Original Articles

Prevalence of intimate partner violence among pregnant women attending a public sector hospital in Bengaluru, southern India

ANITA NATH, SHUBHASHREE VENKATESH, J. VINDHYA, SHEEBA BALAN, CHANDRA S. METGUD

ABSTRACT

Background. Intimate partner violence (IPV) is recognized as an important public health problem globally as well as in India. It may result in adverse physical and mental health consequences for the victim or unfavourable pregnancy outcomes if it happens during pregnancy. The possible risk factors for IPV can be explained by four levels of ecological factors: individual, partner, household and community. We estimated the prevalence of IPV and its association with selected ecological risk factors among pregnant women availing of antenatal care at a public sector hospital in Bengaluru, southern India.

Methods. We included 350 women above the age of 18 years with a confirmed pregnancy of less than 24 weeks and having no obstetric complication. We used the Conflict Tactics Scale to determine the presence of IPV. The risk factors measured were—*individual level:* respondent's age, education, occupation, gravidity, planned or unplanned pregnancy, substance abuse, presence of depression and anxiety; *partner-related:* spouse's education, occupation and marital discord; *household/community-related:* socioeconomic status, social support, religion and consanguinity.

Results. The prevalence of IPV was 3.7%. Factors that were significantly associated on multivariate analysis were higher age (above 20 years) (adjusted odds ratio [AOR] 1.82 [1.12–2.97], p=0.016) and presence of depression (AOR 6.84 [1.76–26.61], p=0.005).

Conclusion. The prevalence of IPV was less in our study population compared to figures reported from other Indian study settings.

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INTRODUCTION

Exposure to intimate partner violence (IPV) during pregnancy has an unfavourable effect on the physical, mental and emotional health of a woman. It is the most common form of gender-based violence.[1] IPV includes any kind of behaviour within an intimate relationship that brings about physical, mental, emotional or sexual harm against one's partner.[2] The commonest forms include physical hurt, psychological abuse, sexual violence and controlling behaviour. Victims of IPV are twice as likely to report physical and mental health concerns compared to non-victims.[3] The physical consequences consist of trauma, injury, sexually transmitted infections, while mental sequelae could present as anxiety, depression or psychological distress.[4,5] The risk of depression is more than two times higher in pregnant women who are victims of IPV, compared to non-victims.[6,7] Several studies have identified negative medical and obstetric consequences of physical and sexual IPV during pregnancy.[8] Women who experience IPV are more than 3-fold likely to experience low birth weight and preterm birth.[3,9,10] While these outcomes could be attributed to a direct effect of IPV, indirect effect in the form of delayed antenatal care could also be a cause.[11,12] Thus, IPV is now recognized as an important public health problem.

At the global level, one in three (35%) women are estimated to have experienced either physical and/or sexual IPV or non-partner sexual violence during their life.[13] The WHO, in their multicountry study on women's health and domestic violence against women included 24 000 women from 10 countries as study respondents.[3] According to their study, 13%–61% of the women are said to have experienced physical violence, 6%–59% reported sexual violence while 20%–75% had experienced emotional abuse. The rates are higher for developing countries (27.7%) compared to developed countries (13.3%).[14] In India, the prevalence of IPV is found to range from 6% in Himachal Pradesh to as high as 59% in Bihar.[3] According to the National Family Health Survey-4 (NFHS-4), 3.9% of pregnant women

claimed to have experienced IPV; in Karnataka, the prevalence rate of 6.5% is higher than the national average.[15] Other research studies done in Karnataka report figures varying from as low as 2.7% to as high as 52.8% among pregnant women in Bengaluru.[16,17] The Domestic Violence Act 2005 was enacted by the Indian Parliament to protect women from physical violence as well as other forms of violence such as emotional/verbal, sexual and economic abuse. Despite the existence of the law, seeking help for IPV seems to be limited.[18]

