

Association between Physical and Sexual Violence and Mental Health in Suburban Women of Zahedan: A Cross-sectional Study

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ABSTRACT

Introduction: Suburban population is a group at risk of violence and mental disorder due to inappropriate socioeconomic and environmental factors in informal settlements. Sexual and physical violence are associated with short and long-term mental health disorders.

Aim: To investigate the association between physical and sexual violence and mental health status in suburban women of reproductive age.

Materials and Methods: This correlational cross-sectional study assessed the sexual and physical violence and mental health among 400 suburban women living in Zahedan, Iran in 2016. Randomised one stage cluster sampling was used. General Health Questionnaire-28 (GHQ-28) and sexual and physical violence questionnaire was used for data collection.

For data analysis, descriptive statistical methods, independent t-tests and linear regression analysis were performed.

Results: In 400 samples, 72 (18%), 156 (39%) and 248 of women (62%) experienced physical violence, sexual violence and mental disorders respectively. There were significant differences between the mean of GHQ-28 scores in groups with and without a history of physical violence ($p < 0.001$) also in groups with and without a history of sexual violence ($p = 0.03$). Linear regression analysis showed physical and sexual violence had significant relationship with GHQ-28 ($p < 0.001$, $p = 0.03$ respectively).

Conclusion: Status of mental health of suburban women is inappropriate and is under effects of physical and sexual violence. Policy and planning to reduce violence, mental health promotion and providing acceptable service for these people are essential.

Keywords: Domestic violence, Mental health, Physical abuse, Suburban population

INTRODUCTION

Violence Against Women (VAW), also known as gender-based violence, is a global issue and considered as a major public health problem [1]. As physical, mental and even social consequences caused by it can endanger health of women, families and communities [2]. VAW is a gender-based violent behaviour which results in physical, sexual, mental harm or suffering to women. These behaviours have different forms such as the threats, coercion or absolute deprivation of free will and freedom, also they can occur in public or private places [3]. The most common type of VAW is Intimate Partner Violence (IPV), also referred to as domestic violence [4,5]. Statistics on the prevalence of IPV is different worldwide. Domestic violence prevalence is estimated to be 18-68% [6]. Globally, 15-71% of women experience physical or sexual violence [4]. In Iran, 66% of women have been subjected to violence at least once in the beginning of their marriage. Women in Bandar Abbas have been subjected to violence in their lifetime than women in other parts of Iran; however, IPV is more severe among women in Zahedan, as compared to other cities in Iran [7].

While the physical consequences of IPV are more commonly taken into consideration, short-term and long-term mental health consequences are often ignored [8]. Mental health declines among abused women, so that women victims of domestic violence experience more consequences of mental disorders like depression, lowered self-esteem, suicidal behaviours, anxiety, Post-Traumatic Stress Disorder (PTSD) and drug abuse [3,9]. As shown by statistics, 60% of depressed women have a history of domestic violence and depressive symptoms are higher in women victims of violence than in other women [8].

Among vulnerable groups against VAW are suburban and poor women [3]. Although, domestic violence occurs in all groups of a society, suburban women deal with obstacles in gaining support and services which lead to increased health risks in them. Marginalised women, along with having low socioeconomic status, mainly live in unhealthy environments with poor health and public services [10,11]. Such living environments led to increased stress, anger and consequently, domestic violence. Furthermore, lack of acceptance by society causes reduced support available for these women [12]. Recently, suburban areas of Iran expanded. Zahedan is one of the mega cities in south east of Iran [13]. Zahedan is involved with suburbanisation challenge. Most inhabitants in suburban area in Zahedan are poor, illiterate, unemployed, low-income, with large family size, high rate of fertility, bad housing, inappropriate physical environment, lack of sanitation and lack of services and infrastructure [13].

In recent years, domestic violence [14,15] and correlation between domestic violence and mental health [16] have been studied in several cities in Iran; however, the marginalised community was neglected in this regard, and physical and sexual domestic violence, despite its high prevalence in global studies and its impact on mental health, has not been studied among women in the marginalised community [14-16]. As a result, this study aimed to investigate the mental health and sexual and physical violence and also, to examine the relationship between these two variables among the suburban women of reproductive age living in the south east Iran.

