



## **Physical abuse and adverse pregnancy outcome: a cohort study**

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## **PHYSICAL ABUSE AND ADVERSE PREGNANCY OUTCOME: A COHORT STUDY**

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Violence against women is the most pervasive yet least recognized human rights abuse in the world. It also is a profound health problem, sapping women's energy, compromising their physical health, and eroding their self-esteem. Domestic Violence is an unpleasant subject and one that many health care providers do not recognize or acknowledge but it must be seen as a major public health problem that exists worldwide.

Abuse of pregnant women is not rare. There has been little focus on clinical effort on the risks to mother and fetus associated with physical or sexual abuse during pregnancy. Only a few studies have addressed the issue of adverse birth outcome in association with abuse of pregnant women. The results of these studies suggest an increased risk of low birth weight in women abused during pregnancy<sup>1</sup>. However, these studies are cross-sectional or case control study with small sample size. Moreover none of these studies were reported from a developing country setting like India.

Although all battered women are in danger, a pregnant woman risks greater consequence since the growing life inside of her depends entirely on her well being. What the pregnant women endures- emotionally, physically, and financially- the innocent child within endures as well. Surprisingly, between six and 17 percent of women are battered while pregnant; in fact, battering presents itself in pregnancy more often than diabetes, hypertension or any other serious complication.

Battering during pregnancy can result not only in Obstetric complication it can also have serious implications for the health and the well being of the fetus or infant. Domestic violence is associated with increased rates of miscarriage, premature birth, low birth weight (relative risk ranging from 1.5 to 4), chorioamnionitis, fetal injury and fetal death. The secondary effects of domestic violence on the mother, which includes suicide attempts, infections, and anemia, may further damage the developing fetus.

Violence may also have a serious impact on pregnancy outcomes. Violence has been linked with increased risk of miscarriage and abortion<sup>2,3,4</sup>, premature labor<sup>5</sup> and fetal distress<sup>5</sup>. Several studies also have focused on the relationship between violence in pregnancy and low birth weight, a leading contributor to infant deaths in the developing world (1,2,5,6,7,8,9.) Although the findings are inconclusive, seven studies suggest that violence during pregnancy contributes substantially to low birth weight, at least in some settings (2,3) In one study at the regional hospital in Leon, Nicaragua, researchers found that, after controlling for other risk factors, violence against pregnant women was associated with a three-fold increase in the incidences of low birth weight.

The association between battering during pregnancy and premature delivery, miscarriage, and low birth weight is best documented in a study of pregnant women in the USA. The results show that even after controlling for a host of risk factors, victims of violence

during pregnancy were twice as likely to experience pre term labor than non- abused women, twice as likely to miscarry, and four times as likely to give birth to a low birth baby. Studies in Malaysia document that 3 percent of women battered during pregnancy suffered a miscarriage as a result of the beating. In contrast, a study from John Hopkins School of Hygiene and public health in Baltimore, found no difference in gestational age at delivery weight for women experiencing any type of conflict or violence and women not experiencing conflict or violence during pregnancy. Thus, there are inconsistent and inconclusive reports from various studies.

IndiaSAFE i.e. the "India Studies of Abuse In Family Environment" a population based survey in rural and urban areas of Nagpur" showed that 31 percent of the women interviewed, reported physical abuse. Of these nearly 50 percent reported that they had experienced violence during pregnancy. Abused women were twice as likely to begin antenatal care after 32 weeks of gestation as compared to non -abused women (OR= 2.5; 95% CI – 5.6, P= 0.02).

A population based case control study in Maharashtra was conducted in the community and in the hospital. There were prospective 121 maternal deaths with survivors of similar pregnancy related complication. After postpartum hemorrhage (30.6%), deaths caused by domestic violence (15.7%) were the second largest abuse of pregnancy mortality. (Ganatra –et. al 1998).

In USA, screening for abuse during pregnancy is a routine procedure. Studies have demonstrated that use of a structured screen improves detection of battering both before and during pregnancy, enabling clinicians to have greater opportunity to intervene. However, in India, such screening procedures are not implemented. Health professionals do not routinely screen women during antenatal care for abuse pregnancy. Prenatal care may be one of the only opportunities that women, and especially disadvantaged women, may have to get professional help for domestic violence and referral to appropriate social and legal services.

A cross sectional study using McFarlane's Abuse Assessment Screen (AAS) showed 10% of women seeking antenatal care at our hospital experienced physical abuse during current pregnancy. Abuse during pregnancy is associated with threat to health of mother and fetus. The present study assess association between physical violence during pregnancy and adverse pregnancy outcomes.

**Design:** Prospective cohort of pregnant women with (exposed) and without (control) history of physical abuse followed till outcome.

