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Posted Date: 31 October 2024

doi: 10.20944/preprints202410.2435.v1

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Intimate Partner Violence Trends and Associated Factors: Results from a National Representative Survey from Mexico

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Abstract: Background: Intimate partner violence (IPV) is one of the most common forms of domestic violence. Research on Intimate Partner Violence (IPV) prevalence using national samples is scarce. This study aims to estimate trends of IPV prevalence by sex and to identify the correlates of IPV among the Mexican population. Methods: We used data from Mexico's 2011 and 2016 National Survey of Addictions (NSA). The analytic sample consists of 44,963 individuals aged 14 to 65 years old. Poisson regression models regressed IPV on substance use behaviors (alcohol and drug use) and sociodemographic factors. Results: Overall, IPV prevalence did not change in the study period (From 15.6% in 2011 to 14.9% in 2016). The associated factors to IPV were having a partner who uses alcohol (APR) =1.68, 95%CI 1.54-1.84), having a partner who uses drugs (APR=2.80, 95%CI 2.46 -3.18). Living in an urban (APR=1.18, 95% CI 1.05-1.33) or metropolitan area (APR=1.16, 95% CI 1.04-1.28) was associated with a higher prevalence of IPV. Single marital status (APR=0.66, 95% CI 0.56-0.78) was associated with a lower prevalence of IPV. Conclusions: The IPV-associated factors are similar in both sexes, so comprehensive prevention and future interventions must consider the two directions of IPV (victim and perpetrator).

Keywords: intimate partner violence; trends; alcohol; men; woman; Mexico

1. Introduction

Intimate partner violence (IPV) is a public health problem and a human rights violation that causes damage to physical and mental health [1]. Overall, the severity and prevalence of IPV are higher among women than in men. [2,3]. For example, in the U.S., approximately 32.9% of women and 28.1% of men have experienced IPV [4]. In Brazil, 28.0% of women and 24.0% of men reported ever IPV prevalence, while another study conducted in Mexico reported that the prevalence was higher in women (31.0%) than in men (17.0%). In contrast, in Chile, IPV was similar between women (31.0%) and men (30.0%) [5]. Nevertheless, few studies have analyzed IPV trends in women and men using nationally representative samples.

Trends of IPV Violence

Among the few IPV trends studies, a study using data from the United Nations Population Fund (UNFPA) 2021 reported that the IPV prevalence experienced by women in the last 12 months in Rwanda had decreased significantly from 44.3% in 2010 to 20.7% in 2015 [6]. A similar analysis in Mexico found that lifetime IPV prevalence with their current partner slightly decreased among

 doi:10.20944/preprints202410.2435.v1

women from 47.0% in 2011 to 43.9% in 2016 [7]. One study from Brazil found that past-year IPV prevalence decreased significantly among Brazilian women from 8.8% to 6.3% [8]. Given that IPV prevalence is high, particularly among low and middle-income countries, there is a need to monitor IPV trends and the associated factors by sex to help policymakers evaluate the efficacy of health programs and policies that aim to reduce all types of violence.

Correlates of IPV Violence

Previous studies suggest that adolescents and younger women had higher rates of IPV than older [8,9]. It has also been documented that having a low socioeconomic status [10,11] and a low educational level [8,9] is associated with a higher prevalence of IPV among men and women [12,13].Previous studies from Brazil, the U.S., Cambodia, China, and Sri Lanka found that having a partner who used alcohol was associated with IPV [10,14,15]. Likewise, a multicountry cross-sectional study in Asian and Pacific countries reported that drug use was positively associated with IPV outcomes [10]. Being married status is another correlate of IPV. A multinational study reported that single women in Bangladesh, Ethiopia, and Tanzania are less likely to experience IPV outcomes than those formally married [16]. However, another study in Zimbabwe found that women who cohabit without marriage have a higher risk of IPV than married women [17]. Several studies of Asia-Pacific countries and Peru found that cohabiting was associated with a higher likelihood of IPV than married women [10,18]. A study in Uganda found a positive association between relationship duration and IPV [9]. Another study in Peru found that women who reported previous partners were more likely to report IPV than those who had not [18] previous partners. Finally, data from the Zimbabwe Demographic and Health Survey (ZDHS) reported that women living in rural areas had a lower risk of IPV than in urban areas [17]. In Mexico, a cross-sectional study found that substance use behaviors were a correlate of IPV, but there is a need to identify more factors and to provide a potential mechanism of IPV. This study will fill this gap by identifying the correlates of IPV that will help to understand the phenomenon in detail better.

Mexican Context

In 1994, Mexico ratified the Global and Regional Frameworks to end violence against women. [19]. In 1999, it was created the National Program against Domestic Violence and the Official Mexican Standard NOM-190-SSA1-1999 for medical care for interfamily violence [20]. This standard NOM is mandatory for institutions, agencies, and personnel that provide public, social, and private health services. In 2002, the National Program for Equal Opportunities and Non-Discrimination against Women was created [21]. In 2007, the General Law on Women's Access to a Life Free of Violence came into effect [22]. This law establishes the legal and administrative guidelines to intervene at all levels of government to guarantee and protect women's right to a life free of violence [22]. Given the importance of Mexico in Latin America, this case study experience may help inform policymakers about the efficacy of these programs. In this context, this study aimed to analyze IPV trends in women and men and identify associated factors from 2011 to 2016 in Mexico.

