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Domestic violence in pregnancy and its adverse maternal and perinatal outcome: A prospective cohort study

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Abstract
Objective: To analyse the domestic violence among pregnant women and its adverse maternal and perinatal outcome.
Design: Prospective cohort study
Setting: Tertiary Hospital in Bangalore
Sample: Antenatal women above 34 weeks of gestation attending the outpatient department and admitted in the antenatal and labour ward for a period of one year.
Methods: Eight hundred antenatal women fulfilling inclusion criteria were screened using a pretested questionnaire. The women were divided into 2 groups, those who were positive for domestic violence and those who were negative and followed up till outcome of pregnancy. Data was analyzed for statistical significance using SPSS version 16.
Main outcome measures: To determine the prevalence of domestic violence and the adverse pregnancy outcome secondary to domestic violence during pregnancy.
Results: The prevalence of domestic violence in our study was 52.8%. There was a positive association between the presence of medical and obstetric complications, presence of risk factors and increased incidence of domestic violence. The neonatal admissions of babies of mothers subjected to domestic violence were 41.2%. The incidence of preterm babies was 12%. Perinatal morbidities were also higher with babies born to abused women. Puerperal complications like lactation failure and other postpartum psychiatric problems did not have any relation to domestic violence.
Conclusion: Domestic violence is a very sensitive issue due to fear of reprisal, is under reported. Well-designed screening protocols and counseling options should be put in place so that women get timely care.
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Keywords: Domestic violence; antenatal care; pregnancy outcome

Introduction
Domestic violence (DV) during pregnancy is a serious public health issue that has a propensity to affect the mother and her foetus. DV is defined according to World Health Organisation (WHO) as psychological/emotional, physical, or sexual violence, or threats of physical or sexual violence that are inflicted on a woman by a family member: an intimate male partner, marital/cohabiting partner, parents, siblings, or a person very well known within the family or a significant other (i.e. former partner) when such violence often takes place in the home [1]. The global prevalence of DV against pregnant women varies from 4-57% as per recent studies [2]. This wide variation may be due to differences in the cultural, social and economic backgrounds of the population tested. There is a documented rise in the domestic violence rate in India and other developing countries ranging from 20% to 60% [3]. This rise may be due to more reporting of the same by the victims in the present times and due to an increasing awareness among healthcare officials in making an effort to screen for DV.
A look into literature regarding the risk factors tells us that single, multiparous women with low socioeconomic status who cannot afford health care during pregnancy and delivery became the victims of such domestic violence when compared to others. Unwanted pregnancy was also found to be a common risk factor [3].
DV during pregnancy is associated with an adverse maternal and perinatal outcome due to the direct effects of physical trauma in addition to the emotional component associated with it. The degree of physical assault secondary to DV has ranged from non-fatal to fatal in certain situations for both the mother and her offspring. Although the American College of Obstetricians and Gynaecologists recommend routine screening for all women and developed guidelines for screening, only advice [4]. At present, no effective intervention other than referral for counselling and shelters are available.

The aim of our study is to determine the prevalence of DV among pregnant women and find association between DV and adverse maternal and perinatal outcomes. This will hopefully lead to more interventions in the future to prevent women from being subjected to violence of any sorts at their homes.

Materials and methods

This is a prospective cohort study which was carried out in the outpatient department, antenatal and labour ward of Sapthagiri hospital, Bangalore in 2015. 800 pregnant women above 34weeks of gestation were included in the study spanning over a period of 1 year. The women below 34 weeks of gestation period without any abortion, intra-uterine death or pre-term deliveries and those who were not willing to share the information were excluded from the study.

