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Cigarette Smoking among Intimate Partner Violence Perpetrators and Victims: Findings from the National Epidemiologic Survey on Alcohol and Related Conditions

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Abstract

Background and Objectives—Cigarette smoking and intimate partner violence (IPV) are preventable, major public health issues that result in severe physical and psychological consequences. The primary aim of the current study was to examine the consistency and strength of the association between these highly variable behaviors using a nationally representative sample.

Methods—Self-reported IPV perpetration, victimization, and smoking data were collected from 25,515 adults (54% female) through the National Epidemiologic Survey on Alcohol and Related Conditions. Multinomial logistic regression models were constructed to determine the relationships among smoking status (current daily, intermittent, former, and never smoker) and IPV (minor and severe victimization as well as perpetration).

Results—Results indicated a robust relationship between IPV and smoking among both victims and perpetrators. The odds for current daily and intermittent smoking were significantly elevated among those who reported both minor and severe IPV relative to their non-violent counterparts. Mood and anxiety disorders were significant comorbid conditions in the interpretation of the relationship between severe IPV and smoking.

Conclusions—The current study provides strong evidence for a robust relationship between IPV and smoking across current smoking patterns, IPV severity levels, and IPV experience patterns.

Scientific Significance—Findings emphasize the need to better understand the mechanisms by which smoking and IPV are associated and how this interdependence may impact approaches to

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Declaration of Interest

The authors report no conflicts of interest. The authors alone are responsible for the content and writing of this paper.

treatment. Specifically, research is required to assess the efficacy of integrated smoking cessation and IPV treatment or recovery programs over more traditional, exclusive approaches.

Keywords

Cigarette Smoking; Partner Abuse; Perpetration; Victimization; Epidemiological

Cigarette smoking is the leading cause of mortality and morbidity in the United States with more than 440,000 annual deaths from smoking-related illnesses.¹ Smoking is a leading risk factor in the development of many diseases, including multiple forms of cancer, pulmonary diseases, and heart diseases.¹ The health consequences of smoking extend to offspring as well, with adverse consequences on neonatal development and long term behavioral health outcomes.^{2,3} The Centers for Disease Control and Prevention (CDC) estimate the yearly financial impact related to tobacco use to be \$196 billion.⁴

Intimate partner violence (IPV), defined as a coercive pattern of inflicting or threatening physical, sexual or emotional harm to intimidate or control an intimate partner,⁵ represents another complex and devastating public health issue with significant mental and physical health consequences. IPV victimization is emotionally distressing and traumatic with victims reporting significantly greater rates of psychological distress relative to non-victims, including adverse mood and anxiety symptoms such as clinical levels of depression, post-traumatic stress disorder, and other comorbid psychopathologies.^{6,7} Levels of subjective trauma are equally high among those who perpetrate acts of partner violence.⁸ Like IPV victimization, IPV perpetration is also associated with heightened negative affective states, including anxiety and anger.⁹ Similar to smoking, IPV is associated with a substantial societal financial burden estimated at \$4.1 billion in annual health related expenses.¹⁰

Previous Research on the Relationship between IPV and Smoking

Empirical evidence links both IPV victimization and perpetration to increased smoking behavior.^{11,12} Investigations of the relationship between IPV victimization and smoking have generally found positive relationships.¹² A recent meta-analysis of 31 studies reported a significant, moderate association ($d=.41$) between IPV victimization and smoking.¹¹

Most previous studies of IPV and smoking included small samples and few studies analyzed large-scale epidemiological data of the U.S. population, which are more generalizable and critical to prevention and intervention efforts. Three previous epidemiological investigations examined the association between IPV and smoking victimization using data from subsamples of states that were included in the Behavioral Risk Factor Surveillance System, an annual random-digit-dial telephone interview conducted by the CDC to investigate the health risk behaviors of the non-institutionalized U.S. adult population. These studies reported convergent findings in terms of small-to-medium ($ds=0.44$ to 0.57) magnitude effect sizes for female victims and a small ($d=.35$) effect size for a single sample of male victims.¹²⁻¹⁴ While these investigations adjusted for various demographic characteristics, none utilized a nationally representative sample (data were drawn from participants from 6–16 U.S. states), accounted for variability in IPV and smoking behaviors, or examined IPV perpetration. Only one study reported on male victimization. Further, these studies used a

lifetime history of IPV as the victimization variable, introducing possibly irrelevant variability and potential spurious factors that may obscure a relationship between IPV and smoking.

