



Relationship Between Domestic Violence in Pregnancy and Maternal Fetus Attachment

Elham Zare ¹, Maryam Ghaffari ¹, Fatemeh Nahidi ^{1,*}, Maliheh Nasiri ² and Abbas Masjedi ³

¹Midwifery and Reproductive Health Research Center, Department of Midwifery and Reproductive Health, School of Nursing and Midwifery, Shahid Beheshti University of Medical Sciences, Tehran, Iran

²Faculty of Nursing and Midwifery, Shahid Beheshti University of Medical Sciences, Tehran, Iran

³Shahid Beheshti University of Medical Sciences, Tehran, Iran

*Corresponding author: Midwifery and Reproductive Health Research Center, Department of Midwifery and Reproductive Health, School of Nursing and Midwifery, Shahid Beheshti University of Medical Sciences, Postal Code: 19968-35119, Tehran, Iran. Tel/Fax: +98-2188655376, Email: Nahidifateme@yahoo.com

Received 2020 November 18; Revised 2021 May 11; Accepted 2021 December 11.

Abstract

Background: Attachment between mother and fetus plays an important role in maternal identity, birth outcomes, growth, and development of a newborn. In addition, domestic violence, especially in pregnancy, has been regarded as a health priority in many societies.

Objectives: The study aimed to assess the relationship between domestic violence in pregnancy and maternal fetus attachment.

Methods: This descriptive correlational study was conducted on 200 pregnant mothers visiting the selected Healthcare Centers of Mashhad. The questionnaires were demographic information, Straus Violence Questionnaire and Cranley's Mother-Fetus Attachment Questionnaire. Data were analyzed using descriptive and correlation coefficient and linear regression tests as well as SPSS v.21 software.

Results: Here, 54% of members had experienced domestic violence. In general, there was a reversed and significant correlation between all aspects of domestic violence and mother-fetus attachment. Moreover, 89% of research centers reported fetal attachment as good, 10% as average, and 1% as weak. Based on the linear regression test, physical violence was able to predict the variance of maternal attachment score of 4.14% in mothers.

Conclusions: As a result of this article, regarding lower maternal-fetal attachment in violated women in pregnancy, much more sensitive screening should be considered for domestic violence so that adverse outcomes are prohibited.

Keywords: Domestic Violence, Maternal Fetus Attachment, Violence in Pregnancy

1. Background

Maternal attachment to the fetus is a term used to describe a pregnant woman's emotional connection to her developing fetus, which affects his feelings, cognitions, and behaviors. Creating an emotional connection with the fetus is an important part of motherhood (1). The prenatal environment affects fetal growth during critical periods and can disrupt the person in later years. Various risk factors such as external and internal factors of the mother such as stress and psychological problems affect this relationship so that the mother's emotional states can adversely affect the development of the fetus (2). Studies over the past 30 years on maternal attachment to the child have shown that the quality of the parent-child relationship from infancy onwards predicts cognitive, social, and emotional development in childhood, adolescence, and adulthood (3). Pregnancy alone imposes a lot of physi-

cal and psychological stress on a person, and naturally, its combination with stressors such as violence can increase maternal mortality and disability, stillbirth, premature birth, and low birth weight (4). Domestic violence is the most common violence against women and an important public health problem that affects 30% of women in the world (5). The rate of violence against Iranian pregnant women in studies has been reported more than 52%, which is an average of 35.7% in Tehran (6). Domestic violence is a type of physical, sexual, or emotional-psychological abuse perpetrated by a close partner (7). Among women victims of violence, pregnant women are recognized as the most vulnerable victims of domestic violence because violence during pregnancy is an additional threat to maternal and fetal health (8). Given increased cases of abortion and fetal death before childbirth, suicide attempts in pregnant women, increased smoking, alcohol, illicit drugs

due to domestic violence, many health policymakers pay attention to its occurrence in pregnant women and post-partum (9). In recent years, mental health in the form of mother-child relationship has become particularly important and due to the high prevalence of domestic violence during pregnancy, early prevention of domestic violence against women as well as identifying and managing abused women as a priority of women's health has been taken into consideration. There is a lot of research on domestic violence in the world, but not in my country. Also, domestic violence on pregnant women have not received enough attention, especially the effect of that on maternal-fetal attachment.

