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Intimate partner violence and mental health effects: a population-based study among married women in Karachi, Pakistan

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ABSTRACT

Background: Intimate partner violence (IPV) is recognized all over the world for its association with mental health problems in women. In Pakistan, such violence occurs commonly, but detailed information on mental health effects is scarce. This study focused on married couples in urban Karachi to investigate mental health effects associated with physical, sexual and psychological violence perpetrated by husbands towards wives. Disclosure rates, and health care seeking behaviour were also investigated.

Methods: This cross-sectional study involved 759 women between the ages of 25 to 60 years, selected using a multi-stage random sampling technique. The women were interviewed by trained community midwives using a structured questionnaire.

Results: In the total population of women, mental symptoms were prevalent. Women subjected to any form of violence reported however considerably poorer mental health than unexposed women. A statistically significant difference for almost all of the studied health parameters persisted even after controlling for socio-demographic factors. The strongest associations were found for suicidal thoughts and physical violence (OR 4.41; 3.18-6.12), sexual abuse (OR 4.39; 3.17-6.07; and psychological abuse (OR 5.17; 3.28-8.15). The interviews revealed that only 27 percent of the women subjected to violence had disclosed this to anyone, in most cases to their parents.

Conclusion: The findings in this study highlight that the violence women have to face contribute to the development of multiple forms of psychological stress and serious mental health problems. Women's restrictive life circumstances seriously hamper women's empowerment. Reliable health surveillance system and healthcare services are needed to serve abused women. Policy initiatives focused on IPV and gender inequality in Pakistan should be initiated.

Key words: intimate partner violence, domestic violence, mental health effects, depression, suicidal thoughts, coping.

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INTRODUCTION

Intimate partner violence (IPV) negatively affects women's mental health all over the world (1, 2). Public Health studies conducted in the United States, Brazil, Vietnam and Ethiopia report strong associations between physical, sexual and psychological IPV and mental symptoms, such as depression and anxiety; memory and concentration problems; and suicidal thoughts and completed suicides (3-7). The recently released findings from the WHO multi-country study on violence against women and its association with suicide attempts (8) further underlines the importance of investigating women's mental health status particularly in countries where general life circumstances, such as poverty, food insecurity, lack of education, gender inequality can give rise to family and interpersonal stress.

Studies indicate that the more severe and frequent the abuse, the more it impacts on women's well-being (9, 10) and cumulative and concurrent exposure to physical, sexual and psychological abuse seems to be most detrimental to women's overall mental health (11). The prevalence of intimate partner violence against women is higher in societies where gender roles are unequal (12), families live in disadvantaged neighbourhoods and among low socio-economic status families, especially where husbands are unemployed (13-15). All these factors contribute to elevate individuals' psychological distress. A recent study described how neighbourhood disorder, such as fighting, drug use, community conflicts, prostitution, and gang-related activity may increase partner violence and augment poor psychological health and create lower overall quality of life among individuals (16).

Pakistan is a low-income Muslim country with approximately 176 million inhabitants. Only 36% of Pakistani women can read and write, and the employment rate for women is 22.2%, as compared with an average of 77.8% for men, with higher rates in urban areas (17, 18). Pakistani society is male dominated, and the majority of women are pressured to accept arranged marriages; a certain degree of partner violence is normative, often deployed to secure male dominance within the marriage and avoid social stigma (10). In daily life, women are financially dependent on their husbands, and discouraged from entering into paid work to earn an income (19). The few social or legal organizations that do support women are mainly active in upper socio-economic neighbourhoods, severely limiting the scope of service to all Pakistani women (20). There have been few population-based studies on IPV and its related health effects from Karachi, Pakistan, even though facility-based studies indicate a high prevalence. These studies report a prevalence of physical violence ranging between 16 and 76% and for sexual violence it was 12 - 16%. For psychological violence the prevalence found was from 23% and upwards to extremely high levels (>60 %) (19, 21-25).

This community-based study focused on low- and middle-income women in urban Karachi. It aimed to investigate the mental health effects and women's coping behaviours – such as disclosure rates and patterns of health care-seeking, associated with husbands' use of physical, sexual and psychological violence.