2. Materials and Methods

2.1. Study Design, Population, and Setting

We used data from the 2011 and 2016 National Survey on Addictions (NSA), a nationally representative cross-sectional survey (https://encuestas.insp.mx/repositorio/encodat.php). The NSA survey used a multistage sampling design to produce national and regional estimates of drug, alcohol, and tobacco use, intimate partner violence (IPV), and other related outcomes. The overall response rate of the NSA 2011 was 75%, and for the NSA 2016 was 74% [23,24]. NSA is a household survey interview. Trained interviewers conducted face-to-face interviews in both waves (2011 and 2016). Questions about IPV were asked using Audio-Computer-Assisted Self-Interviewing (ACASI) only in the 2016 edition. A detailed description of the methodology of the NSA study has been published elsewhere [25,26]. Pooling NSA data resulted in a sample of 45,057 respondents with partners aged 14-65 years (2011=10,193 and 2016=34,864). After excluding missing covariates (n=94)

 doi:10.20944/preprints202410.2435.v1

values, the final analytic sample consisted of 44,963 participants (18,642 males and 26,321 females). The Institutional Review Board (IRB) approved the 2011 and 2016 NSA survey protocols at the Mexican National Institute of Public Health. All participants signed written informed consent. In addition, adolescents aged 12 to 17 years provided written assent and their parents' informed consent.

2.2. Measures

Intimate Partner Violence

To assess IPV, we constructed an index of physical, psychological, and sexual IPV by using the seven items. Respondents were asked if, at the time of a conflict with their current partner, they have experimented in the last 12 months any of the following situations (yes/no): "Has your current partner yelled at, insulted, or humiliated you?"; "Has your current partner has threatened to hit you?"; "Has your current partner has hit you?"; "Has your current partner has forced you to have sex?"; "Has your current partner has controlled most of your activities?"; "Has your current partner has expressed his jealousy by hitting you, insulting you, humiliating you or controlling your activities?"; "Has your current partner has threatened or tried to commit suicide." This index has been previously validated in the Mexican Population (alpha=0.8) [27].

Substance Use Behaviors

Drug use and alcohol use among partners were evaluated with similar questions: "Does your current partner use drugs/drink alcoholic beverages? (No, occasionally, almost every weekend, daily or almost daily) [28]. Those who responded "occasionally," "almost every weekend" or "daily or almost daily" were classified as current users.

Sociodemographic Variables

We included the following covariates: sex (female, male), categorical group of age (14-17, 18-28, 29-39, 40-59, and 60 years and over), current employment (yes, no), education level (no formal education, primary, secondary, high school, college or more), monthly family income (≤1minimum salary, >1-2 minimum salaries, >3 minimum salaries and do not know), region of the country (north-west, north-central, north-east, west, Mexico City, central, south-central and south), and place of residence (rural, urban and metropolitan). Additionally, we included some variables related to the partner relationship, such as marital status (married/living with a partner, and never married/divorced/widowed), relationship length (year of living with the partner: 1 year or less, 2 to 5 years and 5 and more years), and previous partners (yes, no).

2.3. Statistical Analyses

First, we estimated the sociodemographic characteristics of the analytical samples. Second, we performed two-sample tests for linear differences in proportions to determine changes in estimates of the psychological, physical, and sexual prevalence of IPV between 2011 and 2016. Third, we assessed changes in all forms of IPV by variables—sociodemographic and behavioral substance use. Fourth, we specified bivariate and adjusted Poisson models that regress the outcome (IPV) on the study variables with models stratified by sex. Models were also adjusted for the survey year using a dummy variable. We also use sampling weights to account for the complex survey designs. We performed all analyses using Stata 16.1.

3. Results

About one-third of the sample were participants between 40-59 years old. The sample characteristics were similar across survey years (2011 and 2016) (Table 1).

Table 1. Characteristics of the study population aged 14 to 65, by sex. Mexico, NSA 2011- NSA 2016 .

