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Gambling and Physical Intimate Partner Violence: Results from the National Epidemiologic Survey on Alcohol and Related Conditions (NESARC)

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Abstract

Background and Objectives: Links between intimate partner violence (IPV) and gambling problems are under researched in general population samples. Understanding these relationships will allow for improved identification and intervention. We investigated these relationships and sought to determine whether links were attenuated by axis I and II disorders.

Methods: This study examined data from waves 1 and 2 (N=25,631) of the National Epidemiologic Survey on Alcohol and Related Conditions (NESARC); a nationally representative survey of U.S. adults. Gambling symptoms and other psychiatric disorders were measured at wave 1 by the Alcohol Use Disorder and Associated Disability Interview Schedule-DSM-IV Version (AUDADIS-IV). Physical IPV victimization and perpetration in the last 12 months were assessed three years later at wave 2 using items from the Conflict Tactics Scale- R. Binary logistic regression models were used to examine associations separately for males and females.

Results: Problem gambling was associated with increased odds of both IPV perpetration for males (OR= 2.62, 95% CI= 1.22-5.60) and females (OR= 2.87, 95% CI= 1.29-6.42), and with IPV victimization for females only (OR= 2.97, 95% CI= 1.31-6.74). Results were attenuated with inclusion of axis I and axis II disorders; links between gambling and IPV were weaker than those involving other mental health conditions.

Conclusions and Scientific Significance: There are prospective associations with gambling problems and physical IPV which have implications for identification, spontaneous disclosure and treatment seeking. The links between gambling problems and violence are complex and should not be considered independently of co-occurring mental health and substance use disorders.

Background

Gambling Disorder describes a general class of behavioural addiction, characterised by enduring maladaptive behavior that can lead to family, social, personal or recreational pursuits being disrupted or damaged.[1,2] Interpersonal harms subsume effects on families, and studies have documented associations with problematic or disordered gambling and relationship difficulties including marital dissatisfaction,[3] reduced family stability,[4] the worsening of intimate relationships[5] and family dysfunction.[6] Growing evidence shows that interpersonal dysfunction may regress into violence and that gambling problems represent a significant risk factor for family and intimate partner violence (IPV).[7,8,9]

The terminology used to describe problem gambling is variable, with the terms "problem," "pathological" and "compulsive" gambling used commonly in the literature. Gambling was re-classified from an impulse control disorder to an addiction in the recent version of the Diagnostic Manual of Mental Disorders,[1] and renamed under the umbrella term "disordered gambling" in recognition of the similarities between behavioral and substance addictions. The term problem gambling refers to all forms of gambling that lead to adverse consequences for the gambler, others, or the community.[10] It has been acknowledged that problem gambling is a considerable public health concern with estimates of between 1-2% of the population affected.[2] IPV is defined as any sexual or physical violence, or psychological abuse involving a current or ex-partner, and may comprise victimization and/or perpetration.[11] While the temporal and causal order between gambling and IPV remains unclear, it has been theorised that gambling-related stressors (e.g., financial losses, relationship neglect) impact on family conflict and can become a catalyst for escalating violence.[8,9] Alternatively, for some victims of family violence, gambling may be used as a coping mechanism to physically and emotionally escape from IPV victimization.[8,12]

In contrast to problem gambling, there are no consistently reported prevalence estimates for family violence, both perpetration and victimization in the general population. Most estimates of physical and/or sexual IPV victimization range between 15% and 34% for ever-partnered women[13], and a prevalence estimate for past year physical IPV perpetration for ever-partnered men is 22%[14]. Moreover, many studies exploring the prevalence of physical IPV in general populations according to gender have conflicting findings. Some research indicates that women show slightly higher rates of physical IPV perpetration than men,[15] while others show that physical IPV is more likely to be perpetrated by men, with women as victims[16] and men more likely to perpetrate serious violence[11] with women being injured as a result.[17] Furthermore, substance use and mental illness have both been shown to increase the risk of physical IPV perpetration/victimization, principally in women although findings have been mixed.[17] Studies that have investigated the role of gender in the relationship between problem gambling and physical IPV perpetration also show mixed findings. A previous study[8] found that women gamblers (49%) were more likely than men (22%) to report physical injury perpetration, however, others have failed to find such links. [12]