Most recently, Afifi and colleagues were the first to use a nationally representative sample of male and female adults from all fifty states in the U.S. to investigate the relationships between drug dependence and IPV victimization and perpetration.¹⁵ The purpose of the study, which analyzed data from the National Epidemiologic Survey of Alcohol and Related Conditions (NESARC), was to broadly examine the association between IPV and a range of past-year substance use disorders. As IPV data were not collected during the first wave of the NESARC study, analyses were cross-sectional. The authors reported gross small-to-medium effects for the relationship between a past-year nicotine dependence diagnosis and IPV victimization and perpetration for men ($d=0.22$ and 0.18 , respectively) and women ($d=0.40$ and 0.30 , respectively)

Expanding upon Previous Research

Most prior studies of IPV and smoking have included small samples from a limited geographic area and few examined smoking among IPV perpetrators. Further, Afifi and colleagues focused on a diagnosis of nicotine dependence, excluding more than one third of all smokers.¹⁵ IPV and smoking are both heterogeneous constructs composed of individuals distinguishable by numerous individual differences.¹⁶ No study to date has examined variability in these constructs to determine whether relationships between IPV and smoking vary by IPV-related or smoking-related factors.

Variability in Smoking

The CDC recently reported that 19.3% of adults in the United States can be classified as current cigarette smokers.¹⁷ Current smokers can further be divided into daily and intermittent (or non-daily) smokers, groups which may display distinct motivational influences that could moderate the relationship between IPV and smoking.¹⁸

Variability in IPV

Variability is present within IPV samples with regard to the severity of the violence (severe versus minor) and role of those assessed (perpetrator, victim, both). Domestic violence typologies show that perpetrators of severe violence differ from those who perpetrate acts of minor violence in terms of dispositional factors, relationship characteristics, and IPV outcomes.¹⁶ Despite high overlap between perpetration and victimization, no study has considered level of IPV severity or directionality (being a victim versus a perpetrator versus both victim and perpetrator) in the study of IPV and smoking.

Aims of the Current Study

The purpose of the current study was to address identified gaps in the literature related to the relationship between two major public health concerns, IPV and smoking, using a large, nationally representative sample of adults in the United States. The first aim of the study

was to conduct a more extensive examination of the relationship between IPV and smoking than previously published using 4 categories of cigarette smoking behavior (current daily smoker, current intermittent smoker, former smoker, lifetime never smoker), 3 categories of IPV perpetration (severe, minor, none), and 3 categories of IPV victimization (severe, minor, none). We hypothesized that: 1) both daily and intermittent smokers would be more likely than lifetime nonsmokers to report severe and minor IPV victimization and perpetration, 2) the relationship between IPV and smoking would be greater among victims and perpetrators of severe, rather than minor, violence, and 3) there would be no differences in the report of IPV experiences for former smokers compared to life-time non-smokers. The second aim of the study was to examine whether the relationships between IPV and smoking differed by IPV classification (victim, perpetrator, or both victim and perpetrator). Given the research indicating a high prevalence of bi-directional violence within aggressive relationships, we hypothesized that relationships would be significant for all three types of IPV classifications.