	Male		Female	
	2011	**2016**	**2011**	**2016**

 doi:10.20944/preprints202410.2435.v1

Characteristics	N =26,579,046 n =4,482 % (IC95%)	N=26,573,828 n= 14,191 % (IC95%)	Valor de p	N=27,791,221 n=5,711 % (IC95%)	N=28,688,636 n=20,670 % (IC95%)	Valor de p
Age (Years)						
60 years and over	6.42(5.35-7.69)	8.86(7.85-9.98)	0.002	3.86(3.23-4.61)	5.66(5.15-6.22)	0.000
40-59	34.46(32.57-36.39)	37.12(35.74-38.53)	0.027	33.16(31.16-35.23)	34.13(33.03-35.25)	0.408
29-39	26.21(24.48-28.01)	24.02(22.89-25.20)	0.041	27.83(26.12-29.60)	26.91(25.92-27.93)	0.368
18-28	26.13(24.24-28.11)	24.56(23.24-25.92)	0.192	28.91(26.95-30.94)	27.84(26.64-29.07)	0.369
14-17	6.79(5.90-7.81)	5.44(5.00-5.91)	0.013	6.24(5.48-7.11)	5.45(4.97-5.99)	0.105
Monthly family income	income (, , and					
≤1minimum salary	10.78(9.27-12.51)	26.51(25.12-27.96)	0.000	13.73(11.83-15.88)	27.15(25.88-28.46)	0.000
>1-2 minimum salaries	27.32(25.44-29.29)	31.63(30.09-33.22)	0.001	33.21(31.22-35.25)	33.41(32.09-34.75)	0.873
≥3 minimum salaries mínimos	44.10(41.53-46.70)	32.49(30.83-34.20)	0.000	34.23(32.02-36.51)	29.96(28.64-31.32)	0.002
Don't know	17.80(15.77-20.03)	9.36(8.43-10.38)	0.000	18.83(16.99-20.82)	9.48(8.64-10.40)	0.000
Alcohol use among partners						
No	75.96(74.11-77.72)	77.28(76.01-78.50)	0.235	39.65(37.52-41.82)	43.48(42.27-44.70)	0.002
Yes	24.04(22.28-25.89)	22.72(21.50-23.99)	0.235	60.35(58.18-62.48)	56.52(55.30-57.73)	0.002
Drug use among partners						
No	99.83(99.68-99.91)	99.23(98.82-99.50)	0.001	98.62(98.21-98.93)	97.35(96.91-97.72)	0.000
Yes	0.17(0.088-0.32)	0.77(0.50-1.18)	0.001	1.38(1.07-1.79)	2.66(2.28-3.09)	0.000
Marital status						
Married	77.41(75.42-79.27)	79.73(78.52-80.90)	0.044	82.56(80.77-84.22)	83.66(82.52-84.75)	0.295
Single	22.59(20.73-24.58)	20.27(19.10-21.48)	0.044	17.44(15.78-19.23)	16.34(15.25-17.48)	0.295
Previous Partners						
Yes	38.38(35.92-40.91)	22.31(20.98-23.70)	0.000	28.27(26.26-30.38)	18.91(17.91-19.94)	0.000
No	61.62(59.09-64.08)	77.69(76.30-79.02)	0.000	71.73(69.62-73.74)	81.09(80.06-82.09)	0.000
Relationship Lenght						
1 year or less	17.95(16.13-19.94)	16.47(15.45-17.54)	0.179	12.44(11.21-13.78)	12.63(11.75-13.57)	0.806
2 to 5 years	16.68(15.18-18.30)	16.78(15.78-17.83)	0.921	17.57(16.06-19.18)	17.60(16.70-18.54)	0.970
5 and more years	65.31(63.60-67.09)	66.75(65.40-68.08)	0.218	70.00 (68.02-71.90)	69.77(68.61-70.90)	0.840
Region of the country						
North-west	8.64(7.69-9.69)	8.26(7.76-8.80)	0.686	8.09(7.08-9.23)	8.19(7.75-8.65)	0.908
North-central	6.90(6.28-7.58)	7.02(6.53-7.53)	0.825	7.05(6.38-7.79)	6.95(6.48-7.45)	0.848
North-east	9.10(7.81-10.58)	9.62(8.93-10.35)	0.547	9.86(8.63-11.24)	9.64(9.07-10.25)	0.781
West	11.15(9.69-12.80)	10.71(9.71-11.80)	0.659	10.46(9.26-11.80)	10.66(9.92-11.45)	0.800
Mexico City	7.85(6.76-9.10)	7.79(6.87-8.82)	0.948	7.83(6.92-8.84)	7.30(6.72-7.92)	0.511
Central	31.74(28.12-35.59)	29.73(28.19-31.33)	0.437	31.28(27.42-35.42)	31.38(30.07-32.72)	0.437
South-central	15.58(13.88-17.44)	16.87(15.78-18.02)	0.379	16.70(15.15-18.37)	16.32(15.44-17.24)	0.379
South	9.05(7.89-10.36)	10.00(9.37-10.66)	0.206	8.73(7.66-9.94)	9.57(9.12-10.04)	0.206
Place of residence						
Rural	22.03(19.71-24.53)	22.65(21.44-23.90)	0.720	21.92(19.41-24.66)	23.44(22.56-24.35)	0.393
Urban	16.89(14.43-19.68)	18.85(17.93-19.82)	0.228	18.69(16.31-21.33)	18.68(17.87-19.52)	0.998
Metropolitan	61.08(57.90-64.17)	58.50(57.05-59.93)	0.231	59.39(56.05-62.65)	57.88(56.72-59.03)	0.491

NSA=National Survey on Addictions 2011 y National Survey on Addictions 2016.

N=The estimated population for the 2011 (N=54,370,267) and 2016 (N=55,262,464) surveys is based on the 2010 CENSUS.

n=Analytical sample

IC95%= 95% Confidence Interval

 doi:10.20944/preprints202410.2435.v1

3.1. Trends in the Prevalence of IPV

From 2011 to 2016, the prevalence of global IPV did not change (from 15.58% to 14.90% p=0.30). The IPV prevalence is higher among females than males (2016: Males (11.77%), Females (17.80%)). There are also no significant changes in global IPV prevalence by sex (Table 2). When we stratified the IPV variable by type of violence (psychological, physical, and sexual), we also did not find any statistical change in the prevalence of IPV in the study (Table 2).

Table 2. Prevalence of different types of violence by sex. Mexico, NSA 2011 y NSA 2016.

	Total population				
			Difference		
	2011	**2016**	**Absolute**	**%** **change**	**p** **value**
	N=54,370,267	**N=55,262,464**			
	n=10,193	**n=34,861**			
Any type of violence[c]	15.58	14.90	-0.68	-4.36	0.300
Psychological	15.46	14.78	-0.68	-4.40	0.295
Physical	1.74	2.04	0.30	17.24	0.177
Sexual	0.69	0.87	0.18	26.09	0.203
	Male				
			Difference		
	2011	**2016**	**Absolute**	**%** **change**	**p** **value**
	N=26,579,046	**N=26,573,828**			
	n‡ =4,482	**n= 14,191**			
Any type of violence‡	13.46	11.77	-1.69	-12.56	0.062
Psychological	13.36	11.67	-1.69	-12.65	0.059
Physical	1.34	1.37	0.03	2.24	0.903
Sexual	0.23	0.40	0.17	73.91	0.259
	Female				
			Difference		
	2011	**2016**	**Absolute**	**%** **change**	**p** **value**
	N=27,791,221	**N=28,688,636**			
	n=5,711	**n=20,670**			
Any type of violence‡	17.60	17.80	0.20	1.14	0.838
Psychological	17.47	17.66	0.19	1.09	0.847
Physical	2.13	2.67	0.54	25.35	0.078
Sexual	1.14	1.30	0.16	14.04	0.480

NSA=National Survey on Addictions 2011 y National Survey on Addictions 2016.

n=Analytical sample

 doi:10.20944/preprints202410.2435.v1

Violence= Any type of violence psychological, physical or sexual.

3.2. Trends in the Prevalence of IPV by Sociodemographic and Substance Use Behaviors Variables

In the stratified trend analysis for males, we found that the prevalence of global IPV decreased from 2011 to 2016 among those aged 29-39 years old (16.55% to 12.68%, p=0.033) and those with >1-2 minimum salaries (16.32% to 10.68% p=0.000). In addition, IPV decreased among those with a partner who did not drink alcohol (11.59% to 9.82% p=0.044) or did not use drugs (13.42% to 11.59% p=0.044). Moreover, IPV decreased among those who reported that they were married or living with a partner (14.87% to 12.14%, p=0.007) and those who had >5 years or more of couple coexistence (14.42% to 11.47%, p=0.008) (Table 3).