There are limited data on the associations between gambling disorders and IPV in general populations. A recent systematic review identified only 14 studies that considered links involving problem gambling and IPV.[7] Meta-analyses of these 14 studies revealed that 37% of problem gamblers were perpetrators of physical IPV (lifetime), whilst 38% reported being a victim of physical IPV (lifetime). Although the studies included in the meta-analysis show reliably high levels of co-occurring problem or pathological gambling and IPV,[18] a disproportionate number of studies reported on patients recruited from specialised gambling treatment services[8,19] or IPV perpetrator programmes,[18] making them vulnerable to significant selection bias and a lack of meaningful comparison groups. Only a small number of studies have evaluated the relationship between IPV and problem gambling in representative community samples; one in Canada,[20] one in in the United States[12,] and most recently one of males in the UK.[21]

The earliest relevant population-based study was carried out in Canada (n=7,214) and found that 23% of individuals classified as pathological gamblers reported physical IPV perpetration.[20] However, this study did not include IPV victimization and rates were not compared to levels among non-pathological gamblers. A nationally representative study based on the U.S. National Comorbidity Survey - Replication (NSC-R; n = 3,334)[12] included combined measures of both physical IPV perpetration and victimization for a range of severity levels and types of violence and established that pathological gambling had strong associations with any minor dating violence perpetration (odds ratio [OR] = 5.7; 95% CI=2.0-18.7), severe dating violence perpetration (OR =11.9; 95% CI=2.9-49.6) and marital violence victimization that was classified as minor (OR = 10.8; 95% CI=1.8-63.4) or severe (OR = 39.3; 95% CI=4.9-318.6). However, the small number of pathological gamblers (*n*=33) in the NSC-R meant that estimates were imprecise.[8,18] A more recent study of gambling and violence in a nationally representative sample of UK men[21] found that there was a general tendency for male gamblers to become involved in violent situations such as physical fights and weapon use; and among problem and pathological gamblers, the risks of violence were elevated, and seemed to generalise to those in close relationships with the perpetrator (physical IPV). These associations remained significant after adjusting for alcohol and drug dependence, comorbid mental disorder and impulsivity.[21] These findings are important since problem gambling is often co-morbid with other behavioral and psychological symptomology, personality disorders and other addictions (e.g., alcohol/drug use disorders)[22] which may explain the co-occurrence with IPV. It must be noted that physical abuse is the most researched and detectable form of IPV, although violence from one person to another can be much more than purely physical (i.e. emotional) [11]. The present paper focuses on the former while examining its relationship with gambling to enable direct comparisons with previous research in the area.

The aim of the current study was to prospectively examine the link between problem gambling and future incidents of physical IPV, using data from the U.S. National Epidemiologic Survey

on Alcohol and Related Conditions (NESARC);[23] which is a large and representative U.S. survey conducted in 2000-01 (wave 1) and 3 years later in 2004-05 (wave 2). As far as can be ascertained, this is the first evaluation of NESARC that has focussed on gambling and IPV, and thus uses nationally representative longitudinal data that situates gambling problems (wave 1) and IPV (wave 2) prospectively in time. This is the largest representative study of gambling problems which reports both IPV victimization and perpetration separately for males and females.[12] It also controls for both axis I and axis II comorbid psychiatric disorders, and thus assesses some 'third variable' explanations that may account for associations involving gambling problems and IPV. It was hypothesised that:

1) When controlling for socio-demographics, there would be positive associations between gambling problems and IPV victimization and perpetration, whereby rates of IPV would be elevated among respondents reporting at risk or problem gambling, relative to no gambling problems;
2) There would be gender differences in the association between gambling disorders and IPV perpetration and victimization, whereby rates of IPV victimization and perpetration will be elevated among females reporting at risk / problem gambling, relative to males reporting at risk / problem gambling ; and
3) Associations involving gambling problems and IPV would be attenuated, but will remain significant, when controlling for comorbid psychopathology including mood, anxiety, substance use and personality disorders.

