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Intimate Partner Violence and Drinking Among Victims of Adult Sexual Assault

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Abstract

Intimate partner violence is associated with problem drinking. Correlates of alcohol consumption frequency and problem drinking were examined among female sexual assault survivors (N = 1863). Data were analyzed with blockwise multiple regressions. Results show heavy alcohol consumption and problem drinking were associated with intimate partner violence history, sexual assault by strangers/acquaintances, and maladaptive coping. Physical Intimate Partner Violence (IPV) history and partner sexual assault showed distinct effects on drinking outcomes among women. Physical IPV history partially mediated the effect of Child Sexual Abuse (CSA) on problem drinking. Research is needed to examine the relationship between victimization histories and drinking among female sexual assault victims. This may enable treatments and interventions to be tailored to the trauma histories of female victims.

Keywords

sexual assault; child sexual abuse; intimate partner violence; problem drinking; community

Many women experience physical (28.2%) and sexual (26.3%) IPV during their lifetimes (Black et al., 2011), both of which have serious effects on women's health (Campbell et al., 2002; Coker, Smith, Bethea, King, & McKeown, 2000). Specifically, adult sexual assault, childhood sexual abuse (CSA) and intimate partner violence (IPV) in women have been connected with increased risk for alcohol problems (Plichta, 2004; Temple, Weston, Stuart & Marshall, 2008; Timko, Sutkowi, Pavao, & Kimerling, 2008; White & Chen, 2002; Wilsnack, Vogeltanz, Klassen, & Harris, 1997). Problem drinking is a pattern of drinking that is harmful to the drinker, and based on the number of drinks, frequency of heavy drinking and its consequences. “Typical drinking” refers to the amount one usually drinks, while “heavy drinking” refers to frequency of drinking, at least 4 drinks in one day for women (NIAAA, 1990).

Compared to violence perpetrated by strangers, IPV is associated with increased problem drinking/heavy drinking among female victims (White & Chen, 2002; Wilsnack et al., 1997). One reason may be that IPV-related sexual assaults are often more severe than violence perpetrated by strangers. For example, Stermac, Del Bove, Brazeu & Bainbridge

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(2006) studied rape crisis center records and found that assaults committed by spouses or boyfriends were characterized by more coercion, physical trauma, and severe injury than those committed by strangers and other assailants. IPV related assaults also tend to involve repeated violence (McFarlane et al., 2005). Both severity and number of assaults are connected with increased problem drinking (McFarlane et al., 2005; Stermac et al., 2006). Therefore, survivors of IPV may be vulnerable to problem drinking. However, studies have yet to assess the role of physical IPV history and romantic partner sexual assault to investigate whether they differentially impact women's problem drinking. Assault-related responses may also influence recovery outcomes.

Problem drinking among victims is likely to be impacted by post-assault factors, such as maladaptive coping. Maladaptive coping strategies can include various forms of avoidance including, cognitive disengagement (e.g., blocking out thoughts), behavioral disengagement (e.g., social withdrawal), denial, and/or use of substances to cope. Avoidance coping strategies are a common response to stressful life events, such as rape (Littleton, Horsley, John, & Nelson 2007). Women with histories of sexual victimization and other traumas (e.g., child abuse, IPV) may be more likely to engage in various forms of avoidance or maladaptive coping such as drinking to cope (Bissonnette et al., 1997; Ullman, Filipas, Townsend & Starzynski, 2005). Drinking to cope with distress is related to greater alcohol consumption and drinking problems (Holahan, Moos, Holahan, Cronkite, & Randall, 2001; Park & Levenson, 2002).

Other post-assault factors that predict victim problem drinking are depressive symptoms (Campbell, Dworkin, & Cabral, 2009; Goldstein, Flett & Wekerle, 2010; Mushquash et al., in press) and negative social reactions. When victims disclose sexual assault, negative reactions from the other person (e.g., blaming the victim, taking control, distraction, stigma, egocentric responses; Ullman, 2000) are related to problem drinking (Ullman, Starzynski, Long, Mason, & Long, 2008). Less work exists on negative social reactions to victims of physical IPV, but preliminary work suggests a similar relationship to sexual assault (Goodkind, Gillum, Bybee & Sullivan, 2003). Thus, more studies are needed to understand the possible relationship of negative reactions and problem drinking.

