

PREVALENCE, MATERNAL COMPLICATIONS AND BIRTH OUTCOME OF PHYSICAL, SEXUAL AND EMOTIONAL DOMESTIC VIOLENCE DURING PREGNANCY

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Abstract- The prevalence of physical violence during pregnancy varies widely in different societies. To assess the incidence of self-reported physical, emotional and sexual violence in pregnancy and describe the association with maternal complication and birth outcomes, 3275 women who gave birth to live-born infants from October 2002 to November 2003 were assessed for self-reported violence in postpartum units of Obstetrics Department of Babol university of Medical Sciences. Outcome data included maternal antenatal hospitalizations, labor and delivery complications and low birth weights and preterm births. Odds ratios and 95% confidence intervals were calculated to measure the association between violence, maternal morbidity and birth outcomes. The prevalence of physical, sexual and emotional domestic violence was respectively 9.1%, 30.8% and 19.2%. Compared with those not reporting physical, sexual and emotional violence, women who did were more likely to deliver by cesarean and to have abnormal progress of labor, premature rupture of membranes, low birth weight, preterm birth and any hospitalization before delivery. Prevalence of physical, emotional or sexual violence during pregnancy was high and was associated with adverse fetal and maternal conditions. These findings support routine screening for physical, emotional and sexual violence in pregnancy and postpartum period to prevent consequences of domestic violence.

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INTRODUCTION

The prevalence of physical violence during pregnancy varies from 0.9 to 21% in different societies (1-3). Violence during pregnancy affects women and might lead to pregnancy complications or adverse birth outcomes (1, 2). Violence can affect pregnancy through direct or indirect mechanisms

(4, 5). A blow to a pregnant woman's abdomen can cause adverse outcomes directly (*i.e.*, fetal injury, preterm labor and death). The indirect mechanisms are related to a woman's victimization experience from intimate- partner violence and how it can induce intermediary risks (ie, psychological stress or insufficient access to medical care) that could cause poor pregnancy outcomes (4,5). Some studies have shown association between physical violence and low birth weights (LBW) or preterm birth, (6-8) whereas others have found modest increases in risk of LBW among women who experienced intimate partner violence during pregnancy (9,10). An understanding of the relationship between violence during

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pregnancy and adverse maternal conditions and birth outcomes could have important clinical and public health implications. Early identification and intervention to prevent violence against pregnant women might reduce adverse outcomes of pregnancy. Data on physical, emotional and sexual violence during pregnancy is sparse in Iran. To the best of our knowledge, this is the first study on the incidence and outcome of domestic violence in pregnant women in Iranian community. We conducted this study to examine the prevalence and possible association with adverse pregnancy outcomes.

MATERIALS AND METHODS

A team of the obstetricians, midwives and psychologists of Babol University of Medical Sciences sampled women in postpartum units of Yahyanejad Hospital. From October 2002 to November 2003, women who gave birth to live birth in two postpartum units and were married during pregnancy were recruited for the study after obtaining ethical committee approval and written consent.

This project had two interventions that were selected based on the feasibility, cost, empirical support, theoretical framework and agency support of intervention. The first intervention consisted of 4-hour in-service education for midwives. The goals of the program were to empower midwives to screen and identify victims of domestic violence and to prevent partner violence among women. The second intervention consisted of implementation of domestic violence screening and assessment of complications. The 'Abuse Screening Form' and 'Abuse Complications Form' were developed in collaboration with the gynecologist coordinator, the midwifery director and psychiatric director. These forms were adapted from other studies and a pilot study in Babol city last year and we revised the questions on the basis of Iranian culture and developed the final forms. These two questionnaires had been prepared to be used to define and quantify abuse validated in a separate study prior to this project. The concurrent validity and reliability for the questions about abuse in that pilot sample were acceptable.