2. Method

2.1 Sample and procedure

Wave 1 of NESARC was a nationally representative survey of U.S. adults aged 18 years or older living in non-institutionalised settings. Selection of households was based on a multi-stage stratified sampling design,[23] with Census primary sampling units (PSUs; stratified by socio-demographics), households, and members of households sampled in succession. Respondents residing in group living arrangements, including dormitories, boarding houses

and group homes were also sampled. One person from each household (or group living arrangement) was selected randomly. Black and Hispanic households and young adults (ages 18-24) were oversampled. Once respondents were identified and consented, data were collected through computer assisted face-to-face interviews with 43,093 respondents (a response rate of 81%). Wave 2 was conducted three years later, with participants from Wave 1; excluding those who were ineligible (e.g., if deceased). A total of 34,653 face-to-face interviews were conducted at Wave 2 (86.7% of the eligible sample). Respondents in a married / cohabitating relationship and who responded to the IPV questions at Wave 2 comprised the sample (N=25,631). Data were adjusted to account for oversampling. Sampling frames, sampling methods and weighting techniques are described in more detail elsewhere.[24, 25]

2.2 Survey Measures

Problem/pathological gambling (wave 1)

Gambling symptoms were measured at wave 1 by the Alcohol Use Disorder and Associated Disability Interview Schedule-DSM-IV Version (AUDADIS-IV).[23] This structured diagnostic tool measures the ten criteria for DSM-IV pathological gambling, referencing both lifetime and past-year timeframes; the latter of which was used in our analyses. The criteria were administered to participants who reported gambling at least five times in any one year of their life. Participants who did not report gambling at least five times in any one year were categorised in the "no symptom" category. The measure has been utilized to derive classifications of problem gambling (3+ DSM-IV symptoms) and at-risk gambling (1-2 symptoms).[26] The psychometric properties of the AUDADIS-IV for gambling have been empirically confirmed; Cronbach α coefficients range from 0.92 for symptom items and 0.80 for problem gambling.[27]

Physical Interpersonal Violence (IPV) (Wave 2)

Physical IPV victimization and perpetration in the last 12 months were assessed at Wave 2 using items from the Conflict Tactics Scale (CTS), Form R.[28] The CTS is a valid and reliable

measure of family violence; Cronbach α coefficients range from 0.69 to 0.88.[28] Participants were asked to respond to six perpetration questions regarding their abusive behavior towards a partner (e.g. How often did you push, grab or shove your spouse/ partner?") and six victimization questions regarding abusive behavior directed towards the respondent from a partner (e.g. How often did your spouse/ partner push, grab or shove you?"). Other questions included either interpersonal perpetration or victimization of the following types; slapping, kicking, biting, or punching; threatening with a weapon; cutting or bruising; forcing sex; and causing injury that required medical care. Response options ranged from 1 ("never") to 5 ("more than once a month"). A positive response (scores from 2-5) to any of the perpetration items defined physical IPV perpetration and a positive response to any of the victimization items defined physical IPV victimization.

Covariates

Socio-demographics (Wave 1)

Socio-demographic measures used in the regression models (categorisation in parentheses) included; gender (male, female); age (18-29, 30-44, ≥ 45); relationship status (married/cohabitating, separated/divorced/widowed, never married); education (less than high school, high school, some post-school education or higher); annual personal income ($0-19 999, $20 000-34 999, ≥ $35 000); employment status (employed, unemployed, not in labour force); and ethnicity (white, non-white).

