615_1	AT LEAST ONE YES..... .....	1
		NOT A SINGLE YES..... .....	2



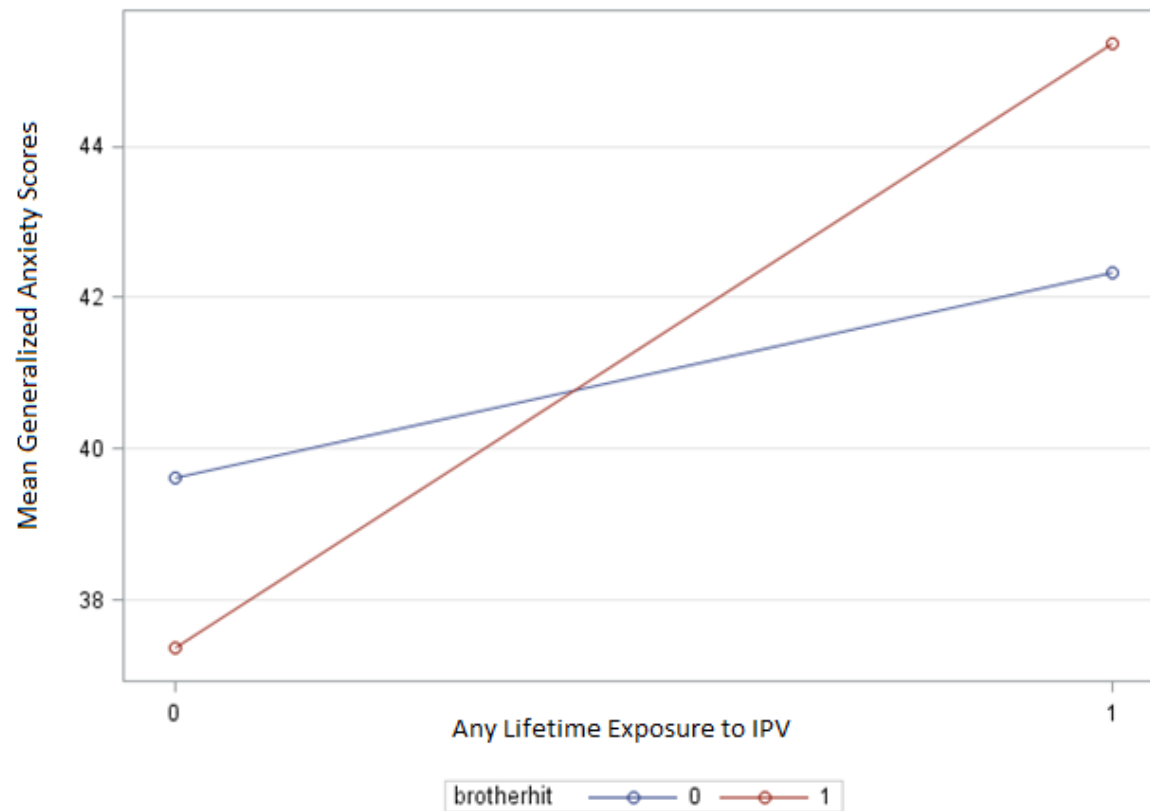
626

N O.	QUESTIONS AND FILTERS	CODING CATEGORIES	SK IP
62 5	You mentioned that, at some point before or after your last interview, your (last) husband physically hurt you in some way. How long after you first got married did (this/any of these things) start to happen or did it start to happen before you got married?	NO. MOS AFTER MARRIAGE... <input type="text"/> <input type="text"/> <input type="text"/> DO NOT KNOW MONTHS..... 98 NO. OF YRS AFTER MARRIAGE... <input type="text"/> <input type="text"/> <input type="text"/> DO NOT KNOW YEARS..... 98 BEFORE MARRIAGE..... 96	
62 6	<u>Before</u> you turned sixteen, did anyone other than your (last) husband slap, kick, or do anything else to hurt you physically?	YES..... 1 NO..... 2	628
62 7	Who hurt you in this way <u>before</u> you turned sixteen?  Who else? RECORD ALL MENTIONED.	FATHER..... 1 FATHER IN LAW..... 1 BROTHER..... 1 MOTHER..... 1 MOTHER IN LAW..... 1 SISTER..... 1 FRIEND..... 1 OTHER (SPECIFY: _____) 1	
62 8	<u>Since</u> you turned sixteen, has anyone other than your (last) husband slapped, kicked, or done anything else to hurt you physically?	YES..... 1 NO..... 2	631
62 9	Who has hurt you in this way <u>since</u> you turned sixteen?  Who else? RECORD ALL MENTIONED	FATHER..... 1 FATHER IN LAW..... 1 BROTHER..... 1 MOTHER..... 1 MOTHER IN LAW..... 1 ... 1 SISTER..... 1 FRIEND..... 1	