METHODS

Study design and population

This cross-sectional study was performed in Karachi, a district within the Sindh province with about 16 million inhabitants (17). It is further divided into 18 towns. The study included 759 married women aged 25 to 60 years, living in two of the towns with approximately 720,000 inhabitants. The response rate was 93.7 %.

Due to the restrictive attitudes about women's movements and decision-making in Pakistani society (22, 26), it was necessary to link up with a health organisation that maintains a health data surveillance system, and whose health workers were familiar to the community. Government health facilities were contacted initially, but as they lacked resources, we were advised to contact the Health and Nutrition Development Society (HANDS) (27, 28). HANDS is a non-governmental organization working closely with the Government health services to provide basic health facilities and also primary education, income-generating opportunities and institutions to empower communities in low- and middle-income areas of Karachi (28). HANDS' facilities are equipped with trained people who shoulder full responsibility for local health services at the primary care level (maternal and child health, immunization, oral re-hydration therapy, control of diarrhoeal diseases, nutrition counselling, growth monitoring and treatment of minor illnesses), and field sites have been established for health care follow up. Community midwives (CMs) with 18 months of training are available at the facilities to provide general antenatal and postnatal care, to assist during deliveries, and to provide family planning services. We trained these midwives to collect data for this study (28). HANDS shoulders the responsibility for health facilities in two of the towns (Gadap and Bin Qasim), and has

established 10 health field sites in these towns (17, 18). For this study, six of these sites were randomly chosen for data collection. The population belongs mainly to the lower and middle socio-economic strata, and includes different ethnic groups . The data gathered from these two towns can therefore be generalised mainly to the lower and middle socio-economic groups of Karachi (28, 29).

Data collection instrument

We used the Multi-country Study on Women's Health and Life Experiences Questionnaire, titled Violence against women (VAW) which was developed by the World Health Organization (WHO) for studies within public health, with a focus on interpersonal violence (30). The abuse questions were developed in collaboration with several networks and expert groups and was based partly on the original and revised Conflict Tactics Scales (Index of Spouse Abuse and the Conflict Tactics Scales) with established reliability and construct validity (31, 32). It has now been used in more than 15 countries.

The VAW instrument was translated into Urdu, the national language widely spoken in Pakistan. A few items were regarded as being unacceptable in this context, and were hence excluded, for example, women's alcohol consumption patterns, whether women acted as heads of households and if the husband had multiple sex partners. The questionnaire went through face and content validity assessment by experts, including a psychologist, an epidemiologist, a sociologist, a community-based medical doctor, the field supervisor, a public-health specialist and the data collectors. The final questionnaire contained items addressing socio-demographic variables and

psychosocial factors, different forms of violence and their frequency, health effects of the violence, coping strategies and health-care-seeking behaviours in response to violence.

Data collection procedure and sampling

The data was collected by community midwives employed by HANDS, from March to August 2008. A multi-stage random sampling technique was used for identification of households to be approached in the selected area. In each field site and through the surveillance system set up by the CMs, the required number of households was randomly selected (using computer-generated numbers from Epi Info) from a list of all households whereby a woman of the required age was available. If a selected woman refused to participate, another woman from a neighboring household was approached. However, 41 (5.1%) women decided to discontinue half-way through the interview and were not replaced. In a household with more than one eligible woman, only one was selected, by asking the youngest and the oldest alternately. Information related to the husbands was obtained from the women and relates to the current husband.

Training of the data collectors

Six CMs received training for one week, conducted by the main author in this study and a psychologist in collaboration with members of the Women Lawyers' Association (PAWLA)¹. The training included topics such as the rationale for the study, known prevalence and causes of IPV, women's vulnerability, ethical considerations, and communication and interview skills. Two of the interviewers left during the training period, while the remaining four continued.

¹ Pakistan Women Lawyers Association is a non-governmental organization that supports women's legal rights.

Each interview was conducted in the local language, Urdu. The study was presented as a Women's Health study to the members of the household, and not until the conversation was safe from being overheard were any sensitive questions asked. The interviews were conducted in the respondent's home when privacy could be ensured, otherwise at a nearby school or HANDS facility. To ensure quality of data, about 5 % of the participants were re-interviewed, selected at random for comparison. Only minor differences were detected in the responses given.