Other Psychiatric disorders (Wave 1)

Past year Axis I diagnostic variables were measured by the AUDADIS-IV and included mood disorders (major depression, dysthymia, mania, hypomania); anxiety disorders (panic disorder with and without agoraphobia, social phobia, specific phobia, generalised anxiety disorder) and substance use disorders (alcohol and drug abuse). The AUDADIS-IV also provided diagnoses of seven Axis II disorders (avoidant, dependent, obsessive-compulsive, paranoid, schizoid, histrionic and antisocial personality disorders). Axis II diagnostic criteria were not

restricted to the past year and participants were asked how they felt or acted throughout their lifetime. The psychometric properties of the AUDADIS-IV for measuring psychiatric disorders have been empirically supported.[29]

2.3 Data analysis

Analyses were conducted using STATA version 14.0. Weighted percentages were calculated to indicate the prevalence of interpersonal violence conditional on gambling problem categories in the national population. The analyses considered a continuum of gambling severity including no problems (0 symptoms), at risk gambling (1-2 symptoms), and problem gambling (3+ symptoms). Binary logistic regression was used to examine relationships and estimate differences in physical IPV perpetration and victimization according to levels of problem gambling severity (compared with no gambling problems). Covariates were entered into the analysis in stages: In the first model, all associations with gambling problems and physical IPV were adjusted for socio-demographic covariates (Model 1); in the second model, associations were adjusted by socio-demographics, and any mood and any anxiety disorders (Model 2); in the third model, adjustments were made for socio-demographics, mood and anxiety disorders, and alcohol and drug abuse (Model 3); in the fourth model, adjustments were made for socio-demographics, mood and anxiety disorders, alcohol and drug abuse, as well as any personality disorder (Model 4). Analyses were run separately for males and females. A significance level of 5% was adopted for all analyses.

3. Results:

Descriptive statistics:

Table 1 reports estimates of the prevalence of physical IPV according to gambling problem categories. These indicate that the percentage of individuals reporting physical IPV perpetration and victimization increased with gambling problem severity. Overall, the percentage of females reporting physical IPV perpetration was higher than males. Likewise,

the percentage of females reporting physical IPV victimisation was higher than males for those with 3+ gambling symptoms (problem gambling).

Table 1 here

Regression analyses: Prediction of perpetration:

Table 2 shows the results from regression analyses that specified associations between gambling problems and physical IPV perpetration, while controlling firstly for sociodemographic variables, then additionally axis I and axis II disorders. In both males and females, after controlling for sociodemographic correlates (Model 1), the presence of problem gambling (3+ symptoms) was associated with increased odds of physical IPV perpetration compared to those with no gambling problems. The associations were generally attenuated with inclusion of the other axis I and axis II covariates. For example, after adjustments for mood and anxiety disorders (Model 2), the associations between gambling problems and physical IPV perpetration was attenuated, and remained significant for males but not females. When additional adjustments were made for alcohol and drug abuse and personality disorders (Models 3 and 4), associations between gambling problems and physical IPV perpetration among males also became non-significant. The analyses including all covariates (Model 4) indicated that alcohol abuse and personality disorders were significant predictors of physical IPV perpetration among males, while all mood, anxiety, substance use and personality disorders were associated with perpetration among females.

Table 2 here

Regression analyses: Prediction of victimization:

Table 3 shows associations between gambling problems and physical IPV victimization. In both males and females, after controlling for sociodemographic variables, the presence of at

risk gambling (1-2 symptoms) was associated with increased odds of physical IPV victimization (Model 1) compared to no gambling problems. In females only, the presence of problem gambling (3+ symptoms) was also associated with physical IPV victimization (Model 1). When additional adjustments were made for co-occurring disorders (Models 2, 3 and 4), all associations between gambling problems and physical IPV victimization were no long significant. The analyses including all covariates (Model 4) indicated that alcohol abuse, drug use and personality disorders were significant predictors of physical IPV victimization among males, while all mood, anxiety, alcohol abuse and personality disorders were associated with victimization among females.