Method

Sample

Data used in the current investigation were provided by participants in the National Epidemiologic Survey on Alcohol and Related Conditions (NESARC), a nationally representative survey conducted using in-person interviews at two waves. The NESARC data for Wave 1 (2001–2002) contained 43,093 participants and 80.4% of the eligible Wave 1 participants completed the Wave 2 interview (2004–2005; $n=34,653$). Study methodology for Wave 1 and the Wave 2 follow-up have been detailed in previous publications.^{19,20} Because no measure of IPV was administered in Wave 1 of the NESARC, the current study utilized a subsample of 25,515 participants who reported being involved in a romantic relationship, completed the IPV measure in Wave 2, and reported the frequency of their own smoking in Waves 1 and 2.

Measures

Dependent variable: Smoking Status—Smoking status was a four-level categorical variable consistent with recommendations by the World Health Organization as well as previously published epidemiological research.²¹ This variable was constructed from participants' responses at both the Wave 1 and Wave 2 interviews. The current categories Participants were classified as lifetime non-smokers (LNS; reported smoking less than 100 cigarettes in their lifetime at both Wave 1 and Wave 2), former smokers (FS; reported smoking more than 100 cigarettes either prior to Wave 1 or during the period between the Wave 1 and Wave 2, but were abstinent during the twelve months directly preceding the Wave 2 interview), current intermittent smokers (CIS; reported smoking more than 100 cigarettes either prior to Wave 1 or during the period between the Wave 1 and Wave 2 and reported non-daily cigarette smoking in the twelve months directly preceding the Wave 2 interview), or current daily smokers (CDS; reported smoking more than 100 cigarettes either prior to Wave 1 or during the period between the Wave 1 and Wave 2 and reported daily cigarette smoking in the twelve months directly preceding the Wave 2 interview).

Independent variables: Intimate Partner Violence—IPV Victimization (IPV-V) and IPV Perpetration (IPV-P) were categorical variables that reflected IPV experiences with a “spouse or partner” during the 12 months directly preceding the Wave 2 interview. These variables were assessed using 12 selected items from the Revised Conflict Tactics Scale (CTS).²² Participants responded to items using a 5-point frequency scale ranging from “never” to “more than once a month”, which we dichotomized to reflect the presence or absence of the event. Items included three *severe* acts of IPV (threatening with a weapon; forcing sex; causing an injury that required medical care) and three *minor* acts of IPV (pushing/grabbing/shoving; slapping/kicking/biting/hitting; and cutting/bruising). Both IPV-V ($\alpha = 0.73$) and IPV-P ($\alpha = 0.70$) had three, mutually exclusive levels of response to reflect the severity of respondents’ experiences: Severe IPV (with or without minor IPV), Minor IPV only, and No IPV. Additionally, we categorized respondents’ recent history of IPV regardless of severity, with the four-level categorical variable *IPV-Experience*. This variable indicated whether respondents had (1) both perpetrated IPV and been victims of IPV, (2) only perpetrated IPV, (3) only been victims of IPV, or, (4) had neither perpetrated nor been a victim of IPV. As mentioned above, the absence of an IPV assessment in Wave 1 of the NESARC study precluded the possibility of utilizing the longitudinal data to predict changes in smoking following IPV.

Covariates—Gender (male, female), race/ethnicity (White, Black, Other, Hispanic) age (20–29, 30–44, 45–64, >64 years), marital status (married/living as married, separated/widowed/divorced, never married), education (less than high school, high school graduate, some college, college or above) household income (<\$20,000, \$20,000 to <\$35,000, \$35,000 to <\$70,000, \$70,000), and employment status (full time, part time, not in work force) were included as covariates. The presence of mood disorders (current, lifetime, never in lifetime; included major depression, dysthymia, hypomania, and mania) and anxiety disorders (current, lifetime, never in lifetime; included posttraumatic stress disorder, panic disorder with or without agoraphobia, agoraphobia, specific phobia, social phobia, and generalized anxiety disorder) were assessed with the National Institute on Alcohol Abuse and Alcoholism’s Alcohol Use Disorder and Associated Disabilities Interview Schedule – DSM-IV (AUDADIS-IV), which produces reliable and valid diagnoses based on DSM-IV criteria.²³

