MRS. FARNAZ RAHMANI (Orcid ID : 0000-0003-4977-5555)



Article type : Original Article

**Article title: Domestic violence and suicide attempt among married women: A Case-Control Study**

**Running title: Domestic violence and suicide among married women**

**Authors ' names**

1. **Title and name**: Dr. Farzad Rahmani. **Highest degree**: Assistant professor. **Affiliation**: Research Center of Psychiatry and Behavioral Sciences, Tabriz University of Medical Sciences, Tabriz, Iran. **Mailing address**: School of Medicine, Tabriz University of Medical Sciences, Tabriz, Iran. Golgasht Street. Postal code: 5166/15731. Email: farzadrhn88@gmail.com
2. **Title and name**: Dr. Shiva Salmasi, **Highest degree**: MD **Affiliation:** Research Center of Psychiatry and Behavioral Sciences, Tabriz University of Medical Sciences, Tabriz, Iran. **Mailing address**: School of Medicine, Tabriz University of Medical Sciences, Tabriz, Iran. Golgasht Street. Postal code: 5166/15731. Email: Salmasi.shiva@gmail.com

This article has been accepted for publication and undergone full peer review but has not been through the copyediting, typesetting, pagination and proofreading process, which may lead to differences between this version and the Version of Record. Please cite this article as doi: 10.1111/jocn.14901

3 **Title and name**: Dr. Farnaz Rahmani, **Highest degree**: PhD. Affiliation: Research Center of Psychiatry and Behavioral Sciences, Tabriz University of Medical Sciences, Tabriz, Iran. (**Corresponding Author**) Address: South Shariati St. School of Nursing & Midwifery, Tabriz, Iran. Postal Code: 51368. Tel: +989143002439. Fax: +983414796969. E- mail: farnazrahmani58@gmail.com

4 **Title and name**: Dr. Jamie Bird **Highest degree**: PhD. **Affiliation:** Health and Social Care Research Centre, Research Centre Manager, College of Health and Social Care, University of Derby, Derby, UK. Email: J.Bird@derby.ac.uk

5 **Title and name:** Dr**.** Elnaz Asghari, **Highest degree**: PhD, **Affiliation**: Faculty of Nursing and Midwifery, Tabriz University of Medical Sciences, Tabriz, Iran. **Mailing address**: South Shariati St. School of Nursing & Midwifery, Tabriz, Iran. Postal Code: 51368. Email: asghari.elnaz@gmail.com

6 **Title and name**: Navide Robai, **Highest degree**: BSc **Affiliation:** Research Center of Psychiatry and Behavioral Sciences, Tabriz University of Medical Sciences, Tabriz, Iran. **Mailing address**: Sina Medical Research and Training Hospital, Tabriz University of Medical Sciences, Tabriz, Iran. Email: Navide16@gmail.com

7 **Title and name:** Mohammad Asghari Jafarabadi, **Highest degree**: Associate Professor of Biostatistics, **Affiliation**: Faculty of Health and Nutrition, Tabriz University of Medical

Sciences, Tabriz, Iran. Email: m_asghari862@yahoo.com

8 **Title and name:** Leila Gholizadeh, **Highest degree** PhD, **Affiliation**: Faculty of Health, University of Technology, Sydney, Australia. Email: Leila.Gholizadeh@uts.edu.au

## Conflict of Interest

The authors declare that they have no conflict of interests.

## Acknowledgments

This paper has been extracted from a MD thesis with ethic committee number: 7478. We appreciate the research deputy of XXX University of Medical Sciences for their financial support. The authors also are grateful to all the health personnel of emergency ward of XXX hospital and patients who participated in the study.

## Contributions

Study design, data analysis and manuscript preparation: all authors; and data collection: NR.

## Funding

The authors disclosed receipt of the following financial support for the research, authorship, and/or publication of this article: The study was supported by grant from the research deputy of XXX University of Medical Sciences.

**Abstract**

**Aims and objectives:** The aim of this study was to investigate the impact of domestic violence-related factors on suicide attempt in married women.

**Background:** Suicide is a global public health concern that poses significant burden on individuals, families and communities. There is limited research on factors predicting suicide attempt in women.

**Design:** A retrospective case-control design was adopted.

**Methods:** Using a convenience sampling method, 610 participants, admitted to a teaching referral hospital in Northwest of XXX, were recruited to the study and assigned to case or control groups based on whether or not they had attempted suicide. The participants in two groups were matched in the terms of important demographic characteristics. Domestic violence-related factors were considered as independent variables and suicide attempt as dependent variable. Descriptive statistics, simple and multivariate logistic regression analysis were used to analyze the data. Odd ratios (OR) of domestic violence related factors were compared between the groups. We used STROBE checklist as an EQUATOR in this study.

**Results:** The mean age of participants in the case and control groups was 28.4 years and 29.45 years, respectively. The infidelity was the strongest predictor of suicide attempt in women (OR 44.57, 95%CI 6.08-326. 63, $p<0.001$), followed by being threatened to physical assault by husband (OR 37.01, 95%CI 11.54-118.67, $p<0.001$), jealousy of husband (OR 23.46, 95%CI 11.63-47.30, $p<0.001$), and previous attempts to divorce (OR 16.55, 95%CI 5.91-46.31, $p<0.001$). Suicide attempt was significantly lower in women who reported a sense of peace in life or lived with their mother or father-in-law ($p<0.001$).

**Conclusions:** To reduce the risk of suicide in women, violence against women should be condemned and appropriate prevention measures be taken by health professionals.

**Relevance to clinical practice:** Recognizing risk, assessment and referral of victims of domestic violence should be an integral part of health care systems.