MATERIALS AND METHODS

A correlational cross-sectional study was conducted in suburban women of Zahedan, Iran in 2016. The Cochran's formula ($n =$

$z^2p(1-p)/d^2$) was used to determine the sample size [17]. In this formula with assuming the maximum variability, which is equal to 50% ($p=0.5$) and taking 95% confidence level with $\pm 5\%$ precision and $z=1.96$ sample size calculated 348. To ensure further, 400 subjects participated in the study. Zahedan has four suburban areas. To determine the number of sample in each area, the proportion of households in each region to total households in suburban area was multiplied in the total number of samples. In this study, the inclusion criteria were being married, being in reproductive ages (15-49 years) and living in informal settlements of Zahedan, while the exclusion criteria were women with known physical or mental issues. Samples were collected using random cluster sampling method. To do this, healthcare centers throughout the marginalised areas were defined as clusters (10 healthcare centers) and then, four healthcare centers were randomly selected from them. Then, all women in each of the four centers, who desired to participate in the study, were recruited until saturation was reached. The sampling continued for six months from July 2016 to December 2016.

The instruments used in this study included the GHQ-28 and sexual and physical violence Questionnaire that were completed through Individual interviews [18,19].

The physical and sexual violence section of the Sexual Reproductive Health Needs Assessment questionnaire was used in order to study the physical and sexual violence among the target population. The reliability and validity of the English version of the questionnaire were examined in 2008 by United Nations Population Fund (UNFPA) [20]. In Iran, the face and content validity as well as reliability of the questionnaire and each of the subscales were assessed by Khani S et al., [19]. The Intraclass Correlation Coefficient (ICC) of the physical and sexual violence subscale was also evaluated as 0.6, proving to be sufficiently reliable [19]. In the present study, the content validity of the questionnaire was confirmed and its ICC was 0.78. The items in the questionnaire were including recognition of local women and girls who are physically and sexually abused, physical and sexual violence against women, violence abusers and report the violence. The questionnaire items were in the nominal level.

The GHQ-28 is a 28-item questionnaire, incorporating four subscales of somatic symptoms, anxiety, insomnia, social dysfunction and severe depression scored on a four point Likert-type scale from zero to three. The GHQ was first developed by Goldberg DP (1972) and later, the 28-item version of the questionnaire was constructed by Goldberg DP and Hiller VF (1979) [21], the items of which were extracted from the initial 60-item version based on a factor analysis. The scores of the items in each subscale were added together to calculate each subscale score, and the total score was obtained by the sum of the scores of the items in all the four subscales. In this method, the maximum score of a subject in the questionnaire was 84. The Persian version of the questionnaire was utilised in this study, as developed by Nazifi M et al., who investigated its validity and reliability. The Cronbach's alpha coefficients for the subscales and overall scale of the GHQ-28 was in the range of 0.74-0.92 [18]. The cut-off point of the GHQ-28 is 23. Score of zero to 22 indicates a healthy state and ≥ 23 indicates an unhealthy state [22].

The ethical approval of the research project (code: IR.SBMU.RETECH.REC.1395.244) was received from the research Ethics Committee of the Shahid Beheshti University of Medical Sciences and all the necessary permits were taken. Further, the sampling was performed after explaining the significance, objectives, implication of the results and promising the confidentiality of information to the participants as well as obtaining written consent from them.

STATISTICAL ANALYSIS

Frequencies, percent frequencies, mean, and standard deviation were used to describe demographic variables, mental health score, physical and sexual violence status. Independent t-tests and linear regression analysis were used to assess the association between

the physical and sexual violence status and GHQ-28 score. The statistical significance level was set at $p<0.05$. Statistical analysis was performed by SPSS version 19.0.

RESULTS

This cross-sectional, correlational study was conducted on 400 marginalised women with the mean age of 26.72 ± 6.45 years. Demographic characteristics of the subjects under the study are summarised in [Table/Fig-1].