Trained staff interviewed patients after delivery in two postpartum units and filled Abuse Screening Form. In this form we defined physical abuse during pregnancy using questions about experiences of slapping, punching, kicking, pushing, shooting object to her, stabbing, whipping, choking or burning by husband. Any positive answer of above experiences during pregnancy put women in physical abuse groups. Also, we defined emotional abuse with 13 items and sexual abuse with 3 items. Any patients with positive answer to items of emotional or sexual abuse during pregnancy was considered emotionally or sexually abused.

After screening of domestic violence, the staff filled 'Abuse complications Form' for both two groups (abused and non-abused women). Questions covered personal characteristics, sociodemographic status, experiences of pregnancy, delivery, medical history and complications of present pregnancy, labor, delivery and postpartum complications and hospitalization before delivery. We categorized causes of hospitalization as diabetes, high blood pressure, urinary tract infection, preterm labor and vaginal bleeding. Specific conditions originally listed as "other" were recorded as trauma, loss of the infant and other infection. Data of labor, delivery and newborn such as, protracted dilation in active phase (progress of dilation < 1 cm/h after reaching to 4 cm dilatation), premature rupture of membranes, fetal distress, prolonged stage II delivery (> 1 h), 1 minute low Apgar scores (< 7), gestational age and weight of newborns were acquired from what was recorded in patients' files. We defined birth weights less than 2500 gram as low birth weight and gestation age less than 37 weeks as preterm birth.

Simple categorical analyses and logistic regression models using weighted survey data were conducted with SPSS software. We initially examined the prevalence distribution of physical, sexual and emotional violence during pregnancy. We compared the prevalence of reporting physical violence with selected maternal characteristics and calculated the prevalence odds ratios (ORs) and 95% confidence intervals (CIs) adjusted for potential confounders. Potential confounders of the association between violence during pregnancy, maternal complications and adverse birth outcomes were

maternal age, maternal education, maternal residence, poverty status, number of previous children, adequacy of prenatal care utilization and pregnancy intent at conception.

We used logistic regression to calculate ORs and 95% CIs to estimate the association between physical violence during pregnancy, maternal conditions and birth outcomes. The dependent variables in each of the respective models were maternal morbidity (antenatal maternal hospitalizations and specific complications of labor and delivery) and birth outcomes (LBW and prematurity). These associations were adjusted for important confounders, including age, poverty status, parity and obtainment of prenatal care.

RESULTS

Prevalences of physical, emotional and sexual intimate partner violence during pregnancy were respectively 9.1%, 30.8% and 19.2%. Table 1 shows that husbands hurt their wives through punching, slapping, pouching and kicking more than other ways. Emotional abuse which involved pregnant women more than others included making all of her decisions, inquiry of expenses, criticizing wife in front of others, refusing to give money to wife and telling her she is worthless. Forced courtship, forced vaginal intercourse and forced unvaginal coitus were experienced by 23.1%, 21.2% and 17% of pregnant women, respectively.

Table 2 shows the weighted prevalence of reporting physical violence based on sociodemographic and maternal behavioral characteristics, along with the adjusted prevalence ORs between physical violence and selected maternal characteristics. Women subjected to physical violence (*e.g.*, young age, low income, no adequate prenatal care, nonemployment, urban women, low education) had greater risk for adverse pregnancy outcomes. There was no association between women's duration of marriage or parity with physical abuse. The prevalence of distribution of self-reported maternal morbidity among women who experienced violence during pregnancy are presented in table 3,