Table 3. Prevalence of change in intimate partner violence by sex. Mexico, NSA 2011 - NSA 2016.

	Male				Female			
	2011	2016			2011	2016		
	N=26,579,046	N=26,573,828			N=27,791,221	N=28,688,636		
	n=4,482	n=14,191	Difference	p value	n=5,711	n=20,670	Difference	p value
	Prevalence (%)		(% change)		Prevalence (%)		(% change)	
Variables								
Age (Years)								
60 years and over	9.40	6.67	-2.73(-29.00)	0.266	11.81	12.47	0.66(5.59)	0.812
40-59	11.87	11.59	-0.28(-2.37)	0.839	18.41	18.92	0.51(2.79)	0.731
29-39	16.55	12.68	-3.87(-23.38)	0.033	18.03	18.77	0.74(4.12)	0.644
18-28	15.01	13.98	-1.03(-6.84)	0.630	18.02	17.55	-0.46(-2.57)	0.798
14-17	7.42	7.22	-0.21(-2.80)	0.913	13.09	12.80	-0.29(-2.22)	0.916
Monthly family income								
≤1minimum salary	10.25	11.65	1.40(13.70)	0.528	20.23	19.92	-0.31(-1.53)	0.898
>1-2 minimum salaries	16.32	10.68	-5.64(-34.53)	0.000	21.16	17.78	-3.39(-16.00)	0.027
≥3 minimum salaries mínimos	14.55	12.92	-1.63(-11.19)	0.288	14.68	17.01	2.33(15.88)	0.094
Don't know	8.30	11.75	3.45(41.56)	0.087	14.73	14.33	-0.40(-2.73)	0.871
Alcohol use among partners								
No	11.59	9.82	-1.77(-15.24)	0.044	11.35	12.25	0.90(7.93)	0.449
Yes	19.36	18.38	-0.98(-5.06)	0.672	21.71	22.07	0.36(1.66)	0.784
Drug use among partners								
No	13.42	11.59	-1.83(-13.62)	0.044	16.90	16.78	-0.12(-0.70)	0.903
Yes	34.34	34.15	-0.19(-0.56)	0.992	67.61	55.15	-12.46(-18.43)	0.079
Marital status								
Married	14.87	12.14	-2.73(-18.37)	0.007	19.38	18.42	-0.96(-4.93)	0.391
Single	8.60	10.29	1.69(19.61)	0.372	9.20	14.62	5.42(58.94)	0.012
Previous Partners								
Yes	18.30	18.89	0.59(3.25)	0.740	19.44	24.74	5.30(27.24)	0.003
No	10.44	9.72	-0.72(-6.90)	0.476	16.88	16.19	-0.69(-4.11)	0.534
Relationship Length								
1 year or less	8.30	8.56	0.26(3.13)	0.897	7.80	12.30	4.50(57.77)	0.028
2 to 5 years	15.24	16.09	0.85(5.57)	0.703	16.86	18.57	1.71(10.13)	0.426
5 and more years	14.42	11.47	-2.95(-20.44)	0.008	19.53	18.60	-0.93(-4.75)	0.447
Region of the country								
North-west	11.17	8.53	-2.65(-23.69)	0.121	17.53	14.48	-3.06(-17.44)	0.119
North-central	13.81	13.84	0.04(0.27)	0.985	19.26	20.19	0.93(4.80)	0.635
North-east	19.45	12.70	-6.75(-34.70)	0.005	22.37	17.50	-4.87(-21.78)	0.069
West	9.92	13.89	3.97(40.05)	0.035	13.22	18.64	5.42(40.99)	0.006

 doi:10.20944/preprints202410.2435.v1

Mexico City	6.03	10.09	4.06(67.24)	0.048	11.34	12.54	1.20(10.58)	0.667
Central	15.72	12.41	-3.31(-21.08)	0.145	19.22	19.20	-0.01(-0.07)	0.996
South-central	15.34	9.61	-5.72(-37.32)	0.010	19.46	17.99	-1.47(-7.55)	0.429
South	8.95	12.84	3.89(43.41)	0.049	12.48	17.39	4.90(39.28)	0.002
Place of residence								
Rural	11.09	10.37	-0.72(-6.51)	0.620	18.09	16.54	-1.55(-8.58)	0.376
Urban	13.89	11.87	-2.01(-14.50)	0.248	19.05	18.57	-0.49(-2.55)	0.825
Metropolitan	14.19	12.27	-1.92(-13.51)	0.141	16.97	18.07	1.10(6.48)	0.407

Violence= Any type of violence psychological, physical or sexual.

In the stratified analysis for females, we found that the prevalence of global IPV violence decreased among those with >1-2 minimum salaries (21.16% to 17.78% p=0.027). Conversely, the IPV violence increased among never married/divorced/widowed (9.20% to 14.62%, p=0.011), those who reported having previous partners (19.44% to 24.74%, p=0.003), and those who had ≤1 year or less of couple coexistence (7.80% to 12.30%, p=0.028) (Table 3).