**Key Words:** Family, suicide attempt, domestic violence, women

**What does this paper contribute to the wider global clinical community?**

- Women who were under the coercive behavioral control of their husband were more likely to make suicide attempt.
- In comparison with physical assault, women who experienced infidelity and were threatened by their husband were more likely to make suicide attempt.
- Domestic violence, particularly, emotional assault is hidden; thus, clinical nursing healthcare professionals should be aware of this risk. Appropriate assessment of domestic violence in high risk women should be supported by health care policies and practices to reduce the risk of suicide in women. This could be accomplished by developing of culturally appropriate

## INTRODUCTION

Suicide is a major public health concern worldwide. Annually, more than 10 million individuals attempt suicide, of which one million die (Vijayakumar, 2015). The majority of suicide cases (79%) occur in low and middle-income countries (Bachmann, 2018). Understanding factors that contribute to suicide is important to develop effective strategies to prevent or reduce the incidence of suicide. Multiple studies have shown that domestic violence survivors have higher rates of suicidal thoughts (Brignone, Sorrentino, Roberts & Dichter, 2018). According to the WHO report (2013), about 27.8 to 32.2% of women experience domestic violence globally, and the prevalence rates are particularly higher in African (45.6%), South East Asian (40.2%), and Eastern Mediterranean countries (36.4%) (World Health Organization, 2013). Suicide is relatively lower in Islamic countries as it is

condemned in Islam; yet, the rates of suicide are on rise in these countries (Pritchard & Amanullah, 2007). It should also be noted that the statistics from countries where suicide is taboo can be unreliable (Lopez-Castroman, Blasco-Fontecilla, Courtet, Baca-Garcia & Oquendo, 2015). In XXX, where this study was conducted, suicide rates are estimated to be 3.6 and 7.0 per 100,000 population in females and males, respectively (Mirhashemi et al. 2016).

## BACKGROUND

Although the incidence of suicide leading to death is significantly higher in men (Vijayakumar, 2015), women are more likely to attempt suicide than men. A number of studies have sought to explain the higher rates of suicide attempt among women (Thompson et al. 1999, Cavanaugh et al. 2011, Netto et al. 2014, Kazan et al. 2016), and they have concluded that gender- related vulnerabilities, such as psychopathology and psychosocial factors, increase the risk of suicide attempt in women. Factors such as young age marriage, early motherhood, gender inequalities, and adverse socioeconomic and political conditions provide the ground for suicide attempt in women (Devries et al. 2011, Thompson et al. 1999).

According to the theory of escape, suicide is an attempt to escape from aversive awareness of self (Baechler 1979). Events that fall severely short of standards and expectations of the individual and perceived failures make self-awareness painful for the person and generate negative mood and affect. Therefore, the person attempts to escape from the condition and the associated negative mood status (Baumeister, 1990). Suicide attempt may be triggered by physical illness (Goldmann, Roberts, Parikh & Boden-Albala, 2017) or mental health issues, such as depression or long term harassment, discrimination, or violence (Cavanaugh et al. 2011). Ongoing domestic violence can adversely affect women's mental health to the extent

that the destructive impact of domestic violence on person's health is comparable to chronic disease (Baumeister & Scher, 1988).

Violence against women is multi-dimensional and its definition varies based on ethical, cultural, and legal factors. Domestic violence or intimate partner violence is a type of violence which is defined as a pattern of coercive control against a former or current intimate partner, and includes physical, sexual, and/or psychological assaults (Oram, Khalifeh & Howard, 2017). As a behavior or attitude, domestic violence often occurs behind closed doors and hurt women physically and/or psychologically (World Health Organization WHO 2013). Domestic violence as a trigger of suicide attempt in women has recently gained significant attention among researchers and human right activists (Walby 2004). An international study found that intimate partner violence was one of the most consistent risk factors for suicide attempt among women. The study suggested that mental health policies and services should recognize the link between domestic violence and suicide attempt in women and consider the role of cultural and social factors in perception of domestic violence by both men and women and the associated adverse effects (Devris et al. 2011).

In the context of this study, men are traditionally considered as the household heads and major decision makers in family affairs. This view is reinforced by Islam, which is practiced by 99.4% of the population. Islam requires women to obey their husbands and exert utmost efforts to fulfill their emotional and sexual needs (Salarifar 2009). Therefore, the dominant attitudes in the society encourage women to tolerate domestic violence. Cultural beliefs, such as that a woman is accountable for maintaining the integrity of the family or women should be compliant to their husbands have resulted in partner violence to be viewed as a normal part of married life and a private matter which should be kept within the confines of the family. In these societies, tolerant and obedient women are viewed as 'good women', and women confront many barriers in obtaining a divorce, both culturally and legally, such as losing the

custody of their children, financial hardship, and social disgrace (Garrusi et al. 2008; Sadeghi 2010). As a result, women choose to tolerate an abusive relationship and evade seeking a divorce or reporting it (Sadeghi 2010). The fear of being abandoned by their families, friends, and the society, rumors, separation from children, loss of social status, and financial issues as well as feelings of guilt discourage many women from reporting their abusive relationships (Hajnasiri et al. 2016, Mohamadian et al. 2016).

In a systematic review conducted by Hajnasiri et al. (2016), it was estimated that the prevalence of domestic violence was 66% among XXX women. To reduce the burden of suicide, it is critical to understand factors that contribute to women's suicide. This study aimed to investigate the associations between experience of domestic violence and suicide attempt in women and to identify underlying domestic violence-related factors that predict the suicide attempt among married women.

## Methods

### Research question

The research question for this study was: What are the domestic violence-related factors that can predict the suicide attempt among married women?

### Design

This study employed a retrospective case-control design to investigate domestic violence-related factors that predict suicide attempt in married women**.** Case- control design is an optimal method to identify and evaluate causes or risk factors of health-related events (Song & Chung, 2010).

### Participants and procedures

Case group participants consisted of women who had been admitted to the emergency department of a referral teaching hospital in Northwest of XXX for a suicide attempt.

Annually, about 8000 patients with suicide attempt are admitted to this hospital. Inclusion criteria included being female, married, and admitted to the emergency department with a suicide attempt by any means (including drugs, caustic ingestions, toxin plants, and self-burning or hanging) from March 2016 to February in 2017. A census is a collection of information from all units in the population or a 'complete enumeration' of the population. Conducting a census often results in enough respondents to have a high degree of statistical confidence in the (Martínez-Mesa, González-Chica, Duquia, Bonamigo, & Bastos, 2016).