The possible risk factors for IPV can be explained by four levels of ecological factors: individual, partner, household and community.[19,20] The individual factors include sociodemographic variables such as age, education, employment, religion, mental health and substance abuse. Partner-related risk factors are education, employment, substance abuse and marital relationship. At the household level, socioeconomic status appears to be a key determinant while community-level factors are determined by social norms such as social support, consanguinity and preference for a son. At present, in routine antenatal practice, pregnant women are not screened for IPV. Understanding the risk factors of IPV would help in easier identification of those who are at risk.[21] We estimated the prevalence of IPV and its association with selected ecological risk factors among pregnant women of 18 years and above, availing of antenatal care at a public sector hospital in Bengaluru, southern India.

METHODS

Study area, participants and recruitment

We included pregnant women who were availing of antenatal care at Jayanagar General Hospital, which is an urban public sector subdistrict hospital in Bengaluru. This cross-sectional study was conducted within an ongoing cohort study, the study protocol of which has been published earlier.[22] The study participants were recruited according to the eligibility criteria of the study protocol. Those with a confirmed pregnancy of or less than 24 weeks, above the age of 18 years of age and without any obstetric complications were included. The rationale for including study participants of or less than 24 weeks is that a major proportion of pregnant women register for antenatal care at the hospital at around 24 weeks of gestational age. We analysed data of 350 pregnant women who fulfilled the eligibility criteria and had completed the baseline visit of the study from August 2017 to July 2018. Voluntarily signed consent was obtained from those who were willing to participate in the study, after having explained the nature and purpose of the study.

Data elements and data capture

A custom-designed Android-based App Cascade version 2.0.0 developed by Athenaeum Technologies Private Limited was used for electronic data capture. Details of IPV and the possible risk factors were recorded. The risk (independent) factors were categorized into three levels:

- *Individual level:* Respondent's age, education, occupation, gravidity, planned or unplanned pregnancy, substance abuse, presence of depression and anxiety.
- *Partner-related:* Spouse's education, occupation and marital discord.
- *Household/community-related:* Socioeconomic status, social support, religion, consanguinity.

Measurement of intimate partner violence (dependent variable)

We used the Conflict Tactics Scale (CTS) to determine the presence of IPV.[23] This scale is known to be effective in measuring partner violence and can be easily adapted for use in different cultural situations. About 80 countries have used CTS as a part of demographic health surveys, including the NFHS which is conducted in India.[15] CTS has shown a high internal reliability, high sensitivity and construct validity, even in patriarchal societies in the non-western world.[24] It includes scales to measure physical and sexual assault as well as psychological aggression against a partner.

Measurement of independent variables

The socioeconomic class of the respondents was classified according to the Modified Kuppuswamy Socioeconomic Scale.[25] The scale uses education and occupation of the head of the family and monthly family income to calculate socioeconomic status; classified as upper class, upper middle class, lower middle class, upper lower class and lower class. The presence of anxiety was assessed using the 10-item Revised-Pregnancy-Related Anxiety Questionnaire, which has an internal consistency (Cronbach's alpha) of 0.79.[26] Each item is scored on a 4-point scale with cut-off scores of 28 and 24 for primigravida and multigravida women, respectively. The Revised Dyadic Adjustment Scale was used to measure marital discord.[27,28] It estimates seven dimensions of relationship between the partners within three categories: decision-making, values and affection. It consists of 14 items in which respondents can rate their relationship on a 6-point scale. Scores range from 0 to 69, the higher the score, the greater is the relationship and *vice versa*. The cut-off score was taken as 48 for this study.

The adequacy of social support was measured using the Multidimensional Scale of Perceived Social Support Scale.[29,30] Responses to the 12 questions are scored on a point rating scale ranging from 'very strongly disagree' to 'very strongly agree'. The scale assesses the perceptions of social support adequacy from three specific sources: family, friends and 'significant other'. A score of less than 2 is considered as low support, a score of 3 to 5 as moderate support while a score of more than 5 is high support. The Edinburgh Postnatal Depression Scale which is a widely used 10-item self-report instrument was used to measure depression.[31] This scale consists of ten short questions with a choice of four answers that closely reflect on how the respondent felt over the past 7 days. Respondents who scored above or equal to 13 were likely to be suffering from depression.