2. Objectives

The aim of this study was to determine the correlation between domestic violence and maternal-fetal attachment in pregnant mothers in Iran.

3. Methods

This descriptive study was performed on 200 pregnant women referring to health centers in Mashhad, Iran. Sampling was firstly done by stratified-cluster method and then randomized in each health center. Inclusion criteria were as follows: Iranian nationality, literacy, gestational age 28 to 40 weeks, living in Mashhad, being the only spouse, not deciding to separate from spouse, no history of major mental disorders and stress in the past year, nuclear family, no addiction, and no pregnancy. The instruments used were demographic and midwifery questionnaire, domestic violence (Dispute Resolution Measures Scale), and maternal-fetal attachment (Cranley). The Straus et al.'s (1996) Domestic Violence Questionnaire was recognized by the World Health Organization (WHO) as a standard tool with 38 items and was measured on a 5-point Likert scale. The severity of violence was divided into five groups with non-violence, very mild, mild, moderate, severe, and very severe violence (10). The questionnaire has been translated in Iran and its validity has been reported by content validity method, and its reliability has been reported by retest with 85% correlation coefficient (11). The Cranley (1981) Maternal Attachment Questionnaire has 24 items in five areas: distinguishing between oneself and the fetus, interacting with the fetus, attributing certain characteristics to the fetus, presenting the mother's feelings, and taking on the role of parent. This questionnaire is scored on a 3-point Likert scale and the levels of maternal attachment to the fetus are expressed in three levels: weak (score less than 24), moderate (score 24 to 48), and good (score 48 to 72)

(12). The Persian version of this questionnaire has been confirmed through content validity and with the opinion of a number of psychologists and psychiatrists and its reliability through Cronbach's alpha coefficient (92%) in the study of Jafarnejad et al. (13), the questionnaires were completed by pregnant mothers (28 - 40 weeks) after providing the necessary explanations about the objectives of the research and obtaining informed written consent and assuring that the information was kept confidential. Individuals were excluded from the study if they completed incomplete questionnaires or decided not to cooperate. Data were collected and analyzed using SPSS software version 21. In all tests, 95% confidence level (5% significance level) was considered.

4. Results

In this study, mothers with a mean age of (26.2 ± 4.68) participated and their husbands had a mean age of (32.7 ± 1.3) . Table 1 shows the other demographic information of the participants. Regarding the objectives of the study, it was shown that 46% of women did not experience any violence during pregnancy, 43.5% very mild violence, 8% mild, 0.5% moderate and 2% severe, and finally, no cases of very severe violence were reported. Table 2 shows the frequency distribution of domestic violence and its dimensions by the severity of violence. The highest type of violence experienced was shown in the psychological dimension with moderate intensity and the lowest in the physical dimension (Table 2).

The mean score of maternal attachment to the fetus was (59.5 ± 8.93) and the highest percentage in all areas was related to good attachment (89%). Table 3 shows the relationship between maternal and fetal attachment areas and the dimensions of domestic violence. Based on these results, there is a negative and significant relationship between domestic violence and maternal attachment to the fetus so that the more domestic violence is applied, the less maternal attachment to the fetus. In examining the relationship between maternal attachment to the fetus and research variables, the results showed that in the older age of the mother, the mother's lack of employment outside the home, and the rate of ultrasound, the rate of attachment to the fetus were higher. Maternal-fetal attachment decreased in mothers with more pregnancies and children.

5. Discussion

The WHO recently published its findings from a large multi-national study of women and abuse. The prevalence of physical violence in pregnancy was reported by women

Table 1. Demographic Characteristics of the Study Participants to Investigate the Relationship Between Maternal-Fetal Attachment and Domestic Violence