Present Study

The purpose of the present study is to examine correlates of problem drinking in sexual assault victims. Physical IPV history, romantic partner sexual assault, pre-assault drinking, maladaptive coping, negative social reactions, and depressive symptoms are expected to predict worse drinking outcomes, such as frequency of typical drinking, frequency of heavy drinking and problem drinking symptoms. We chose two aspects of alcohol consumption – frequency of typical drinking and frequency of heavy drinking -- to test whether different factors predict heavier consumption versus their usual consumption. This is important for identifying factors contributing to normal versus problematic drinking that can be targeted in treatment and intervention.

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Method

Sample and Procedure

A volunteer sample of women (N = 1863) from a large Midwestern metropolitan area, age ranging from 18 to 71 (M = 31.1, SD = 12.2) was recruited for a mail survey. The racial composition was: 45% African-American, 35% White, 2% Asian and 8% identified as other, 10% mixed/multiple race categories. When asked about ethnicity, 14% of the sample identified as Hispanic. The sample was well-educated (34.6% college degree or higher, 43.5% some college, 21.9% high school or less). Just under half of the sample (46.8%) was currently employed and 68% had household incomes of less than $30,000. Participants were recruited for a study of unwanted sexual experiences via newspaper advertisements, Craigslist, university mass mail, and fliers posted in the community, at local colleges and universities, and social service agencies (e.g., community centers, cultural centers, substance abuse clinics, domestic violence and rape crisis centers). Interested women called the research office and were screened for eligibility using the following inclusion criteria: a) had an unwanted sexual experience at age 14 or older, b) were currently 18 or older, and c) had previously told someone about their unwanted sexual experience. Eligible participants were mailed packets containing the survey, an informed consent form, a list of community resources for dealing with victimization, and a stamped return envelope for the completed survey, which participants returned by mail. Participants were paid $25 for participating. The response rate was 85%. The university's Institutional Review Board approved study procedures.

Measures

Trauma history measures—*Sexual victimization* was assessed separately in both childhood (prior to age 14) and in adulthood (at age 14 or older) using a modified version of the Sexual Experiences Survey (SES-R; Testa, VanZile-Tamsen, Livingston, & Koss, 2004) that assesses various forms of sexual assault including: unwanted sexual contact, verbally coerced intercourse, attempted rape, and rape resulting from force or incapacitation (e.g., from alcohol or drugs). The revised 11-item SES-R measure had good reliability (α = .73); similar reliability was found in our sample for adult sexual assault (α = .78). CSA was assessed with the SES-R, as well as adult sexual assault severity (study eligibility was to have had an adult unwanted sexual experience). In this study responses to the SES prior to age 14 were used to code a 5-level ordinal variable indicating *CSA severity* ranging from no CSA (coded as 0) through completed rape (coded as 4) (M = 1.88, SD = 1.72, α = .89) The lowest category on this measure was none, thus including women without CSA in the analyses. CSA was assessed with the SES-R, separately from other traumatic events, because this trauma requires multiple specific behavioral questions and has unique effects on women's psychological and substance use/abuse outcomes (Sartor et al., 2012; Wilsnack et al., 1997) compared to other traumas (Molnar, Buka, & Kessler, 2001).

Romantic partner sexual assault was assessed with the question, “What was your relationship to the person at the time of your unwanted sexual experience?” Women indicating husband or other romantic partner (e.g., lover, boyfriend) were coded as having a romantic partner sexual assault (21% of the sample). Of those with a romantic partner adult

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sexual assault, 68.9% had a history of physical IPV, significantly higher than those assaulted by other perpetrators, 31.1% of whom had this history, X^2 (1, 1655) = 24.66, p = .000. For women with repeated adult sexual assaults, they were asked to focus on their most serious experience.

Intimate partner violence history was assessed with a single question modified from Green, Chung, Daroowalla, Kaltman, & DeBenedictis's (2006) Stressful Life Experiences Questionnaire-Revised asking women, “As an adult, have you ever been kicked, beaten, slapped around, or otherwise physically harmed by a romantic partner?” Fifty-nine percent of women had a history of physical intimate partner violence in their lifetime. Of those with a physical IPV history, 25.4% had a romantic partner sexual assault whereas 15.5% had other assailants.