Data Analysis

Data analyses were conducted using SUDAAN software, which accounts for the clustered sampling design and sampling weights. Bivariate analyses were conducted using PROC CROSSTAB; statistical significance was determined with the Wald Chi-Square test. We constructed three sets of multinomial logistic regression models to determine the effects of IPV-P, IPV-V, and IPV-Experience (separately) on smoking status (mutually exclusive categories of FS, CIS, and CDS were each modeled against the non-event, LNS). Model 1 was unadjusted for covariates, and included the independent variable only (either IPV-P, IPV-V, or IPV-Experience). Model 2 was adjusted for socio-demographic covariates (gender, age, race/ethnicity, marital status, employment status, education, household income); Model 3 was adjusted for socio-demographic covariates and psychiatric comorbidity (any mood disorder, any anxiety disorder). We present odds ratios (OR),

adjusted odds ratios (AOR), and their associated 95% confidence intervals (CI). Statistical significance was $p < 0.05$.

Results

Demographics

The demographics of the sample are presented by smoking status in Table 1. Smoking status was significantly associated with age, gender, race/ethnicity, marital status, education, household income, employment, any mood disorder, and any anxiety disorder. IPV-P, IPV-V, and IPV-Experience were significantly associated with smoking status (all $p < .0001$; Table 2). Specifically, the prevalence all forms of IPV (i.e. as measured by severity and experience) were highest among current daily and current intermittent smokers, and lowest among former smokers and lifetime non-smokers.

IPV-P and smoking status

In the unadjusted multinomial logistic regression modeling (where lifetime non-smoking was modeled as the non-event), individuals reporting severe IPV-P were nearly two times more likely to report CDS compared to individuals reporting no IPV-P (OR = 1.99, 95% CI = 1.38–2.89). Similarly, individuals reporting minor IPV-P were 1.66 times more likely to report CDS compared to individuals reporting no IPV-P (OR=1.66; 95%CI=1.37–2.01). The odds for reporting CIS were also elevated among persons reporting severe IPV-P and minor IPV-P, relative to those individuals reporting no IPV-P. In contrast to severe IPV-P, minor IPV-P was significantly associated with FS in this model. With further adjustment for psychiatric comorbidity, only minor IPV-P (relative to no IPV-P) remained significantly associated with CDS, CIS, and FS. These results are presented in Table 3.

IPV-V and smoking status

In the unadjusted model, the odds for CDS and CIS (relative to lifetime nonsmoking) were elevated for severe IPV-V and minor IPV-V, relative to no IPV-V. Adjustment for socio-demographic covariates attenuated these associations, but findings remained statistically significant. With further adjustment for psychiatric comorbidity, only minor IPV-V (relative to no IPV-V) remained significantly associated with CDS. These results are presented in Table 3.

IPV-Experience and smoking status

In the unadjusted model, the odds for CDS and CIS (relative to lifetime nonsmoking) were elevated for IPV-P only, IPV-V only, and combined IPV-P and IPV-V, relative to neither IPV-P nor IPV-V. These effects were attenuated but remained significant in the final adjusted model, demonstrating consistency in the IPV-smoking relationship across IPV and smoking status. These results are presented in Table 3.

Discussion

This study was the first to use a nationally representative sample of the general adult U.S. population to examine the relationship between IPV and cigarette smoking. Our results

provide support for and extend the previous literature.^{14,15} This was the first investigation to document a significant relationship between IPV and smoking across a range of smoking frequencies (daily smokers, intermittent smokers, former smokers, lifetime non-smokers), IPV severities (severe, minor, none), and IPV experiences (perpetrator, victim, both, neither). With poor outcomes among both IPV and smoking treatment studies, investigations exploring the dynamic relationships between the two may benefit efforts to understand etiology as well as improve prevention, identification, treatment, and recovery from integrated problematic relationship aggression and smoking behaviors.^{24,25}

