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Association of intimate partner physical and sexual violence with unintended pregnancy among pregnant women in Peru

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Abstract

Objective: To examine the associations between lifetime physical and/or sexual intimate partner violence (IPV) with pregnancy intent among pregnant women in Lima, Peru. *Methods:* A total of 2167 women who delivered at the Instituto Nacional Materno Perinatal, Lima, Peru were interviewed during the postpartum recovery period. Logistic regression was used to estimate multivariable adjusted odds ratios and 95% confidence intervals. *Results:* Lifetime physical or sexual violence (40.0%) and unintended pregnancies (65.3%) were common in the study population. Compared with non-abused women, abused women had a 1.63-fold increased risk for unintended pregnancy. Unintended pregnancy risk was 3.31-fold higher among women who experienced both physical and sexual abuse compared with non-abused women. The prevalence and severity of physical violence during pregnancy was greater among women with unintended pregnancies compared with women with planned pregnancies. *Conclusion:* The findings indicate the need to include IPV screening and treatment in prenatal care and reproductive health settings.

1. Introduction

Unwanted or mistimed pregnancies are generally referred to as unintended pregnancies (UP). Annually, some 87 million

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women worldwide become pregnant unintentionally [1]. Of the estimated 211 million pregnancies that occur each year, worldwide, approximately 46 million end in induced abortion [2]; this translated to an abortion rate of 35 per 1000 women (aged 15–44) in 1995 [3]. Women in countries where abortion is illegal or severely restricted often have to resort to unsafe abortion methods, which are responsible for 14% of the approximately 500,000 maternal deaths that occur each year — 99% of them occurring in the developing world [4]. Up to 100,000 maternal deaths and loss of 4.5 million disability-adjusted life years (taking maternal illness into account) could be avoided each year if unintended pregnancies were prevented, and if women had access to and used effective contraception [5]. Although not a focus of this study, unintended pregnancies are also associated with adverse pregnancy, infant and child health outcomes [6].

There is increasing evidence that violence against women is associated with UP. Investigators have documented associations of domestic violence with UP [7], and induced abortion [8]. Women who are abused or coerced into sex are less likely to be in a position to use contraception, and thus may be at greater risk of UP than other women. Some investigators estimate that up to 40% of women intending to terminate their pregnancy have experienced sexual and/or physical abuse in their lifetime [9]. In addition, UP may be a risk factor for abuse [10]. Investigators noted that women who reported unhappy feelings about the pregnancy had an increased risk of abuse during pregnancy (odds ratio [OR] 1.91; 95% confidence interval [CI], 1.21–3.02) [10].

Few investigators have examined the association between intimate partner violence (IPV) and UP. Even fewer have examined the extent to which IPV is associated with unintended pregnancies in developing countries [11]. Peru has a high prevalence of unwanted pregnancies among countries in South America (an estimated 60% in the year 2000) [5,12,13] and a high prevalence of IPV [14]. The primary aim of this study was to evaluate the associations between lifetime physical and/or sexual violence with UP among pregnant women in Peru. This is the first study to explore such a relationship in Peru.

2. Materials and methods

The study was part of a larger cross-sectional survey on IPV among pregnant women in Lima, Peru. Participants included 2394 women who delivered at the Instituto Nacional Materno Perinatal (INMP) in Lima between August 11, 2005 and June 30, 2006. This institute is a reference establishment for maternal and perinatal care that is operated by the Peruvian government and, primarily, provides maternity services to low-income women residing in Lima. Study subjects were recruited during the postpartum recovery period. Women between 15 and 49 years of age who spoke and understood Spanish were included in the study. Of the 2394 participants, those with missing information for physical or sexual violence and pregnancy intendedness ($n=18$), or who experienced emotional abuse alone ($n=209$) were excluded from the analyses, leaving a sample of 2167 (90.5%). The institutional review boards of INMP, Lima and the University of Washington, Seattle approved this study.

Each participant was interviewed using a structured questionnaire in a private setting. Maternal socio-demographic characteristics, reproductive and medical history, pregnancy morbidities, prenatal characteristics, symptoms experienced during pregnancy, and information on IPV were obtained through personal interview. Information on pregnancy and infant outcomes were obtained from medical records. Questions on IPV were

Table 1 Selected characteristics of study participants according to pregnancy intendedness