Table 3 here

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4. Discussion

This study adds to growing evidence demonstrating a relationship between problem gambling and IPV and thus demonstrates the interpersonal implications of gambling problems.[8,9,12,18,21] The findings make unique contributions by addressing both physical IPV victimization and perpetration, separately for males and females, and also situating associations prospectively in time. A focus on both genders was also important given that the experience of IPV may be different for males and females; with women constituting the largest victim group[30] and the need for medical treatment for injury more often;[11] although it is now recognised that men can experience victimization at similar rates.[31] However, it must be noted the degree to which studies find gender differences may be a consequence of the type of IPV measurement used in different studies.

In the present study, problem gambling was associated with increased odds of physical IPV perpetration among males and females, and increased levels of victimization among females

only, especially at high levels of gambling severity when controlling for socio-demographic variables. Similar links have been observed previously and have informed suggestions that IPV may be a consequence of gambling problems, whereby gambling-related harms (e.g., loss of finances) can contribute to family stress or conflict and the eventual perpetration of violence by partners.[8,19] Alternatively, it has also been suggested that people may use gambling as a coping mechanism[8,12] and a means of escape from negative emotional states,[32] with some evidence suggesting that women, in particular, may use gambling in this way.[19]

However, the current results also indicated that associations with gambling problems and physical IPV were substantially reduced (and were non-significant) when controlling for other psychiatric disorders. These findings are inconsistent with findings from a study of UK males which found that associations with gambling problems and physical IPV remained significant when adjusting for alcohol and drug dependence, comorbid mental disorders and impulsivity.[21] These differences may result from the stringent design features of the NESARC that provide minimally biased estimates of comorbid disorders, and suggest 'third variable' accounts of associations with gambling problems and IPV. For example, it may be that other psychiatric disorders which co-occur with gambling problems[22] may be responsible for associations with IPV. Alternatively, it may be that the shared mechanisms which underlie multiple forms of psychopathology (e.g., impulse control difficulties, emotional dysregulation)[8] can also account for increased vulnerabilities and exposure to IPV. The current findings do not distinguish such possibilities, but may suggest that gambling problems and IPV should not be considered independently from complex psychiatric comorbidities which may have major roles in the linkages between gambling problems and IPV.

Moreover, the bivariate links between gambling and physical IPV were weaker than those involving other mental health conditions and there were observable gender differences in the strength of association. In males, alcohol and drug abuse and personality disorder were found to have the strongest associations with both physical IPV perpetration and victimization.

Likewise, in females, alcohol abuse and personality disorder were found to have the strongest associations with physical IPV. Alcohol and drug use disorders have consistently shown to be the most prevalent mental health problem among IPV perpetrators[33] whilst personality disorders have also been shown to be highly prevalent.[34] While the grounds for this robust association are not clear, it is possible that irritability, hostility, hyperarousal and anger associated with substance use withdrawal may increase the risk for IPV. It has been also suggested that IPV may increase the risk of developing mental health psychopathology and enduring mental ill health could moderate the risk for further re-victimization.[35] However more population-based research is needed to ascertain the mechanisms. Whatever the grounds for association, these links add further evidence that these conditions may account for associations with gambling problems and IPV. Indeed, it may be that IPV and the linked psychopathology may be mediated by the same mechanisms; possible links subsisting as impulse control issues, or emotional dysregulation, especially in those with comorbid substance abuse problems.[8]