Demographic Characteristics/Sales	No. (%)
Duration of marriage (y)	
1 - 4	91 (45.5)
4 - 8	37 (74)
8 - 12	35 (17.5)
Gestational age (w)	
28 - 32	34 (17)
32 - 36	77 (38.5)
36 - 40	89 (44.5)
Number of live children	
0	59 (29.5)
1	91 (45.5)
2	45 (22.5)
3	5 (2.5)
4	0
Mother's education	
Illiterate	0
Primary school	20 (10)
Secondary school (1)	40 (20)
Secondary school (2)	74 (37)
University training	66 (33)
Mother's job	
Housewife	157 (78.5)
Employed	43 (21.5)
Father's job	
Unemployed	5 (2.5)
Manual worker	71 (35.5)
Employee	56 (28)
Free	68 (34)

at between 1-28% in 15 different countries. Between a quarter and a half of these women experienced direct trauma to the abdomen during pregnancy. Over 90% of the assailants were the biological father of the unborn child. Features of fetal morbidities, such as low birth weight (14) preterm delivery and small size for gestational age, occur more frequently among abused than non-abused pregnant women. Proposed mechanisms include recurrent abruptions secondary to trauma or psychological stress in the mother resulting in increased fetal cortisol. Domestic violence is also responsible for increased fetal deaths in affected pregnancies (about 16.0 per 1,000) (15).

Regarding the main purpose of this study, which was

to investigate the relationship between

domestic violence and maternal attachment to the fetus, the results clearly showed that the higher the exposure to violence in pregnant women, the lower the attachment between mother and fetus. This inverse but significant correlation was seen between all types of physical, psychological, verbal, sexual violence, and injuries to the mother. In support of these results, a study conducted in Saudi Arabia in 2018 on 200 pregnant women showed that exposure to violence and maternal mental status during pregnancy was one of the main factors affecting maternal attachment to the fetus during pregnancy and beyond childbirth (16).

Another study in Japan on 6,590 pregnant women reported that physical violence was directly related to post-partum depression, which is a predictor of poor attachment between mother and fetus (17). In a 2005 study, there was a significant difference in attachment scores at six months of age between the two groups who experienced violence during pregnancy and those who did not (18). The findings of the present study can support the theory of the formation of Rubin's maternal identity (19). According to this theory, the father's close and satisfying relationship with the mother during pregnancy has a positive effect on maternal attachment behaviors. Cortisol causes infection, premature birth, and low birth weight through various mechanisms such as lowering the immune system of mother and child. On the other hand, physical and psychological symptoms, anxiety, inadequate care, and lack of social support following domestic violence may greatly affect a woman's attitude, maternal attachment to the fetus, and even her attention to her and the fetus' health (20, 21).

Training in life skills from pre-marital years such as anger management, communication and problem-solving can prevent the occurrence of domestic violence and its consequences in women. Increasing community awareness about domestic violence and its effects on pregnancy and future physical and mental health of children can be effective in reducing its incidence. In the field of healthcare, due to the high percentage of spousal abuse and domestic violence, it is recommended that healthcare providers pay enough attention to this issue while paying attention to the physical problems of pregnancy, and on the other hand, be educated on how to deal with domestic violence and women. Screen people who refer to comprehensive health centers in order to take a positive step to improve the health of children and families while preventing and eliminating violence.

Another result of this study is the estimation of 54% prevalence of violence with a 95% confidence interval in Mashhad, while the highest percentage is related to "very mild violence". This prevalence is higher than the national average (52%) (6). According to a review and meta-analysis

Table 2. Frequency Distribution of Domestic Violence and its Dimensions by the Severity of Violence ^a

Violence Severity	Physical Frequency	Psychosocial Frequency	Verbal Frequency	Sexual Frequency	Injuries Frequency
Very mild	47 (23.5)	12 (6)	51 (22.5)	41 (20.5)	43 (21.5)
Mild	4 (2)	44 (22)	13 (7.5)	7 (3.5)	5 (2.5)
Moderate	0	41 (21.5)	14 (7)	3 (1.5)	1 (0.5)
Intense	1 (0.5)	5 (2.5)	2 (1)	0	0
Very intense	0	3 (1.5)	0	0	0

^a Values are expressed as No. (%).

