

# Do Pregnant Teens Have Higher Risk of Intimate Partner Violence than Pregnant Adult Women in Mexico?

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## Abstract

**Objective:** The objective of the study is to estimate the prevalence of Intimate Partner Violence (IPV) and identify factors linked to it in pregnant Mexican adult and adolescent women. **Methods:** Data were gathered by the National Survey of Violence against Women (2006), applied to women between the ages 15-49, users of Mexican public health institutions. Multinomial logistic regression analyses were performed to explore the significant factors associated with IPV against pregnant women. **Results:** Both adolescent and adult study participating women showed a 24% prevalence of current IPV (during the previous 12 months). The study's multivariate model for adult women revealed the following as main predictors for IPV: a woman's agreement with traditional gender roles (OR = 4.35, CI95% = 2.20 - 8.60), and women with a history of childhood sexual abuse (OR = 2.76, CI95% = 1.68 - 4.55). The main predictor of IPV in pregnant adolescents was their partners' frequency of alcohol consumption: often/usually (OR = 6.49, CI95% = 2.18 - 19.33). **Conclusion:** To this date, Mexico has not been able to guarantee universal screening methods for IPV as a part of prenatal care protocols. The phenomenon of IPV towards pregnant women neither has been followed-up by further research nor has been identified as a public health problem in spite of the seriousness of its implications for women and their offspring.

## Keywords

Partner Violence in Pregnancy, Adolescents & Adults, Mexico

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## 1. Introduction

Research of IPV against pregnant women in Latin America has been very limited ever since the first study on

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this subject was conducted in the region [1] some fourteen years ago. To this date, studies have focused on identifying the prevalence, severity, and associated factors, as well as the identification of social risk scenarios of violence during pregnancy. Some of these studies have made comparisons among different populations of pregnant women. One particular study analyzed the association between IPV during pregnancy and women's capacity to control her fertility [2]-[8]. Nevertheless, this area of research has lacked continuity, depth, and support in Latin America, restricting awareness and thus preventing potential development of public health policies to safeguard the well-being and integrity of pregnant women and their offspring. The following are among the most outstanding research gaps on this subject:

- a) Lack of comparative analyses of IPV in adult and adolescent women during pregnancy.
- b) Lack of comprehensive research concerning the relationship between IPV during pregnancy and lower newborn birth weight. Even though this association was one of the most important findings in the first regional study, some authors report certain discrepancies in the attempts to establish this association [9] [10].
- c) Lack of research exploring the association between IPV during pregnancy and homicide risk [11]. The research conducted in developed countries has reported that women exposed to IPV during pregnancy are at higher homicide risk [12] [13];
- d) Lack of work analyzing the association of IPV during pregnancy and sexually transmitted disease, including HIV.

Some studies have reported a higher prevalence of violence in adolescents during pregnancy, as they are more prone to be abused, when compared to pregnant adult women [14] [15]. A study by Bullock and McFarlane [16] found that 26% of subjects from a sample of pregnant adolescents reported having had an intimate relationship with a physically abusive partner, and 40% to 60% of them declared that abuse started with the occurrence of pregnancy and escalated with its progress.

Hence, our study was designed to explore differences and similarities between adult and adolescent women exposed to IPV during pregnancy. Our goal was to compare the prevalence of and factors associated with IPV in pregnant adolescents and adult women who were patients of Mexican public health care facilities. This study problem was approached with data collected by a nation-wide population survey (the National Survey on Violence against Women 2006).

## 2. Methods

### 2.1. Study Design

The National Survey on Violence against Women 2006 [17] was designed to gather nation- and state-wide information. The three most important public health care providers in Mexico participated, namely, the Health Ministry (SSA), the Mexican Institute of Social Security (IMSS), and the Institute of Security and Social Services of State Workers (ISSSTE).

A two-stage probabilistic sample was obtained [17]. The sample size for each health care provider was proportional to the number of its beneficiaries. In the first stage, primary and secondary care medical clinics were randomly selected from a listing of medical units belonging to each participating provider. For the second stage, women more than 14 years of age and attending a medical unit to seek preventive or curative health care were selected. To prevent selection bias, possibly due to daily variations in the demand for health services, the field work was conducted over a period of one week, during the clinic's regular work days. In addition, a sample fraction was selected from the total number of expected patient clinic visits of women over 14 years of age, which was 85%. The total sample was recruited from 367 primary and secondary care medical units, with 22,318 interviews being completed. To obtain nation- and state-wide representative data, weight was used, expanding the sample reference to 1,112,519 subjects.