Counseling was done by experienced counselors. The pregnant women were interviewed in complete privacy. Verbal and written consent was obtained. Strict confidentiality was assured and the participants were clearly informed about the purpose of the study before the counseling was begun. Adequate time was spent with each woman to make sure she was comfortable and not anxious about the enquiry. The interview was conducted based on a pretested questionnaire which was derived and modified from the abuse assessment screen [5]. Domestic violence was defined according to World Health Organisation (WHO) as psychological/emotional, physical, or sexual violence, or threats of physical or sexual violence that are inflicted on a woman by a family member: an intimate male partner, marital/cohabiting partner, parents, siblings, or a person very well known within the family or a significant other (i.e. former partner) when such violence often takes place in the home [1]. We used the above definition to define DV in our study. For those who had language barrier, the questionnaire was translated. Level of abuse was graded as (i) Abuse involving shoving, throwing objects, emotional abuse including verbal abuse and restricted access to family and friends. (ii) Any acts that included kicking, biting or sexual abuse and iii) Included choking or strangling, use of knife or a gun or a serious threat to the life of the woman or her child. After this screening was done, the women were divided into 2 groups, those who were positive for domestic violence and those who were negative. The women enrolled in the study were then followed up till term and details about mode of delivery, gestational age at birth and other birth details were recorded. SPSS version 16 was used for statistical analysis.

Data was analyzed for statistical significance by Chi-square test, Student t-Test, Fisher's exact probability Test. Statistical significance was taken at $P<0.05$. Statistical data was represented in graphical or tabular format.

Results

A total of 800 women were screened for DV out of which 422 women (52.8%) underwent domestic violence in one form or other.246 (30.8%) were positive for physical violence, 190 (23.8%) women were sexually abused and 369 (46.1%) women were emotionally abused. (Table 1)

Table 1: Incidence of Domestic violence in the surveyed women

	No. of patients (n=800)	Percentage (%)
Physical Violence	246	30.8
Sexual violence	190	23.8
Emotional violence	369	46.1
Domestic violence score	422	52.8

Table 2 describes in details about the variables studied and number of women under each variable enrolled in the study.

Table 2: Descriptive details of affected women enrolled in the study

Variables		Frequency	Percentage
Patient occupation	unemployed	360	85.4
	employed	62	14.6
SES[1]	Class1	266	63.0
	Class2	110	26.0
	Class3	43	10.2
	Class4	4	0.9
Religion	Hindu	401	94.9
	Muslim	21	5.1
Husband occupation	unemployed	8	1.8
	employed	414	98.2
joint family	no	219	51.9
	yes	203	48.1
problem in law	no	0	0.0
	yes	349	82.7
hospital admission	no	73	17.3
	yes	414	98.2
dowry at marriage	no	8	1.8
	yes	191	45.4
Husband treats mother	0	231	54.6
	1	59	14.0
	2	29	6.9
	3	117	27.8
economically independant	no	217	51.3
	yes	345	81.8
Husband alcohol consumption	no	77	18.2
	yes	275	65.1
Smoking in husband	no	147	34.9
	yes	287	68.1
Who paid	mothers side	135	31.9
	husbands side	197	46.6
	both	218	51.6
male child seeking	no	8	1.8
	yes	317	75.2
mode of delivery	Vaginal	105	24.8
	LSCS	183	43.3
Pain	no	239	56.7
	yes	199	47.2
Bleeding	no	223	52.8
	yes	307	72.8
Trauma		115	27.2
Period of gestation (POG)	pre term	422	100.0
	term	35	8.4
HIV	no	387	91.7
	yes	388	92.0
Hbsag	no	34	8.1
	yes	414	98.2
RBS	Normal	8	1.8
	Abnormal	407	96.4
VDRL	no	15	3.6
	yes	418	99.1
Urinemic	Normal	4	0.9
risk factors	no	422	100.0
	yes	253	60.0
other treatment	no	169	40.0
	yes	277	65.7
obstetric complications	no	145	34.3
	yes	334	79.1
medical complications	no	88	20.9
	yes	346	82.1
perinatal morbidity	no	76	17.9
	yes	380	90.2
NICU[2]	no	42	9.9
	yes	248	58.8
feel baby	no	174	41.2
	yes	88	20.9
Sleepless	no	334	79.1
	yes	396	93.7
lactation problem	no	26	6.3
	yes	397	94.0
Psychiatric problems	no	25	6.0
birth weight	<2.5	422	100.0
	>2.5	93	22.1
		329	77.9

1: SES- socioeconomic status

2: NICU- Neonatal Intensive Care Unit

The various sociodemographic factors contributing to DV have been tabulated in Table 3. Women who were from lower socioeconomic status, Hindu religion with an unemployed husband, who had problems with their inlaws, who had given dowry at marriage, who were not economically independent, who had an alcoholic husband experienced more domestic violence. Similarly women whose antenatal care and delivery were paid by mother side, experienced more Domestic violence and it differed significantly ($P<0.05$).