		.....		
		OTHER (SPECIFY: _____)	1	
63 0	In the last 12 months, how often have you been hit, slapped, kicked or physically hurt by this/these person(s): often, only sometimes, or not at all?	OFTEN.....	1	
		SOMETIMES.....	2	
		NOT AT ALL.....	3	
63 1	Has anyone hit, slapped, kicked or done anything else to hurt you physically while you were pregnant, either before or after your last interview?	YES, BEFORE LAST INTERVIEW.....	1	
		YES, AFTER LAST INTERVIEW.....	2	
		YES, BOTH.....	3	} 633
		NO.....	4	
		NEVER PREGNANT.....	5	
63 2	Who has done any of these things to physically hurt you while you were pregnant?	HUSBAND.....	1	
		FATHER.....	1	
		FATHER IN LAW.....	1	
	Who else?	BROTHER.....	1	
	RECORD ALL MENTIONED.	MOTHER.....	1	
		MOTHER IN LAW.....	1	
		SISTER.....	1	
		.....	1	
		FRIEND.....	1	
		OTHER (SPECIFY: _____)	1	
63 3	As far as you know, did your father ever beat your mother?	YES.....	1	
		NO.....	2	
		DO NOT KNOW.....	8	
<b>THANK THE RESPONDENT FOR HER COOPERATION AND REASSURE HER ABOUT THE CONFIDENTIALITY OF HER ANSWERS. FILL OUT THE QUESTIONS BELOW WITH REFERENCE TO THE DOMESTIC VIOLENCE MODULE ONLY.</b>				
63 4	DID YOU HAVE TO INTERRUPT THE INTERVIEW BECAUSE SOME ADULT WAS TRYING TO LISTEN OR CAME INTO THE ROOM OR INTERFERED IN ANY OTHER WAY?		Y ES	N O
		HUSBAND	1	2
		OTHER MALE ADULT	1	2
		FEMALE ADULT	1	2
63 5	INTERVIEWER'S COMMENTS/ EXPLANATION FOR NOT COMPLETING THE DOMESTIC VIOLENCE MODULE			

Figure 2

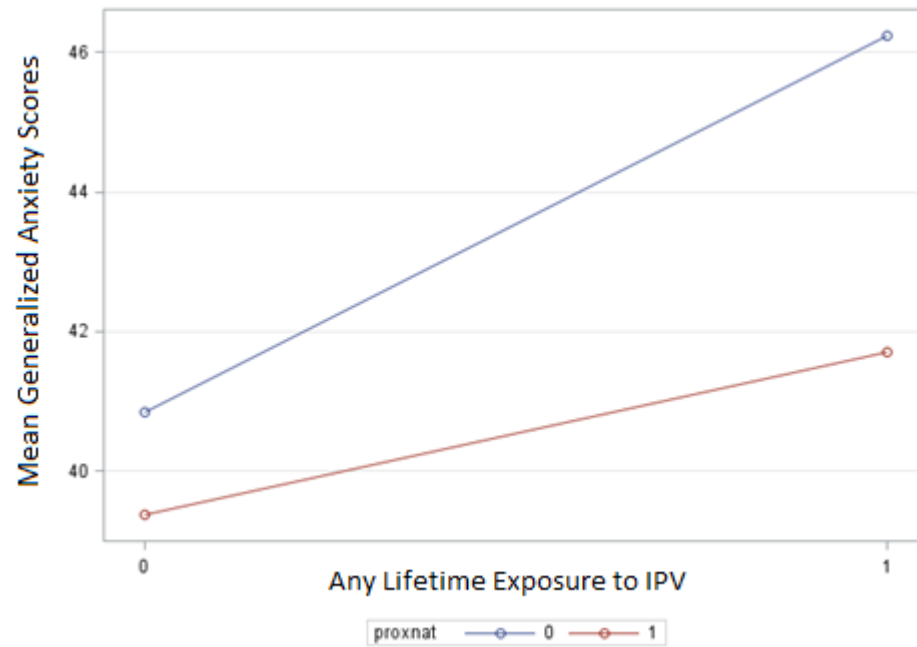
LS Means Plot\* for any lifetime exposure to IPV (x-axis) with brother as source of trauma (variable *brotherhit*), with anxiety scores (Y-axis)