Our analyses detected small but robust effects for the association between IPV and smoking, offering support for hypotheses generated from the first aim of the study. Consistent with our first hypothesis, minor and severe perpetration and victimization were associated with daily and intermittent smoking in unadjusted models. In partial support of our second hypothesis, the odds of current daily or intermittent smoking were greater among perpetrators and victims of severe, relative to minor, IPV in unadjusted models. In the fully adjusted model, the odds of current daily or intermittent smoking remained elevated among perpetrators and victims of minor, but not severe, IPV. The odds of former smoking, relative to lifetime nonsmoking, were comparable across reports of IPV experience and severity, offering support for our third hypothesis. Hypotheses generated from our second and third aims were also supported as the odds of current daily or intermittent smoking were greater among previous IPV perpetrators, victims, or both perpetrators and victims relative to participants with a non-violent relationship history, even after adjusting for demographics and psychiatric comorbidity.

Prior investigations have revealed that IPV victims and perpetrators share a number of common characteristics. Bi-directional aggression is the most common configuration of IPV, with perpetrators resembling victims in physical, sexual, and verbal partner violence experiences.²⁶ The present findings demonstrated that associative patterns of IPV and smoking remain consistent across victims and perpetrators, like many other theoretical precipitants to and consequences of partner violence. Participants who endorsed any recent relationship violence were more likely to report current daily smoking than participants in non-violent relationships, indicating that perpetration, victimization, and bi-directional IPV may each be risk factors for smoking.

Research further indicates that operationalizing IPV perpetration as a unitary construct is imprecise as considerable heterogeneity exists across perpetrators such that typologies consistently detect two to three distinct batterer subtypes, including the most severe but least common (i.e. generally violent-antisocial or intimate terrorist) and the least severe but most common (i.e. family only or common couple violence) perpetrators.¹⁶ It is unclear if the relationship between smoking and IPV remains consistent across subtypes. Using minor and severe violence perpetration as proxies for respective batterer subtypes, the current findings may offer initial evidence from which to base future speculation upon the role of typologies in the relationship between IPV and nicotine use as well as other substances of abuse. Unadjusted models generally showed that effect sizes modulated moderately with severity such that the relationship was greater in the presence of severe, rather than minor, IPV. Abuse severity is related to the degree of physical harm incurred and predicts subjective

trauma experience and stress reaction.^{6,27,28} Severe physical victimization is a greater risk factor than less severe aggression for depressed affect and PTSD, two variables which are associated with smoking and nicotine dependence.^{27,28} When controlling for psychiatric disorders, only minor IPV was significantly associated with increased daily and intermittent smoking. It is possible that severe IPV-V and IPV-P elevate symptoms of anxiety and depression that subsequently influence the rates of nicotine use and dependence through a self-medication effect. Even after adjusting for demographics and psychiatric history, minor IPV was consistently associated with smoking. Clarifying the conditions under which these two prominent public health concerns are associated may improve prevention, treatment, and recovery for both.

Although the current methodology does not lend itself to establishing the mechanisms by which smoking and IPV are related, existing etiological models suggest that the relationship may be either causal or through third variables associated with both smoking and IPV. Consistent with theories of smoking and mood, negative affect (i.e., sadness, anxiety, and anger) may mediate the relationship between IPV and smoking.²⁹ Individuals who experience psychological distress are more likely to self-medicate with nicotine in the attempt to cope with or reduce the experience of negative affect.²⁹ As described earlier, IPV is associated with heightened as well as clinically significant distress and negative affect.^{6,7} Smoking has been directly attributed to maladaptive coping in response to clinical diagnoses and IPV.³⁰ Etiologically, both behavioral and neurological processes may contribute to the long-term use of nicotine as a method of coping with IPV-related psychological distress. Nicotine use is positively reinforcing through an initial, enjoyable physiological response and temporary reduction of depressive symptomatology as well as negatively reinforcing through a secondary, relaxing response that eases anxiety and anger.³¹ Neuroplasticity also allows for neurological adaptations to nicotine use that contribute to a state of physiological addiction. Nicotine intake temporarily reduces negative affect through stimulation of the nicotinic acetylcholine receptors which effect multiple neurotransmitters.³² Neurotransmitters adapt to chronic nicotine use, intensifying the physiological and psychological effects of withdrawal and often amplifying feelings of depression, anxiety, and anger.³³ Both behavioral and neurological processes contribute to the potential association between the negative affect resulting from IPV events and the use of cigarettes to cope with this negative affect.