Women who were not married, had decreased level of consciousness, were not able to speak, and had a history of mental illness, such as bipolar mood disorder or schizophrenia were excluded from the study. Participants were recruited to the study using convenience sampling. From March 2016 to February in 2017, a total of 1200 women were admitted to the emergency department for various health issues, of which 305 women were eligible to be recruited to case group. An equal number of participants were considered to control group. The participants in control group had been admitted to the emergency department of the same hospital with chief complaints other than suicide attempt or psychological problems. Participants in case and control groups were matched in terms of age, socioeconomic status, marital age, number of children, and educational level, occupation and age of their husbands. The researcher approached potential participants after their health status was stabilized in the emergency department, provided them with information about the study aim and process, and invited eligible participants to the study.

**Study instruments**

The Danger Assessment (DA) questionnaire was used to assess the risk of lethal violence in participants' marital relationship. This tool is widely used in studies on domestic violence (Campbell, Webster, & Glass, 2009). The DA is a 20-item questionnaire with yes/no

response options. The most recent version of this questionnaire included a time line describing the frequency and severity of violence. Before being used in this study, the DA was translated into Persian language, and its face and content validity was assessed by an expert panel of 11 faculty members. The process led to omission of nine items including 2, 3, 4, 5, 8, 10, 15, 18, and 19 due to cultural incongruity. The internal reliability of the revised instrument using the Chronbach's alpha coefficient was 0.85. Each 'yes' response was given a score of 1 and each 'no' response was given a score of 0. Total scores could range from 0-11, with higher scores indicating higher risk of lethality.

In addition, a questionnaire was designed to collect data on domestic violence related variables, including demographic and marital characteristics, such as age, marital age, education, occupation, residential area, forced marriage, marital satisfaction, infidelity, living with mother and father-in-law, previous attempts to divorce, being threatened to divorce, history of previous suicide in woman and exposure to childhood violence in woman.

**Data analysis**

Descriptive statistics, simple and multivariate regression were performed via the SPSS software version 16.0 (SPSS Inc, Chicago, IL, USA). The descriptive statistics included using means and standard deviations (*SD*) for continuous variables, and frequencies and percentages for categorical variables. Simple logistic regression was conducted to determine the relationships between demographic, marital, and domestic violence-related variables (independent/predictor variables) and suicide attempt (dependent/criterion variable) in the all participants. The goodness of fit for logistic regression model was tested and confirmed by Hosmer-Lemeshow test. The dependent variable (suicide attempt) was coded as one for suicide cases and zero for non-suicide cases. The independent variables included continuous, ordered, and binary (yes/no) variables. Considering the exploratory nature of modeling

regarding demographic variables (including attempt to divorce by woman, threat of divorce by husband, infidelity, violence history in childhood, history of suicide in husband, marital satisfaction, living with mother/father in law, forced marriage, infidelity, living place, occupation, education, husband's educational level and sense of peace in life) for this part of variables, a forward logistic regression modeling was conducted using a probability of .10 as the entry value. The odds ratio (*OR*) and their 95% confidence interval were also calculated. $P < 0.05$ was considered statistically significant. The STROBE checklist was used as an EQUATOR checklist in this study (See supplementary File 1).

**Ethical considerations**

This study was reviewed and approved by the ethics committee affiliated with XXX University of Medical Sciences, XXX (no. 7478). All participants were assured of their anonymity, privacy and voluntary engagement before signing a written informed consent. They were also ensured that their decision to participate or reject the study would not interfere with the treatment process.

**Results**

**Demographic characteristics**

The mean ages of participants in case and control groups were 28.4 years (*SD* = 9.1), and 29.45 years (*SD* = 6.1), respectively. The mean durations of marriage in case and control groups were 8.48 years (*SD* = 8.4) and 8.53 years (*SD* = 7.3), respectively, and the mean ages of participants' husbands in case and control groups were 33.7 years (*SD* =9.6) and 34.7 years (*SD* = 7.24), respectively. The information about participants' demographics, marital characteristics, and violence related-variables are presented in Table 1.

There were no statistically significant differences between the groups in their residential area, education of self or husband, husband's addiction, and husband's occupation. Compared with matched controls, more participants who had attempted suicide (case group) reported infidelity of husband (0.3% vs. 12.7%), being isolated from their family by husband (4.9% vs. 21.3%), being controlled and coerced by husband (6.5% vs. 39.3%), jealousy of husband (2.9% vs. 41.6%), being physically assaulted (11.8% vs. 34.7%), being threatened to physical assault (0.98% vs. 26.8%), and being threatened to divorce by their husbands (2.9% vs. 19.3%), respectively.

The results of regression analysis estimating the odds of ratios (OR) for demographic, marital, and domestic violence-related variables are presented in Table 2 and 3. All violence-related variables and some of demographic and marital factors, including exposure to violence in childhood, forced marriage, marital satisfaction, previous attempts to divorce, history of suicide in husband, and personal previous history of suicide, and history of prison in husband significantly increased the risk of suicide in the women, however, having a sense of peace in life and living with in-law reduced the risk significantly. The socioeconomic variables, such as residential area, personal education and occupation, education and occupation of husband, and husband's addition did not affect the risk. As seen in Table 2, all violence-related variables increased the odds of suicide in case group women. The infidelity of husband was the strongest predictor of suicide attempt in women (OR 44.57, 95% CI 6.08-326.63, p<.001), followed by being threatened to physical assault by husband (OR 37.01, 95% CI 11.54-118.67, p<0.001), jealousy of husband (OR 23.46, 95% CI 11.63-47.30, p<0.001), and previous attempts to divorce (OR 16.55, 95% CI 5.91-46.31, p<0.001).