\*The model used to derive this plot contains the exposure variable 'any lifetime exposure to IPV' and all the significant moderator variables: 'ever attended school', 'proximity to natal kin', 'market work', 'childhood trauma from mother', 'childhood trauma from brother'

Figure 3

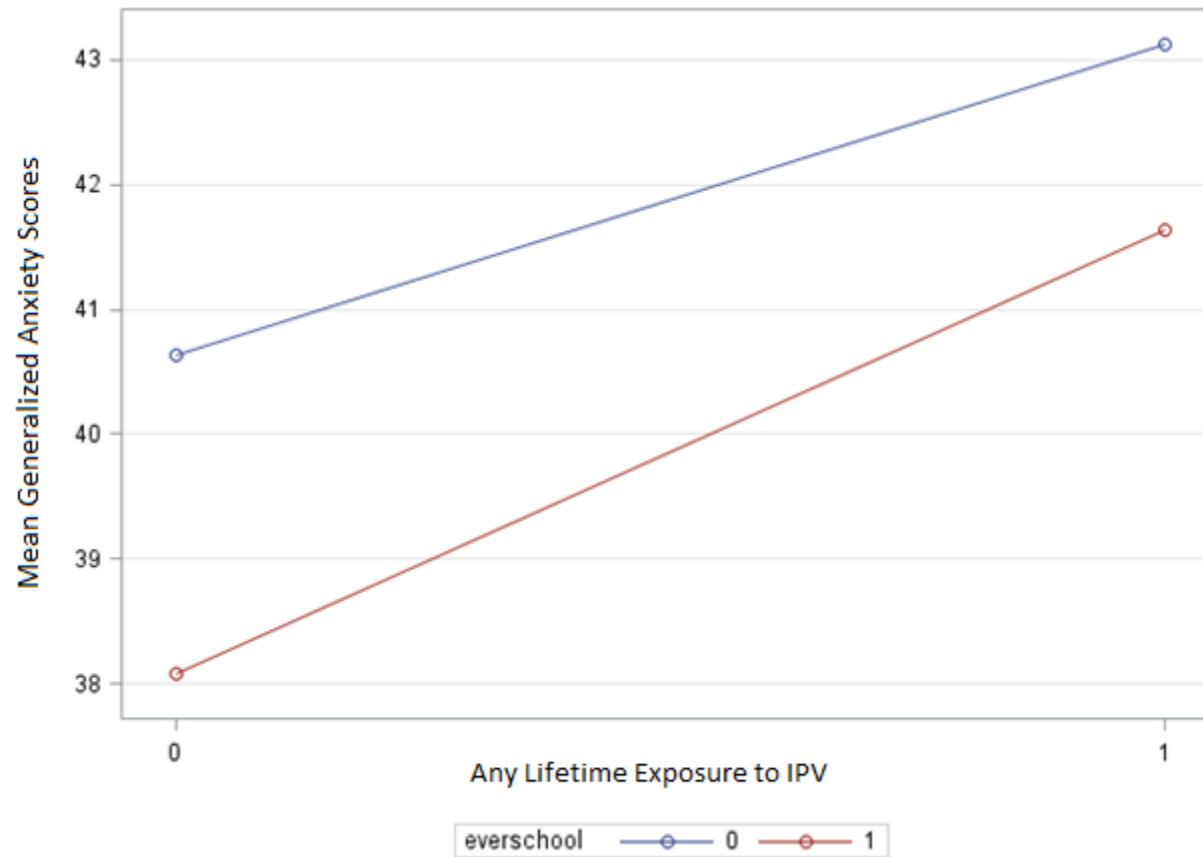
LS Means Plot\* for any lifetime exposure to IPV (x-axis) with proximity to natal kin (variable *proxnat*)



\*The model used to derive this plot only contains the variables for 'any lifetime exposure to IPV' and 'proximity to natal kin'