3.3. Correlates of IPV

In the adjusted models, we observed that the prevalence ratio of IPV was higher among adolescents 14-17 years old compared to those 60 years and over (Adjusted Prevalence Ratio (APR)=1.79, CI 95% 1.35-2.37). In contrast, those with an income of three or more minimum salaries were less likely to report IPV than those with one minimum salary ((APR= 0.82, CI 95% 0.72-0.92). In addition, current partner alcohol use ((APR= 1.68 CI 95% 1.54-1.84) was associated with a higher prevalence of IPV than those who reported that their partner does not drink alcohol. Similarly, current partner drug use was positively associated with IPV (APR=2.80, CI 95% 2.46-3.18). Compared to those who reported being married/living with a partner, being never/married/divorced or widowed was associated with lower IPV prevalence (APR=0.66, CI 95% 0.56-0.78). The prevalence of IPV was lower among those who reported having previous partners (APR=0.60, CI 95%, 0.55-0.66) than those with no previous partners. Conversely, IPV prevalence was higher among those with five or more years of coexistence than those with one year or less (APR=1.81, CI 95% (1.47-2.23). Compared to those who lived in rural areas, living in urban (APR=1.18, CI 95%, 1.05-1.33) or metropolitans (APR=1.16, CI 95% 1.04-1.28) was positively associated with IPV (Table 4).

We found similar results in the adjusted models stratified by sex. Female adolescents between 14 to 17 years old were more likely to report IPV than females aged 60 years and over (APR=1.78, CI 95% 1.29-2.47), while the prevalence of IPV was higher in males aged 18-28 (Males: APR=2.17, CI 95% 1.57-3.00) compared to those aged 60 years and over. In both models, those having an income of three or more minimum salaries were less likely to report IPV compared to those with an income of one minimum salary IPV (Females: APR= 0.95, CI 95% 0.77-1.17; Males: RR=0.82, CI 95% 0.72-0.92) (Table 4).

In addition, partner alcohol use was associated in both stratified models with higher IPV prevalence (Males: [APR=1.68, CI 95% 1.54-1.84]; Females: [APR=1.61, CI 95% 1.40-1.86]. Additionally, IPV prevalence was higher among those who had a partner who used drugs (Males: [RR=2.80, CI 95% 2.46-3.18]. We also found that being never married/divorced/widowed was associated with a lower prevalence of IPV than those who reported being married or living with a partner (Male: APR=0.66 CI 95% 0.56-0.78; Female: APR=0.59 CI 95% 0.45-0.76). Those with previous partners (Male: APR=0.60 CI 95% 0.55-0.66; Female: APR=0.52 CI 95% 0.45-0.60) were less likely than those without previous partners to report self-reported IPV.

Having more than 5 years of couple coexistence was associated with a higher likelihood of self-reported IPV than couples with one year of less coexistence (Male: APR=1.81 CI 95% 1.47-2.23; Female: APR =1.71 CI 95% 1.25-2.34). Compared to those who lived in rural areas, living in urban (Male: APR=1.18 CI 95% 1.05-1.33) or metropolitans (Male: APR=1.16 CI 95% 1.04-1.28; Female: APR=1.20 CI 95% 1.00-1.43) was positively associated with IPV.

 doi:10.20944/preprints202410.2435.v1

Table 4. Factors associated with intimate partner violence. Mexico, NSA 2011 Y NSA 2016.

 doi:10.20944/preprints202410.2435.v1

	Total population N=109,255,184 n=44,963		Male N=53,007,483 n=18,642		Female N=56,247,701 n=26,321	
Factors	**OR**	**IC 95%**	**OR**	**IC 95%**	**OR**	**IC 95%**
Survey Year						
2011	1.00		1.00		1.00	
2016	0.97	(0.89-1.06)	0.95	(0.83-1.09)	1.00	(0.9-1.12)
Sex						
Male	1.00					
Female	1.09	(0.99-1.19)				
Age (Years)						
60 years and over	1.00		1.00		1.00	
40-59	1.43	(1.2-1.71)	1.42	(1.06-1.89)	1.38	(1.11-1.71)
29-39	1.49	(1.24-1.8)	1.69	(1.26-2.27)	1.30	(1.04-1.62)
18-28	1.73	(1.43-2.09)	2.17	(1.57-3)	1.45	(1.15-1.82)
14-17	1.79	(1.35-2.37)	1.80	(1.1-2.92)	1.78	(1.29-2.47)
Monthly family income						
≤1minimum salary	1.00		1.00		1.00	
>1-2 minimum salaries	0.96	(0.87-1.06)	1.02	(0.85-1.23)	0.92	(0.82-1.04)
≥3 minimum salaries mínimos	0.82	(0.72-0.92)	0.95	(0.77-1.17)	0.73	(0.63-0.84)
Don't know	0.70	(0.6-0.82)	0.69	(0.52-0.91)	0.71	(0.58-0.88)
Alcohol use among partners						
No	1.00		1.00		1.00	
Yes	1.68	(1.54-1.84)	1.61	(1.40-1.86)	1.71	(1.53-1.9)
Drug use among partners						
No	1.00		1.00		1.00	
Yes	2.80	(2.46-3.18)	2.33	(1.32-4.11)	2.94	(2.59-3.33)
Marital status						
Married	1.00		1.00		1.00	
Single	0.66	(0.56-0.78)	0.59	(0.45-0.76)	0.69	(0.55-0.87)
Previous Partners						
Yes	1.00		1.00		1.00	
No	0.60	(0.55-0.66)	0.52	(0.45-0.6)	0.67	(0.6-0.74)
Relationship Lenght						
1 year or less	1.00		1.00		1.00	
2 to 5 years	1.57	(1.27-1.93)	1.53	(1.14-2.04)	1.61	(1.21-2.12)
5 and more years	1.81	(1.47-2.23)	1.71	(1.25-2.34)	1.92	(1.45-2.54)
Region of the country						
North-west	1.00		1.00		1.00	
North-central	1.25	(1.09-1.43)	1.35	(1.09-1.66)	1.17	(1.01-1.36)
North-east	1.43	(1.23-1.66)	1.71	(1.37-2.13)	1.25	(1.05-1.49)
West	1.12	(0.97-1.28)	1.24	(1-1.54)	1.04	(0.89-1.21)
Mexico City	0.80	(0.66-0.98)	0.84	(0.63-1.11)	0.79	(0.61-1.03)

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Central	1.35 (1.17-1.57)	1.54 (1.23-1.93)	1.23 (1.04-1.45)
South-central	1.24 (1.08-1.43)	1.36 (1.08-1.73)	1.16 (1-1.35)
South	1.06 (0.92-1.23)	1.18 (0.93-1.51)	0.98 (0.84-1.14)
Place of residence			
Rural	1.00	1.00	1.00
Urban	1.18 (1.05-1.33)	1.19 (0.98-1.43)	1.18 (1.02-1.37)
Metropolitan	1.16 (1.04-1.28)	1.20 (1-1.43)	1.13 (0.99-1.29)

NAS= National Survey on Addictions 2011 y National Survey on Addictions 2016.