Sample size

In order to detect an increase in risk of 1.6 times of physical/sexual/psychological violence, with 80% probability and an estimated prevalence of this exposure of 20 - 30% in the study sample, we calculated that we needed a sample size of about 660 individuals. (25) We decided to aim for 800 respondents: however 810 were approached and eventually 759 women were included in the study.

Variables

IPV is defined by WHO as any act of physical, sexual or psychological abuse by a current or former partner, whether cohabiting or not (33).

Forms of violence

Life time exposure to violence exercised by the husband was assessed by items forming composite measures for physical, sexual and psychological violence respectively. Physical abuse

was defined as slapping, throwing things, pushing or shoving, hitting, kicking, dragging, beating or burning. Sexual abuse was defined by two items: physically forced intercourse by the husband and performing sexual acts against the woman's will. Psychological abuse was defined by four items: insults or making the woman feel bad about herself, belittlement or humiliation in front of others, scaring or intimidating her on purpose and threatening to hurt her or someone she cared about. A detailed analysis of the prevalence and risk factors for the different forms of violence has been presented elsewhere (34).

Socio-demographic variables

Socio-demographic variables were analyzed as independent risk factors. Age was dichotomized into younger and older age groups (25-35 and 36-60 years). Educational attainment was grouped into no education, primary (up to 8 years), secondary schooling (9 to 10 years), intermediate and higher education (11 years and more), and for multivariate purposes education was dichotomized into no formal education as opposed to any length of schooling. Women's and husbands' employment status was dichotomized into being employed or not. Those who were in paid employment were further categorized as unskilled workers (e.g. construction worker, messenger, landlord, farmer, watchman, servant, shopkeeper), skilled workers (e.g. fisherman, gardener, carpenter, trader, driver, tailor), and low- and medium-level professionals (e.g. soldier, police officer, teacher, health professionals, receptionist, secretary, Lady Health Visitor, school teacher). This variable was further dichotomized into skilled workers including the professionals as opposed to unskilled workers.

Number of children was grouped into three categories: 0, 1-4, and ≥ 5 children.

The socio-economic status (SES) variable was constructed from a list of household assets. Each respondent marked the assets available in the household and these assets were assigned different weights according to how common these tended to be in households, that is to the price in the market (e.g. electricity, radio and television as '1', telephone and computer as '2', and refrigerator and air conditioner as '3'). The weights were decided by a team of researchers from the Aga Khan University, on the basis of community-based studies. The weights were summed up and divided into quartiles. Families within the lowest 25th percentile were rated to be in the low SES category, as opposed to the medium and high SES categories.

Mental health effects variables

The women were asked about their general health using a five-point scale (excellent, good, fair, poor or very poor). The scale was later dichotomized into two categories: 'good and excellent' and 'fair, poor and very poor'. All women were also asked about six mental health symptoms experienced during the past 12 months, the response categories being 'yes' and 'no'. The symptoms were: 'difficulties in performing usual activities'; 'memory or concentration problems'; 'difficulties in decision making'; 'loss of interest in previously enjoyable things'; 'feeling worthless'; and 'experiencing suicidal thoughts'.

Statistical analysis

The Statistical Package for the Social Sciences (SPSS) version 10.0 was used for all statistical calculations (35). Frequency and differences between groups and the total population were calculated by using the Chi square test, with p-values for two independent proportions. The internal consistency (Cronbach alpha) for physical, sexual and psychological violence sub-scales were .87, .79 and .93 respectively.

Odds ratios (OR) with 95% CI were used in the bivariate and multivariate analyses to estimate associations between violence exposure and mental health effects. Statistically significant variables in the bivariate analyses were entered into the multivariate model one at a time for causal chain and confounding analyses. Final models are displayed, adjusted for age and educational attainment of both husband and wife, further for SES and husband's occupation.