## DISCUSSION

To the best of our knowledge, this is the first study to investigate the risk factors of suicide attempt in XXX women using case-control design. The findings of the study suggest the risk of suicide attempt is significantly higher in women who experienced domestic violence. Infidelity of husband, being controlled or coerced by husband, being physically assaulted or threatened to physical assault, jealousy of husband, and being threatened to divorce by husband, were found to be significant predictors of suicide attempt in married women. In addition to these factors, previous attempts to divorce, forced marriage, exposure to violence in childhood, history of prison of husband, and leaving home by husband significantly increased the risk of suicide attempt in women. These findings lend support to previous findings demonstrating positive relationships between domestic violence and suicide in women, and emphasize that violence against women need to be taken seriously by individuals, families, societies, and within policies and practices (Devries et al., 2011; Fardiazar et al. 2012).

In our study, the infidelity of husband was the strongest predictor of suicide attempt in married women.

### Risk factors

According to the results, the husband's infidelity increased the risk of suicide attempt 44 times more than those who did not report infidelity. The serious negative consequences of infidelity leading to distress and dissatisfaction between couples have been demonstrated in previous studies (Cavanaugh et al., 2011; Kazan, et al., 2016). Victims of infidelity may experience negative intrapersonal outcomes such as reduced self-esteem (Shackelford, 2001), that increases their risk for mental health issues (Allen et al., 2005), such as depression and feelings of guilt and self-blame (Cano & O'leary, 2000). In traditional societies when

problems occur in the family and marital life, women are often the first to be blamed and held responsible for what has happened, as in these societies women are primarily deemed responsible to maintain the integrity of the family. In other words, infidelity is perceived as a woman's failure in satisfying her husband. As the result, infidelity of husband can result in feelings of guilt, depression and anxiety in women, which trigger suicide thoughts and attempts (Cavanaugh et al., 2011; Kazan et al., 2016), as explained by the escape theory (Baumeister, 1990).

Being threatened to physical assaults by husband was the second strongest predictor of suicide attempt in women. The impact of this behavior on suicide attempt in women was far more than being subjected to physical assaults itself. Due to the design of this study, detail information about the types of threats to physical assault, faced by the women, was not collected. Future research are recommended to explore why threats to physical assault inflict more harmful effects on women than actual physical assaults, how women mentally process these threats, or if particular types of threats to physical assault have more damaging effects than others. Globally, emotional/psychological violence is more prevalent that physical violence (Iqbal & Fatmi, 2018; Sabri, Simonet & Campbell, 2018). However, it often remains hidden. Physical assaults are more likely to be taken seriously and seen as crime deserving punishment than threats which are difficult to prove. As the result, emotional abuse is continued for a longer duration of time, depriving women mentally (Antai et al. 2014, Devries et al. 2013). Naved and Akhtar (2008) found that suicide attempt were more likely to occur in women who experienced emotional violence compared to those without this experience. They believed that as a silent weapon, emotional violence leaves hidden scars that manifest themselves in many ways, such as losing sense of self and integrity, depression, anxiety and suicide attempt. Likewise, previous studies on women who reported experiencing violence for the pregnancy period or postpartum period showed that for these women

emotional violence was more disturbing that physical violence (Almedia, et al,. 2017; Tho Tran, et al., 2018). Consistent with these findings, in a qualitative study, one of the main emerged themes was that emotional violence hurt more than physical violence (Hatashita, Brykczynski & Anderson, 2006).

Jealousy of husband was other type of emotional violence which predicted suicide attempt of married women in this study. This finding is consistent with the results of a study by Cavanaugh et al. (2011) reporting positive associations between intimate partner's jealousy and suicide-related thoughts and behaviors in women. When women fail to prevent or control threats/emotional violence or are forced to endure poor marriage relationships, they may experience misery which can lead to suicide attempt (Kazan et al. 2016).

Additionally, we found that attempts to divorce by the woman and being threatened to divorce by the husband were both risk factors for suicide attempt in married women. These findings should be interpreted in the context of the study, where women are often disempowered to seek divorce. Attempts to divorce by some women may indicate their desperation to end an abusive relationship. For ××× women, who often feel disempowered to seek divorce, husband's threats to divorce would meant losing financial assistance, social respect, and children, which could cause a sense of insecurity and mental distress (Garrusi et al. 2008). Pokorny and Kaplan (1976) stated that suicidal individuals are identified by their inability to defend against or deal with aversive and negative feelings about the self in relation to events that demand substantial restructuring of one's life.

Further, women who were under the coercive behavioral control of their husband and became isolated from their family members were more likely to make suicide attempt, and the impact of controlling and coercive behaviors on suicide attempt was greater than physical assaults. Tiwari et al. (2008) argue that constant control of women by their husbands is a threat to their human rights and can cause a sense of entrapment and imprisonment in these

women, leading to their poor mental health (Tiwari et al., 2008). Women who are controlled by their husband experience reduced self-confidence, lack of freedom, and loss of independence and decision-making ability (Pico-Alfonso et al. 2006), factors that contribute to mental health problems in these women (Devries et al. 2014).

In contrast to the aforementioned factors, living with a mother or father-in-law was found to have protective effects against women's suicide attempts. This finding is in contrast to previous studies, which reported living with extended family as a risk factor for suicide (Sonuga-Barke & Mistry 2000, Kar 2010). Nevertheless, Dhami and Sheikh (2000) and Devries et al. (2011) claim that women seem to better protected in extended families by counting on the emotional support of members of the extended family. Those living with extended families may be less likely to be the victim of domestic violence because of greater likelihood of the violence to be witnessed, or they may have greater opportunities to express their emotions with in-laws and receive empathy. In the XXX, the family is the most influential institution in the life of an individual. Families have complex networks of relationships with relatives and they are the center of emotional support for the members of families. Religious beliefs, cultural rules and social structure are based on family cohesion (Navab et al., 2012). Further research is needed to identify the role of extended families in mental health and suicide attempt of married women.