Table 3. Correlation Between Domestic Violence and its Dimensions with Maternal Attachment to the Fetus and Its Domains

Dimensions of Domestic Violence Areas of Maternal-Fetal Attachment	Psychological Dimension	Physical Dimension	Verbal Dimension	Sexual Dimension	Injury Dimension	Total Violence
Area 1 (Making a difference between yourself and the fetus)	-0.293	-0.254	-0.299	-0.220	-0.220	-0.272
Area 2 (interaction with the fetus)	-0.148	-0.312	-0.278	-0.225	-0.285	-0.188
Area 3 (attributing some characteristics to the fetus)	-0.325	-0.286	-0.390	-0.329	-0.275	-0.360
Area 4 (having a parental role)	-0.143	-0.162	-0.207	-0.223	-0.114	-0.138
Area 5 (providing a motherly feeling)	-0.059	-0.047	-0.007	-0.006	-0.014	-0.057
Spearman correlation						P < 0.001

study in 2018, the prevalence of physical and psychological violence during pregnancy in Iran is higher than the global average and developed countries and even neighboring countries. This difference in prevalence in different regions can be due to cultural, economic, social, education, forced marriage, unemployment, addiction, and inequality of rights between men and women in society (22). The results of this study indicate a direct relationship between maternal age and the degree of attachment to the fetus. In 2015, Massey et al. found a positive and significant relationship between increasing maternal age and increasing attachment (23).

Bloom writes in this regard that the mother's age affects the emotional psychological adjustment during pregnancy and the formation of the mother's relationship with the fetus and baby. Younger women have more difficulty accepting the role and responsibilities of motherhood than older women.

Younger women are also less likely to develop maternal attachment behaviors such as touching, talking, and hugging the baby, which may be due to their immaturity, and also they think fetus and baby has low expectation from their mothers during this period (24). The results showed that attachment is higher in housewives than working mothers. Jamshidimanesh et al. (25) also observed a significant difference between different employment situations and mothers' attachment scores so that housewives received the highest score and mothers of students or workers received the lowest score. Chanachote

declared that women who work outside the home in addition to doing housework at the same time also face problems outside the home that may make them forget themselves and the fetus, especially in industrial jobs with low-income workers who leave work for pregnancy care (26). The results showed that the attachment decreases between increasing the number of pregnancies and the number of live children. Ustunsoz et al. also reported an inverse relationship between the number of pregnancies and fetal attachment (27). Wilson et al. stated that the first pregnancy had the highest acceptance (28). The results showed that there is a relationship between ultrasound request and maternal attachment to the fetus. In Jamshidimanesh et al.'s study, there was a significant relationship between specialized tests to assess fetal health and maternal attachment behaviors (25). One of the reasons for this is that because the mother is always worried about the health of her fetus during pregnancy, performing ultrasound and related tests to some extent relieves the mother. According to Alhusen's study (29), the atmosphere and environmental conditions in which ultrasound is performed and the skills of the ultrasound specialist and how he deals with and answers parents' questions are very important in establishing the relationship between the mother and fetus and the formation of parental role. It is noteworthy that performing merely ultrasound without considering these matters does not have a special effect on the mother's attachment to the fetus.

5.1. Conclusions

In this study, there is a significant inverse correlation between domestic violence and its dimensions (physical, psychological, verbal, sexual, and traumatic injuries) and maternal attachment to the fetus so that the more domestic violence is applied, the more the fetus shrinks.

Acknowledgments

We would like to thank all those who helped us in this study.

Footnotes

Authors' Contribution: All authors of this article did their best to implement and manage this research Fateh-meh Nahidi: Conceptualization and management of research, sampling and management: Maryam Ghaffari and Abbas Masjeds Arani, Data analysis: Maliheh Nasiri, Article writing and editing: Zare Elham and the final review: All of the mentioned people are involved and are responsible in all aspects of the research.

Conflict of Interests: The authors did not declare a conflict of interest.

Ethical Approval: This article is the result of a research project approved by Shahid Beheshti University of Medical Sciences with the code of ethics sbmu2.REC.1394.64.

Funding/Support: Shahid Beheshti University of Medical Sciences supported this study.

Informed Consent: Written informed consent was obtained from all participants.