A subsample of women was selected according to the following inclusion criteria: women between the ages of 15 and 49, and pregnant at the time of interview.

An informed consent was reviewed and signed by each participant. The voluntary nature of participation and the confidentiality character of the gathered data were thoroughly clarified with each participant. Participants were interviewed in a private location at each medical unit, isolated from human traffic, creating as much as possible a comfortable, reassuring, and private environment.

Participants provided their partners' data, including socio-demographic information, occupation, and frequency

of alcohol consumption. Questions regarding the male partner's family violence history were not included.

## 2.2. Statistical Analyses

Four indexes were developed: a) Severe intimate partner abuse index (SIPAI); b) Gender role index (GRI); c) Childhood violence exposure index (CVEI); and d) Household possessions index (HPI).

a) SIPAI (0 = no violence, 1 = non-severe violence and 2 = severe violence during the last 12 months): this 27-item scale was designed and validated with the Mexican population at large in 2006 [18]. For modeling purposes, the number of variables was reduced, and factor analysis was used. Four factors were obtained, which together explained 98.6% of the variance. Confidence was determined using Cronbach's alpha and it was calculated to be 0.90. With the linear combination of these factors, the SIPAI was constructed. The cut-off points were as follows: scores under the mean indicated no violence; scores from the mean up to the mean plus one standard deviation indicated non-severe violence; and scores from the mean plus more than one standard deviation indicated severe violence (for a more detailed description of the methodology, see Valdez-Santiago 2006).

b) GRI: constructed from 15 questions exploring the perception of women about gender roles. For 12 of the questions, responses evaluated agreement or disagreement of interviewed women on different statements. The other three questions employed a five-level Likert scale (*i.e.* strongly agree, agree, neutral, disagree, and strongly disagree). These variables were reclassified to give higher values for opinions that implied more agreement with the more traditional gender roles. All 15 variables were combined in a Polychoric principal components analysis [19] [20].

The first component accounted for the 55.5% of the variance, and the coefficient of the Cronbach's alpha for internal consistency of the scale was 73. The first component was then categorized in three categories: "Does not agree with traditional gender roles" (when values were equal or less to the mean), "Agrees with traditional roles" (values ranging from above the mean to one SD to the mean), and "Highly agrees with traditional roles" (values above 1 SD to the mean).

c) HPI: This index was constructed by the addition of dichotomic variables measuring household possessions: refrigerator, washing machine, television, heater, owning an automobile or truck, etc., as well as non-crowded living conditions (housing with fewer than 2.5 members per bedroom). This index was categorized in tertiles which corresponded to strata: low, middle, and high, respectively (for a more detailed description of the methodology, see Avila-Burgos 2009, [19]).

d) CVEI: This index was constructed with two questions exploring the subject's exposure to violence during childhood (blows and humiliation were included), and the frequency of these actions was noted as follows: 0 = once; 1 = often; 2 = very often. The new variable was categorized as "exempt from child abuse" in subjects with CVEI values not greater than the mean plus one standard deviation. "Severe child abuse" was denoted with values greater than the mean plus one standard deviation.

Central tendency and dispersion values were obtained for continuous variables, and frequencies and percentages for categorical variables. The chi squared test was used to compare the proportion of adult and adolescent women subject to violence during their pregnancy by means of the various independent variables. A value of  $p < 0.05$  defined statistically significant differences.

A multivariate logistic regression model was constructed for each group (adult and adolescent). IPV was the dependent variable, it comprised the SIPAI: 0 = no violence, 1 = non-severe violence and severe violence during the last 12 months. Other variables with statistical significance ( $p < 0.05$ ) and variables of theoretical interest were included in the model for the bivariate analyses.

## 3. Results

A total of 68,462 women reported being pregnant during the course of the study. 84% were adults (20 - 49 years) and 16% were adolescents (15 - 19 years). The median ages were 18, and 26 years for adolescent and adult participants, respectively. The level of education reported by both groups was low. Ninety three percent of the adolescent subjects and 71% of the adults, respectively, were housewives. It is important to note that one out of five adult pregnant women had no state health care coverage; a higher proportion was observed in the adolescent group.