Ethical considerations

The ethical principles for violence research spelt out by the World Health Organization (WHO) were strictly followed (36). All respondents were informed about their free choice to participate and to withdraw whenever they wished during the research phase. Data collectors secured written consent from all respondents preceding the interview. Those women who disclosed experiences of violence and expressed a need for support were referred to the PAWLA and the Women's Social Security Department, Government of Pakistan for consultations with mental health professionals and lawyers, free of charge. Women from the community were also provided with awareness sessions on women's rights by lawyers. The study was approved by the Institutional Ethical Review Committee of the Aga Khan University in Karachi, Pakistan. Linking up with the HANDS organization facilitated the data collection process greatly, as the data collectors were somewhat known in the area. Unfamiliar women introducing themselves as data collectors would hardly have been accepted by the families. Furthermore, data collectors unfamiliar to the households might have been put at personal risk.

RESULTS

Of the 759 women, the majority (59%) was between 25 and 35 years old (Table 1). Fewer women than men had attended school (52.4% and 63.8% respectively). Most of the women were housewives and practiced Islam. Almost all of the husbands (98%) were employed and most of them (66%) were unskilled workers. Only 14.5% of the women were in paid employment. The prevalence of life-time physical, sexual and psychological violence was 57.6, 54.5, and 83.6 % respectively . In the entire study population, the adverse mental health condition most commonly reported was suicidal thoughts (58.8%), followed by feelings of worthlessness (42.3%) and difficulties in decision-making (35.3%) (Table 2). 'Fair, poor or very poor general health' was reported by 48.7%.

Violence exposure and symptom reporting

The prevalence of poor mental health was considerably higher among women exposed to any form of violence as compared to women not exposed to violence, with statistically significant differences for most of the health conditions included.

Suicidal thoughts were reported by as many as 74.1%, 75.8% and 65.3% of the women subjected to physical, sexual and psychological violence respectively. The category of 'Feelings of worthlessness' was also highly prevalent, reported by 47.8% of those subjected to physical violence, by 51.7% of those subjected to sexual violence and by 49.2% of those reporting exposure to psychological violence.

(Table 2).

In the multivariate analysis, after adjusting for socio-demographic variables, all of the health variables displayed statistically significant associations with physical violence. In the case of sexual violence, only 'memory and concentration problems' did not display statistically significant odds ratios (OR), and 'loss of interest in previously enjoyable things' did not emerge as a statistically significant factor for psychological violence (Table 3).

A striking finding was the strong associations found between the three forms of violence and suicidal thoughts. In the case of physical and sexual violence, the risk of suicidal thoughts was elevated four times (adjusted odds ratio, aOR, for physical violence 4.41; 3.18-6.12, for sexual violence aOR 4.39; 3.17-6.07) compared to those not exposed to any of the forms of violence. In the case of psychological violence, the aOR was 5.17 (3.28-8.01).

As suicidal thoughts were extremely prevalent in the total study population, and strongly associated with all forms of violence, an attempt was made to investigate some underlying reasons. Women subjected to any of the forms of violence, reported 'family problems' (45%) as the most important reason for suicidal thoughts, followed by 'household work' (9%) and 'husband's behaviour's (6 %). A few reported reasons such as son's death, quarrel in the family, fed up with life, childlessness, illness, depression.

Coping strategies and healthcare seeking

In situations of abuse, an important coping mechanism can be to confide in someone, if it can be done without fear of repercussion. Only 177 (27.4%) out of the 646 women who were subjected to any form of violence confided in someone, mainly in the parents (n=132; 20.4%), followed by

friends (n=34; 5.3%) and in-laws (n=7; 1.1%). Only 24.9% (n=161) had actively sought help and protection, and this was mainly from the parents (n= 128; 19.8%) but also from the in-laws (n=29; 4.5%), brothers and sisters (n=10; 1.5%), friends (n=10; 1.5%), and children (n= 7; 1.1%). Only a few sought the assistance from any official body such as the healthcare services, any judicial authority or a religious leader (n=10, 1.5%). Of these, just one woman had turned to the health care services, two had contacted the social services, one had sought legal advice and six had turned to religious leaders.

DISCUSSION

Our findings provide new information that suggests a high prevalence of a variety of mental health symptoms, including suicidal thoughts, and demonstrate strong associations with all forms of violence exposure among Pakistani women. There was a more than 4-fold risk increase of suicidal thoughts for women exposed to any of the forms of violence investigated. Few of the exposed women sought assistance from any legal authority or from the health care services, however some confided in relatives. This provides indications of victimized Pakistani women's seriously impaired mental health status, with society offering few options for help and support.