References

1. Taffazoli M, Aminyazdi SA, Shakeri MT. The relationship between maternal-fetal attachment and mother-infant attachment behaviors in primiparous women referring to Mashhad health care centers. *J Midwifery Reproductive Health*. 2015;3(2):318-27.
2. O'Donnell KJ, Glover V, Barker ED, O'Connor TG. The persisting effect of maternal mood in pregnancy on childhood psychopathology. *Dev Psychopathol*. 2014;26(2):393-403. doi: [10.1017/S0954579414000029](https://doi.org/10.1017/S0954579414000029). [PubMed: 24621564].
3. Favez N, Frascarolo F, Lavanchy Scaiola C, Corboz-Warnery A. Prenatal Representations of Family in Parents and Coparental Interactions as Predictors of Triadic Interactions During Infancy. *Infant Mental Health J*. 2013;34(1):25-36. doi: [10.1002/imhj.21372](https://doi.org/10.1002/imhj.21372).
4. Mohammadi G, Aliakbari SA, Ramezankhani A, Alavi Majd H. The reproductive health status of women with experience of violence in harm reduction centers in Tehran, 2010. *Pajohandeh*. 2011;16(5):219-25.
5. World Health Organization. Respect Women: Preventing Violence Against Women. Geneva: WHO. 2019.
6. Soleimani A, Delpisheh A, Ahmadi A, Khademi N, Jafarinia B, Sayehmiri K. Prevalence of Violence Against Women in During-pregnancy in Iran: A Systematic Review and Metaanalysis. *J Urmia Nurs Midwifery Fac*. 2016;13(11):973-86.
7. Scribano PV, Stevens J, Kaizar E. The effects of intimate partner violence before, during, and after pregnancy in nurse visited first time mothers. *Matern Child Health J*. 2013;17(2):307-18. doi: [10.1007/s10995-012-0986-y](https://doi.org/10.1007/s10995-012-0986-y). [PubMed: 22426619].
8. Finnbogadottir H, Dykes AK. Midwives' awareness and experiences regarding domestic violence among pregnant women in southern Sweden. *Midwifery*. 2012;28(2):181-9. doi: [10.1016/j.midw.2010.11.010](https://doi.org/10.1016/j.midw.2010.11.010). [PubMed: 21757271].
9. Khosla AH, Dua D, Devi L, Sud SS. Domestic violence in pregnancy in North Indian women. *Indian J Med Sci*. 2005;59(5):195-9. doi: [10.4103/0019-5359.16255](https://doi.org/10.4103/0019-5359.16255). [PubMed: 15985727].
10. Straus MA, Hamby SL, Boney-McCoy SUE, Sugarman DB. The Revised Conflict Tactics Scales (CTS2): Development and Preliminary Psychometric Data. *J Fam Issues*. 1996;17(3):283-316. doi: [10.1177/019251396017003001](https://doi.org/10.1177/019251396017003001).
11. Khoramrody R. The effect of mothers touch on maternal fetal attachment (thesis). *Iran Univ Med Sci*. 2000.
12. Cranley MS. Development of a Tool for the Measurement of Maternal Attachment During Pregnancy. *Nurs Res*. 1981;30(5). doi: [10.1097/00006199-198109000-00008](https://doi.org/10.1097/00006199-198109000-00008).
13. Jafarnejad F, Moghadam Hoseini V, Soltanifar A, Ebrahimzadeh S. [The Relationship Between Domestic Violence and Maternal-Child Attachment in Pregnancy]. *J Sabzevar Uni of Med Sci*. 2010;16(1):35-42. Persian.
14. Cook J, Bewley S. Acknowledging a persistent truth: domestic violence in pregnancy. *J R Soc Med*. 2008;101(7):358-63. doi: [10.1258/jrsm.2008.080002](https://doi.org/10.1258/jrsm.2008.080002). [PubMed: 18591689]. [PubMed Central: PMC2442136].
15. Ellsberg M, Jansen HAFM, Heise L, Watts CH, Garcia-Moreno C. Intimate partner violence and women's physical and mental health in the WHO multi-country study on women's health and domestic violence: an observational study. *Lancet*. 2008;371(9619):1165-72. doi: [10.1016/s0140-6736\(08\)60522-x](https://doi.org/10.1016/s0140-6736(08)60522-x).
16. Alzahrani A, Abbas S, Turkistani M, Al-Gamdi A, Alzahrani S, Helmy F. Factors associated with postnatally maternal-infant attachment in taif, Saudi Arabia. *Saudi J Health Sci*. 2018;7(2). doi: [10.4103/sjhs.sjhs_50_18](https://doi.org/10.4103/sjhs.sjhs_50_18).
17. Park S, Greene MC, Melby MK, Fujiwara T, Surkan PJ. Postpartum depressive symptoms as a mediator between intimate partner violence during pregnancy and maternal-infant bonding in Japan. *J Interpers Violence*. 2019;886260519875561.
18. Quinlivan JA, Evans SF. Impact of domestic violence and drug abuse in pregnancy on maternal attachment and infant temperament in teenage mothers in the setting of best clinical practice. *Arch Womens Ment Health*. 2005;8(3):191-9. doi: [10.1007/s00737-005-0079-7](https://doi.org/10.1007/s00737-005-0079-7). [PubMed: 15924258].
19. Rubin R. Maternal Identity and the Maternal Experience. *Am J Nurs*. 1984;84(12). doi: [10.1097/00000446-198412000-00030](https://doi.org/10.1097/00000446-198412000-00030).
20. Jasinski JL. Pregnancy and domestic violence: a review of the literature. *Trauma Violence Abuse*. 2004;5(1):47-64. doi: [10.1177/1524838003259322](https://doi.org/10.1177/1524838003259322). [PubMed: 15006296].
21. Connolly AM, Katz VL, Bash KL, McMahon MJ, Hansen WF. Trauma and pregnancy. *Am J Perinatol*. 1997;14(6):331-6. doi: [10.1055/s-2007-994155](https://doi.org/10.1055/s-2007-994155). [PubMed: 9217953].
22. Bazyar J, Safarpour H, Daliri S, Karimi A, Safikeikaleh M, Bazyar M. The prevalence of sexual violence during pregnancy in Iran and the world: a systematic review and meta-analysis. *J Inj Violence Res*. 2018;10(2):63. doi: [10.5249/jivr.v10i2.954](https://doi.org/10.5249/jivr.v10i2.954).
23. Massey SH, Bublitz MH, Magee SR, Salisbury A, Niaura RS, Wakschlag LS, et al. Maternal-fetal attachment differentiates patterns of prenatal smoking and exposure. *Addict Behav*. 2015;45:51-6. doi: [10.1016/j.addbeh.2015.01.028](https://doi.org/10.1016/j.addbeh.2015.01.028). [PubMed: 25644587]. [PubMed Central: PMC4374036].