Concerning household possessions, 65%, and 71% of adolescent and adult subjects fell within the middle and high categories, respectively (Table 1).

**Table 1.** Violence during pregnancy in adolescent and adult women. Characteristics of the study population.

Variables	Adolescent pregnancy (n = 10,706)	Partner violence			Adult pregnancy (n = 59,456)	Partner violence			
		Yes	No	p value*		Yes	No	p value*	
<b>Demographic variables</b>									
Age	X ± sd	18	18	18	0.710	26	26	26	0.852
	range	(15 - 19)	(15 - 19)	(15 - 19)		(20 - 49)	(20 - 47)	(20 - 49)	
Education, years	X ± sd	9	9	8	0.134	9	9	9	0.000
	range	(0 - 13)	(0 - 13)	(0 - 12)		(0 - 20)	(0 - 20)	(0 - 20)	
Work activity									
Housewife		93%	94%	91%	0.530	71%	69%	74%	0.221
Employed		7%	6%	9%		29%	31%	26%	
Type of community									
Urban		70%	70%	69%	0.879	82%	82%	83%	0.598
Rural		30%	30%	31%		18%	18%	17%	
State medical coverage									
Yes		35%	33%	43%	0.283	21%	19%	24%	0.181
No		65%	67%	57%		79%	81%	76%	
Household possessions									
Low		35%	34%	40%	0.5093	29%	27%	35%	0.211
Middle		34%	33%	36%		32%	32%	31%	
High		31%	33%	24%		39%	41%	34%	
Age at time of first union ± sd Range	X ± sd	17	17	16	0.070	20	20	19	0.001
	range	(12 - 19)	(13 - 19)	(12 - 19)		(12 - 39)	(13 - 39)	(12 - 34)	
Years of marriage or consensual union									
0 - 5		99%	99%	100%	0.297	53%	54%	51%	0.514
6 - 10		1%	1%	0%		29%	28%	31%	
11 - 15						13%	13%	12%	
16 - 20						4%	4%	4%	
21/more						1%	1%	2%	
Stage of pregnancy									
1 <sup>st</sup> trimester		15%	12%	24%	0.034	19%	19%	20%	0.139
2 <sup>nd</sup> trimester		30%	28%	38%		33%	31%	38%	
3 <sup>rd</sup> trimester		55%	60%	38%		47%	49%	42%	
Median of pregnancies	X ± sd	1	1	1	0.104	1	1	2	0.000
	range	(1 - 3)	(1 - 3)	(1 - 2)		(1 - 12)	(1 - 12)	(1 - 7)	
Gestation									
Primigest		59%	63%	47%	0.100	22%	24%	17%	0.057

**Continued**

Multigest		41%	37%	53%		78%	76%	83%	
Alcohol consumption									
Never		95%	97%	92%	0.203	90%	91%	87%	0.062
Often/usually		5%	3%	8%		10%	9%	13%	
<b>Demographic variables of partner</b>									
Age	X ± sd	21	21	26	0.541	29	29	30	0.284
	range	(16 - 72)	(16 - 72)	(16 - 36)		(17 - 60)	(17 - 60)	(18 - 49)	
Education, years	X ± sd	9	9	7	0.045	9	9	9	0.001
	range	(0 - 17)	(0 - 17)	(0 - 13)		(0 - 20)	(0 - 20)	(0 - 20)	
Work activity									
Unemployed		3%	3%	4%	0.248	5%	5%	5%	0.010
Employed		73%	77%	62%		82%	84%	76%	
Farm worker		23%	20%	34%		13%	11%	19%	
Alcohol consumption									
Never		25%	30%	10%	0.000	17%	17%	13%	0.000
Often/1 - 3 times per month		57%	60%	47%		66%	69%	56%	
1 - 2 times per week		17%	9%	43%		16%	12%	27%	
Daily		1%	1%	0%		2%	1%	4%	
<b>Gender role acceptance, and childhood violence</b>									
Gender role acceptance index									
Agreeable less with traditional roles		65%	68%	53%	0.1329	75%	80%	60%	0.000
Agrees with traditional roles		22%	22%	22%		15%	13%	21%	
Agrees highly with traditional roles		13%	10%	25%		9%	6%	19%	
Childhood violence index									
No violence		60%	65%	42%	0.1271	66%	72%	47%	0.000
Non-severe violence		29%	25%	39%		26%	22%	41%	
Severe violence		11%	9%	18%		8%	6%	13%	
Childhood sexual abuse									
Yes		90%	93%	83%	0.1329	87%	91%	74%	0.000
No		10%	7%	17%		13%	9%	26%	

\*Corresponds to Pearson chi-square, corrected by the survey design using the second order correction of Rao and Scott (1984) and turned into a statistical F.