**Setting:** Obstetrics and Neonatology Department of Tertiary Care Hospital in Central India.

A systemic random sample of newly registered pregnant women seeking routine ANC care at the study hospital, who satisfied eligibility criteria was screened for physical abuse using modified Mc. Farlane Abuse Assessment Screen (AAS) The screening was

done by nurse, who was provided training to use the screening tool for diagnosis of domestic violence. Of the women screened two cohorts of pregnant women. One screened positive of AAS i.e. "Exposed" and another screened negative for physical abuse by AAS (n = 165) i.e. " Control" were followed up till outcome of pregnancy. Complete follow up was achieved in 98 (89%) subjects in the exposed group and 150 (91%) subjects in the control group.

**RESULTS:**

**Table 1: Baseline characteristics of women subjects in exposed and control groups.**

Sr. No.	Characteristic	Exposed (n=98)	Control (n=150)	P – Value
<b>1</b>	<b>Age group in years</b>			(p=0.8240).
	15-19	7 (7.1%)	9 (6.0%)	
	20-24	58 (59.2%)	89 (59.3%)	
	25-29	29 (29.6%)	41 (27.3%)	
	30-39	4 (4.1%)	11 (7.4%)	
<b>2</b>	<b>Gravidity status</b>			(p=0.6134).
	Primi	38 (38.8%)	63 (42.0%)	
	Others	60 (61.2%)	87 (58.0%)	
<b>3</b>	<b>Educational status</b>			(p=0.7071).
	Illiterate	11 (11.2%)	13 (8.7%)	
	Primary	9 (9.2%)	8 (5.3%)	
	Secondary	24 (24.5%)	36 (24.0%)	
	Matriculate and Graduate	54 (55.1%)	93(62.0%)	
<b>4.</b>	<b>Occupation status</b>			(p=0.3070).
	Housewife	11 (11.2%)	13 (8.7%)	
	Labourers	9 (9.2%)	8 (5.3%)	
	Semi-skilled worker	24 (24.5%)	36 (24.0%)	
	Skilled	54 (55.1%)	93(62.0%)	

Table 1 shows that distribution of women subjects in the exposed and control groups were comparable on important baseline characteristics like Age, Gravida, Education.

**Table 2: Frequency, timing and severity of abuse in exposed and control groups.**

Sr. No.	Characteristic	Exposed (n=98)	Control (n=150)	P – Value
<b>1.</b>	<b>Frequency of abuse during current pregnancy</b>			p=0.0001
	0-2	59 (60.2%)	142 (94.7%)	
	3-5	24 (24.9%)	6(4.0%)	
	6-9	9 (9.2%)	0(0.0%)	
	10 & above	6 (6.1%)	2 (1.3%)	
<b>2.</b>	<b>Gestation at the time of abuse (week)</b>			p=0.0001
	0-4	37 (37.8%)	140 (93.4%)	
	5-8	8 (8.2%)	2 (1.3%)	
	9-12	15 (15.3%)	5 (3.3%)	
	13-28	31 (31.6%)	3 (2.0%)	
	28 & above	7 (7.1%)	0 (0.0%)	
<b>3.</b>	<b>Injury due to abuse during pregnancy</b>			p=0.0001
	Yes	54 (55.1%)	9 (6.0%)	
	No	44 (44.9%)	141 (94.0%)	

Frequency, timing and severity of abuse experienced by the two groups are displayed in Table 2. Frequency of abuse was significantly more in exposed group versus control group.

More than half (54%) of the exposed subjects were abused at late gestation period (> 8 weeks) as compared to 5.3% control subjects. Previously abused women were found to have even higher risk of abuse (RR= 3.61, 95% CI 2.75- 4.74, p=0.0001) in later part of current pregnancy (>8 weeks) as compared to the earlier period. A significantly (p=0.001) higher proportion of abused women (13.3%) versus a small number (2.7%) of non abused women admitted that frequency of abuse has increased during pregnancy.

Women in exposed group were more likely (RR =3.6, 2.7-4.7 p =0.0001) to get injuries in the current pregnancy as compared to women in control group. Many (15.3%) victims in exposed group received injuries on back, stomach and abdomen as compared to 2.7% in control group (p=0.001).