OR: Odds ratio 95% CIdel 95% adjusted by age, education, current employment, monthly family income and region of the country.

4. Discussion

The present study provides relevant information on IPV prevalence and associated factors in a representative sample of women and men in Mexico between 2011 and 2016. This study confirmed that both women and men are victims of IPV, although the prevalence was higher in women. The findings of our study showed that the global prevalence of IPV remained unchanged in the study period (From 17.6% in 2011 to 17.8% in 2016). In contrast, a prior study in Mexico conducted with the National Survey on the Dynamics of Household Relationships (ENDIREH), where the prevalence of IPV among women decreased from 25.6% to 20.7% between 2016 (7) and 2021 [29]. These differences could be related to the different definitions in the surveys. However, both surveys found that IPV is still high among the Mexican female population.

We found that low income was associated with higher IPV prevalence; this association was particularly prominent among women, and this result is consistent with previous research in high- and middle-income countries [30,31]. Therefore, effective intervention approaches must be designed to incorporate this risk factor and ensure a better income for women, progressively ensuring a better socioeconomic level.

We found that people whose partners consume alcohol were more likely to experience IPV, and that is consistent with the existing literature on IPV [9,10,14,15,32]. In addition, IPV outcomes are more common when both members consume alcohol [14]. Although, due to the cross-sectional nature of our study, the temporality of the associations cannot be established, this association could be explained through the model by Øverup et al., [33] which states that alcohol use is a strategy to "cope with some difficult personal or emotional situations" which could potentially trigger violence events. We found a similar association for drug use, which is also consistent with previous studies that found that drug use by a partner increases the risk of IPV [10,15].

Considering marital status, we found that single people (never married, divorced, or widowed) are less likely to report IPV. Previous studies found similar results and have described that women who did not cohabit with their partners experienced a lower level of IPV [10,16,17]. In this sense, being married or living with a partner could establish a relationship of power in which male control with a patriarchal structure could be used for the submission or subjugation of women [34].

In addition, we found that residents from urban and metropolitan settings are more likely to report IPV. Iman'ishimwe et al. found that residents of rural areas have a protective effect on IPV (17). However, another potential explanation could be that people who lived in rural settings underreported a higher proportion of IPV outcomes because they could normalize IPV situations [35].

This study has several limitations. First, its cross-sectional nature prevents the establishment of causal associations [36]. Second, some important variables, such as childhood violence history and family violence history, were not included in the study because there were no available survey questions [16,35]. Third, IPV is a sensitive topic, and due to the survey mode (face-to-face interview and ACASI), it is possible that IPV prevalence could be underestimated. Despite these limitations, this is one of the first studies in low, and middle-income countries (LMICs) that have evaluated trends

 doi:10.20944/preprints202410.2435.v1

in IPV and their associated factors using a nationally representative study. Therefore, the findings of this study are relevant for policymakers of Mexico and LMIC countries with similar contexts.

5. Conclusions

This study makes visible the problematic situation of IPV in Mexico. From 2011 to 2016, the global prevalence of IPV remained high. Moreover, IPV prevalence was disproportionally higher among women and people with low income and did not decrease in the study period. Although current programs for violence in Mexico focus on attending to women as victims, comprehensive prevention and future interventions must consider the two directions of IPV (victim and perpetrator). Likewise, it is essential to harmonize interventions to prevent and treat alcohol and drug use and mental health. Therefore, it is necessary to improve and strengthen epidemiological surveillance systems to identify the use of addictive substances in people who report or are reported for IPV and vice versa. It is also necessary to strengthen people's psychosocial skills to achieve gender equality, improve their quality of life, and access a better education with higher income, thus preventing and synergistically reducing the problem of IPV in Mexico.

Author Contributions: Luz Miryam Reynales Shigematsu, Leonor Rivera Rivera and Paola Adanari Ortega Ceballos; methodology, Luz Miryam Reynales Shigematsu, Leonor Rivera Rivera and Paola Adanari Ortega Ceballos; software, Luz Miryam Reynales Shigematsu, Leonor Rivera Rivera, and Paola Adanari Ortega Ceballos; formal analysis, Luz Miryam Reynales Shigematsu, Leonor Rivera Rivera, Paola Adanari Ortega Ceballos and Luis Zavala Arciniega ; investigation, Luz Miryam Reynales Shigematsu, Leonor Rivera Rivera, Paola Adanari Ortega Ceballos and Filiberto Toledano Toledano ; data curation Paola Adanari Ortega Ceballos and Luis Zavala Arciniega ; writing—original draft preparation, Luz Miryam Reynales Shigematsu, Leonor Rivera Rivera, Paola Adanari Ortega Ceballos and Luis Zavala Arciniega ; writing—review and editing, Luz Miryam Reynales Shigematsu, Leonor Rivera Rivera, Paola Adanari Ortega Ceballos. All authors have read and agreed to the published version of the manuscript.

Funding: This research received no external funding

Institutional Review Board Statement: La encuesta contó con la aprobación de los comités de ética del Instituto Nacional de Psiquiatría y del Instituto Nacional de Salud Pública (Conbioética: 17CEI00120130424; Cofepris:13 CEI 17 007 36; FWA: 00015605).

Informed Consent Statement:

Informed consent was obtained from all subjects involved in the study.

Data Availability Statement:

We used data from the 2011 and 2016 National Survey on Addictions (NSA), a nationally representative cross-sectional survey (https://encuestas.insp.mx/repositorio/encodat.php).