Socio-demographic characteristics	Number (%)
Education	
Illiterate	112 (28)
Primary	221 (55.2)
High school	67 (16.8)
Employment status	
Housewife	390 (97.5)
Employed	10 (2.5)
Husband education	
Illiterate	70 (17.5)
Primary	209 (52.3)
High school	109 (27.2)
University	12 (3)
Employment status of husband	
Unemployed	64 (16)
Employed	336 (84)
Economic situation*	
Adequate	171 (42.8)
Relatively adequate	67 (16.7)
Inadequate	162 (40.5)

[Table/Fig-1]: Socio-demographic characteristics of participants.

*The economic situation was determine by subjective evaluation of samples about the ability to pay living costs such as housing, food, and health care with respect to income (adequate: income > living costs, relatively adequate: income = living costs, inadequate: income < living costs) [23].

The mean mental health score of the study subjects was 30.05 ± 16.66 . Among the subscales, the highest mean score was related to the somatic symptoms subscale, whereas the lowest mean score was related to the severe depression subscale [Table/Fig-2]. Moreover, the highest percentage of the study subjects was in unhealthy condition in terms of somatic symptoms (62.8%), anxiety and insomnia (54.5%) and overall mental health (62%), but was in healthy condition in terms of social dysfunction (52.5%) and severe depression (70.2%) [Table/Fig-2].

In total, 125 (31.2%) of the subjects knew women or girls in their neighbourhood who were beaten and also, 72 of the subjects was beaten in the past year. In most of the cases, the assailant was the intimate partner (97.2%) and the physically abused women had not reported (79.2%). Further, fear about destroying the relationship and more violence was the reason why the majority of the subjects (43.8%) had not reported such assaults. In addition, 27 (6.8%) of the subjects

Health status	Mean \pm SD	Healthy*	Unhealthy
		Frequency percent (%)	Frequency percent (%)
Somatic symptoms	9.73 \pm 6.42	149 (37.2)	251 (62.8)
Anxiety-Insomnia	8.09 \pm 5.74	182 (45.5)	218 (54.5)
Social dysfunction	6.84 \pm 4.18	210 (52.5)	190 (47.5)
Severe depression	5.36 \pm 5.96	281 (70.2)	119 (29.8)
GHQ-28 total scale	30.05 \pm 16.66	152 (38)	248 (62)

[Table/Fig-2]: The mean, standard deviation and frequency mental health of participants.

*In each subscale, score ≥ 7 and total scale score ≥ 23 indicate unhealthy status and lower scores indicate healthy status [22].

knew women or girls in their neighbourhood who had experienced sexual coercion. In addition, 63 women were worried about sexual violence by someone other than her husband. However, in fact and real life, for none of the women had sexual violence by someone other than her husband. 156 (39%) subjects were coerced into sex by their husband; also, the majority of cases had not reported the

intimate partner sexual coercion (94.2%), because they thought it to be normal and felt no need for any follow up (40.8%) [Table/Fig-3].

The results of the independent t-test indicated that the GHQ-28 scores, in total and in each of the subscales, were significantly higher in the physically abused group than in the group with no history of physical violence [Table/Fig-4].