Limitations

The present study is not without limitations that should be considered when interpreting the findings. Physical IPV was assessed through self-report and did not include corroborative data from other sources (e.g., police records). The specific IPV measure comprised a short version of the Conflict Tactics Scale which has also been subject to various criticisms (for example, it does not include measures of emotional abuse and coercive control).[36] Gambling problems were measured at wave 1 only, while IPV was measured at wave 2 only. As such, the design can situate gambling problems in advance of IPV, although not the reverse. Furthermore, since IPV was only measured in Wave 2, it is not possible to know whether it had also existed at the same level in Wave 1. The finding of a relationship with problematic gambling may be spurious. The data did not capture either the gambling habits or the psychopathology of the respondent's spouse/partner at the time of interview, which may have systematically biased our estimated proportions in some way. Moreover, there was limited variability in some of the

socioeconomic indicators of our analyses. Further research based on longitudinal designs may be required to fully comprehend the mechanisms underlying such a link.

Implications

This is the first evaluation of NESARC that has focussed on problematic gambling and IPV, and provides novel usage of a large nationally representative study that is relevant to a range of mental health and social services. The current findings highlight the need for problem gambling treatment services to remain vigilant for both IPV perpetration and victimization and consider potential identification (e.g., screening) programmes.[21] Moreover, the deleterious effects of IPV at personal, familial, and societal levels may suggest the need for programs of mental health care and gambling treatment for individuals that perpetrate IPV, as well as those who are victimized. Integrating mental health care and gambling treatment services, along with other services situated in the criminal justice and social care systems may be required to provide comprehensive responses to IPV, gambling problems and co-occurring psychiatric issues.

It seems to be complex mental health comorbidities, rather than gambling problems on their own, that may account for elevations in IPV in problem gambling samples. Gambling problems themselves may sometimes reflect a more complex psychopathology which manifests itself through other mental health problems such as substance abuse. Consequently, this study suggests that services providing problem gambling treatment and IPV screening may benefit from strategies for identifying and addressing comorbidities with other mental illnesses. Likewise, there is a need for other services as such as IPV victimization services and perpetrator programmes to routinely screen for gambling problems and related comorbidities as a matter of course.

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Authors' contributions:

Author JH conducted the statistical analysis. All authors contributed to and have approved the final manuscript. All views expressed are those of the author(s) and not necessarily those of the U.S. Census Bureau.

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Table 1: Prevalence of Interpersonal Violence and Gambling Symptoms

	Males									Females								
	0 symptoms			1-2 symptoms At Risk gambling			3+ symptoms Problem gambling			0 symptoms			1-2 symptoms At Risk gambling			3+ symptoms Problem gambling		
	%	95% CI		%	95% CI		%	95% CI		%	95% CI		%	95% CI		%	95% CI	
		LB	UB		LB	UB		LB	UB		LB	UB		LB	UB		LB	UB
Victimization (any)	5.7	5.2	6.2	8.8	6.2	12.3	10.2	5.3	19.0	5.4	4.9	5.9	8.3	5.4	12.6	15.7	7.8	29.1
Perpetration (any)	4.1	3.7	4.5	5.2	3.2	8.3	11.5	5.9	21.1	6.9	6.4	7.5	8.1	5.3	12.3	18.7	9.7	32.9