Statistical analysis

Data were retrieved from the data server. Data cleaning was done and then analysed using SPSS version 22. Descriptive statistics were used to summarize the age of the respondents in terms of mean and standard deviation while the prevalence rate of IPV is presented as percentage. The independent variables were categorized to analyse the association between each independent and outcome variable using a univariate analysis. IPV, as the dependent variable was dichotomized into presence or absence of IPV. The strength of association was expressed as crude odds ratio with 95% confidence interval. Variables found to be associated at $p<0.2$ in the univariate analysis were entered into a multivariate logistic regression model to eliminate the effects of confounding due to age, education, religion and

TABLE I. Frequency distribution of sociodemographic characteristics of the study participants (*n*=350)

Sociodemographic characteristics	*n* (%)
Age group (years)	
≤20	105 (30.0)
>20	245 (70.0)
Religion	
Hindu	91 (26.0)
Christian	6 (1.7)
Muslim	253 (72.3)
Educational qualification of the respondents	
Illiterate	11 (3.1)
Primary school	9 (2.6)
Middle school	105 (30.0)
High school	135 (38.6)
Pre-university certificate (PUC) or diploma	65 (18.6)
Graduate	25 (7.1)
Educational qualification of the husband	
Illiterate	45 (12.9)
Primary school	24 (6.9)
Middle school	104 (29.7)
High school	110 (31.4)
Pre-university certificate or diploma	41 (11.7)
Graduate and postgraduate	26 (7.4)
Occupation of the respondents	
Housewife	322 (92.0)
Unskilled worker	15 (4.3)
Semi-skilled worker	12 (3.4)
Clerical or farmer	1 (0.3)
Occupation of the husbands	
Unskilled worker	107 (30.6)
Semi-skilled worker	186 (53.1)
Skilled worker	52 (14.9)
Clerical or farmer	3 (0.9)
Semi professional	2 (0.6)
Socioeconomic status	
Upper middle class	43 (12.3)
Lower middle class	106 (30.3)
Upper lower class	201 (57.4)

socioeconomic status. Variables with p<0.05 in the multivariate analysis were considered to be statistically significant.

RESULTS

Sociodemographic characteristics of the respondents

Table 1 shows the sociodemographic characteristics of the study participants. The mean (SD) age of the respondents was 23.05 (3.4) years. Of the 350 respondents, the majority (70%) were above 20 years of age, over 72.3% were Muslims, and 64.3% had completed high school education and above, while the spouses of 50.4% had similar education. Over 92% were homemakers while over half (53.1%) of the respondent's spouses were semi-skilled workers. As many as over half of the study participants (57.4%) belonged to the upper lower class.

Prevalence of IPV

The prevalence of IPV was 3.7% among the 350 pregnant women.

Risk factors and intimate partner violence

Individual level. The adjusted odds of IPV were significantly higher among women over 20 years of age (adjusted odds ratio [AOR] 1.82 [95% CI 1.12–2.97]). Multigravid women were more likely to report IPV (crude odds ratio [COR]=1.49 [95% CI 0.50–43.57]) although the association was not significant. Respondents who were depressed were six times or more likely to experience IPV (AOR 6.84, 95% CI 1.76–26.61); the association was significant (p=0.005). Other factors such as education, occupation and unplanned pregnancy did not show any significant relationship with IPV.

Partner level. Respondents whose spouse was engaged in semi-skilled or skilled labour (COR 1.53, 95% CI 0.41–5.67) seemed to be at a higher risk, although there was no significant association. Women who reported marital discord were 2.87-times more likely (COR 2.87, 95% CI 0.77–10.62; AOR 2.159, 95% CI 0.55–8.45) to experience IPV, this was significant on univariate analysis (p=0.114) but not on multivariate analysis (p=0.14).