Seventeen years old was the median age at which the Mexican adolescents married or formed an intimate relationship (with a range of 12 - 19 years), while pregnant adult women reported a median age of 20 (a range of 12 - 39 years).

At the time of the survey, slightly over half of the adolescent subjects were in their third trimester of pregnancy, while 80% of the adult women were in their second or third trimester (47% and 33%, respectively). Even though both groups reported a pregnancy median of 1, the range of pregnancies was 1 - 3 for the adolescents, and 1 - 12

for the adults. These numbers coincided with the fact that more than half of the adolescents were primigest and 78% of adult subjects were multigest. Alcohol consumption, in both groups was generally low (**Table 1**).

As observed in all women participating in the study, the male partners' education level was low in both groups. One week prior to the survey, 97% and 95% of the adolescent and adult participants' partners were employed, respectively. The majority of the male partners consumed alcohol, 75% and 83% for adolescent and adult subjects, respectively. In regards to the acceptance of traditional female roles by the pregnant adolescents, 22% agreed and 13% very much agreed with these roles. These percentages were lower among the adult study population (**Table 1**).

As to a history of child abuse, 40% of the adolescent women, and 34% of the adult women reported exposure to abuse during their childhood. A history of sexual abuse was higher among the adult subjects as compared with the adolescent women (13% and 10% respectively).

To the question if they perceived themselves as battered, only 11% of the pregnant adolescents, and 9% of the pregnant adults answered affirmatively. When the SIPAI was applied, 23% and 24% of the adolescent and adult participants, respectively reported violence in the last 12 months. Severity of SIPAI was also reported (non-severe, and severe). It was found, very noticeably, that the adolescent group reported higher prevalence of severe violence when compared to the adults (10% and 8%, respectively). Conversely, the adult participants reported a higher prevalence of non-severe violence when compared to the adolescents (16%, and 13%, respectively) (**Table 2**).

It was important to explore whether in any of their pregnancies (including the present) the pregnant women suffered violence. Ten percent of the 10,706 pregnant adolescent participants reported having endured partner violence during one or more of their pregnancies. Of these, 32% reported an exacerbation of violence during the course of the pregnancy, while the rest reported no change. Of those subjects reporting violence during one or more of their pregnancies, 11% received blows or kicking in the abdomen while being pregnant (during a previous or the current pregnancy). Of this group (120 adolescents), 17% were kicked in the abdomen (once), and 48% received blows to the abdomen (once). It was concluded that 1% of the pregnant adolescents reported blows or kicking to the abdomen during their current pregnancies. In all cases the blows and kicking were inflicted by the child's father. The most frequent complication reported by the adolescents was pain (**Table 2**).

Of the 59,456 pregnant adults, 9% reported exposure to violence during one or more of their pregnancies. When exploring partner violence previous to a pregnancy, 36% of the subjects reported that the violence worsened during their pregnancy, while 48% referred it was unchanged. Of those reporting exposure to violence, 36% reported blows and kicking to the abdomen while pregnant (during a previous or current pregnancy). In this group of adult subjects (1854), 46% were kicked in the abdomen during the current pregnancy (14% once, 61% twice or more), and 78% received blows to the abdomen (17% once, and 61%, twice or more often). The result showed that 3% of the pregnant adults received kicking or blows to the abdomen during their current pregnancy. Ninety six percent of the time, kicks and blows were inflicted by the expectant father, and 4% of the violence was perpetrated by the pregnant adult woman's father. The three main consequences of these blows and kicking were: pain (48%), hemorrhaging (15%), and bruises (12%), (**Table 2**).

### 3.1. Pregnant Adolescents

Statistically significant differences were observed ( $p < 0.05$ ) between pregnant adolescents reporting IPV during the first trimester of pregnancy and those adolescents reporting no IPV during the same period of pregnancy ( $p = 0.034$ ); their partners' education ( $p = 0.045$ ); and their partners' frequency of alcohol consumption ( $p = 0.000$ ) (**Table 1**). No statistically significant differences were observed in the remaining variables analyzed.