Acknowledgments: The authors would like to thank all the participants.

Conflicts of Interest: The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be constructed as a potential conflict of interest.

References

1. World Health Organization, 2013. Global and regional estimates of violence against women: prevalence and health effects of intimate partner violence and non partner sexual violence. Geneva, Switzerland: World Health Organization.
2. Barros, C. R., and Schraiber, L. B., 2017. Intimate partner violence reported by female and male users of healthcare units. *Revista de saude publica* 51 (7), 1-10. https://doi.org/10.1590/S1518-8787.2017051006385.
3. Sugg N.,2015. Intimate partner violence: prevalence, health consequences, and intervention. *The Medical clinics of North America* 99(3), 629–649. https://doi.org/10.1016/j.mcna.2015.01.012.
4. Breiding, M.J., Chen J., and Black, M.C., 2014. Intimate Partner Violence in the United States-2010. Atlanta, GA: National Center for Injury Prevention and Control, Centers for Disease Control and Prevention.
5. Barker, G. and Aguayo, F., 2011. Masculinidades y Políticas de Equidad de Género:Reflexiones a partir de la Encuesta IMAGES y una revisión de políticas en Brasil, Chile y México. Rio de Janeiro: Promundo.

6. United Nations Population Fund. (2021). Prevalence Rates, Trends and Disparities in Intimate Partner Violence: POWER OF DATA IN THE IPV GEOSPATIAL DASHBOARD. New York: UNFPA.
7. Instituto Nacional de Estadística y Geografía (INEGI). (2016). Encuesta Nacional sobre la Dinámica de las Relaciones en los Hogares (ENDIREH) 2016 [Internet]. Available from: https://www.inegi.org.mx/programas/endireh/2016/.
8. Ally, E. Z., Laranjeira, R., Viana, M. C., Pinsky, I., Caetano, R., Mitsuhiro, S., and Madruga, C. S. (2016). Intimate partner violence trends in Brazil: data from two waves of the Brazilian National Alcohol and Drugs Survey. *Revista brasileira de psiquiatria* 38(2), 98–105. https://doi.org/10.1590/1516-4446-2015-1798.
9. Gubi, D., Nansubuga, E., and Wandera, S. O. (2020). Correlates of intimate partner violence among married women in Uganda: a cross-sectional survey. *BMC public health* 20(1), 1008. https://doi.org/10.1186/s12889-020-09123-4.
10. Jewkes, R., Fulu, E., Tabassam Naved, R., Chirwa, E., Dunkle, K., Haardörfer, R., Garcia-Moreno, C., and UN Multi-country Study on Men and Violence Study Team, 2017. Women's and men's reports of past-year prevalence of intimate partner violence and rape and women's risk factors for intimate partner violence: A multicountry cross-sectional study in Asia and the Pacific. *PLoS medicine* 14(9), e1002381. https://doi.org/10.1371/journal.pmed.1002381.
11. Reese, B. M., Chen, M. S., Nekkanti, M., and Mulawa, M. I. (2021). Prevalence and Risk Factors of Women's Past-Year Physical IPV Perpetration and Victimization in Tanzania. *Journal of interpersonal violence* 36(3-4), 1141-1167. https://doi.org/10.1177/0886260517738775.
12. Lawson, J. (2012). Sociological Theories of Intimate Partner Violence. *J Hum Behav Soc Environ* 22,572-90, doi.org/10.1080/10911359.2011.598748.
13. Meinhart, M., Seff, I., Troy, K., McNelly, S., Vahedi, L., Poulton, C., and Stark, L. (2021). Identifying the Impact of Intimate Partner Violence in Humanitarian Settings: Using an Ecological Framework to Review 15 Years of Evidence. *International journal of environmental research and public health* 18(13), 6963. https://doi.org/10.3390/ijerph18136963.
14. Kiss, L., Schraiber, L. B., Heise, L., Zimmerman, C., Gouveia, N., and Watts, C. (2012). Gender-based violence and socioeconomic inequalities: does living in more deprived neighbourhoods increase women's risk of intimate partner violence?. *Social science & medicine* 74(8), 1172-1179. https://doi.org/10.1016/j.socscimed.2011.11.033.
15. Cunradi, C. B., Dellor, E., Alter, H. J., Caetano, R., and Mair, C. (2020). Problem Drinking and Marijuana Use as Risks for Unidirectional and Bidirectional Partner Violence. *Partner abuse* 11(1), 57–75. https://doi.org/10.1891/1946-6560.11.1.57.
16. Abramsky, T., Watts, C. H., Garcia-Moreno, C., Devries, K., Kiss, L., Ellsberg, M., Jansen, H. A., and Heise, L. (2011). What factors are associated with recent intimate partner violence? findings from the WHO multi-country study on women's health and domestic violence. *BMC public health* 11, 109. https://doi.org/10.1186/1471-2458-11-109.
17. Iman'ishimwe Mukamana, J., Machakanja, P., and Adjei, N. K. (2020). Trends in prevalence and correlates of intimate partner violence against women in Zimbabwe, 2005-2015. *BMC international health and human rights* 20(1), 2. https://doi.org/10.1186/s12914-019-0220-8.
18. Blitchtein-Winicki, D., and Reyes-Solari, E. (2012). Factores asociados a violencia física reciente de pareja hacia la mujer en el Perú, 2004-2007. *Revista peruana de medicina experimental y salud publica* 29(1), 35–43. https://doi.org/10.1590/s1726-46342012000100006.
19. World Health Organization. (2020). Global and Regional Frameworksto end VAW. [Internet] Available from: //efaidnbmnnnibpcajpcglclefindmkaj/https://www.unwomen.org/sites/default/files/Headquarters/Attachments/Sections/Library/Publications/2020/RESPECT-implementation-guide-Global-and-regional-frameworks-en.pdf .
20. Secretaría de Gobernación. (2009). Norma Oficial Mexicana PROY-NOM-190-SSA1-1999, Prestación de servicios de salud. Criterios para la atención médica de la violencia familiar. [Internet] Available from: https://www.dof.gob.mx/nota_detalle.php?codigo=4955376&fecha=20/10/1999#gsc.tab=0.
21. Secretaría de Gobernación. (2013). PROGRAMA Nacional para la Igualdad de Oportunidades y no Discriminación contra las Mujeres 2013-2018. [Internet] Available from: https://www.dof.gob.mx/nota_detalle.php?codigo=5312418&fecha=30/08/2013#gsc.tab=0.
22. Secretaría de Gobernación. (2023). Ley general de acceso de las mujeres a una vida libre de violencia. [Internet] Available from: https://www.dof.gob.mx/nota_detalle.php?codigo=4955376&fecha=20/10/19https://www.diputados.gob.mx/LeyesBiblio/ref/lgamvlv/LGAMVLV_orig_01feb07.pdf.
23. Secretaría de Salud. (2013) Encuesta Nacional de Adicciones 2011. Reporte tabaco. [Internet] Available from: http://www.conadic.salud.gob.mx/pdfs/ENA_2011_TABACO.pdf.
24. Instituto Nacional de Psiquiatría Ramón de la Fuente Muñiz; Instituto Nacional de Salud Pública, Comisión Nacional Contra las Adicciones, Secretaría de Salud. (2017). Encuesta Nacional de Consumo de Drogas,