Suicidal thoughts must be regarded as a serious matter, potentially leading to suicide attempts, some which might result in actual suicide. A strong association between all forms of violence and suicidal thoughts has been found in other studies, in which the same questionnaire was used (3-5). The reasons stated for reporting suicidal thoughts in this study were mainly family problems, household work and husbands' behaviours. These are rather general statements, and unfortunately, factors underlying the family problems were not further explicated. A review

article from Pakistan, in which a number of studies were analysed, found that the prevalence of anxiety and depression ranged between 25 and 66% among married women (37), but there is no available population-based data on the number of suicide cases. According to a press report, of 4069 cases of violence against women reported to the police authorities, 7% (n=285) did commit suicide (38). These registered cases are most probably severe in nature, because otherwise they would never have been reported to any authority.

'Problems in performing usual activities', 'difficulties in decision-making', 'loss of interest in previously enjoyable things', 'feelings of worthlessness' 'memory and concentration problems' and 'suicidal thoughts' are six symptoms that signal depression, as defined in the Diagnostic and Statistical Manual of Mental Disorders (DSM IV) (39). As these symptoms were commonly reported by the women subjected to violence in this study, it seems plausible they would have been diagnosed with clinical depression had they sought health care. The women exposed to physical violence reported 'extreme memory or concentration problems', which might be an indication of depression, post-traumatic stress disorder or even minor brain injury (40).

'Feelings of worthlessness' and 'suicidal thoughts', might also signal lowered self-esteem. It has been shown in studies from Palestine and Ethiopia that the longer a woman stays in an abusive relationship, the greater the risk of lowered self-esteem (41, 42). A corresponding finding was reported from a pooled analysis of studies, using the same questionnaire in 10 countries (3). In studies from Sweden, a similar phenomenon is referred to as the 'normalisation process', in which the abused woman gradually comes to consider the violence as 'normal' and herself as the blameworthy party with serious loss of self-esteem (43). Considering the impaired ability to

leave the relationship, due to the stigma associated with separation and divorce, the risk of suicide may become elevated (43).

An ecological framework, initially described by Bronfenbrenner, can help in the interpretation of the high levels of mental ill health found among women in this study. Bronfenbrenner's model explains how individuals' development, health and well-being are influenced by multiple factors in larger social systems such as the family, neighbourhoods, communities and macro institutional systems such as laws and regulations (15). 'Culture,' a localized system of ideology, roles, activities and their interrelations (15) also operates at the macro level, and contributes to the construction of gender roles. Pakistani women from low and middle income families live with multiple stressors related to different levels in the ecological model, such as forced marriages, dowry, restricted mobility, which affect their education and work opportunities.

Women are often excluded from domestic decision-making, yet confined to the domestic sphere, responsible for housework for the entire extended family. The civil unrest currently present in the country with compromised personal and family safety, may also limit families from engaging in activities they enjoy outside of the home, thus adding to already existing psychological stress in women (44).

Women are in an inferior position to men in the Pakistani society; women's overall life circumstances are characterised by serious gender inequalities with limited possibilities to leave the marriage (44). Men's violence against women within marriage is further accepted as part of the cultural norm, particularly by older and poorly educated women (17, 20). The power

imbalance between husband and wife may well explain symptoms of depression and also the high occurrence of suicidal thoughts in married women, whether or not exposed to any form of violence.

Less than a quarter of the women disclosed their husband's abusive behaviours to anyone. Those who did disclose most often turned to their parents rather than seeking help from legal institutions. This is not a surprising finding, as there are few legal authorities by which a woman will be taken seriously when reporting violence and abuse from her husband (45). Of the injured women, more than half had to seek healthcare, indicating that they were seriously injured.

Methodological considerations

This study used the WHO questionnaire for data collection, which makes the results comparable to findings from other countries where the same instrument was used. This is the first study to collect data at the household level in Pakistan, and it comprises a comparatively large sample from a country where there are extreme difficulties related to investigating family violence.. The response rate in this study – 93.7% – is quite high, possibly due to the data being collected by community midwives (CM) who were established in the communities and trusted by the local people. The health conditions inquired about were all rather well-specified mental symptoms, apart from 'general health'. Asking about symptoms expressed as feelings, such as 'feeling worthless' or 'losing interest in things you used to enjoy' are clearer and create less confusion than asking about 'depression', thereby rendering a more accurate response.