In the view of the detrimental effects of domestic violence, the world health organization (WHO) considers violence against women as a public health priority, and recommends that training about life skills and aggression management be started in earlier ages, and a nurturing relationship between parents and children encouraged. These strategies have been proven effective in reducing childhood maltreatment, resulting in reduced rates of engagement in violent acts later in life, including intimate partner violence (World Health Organization, 2005). The WHO recommends that care for women who have experienced

domestic violence to be integrated into exiting health care services rather than this care is offered as a standalone. For this purpose, health care providers should be trained on violence against women in order to respond appropriately to the needs of affected (World Health Organization, 2013). It is important that strategies to reduce domestic violence against women aim to address the underlying cultural beliefs and social structures that fuel and perpetuate it. In order to be effective, these strategies should draw on a wide range of expertise and resources, both at governmental and non-governmental levels, and with maximum possible community participation (García-Moreno, Hegarty, d'Oliveira, Koziol-McLain, Colombini & Feder, 2015).

## CONCLUSION

The risk of suicide attempt is higher in women who experience domestic/intimate partner violence. While physical assault increases the risk of suicidal attempts in married women, the impact of emotional violence, including infidelity of husband, jealousy of husband, threats to divorce, threats to physical assaults, being isolation from family members and, control and coercion of husband on suicidal attempts is greater than physical assault.

Delays in the detection of domestic violence impose serious threats to women's life. To reduce the burden of suicide in women, families and the society, it is important that violence against women is taken seriously and addressed in both individual and system levels. Health care providers, particularly nurses, can play an important role in identifying women who are at risk, as they may encounter these women earlier than those in the criminal justice system. Health care providers could identify the sources of violence against women using a structured framework and as part of comprehensive women's health assessment. Furthermore, it would be useful to look for indicators of coercion and control and not just the physical symptoms of

violence. They should also be aware of supportive resources in the community to provide the necessary information and referral to women at risk. It is equally important that women feel safe to report their experience of domestic violence and are protected by social rights and regulations.

**Limitations of the study**

As with all studies, the results of this study must be interpreted in light of some limitations. First, those who committed successful suicide were excluded from the study. Women who commit a successful suicide may have different risk factors than women who commit a suicide and survive. Second, it is also likely that, many suicide attempts and violence are not reported to the police or other statutory agencies, because they are still associated with uncertainties and taboos in both industrialized and developing countries (Kernic et al. 2000, Netto et al. 2014), so we may have lost these latent cases to include. Lastly, suicide attempt are strongly related with psychotic, personality and adjustment disorders (Nock et al. 2015), which were not considered in this study. Nevertheless, the case-control design of the study, large sample, and recruitment of participants from a large referral hospital increase the generalizability of the results.

**RELEVANCE TO CLINICAL PRACTICE**

This case-control study found that domestic violence predicts the risk of suicide attempt in married women in a traditional society. In these societies, women are more likely not to report the cases of domestic violence. Health care providers, in particular, clinical nurses have opportunities to take role in reducing domestic violence against women and preventing suicide attempt by offering first-line support when they detect signs of violence against women. Furthermore, domestic violence can be occur in another way such as a threat of the

physical assault, the threat of divorce and forced control by the husband, which is perceived as normal conditions of marital life by many women from low and middle income countries. They should also be aware of the serious adverse effects of emotional abuse on women's mental and physical health, and help victims of domestic violence to access information about available support services. It is also important that health care professionals and members of law enforcement consider cultural barriers in the report of domestic violence when interviewing suicide attempt survivors.

**References**

Almeida, F. S. J., Coutinho, E. C., Duarte, J. C., Chaves, C. M. B., Nelas, P. A. B., Amaral, O. P., & Parreira, V. C. (2017). Domestic violence in pregnancy: prevalence and characteristics of the pregnant woman. *Journal of Clinical Nursing*, **26**, 2417-2425.

Antai D, Oke A, Braithwaite P & Lopez GB (2014) The effect of economic, physical, and psychological abuse on mental health: a population-based study of women in the Philippines. *International Journal of Family Medicine* **2014**, 852317

Bachmann S (2018) Epidemiology of Suicide and the Psychiatric Perspective. *International Journal of Environmental Research and Public Health*, **15**, 1425.

Baumeister RF & Scher SJ (1988) Self-defeating behavior patterns among normal individuals: Review and analysis of common self-destructive tendencies. Psychological Bulletin, **104**, 3-22.

Baumeister RF (1990) Suicide as escape from self. *Psychological Review*, **97**, 90.

Bertolote JM & Fleischmann A A (2002) Global perspective in the epidemiology of suicide. *Suicidologi*. **7**, 6–8.

Baechler J, Aron R, Aron R, Politologue S & Aron R (1979) *Les suicides* (p. 27). New York: Basic books.

Beautrais AL. Suicide in Asia. Crisis. 2006;27:55–7.

Birch I, Lally M, Danyuan ML & Kathmandu L (1999) UNESCO Principal Regional Office for

Asia and the Pacific.

Brignone, E., Sorrentino, A. E., Roberts, C. B., & Dichter, M. E. (2018). Suicidal ideation and behaviors among women veterans with recent exposure to intimate partner violence. *General hospital psychiatry*.

Brown MZ, Comtois KA & Linehan MM (2002) Reasons for suicide attempts and nonsuicidal

self-injury in women with borderline personality disorder. *Journal of Abnormal Psychology* **111**, 198-202.

Campbell JC, Webster DW & Glass N (2009) The danger assessment validation of a lethality risk assessment instrument for intimate partner femicide. *Journal of Interpersonal Violence* **24**, 653-674.

Cano, A., & O'leary, K. D. (2000). Infidelity and separations precipitate major depressive episodes and symptoms of nonspecific depression and anxiety. *Journal of consulting and clinical psychology*, *68*(5), 774.

Cavanaugh CE, Messing JT, Del- Colle M, O'Sullivan C & Campbell JC (2011) Prevalence and correlates of suicidal behavior among adult female victims of intimate partner violence. *Suicide and Life-Threatening Behavior* **41**, 372-383.

Devries K, Watts C, Yoshihama M, Kiss L, Schraiber LB, Deyessa N . . . Jansen H (2011) Violence against women is strongly associated with suicide attempts: evidence from the WHO multi-country study on women's health and domestic violence against women. *Social Science & Medicine* **73**, 79-86.