Table 1. Prevalence of physical, emotional and sexual abuse during pregnancy*

Abuse items	Number (n= 3275)	Prevalence†
Physical abuse	302	9.1 (5.1, 11.2)
Slapping	102	
Punching	107	
Kicking	87	
Pouching	96	
Shooting	48	
Stabbing	21	
Whipping	10	
Chocking	6	
Burning	2	
Emotional abuse	1021	30.8 (25.3, 32.8)
Criticizing wife in front of others	721 (22)	
Telling her she is worthless	638 (19.5)	
Cursing her	603 (18.4)	
Never stay at home	205 (6.2)	
Making all of her decisions	825 (25.2)	
Never allowing her to have money	539 (16.6)	
Threatened her property	321 (9.8)	
Not talking with her	311 (9.4)	
Pursuit wife	103 (3.4)	
Refuse to give money to her	651 (19.9)	
Inquiry of expenses	732 (22.3)	
Limited to communication with her friend of family	635 (19.3)	
Not allow her to earn money	637 (19.4)	
Sexual abuse	702	19.2 (17.2, 21.6)
Forced courtship	264 (8)	
Forced vaginal intercourse	243 (7.4)	
Forced unvaginal coitus	195 (5.9)	

*Data are given as number (percent).

†Weighted prevalence percent and 95% confidence interval of prevalence percent.

along with the adjusted ORs with 95% CIs for the association between violence and those maternal conditions adjusted for confounding.

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Table 2. Prevalence of physical violence during pregnancy, by selected maternal characteristics*

Correlate	Physical abuse (n= 302)	Non physical (n= 2973)	OR (95% CI)
Age (years)			
≤ 20	75 (22.8)	255 (77.2)	3.1 (2.1, 3.9)
20-29	158 (8.6)	1676 (81.4)	1.7 (0.9, 2.5)
> 30	69 (6.2)	1042 (95.8)	1.0
Education (years)			
< 12	184 (10.4)	1584 (89.6)	1.6 (1.1, 2.1)
≥ 12	118 (7.9)	1389 (22.1)	1.0
Economic statue			
Low income	241 (13.2)	1593 (86.8)	2.9 (2.1, 3.6)
Middle or high income	61 (4.2)	1380 (95.8)	1.0
Parity			
1	158 (8.9)	1610 (91.1)	NS
2-3	132 (10.9)	1079 (89.1)	NS
≥ 4	12 (4)	284 (96)	
Job			
Employed	25 (7.1)	302 (92.3)	3.2 (2.3, 4.7)
Unemployed	277 (9.4)	2671 (90.6)	1.0
Residence			
Urban	211 (10.8)	1754 (89.2)	1.9 (1.1, 2.6)
Rural	91 (7)	1219 (93)	1.0
Duration of marriage (years)			
≤ 5	89 (6.7)	1253 (93.3)	N.S
6-10	95 (11.7)	723 (88.3)	N.S
≥ 10	118 (10.6)	997 (89.4)	
Adequacy of obtainment of prenatal care			
No prenatal care	101 (51.7)	94 (48.2)	2.9 (1.8, 4.1)
Intermediate (1-7 visit)	181 (8.7)	1915 (91.3)	1.4 (0.9, 2.2)
Adequate (> 7 visit)	20 (2.1)	964 (97.9)	1.0
Pregnancy intent			
Unwanted	192 (28.9)	473 (11.1)	1.8 (0.7, 2.7)
Wanted	110 (4.2)	2510 (95.8)	1.9

Abbreviations: OR, odds ratio; CI, confidence interval; NS, not significant.

*Data are given as number (percent).

Table 3. Association between maternal morbidity and physical violence during pregnancy

Maternal hospitalization	Physical violence (n= 302)	No physical violence (n= 2973)	OR† (95%, CI)
Any hospitalization	86 (22.4)	535 (17.9)	1.4 (1.1, 2.2)
For high blood pressure	21 (6.9)	113 (3.8)	0.7 (0.7, 1.9)
For premature labor	35 (11.5)	243 (8.1)	2.3 (1.5, 2.8)
For diabetes	7 (2.3)	34 (1.1)	1.6 (0.7, 2.3)
For urinary tract infection	8 (2.6)	31 (1)	1.3 (0.5, 1.9)
For vaginal bleeding (placental previa or abruption)	13 (4.3)	99 (3.3)	2.2 (1.6, 3.2)
Others‡	2 (0.6)	15 (0.5)	1.3 (0.6, 2.1)

* Data are given as number (percent).