Depression—Depression was measured using a 7-item version of the Center of Epidemiologic Studies Depression Scale (CESD-7) modified by Mirowsky and Ross (1990). In this study, participants were asked to rate their symptoms over the past 12 months using a 5-point Likert scale from 0 (*never*) to 5 (*always*). In this sample, α = .86 (*M* = 2.01, *SD* = .75).

Maladaptive coping strategies—Strategies used in the past 12 months to cope with sexual assault were assessed with the Brief COPE (Carver, 1997), a 28 item measure with Likert scale items from1 (*I didn't do this at all*) to 4 (*I did this a lot*). Maladaptive coping was derived from a factor analysis, and the average of responses to 8 four-point Likert-scale items (behavioral disengagement, denial, self-blame, substance use) and was reliable (α = .81; *M* = 16.35, *SD* = 5.78). Sample maladaptive coping items include: “I refused to believe that it happened,” “I used alcohol or other drugs to make myself feel better,” “I blamed myself for things that happened.”

Negative social reactions—The Social Reactions Questionnaire (SRQ; Ullman, 2000) assessed how often women received 48 different social reactions from any support provider disclosed to since the assault happened. For each reaction, the scale ranges from 0 (*never*) to 4 (*always*). Responses were averaged to create subscales assessing the frequency with which participants received negative reactions (e.g., blaming or stigmatizing reactions, such as “Told you that you could have done more to prevent this experience from occurring” or “Said he/she feels you're tainted by this experience”). On average, women reported “rarely” receiving negative reactions (*M* = .96, *SD* = .80). The SRQ has good test-retest reliability (*r*s = .68 to .77) and evidence of several forms of validity as reported by Ullman (2000). The subscales were also reliable in this sample, α = .93.

Drinking frequency and problem drinking—Frequency of typical drinking in the past year was assessed with a question: “On a typical drinking occasion, how much do you usually drink?” with 4 response categories (“usually no more than 1 drink” to “usually 4 or more drinks”). On a typical drinking occasion, participants consumed an average of 2.78 (*SD* = 1.04) drinks. Frequency of heavy past year drinking was assessed with a question: “How often did you have 4 or more drinks in a single day?” with 5 ordinal response

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categories (ranging from “every day” to “less than once a month”). The measure had descriptives of: *M* = 2.25, *SD* = 1.24.

We examined two problem drinking measures – the MAST and TWEAK – because research shows that these measures may vary in their sensitivity for capturing problem drinking by women (Chan et al., 1993). Past-year problem drinking was assessed with the Michigan Alcoholism Screening Test (MAST, Selzer, 1971), a widely used 25-item (no/yes) standardized self-report screening instrument for alcohol abuse and dependence. The number of past-year alcohol-related problems was coded as a continuous measure (*M* = 2.90, *SD* = 4.22, α =.80).

Second, we used the TWEAK, a 5 item scale assessing alcohol related problems (T = tolerance, W = Worry about drinking, E = eye-opener, A = Amnesia/blackouts, K = Cut down; Russell, 1994) to assess past-year problem drinking. The instrument is scored on a 7-point scale, with positive responses to tolerance and worry questions scored as 2 points, and 1 point each for the last three items, with total scores of 3 or more indicating problem drinking. The TWEAK is more sensitive and specific than other brief measures of problem drinking in women, such as the CAGE or the B-MAST (Chan et al., 1993) and had the following descriptives in this sample: *M* = 2.38, *SD* = 2.24.

Data Analyses

Bivariate correlations were calculated to examine how trauma variables and post-assault responses were each related to measures of alcohol consumption and problem drinking. Four blockwise multiple regression analyses were conducted to predict typical alcohol consumption, frequency of heavy drinking, and problem drinking. Age, race, and education were entered in Block 1 to evaluate the roles of demographics in relation to drinking outcomes. Second, CSA severity, IPV history, and romantic partner sexual assault were entered in Block 2 to evaluate the contribution of victimization history to drinking beyond demographic factors. Third, maladaptive coping, negative social reactions to assault disclosure, and depressive symptoms were entered to determine whether post-assault factors relate to drinking outcomes while controlling for both demographics and trauma variables.

Results

We examined correlates of problem drinking. As shown in Table 1, increased CSA severity was related to greater maladaptive coping, more negative social reactions, depression and problem drinking. CSA severity was also positively related to physical IPV history as expected but unrelated to romantic partner-sexual assault. Physical IPV history was related to romantic partner-sexual assault and to greater maladaptive coping, negative social reactions, depression, and drinking. Maladaptive coping was related to greater negative social reactions, depression, and problem drinking as expected. Negative social reactions were also related to greater depression and problem drinking, and depression and problem drinking were positively correlated.