**Table 3: Physical Abuse and adverse pregnancy outcomes (unadjusted analysis)**

Sr. No.	Pregnancy outcome	Exposed (n=98)	Control (n=150)	RR	95% CI	p value
1.	Miscarriage	6 (6.1%)	0 (0.0%)	2.63	2.24-3.09	0.0022
2.	Abdominal pain	12 (2.2%)	3 (2.0%)	2.16	1.60-2.94	0.0009
3.	Bleeding	2 (2.0%)	1 (0.7%)	1.70	0.75-3.84	0.3332
4.	Adverse fetal outcomes (Still birth, Fetal death)	4 (4.0%)	1 (0.7%)	2.06	1.30-3.30	0.0614
5.	Low birth weight baby (<2500 gm)	71 (72.4%)	90 (60.0%)	1.42	1.01-2.03	0.0446
6.	Hospitalization before delivery	5 (5.1%)	1 (0.7%)	2.17	1.47-3.21	0.0263

Frequency of adverse maternal outcomes (e.g. Miscarriage, abdominal pain, hospitalization before delivery) and neonatal outcome (LBW) was significantly more in exposed group as compared to control group as evident from the unadjusted risk estimates and their confidence intervals. Because of small sample size some outcomes (Bleeding, Still births and fetal deaths) were not found to be significantly associated, but there is enough indication that abuse played an important role in their outcomes too.

**Table 4: Physical abuse and adverse pregnancy outcomes (adjusted analysis)**

Sr. No.	Pregnancy outcome	RR	95% CI	p value
1.	Abdominal pain	5.91	1.43-24.4	0.014
2.	Other adverse events (Still birth, Fetal death)	9.06	0.81-102.0	0.075
3.	Low birth weight baby	2.48	1.12-4.43	0.023
4.	Hospitalization	8.32	0.86-80.8	0.068

Multiple Logistic Regression analysis showed that risk of adverse pregnancy outcomes was significantly associated with physical abuse during pregnancy adjusting for maternal age, gravidity, prenatal care, timing, frequency and severity of abuse and husband's alcoholic habits.

The present study underlines that the situation of women attending antenatal clinic is quite severe in terms of violence they experience in the marital home. Physical violence during pregnancy could be a significant predictor of adverse pregnancy outcome, both independently as well as in combination with other covariates. It has clinical and public health implications too. Early identification of physical abuse and intervention might reduce the occurrence of adverse pregnancy outcomes. Regular screening and counseling

of the pregnant women for physical abuse at the ANC clinics routinely could help in minimizing the risk for mother and her fetus. There is a need to study the role of an intervention in the form of counseling of the subjects and their family members in reducing physical abuse during pregnancy. Since more than 90% of the women were abused by their husbands. These intervention strategies should be more focused on husbands.

### **Implication for practice:**

When a pregnant woman is assaulted, two individuals are endangered: the woman herself and her unborn child. Although violence during pregnancy can have significant immediate and long term consequences, this violence continues to be under recognized by the medical profession<sup>10,11</sup> However, the opportunity to identify partner violence and intervene is perhaps greatest during pregnancy as it is one of a few times that women routinely interact with health care systems<sup>11</sup>

Interview approach: We believe that all women should have the opportunity to expand beyond the confines of the usual medical history to relate their life circumstances before and during the pregnancy and their experiences of victimization. Most women will not volunteer information about abuse experiences unless they are asked specifically about them. This interview effort should also try to gather insights into their relationships with the battering partners, the women's fears, and their perceptions of professional responses to their efforts to seek help and protection in the past, as well as the women's concerns about their pregnancies, deliveries, and the evolving condition of their babies. Interviewing must always be done apart from their male partners.

Although the amount of time women spend in the hospital after delivering is decreasing, especially because of efforts to reduce the costs of hospitalization, aggressive efforts can be made in the obstetric service to identify and to protect battered women.

Linkage to Battered Women's Services: Based on our experience, we propose that all medical and surgical services for women construct linkage to the battered women's service movement. Programs now exist in many communities. Such connection would provide access to protection, crisis intervention, and support for battered women. Ideally, after a disclosure of victimization to a physician, nurse or social worker, the woman would be seen as quickly as possible by an advocate or the social worker, who would provide her with information about protection, legal rights and when needed, shelter. A safety plan would be developed with the woman. There would be collaboration with medical and nursing staff to provide care for the woman and her children, attending all case conferences and participating in hospital discharge planning. Services provide would include the following:

1. Housing advocacy with shelter and emergency housing transfers
2. Court accompaniment
3. Referrals for legal and medical care and

4. Referrals to counseling support groups. The goals of such an effort are to empower women to better protect themselves and their children and to develop networks of support in the community.

*Several key recommendation emerge from the present study*

- Enhanced screening by health care providers as a continuing process is one of the immediate activity that could be implemented in prenatal care setting to address compelling problem of domestic violence during pregnancy.
- Education to nurses, health care providers and women in skills necessary for prevention of violence against women; mechanism for routine assessment of domestic violence in women in health care institutions and community setting; and further research on violence against women is needed.
- Prenatal care may be one of the only opportunities that women and especially disadvantaged women can get a professional help for domestic violence and referral to appropriate social and legal service. Screening can be implemented in prenatal setting with simultaneous implementation of effective services and referral.
- One - stop crisis center/ referral services should be available at hospital setup itself as it is difficult for women to seek help outside hospitals.



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