Table 2: Associations between Gambling Problems and IPV Perpetration

Variables		Model 1			Model 2			Model 3			Model 4		
		OR	95% CI		OR	95% CI		OR	95% CI		OR	95% CI	
			LB	UB		LB	UB		LB	UB		LB	UB
Males (n=11,782)													
Gambling Problems	1-2 symptoms	1.26	0.75	2.12	1.19	0.70	2.02	1.03	0.59	1.78	0.96	0.55	1.68
	3+ symptoms	**2.62***	1.22	5.60	**2.37***	1.08	5.20	2.01	0.92	4.37	1.69	0.78	3.67
Axis I Disorders	Mood				1.31	0.93	1.86	1.18	0.83	1.68	1.05	0.73	1.49
	Anxiety				**1.49***	1.06	2.09	1.36	0.96	1.93	1.20	0.84	1.71
	Alcohol abuse							**1.81***	1.38	2.37	**1.75***	1.33	2.29
	Drug abuse							**2.00***	1.08	3.70	1.81	0.97	3.37
Axis II Disorders (any)											**1.62***	1.23	2.12
Females (n = 13,843)													
Gambling Problems	1-2 symptoms	1.23	0.79	1.92	1.05	0.67	1.64	1.02	0.64	1.60	0.97	0.61	1.54
	3+ symptoms	**2.87***	1.29	6.42	2.21	0.95	5.12	2.08	0.88	4.96	1.98	0.83	4.73
Table 1:													
Axis I Disorders	Mood				**1.69***	1.38	2.06	**1.58***	1.29	1.95	**1.40***	1.13	1.73
	Anxiety				**1.46***	1.18	1.79	**1.42***	1.15	1.75	**1.24***	1.01	1.54
	Alcohol abuse							**1.57***	1.17	2.11	**1.52***	1.13	2.04
	Drug abuse							**2.37***	1.35	4.14	**2.18***	1.24	3.83
Axis II Disorders (any)											**1.65***	1.36	2.00

***P≤ 0.05** Dependent variable = IPV perpetration. Independent variables:

Model 1 = gambling problems + socio-demographics

Model 2 = gambling problems + socio-demographics + any mood + any anxiety disorder

Model 3 = gambling problems + socio-demographics + any mood + any anxiety disorder + alcohol and drug abuse

Model 4 = gambling problems + socio-demographics + any mood + any anxiety disorder + alcohol and drug abuse + any personality disorder

Table 3: Associations between Gambling Problems and IPV Victimization

Variables		Model 1			Model 2			Model 3			Model 4		
		OR	95% CI		OR	95% CI		OR	95% CI		OR	95% CI	
			LB	UB		LB	UB		LB	UB		LB	UB
Males (n=11,782)													
Gambling Problems	1-2 symptoms	**1.54***	1.03	2.30	1.46	0.96	2.20	1.26	0.82	1.95	1.19	0.77	1.83
3+ symptoms		1.55	0.74	3.26	1.41	0.66	3.01	1.27	0.60	2.70	1.06	0.50	2.26
Axis I Disorders	Mood				**1.42***	1.04	1.94	1.29	0.94	1.76	1.13	0.82	1.57
Anxiety					**1.41***	1.04	1.91	1.29	0.94	1.75	1.13	0.84	1.53
Alcohol abuse								**1.51***	1.20	1.90	**1.46***	1.16	1.84
Drug abuse								**2.72***	1.50	4.94	**2.46***	1.34	4.49
Axis II Disorders (any)											**1.64***	1.30	2.05
Females (n = 13,843)													
Gambling Problems	1-2 symptoms	**1.64***	1.03	2.59	1.38	0.86	2.19	1.30	0.81	2.07	1.23	0.77	1.97
3+ symptoms		**2.97***	1.31	6.74	2.22	0.95	5.18	2.01	0.83	4.87	1.89	0.77	4.62
Axis I Disorders	Mood				**1.78***	1.43	2.23	**1.67***	1.33	2.10	**1.44***	1.13	1.84
Anxiety					**1.52***	1.20	1.92	**1.47***	1.17	1.86	**1.27***	1.01	1.59
Alcohol abuse								**1.87***	1.37	2.54	**1.79***	1.31	2.44
Drug abuse								1.68	0.91	3.10	1.53	0.83	2.81
Axis II Disorders (any)											**1.78***	1.43	2.21

***P≤ 0.05** Dependent variable = IPV victimization. Independent variables:

Model 1 = gambling problems + socio-demographics

Model 2 = gambling problems + socio-demographics + any mood + any anxiety disorder

Model 3 = gambling problems + socio-demographics + any mood + any anxiety disorder + alcohol and drug abuse

Model 4 = gambling problems + socio-demographics + any mood + any anxiety disorder + alcohol and drug abuse + any personality disorder