Variables		Frequency (%)	Total (%)
Recognising women and girls who are beaten	Yes	125 (31.2)	400 (100)
	No	275 (68.8)	
Physical violence in the past year	Yes	72 (18)	400 (100)
	No	328 (82)	
Assailant	Husband	70 (97.2)	72 (100)
	Relative	2 (2.8)	
	Parents	0	
	Friend	0	
Place of physical violence report	Family members	14 (19.4)	72 (100)
	Friend	1 (1.4)	
	Police	0	
	Health center	0	
	Failure to report	57 (79.2)	
Reason of failing to report physical violence	Belief that the report is useless	16 (28.1)	57 (100)
	Fear of losing dignity	4 (7)	
	Fear of destroying the relationship and more violence	25 (43.8)	
	Lack of attention by others	3 (5.3)	
	Belief that physical violence is normal and felt no need to any follow up	9 (15.8)	
Recognition of women and girls who are forced into sex	Yes	27 (6.8)	400 (100)
	No	373 (93.2)	
The concern being forced to have sex with person other than her husband	None	290 (72.5)	400 (100)
	Very little	5 (1.2)	
	Little	29 (7.2)	
	Average	7 (1.8)	
	Much	6 (1.5)	
	Too much	63 (15.8)	
Sexual violence happened by someone other than husband	Yes	0	400 (100)
	No	400 (100)	
Forced to have sex by husband	Yes	156 (39)	400 (100)
	No	244 (61)	
Report sexual violence	Yes	9 (5.8)	156 (100)
	No	147 (94.2)	
Place of sexual violence report	Family members	4 (44.4)	9 (100)
	Friend	5 (55.6)	
	Police	0	
	Health center	0	
Reason of failing to report sexual violence	Belief that the report is useless	28 (19.1)	147 (100)
	Shame	47 (32)	
	Fear of trouble in the relationship and more violence	12 (8.1)	
	Belief that sexual violence is normal and felt no need to any follow up	60 (40.8)	

[Table/Fig-3]: Descriptive statistics of physical and sexual violence status of participants.

Groups GHQ-28 components	Women with history of physical violence (n=72)	Women without history of physical violence (n=328)	p-value	Women with history of sexual violence (n= 156)	Women without history of sexual violence (n= 244)	p-value
	Mean±SD	Mean±SD		Mean±SD	Mean±SD	
Somatic symptoms	11.61±6.63	9.32±6.31	0.006	10.54±6.47	9.21±6.34	0.04
Anxiety-Insomnia	10.34±6.34	7.59±5.48	< 0.001	8.71±5.75	7.69±5.70	0.08
Social dysfunction	8±4.45	6.59±4.08	0.01	6.93±4.45	6.79±4.01	0.73
Severe depression	8.11±6.84	4.76±5.58	< 0.001	6.10±6.36	4.89±5.64	0.04
GHQ-28 total scale	38.06±18.26	28.29±15.78	< 0.001	32.31±16.42	28.61±16.69	0.03

[Table/Fig-4]: Comparison of mental health status in women with and without history of physical violence and women with and without history of sexual violence.

Predictors	Unstandardised coefficients	Standardised coefficients	95% Confidence Interval for B	p-value
	B	Beta		
(Constant)	28.29		26.53-30.06	<0.001
Physical violence	9.77	0.22	5.61-13.93	<0.001

[Table/Fig-5]: Results of liner regression for effects of physical violence on mental health.

Predictors	Unstandardised coefficients	Standardised coefficients	95% Confidence Interval for B	p-value
	B	Beta		
(Constant)	61.28		26.52-30.7	<0.001
Sexual violence	3.69	0.1	0.35-7.04	0.03

[Table/Fig-6]: Results of liner regression for effects of sexual violence on mental health.

Moreover, the GHQ-28 overall score as well as the scores of all its subscales were higher in the group of subjects with history of sexual violence than in the group with no history of sexual violence. The results of the independent t-test showed the differences to be significantly meaningful in the subscales of somatic symptoms, severe depression and overall score ($p=0.04$, $p=0.04$ and $p=0.03$, respectively) [Table/Fig-4].

The simple linear regression was used to determine the effects of physical and sexual violence on the mental health.

The standardised regression coefficient of physical violence is significantly positive and thus, can directly predict the GHQ-28 score [Table/Fig-5].

Similarly, the standardised regression coefficient of sexual violence is significantly positive and thus, can directly predict the GHQ-28 score [Table/Fig-6].

DISCUSSION

The aim of this study was to investigate the status of mental health as well as sexual and physical violence and also, to assess the relationship between sexual and physical violence with mental health of the marginalised women in the south east of Iran. The main goal of the study was to assess women at reproductive age. According to the Statistical Center of Iran, this age group has the largest population in women [24]. Also, age is a factor affecting domestic violence and mental disorders [25]. In reproductive age, hormonal changes and important events such as pregnancy and childbirth are associated with violence and mental disorders [26,27].