Alternatively, previously disparate lines of research show that both smoking and IPV share associations with a number of variables, such as high impulsivity and poor executive functioning.^{34,35} Future research should evaluate the potential mechanisms by which smoking and IPV are associated, perhaps through intermittent naturalistic prospective methodologies in which nicotine dependent participants submit daily reports of smoking and IPV during cessation treatment such that the relationship can be assessed during periods of active smoking, acute withdrawal, and following cessation.

Implications for Healthcare

The adverse health consequences of smoking are reduced through smoking cessation;¹ however, many smokers are unable to quit smoking or are unable to maintain smoking

abstinence after quitting.²⁵ In addition, women, who represent a greater proportion of severe IPV victims, may have more trouble quitting smoking than men with some smoking treatments.³⁶ Given the significant, robust effects observed between IPV and smoking and evidence for improvements in affect after smoking cessation, it may be beneficial for both batterer intervention programs and domestic violence advocates to provide clients with psychoeducational materials on the risks of smoking, optional smoking cessation recommendations for treatment, and alternative coping skills.³⁷ The Clinical Practice Guidelines for Treating Tobacco Use and Dependence recommends the use of the 5 A's to those who work with high risk populations.²⁵ The 5 A's include asking about smoking, advising smokers to quit, assessing motivation to quit, assisting with quitting, and arranging contacts.

Limitations

The CTS-2 items selected for use in the NESARC study were limited to a subset of physically or sexually violent behaviors while psychological victimization has been independently associated with maintenance of smoking quantity and frequency.³⁸ Future investigations should consider distinguishing between physical, sexual, verbal, and psychological aggression to determine if the association between IPV and smoking varies by the type of aggression experienced. The utilization of a subset of relevant items from the CTS-2 is a common practice for reducing participant burden in IPV research.^{39,40} Additionally, the CTS-2 items were only administered during Wave 2 of the NESARC. Future investigations should make use of a more comprehensive violence assessment using longitudinal methods to identify the influence of batterer subtypes and predict changes in smoking status following the onset of IPV.

Conclusions

There was consistency in the relationships between IPV and smoking patterns across perpetrators and victims in a nationally representative sample of the adult U. S. population. The relationships were prominent across all current smoking patterns, IPV severity levels, and IPV experience patterns. After adjusting for psychopathology, the association between IPV and current smoking was only observed among minor perpetrators and victims. Compared to participants in non-violent relationships, participants who reported perpetration only, victimization only, or both perpetration and victimization were at increased odds of current smoking, regardless of adjusting for demographics and psychiatric disorders. The current study supports the homogeneity of adverse health consequences attributed to both IPV victimization and perpetration and demonstrates the interdependent nature of these two public health concerns.

