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## Prevalence of violence against pregnant women and associated maternal and neonatal complications in Leon, Mexico

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### ARTICLE INFO

*Article history:*  
Received 7 April 2009  
Received in revised form  
7 May 2010  
Accepted 14 June 2010

*Keywords:*  
Violence  
Maternal  
Pregnancy  
Neonatal

### ABSTRACT

*Objectives:* to determine the prevalence of violence against women and associated maternal and neonatal complications in a developing country setting.

*Design:* cross-sectional study using a face-to-face questionnaire.

*Setting:* postpartum area at a tertiary care referral hospital in Leon, Mexico.

*Participants:* 1623 postpartum women.

*Data collection:* women were recruited at 24–72 h post partum. The diagnosis and severity of violence were assessed using a modified questionnaire based on the Index of Spouse Abuse and Severity of Violence against Women Scale.

*Findings:* of 1623 women, 711 (43.8%) were diagnosed with violence during pregnancy; 563 (79.1%) experienced mild violence and 148 (20.9%) experienced severe violence. Of the women who experienced violence, 72.9% experienced psychological violence, 15.8% experienced physical violence and 11.3% experienced sexual violence. Maternal complications were higher in women who experienced violence (30.2% vs 23.6%,  $p=0.004$ ). Women who experienced sexual violence had more maternal complications (43.2%), and women who experienced psychological violence had more neonatal complications (54.2%).

*Key conclusions:* violence during pregnancy is quite common in the study setting. Maternal complications are higher in women who experience violence during pregnancy. The type of violence has different effects on maternal and neonatal health.

*Implications for practice:* it is recommended that pregnant women who are experiencing violence should be identified during antenatal care to avoid maternal or neonatal complications.

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### Introduction

Violence against women is defined as physical and psychological abuse of women by their male partners, including sexual abuse and abuse during pregnancy (Wathen and MacMillan, 2003). Violence against women is a dramatic emerging health problem, and violence against pregnant women can result in devastating complications for both women and their newborns.

In Mexico City, Díaz-Olavarrieta et al. (2007) found that 41% of a large sample of pregnant women had a history of physical or sexual abuse. Among the abused women, 71% reported an increase in the severity of abuse since becoming pregnant. Logistic regression revealed that physically fighting with a partner and a history

of abuse are the best predictors of violence during pregnancy. This study concluded that antenatal care visits are an important opportunity for screening for violence and intervention.

A more recent investigation conducted by Quelopana et al. (2008) found that 35% of Mexican pregnant women reported violence; a current or previous partner was the most common perpetrator. Of women experiencing abuse, 47% reported that abuse was ongoing during the current pregnancy. More women reporting violence were unmarried, did not live with a partner and reported a lower monthly income compared with women who did not report violence.

The prevalence of violence during pregnancy differs around the world. International prevalence has been estimated to be between 0.9% and 20.1% (Gazmararian et al., 1996). However, the prevalence is higher in developing countries; for example, in India, Khosla et al. (2005) reported a prevalence of 28.4%. The range of estimates for the international prevalence of violence is wide, possibly because different tools are used to diagnose violence. However, more importantly, poverty and inequity in

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social and health resources in developing countries lead to higher rates of violence in pregnant women compared with pregnant women of developed countries.

Some maternal complications associated with violence during pregnancy have been reported by [Rachana et al. \(2002\)](#), including higher frequency of placental abruption, preterm birth and renal infections. Similarly, [Cokkinides et al. \(1999\)](#) reported more deliveries by caesarean section, hospital admissions and physical injuries in abused pregnant women.

In relation to fetal complications, [Altarc and Strobino \(2002\)](#) found lower birth weight in fetuses of women exposed to violence during pregnancy. In addition, [Chambliss \(2008\)](#) reported that abused women are at higher risk of delivering a preterm infant.

More information about violence against women in developing country settings is needed to design global prevention strategies. The UK Department of Health (2005) has published a handbook providing guidance for health professionals, policy makers and managers. This handbook describes some strategies for responding to domestic abuse, such as: focusing on the woman's safety and that of her children, if she has any; giving her information and referring her to relevant agencies; making it easy for a woman to talk about her experiences; supporting and reassuring her; being non-judgemental; always being prepared to work in partnership with other organisations that have been set up to ensure a woman's safety; and never assuming that someone else will take care of domestic abuse issues.

The objectives of this study were to determine the prevalence of violence during pregnancy, and to identify the relationship of each type of violence with maternal and neonatal outcomes in a hospital-based study.

