CLINICAL ARTICLE

The association of intimate partner violence with unintended pregnancy and pregnancy loss in Pakistan

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Rubeena Zakar [a,*], Muazzam Nasrullah [b], Muhammad Z. Zakar [a], Hussain Ali [a]

[a] Department of Public Health, Institute of Social and Cultural Studies, University of the Punjab, Lahore, Pakistan
[b] Department of Public Health Medicine, School of Public Health, Bielefeld University, Bielefeld, Germany

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ABSTRACT

Objective: To determine if intimate partner violence (IPV) was associated with unintended pregnancy and pregnancy loss among married women in Pakistan. *Methods:* A retrospective analysis was conducted using nationally representative cross-sectional secondary data from women of reproductive age who were currently married and had participated in the domestic violence module of the 2012–13 Pakistan Demographic and Heath Survey. Unintended pregnancy and pregnancy loss were defined as any mistimed or unwanted pregnancy, and any pregnancy that resulted in spontaneous abortion, induced abortion, or stillbirth, respectively. Associations with IPV were assessed by calculating adjusted odds ratios using logistic regression models. *Results:* Data from 3518 individuals were included. Pregnancy loss had been experienced by 1282 (36.4%) participants and unintended pregnancy was reported by 391 (19.5%) of 2005 individuals this information was available for. In total, 1335 (37.9%) participants reported having ever experienced any form of IPV, including 919 (26.1%), 1112 (31.6%), and 697 (19.8%) participants who had experienced physical, emotional, and both emotional and physical IPV. Significant associations were observed between participants experiencing either physical or emotional IPV, emotional IPV, and both emotional and physical IPV, and unintended pregnancy ($P = 0.017$, $P < 0.001$, and $P = 0.011$, respectively) and pregnancy loss ($P = 0.002$, $P = 0.005$, and $P < 0.001$, respectively). *Conclusions:* There is an urgent need to develop preventive strategies to reduce intramarital IPV and its associated poor health outcomes.
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1. Introduction

Unintended pregnancies (including unwanted or mistimed pregnancies) are a major public health issue that contributes to morbidity and mortality among women worldwide [1]. Globally, approximately four out of ten pregnancies are unintended, with half of these pregnancies resulting in induced abortions [1–3]. A majority of these unintended pregnancies occur in low-income countries, including Pakistan [1–3]. It is estimated that approximately 37% of all pregnancies among women of reproductive age (15–49 years) in Pakistan are unintended [3].

Irrespective of whether unintended pregnancies are carried to term or result in an induced abortion, they have significant implications for maternal and infant health [4]. These implications can be more serious in countries where induced abortion is illegal, including Pakistan (except where a pregnancy poses a significant mortality risk to a woman), because this can result in unsafe abortion procedures [3]. Unsafe abortion is one of the leading causes of maternal mortality worldwide [1]. In 2003, approximately one half of all induced abortions

worldwide were unsafe and 97% of these unsafe abortions were performed in low-income countries [1,3]. Poor pregnancy outcomes have been found to be more likely in unintended pregnancies that are carried to term [4–6]; these can result from the failure of individuals to recognize the early signs of pregnancy and a greater likelihood of delays in patients seeking prenatal care [6]. Unintended pregnancy is also associated with poor health outcomes for infants, especially when pregnancies are closely spaced and occur frequently [7,8].

There are several factors that contribute to the occurrence of unintended pregnancies. Intimate partner violence (IPV) directed against female partners has been demonstrated to be associated with both unintended pregnancies and the incidence of induced abortions [4,7,9]. According to WHO, IPV is defined as, "behavior within an intimate relationship that causes physical, sexual or psychological harm, including acts of physical aggression, sexual coercion, psychological abuse and controlling behaviors" [10].

IPV can have lifelong negative implications for individuals' mental, physical, and reproductive health [11]. It is considered to be a global public health issue; however, in Pakistan the importance of IPV is not widely recognized. Data from many small-scale hospital-based studies in Pakistan have estimated the lifetime prevalence of psychological IPV among ever-married women of reproductive age (15–49 years) to be between 43% and 97% [12,13], and that approximately one third of

woman in Pakistan have experienced physical IPV [12,13]. Individuals who experience IPV also experience reproductive coercion, as well as a lack of reproductive autonomy and fertility control [9].

In relative terms, the prevalence of IPV is highest in low-income countries, including Pakistan, where there is significant gender inequality [14,15], particularly in terms of reproductive health. In Pakistan, women have relatively low socioeconomic status and lack access to resources and socioeconomic opportunities. Representative IPV data that could provide evidence regarding associations with unintended pregnancy and pregnancy loss in Pakistan are currently lacking. The present study investigated associations between individuals having ever experienced IPV and the incidence of unintended pregnancy and pregnancy loss, in the 5 years preceding the collection of survey data, among currently married women of reproductive age in Pakistan.

2. Materials and methods

Nationally representative secondary data of married female individuals aged 15–49 years were retrospectively analyzed; the data were originally collected, using a cross-sectional design, as part of the Pakistan Demographic and Health Survey (PDHS). The PDHS was performed between October 2012 and March 2013 by the National Institute of Population Studies, Pakistan, in collaboration with ICF International, USA [15]. This was the third national survey conducted as part of the PDHS program. The present study involved a secondary analysis of a publically available dataset; consequently, ethical approval was not required.