In **Table 3**, the multivariate model depicts that women who suffered child abuse had a 2.28 (OR = 0.79; CI95% = 0.66, 0.96) times higher probability of suffering IPV as compared to those not having been subjected to abuse during their childhood. It was found that pregnant adolescents not fully agreeing with traditional female gender roles had a 67% (OR = 0.33, CI95% = 0.11 - 1.01) less probability of suffering IPV when compared to those more in agreement with traditional gender roles. Pregnant adolescents reporting their partners' frequency of alcohol consumption 1-3 times per month had a 3.53 (IC95% = 1.57, 7.93) times higher probability of suffering IPV as compared to those pregnant adolescents whose partners abstained or only occasionally consumed alcohol.

### 3.2. Pregnant Adults

Statistically significant differences ( $p < 0.05$ ) were observed between adult pregnant women reporting current

**Table 2.** Characteristics of violence in the study population.

Variables	Adolescent women pregnancy (15 - 19 years old )		Adult women pregnancy (20 - 49 years old)		p value*
	n	%	n	%	
Were you abused at any time, during a past or current pregnancy:*					
Never	9586	90%	52,576	91%	0.652
Forced to have sexual intercourse with your partner	470	4%	1876	3%	
Emotional/psychological abuse					
Threatened	464	4%	2076	4%	0.652
Hit	269	3%	2810	5%	
Were you ever beaten and kicked in the abdomen while you were pregnant?					
No	1000	89%	3308	64%	0.73
Yes I have been kicked	58	5%	594	12%	
Yes I have been hit	62	6%	1,260	24%	
How many times have you been kicked in the abdomen while being pregnant?					
Never	100	83%	993	54%	0.472
Once	20	17%	246	13%	
Two or more times	--	--	615	33%	
How often have you been hit in the abdomen while being pregnant?					
Never	62	52%	403	22%	0.219
Once	58	48%	314	17%	
Two or more times	--	--	1,137	61%	
Who hit or kicked you?					
The baby's father	120	100%	1,772	96%	0.219
Her father	--	--	82	4%	
Kicking and hitting consequences?*					
Pain	120	100%	887	48%	0.207
Bleeding	--	--	287	15%	
Bruise	--	--	221	12%	
Abortion threat	--	--	151	8%	
Amniotic sac rupture	--	--	74	4%	
Physical discomfort	--	--	62	4%	
Miscarriage	--	--	56	3%	
None	--	--	32	2%	
Delivery of baby three days later	--	--	21	1%	
No answer	--	--	105	6%	

**Continued**

How do you compare the degree of abuse before and your pregnancy?					
Decreased	--	--	288	16%	0.467
Remained the same	82	68%	853	48%	
Worsened	38	32%	639	36%	
Intimate Partner Violence					
No violence	8175	76%	43,818	76%	0.906
Violence	2531	23%	13,920	24%	

\*The sum could be higher than 100%, since more than one answer could apply.

IPV and those reporting no IPV in relation to the following variables: years of schooling ( $p = 0.000$ ); age at first union ( $p = 0.001$ ); number of pregnancies ( $p = 0.000$ ); primigravida or multigravida ( $p = 0.057$ ); index of child abuse ( $p = 0.000$ ); sexual abuse in childhood ( $p = 0.000$ ); gender role index ( $p = 0.000$ ); partner's years of schooling ( $p = 0.001$ ); partner's employment ( $p = 0.01$ ); and partner's frequency of alcohol consumption ( $p = 0.000$ ) (**Table 1**). The remaining variables analyzed showed no statistical significance.