This was a cross-sectional study and no conclusions can be drawn on the direction of the associations. However, the data was used for life-time prevalence of different forms of violence exerted by the husband, whereas the symptoms were reported as having occurred in the past year. Due to this temporal relationship, it seems plausible that the exposure to violence and abuse gave rise to a higher level of symptoms and not the reverse.

The participants were randomly chosen within two of the towns of the city of Karachi, comprising low- and middle-income populations. We were not able to approach the highest income strata as they mainly use private health facilities and no community midwives are placed in such areas. Therefore, our findings are representative mainly of low- and middle-income groups of the general population in urban Karachi.

It is theoretically possible that women who report serious ill-health, such as symptoms of depression and suicidal tendencies, are more prone to report events of violence. However, we found statistically significant differences in the prevalence of almost all the health variables between those who reported violent events and those who did not, which makes this possibility unlikely.

CONCLUSION

The findings in this study point at the multiple forms of violence that Pakistani women face which cumulatively contribute to the development or continuation of different forms of psychological stress and serious mental ill health. Further studies are needed to confirm our

findings, qualitative and quantitative, to gain detailed knowledge and understanding of women's overall life circumstances and mental health outcomes. Few violence-exposed women sought any health care, social care or legal support, which reveals a lack of reliable institutions to which women could turn.

The present situation in relation to IPV toward Pakistani women requires urgent attention at all levels of society – by policy-makers, political stakeholders at the macro level and health care and NGO professionals at the micro level, to improve and safeguard women's overall life circumstances. Women should be offered the possibility to report violent incidents without fear of repercussion and to receive high-quality health care and social support when seeking support due to victimization. A reliable health surveillance system should be established to provide follow up, help identify women at risk for violence and prevent IPV. Health care professionals should become better educated about the problem of violence within relationships, and thus able to identify mental symptoms that may be a result of IPV, and provide referrals to legal aid, counseling and non-governmental organization services. Currently many health care providers, such as physicians and nurses, do not query women about violence exposure and are poorly prepared to respond to the needs of those exposed. Therefore, there is a need to ensure knowledge about violence against women is provided in the medical and nursing academic education programmes.

In parallel to all these health care and service-level interventions, there is an urgent need to improve gender equality at the societal level. Programmes designed to change norms and shift beliefs about women, men, and family relations should be put in place encouraging a public or

semi-public dialogue about IPV. The mass media should be encouraged to generate a public debate on the serious gender inequalities that exist in the country, condemning such violations and exposing their serious public health effects.

Authors' contributions

The first and the last author are responsible for the conception and design, acquisition of data, analysis and interpretation of data, drafting the article or revising it critically for important intellectual content and final approval of the version to be published. The second author's contribution is the interpretation of data, revising it critically for important intellectual content, and final approval of the version to be published.

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Disclosure of interest

Authors clarify that there is no financial relationship with the organization that sponsored the research. Authors have full control of all primary data and on need we can allow the journal to review our data. Upon acceptance of our manuscripts, authors will complete the form of 'Disclosure of Interest' for editorial office.

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**Table 1: Socio-demographic and psychosocial factors of respondents and their husbands.
N = 759**

Characteristics	n=759	%
Respondents		
1. Age groups (years)		
25 – 35	447	58.9
36 – 45	228	30.0
46 – 60	84	11.1
2. Education		
No formal education	361	47.6
Primary School (< 6 years)	175	23.1
Secondary school (6 – 10 years)	197	26
Intermediate and university education (> 11 years)	26	3.4
3. Employed		
Yes	110	14.5
No	649	85.5
4. Occupation		
Housewife	649	85.5
Unskilled workers	18	2.4
Skilled workers	51	6.7
Low and medium level professionals	42	5.5
Husbands/Partners		
5. Age groups (years)		
25 – 35	307	40.4
36 – 45	263	34.7
46 – 90	189	24.9
6. Education		
No formal education	275	36.2
Primary School (< 6 years)	89	11.7
Lower secondary school (6 – 10 years)	126	38.6
Intermediate and university education (>11 years)	102	13.4
7. Employed		
Yes	746	98.3
No	13	1.7
8. Occupation		
Unskilled workers	500	65.9
Skilled workers	145	19.1
Low and medium level professionals	101	13.3