## Methods

### Design and setting

A cross-sectional study was conducted at the Hospital of Obstetrics and Gynaecology at the Mexican Institute of Social Security in Leon, Mexico, from 20 April 2004 to 26 July 2006. The study protocol was approved by the ethics and research committee of the local institutional review board, and the patients who agreed to participate in the study completed a written informed consent form.

### Participants

Women were recruited at 24–72 h post partum. A face-to-face questionnaire was completed by the women who agreed to participate in the study. The following socioeconomic factors were recorded: maternal and paternal age, which was defined as completed years at the time of delivery; monthly family income (in US dollars); educational level of the woman and her partner, which was registered as the number of completed years of school; marital status, which was registered as 0 if the mother was currently married and as 1 if the mother had never married or was divorced, separated or widowed; number of antenatal visits; experience of violence of the woman and her partner during childhood; and weight gain during pregnancy (kg). From the neonates, the data collected were: weight at birth (g), Apgar score at one and five minutes, admittance to neonatal intensive care unit, and maternal and neonatal complications that occurred prior to discharge. Both maternal and neonatal complications were diagnosed by the doctor who attended the patient, and were defined according to the English version of the International Classification of Diseases ([World Health Organization, 2007](#)).

A 26-item modified questionnaire – derived jointly from the Index of Spouse Abuse, designed by [Hudson and McIntosh \(1981\)](#) and the Severity of Violence against Women Scale, designed by [Marshall \(1992\)](#) – was used to assess the presence and severity of violence during pregnancy. This instrument has been used and validated previously in Mexico. The definition and diagnosis of each type of violence was performed in women who answered 'yes' to at least one item, regardless of whether the reported incidences were minor, such as shouting, coming home drunk or one incidence of physical abuse ([Castro et al., 2003](#)) (see Appendix). Conventionally, one to three positive answers was considered to indicate mild violence, and four or more positive answers was considered to indicate severe violence.

### Data analysis

The data were analysed for their fit to a normal distribution. In a univariate analysis, the differences between means were examined using Student's *t*-test or the Mann–Whitney *U*-test ([Altman, 1991](#)).  $\chi^2$ -test or Fisher's exact test was used to compare categorical variables. An alpha level was set at 0.05. Statistical analysis was performed using the Number Cruncher Statistical System computer program ([Hintze, 2005](#)).

## Findings

In total, 1645 women were invited to participate in the study, and 1623 (98.6%) agreed to take part. Of the 1623 women recruited, 711 (43.8%) experienced violence during pregnancy; 563 (79.1%) experienced mild violence and 148 (20.9%) experienced severe violence. Among the abused women, 72.9% experienced psychological violence, 15.8% experienced physical violence and 11.3% experienced sexual violence.

The mean age of women in the entire sample was  $26 \pm 0.1$  years, with a range from 15 to 46 years. Most women were married (92.3%), the average number of years of education was  $8.1 \pm 0.01$  and the average monthly family income was US\$392.

[Table 1](#) shows the socio demographic and clinical characteristics of women who experienced and who did not experience violence during pregnancy. The following variables were significant: monthly family income ( $p=0.043$ ), violence during childhood in women ( $p=0.001$ ) and violence during childhood in men ( $p=0.001$ ).

Maternal complications were more common in abused women (30.2% vs 23.6%,  $p=0.004$ ), although the difference between the groups was only significant for hypertensive disease ( $p=0.002$ ). The following maternal complications were not significant: threatened abortion ( $p=0.263$ ), premature labour ( $p=0.959$ ), urinary tract infection ( $p=0.291$ ) and sexually transmitted diseases ( $p=0.575$ ).

The subgroup analysis of each type of violence showed that women who experienced sexual violence had more maternal complications than women who experienced physical ( $p=0.017$ ) or psychological violence ( $p=0.001$ ); no difference in maternal complications was found between women who experienced physical and psychological violence ( $p=0.164$ ) ([Table 2](#)). The main maternal complications were: threatened abortion (26.9%), hypertension during pregnancy (22.7%) and premature labour (19.2%).

The following neonatal complications did not differ significantly between the groups: newborn weight ( $p=0.529$ ), one-minute Apgar score  $\leq 6$  ( $p=0.130$ ), five-minute Apgar score  $\leq 6$  ( $p=0.799$ ), admission to neonatal intensive care unit ( $p=0.946$ ) and neonatal death ( $p=0.592$ ).

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