Devries, K. M., Child, J. C., Bacchus, L. J., Mak, J., Falder, G., Graham, K., . . . Heise, L. (2014). Intimate partner violence victimization and alcohol consumption in women: a systematic review and meta- analysis. *Addiction* **109**, 379-391.

Devries KM, Mak JY, Bacchus LJ, Child JC, Falder G, Petzold M . . . Watts CH (2013) Intimate partner violence and incident depressive symptoms and suicide attempts: a systematic review of longitudinal studies. *PLoS Med* **10**, e1001439.

Dhami S & Sheikh A (2000) The Muslim family. *The Western Journal of Medicine* **173**, 352.

Fardiazar Z, Sadeghi-Bazargani H & Mohammadi R (2012) Domestic injuries and suicide among women of reproductive age in Iran. *International Journal of General Medicine* **5**, 547-552.

García-Moreno, C., Hegarty, K., d'Oliveira, A. F. L., Koziol-McLain, J., Colombini, M., & Feder, G. (2015). The health-systems response to violence against women. *The Lancet*, ***388***, 1567-1579.

Garrusi B, Nakhaee N & Zangiabadi M (2008) Domestic Violence: Frequency and Women's Perception in Iran (I.R). *Journal of Applied Sciences* **8**, 340–5.

Goldmann, E., Roberts, E. T., Parikh, N. S., & Boden-Albala, B. (2017). Chronic physical illness burden and suicidal ideation among Dominicans in New York City. *Journal of immigrant and minority health*, **19**, 616-622.

Hajnasiri H, Ghanei Gheshlagh, R, Sayehmiri K, Moafi F & Farajzadeh M (2016) Domestic Violence Among Iranian Women: A Systematic Review and Meta-Analysis. *Iranian Red Crescent Medical Journal* **18**, e34971.

Hatashita, H., Brykczynski, K. A., & Anderson, E. T. (2006). Chieko's story: Giving voice to survivors of wife abuse. *Health Care for Women International*, **27**, 307-323.

Iqbal, M., & Fatmi, Z. (2018). Prevalence of emotional and physical intimate partner violence among married women in Pakistan. *Journal of Interpersonal Violence*, 0886260518796523.

Kar N (2010) Profile of risk factors associated with suicide attempts: A study from Orissa, India. *Indian Journal of Psychiatry* **52**, 48.

Kazan, D, Calear, A. L., & Batterham, P. J. (2016). The impact of intimate partner relationships on suicidal thoughts and behaviours: A systematic review. *Journal of affective disorders* **190**, 585-598.

Kernic MA, Wolf ME, & Holt VL (2000) Rates and relative risk of hospital admission among women in violent intimate partner relationships. *American Journal of Public Health* **90**, 1416.

Lopez-Castroman, J., Blasco-Fontecilla, H., Courtet, P., Baca-Garcia, E & Oquendo M.A (2015) Are we studying the right populations to understand suicide?. *World psychiatry: Official Journal of the World Psychiatric Association* **14**, 368-9.

Martínez-Mesa, J., González-Chica, D. A., Duquia, R. P., Bonamigo, R. R., & Bastos, J. L. (2016). Sampling: how to select participants in my research study? . *Anais Brasileiros de Dermatologia*, *91*(3), 326–330. http://doi.org/10.1590/abd1806-4841.20165254

Mirhashemi S, Motamedi MHK, Mirhashemi AH, Taghipour H & Danial Z (2016) Suicide in Iran. *Lancet* **387**, 29-29.

Mohamadian F, Hashemian A, Bagheri M & Direkvand-Moghadam A (2016) Prevalence and risk factors of domestic violence against Iranian women: a cross-sectional study. *Korean Journal of Family Medicine* **37**, 253-258.

Navab E, Negarandeh R & Peyrovi H (2012) Lived experiences of Iranian family member caregivers of persons with Alzheimer's disease: caring as 'captured in the whirlpool of time'. *Journal of Clinical Nursing* **21**, 1078-1086.

Naved RT & Akhtar N (2008) Spousal violence against women and suicidal ideation in Bangladesh. *Women's Health Issues* **18**, 442-452.

Netto LdA, Moura MAV, Queiroz ABA, Tyrrell MAR, & Bravo MdMP (2014) Violence against women and its consequences. *Acta Paulista de Enfermagem* **27**, 458-464.

Nock MK, Ursano RJ, Heeringa SG, Stein MB, Jain S, Raman R, . . . Fullerton CS (2015) Mental disorders, comorbidity, and pre- enlistment suicidal behavior among new soldiers in the US Army: results from the Army Study to Assess Risk and Resilience in Servicemembers (Army STARRS). *Suicide and Life-Threatening Behavior* **45**, 588-599.

Oram, S., Khalifeh, H., & Howard, L. M. (2017). Violence against women and mental health. *The Lancet Psychiatry*, *4*(2), 159-170.

Pico-Alfonso MA, Garcia-Linares MI, Celda-Navarro N, Blasco-Ros C, Echeburúa E, & Martinez M (2006) The impact of physical, psychological, and sexual intimate male partner violence on women's mental health: depressive symptoms, posttraumatic stress disorder, state anxiety, and suicide. *Journal of Women's Health* **15**, 599-611.

Pritchard, C & Amanullah S (2007) An analysis of suicide and undetermined deaths in 17 predominantly Islamic countries contrasted with the UK. *Psychological Med*icine **37**, 421–430.

Pokorny AD, & Kaplan HB (1976) Suicide following psychiatric hospitalization: The interaction effects of defenselessness and adverse life events. *Journal of Nervous and Mental Disease* **162**, 119-125.

Sabri, B., Simonet, M., & Campbell, J. C. (2018). Risk and protective factors of intimate partner violence among South Asian immigrant women and perceived need for services. *Cultural Diversity & Ethnic Minority Psychology*, **24**, 442-452.