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Family factors		
9. Socio economic status (SES)		
Low socio economic (SES) status	242	31.9
Medium SES	192	49.3
High SES	143	18.8
10. Number of children		
0 children	41	5.4
1–4 children	470	61.9
5 – or more	248	32.7
11. Number of family members		
1 – 4 family members	266	35.0
5 – 17 family members	493	65.0

Table 2 Prevalence of different health conditions for the total population of women, and for women with life-time experience of physical, sexual or psychological violence. N= 759

Health condition	Total population n(%)	Physical violence n=437 (%)	p-value*	Sexual violence n=414 (%)	p-value*	Psychological violence n=634 (%)	p-value*
General health							
Good or excellent	389 (51.3)	197 (45.1)		191 (46.1)		290 (45.7)	
Fair, poor or very poor	370 (48.7)	240 (54.9)	<0.001	223 (53.9)	0.001	344 (54.3)	<0.001
Performing usual activities							
No problems or very few problems	678 (89.3)	368 (84.2)		355 (85.7)		557 (87.9)	
Many problems	81 (10.7)	69 (15.8)	<0.001	59 (14.3)	<0.001	77 (12.1)	0.001
Memory or concentration problems							
No, few or some problems	522 (68.8)	260 (59.5)		269 (65.0)		411 (64.8)	
Extreme problems	237 (31.2)	177 (40.5)	<0.001	145 (35.0)	0.008	223 (35.2)	<0.001
Difficulties in decision making							
No	491 (64.7)	262 (60.0)		211 (51.0)		402 (63.4)	
Yes	268 (35.3)	175 (40.0)	0.001	203 (49.0)	<0.001	232 (36.6)	0.058
Loss of interest in previously enjoyable things							
No	537 (70.8)	287 (65.7)		257 (62.1)		443 (69.9)	
Yes	222 (29.2)	150 (34.3)	<0.001	157 (37.9)	<0.001	191 (30.1)	0.138
Feelings of worthlessness							
No	438 (57.7)	228 (52.2)		200 (48.3)		322 (50.8)	
Yes	321 (42.3)	209 (47.8)	<0.001	214 (51.7)	<0.001	312 (49.2)	<0.001
Suicidal thoughts							
No	313 (41.2)	113 (25.9)		100 (24.2)		220 (34.7)	
Yes	446 (58.8)	324 (74.1)	<0.001	314 (75.8)	<0.001	414 (65.3)	<0.001

* p values for difference between exposed and non-exposed for each specific type of violence

Table 3. Associations between selected health conditions for women with life-time experience of physical, sexual or psychological violence, adjusted odds ratios with their 95% confidence intervals. N= 759.

Health conditions	Physical violence * (n=427)	Sexual violence * (n=402)	Psychological violence * (n=621)
Fair/ poor/very poor general health	1.64 (1.19-2.25)	1.39 (1.02-1.89)	3.79 (2.34-6.13)
Many problems in performing usual activities	3.95 (2.05-7.62)	1.99 (1.15-3.43)	3.73 (1.30-10.70)
Extreme memory or concentration problems	2.45 (1.71-3.50)	1.32 (0.94-1.86)	3.55 (1.95-6.48)
Difficulties in decision-making	1.84 (1.31-2.57)	4.11 (2.88-5.87)	1.75(1.11-2.75)
Loss of interest in previously enjoyable things	1.72 (1.19-2.47)	2.03 (1.41-2.90)	1.22 (0.75-1.98)
Feelings of worthlessness	1.84 (1.34-2.53)	2.58 (1.87-3.57)	12.58 (6.20-25.53)
Suicidal thoughts	4.41 (3.18-6.12)	4.39 (3.17-6.07)	5.17 (3.28-8.15)

*Adjusted for woman's age, husband's age, woman's education, husband's education, socioeconomic status and husband's occupation.