The results of this study showed that the majority of the subjects were at a disadvantage in terms of mental health. Further, physical and sexual violence were respectively experienced by 18% and 39% of the subjects over the past year, the relationship between physical/sexual violence and the GHQ-28 score was observed to be significantly positive.

The study conducted in Gorgan by Ghaffari E et al., showed that 40.4% of the subjects were suspected to have mental disorders, while 26.4% of the subjects suffered depression, 32% suffered anxiety and 22.7% suffered social dysfunction [28]. In the current study, however, 62% of the subjects were in the group of mental disorders, depression, anxiety and social dysfunction. The overall scores were greater than the relevant scores observed in Ghaffari E et al.'s study.

It is reported in Korean suburban, marginalisation and depression symptoms had significant relation [29]. Mumford D et al., in their study on the marginalised population in Pakistan reported the prevalence of depression and anxiety disorders as 10% among men and 25% among women [30]. According to the study by Muthukumar K and Bharatwaj RS, the prevalence of depression was 22.8% among the marginalised population in Chennai [31]. However, in this study, the

prevalence of severe depression was 29.8% among the marginalised women, which is more than the rate of depression among the marginalised women in some other countries.

Sexual and physical violence are among factors affecting mental health [16]. The prevalence of physical and sexual violence was observed to be 60% and 32.9% among the women in Marivan [9], 34.4% and 34.2% among the 15–50-year-old women in Ahvaz [32] and 13% and 21% among the rural women in Khorramdarreh County, respectively [6].

The results of the studies show that physical and sexual violence is significantly associated with lowered mental health [33]. Lagdon S et al., showed PTSD, anxiety and depression as consequences of domestic violence [34]. Similarly, depression, anxiety, drug abuse and smoking increased among abused women in Kentucky [35]. In another study, in urban residents of Washington state and northern Idaho reported increased mild to severe depression and reduced social performance in women with history of physical and sexual violence [36]. Overall, eating and sleeping disorders, alcohol and drug abuse, feelings of shame and guilt, depression and anxiety, suicidal behaviour and self-injury, fear and panic disorders, PTSD, poor self-esteem, psychosomatic disorders, unsafe sexual behaviour, smoking and physical inactivity are among the mental effects of domestic violence [37].

Factors such as early marriage, alcohol abuse by spouse, unemployment, observation of violence, multiple children, less education level and economic security lead to face with enormous social, economic and physical stresses and increase the violence against women and mental disorders [33].

Receiving healthcare and counselling services can reduce the effects of violence. However, the results of the study by Nasrabadi AN et al., on women in Ahvaz showed that 84% of the abused women in Ahvaz had never been referred for counselling services [32]. The results in this study also show that 79.2% of women with a history of physical violence and 94.2% of women with a history of sexual violence remained silent and never received any counselling services, as they feared compromising their marital relationship and believed in naturalness of violence and thus, no need for any follow up. This is despite free counselling services offered in the comprehensive healthcare centers in marginalised areas. Future research is recommended to focus on resolving issues impeding the use of such services and proposing strategies to facilitate and enhance their use.

Regarding personal, environmental and cultural characteristics in marginalised areas that provide the ground for violence, further studies are recommended to be performed in this regard so that basis could be created to modify programs, develop gender-sensitive programs and increase the efficiency of services in these areas.

LIMITATION

The limitation of this study was the use of cross-sectional method which lacked the ability to assess the causal relationships and long-term consequences of violence. Therefore, cohort studies are recommended to be carried out in this regard. Furthermore, qualitative studies are also helpful in complementing the information and also, in designing interventions and programs.

CONCLUSION

The marginalised women in Zahedan experience sexual violence more than physical violence. However, the rate of both physical and sexual violence is lower among them as compared to marginalised populations in some countries. Moreover, the marginalised women in Zahedan suffer low mental health, as it is influenced by physical and sexual violence. However, counselling services were rarely used by this population. Therefore, it is urgent to implement some

policies and plans to reduce violence and promote mental health among this group of people as well as to provide more acceptable services for them.