Sadeghi FS (2010). A qualitative study of domestic violence and women's coping strategies in Iran. *Iranian Journal of Social Problems* **1**, 107-142

Salarifar MR (2009) Family from the viewpoint of Islam and psychology. *Tehran: Sam*t.

Song JW, & Chung, KC (2010) Observational studies: cohort and case-control studies. *Plastic and Reconstructive Surgery* **126**, 2234.

Sonuga- Barke EJ, & Mistry M (2000) The effect of extended family living on the mental health of three generations within two Asian communities. *British Journal of Clinical Psychology* **39**, 129-141.

Thompson MP, Kaslow NJ, Kingree JB, Puett R, Thompson NJ, & Meadows L (1999) Partner abuse and posttraumatic stress disorder as risk factors for suicide attempts in a sample of low- income, inner- city women. *Journal of Traumatic Stress* **12**, 59-72.

Tho Tran, N., Nguyen, H., Nguyen, H. D., Ngo, T. V., Gammeltoft, T., Rasch, V., & Meyrowitsch, D. W. (2018). Emotional violence exerted by intimate partners and postnatal depressive symptoms among women in Vietnam: A prospective cohort study. *PloS one*, *13*, e0207108. doi:10.1371/journal.pone.0207108

Tiwari A, Chan KL, Fong D, Leung W, Brownridge DA, Lam H, . . . Chan A (2008) The impact of psychological abuse by an intimate partner on the mental health of pregnant women. *BJOG: An International Journal of Obstetrics & Gynaecology* **115**, 377-384.

Vijayakumar L (2015) Suicide in women. *Indian Journal of Psychiatry* **57**, S233.

Walby S (2004) *The cost of domestic violence*. London: Department of Trade and Industry.

World Health Organization. (2005). WHO multi-country study on women's health and domestic violence against women: summary report of initial results on prevalence, health outcomes and women's responses.

World Health Organization (2013) *Global and regional estimates of violence against women: prevalence and health effects of intimate partner violence and non-partner sexual violence*: World Health Organization.

World Health Organization. (2013). *Responding to intimate partner violence and sexual violence against women: WHO clinical and policy guidelines*. World Health Organization.

**Table 1. The comparison of domestic violence and demographic characteristics between case and control group**

| | | Case (N=305) | | Control (N=305) | |
|---|---|---|---|---|---|
| Factor | | N | % | N | % |
| **Domestic violence** | | | | | |
| Being isolated from family | Yes | 65 | 21.3 | 15 | 4.9 |
| | No | 240 | 78.7 | 290 | 95.1 |
| Being controlled and coerced by husband | Yes | 120 | 39.3 | 20 | 6.5 |
| | No | 185 | 60.7 | 285 | 93.5 |
| The history of leaving home | Yes | 52 | 17.0 | 13 | 4.2 |
| | No | 253 | 83.0 | 292 | 95.8 |
| Jealousy of husband | Yes | 127 | 41.6 | 9 | 2.9 |
| | No | 178 | 58.3 | 296 | 97.1 |
| History of Suicide attempts in the woman | Yes | 73 | 23.9 | 0 | 0.0 |
| | No | 232 | 76.1 | 305 | 100.0 |
| History of Suicide attempts in husband | Yes | 7 | 2.2 | 0 | 0.0 |
| | No | 298 | 97.7 | 305 | 100.0 |
| Husband's addiction | None | 112 | 36.7 | 172 | 6.3 |
| | Smoking | 109 | 35.7 | 107 | 35.1 |
| | Both Smoking and Alcohol | 63 | 20.7 | 41 | 13.4 |
| | Smoking and Opiate or/and Alcohol | 21 | 6.9 | 24 | 7.9 |

| | | | | | |
|---|---|---|---|---|---|
| Being physically assaulted | Yes | 106 | 34.7 | 36 | 11.8 |
| | No | 199 | 65.2 | 269 | 88.2 |
| Being threatened to physical assault | Yes | 82 | 26.8 | 3 | .98 |
| | No | 223 | 73.1 | 302 | 99.2 |
| Husband's Prison History | | | | | |
| | Yes | 16 | 5.2 | 0 | 1.6 |
| | No | 289 | 94.8 | 305 | 98.4 |
| Husband's Occupation | | | | | |
| | Self-employed | | | 237 | 77.7 |
| | Employee | | | 54 | 22.3 |
| | Unemployed | | | 14 | 4.5 |

| **Factor** | | Case (N=350) | | control (N=350) | |
|---|---|---|---|---|---|
| **Demographic characteristics** | | N | % | N | % |
| Attempt to divorce by the woman | Yes | 55 | 18.0 | 4 | 1.3 |
| | No | 250 | 82.0 | 301 | 98.7 |
| Being threatened to divorce by husband | Yes | 59 | 19.3 | 9 | 2.9 |
| | No | 246 | 80.7 | 296 | 97.1 |
| Infidelity | | | | | |
| | Yes | 39 | 12.7 | 1 | 0.3 |
| | No | 266 | 87.2 | 304 | 99.7 |
| Exposure to violence in childhood | Yes | 9 | 2.9 | 0 | 0.0 |
| | No | 296 | 87.1 | 305 | 100.0 |
| Marital Satisfaction | | | | | |
| | Yes | 101 | 33.1 | 301 | 98.7 |