†Adjusted for age, education, residence economic statue and obtainment of prenatal care.

‡Others: Nausea, vomiting, trauma, polyhydramnios.

Table 4. Association between maternal complications and birth outcomes and physical violence during labor*

Outcome	Physical violence (n= 302)	No physical violence (n= 2973)	OR† (95%, CI)
Complications of labor and delivery			
Protract dilatation	135 (44.7)	356 (11.9)	2.2 (1.1, 2.9)
Prolonged stage II	25 (8.2)	53 (1.7)	1.9 (0.9, 2.5)
Cesarean delivery	203 (44.7)	1303 (43.8)	1.8 (1.1, 2.6)
Fatal distress	105 (67.2)	266 (8.9)	(2.3, 1.3, 3.1)
PROM	101 (33.4)	250 (8.4)	3.2 (2.5, 4.1)
Birth outcome			
Low birth weight	86 (28.4)	281 (9.4)	3.1 (2.6, 4.2)
Preterm birth	64 (21.1)	251 (8.4)	2.9 (2, 3.8)

Abbreviations: OR, odds ratio; CI, confidence interval; PROM, premature rupture of membranes.

* Data are given as number (percent).

† Adjusted for age, economic statue, obtainment of prenatal care

Among women experienced violence, 28.4% reported antenatal hospitalizations before delivery. After adjustment for confounding factors, the following maternal conditions leading to hospitalizations were found to be associated with reporting physical violence: premature labor (OR, 2.3; 95% CI, 1.5-2.8), vaginal bleeding (OR, 2.2; 95% CI, 1.6-3.2), urinary tract infection (OR, 1.3; 95% CI, 0.5-1.9), high blood pressure (OR, 1.2; 95% CI, 0.7-1.9) and diabetes (OR, 1.6; 95% CI, 0.7-2.3). The prevalence of complications of labor and delivery and birth outcomes are given in table 4. After controlling for age, economic status, obtainment of prenatal care, education, job and residence, we found that women who experienced physical violence during pregnancy were 1.8 times more likely to deliver by cesarean. Complications of first and second stage of labor such as protracted

dilatation, prolonged stag II and fetal distress were respectively 2.2, 1.9 and 2.3 times more likely in physically abused women than of non-abused women. We found that women who experienced physical violence during pregnancy were 3.2 times more likely to encounter premature rupture of membranes. Physically abused women encountered more adverse birth outcomes than of non-abused women. Physically abused women experienced low birth weight and preterm birth 3.1 and 2.9 times more than non- abused women.

Table 5 shows outcome of pregnancy in abused women (physical or sexual or emotional violence) and non physically, sexually and emotionally abused women. All of the adverse outcomes except fetal distress were 1.4-3.2 times more likely in abused women than in non-abused women.

Table 5. Association between maternal complications during delivery and birth outcomes, and three types of violence during pregnancy

Outcome	Subjected to violence (n= 1960)	Not subjected to violence (n= 1315)	OR†
Disorders of progress labor I or II	4.2 (44.7)	167 (12.6)	2.4 (1.9, 3.1)
Cesarean delivery	975 (49.7)	531 (40.3)	2.1 (1.2, 3.2)
Fetal distress	241 (12.2)	130 (9.8)	NS
Premature rapture of membranes	268 (13.6)	83 (6.3)	3.2 (2.5, 4.8)
Low birth weight	298 (15.2)	69 (5.2)	3.7 (2.6, 5.1)
Preterm birth	266 (13.5)	49 (3.7)	3.4 (2.4, 5.2)
Any hospitalization before delivery	407 (20.7)	214 (16.2)	1.4 (0.9, 1.9)

Abbreviations: OR, odds ratio; NS, not significant.

* Data are given as number (percent).

† Adjusted for age, education, residence, economic statue and obtainment of prenatal care.