A negative gradient in the probability to experience IPV was observed in adult participants for each year's delay of marriage or union ( $OR = 0.93$ ,  $CI95\% = 0.88 - 0.99$ ). Adult participants living temporarily with a partner had a 2.27 ( $OR = 2.27$ ,  $CI95\% = 1.107, 4.77$ ) times higher probability of suffering IPV when compared to those in a permanent relationship. When a partner consumed alcohol, the pregnant adult subject had a 2.00 ( $CI95\% = 1.15, 3.47$ ) times higher probability of experiencing IPV when compared to subjects whose partners never consumed alcohol. Adult participants accepting the traditional female gender roles ( $OR = 2.15$ ,  $CI95\% = 1.25 - 3.70$ ) had a higher probability of experiencing IPV than those adult participants disagreeing with traditional gender roles. It was also found that adult participants having a history of "non-severe" child abuse ( $OR = 2.58$ ,  $CI95\% = 1.73 - 3.76$ ), and "severe" child abuse ( $OR = 2.29$ ,  $CI95\% = 1.11 - 4.75$ ), had a higher probability of experiencing IPV than those adult participants reporting no exposure to child abuse. Likewise, adult participants having experienced sexual abuse during childhood had a 2.76 times ( $CI95\% = 1.68 - 4.55$ ) higher probability of experiencing IPV than those adult study subjects claiming no childhood sexual abuse. Lastly, it was found that those adult pregnant participants residing in rural areas had a 44% ( $OR = 0.56$ ;  $CI95\% = 0.33, 0.95$ ) lower probability of experiencing IPV when compared to those living in urban areas.

#### 4. Discussion

One of our study's most important finding was the high prevalence (24%) of violence during pregnancy by users of Mexican public health institutions. It is important to address that the study population comprised female health service users of the three main health institutions of Mexico, which together provide medical coverage to a wide range of social sectors, rendering a socioeconomically more heterogeneous population for our study.

Studies conducted in industrialized countries [10] have identified a 5.6% to 16.6% prevalence of IPV in pregnant women; our results showed that the prevalence range of IPV toward pregnant women in Mexico was almost five times higher. Nevertheless, the rates of IPV during pregnancy identified in our study were comparable to those found in other developing countries (4% to 29%) as reported by Nasir & Hyder in 2003 [21]. In Latin America, some studies addressing this problem in the region have identified 18.3% to 31.1 % prevalence of IPV in pregnant women [1] [4] [5] [8] [22]. We found similar IPV prevalence rates in our two study groups as we analyzed important data never before explored in Mexico nor in the rest of Latin America. Our findings refute our study hypothesis that pregnant adolescents are more vulnerable to IPV than are pregnant adults. It is the presence of X pregnancy that renders women more vulnerable to IPV independently of their age. Nevertheless, the adolescent group reported higher prevalence of "severe" violence in comparison to the adult group (10% and 8% respectively). They were also subject to higher frequency of abdominal kicking and blows. These findings must prompt the Mexican health care sector to design prenatal care programs clearly focused to the screening of IPV.

Even though protocols designed to identify IPV toward women were implemented in Mexico during the year



**Table 3.** Logistic regression model. Associated variables of violence during pregnancy in adolescent and adult women.

Variables	Adolescent pregnancy model <sup>§</sup>		
	OR	CI95%	
Childhood violence index			
No	1		
Yes	2.55	1.09	5.97
Gender role acceptance index			
Agree less with traditional roles	1		
Agree with traditional roles	1.24	0.41	3.76
Agree highly with traditional roles	4.11	1.39	12.13
Partner's alcohol consumption			
Never	1		
Often/sometimes	6.49	2.18	19.33
Work activity			
Unemployed	1.30	0.16	10.70
Employed	1		
Farm worker	3.73	1.09	12.73
Goodness of fit test 0.82			
Variables	Adult pregnancy model <sup>†</sup>		
	OR	CI95%	
Age at time of union	0.93	0.88	0.99
Partner living in the home			
All the time	1		
At times	2.27	1.10	4.67
Partner's alcohol consumption			
Never	1		
Often	0.84	0.47	1.50
1 or more times per month	2.00	1.15	3.47
Gender role acceptance index			
Less agreeable with traditional roles	1		
Agree with traditional roles	2.15	1.25	3.70
Highly agree with traditional roles	4.35	2.20	8.60
Childhood violence index			
No violence	1		
Non-severe violence	2.55	1.73	3.76
Severe violence	2.29	1.11	4.75
Childhood sexual abuse			

**Continued**

No	1		
Yes	2.76	1.68	4.55
Type of community			
Rural	1		
Urban	1.78	1.10	2.87
Goodness of fit test 0.50			

<sup>§</sup>Adjusted for: age, education years, work activity, number of pregnancies, childhood sexual abuse and household possessions. <sup>†</sup>Adjusted for: age, education years, years of marriage, work activity, male partner's education years, male partner's work activity, and household possessions.