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REFERENCES

- [1] Garcia-Moreno C, Zimmerman C, Morris-Gehring A, Heise L, Amin A, Abrahams N, et al. Addressing violence against women: a call to action. *The Lancet*. 2015;385(9978):1685-95.
- [2] Mohtashami J, Yaghmaei F, Jafari A, Alavi Majd H, Ahmadi A. Related factors to coping with domestic violence in women who refer to Forensic Medicine Centers in Tehran. *Journal of Health Promotion Management*. 2014;3(2):54-64.
- [3] UN Women. Ending violence against women and girls: Programming essentials. New York: UN Women. 2013.
- [4] Asadi S, Mirghafourvand M, Yavarikia P, Mohammad-Alizadeh-Charandabi S, Nikan F. Domestic Violence and its Relationship with Quality of Life in Iranian Women of Reproductive Age. *J Fam Viol*. 2017;32(4):453-60.
- [5] Faramarzi M, Esmailzadeh S, Mosavi S. Prevalence and determinants of intimate partner violence in Babol City, Islamic Republic of Iran. *East Mediterr Health J*. 2005;11(5-6):870-79.
- [6] Amiri Majd M, Naseri H, Puyamanesh J. The prevalence, severity and types of domestic violence in rural population. *Journal of Social Security*. 2013;33:71-93.
- [7] Moasheri N, Miri M, Abolhasannejad V, Hedayati H, Zangoie M. Survey of prevalence and demographical dimensions of domestic violence against women in Birjand. *Mod Care J*. 2012;9(1):32-39.
- [8] Lacey KK, McPherson MD, Samuel PS, Sears KP, Head D. The impact of different types of intimate partner violence on the mental and physical health of women in different ethnic groups. *J of Interpers Viol*. 2013;28(2):359-85.
- [9] Nouri R, Nadrian H, Yari A, Bakri G, Ansari B, Ghazizadeh A. Prevalence and determinants of intimate partner violence against women in Marivan county, Iran. *J Fam Viol*. 2012;27(5):391-99.
- [10] Sabri B, Campbell JC. Intimate partner violence against women in slums in India. *Indian J Med Res*. 2015;141(6):757.
- [11] Begum S, Donta B, Nair S, Prakasam C. Socio-demographic factors associated with domestic violence in urban slums, Mumbai, Maharashtra, India. *Indian J Med Res*. 2015;141(6):783-88.
- [12] Beyer K, Wallis AB, Hamberger LK. Neighborhood environment and intimate partner violence: a systematic review. *Trauma, Violence, Abuse*. 2015;16(1):16-47.
- [13] Khayat S, Dolatian M, Navidian A, Kasaeian A, Mahmoodi Z. Association between style of living and general health in suburban women: a cross-sectional study in South East of Iran. *J Clin Diag Res*. 2017;11(8):LC09-LC13.
- [14] Jahromi MK, Jamali S, Koshkaki AR, Javadpour S. Prevalence and risk factors of domestic violence against women by their husbands in Iran. *Glob J Health Sci*. 2016;8(5):175-83.
- [15] Hajian S, Vakilian K, Najm-abadi KM, Hajian P, Jalalian M. Violence against women by their intimate partners in Shahroud in northeastern region of Iran. *Glob J Health Sci*. 2014;6(3):117-30.
- [16] Dolatian M, Zahiroddin A, Velaie N, Majd HA. Evaluation of prevalence of domestic violence and its role on mental health. *Pajoohandeh Journal*. 2012;16(6):277-83.
- [17] Singh AS, Masuku MB. Sampling techniques and determination of sample size in applied statistics research: An overview. *International Journal of Economics, Commerce and Management*. 2014;2(11):1-22.
- [18] Nazifi M, Mokarami HR, Akbaritabar AK, Faraji Kujerdi M, Tabrizi R, Rahi A. Reliability, validity and factor structure of the Persian translation of General Health Questionnaire (GHQ-28) in Hospitals of Kerman University of Medical Sciences. *Journal of Fasa University of Medical Sciences*. 2014;3(4):336-42.