Four blockwise multiple regressions were computed to predict frequency of typical drinking, frequency of heavy drinking, and problem drinking. As is shown in Table 2, for the first two

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models predicting frequency of usual consumption and frequency of heavy drinking, older age was related to less typical drinking but more frequent heavy drinking. White respondents reported more typical alcohol consumption but not more frequent heavy drinking. Higher educational level was related to less typical and heavy alcohol consumption. CSA severity was unrelated to either alcohol consumption measure. Physical IPV history was associated with more frequent typical and heavy drinking. IPV sexual assault was related to less frequent typical and heavy drinking than other known or stranger perpetrated sexual assaults. Maladaptive coping was associated with more typical and heavy drinking. Negative social reactions were related to more typical drinking but were unrelated to frequency of heavy drinking. Finally, depressive symptoms were unrelated to typical drinking but were related to more frequent heavy drinking.

For the second two models predicting problem drinking measures, age was associated with less problem drinking on the TWEAK but not the MAST. White participants reported more problem drinking on both measures, and more education was related to less problem drinking on both measures. CSA severity was unrelated to either problem drinking measure after adding covariates. For both measures, physical IPV history was associated with more problem drinking, but IPV sexual assault was linked to less problem drinking. Maladaptive coping had a relationship with greater problem drinking on both measures, and negative social reactions were unrelated to problem drinking. Depressive symptoms were not linked with problem drinking on the MAST, but were associated with more problem drinking on the TWEAK. These results show that demographics are related to alcohol consumption and problem drinking. Thus, these are important correlates to control for when predicting drinking outcomes in sexual assault victims.

Physical IPV history was related to greater alcohol consumption and problem drinking, whereas IPV sexual assault was associated with less drinking compared with acquaintance and stranger sexual assaults. Additionally, CSA severity was unrelated to drinking. Moreover, in terms of post-assault factors, maladaptive coping was connected with greater alcohol consumption and problem drinking, but negative social reactions did not have a significant impact, except for greater typical drinking. Depressive symptoms were related to greater heavy drinking and problem drinking. Finally, we tested whether physical IPV mediated the effect of CSA severity on problem drinking in this sample using path analysis in MPlus. As expected, we found that physical IPV significantly partially mediated the effect of CSA on problem drinking, estimate: 1.13, $p < 0.05$, *CI*: 0.71-1.55. These findings suggest that adult physical IPV may explain some of the increased risk that CSA accounts for in women's problem drinking.

Discussion

The present study examined the role of physical IPV, sexual assault by a romantic partner and CSA histories on the problem drinking of adult female sexual assault victims. This is the first study to examine the relationship between IPV history, romantic partner sexual assault and post-assault responses to problem drinking in adult female sexual assault victims. Results show that in a sample of adult female sexual assault victims, history of physical IPV, acquaintance/stranger sexual assault and maladaptive coping were related to greater problem

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drinking. While past research shows CSA history relates to problem drinking in women generally (Wilsnack et al., 1997) and in sexual assault victims (Ullman et al., 2007); in the present study, CSA severity was unrelated to drinking.

CSA severity was associated with greater alcohol consumption and problem drinking at the bivariate level, but only physical IPV history remained significant in regression models predicting alcohol consumption and problem drinking, controlling for other factors. This may be because the effect of CSA is less important than other more recent adult traumas, such as IPV. On the other hand, the lack of statistical significance for CSA severity may be because it was associated with adult IPV in women and therefore did not contribute unique variance to problem drinking. In this way, more recent violence may be capturing the effects of earlier abuse in childhood (Chan, Yan, Brownridge, Tawani, & Fong, 2010; Diagneault, Hebert, & McDuff, 2009), so CSA's effect on drinking was indirectly manifested via IPV. In support of this explanation, we found that physical IPV partially mediated the effect of CSA severity on problem drinking.