1990 [23], health personnel must identify cases of IPV toward women. Currently, the fact is that battered women, including those pregnant, generally go undetected whenever they seek health care. Screening for IPV toward women is not enforced in spite of solid evidence sustaining its high prevalence and health complications in women and their offspring [10] [24].

## 5. Limitations of the Present Study

In this study, only women of public health services were included, for which we may expect biases. The study was cross-sectional, which presents a problem of temporal ambiguity; for this reason, only statistical associations may be established and not causality.

## 6. Conclusion and Future Prospects

It is urgent to involve medical schools, medical organizations, and national and local health institutions to guarantee identification, care and design of referral protocols for women experiencing any type of violence during their pregnancy. It is urgent as well, to intervene actively in the Mexican health system, traditionally marginal to the progress achieved by other countries in recognizing, caring, and more importantly in preventing IPV in pregnancy [25].

## References

- [1] Valdez-Santiago, R. and Sanin-Aguirre, L.H. (1996) Domestic Violence during Pregnancy and Its Relationship with Birth Weight. *Salud Pública de México*, **38**, 352-362. La violencia domestica durante el embarazo y su relacion con el peso al nacer. spa.
- [2] Nunez-Rivas, H.P., Monge-Rojas, R., Griros-Davila, C., Elizondo-Urena, A.M. and Rojas-Chavarria, A. (2003) Physical, Psychological, Emotional, and Sexual Violence during Pregnancy as a Reproductive-Risk Predictor of Low Birth-weight in Costa Rica. *Revista Panamericana de Salud Pública*, **14**, 75-83. La violencia fisica, psicologica, emocional y sexual durante el embarazo: Riesgo reproductivo predictor de bajo peso al nacer en Costa Rica. spa.
- [3] Pallitto, C.C. and O'Campo, P. (2004) The Relationship between Intimate Partner Violence and Unintended Pregnancy: Analysis of a National Sample from Colombia. *International Family Planning Perspectives*, **30**, 165-173.
- [4] Castro, R. and Ruiz, A. (2004) Prevalence and Severity of Domestic Violence among Pregnant Women, Mexico. *Revista Panamericana de Salud Pública*, **38**, 62-70. Prevalencia y severidad de la violencia contra mujeres embarazadas, Mexico. spa.
- [5] Colombo, G., Ynoub, R.C., Viglizzo, M., Veneranda, L., Iglesias, G. and Stropparo, P. (2005) Prevalencia de casos de violencia familiar contra la mujer en la etapa de embarazo, parto y puerperio. *Convergencia Revista de Ciencias Sociales*, Mayo-Agosto 2005, 81-107.
- [6] Paredes-Solis, S., Villegas-Arrizon, A., Meneses-Renteria, A., Rodriguez-Ramos, I.E., Reyes-De Jesus, L. and Anderson, N. (2005) Violence during Pregnancy: A Population Based Study in Ometepe, Guerrero, Mexico. *Salud Pública de México*, **47**, 335-341. Violencia fisica intrafamiliar contra la embarazada: un estudio con base poblacional en Ometepe, Guerrero, Mexico. spa.
- [7] Valladares, E., Pena, R., Persson, L.A. and Hogberg, U. (2005) Violence against Pregnant Women: Prevalence and Characteristics. A Population-Based Study in Nicaragua. *BJOG*, **112**, 1243-1248.
- [8] Nunes, M.A., Camey, S., Ferri, C.P., Manzolli, P., Manenti, C.N. and Schmidt, M.I. (2010) Violence during Pregnancy