Household/community level. Respondents who belonged to the lower middle class (COR 2.52, 95% CI 0.29–21.57) had a higher odds of IPV although the association was non-significant. The presence of IPV was 1.79-times higher among women with moderate social support (COR 1.79, 95% CI 0.50–6.36) and 1.3-times more for women with low social support (COR 1.30, 95% CI 0.30–5.58); however, the relationship was not significant. Similarly, consanguinity appeared to be a protective factor as the odds of IPV (COR 0.17, 95% CI 0.02–1.35) were significantly lower on univariate analysis (p=0.094) but not on multivariate analysis (p=0.14).

DISCUSSION

In our study, 3.7% of the respondents were victims of IPV. This is almost equal to the all-India IPV prevalence figure of 3.9% among pregnant women, but less than the prevalence rate of 6.5% in Karnataka as reported by NFHS-4.[15] Das *et al*. observed a higher prevalence rate of 12% among pregnant and postnatal women residing in the urban slums of Mumbai.[32] Likewise, over a quarter (26.9%) of women attending antenatal clinics in Delhi reportedly experienced physical and sexual IPV.[3] An alarmingly higher prevalence of IPV (52.8%) was noted among pregnant women attending a tertiary care hospital in Bengaluru; this was more than 15-times higher than the prevalence in our study.[33] A high burden of IPV was also found in other study areas: 23.8% in Agartala, Tripura and a combined prevalence of 7.1% in Jharkhand, Orissa and West Bengal.[34,35] The variation in prevalence may be attributed to variations in the socio-demographic profile, geographical and cultural variations across different study settings, population or clinic-based and also on how IPV is measured.

In our study, women of higher age appeared to be at a greater risk; this is analogous to the findings from other studies.[36,37] While some studies observe the existence of a relationship between younger age and increase in the risk of IPV, this appeared to be non-significant on multivariate analysis.[38,39] We did not find any significant association between IPV and respondent's education. Similar to looking for a likely association with age, we also observed a relation between fewer years of education and higher prevalence of IPV on bivariate analysis which disappeared upon performing adjusted analyses.[38,39] Working women were less likely to experience IPV in our study. A number of studies found unemployment to be linked with an increased risk of violence.[40,41] Antithetically, a study conducted in a Mumbai urban slum reported that employed women were more likely to be victims of IPV than unemployed women.[32]

TABLE II. Association of risk factors with intimate partner violence during pregnancy (*n*=350)