Characteristics	Unintended pregnancy ($n=1411$)	Planned pregnancy ($n=756$)	P value (χ^2 test)
Maternal age, years			
<20	114 (8.1)	44 (5.8)	0.059
20–29	849 (60.2)	496 (65.6)	
30–34	252 (17.9)	120 (15.9)	
35 and older	196 (13.9)	96 (12.7)	
Education, years			
More than 12	173 (12.3)	105 (13.9)	0.214
7–12	191 (13.5)	85 (11.2)	
Less than or equal to 6	1044 (74.0)	565 (74.7)	
Missing	3 (0.2)	1 (0.1)	
Marital status			
Other	1227 (87.0)	611 (80.8)	<0.0005
Parity			
Multiparous	858 (60.8)	389 (51.5)	<0.0005
Ethnicity			
Other	125 (8.9)	75 (9.9)	0.407
Missing	10 (0.7)	7 (0.9)	
Employment			
No	764 (54.1)	442 (58.5)	0.054
Housing status			
Home owner	184 (13.0)	102 (13.5)	0.258
Tenant or lodger	371 (26.3)	226 (29.9)	
Live with parents or relatives	757 (53.6)	378 (50.0)	
Live with employer or friend or others	98 (6.9)	47 (6.2)	
Missing	1 (0.1)	3 (0.4)	
Access to basic foods			
Hard or very hard	1034 (73.3)	482 (63.8)	<0.0005
Missing	3 (0.2)	0	
Access to medical care			
Hard or very hard	1151 (81.6)	565 (74.7)	<0.0005
Missing	9 (0.6)	4 (0.5)	
Prenatal care			
No	57 (4.0)	9 (1.2)	<0.0005
First prenatal care visit			
First trimester	772 (57.0)	543 (72.7)	<0.0005
Second trimester	510 (37.7)	180 (24.1)	
Third trimester	72 (5.3)	24 (3.2)	
Frequency of prenatal care visit			
12 or more	38 (2.7)	38 (5.0)	<0.0005
7–11	697 (49.4)	461 (61.0)	
1–6	619 (43.9)	248 (32.8)	
None	57 (4.0)	9 (1.2)	
Vitamin intake			
No	222 (15.7)	57 (7.5)	<0.0005
Missing	4 (0.3)	0	

Values are given as number (percentage).

adapted from the protocol of Demographic Health Survey Questionnaires and Modules: Domestic Violence Module [15] and the World Health Organization (WHO) Multi-Country Study on Violence against Women [16]. Study personnel were trained on interviewing skills, contents of the questionnaire, and ethical conduct of violence research (including issues of safety and confidentiality).

Intendedness of index pregnancy was ascertained by a response (either "Yes," "No," or "Don't know/refused") to the following question: "Did you plan to become pregnant this time?" In this study, IPV referred to a range of physically and/or sexually coercive acts used against adult and adolescent women by a current or former husband or intimate partner without their consent. Women who reported experiencing any of the following acts were classified as being physically abused: slapping, arm twisting, throwing things, pushing or shoving were considered moderately severe physical abuse; conversely, hitting with fist or something else, kicking, dragging or beating, choking or burnt on purpose, or threatening to use or actually use a weapon (such as gun, knife, or other object) were considered severe physical abuse. Sexual abuse was assessed by 2 items: use of physical force to have sexual intercourse when the respondent did not want to, and forced to perform other sexual acts that the respondent did not want to.

Assessments of IPV were made for violence experienced during the women's lifetime. Lifetime abuse was defined as the experience of one or more acts of physical or sexual abuse, physical abuse only, sexual abuse only, or both physical and sexual abuse at any time from a current or former male partner.

Participants' age was categorized as follows: under 20, 20–29, 30–34, and equal to or over 35 years of age. Educational attainment was categorized as: under or equal to 6 years, 7–12 years, and over 12 years of education. Other socio-demographic variables were categorized as follows: marital status (married, living with husband, and others); housing status (home owner, tenant or lodger, living with parents or relatives, and living with employer, friend, or others); access to basic foods and medical care (not very or somewhat hard *vs* hard or very hard); ethnicity (Mestizo *vs* others); parity (primiparous *vs* multiparous); employment, pregnancy intendedness, consumption of prenatal care vitamins, and prenatal care (yes *vs* no); time of first prenatal care visit (first [≤13 weeks], second [14–27 weeks], or third trimester [≥28 weeks]); and frequency of prenatal care visit (12 or more, 7–11, 1–6, or none). Responses to any questions coded as "Missing" or "Don't know/refused" were excluded from the analyses. Data were entered into EPI Info version 3.3.2 (CDC, Atlanta, GA, USA) and analyzed using SPSS version 13.0 (SPSS Inc, Chicago, IL, USA).