Table 3: Socio demographic factors leading to domestic violence -Binary logistic regression

	B	S.E.	Wald	P	Odds ratio	95% C.I.	95% C.I
						Lower	Lower
Patient Age	.056	.025	5.249	.022	1.058	1.008	1.110
Patient occupation	-.405	.417	.945	.331	.667	.294	1.510
SES[1]			26.485	.001			
SES[1](1)	1.522	.743	4.199	.040	4.582	1.069	19.653
SES[1](2)	.511	.744	.471	.493	1.667	.388	7.167
SES[1](3)	1.204	.776	2.404	.121	3.333	.728	15.264
Problems inlaw	-3.188	.616	26.753	.001	.041	.012	.138
Dowry at marriage	-.803	.184	18.991	.001	.448	.312	.643
Economically independant	.730	.373	3.825	.050	2.075	.998	4.312
Husband alcoholic	-.894	.222	16.266	.001	.409	.265	.632
Husband smoker	.000	.215	.000	.999	1.000	.656	1.524
Male child seeking	-.234	.238	.962	.327	.792	.496	1.263
Constant	1.646	1.204	1.869	.172	5.186		

There was no significant relation between gravidity, parity and the incidence of domestic violence in our study.

Table 4 studies the relation between hospital admission and the incidence of domestic violence. Women with hospital admissions experienced less DV of 1.8% when compared to those not admitted with a significantly high rate of 98.2% with a p value of 0.02. In our study, 96 women (12%) went into preterm labor and delivered preterm with a significant p value of 0.003 when compared to term deliveries. There was a positive association between the presence of medical complications like HIV positive status, obstetric complications, presence of risk factors, undergoing treatment and increased incidence of domestic violence. Adverse perinatal outcome with increased perinatal morbidity, admission to NICU was also associated with more domestic violence.58.8% of NICU admissions were seen amongst babies of abused mothers. The statistics differed significantly with a p value of <0.05. (Table 5)

Table 4: Relation between hospital admission and domestic violence

			DV score		Total
			No	Yes	
hospital admission	no	Count			
		% within DV score	378 (100%)	414 (98.1%)	792 (99.1%)
	yes	Count			
		% within DV score	0 (0%)	8 (1.8%)	8 (0.9%)
Total		Count			
		% within DV score	378 (100%)	422 (100%)	800 (100%)

Chi-Square= 5.424 P=0.020 significant

Table 5: Relation between period of gestation and domestic violence

			DV score		Total
			no	yes	
P.O.G[3]	pre term	Count	61 16.0%	35 8.4%	96 12.0%
		% within DV score			
	Term	Count	317 84.0%	387 91.6%	704 88.0%
		% within DV score			
Total		Count	378 100.0%	422 100.0%	800 100.0%
		% within DV score			

Chi-Square= 8.772 P=0. 003 significant

3: POG- period of gestation

The results of the logistic regression of effect of domestic violence on pregnancy outcome is shown in Table 6. Women with a high DV score (OR 0.304; 95%CI 0.166 to 0.557) had more medical complications (OR 5.212; 95% CI 2.006 to 13.541) more risk factors (or 3.380 ; CI 95% 1.509 to 7.572), not taking hospital treatment(OR 0.268; 95% CI 0.103 to 0.693)

had significant relation to preterm births. The other adverse pregnancy outcomes included increased rate of abortions with an odds ratio of 1.9, and a rise in incidence of antepartum hemorrhage with an odds ratio of 1.38.

Table 6: Logistic Regression analysis to assess the effect of domestic violence on pregnancy complications and outcome

	B	S.E.	Wald	P	Odds ratio	95% C.I.	
						Lower	Upper
PatientAge	-.021	.034	.391	.532	.979	.917	1.046
DV score	-1.191	.309	14.836	.001	.304	.166	.557
Medical complication	1.651	.487	11.487	.001	5.212	2.006	13.541
Risk factors	1.218	.412	8.757	.003	3.380	1.509	7.572
Pregnancy treatment	-1.318	.485	7.373	.007	.268	.103	.693
Constant	1.923	.901	4.555	.033	6.843		
Hemorrhage	0.322	0.319	1.02	0.312	1.38	0.739	2.579
Abortion	0.647	0.171	14.23	0.001	1.9	1.364	2.672

Software used
IBM Corp. Released 2013. IBM SPSS Statistics for Windows, Version 22.0. Armonk, NY: IBM Corp.