 doi:10.20944/preprints202410.2435.v1

Alcohol y Tabaco 2016-2017: Reporte de Alcohol. Villatoro-Velázquez J.A., Reséndiz Escobar E, Mujica Salazar A, Bretón-Cirett M, Cañas-Martínez V, Soto-Hernández I, et al. Ciudad de México, México: INPRFM; 2017. [Internet] Available from: https://encuestas.insp.mx/ena/encodat2017/reporte_encodat_alcohol_2016_2017.pdf.

25. Zavala-Arciniega, L., Reynales-Shigematsu, L. M., Levy, D. T., Lau, Y. K., Meza, R., Gutiérrez-Torres, D. S., Arillo-Santillán, E., Fleischer, N. L., and Thrasher, J. (2020). Smoking trends in Mexico, 2002-2016: before and after the ratification of the WHO's Framework Convention on Tobacco Control. *Tobacco control* 29(6), 687–691. https://doi.org/10.1136/tobaccocontrol-2019-055153
26. Zavala-Arciniega, L., Reynales-Shigematsu, L. M., Lozano, P., Rodríguez-Andrade, M. Á., Arillo-Santillán, E., and Thrasher, J. F. (2018). Patterns of awareness and use of electronic cigarettes in Mexico, a middle-income country that bans them: Results from a 2016 national survey. *Preventive medicine* 116, 211–218. https://doi.org/10.1016/j.ypmed.2018.09.018
27. Natera Rey, G., Juárez García, F., and Tiburcio Sainz, M. (2004). [Internet] Validez factorial de una escala de violencia hacia la pareja en una muestra nacional mexicana. *Salud Mental* 27(2), 31-38. Available: https://www.medigraphic.com/pdfs/salmen/sam-2004/sam042e.pdf
28. Rivera-Rivera, L., Natera-Rey, G., Séris-Martínez, M., Leyva-López, A., Zavala-Arciniega, L., Ortega-Ceballos, P. A., and Reynales-Shigematsu, L. M. (2021). Encodat 2016: Violencia de pareja y uso de tabaco, alcohol y drogas. Nuevos retos para la salud mental. *Salud publica de Mexico* 63(5), 630–640. https://doi.org/10.21149/12288
29. Instituto Nacional de Estadística y Geografía (INEGI). (2022). Encuesta Nacional sobre la Dinámica de las Relaciones en los Hogares (ENDIREH) 2021. [Internet] Available from: https://www.inegi.org.mx/contenidos/programas/endireh/2021/doc/endireh2021_presentacion_ejecutiva.pdf.
30. Ahmadabadi, Z., Najman, J. M., Williams, G. M., and Clavarino, A. M. (2020). Income, Gender, and Forms of Intimate Partner Violence. *Journal of interpersonal violence* 35(23-24), 5500–5525. https://doi.org/10.1177/0886260517719541.
31. Khalifeh, H., Hargreaves, J., Howard, L. M., and Birdthistle, I. (2013). Intimate partner violence and socioeconomic deprivation in England: findings from a national cross-sectional survey. *American journal of public health* 103(3), 462–472. https://doi.org/10.2105/AJPH.2012.300723.
32. Testa, M., Kubiak, A., Quigley, B. M., Houston, R. J., Derrick, J. L., Levitt, A., Homish, G. G., and Leonard, K. E. (2012). Husband and wife alcohol use as independent or interactive predictors of intimate partner violence. *Journal of studies on alcohol and drugs* 73(2), 268–276. https://doi.org/10.15288/jsad.2012.73.268.
33. Øverup, C. S., DiBello, A. M., Brunson, J. A., Acitelli, L. K., and Neighbors, C. (2015). Drowning the pain: intimate partner violence and drinking to cope prospectively predict problem drinking. *Addictive behaviors* 41, 152–161. https://doi.org/10.1016/j.addbeh.2014.10.006.
34. Pan American Health Organization. (2010). El brindis infeliz: el consumo de alcohol y la agresión entre parejas en las Américas. Washington:, DC: OPS.
35. Ajah, L. O., Iyoke, C. A., Nkwo, P. O., Nwakoby, B., and Ezeonu, P. (2014). Comparison of domestic violence against women in urban versus rural areas of southeast Nigeria. *International journal of women's health* 6, 865–872. https://doi.org/10.2147/IJWH.S70706.
36. Hernández, B., and Velasco-Mondragón, H. E. (2000). Encuestas transversales. *Salud publica de Mexico* 42(5), 447–455.