| | | | | | |
|---|---|---|---|---|---|
| | No | 204 | 68.9 | 4 | 1.3 |
| Living with mother or father-in-law | | | | | |
| | Yes | 46 | 15.1 | 87 | 28.5 |
| | No | 259 | 84.9 | 218 | 71.4 |
| Forced Marriage | | | | | |
| | Yes | 23 | 7.5 | 5 | 1.6 |
| | No | 282 | 92.5 | 300 | 98.4 |
| Residential area | | | | | |
| | Rural | 34 | 11.1 | 35 | 11.4 |
| | Urban | 271 | 88.8 | 270 | 88.6 |
| Occupation | | | | | |
| | Employed | 43 | 14.0 | 41 | 13.4 |
| | Housewife | 262 | 86.0 | 264 | 86.6 |
| Women's Educational Level | | | | | |
| | Uneducated | 11 | 3.6 | 48 | 15.7 |
| | Elementary School | 36 | 11.8 | 8 | 2.6 |
| | Middle School | 79 | 25.9 | 86 | 28.1 |
| | High School | 32 | 10.5 | 19 | 6.3 |
| | Diploma | 77 | 25.2 | 86 | 28.1 |
| | Associate degree | 24 | 7.9 | 21 | 6.9 |
| | BSc and higher | 46 | 15.1 | 37 | 12.1 |
| Husband's Educational Level | | | | | |
| | Uneducated | 7 | 2.2 | 16 | 5.1 |
| | Elementary School | 39 | 12.8 | 45 | 14.8 |
| | Middle School | 63 | 20.7 | 64 | 21.0 |
| | High School | 19 | 6.2 | 10 | 3.3 |
| | Diploma | 119 | 39.0 | 118 | 38.7 |
| | Associate degree | 20 | 6.6 | 19 | 6.3 |
| | BSc and higher | 38 | 12.5 | 33 | 10.8 |
| A sense of peace in life | | | | | |
| | Yes | 7 | 2.2 | 96 | 31.5 |
| | No | 298 | 97.8 | 205 | 68.5 |

**Table 2. Logistic regression estimating odds of suicide attempts according to demographic and domestic violence in the married women (N=610)**

| | Unadjusted | |
|---|---|---|
| Factor | OR (95% CI) | *P* |
| Infidelity | 44.57 (6.08-326.63) | <0.001 |
| Being isolated from family | 5.23 (2.91-9.41) | <0.001 |
| Being threatened to divorce by husband | 7.88 (3.83-16.22) | <0.001 |
| Being controlled and coerced by husband | 9.24 (5.56-15.36) | <0.001 |
| The history of leaving home | 4.61 (2.45-8.67) | <0.001 |
| Jealousy of husband | 23.46 (11.63-47.30) | <0.001 |
| Marital Satisfaction | 2.06 (1.61-2.59) | <0.001 |
| A sense of peace in life | 2.03 (1.72-2.38) | <0.001 |
| Being physically assaulted by husband | 3.98 (2.61-6.05) | <0.001 |
| Being threatened to physical assault | 37.01 (11.54-118.67) | <0.001 |
| Attempts to divorce | 16.55 (5.91-46.31) | <0.001 |
| Exposure to violence in childhood | 2.03 (1.87-2.20) | 0.003 |
| History of suicide in husband | 2.02 (1.86-2.19) | 0.008 |
| Previous personal history of suicidal | 2.31 (2.10-2.55) | <0.001 |
| Living with | .44 (.29-.66) | <0.001 |

| | | | |
|---|---|---|---|
| mother/father in law | | | |
| Forced Marriage | | 4.89 (1.83-13.04) | <0.001 |
| History of prison in husband | | 2.05 (1.89-2.23) | <0.001 |
| Residential area | Rural<br>Urban | .898 (.96-.58) | 1.59 |
| Occupation | Employed<br>Housewife | .814 (1.05-.66) | 1.67 |
| Educational level of woman | Illiterate | .10 (2.03-4.83) | 0.32 |
| | Elementary School | 2.03 (4.83-.85) | 0.10 |
| | Middle School | 1.31 (2.46-.70) | 0.39 |
| | High School | 1.35 (2.29-.79) | 0 .26 |
| | Diploma | .73 (1.50-.36) | 0 .40 |
| | Associate degree | 1.14 (1.94-.67) | 0.22 |
| | BSc and higher | 1.08 (2.25-.52) | 0.82 |
| Educational Level of Husband | Elementary School | 1.31 (2.46-.70) | 0.39 |
| | Middle School | 1.35 (2.29-.79) | 0.26 |
| | High School | .73 (1.50-.36) | 0.40 |
| | Diploma | 1.38 (2.36-.81) | 0.22 |
| | Associate degree | 1.47 (2.07-.67) | 0.43 |
| | BSc and higher | 1.08 (2.25-.52) | 0.82 |
| | Illiterate | 1.09 (2.39-.50) | 0.82 |
| Husband's addiction | None | 1.72 (2.37-.7) | 0.08 |
| | Smoking | 1.03 (1.96-.5) | 0.90 |
| | Both Smoking and Alcohol | .85 (1.63-.45) | 0.64 |
| | Smoking and Opiate or/and Alcohol | .56 (1.15-.28) | 0.11 |
| Husband's Occupation | Self-employed | 1.78 (4.59-.69) | 0.23 |
| | Employee | 1.78 (4.33-.73) | 0.20 |
| | unemployed | 1.31 (3.64-.53) | 0.437 |

Note. Dependent variable: Group type (suicide attempts or not)

**Table 3. Results for multiple logistic regressions analysis of study variables based on Forward LR procedure (N=610)**

| Factor | | Sig. | Exp(B) | 95% C.I.for EXP(B) | |
|---|---|---|---|---|---|
| | | | | Lower | Upper |
| The history of leaving home | Yes | .001 | .412 | .244 | .696 |
| Attempt to divorce by the woman | Yes | .000 | 7.635 | 2.454 | 23.752 |
| Being threatened to physical assault | Yes | .000 | 26.937 | 7.987 | 90.849 |
| Husband's addiction | | .024 | | | |
| | None | .226 | .753 | .476 | 1.192 |
| | Smoking | .001 | .351 | .188 | .654 |
| | Both Smoking and Alcohol | .996 | .997 | .360 | 2.763 |
| | Smoking and Opiate or/and Alcohol | .461 | .656 | .214 | 2.012 |
| Being controlled and coerced by husband | Yes | .000 | 7.131 | 3.964 | 12.828 |
| Infidelity | Yes | .000 | 57.993 | 7.544 | 445.778 |
| Constant | | .006 | .648 | | |

Note. Hosmer and Lemeshow Test shewed acceptable model fit (Chi-square (6)= 8.526, p=0.202).

Nagelkerke R Square of *Model Summary* = 0.464