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Table 1

Socio-Demographic Description of Sample by Smoking Status

	Current Daily Smokers		Current Intermittent Smokers		Former Smokers		Lifetime Non-Smokers		χ^2	<i>p</i>
	N	%	N	%	N	%	N	%		
Age									29.11	<.0001
20–29	913	21.9	243	34.4	440	7.4	2409	18.0		
30–44	1652	35.0	285	36.0	1343	21.2	5682	36.5		
45+	1991	43.1	224	29.6	4138	71.4	6195	45.5		
Gender									41.30	<.0001
Male	2223	53.9	402	57.2	3353	59.8	5763	45.5		
Female	2333	46.1	350	42.8	2568	40.2	8523	54.5		
Race/Ethnicity									9.70	<.0001
White	2979	76.3	400	66.9	4083	80.6	7677	67.0		
Black	783	9.8	124	10.6	763	6.6	2578	11.0		
Other	233	6.6	27	4.3	191	4.2	738	7.6		
Hispanic	561	7.3	201	18.2	884	8.6	3293	14.4		
Marital Status									25.70	<.0001
Married/Cohabitate	2787	68.5	443	62.7	4744	86.3	10677	80.1		
Widowed/Divorced/Separated	901	14.8	105	10.2	743	8.3	1447	6.6		
Never Married	868	16.7	204	27.1	434	5.4	2162	13.3		
Education									23.37	<.0001
Less than high school	825	17.7	86	10.2	833	13.7	1645	9.7		
High school Graduate	1568	35.4	202	28.0	1614	27.9	3351	23.4		
Some College and Above	2163	46.9	464	61.8	3474	58.4	9290	66.9		
Household income									15.32	<.0001
\$0–19,999	1019	19.6	122	14.0	770	11.0	1961	11.9		
\$20,000–34,999	1041	21.1	152	20.1	1121	18.1	2490	15.7		
\$35,000–69,999	1507	35.2	249	32.7	2177	37.4	4851	33.4		
\$70,000+	989	24.0	229	33.2	1853	33.4	4984	39.0		
Employment Status									19.24	<.0001

	Current Daily Smokers		Current Intermittent Smokers		Former Smokers		Lifetime Non-Smokers		χ^2	<i>p</i>
	N	%	N	%	N	%	N	%		
Full time	2673	59.3	501	68.6	2880	48.0	8553	59.6		
Part time	454	9.9	89	10.7	640	10.6	1639	11.9		
Not in labor force	1429	30.7	162	20.7	2401	41.4	4094	28.5		
Any Mood Disorder									21.97	<.0001
Current	782	16.2	131	15.5	495	7.8	1305	8.3		
Lifetime	901	19.7	129	16.7	990	15.5	2020	13.6		
Never	2873	64.1	492	67.8	4436	76.7	10961	78.1		
Any Anxiety Disorder									20.27	<.0001
Current	1171	24.5	171	20.7	918	14.7	2152	13.6		
Lifetime	673	14.4	101	14.7	918	15.0	1770	12.2		
Never	2712	61.0	480	64.6	4085	70.3	10364	74.2		

Table 2

Frequencies of Partner Violence Perpetration and Victimization by Smoking Status

	Current Daily Smokers		Current Intermittent Smokers		Former Smokers		Lifetime Non-Smokers		χ^2	<i>p</i>
	N	%	N	%	N	%	N	%		
IPV-Perpetration									9.05	<.0001
Severe	74	1.2	13	1.5	45	0.6	114	0.6		
Minor	368	6.9	76	9.0	238	3.9	747	4.3		
None	4114	91.9	663	89.6	5638	95.5	13425	95.0		
IPV-Victimization									10.40	<.0001
Severe	114	1.9	19	2.1	65	0.9	165	0.9		
Minor	334	6.7	58	7.2	205	3.5	651	4.1		
None	4108	91.1	675	90.7	5651	95.6	13470	95.0		
IPV Experience									8.41	<.0001
Perpetration/Victimization	280	5.3	56	7.1	171	2.73	522	3.1		
Perpetration only	162	2.9	33	2.3	112	1.8	339	1.9		
Victimization only	168	3.6	21	2.2	99	1.7	294	1.9		
Neither	3946	88.3	642	87.4	5539	93.8	13131	93.1		

Table 3
Intimate Partner Violence and Smoking Status Results from Logistic Regression (N=25,515)