Puerperal complications like lactation failure, lack of sleep and other postpartum psychiatric problems did not have any relation to domestic violence.

Conclusion

The current prevalence of domestic violence among pregnant women is significantly high and poses as a major health problem. This makes it critical for the development of preventive health strategies to curb it. Routine screening of domestic violence should be implemented in our healthcare in order to identify women at risk. Well-designed counseling options should be put in place so that women get timely appropriate care, follow-up and support services. Joint projects involving researchers and doctors in the future will provide better insight into the prevention strategies and provide ways to improve maternal health and reduce prevalence of domestic violence.

Discussion

Domestic violence is an important public health issue that needs to be given a great deal of attention. Exposure to domestic violence during pregnancy has devastating physical and emotional consequences on the pregnant women with adverse outcomes. In our study we found a high prevalence rate of 52.8% pregnant women experiencing IPV out of which 30.7% women being physically abused, 23.8% being sexually and 46.1% women being abused emotionally. In a study conducted in Delhi 26.9% of the women reported domestic violence [6]. A study from Iran reported high DV prevalence of 55.9% amongst pregnant women and a sexual abuse prevalence of 17.3% and which is very similar to our study [7].

Emotional or psychological violence is the least investigated and its associated factors have been studied very little as most women do not realize it as a form of abuse and do not openly accept it. A study was conducted in Brazil in 2014 addressing only psychological violence in pregnant women found a similar incidence as our study (41.6%) [8]. This kind of violence tends to be a recurring occurrence in pregnancy with gender inequalities and inadequate social support playing a major role. Sarkar [7] in 2013, conducted a very similar cross-sectional study in the Mumbai slums which studied the cause and the adverse effects of domestic violence on women during pregnancy. It was found that domestic violence occurred in most societies irrespective of the socioeconomic status or religion. It was reported amongst pregnant women in Delhi that 26.9% experienced physical, 29% mental and 6.2% experienced sexual abuse irrespective of their age which is similar to our study.

IPV during pregnancy has implications for the health and wellbeing of mothers and foetuses, and with less likelihood of prenatal care and care for intercurrent problems [9, 10] Studies have found that physical IPV in pregnancy increases the likelihood of miscarriage or low birth weight [11]. WHO conducted a multi-country study on intimate partner violence and its effects on pregnancy found similar non-fatal outcomes like in our study [12]. In our study, there was a positive association between the presence of medical complications like HIV positive status, obstetric complications, presence of risk factors, undergoing treatment and increased incidence of domestic violence. Adverse perinatal outcome with increased perinatal morbidity, admission to NICU was also associated with more domestic violence and it differed significantly ($P<0.05$).Puerperal complications like lactational failure, lack of sleep and other postpartum psychiatric problems did not have any relation to domestic violence.96 women(12%) went into preterm labor and delivered preterm with a significant p value of 0.003 when compared to term deliveries in our study which is similar to another study by Salvi *et al.* [13] where preterm delivery was more common amongst women who reported physical domestic violence. In their study, untoward outcomes of pregnancy were not significantly associated with physical violence as majority of the episodes of violence were of moderate nature.

A study in Tanzania also showed a relation between DV and increased pregnancy loss [14]. The strength of our study is the fact that we used trained health care workers to interview the women and managed to extract the much hidden history of emotional and sexual violence amongst the women enrolled in the study.

The limitations of the study were:

1. The study was limited to a specialized population, that is, pregnant women. Non-pregnant, childless and newly married women were not screened for domestic violence in our study.
2. Domestic violence being a very sensitive issue, due to fear of reprisal, it is under reported. Hence some women in our study would not have reported the experience.
3. History of early childhood or adolescent abuse in the woman or her husband has not been asked.

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