Figure 4

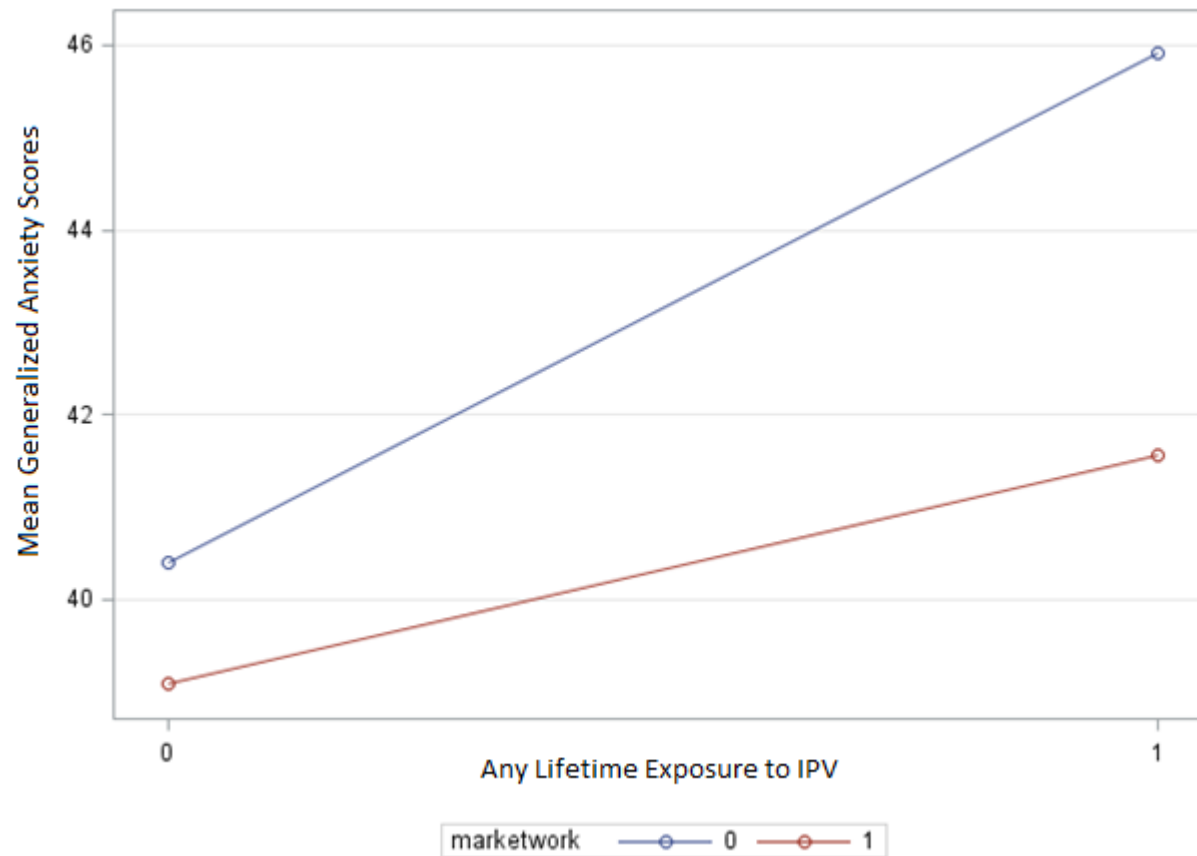
LS Means Plot\* for any lifetime exposure to IPV (x-axis) with ever attending school (variable *everschool*)



\*The model used to derive this plot only contains the variables for 'any lifetime exposure to IPV' and 'ever attended school'

Figure 5

LS Means Plot\* for any lifetime exposure to IPV (x-axis) with engagement in market work (variable *marketwork*)



\*The model used to derive this plot only contains the variables for 'any lifetime exposure to IPV' and 'engagement in market work'

## REFERENCES

- 1 Garcia-Moreno C, Jansen HA, Ellsberg M, *et al.* Prevalence of intimate partner violence: findings from the WHO multi-country study on women's health and domestic violence. *The Lancet* 2006;**368**:1260-9.
- 2 Devries KM, Mak JY, Garcia-Moreno C, *et al.* Global health. The global prevalence of intimate partner violence against women. *Science* 2013;**340**:1527-8.
- 3 Roess AA, Aranda EL. Justification of Intimate Partner Violence in Egypt. 2013.
- 4 Organization WH. *Global and regional estimates of violence against women: prevalence and health effects of intimate partner violence and non-partner sexual violence*. World Health Organization 2013.
- 5 Ghanem M, Gadallah M, Meky F, *et al.* National Survey of Prevalence of Mental Disorders in Egypt: preliminary survey. *Eastern Mediterranean Health Journal* 2009;**15**.
- 6 Douki S, Ben Zineb S, Nacef F, *et al.* Women's mental health in the Muslim world: Cultural, religious, and social issues. *Journal of affective disorders* 2007;**102**:177-89.
- 7 Matud MP. The Psychological Impact of Domestic Violence on Spanish Women<sup>1</sup>. *Journal of Applied Social Psychology* 2005;**35**:2310-22.
- 8 Yount KM, Smith SM. Gender and postpartum depression in Arab Middle Eastern women. *Women's Studies International Forum* 2012;**35**:187-93.