This finding suggests that physical IPV history is a risk factor for greater alcohol consumption and problem drinking among sexual assault victims. Research is needed to understand why this history may increase the risk for drinking in sexually assaulted women. IPV may indicate more adult violence exposure overall, possibly resulting in greater cumulative stress and risk of drinking. Although physical IPV history was associated with romantic partner sexual assault, partner assaults were related to less drinking for all four measures than non-partner sexual assaults. This may indicate that drinking is associated with nonpartner assaults occurring at bars or parties, but further investigation is necessary. Other research shows other negative effects of partner sexual assault, such as greater injury severity and PTSD (McFarlane et al., 2005; Stermac et al., 2006), so a broader range of outcomes needs study for different types of violence by different perpetrators.

Negative social reactions predicted problem drinking initially in correlations, but this was not statistically significant in the regression analyses. Past studies of sexual assault victims have shown a relationship between negative social reactions and problem drinking (Ullman et al., 2008). This suggests that other factors than social reactions were more important predictors of drinking. Similar to previous adult sexual assault studies, maladaptive coping was related to greater alcohol consumption and problem drinking (Ullman et al., 2005). A possible explanation for this result is that maladaptive coping includes substance use coping. However, maladaptive coping is related to problem drinking in women in general, not just those with an adult sexual assault history (Grayson & Nolen-Hoeksema, 2005). Depression was also related to problem drinking. This suggests that treatment may be important for the reduction of problem drinking among adult sexual assault victims. This is consistent with past research (Kendler et al., 2000; Goldstein et al., 2010), suggesting that treating depression in survivors may reduce drinking. Treatment and interventions may need to focus on the adaptive coping mechanisms.

Demographic control variables were significant in the regressions, with White respondents reporting greater problem drinking and greater frequency of typical drinking, but less frequent heavy alcohol consumption, a finding supported by some past research (Huerta &

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Borgonovi, 2010). Perhaps White sexual assault victims may engage in heavy episodic drinking (i.e., drinking heavily only on rare or sporadic occasions), more often than women of color. However, more research is needed to confirm this pattern. Age and education were related to less problem drinking. This suggests that older, more educated survivors may be at lower risk.

Limitations

Although the sample size in this study was suitably large, generalizability is limited by the cross-sectional design and non-representative sample. The sample was comprised of all adult sexual assault victims to understand how trauma histories and post-assault coping predicts drinking problems in this high-risk group, thus findings may not generalize to all trauma survivors. We were primarily interested in the added risk that additional traumas (physical IPV, romantic partner assault, CSA severity) can present for developing problems commonly associated with sexual assault, in order to understand why some victims develop such problems, while others are more resilient. Further limitations include IPV history and sexual assault by a romantic partner only being assessed with one item each. Thus, the study does not allow for a full assessment of the effects of all childhood and adult traumas. Also, given that all women were assaulted in adulthood, we cannot examine risk factors for revictimization, however, future waves of data will allow us to explore risk for future revictimization.

Our study had a number of strengths including a large, ethnically and socioeconomically diverse sample. These findings suggest that maladaptive coping should be targeted in treatment with sexual assault survivors, especially those with histories of physical IPV and CSA. Physical IPV related sexual assault predicted less alcohol consumption and problem drinking in regressions than other forms of sexual assault. Even after controlling for physical IPV history, IPV related sexual assault was still significant. It is unclear if physical IPV history is more significant and/or overlapping completely with women reporting partner sexual assault. Women with partner sexual assault were highly likely to have a history of physical IPV (68.9%) so further research is needed with representative samples to understand this issue more fully and the risk women with histories of multiple forms of current and past IPV history face for drinking. Practitioners who treat survivors of sexual assault should conduct comprehensive trauma history assessment, including the perpetrator's relationship to the victim, and address how those histories may impact their responses to assault and drinking.

To conclude, heavy drinking and problem drinking were associated with intimate partner violence history, sexual assault by strangers/acquaintances, and greater maladaptive coping. Importantly, physical IPV history and partner sexual assault showed distinct effects on drinking outcomes among women. Finally, physical IPV history partially mediated the effect of CSA on problem drinking. Further research is needed on the relationship between victimization histories and drinking among female sexual assault victims to better understand how type of violence and the relationship type influence drinking outcomes. Such information is needed to inform treatments and intervention specific to unique trauma histories of female victims.