24. Bloom KC. Perceived relationship with the father of the baby and maternal attachment in adolescents. *J Obstet Gynecol Neonatal Nurs.* 1998;27(4):420-30. doi: [10.1111/j.1552-6909.1998.tb02666.x](https://doi.org/10.1111/j.1552-6909.1998.tb02666.x). [PubMed: 9684205].
25. Jamshidimanesh M, Astaraki L, Behboodi Moghadam Z, Taghizadeh Z, Haghani H. [Maternal-Fetal Attachment and its Associated Factors]. *Hayat.* 2012;18(5):33-45. Persian.
26. Chanachote S. *Spousal support and maternal-fetal attachment in pregnant industrial workers.* Mahidol University; 2007.
27. Ustunsoz A, Guvenc G, Akyuz A, Oflaz F. Comparison of maternal- and paternal-fetal attachment in Turkish couples. *Midwifery.* 2010;26(2):e1-9. doi: [10.1016/j.midw.2009.12.006](https://doi.org/10.1016/j.midw.2009.12.006). [PubMed: 20172635].
28. Wilson ME, White MA, Cobb B, Curry R, Greene D, Popovich D. Family dynamics, parental-fetal attachment and infant temperament. *J Adv Nurs.* 2000;31(1):204-10. doi: [10.1046/j.1365-2648.2000.01245.x](https://doi.org/10.1046/j.1365-2648.2000.01245.x). [PubMed: 10632810].
29. Alhusen JL, Gross D, Hayat MJ, Woods AB, Sharps PW. The influence of maternal-fetal attachment and health practices on neonatal outcomes in low-income, urban women. *Res Nurs Health.* 2012;35(2):112-20. doi: [10.1002/nur.21464](https://doi.org/10.1002/nur.21464). [PubMed: 22262085]. [PubMed Central: PMC3313492].