- 9 Yount KM, Dijkerman S, Zureick-Brown S, *et al.* Women's Empowerment and Generalized Anxiety in Minya, Egypt. *Social Science & Medicine* 2014.
- 10 Carlson BE, McNutt L-A, Choi DY, *et al.* Intimate Partner Abuse and Mental Health The Role of Social Support and Other Protective Factors. *Violence against women* 2002;**8**:720-45.
- 11 Mburia-Mwalili A, Clements-Nolle K, Lee W, *et al.* Intimate partner violence and depression in a population-based sample of women: Can social support help? *Journal of interpersonal violence* 2010;**25**:2258-78.
- 12 Naved RT, Persson LÅ. Factors associated with physical spousal abuse of women during pregnancy in Bangladesh. *International family planning perspectives* 2008;**34**.
- 13 Yount KM. Resources, family organization, and domestic violence against married women in Minya, Egypt. *Journal of Marriage and Family* 2005;**67**:579-96.
- 14 Eisikovits ZC, Guttman E, Sela-Amit M, *et al.* Woman battering in Israel: The relative contributions of interpersonal factors. *American journal of orthopsychiatry* 1993;**63**:313-7.
- 15 Jeyaseelan L, Sadowski LS, Kumar S, *et al.* World studies of abuse in the family environment--risk factors for physical intimate partner violence. *Injury control and safety promotion* 2004;**11**:117-24.
- 16 Bangdiwala SI, Ramiro L, Sadowski LS, *et al.* Intimate partner violence and the role of socioeconomic indicators in WorldSAFE communities in Chile, Egypt, India and the Philippines. *Injury control and safety promotion* 2004;**11**:101-9.

- 17 Faramarzi M, Esmailzadeh S, Mosavi S. Prevalence and determinants of intimate partner violence in Babol City, Islamic Republic of Iran. *Eastern Mediterranean health journal = La revue de sante de la Mediterranee orientale = al-Majallah al-sibhiyah li-sharq al-mutawassit* 2005;**11**:870-9.
- 18 Vakili M, Nadrian H, Fathipoor M, *et al.* Prevalence and determinants of intimate partner violence against women in Kazeroon, Islamic Republic of Iran. *Violence and victims* 2010;**25**:116-27.
- 19 Yount KM, Li L. Domestic violence against married women in Egypt. *Sex roles* 2010;**63**:332-47.
- 20 Boy A, Kulczycki A. What we know about intimate partner violence in the Middle East and North Africa. *Violence against women* 2008;**14**:53-70.
- 21 Mair C, Cunradi CB, Todd M. Adverse childhood experiences and intimate partner violence: testing psychosocial mediational pathways among couples. *Annals of epidemiology* 2012;**22**:832-9.
- 22 Rugh AB. *Family in contemporary Egypt*. Syracuse University Press Syracuse, NY 1984.
- 23 Kalmuss DS, Straus MA. Wife's marital dependency and wife abuse. *Journal of Marriage and the Family* 1982:277-86.
- 24 Yount KM, Zureick-Brown S, Salem R. Intimate Partner Violence and Women's Economic and Non-Economic Activities in Minya, Egypt. *Demography* 2014:1-31.
- 25 Straus MA, Hamby SL, Boney-McCoy S, *et al.* The revised conflict tactics scales (CTS2) development and preliminary psychometric data. *Journal of family issues* 1996;**17**:283-316.
- 26 Abdel-Khalek AM. The Kuwait university anxiety scale: Psychometric properties. *Psychological Reports* 2000;**87**:478-92.

- 27 Yount KM. Women's Conformity as Resistance to Intimate Partner Violence in Assiut, Egypt. *Sex roles* 2011;**64**:43-58.
- 28 El-Zanaty F, Way A. Egypt Demographic and Health Survey 2005. 2006.
- 29 Douki S, Nacef F, Belhadj A, *et al.* Violence against women in Arab and Islamic countries. *Archives of Women's Mental Health* 2003;**6**:165-71.