The frequency distributions of maternal socio-demographic characteristics, and medical and reproductive histories according to pregnancy intendedness were examined. Comparisons of categorical variables were made between women with unintended and planned pregnancies using χ^2 tests. Associations between UP risk and IPV (any *vs* no physical or sexual violence; and the separate effects of physical violence only, sexual violence only, and both physical and sexual violence) were estimated using logistic regression procedures. Logistic regression procedures were used to calculate maximum likelihood estimates of OR and 95% CI, adjusted for potential confounders [17]. To assess confounding, variables were entered into the logistic regression model one at a time, and adjusted OR were compared to unadjusted OR. Final logistic regression models included covariates that altered unadjusted OR by 10% [18], as well as age and parity, variables of *a priori* interest. All reported *P* values are 2-tailed with a statistical significance set at 0.05.

3. Results

Our data indicate that 65.3% of the pregnancies in the study sample were unintended. Women with unintended pregnancies were more likely to be unmarried, multiparous, have difficulty accessing basic foods and medical care, and less likely to consume prenatal care vitamins or access prenatal care services compared with women who planned their pregnancies (Table 1).

The prevalence of IPV in the study population was 40.0%. Compared with non-abused women, those who experienced any lifetime abuse (physical or sexual) had a 1.63-fold (95% CI, 1.35–1.97) increased risk of unintended pregnancies after adjusting for maternal age and parity. Both lifetime physical (OR 1.42; 95% CI ,1.16–1.74) and sexual (OR 1.85; 95% CI, 0.97–3.52) abuse were associated with increased UP risk. However, the association between sexual abuse alone and UP did not achieve statistical significance. UP risk was 3.31-fold higher among women who experienced both lifetime physical and sexual abuse compared with non-abused women (Table 2). Compared with non-abused women, women who experienced moderately severe (OR 1.43; 95% CI, 1.15–1.77) and severe (OR 2.17; 95% CI, 1.57–2.97) physical abuse were associated with increased risk for UP (Table 3). Moderately severe physical violence was more prevalent than severe physical violence in

Table 2 Odds ratios and 95% confidence intervals (CI) for unintended pregnancy in relation to lifetime intimate partner violence

Type of abuse	Unintended pregnancy (n=1411)	Planned pregnancy (n=756)	Unadjusted odds ratio (95% CI)	Adjusted odds ratio [a] (95% CI)
No abuse	785 (55.6)	516 (68.3)	1.00 (Reference)	1.00 (Reference)
Any physical or sexual abuse	626 (44.4)	240 (31.7)	1.72 [b] (1.42–2.06)	1.63[b] (1.35–1.97)
Physical abuse only	460 (32.6)	201 (26.6)	1.50[b] (1.23–1.84)	1.42 [c] (1.16–1.74)
Sexual abuse only	37 (2.6)	13 (1.7)	1.87 (0.99–3.55)	1.85 (0.97–3.52)
Physical and sexual abuse	129 (9.1)	26 (3.4)	3.26[b] (2.11–5.04)	3.31[b] (2.13–5.15)

Values are given as number (percentage), or odds ratio (confidence interval).
[a] Adjusted for maternal age (continuous variable) and parity.
[b] $P<0.0005$.
[c] $P=0.001$.

Table 3 Odds ratios and 95% confidence intervals (CI) for unintended pregnancy in relation to severity of any lifetime physical abuse perpetrated by an intimate partner

Severity of physical abuse	Unintended pregnancy	Planned pregnancy	Unadjusted odds ratio (95% CI)	Adjusted odds ratio [a] (95% CI)
No abuse	785 (57.1)	516 (69.4)	1.00 (Reference)	1.00 (Reference)
Moderately severe	383 (27.9)	168 (22.6)	1.50 [b] (1.21–1.85)	1.43 [c] (1.15–1.77)
Severe	206 (15.0)	59 (7.9)	2.30 [b] (1.68–3.13)	2.17 [b] (1.57–2.97)

Values are given as number (percentage), or odds ratio (confidence interval).
[a] Adjusted for maternal age (continuous variable) and parity.
[b] $P<0.0005$.
[c] $P=0.001$.

the study population. Only potential covariates that were of *a priori* interest or those that altered the unadjusted OR were included in the final models.

4. Discussion

The sample population in the present study showed a high prevalence of any lifetime IPV (40.0%) and UP (65.3%). The proportion of UP in the sample population is consistent with previous estimates for Peruvian women [5,12,19]. The prevalence of isolated sexual abuse in the study population was 2.3% (Table 2), indicating that isolated forced sexual acts are not that prevalent, and that not all UP are the direct result of isolated sexual violence. There are possibly other factors contributing to the high prevalence of UP.