	Unadjusted Model			Model 1 ^a			Model 2 ^b		
	OR	95% CI	AOR	95% CI	AOR	95% CI	AOR	95% CI	
Current Daily Smokers vs. Lifetime Non-Smokers									
IPV Perpetration									
Severe	1.99***	1.38–2.89	1.76**	1.19–2.60	1.40	0.93–2.10			
Minor	1.66***	1.37–2.01	1.61***	1.32–1.97	1.39**	1.13–1.72			
None	1.00	--	1.00	--	1.00	--			
IPV Victimization									
Severe	2.20***	1.59–3.04	1.74**	1.24–2.46	1.40	0.97–2.02			
Minor	1.78***	1.49–2.12	1.64***	1.36–1.98	1.39**	1.15–1.69			
None	1.00	--	1.00	--	1.00	--			
IPV Experience									
Perpetration and Victimization	1.81***	1.48–2.21	1.66***	1.34–2.05	1.38**	1.11–1.72			
Perpetration only	1.60***	1.23–2.07	1.67***	1.27–2.21	1.47**	1.11–1.95			
Victimization only	1.98***	1.54–2.56	1.73***	1.30–2.29	1.46*	1.10–1.93			
Neither	1.00	--	1.00	--	1.00	--			
Current Intermittent Smokers vs. Lifetime Non-Smokers									
IPV Perpetration									
Severe	2.51**	1.31–4.81	2.33*	1.20–4.51	1.91	0.98–3.73			
Minor	2.19***	1.62–2.97	2.03***	1.48–2.77	1.82***	1.33–2.50			
None	1.00	--	1.00	--	1.00	--			
IPV Victimization									
Severe	2.46***	1.47–4.11	1.74*	1.24–2.46	1.68	0.99–2.85			
Minor	1.85***	1.30–2.61	1.64*	1.36–1.98	1.32	0.92–1.89			
None	1.00	--	1.00	--	1.00	--			
IPV Experience									
Perpetration and Victimization	2.48***	1.76–3.48	2.17***	1.54–3.07	1.88***	1.32–2.68			

	Unadjusted Model			Model 1 ^a			Model 2 ^b		
	OR	95% CI	AOR	95% CI	AOR	95% CI	95% CI	AOR	95% CI
Perpetration only	1.85*	1.16–2.94	1.84*	1.15–2.94	1.67*	1.05–2.65			
Victimization only	1.21	0.65–2.25	0.90	0.48–1.68	0.78	0.42–1.45			
Neither	1.00	--	1.00	--	1.00	--			
Former Smokers vs. Lifetime Non-Smokers									
IPV Perpetration									
Severe	0.95	0.61–1.47	1.18	0.76–1.85	1.12	0.72–1.75			
Minor	0.90	0.74–1.09	1.32*	1.07–1.64	1.28*	1.03–1.59			
None	1.00	--	1.00	--	1.00	--			
IPV Victimization									
Severe	1.02	0.72–1.46	1.74	1.24–2.46	1.21	0.82–1.77			
Minor	0.84	0.69–1.03	1.64	1.36–1.98	1.09	0.87–1.37			
None	1.00	--	1.00	--	1.00	--			
IPV Experience									
Perpetration and Victimization	0.88	0.71–1.09	1.25	0.99–1.57	1.20	0.96–1.51			
Perpetration only	0.93	0.71–1.22	1.40*	1.06–1.85	1.35*	1.02–1.79			
Victimization only	0.86	0.64–1.17	1.06	0.76–1.49	1.01	0.72–1.41			
Neither	1.00	--	1.00	--	1.00	--			

Notes. OR = odds ratio, AOR = adjusted odds ratio, CI = confidence interval

* p<0.05,

** p<0.01,

*** p<0.001

^a Model adjusted for age, gender, ethnicity, marital status, household income, and employment status

^b Model adjusted for age, gender, ethnicity, marital status, household income, employment status, mood disorder, and anxiety disorder