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Biography

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Table 1

Correlations between trauma, coping, reactions, and symptoms (ns = 1240-1799)

	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.
1. CSA severity	—	.24*	−.05	.30*	.26*	.21*	.10*	.16*	.15*	.10*
2. IPV history		—	.12*	.22*	.18*	.19*	.11*	.21*	.16*	.16*
3. IPV sexual assault			—	−.04	−.05	−.01	−.04	.06	−.03	−.06
4. Maladaptive coping				—	.42*	.46*	.24	.32*	.34*	.34*
5. Negative reactions					—	.30*	.01	.14*	.15*	.10*
6. Depressive symptoms						—	.22*	.25*	.20*	.23*
7. Alcohol consumption							—	.45*	.39*	.59*
8. Heavy drinking								—	.54*	.54*
9. Problem drinking – MAST									—	.67*
10. Problem drinking – TWEAK										—

Note.

* $p \leq .001$.

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Table 2

Hierarchical Regression Model Predicting Alcohol Outcomes

	Alcohol Consumption			Heavy Drinking			MAST			TWEAK		
Predictor	**B**	**b**	**SE**	**B**	**b**	**SE**	**B**	**b**	**SE**	**B**	**b**	**SE**
Step 1												
Age	−.01	−.14***	.00	.01	.14***	.00	.01	.02	.01	−.02	−.09**	.01
Race	.18	.09**	.07	.08	.04	.09	.79	.09***	.26	.74***	.17	.15
Education	−.28	−.25***	.04	−.39	−.29***	.05	−1.01	−.22**	.14	−.72	−.28***	.08
Step 2												
Age	−.01	−.18***	.00	.01	.09*	.00	−.01	−.02	.01	−.03	−.14***	.01
Race	.27	.11***	.07	.13	.05	.10	1.08	.13***	.26	.85	.19***	.15
Education	−.23	−.20***	.04	−.33	−.24***	.05	−.76	−.17***	.15	−.58	−.23***	.09
CSA	.04	.07*	.02	.02	.03	.03	.26	.11**	.08	.05	.04	.05
IPV history	.23	.11**	.07	.39	.16***	.10	1.01	.12***	.27	.78	.18***	.16
IPV SA	−.18	−.07*	.08	−.26	−.08*	.12	−.72	−.07*	.31	−.53	−.09***	.18
Step 3												
Age	−.01	−.16***	.00	.01	.11**	.00	.00	.01	.01	−.02	−.11***	.01
Race	.22	.11***	.07	.13	.05	.09	.99	.12***	.25	.83	.18***	.14
Education	−.18	−.16***	.04	−.25	−.19***	.05	.43	−.09***	.15	−.40	−.16***	.08
CSA	.02	.03	.02	−.01	−.02	.03	.08	.03	.08	−.03	−.02	.05
IPV history	.19	.09**	.07	.28	.12**	.10	.66	.08*	.26	.58	.13***	.15
IPV SA	−.18	−.07*	.08	−.23	−.07*	.12	−.66	−.06*	.30	−.50	−.09**	.17
Maladaptive coping	.04	.20***	.01	.04	.19***	.01	.20	.27***	.03	.11	.28***	.02
Negative reactions	−.13	−.10**	.05	−.07	−.04	.06	.10	.02	.17	−.12	−.04	.10
Depressive symptoms	.06	.04	.05	.17	.10*	.07	.25	.05	.18	.22	.07*	.11

Note: Coefficients for each step of models shown.

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DV = *Alcohol Consumption:* Step 1: F (3, 954) = 27.35, p = .000, Adj R^2 = .08; Step 2: F (6, 951) = 17.29, p = .000, Adj R^2 = .09; Step 3: F (9, 948) = 16.22, p = .000, Adj R^2 = .13. DV = *Heavy Drinking:* Step 1: F (3, 646) = 24.33, p = .000, Adj R^2 = .10; Step 2: F (6, 643) = 15.82, p = .000, Adj R^2 = .12; Step 3: F (9, 640) = 15.12, p = .000, Adj R^2 = .16. DV = *MAST:* Step 1: F (3, 1090) = 18.19, p = .000, Adj R^2 = .05; Step 2: F (6, 1087) = 15.11, p = .000, Adj R^2 = .07; Step 3: F (9, 1084) = 21.76, p = .000, Adj R^2 = .15. DV = *TWEAK*: Step 1: F (3, 881) = 32.61, p = .000, Adj R^2 = .10; Step 2: F (6, 878) = 22.77, p = .000, Adj R^2 = .13; Step 3: F (9, 875) = 25.99, p = .000, Adj R^2 = .20.

*** p<.001

** p<.01

* p<.05.