- [19] Khani S, Moghaddam-Banaem L, Mohamadi E, Vedadhir AA, Hajizadeh E. Psychometric properties of the Persian version of the Sexual and Reproductive Health Needs Assessment Questionnaire. *East Mediterr Health J*. 2015;21(1):29-38.
- [20] UNFPA, NEDICO. Sexual and Reproductive Health (SRH) Needs Assessment Among Mobile and Vulnerable Population (MPV) Communities in Zimbabwe. NEDICO 2008.
- [21] Goldberg DP, Hillier VF. A scaled version of the General Health Questionnaire. *Psychol Med*. 1979;9(1):139-45.
- [22] Noorbala A, Mohammad K. The validation of general health questionnaire-28 as a psychiatric screening tool. *Hakim Research Journal*. 2009;11(4):47-53.
- [23] Sun F, Hilgeman MM, Durkin DW, Allen RS, Burgio LD. Perceived income inadequacy as a predictor of psychological distress in Alzheimer's caregivers. *Psychol Ageing*. 2009;24(1):177-83.
- [24] Statistical Center of Iran. The results of the general census of population and housing 2016. 2017.
- [25] Ferrari AJ, Charlson FJ, Norman RE, Patten SB, Freedman G, Murray CJ, et al. Burden of depressive disorders by country, sex, age, and year: findings from the global burden of disease study 2010. *PLoS Medicine*. 2013;10(11):e1001547.
- [26] Howard LM, Oram S, Galley H, Trevillion K, Feder G. Domestic violence and perinatal mental disorders: a systematic review and meta-analysis. *PLoS Med*. 2013;10(5):e1001452.
- [27] Groves AK, Moodley D, McNaughton-Reyes L, Martin SL, Foshee V, Maman S. Prevalence, rates and correlates of intimate partner violence among South African women during pregnancy and the postpartum period. *Matern Child Health J*. 2015;19(3):487-95.
- [28] Ghaffari E, Shahi A, Davaji R, Rostami R. Psychological disorders among inhabitants residing in poor social district of Gorgan, Iran. *Journal of Gorgan University of Medical Sciences*. 2011;13(3):87-93.
- [29] Kim E. Multidimensional acculturation attitudes and depressive symptoms in Korean Americans. *Issues in Mental Health Nursing*. 2009;30(2):98-103.
- [30] Mumford D, Minhas FA, Akhtar I, Akhter S, Mubbashar M. Stress and psychiatric disorder in urban Rawalpindi community survey. *Br J Psychiatry*. 2000;177(6):557-62.
- [31] Muthukumar K, Bharatwaj RS. A cross-sectional descriptive population-based study to estimate the prevalence of depression in an urban slum in Chennai city and the associated risk factors. *J Clin Diag Res*. 2010;4(6):3484-92.
- [32] Nasrabadi AN, Abbasi NH, Mehrdad N. The prevalence of violence against Iranian women and its related factors. *Glob J Health Sci*. 2015;7(3):37-45.
- [33] Kumar S, Jeyaseelan L, Suresh S, Ahuja RC. Domestic violence and its mental health correlates in Indian women. *Br J Psychiatry*. 2005;187(1):62-7.
- [34] Lagdon S, Armour C, Stringer M. Adult experience of mental health outcomes as a result of intimate partner violence victimisation: a systematic review. *Eur J Psychotraumatol*. 2014;5(24794):1-12.
- [35] Eason A. The relationship between intimate partner violence, substance use behaviors and mental health outcomes in Kentucky women [dissertation]. [Kentucky]: University of Kentuck. 2010. pp. 01-30.
- [36] Bonomi AE, Thompson RS, Anderson M, Reid RJ, Carrell D, Dimer JA, et al. Intimate partner violence and women's physical, mental, and social functioning. *Am J Prev Med*. 2006;30(6):458-66.
- [37] Lafta RK. Intimate-partner violence and women's health. *The Lancet*. 2008;371(9619):1140-42.

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