The results indicate an elevated risk for UP among women who experienced physical or both physical and sexual abuse; this is consistent with the results reported by Goodwin et al. [20] and Pallito and O'Campo [11]. Goodwin et al. reported that women with UP in the United States were 2.5 times more likely to have been physically abused than women with planned pregnancies [20]. Pallito and O'Campo, likewise, found that Colombian women who had been physically or sexually abused had a 41% greater risk of having UP than non-abused women [11]. These authors also reported that UP were significantly associated with living in a community with a high prevalence of IPV, and in a patriarchal community in Colombia [21]. The situation in Peru might be similar to that observed in Colombia, whereby women who experience emotional and/or physical abuse, and living in an environment of male dominance and machismo may tend to submit sexually to their intimate partners out of fear of more severe emotional and/or physical abuse. Consequently, these women will be less likely to refuse sex, negotiate the use of contraceptives, or use effective contraception for fear of retribution. This lack of fertility control may lead to UP. As observed in the present study, physical and/or sexual abuse may contribute to the prevalence of UP rather than isolated sexual abuse alone.

The hypothesis that violence leads to UP is supported by our results and those reported by others [11,20], but UP can also be a risk factor for violence [10]. There is evidence that abuse that occurs prior to pregnancy persists during pregnancy [22], and also evidence that abuse decreases during pregnancy [23]. Whether pregnancy does or does not protect against violence remains inconclusive.

Several limitations should be considered when interpreting the results of this study. First, the cross-sectional design of the study precludes a causal inference. There has been no prospective study that specifically examined the association between IPV and UP. Second, exposure to IPV is based on self-reporting and is therefore subject to non-systematic errors in recall, as well as systematic non-disclosure. Both types of error may have led to some exposure misclassification in our study. Third, pregnancy intendedness was assessed after labor and delivery, thus inferences could not be made to women who had miscarriages or who elected to terminate their pregnancies. Fourth, there is the potential of residual confounding in the category of pregnancy intendedness. Intendedness is a complex concept, and a single question asking women about the intendedness of pregnancy during the postpartum period may not represent subtle emotional states. For example, responses may vary due to changes in objective circumstances such as resources available per family member, which may change with time as family size changes, and in the subjective feelings of the woman that vary over time [5]. Fifth, results from our hospital-based study may not be applicable to the general population of women in the country because women seeking care at INMP are primarily from a low socio-economic background.

The average Peruvian family size was 2.9 in 2000. Among all women of reproductive age, only 44% use a contraceptive method, with 12% using traditional methods such as rhythm and withdrawal [12]. Some of the reasons that women of reproductive age do not use family planning methods or use these methods incorrectly include lack of geographic, economic or cultural access to health facilities, healthcare providers' attitudes, cultural practices, and a lack of information on the proper use of contraceptives and their side effects [12]. Although only therapeutic abortion is allowed in Peru it is estimated that the annual rate of clandestine abortion (among women between 15 and 49 years of age) is 5.2 per 100 women, which translates to about 1.8 abortions per woman [19]. The percentage of abortions per 100 live births increased from 43% (1994) to 54% (2001) [12]. Because pregnancies that end in abortions are usually unintended, the lack of data on terminated pregnancies likely contributed to an underestimation of UP, and consequently influenced the magnitude of associations between UP and IPV in our study. Underreporting of IPV due to the social stigma associated with IPV and participants' concern for their own safety may also lead to attenuation of associations investigated in this study.

We did not have information on smoking, alcohol, and drug use by the participant and abuse perpetrator, which are important correlates of violence. However, the prevalence of smoking (3.1%), occasional alcohol consumption (14.4%), and drug use (0.2%) among pregnant women who access medical

care at INMP has been found to be low [24]. Nevertheless, we cannot rule out residual confounding by these unmeasured covariates.

Finally, it was not possible to assess associations of severity, timing, and frequency of IPV, before and during pregnancy with UP. To our knowledge this information is still lacking in the current literature. Our data do not allow us to clarify the risks between mistimed and unwanted pregnancies due to the lack of information about these categories. More research involving prospective cohorts of women is needed to clarify our understanding of pattern/timing, severity and chronicity of IPV, and mechanisms through which IPV is associated with UP, and whether the association is causal.

This study is the first to demonstrate the magnitude of the social problem between IPV and UP in Peru, and the urgency with which it must be addressed. Lifetime IPV (physical or sexual violence, physical abuse only or sexual abuse only, or both physical and sexual abuse) is associated with UP. Exposure to a combination of both physical and sexual abuse is associated with more than a 3-fold increased risk of UP. Prospective studies are needed to enhance our understanding of the relationship between IPV and fertility control in Peru. Findings from this study provide evidence of the need to include IPV screening and treatment within reproductive health settings. Family planning and violence prevention programs targeted at populations who are particularly high risk for UP and/or intimate partner violence may increase women's safety and promote fertility control [11,21].

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