DISCUSSION

Domestic violence in pregnant women is a well recognized and important health issue. However, there is no data on its prevalence in Iranian community. Incidences from United States or other communities may not be applicable to our local population because of obvious cultural differences. Our study is probably the first report on the incidence of domestic violence in pregnant women in Iranian community.

Violence against women is difficult to measure for various reasons, including the fact that a standardized definition is lacking and the fact that some women are unwilling to disclose violence, because of social stigma or cultural sanctioning of violence (11). Thus, the best prevalence estimates are probably underestimates. Some studies have suggested that pregnancy often triggers domestic violence or exacerbates a pre-existing problem; more over, the pattern of violence may change with assaults directed to the abdomen, breasts and genitalia (8-10, 12).

In this study, the prevalence of physical violence during pregnancy (9.1%) was within the range of prevalence of some studies (13) but prevalence of domestic violence in many studies have been higher (9-21%) (14-19).

Of the self-reported maternal conditions leading to antenatal hospitalizations, premature labor, urinary tract infection and vaginal bleeding were associated with physical violence during pregnancy. We believe that direct or indirect mechanisms are involved but we were unable to explicate further these mechanisms of action because we did not know the timing or severity of violence. Some studies have supported association between psychological stress during pregnancy and delivery before 37 week's gestation (20), but result of other studies are have not (21). Physical violence during pregnancy is the second leading cause of trauma during pregnancy, after motor vehicle accidents (22). In our study, too few women reported trauma to the abdominal area (as expected, given that our study sample was population based and not taken from an emergency department population), so our study lacked power to

address adequately the association between physical violence and that adverse outcome. Trauma research studies have shown that severe physical trauma to the maternal abdomen might lead to hospitalizations that might cause premature labor or delivery (23-25). Many women in abusive intimate relationships also experience sexual assault (4, 11, 23) and were at an increased risk of contracting sexually transmitted diseases (STDs) from their partner (4). Research has established association between physical violence and sexual or emotional violence. We believe that STDs were not likely to be the reason of premature labor in this study. Religious and cultural beliefs in Iranian society prevent sexual abuse as defined in other studies. We defined sexual abuse as forced sex, because in our community real sexual abuse especially within women who are married is rare because of religious beliefs and severe legal punishment. Our study also showed a significant association between physical violence and kidney infections. The effect of physical violence on pregnant women appears to be extensive and such violence is likely to affect every organ system (1).

After adjustment for maternal age, economic status, involvement in prenatal care, residence and education, we found association between physical violence during pregnancy and LBW or prematurity. Results of some studies are consistent with these results (27, 28) and many studies have found positive associations between physical violence and LBW (29, 30). More research is needed to determine how violence can affect birth outcome.

Findings of this study support that emotional and sexual abuse affect labor, delivery and birth outcomes. Data presented in tables 4 and 5 suggest that accompaniment of emotional or sexual abuse with physical abuse increases risk of adverse birth outcome and complications of labor and delivery, except for fetal distress. In some preterm prediction studies, maternal stress has been associated with spontaneous preterm birth at less than 35 week's gestation after adjustment for maternal demographic and behavioral characteristics (31).

We found association between abuse during pregnancy and complications of pregnancy and delivery. There was no association between abuse

during pregnancy and high blood pressure or diabetes in pregnancy. Some studies have supported association between domestic violence during pregnancy and insufficient weight gain, vaginal/cervical/kidney infections, chronic vaginal disorders, complications during labor, delayed prenatal care, miscarriage, low birth weight, ruptured membranes, abruptio placenta, uterine infection, fetal bruising, fractures and hematoma and death (32, 33). A study found that domestic violence was associated with hypertension during pregnancy (34). Present report showed that physical violence during pregnancy was associated with cesarean delivery, independent of other confounding factors (age, economic status, obtainment of prenatal care, education, residence). The observed relationship might be due to the fact that women reporting physical violence have various maternal complications and undergo hospitalizations before delivery and thus are monitored medically for untoward outcomes.

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