The PDHS study sample was obtained using a two-stage, stratified, random sample design. The PDHS design excluded individuals in Azad Jammu and Kashmir, Federally Administered Tribal Areas (FATA), and restricted military areas. The PDHS interviewed 13 558 women and 3134 men aged 15–49 years who had ever been married, with response rates of 93% and 79%, respectively. To ensure results were nationally representative, the data were weighted using procedures described in the PDHS. The detailed survey design, data collection, and management methods have been described elsewhere [15].

For the present study, the sample was limited to women aged 15–49 years who were married at the time of the survey and had participated in the domestic violence module. Among the complete PDHS sample, one in every three households was preselected to be interviewed regarding domestic violence [15]. To maintain confidentiality, one woman was randomly selected from each household using the Kish grid method to be interviewed for the domestic violence module [15]. Of 3743 women eligible, 3687 completed the domestic violence module. Domestic violence data were collected through face-to-face interviews with trained female interviewers.

In the present study, history of unintended pregnancies and previous pregnancy loss were the outcome variables. Unintended pregnancies were defined as pregnancies reported to have been either unwanted (i.e., when no children, or no more children, are desired) or mistimed (i.e., earlier than desired) [16]. In the PDHS, participants were asked questions regarding the planning status of any deliveries from the preceding 5 years [15]. Women were categorized as having experienced an unintended pregnancy if they reported a delivery where they wanted the pregnancy at a later time or did not want any more children. Pregnancy loss was assessed by questioning whether individuals had experienced a pregnancy resulting in spontaneous abortion, induced abortion, or stillbirth during the preceding 5 years.

The exposure variables in the present study were having ever experienced emotional IPV, physical IPV, or both. Emotional IPV was assessed by asking the participant if they had ever been humiliated, threatened, or insulted by their husband. Measures of physical IPV included having ever been pushed, shaken, slapped, punched with a fist or hit with something harmful, had their arm twisted or hair pulled, had something thrown at them, been kicked or dragged, strangled or burnt, or threatened with a knife/gun or other weapon by their spouse [15].

Participants were categorized as having never experienced any form of IPV, having experienced physical IPV, emotional IPV, or both.

Other demographic variables in the PDHS included each participant's age, level of education, area of residence, national region of residence, and ethnicity. A wealth index, based on ownership of consumer items and dwelling characteristics, was calculated using principal component analysis and was divided into quintiles between poorest (1) and wealthiest (5). Participants were asked if they had ever used contraceptives (including modern methods [sterilization, oral contraceptive pill, intrauterine device, injectable, implant, condom, the lactational amenorrhea method, the standard days method, and emergency contraception], traditional methods [rhythm or withdrawal], or any other method), if their husband wished to have more children than they did, the employment status of their husband, if either they or their partner had a preference for having sons over daughters, if they had any unmet family-planning needs, and if they had received prenatal care for previous pregnancies.

Sociodemographic characteristics, including types of IPV experienced and fertility-related variables, were compared, using a Pearson χ^2 test, between individuals who had experienced an unintended pregnancy and those who had not, and between participants who had experienced a pregnancy loss with those who had not. A two-tailed P value of <0.05 was considered statistically significant. Associations between IPV and unintended pregnancy, and between IPV and pregnancy loss were assessed by calculating the unadjusted odds ratio and adjusted odds ratio (AOR) with 95% confidence intervals (CIs) using logistic regression models. Models were adjusted for any sociodemographic or fertility-related variables that were significantly associated ($P < 0.20$) with the exposure variables in a bivariate analysis. Data were analyzed using SPSS version 20.0 (IBM, Armonk, NY, USA). Statistical inferences for making estimates of the population and IPV prevalence included weighting of the data to account for the complex sampling design of the PDHS, including stratified sampling, probabilities of unequal sample selection between regions, and nonresponse by eligible participants.

3. Results

The weighted number of participants who completed the domestic violence module was 3518 (unweight n = 3545). However, in the available survey data, data for some variables were missing for some participants. Of the 3518 participants, 690 (19.6%) were aged 25–29 years, 2016 (57.3%) had no education, and 2361 (67.1%) lived in rural areas (Table 1). In total, 1595 (45.3%) participants had never used any form of contraceptive and 687 of 3496 (19.7%) individuals with available data described themselves as having unmet family-planning needs. In the 5 years preceding the survey, 391 of 2005 (19.5%) participants with available data reported having experienced at least one unintended pregnancy and 1282 (36.4%) individuals had experienced at least one pregnancy loss. More than one-third (1335 [37.9%]) of individuals interviewed had experienced any type of IPV, 919 (26.1%) had experienced physical IPV, 1112 (31.6%) reported experiencing emotional IPV, and 697 (19.8%) participants had experienced both emotional and physical IPV at some point during the course of their current marriage (Table 1).

A significant association was observed between the rate of unintended pregnancy and individuals having experienced any form of IPV ($P < 0.001$), having experienced emotional IPV ($P < 0.001$), having experienced physical IPV ($P = 0.002$), and individuals having experienced both emotional and physical IPV ($P = 0.001$) (Table 2). There were also significant associations observed between the rate of pregnancy loss and participants having experienced any form of IPV, having experienced emotional IPV, having experienced physical IPV, and having experienced both emotional and physical IPV (all $P < 0.001$) (Table 3).

Analysis of the data demonstrated that, after controlling for participants' age, education, region of residence, area of residence (urban or rural), wealth index, number of children, history of contraceptive use,