- and Newborn Outcomes: A Cohort Study in a Disadvantaged Population in Brazil. *The European Journal of Public Health*, **21**, 92-97.
- [9] Amaro, H., Fried, L.E., Cabral, H. and Zuckerman, B. (1990) Violence during Pregnancy and Substance Use. *American Journal of Public Health*, **80**, 575-579.
- [10] Murphy, C.C., Schei, B., Myhr, T.L. and Du Mont, J. (2001) Abuse: A Risk Factor for Low Birth Weight? A Systematic Review and Meta-Analysis. *Canadian Medical Association Journal*, **164**, 1567-1572.
- [11] Espinoza, H. and Camacho, A.V. (2005) Maternal Death Due to Domestic Violence: An Unrecognized Critical Component of Maternal Mortality. *Revista Panamericana de Salud Pública*, **17**, 123-129.
- [12] McFarlane, J., Parker, B. and Soeken, K. (1996) Abuse during Pregnancy: Associations with Maternal Health and Infant Birth Weight. *Nursing Research*, **45**, 37-42.
- [13] Decker, M.R., Martin, S.L. and Moracco, K.E. (2004) Homicide Risk Factors among Pregnant Women Abused by Their Partners: Who Leaves the Perpetrator and Who Stays? *Violence against Women*, **10**, 498-513. <http://dx.doi.org/10.1177/1077801204264353>
- [14] Parker, B., McFarlane, J. and Soeken, K. (1994) Abuse during Pregnancy: Effects on Maternal Complications and Birth Weight in Adult and Teenage Women. *Obstetrics and Gynecology*, **84**, 323-328.
- [15] Kulkarni, S. (2006) Interpersonal Violence at the Crossroads between Adolescence and Adulthood: Learning about Partner Violence from Young Mothers. *Violence against Women*, **12**, 187-207.
- [16] Bullock, L.F. and McFarlane, J. (1989) The Birth-Weight/Battering Connection. *American Journal of Nursing*, **89**, 1153-1155.
- [17] CNEGSR, Ed. (2009) Encuesta Nacional Sobre Violencia Contra las Mujeres 2006. Centro Nacional de Equidad de Género y Salud Reproductiva, SSA, México, Distrito Federal.
- [18] Valdez-Santiago, R., Híjar-Medina, M.C., Salgado de Snyder, V.N., Rivera-Rivera, L., Avila-Burgos, L. and Rojas, R. (2006) Violence Scale and Severity Index: A Methodological Proposal for Measuring Violence by the Partner in Mexican Women. *Salud Pública de México*, **48**, S221-S231. <http://dx.doi.org/10.1590/S0036-36342006000800002>
- [19] Ávila-Burgos, L., Valdez-Santiago, R., Barroso-Quiab, A., Híjar, M., Rojas, R. and del Rio-Zolezzi, A. (2014) Prevalence and Factors Associated with Intimate Partner Abuse in Female Users of Public Health Services in México: A Comparative Analysis. *Revista de Investigación Clínica*, **66**, 45-58. [www.imbiomed.com.mx](http://www.imbiomed.com.mx)
- [20] Kolenikov, S. and Angeles, G. (2004) The Use of Discrete Data in PCA: Theory, Simulations, and Applications to Socioeconomic Indices. Working Paper WP-04-85, MEASURE Evaluation, Chapel Hill. <http://www.cpc.unc.edu/measure/publications/wp-04-85>
- [21] Nasir, K. and Hyder, A. (2003) Violence against Women in Developing Countries. *European Journal of Public Health*, **13**, 105-107. <http://dx.doi.org/10.1093/eurpub/13.2.105>
- [22] Dubova, S.V., Pamanes-Gonzalez, V., Billings, D.L. and Torres-Arreola Ldel, P. (2007) Partner Violence against Pregnant Women in Mexico City. *Revista de Saúde Pública*, **41**, 582-590. Violencia de pareja en mujeres embarazadas en la Ciudad de Mexico. Spa.
- [23] SSA. Norma Oficial Mexicana NOM 046-SSA2-2005 (2005) Violencia Familiar, Sexual y Contra las Mujeres. SSA. México, Distrito Federal.
- [24] Rico, E., Fenn, B., Abramsky, T. and Watts, C. (2011) Associations between Maternal Experiences of Intimate Partner Violence and Child Nutrition and Mortality: Findings from Demographic and Health Surveys in Egypt, Honduras, Kenya, Malawi and Rwanda. *Journal of Epidemiology & Community Health*, **65**, 360-367. <http://dx.doi.org/10.1136/jech.2008.081810>
- [25] Kiely, M., El-Mohandes, A.A., El-Khorazaty, M.N., Blake, S.M. and Gantz, M.G. (2010) An Integrated Intervention to Reduce Intimate Partner Violence in Pregnancy: A Randomized Controlled Trial. *Obstetrics & Gynecology*, **115**, 273-283. <http://dx.doi.org/10.1097/AOG.0b013e3181cbd482>

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