Risk factor	Victims (*n*=13), *n* (%)	Non-victims (*n*=337), *n* (%)	Crude OR (95% CI)	p value	Adjusted OR (95% CI)	p value
Individual level						
Age group (years)						
≤20	1 (1)	104 (99)	1		1	
>20	12 (4.9)	233 (95.1)	5.35 (0.68–41.73)	0.109	1.82 (1.119–2.966)	0.016
Educational qualification of the respondents						
> high school	10 (4.4)	215 (95.6)	1			
≤ high school	3 (2.4)	122 (97.6)	0.52 (0.14–1.95)	0.340		
Occupation of the respondents						
Housewife	13 (4.0)	309 (96)	1			
Working	0 (0.0)	28 (100)	0.001	0.998		
Gravida						
Primi	3 (2.1)	140 (97.9)	1			
Multi	10 (4.8)	197 (95.2)	1.49 (0.50–43.57)	0.817		
Pregnancy						
Planned	8 (3.9)	194 (96.1)	1			
Unplanned	5 (3.4)	143 (96.6)	0.94 (0.59–1.49)	0.804		
Depression						
Yes	10 (8.1)	113 (91.9)	6.60 (1.78–24.48)	0.005	6.84 (1.76–26.61)	0.005
No	3 (1.3)	224 (98.7)	1			
Partner level						
Educational qualification of the husband						
> high school	8 (4.5)	169 (95.5)	1			
≤ high school	5 (2.9)	168 (97.1)	0.42 (0.20–1.96)	0.424		
Occupation of the husband						
Skilled workers	3 (2.8)	106 (97.2)	1			
Semi-/unskilled workers	10 (4.1)	231 (95.9)	1.53 (0.41–5.67)	0.525		
Marital discord						
No	3 (1.9)	156 (98.1)	1			
Yes	10 (5.2)	181 (94.8)	2.87 (0.77–10.62)	0.114	2.159 (0.55–8.45)	0.139
Household/community level						
Socioeconomic status						
Upper middle class	6 (3)	195 (97)	1			
Lower middle class	6 (5.7)	100 (94.3)	2.52 (0.29–21.57)	0.394		
Upper lower class	6 (3)	195 (97)	1.29 (0.15–11.01)	0.815		
Religion						
Hindu	3 (3.2)	88 (96.8)	1			
Christian	0	6 (100)	0.999	0.999		
Muslim	10 (3.9)	243 (96.1)	1.150 (0.267–4.966)	0.851		
Consanguinity						
Yes	1 (0.9)	109 (99.1)	0.174 (0.02–1.35)	0.094	0.204 (0.02–1.67)	0.139
No	12 (5)	228 (95)	1			
Social support						
High (1–2.9)	5 (2.9)	167 (97.1)	1			
Moderate (3–5)	5 (5.1)	93 (94.9)	1.796 (0.50–6.36)	0.399		
Low (5.1–7)	3 (3.8)	77 (96.3)	1.301 (0.30–5.58)	0.815		

Multigravida women were more likely to experience IPV although other studies show opposing results.[42] Consistent with our study findings, NFHS-4 also reports a higher occurrence of spousal violence with increasing age, lower education and increasing parity.[15] Women who were suffering from depression were highly prone to IPV. About 15% of women are known to be depressed at some point during their lifetime which increases during pregnancy and after childbirth.[43] The risk of prenatal depression increases significantly with the progress of pregnancy and clinically significant depressive symptoms are common in mid and late trimesters. Depression could result in poor coping skills, detachment and insecurity, which could precipitate partner violence.[44,45] Devries *et al*. conducted a meta-analysis of the association of depression with IPV in both genders and *vice versa*.[46] They affirmed that incident depressive symptoms were linked with a higher incidence of IPV against women.

Among the partner level factors, the presence of marital discord increased the risk of IPV. Discordant couples are prone to engage in negative behaviour which perpetuates IPV.[47] Our study findings are supported by results from other studies done in different parts of the world.[48–50]

At the community level, the risk appeared to be higher among pregnant women from lower socioeconomic status, although

the relationship was not significant; this finding is consistent with other study results.[15,42] Women from such settings may be particularly prone to IPV as a result of the exposure to stressful living conditions.[39] Low social support was a predisposing factor for IPV in our study, which is in agreement with findings from the literature from other countries.[51–53]

Limitations

Our study was conducted in an urban public sector hospital setting where antenatal care is mostly availed by pregnant women belonging to the lower- and middle-income groups in a community, giving rise to a selection bias. Hence, our results cannot be extrapolated to a general population of pregnant women. The presence of IPV was elicited by means of self-reported questionnaire, which was nested within a long proforma used for baseline data collection in the ongoing cohort study. This could have resulted in response bias. Since this was not an independent study, certain risk factors associated with IPV such as partner substance abuse, partner jealousy, history of previous abuse and gender expectations for the unborn child could not be elicited. The study did not estimate protective factors such as service utilization and formal or informal interventions for IPV which could have influenced the prevalence of IPV.

Conclusion and recommendations

The prevalence of IPV was low in our study population. Nevertheless, since IPV could potentially increase the risk of adverse pregnancy outcomes, screening for IPV and early intervention may be included as a part of routine antenatal care. Future research should be directed at strengthening evidence on the association of IPV with negative obstetric, postnatal events, offspring growth and development.

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Conflicts of interest. None declared

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