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Alcohol-Related Consequences: Factor Structure and Associations with Trait Mindfulness and Drinking Motivations

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Alcohol-Related Consequences:

Factor Structure and Associations with Trait Mindfulness and Drinking Motivations

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B.A., The College of New Jersey, 2011

A Thesis

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APPROVAL PAGE

Master of Science Thesis

Alcohol-Related Consequences: Factor Structure and Associations

with Trait Mindfulness and Drinking Motivations

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ABSTRACT

Objective. This two-study project aimed to determine if motivations to use alcohol (coping and social motivations) mediate the relationship between trait mindfulness and a variety of alcohol-related consequences and to determine if the relationship between motivations to use alcohol and alcohol-related consequences is moderated by alcohol use. Study 1 determined the factor structure of positive and negative consequences of alcohol use. In Study 2, this structure served as the outcome across eight moderated mediation models. **Method**. For Study 1, data were obtained from 165 undergraduate students to perform exploratory factor analysis (EFA) on alcohol-related consequences. For Study 2, data were obtained from 296 undergraduate students to confirm the alcohol-related consequences factor structure and to test eight moderated-mediation models. **Results**. In Study 1, four alcohol-related consequences scales were identified (romantic/sexual, positive, mild negative, and severe negative consequences) by EFA and confirmed in Study 2. The motive of drinking to cope significantly mediated the relationship between trait mindfulness and all four of the alcohol-related consequences scales. Drinking to socialize was only a marginally significant mediator between trait mindfulness and three of the alcohol-related consequences scales. **Conclusions**. The identified four-factor structure suggests that alcohol-related consequences should be assessed in a more specific manner. Additionally, different motivations for alcohol use relate differentially to trait mindfulness and different alcohol-related consequences; drinking to cope is particularly problematic for this population. Future research on the usefulness of promoting mindfulness to reduce problematic drinking appears warranted.

Alcohol-Related Consequences: Factor Structure and Associations with Trait Mindfulness and Drinking Motivations

Alcohol consumption is prevalent on college campuses, with two-thirds of full-time college students reporting drinking alcohol in the past month and nearly 37% reporting episodes of binge drinking (i.e., 5 or more drinks for men or 4 or more drinks for women on a single occasion; Schulenberg et al., 2019; NIAAA, 2019). Heavy drinking in college has been identified as the most important health hazard for college students by the National Institute of Alcohol Abuse and Alcoholism (NIAAA, 2015) and is related to a greater risk of experiencing alcohol-related consequences (Hingson, Zha, & Smyth, 2017; Johnston, O'Malley, Bachman, Schulenberg, & Miech, 2016) as well as later alcohol use disorder (Knight et al., 2002).

Alcohol-related consequences for college students can be positive or negative, ranging from feelings of being more confident and comfortable in social situations to unprotected sex, injuries, legal consequences, and even death (NIAAA, 2015). One study found that half of age 19-20 year old drinkers and 75% of age 19-20 year old binge drinkers reported experiencing some type of negative alcohol-related consequence (Patrick, Terry-McElrath, Evans-Polce, & Schulenberg, 2020). Research has been dedicated to determining factors that predict alcohol-related consequences; for example, motivations to drink alcohol have been shown to predict alcohol-related consequences (e.g., Bravo et al., 2016), and higher levels of trait mindfulness predict lower levels of motivations to drink alcohol (e.g., Roos et al., 2016). Understanding the relationships between trait mindfulness, drinking motivations, and alcohol related consequences is necessary for appropriate interventions to be developed for college students.

Motivations to Drink Alcohol

Research suggests that an important predictor of alcohol-related consequences is motivations to drink alcohol (Bravo, Pearson, Stevens, & Henson, 2016). Cooper (1994) asserted that there are various motivations to use alcohol, and in a large sample of adolescents, she demonstrated a four-factor model for drinking motivations. The four factors were social (drinking in order to gain social rewards or facilitation), coping (drinking to reduce, avoid, or manage negative affect), enhancement (drinking to increase positive emotions), and conformity (drinking to avoid social costs). These factors differentially related to alcohol-related problems; for example, drinking to cope with negative emotions was related to prevalence of alcohol-related problems (e.g., problems related to alcohol use in domains such as school, friends, dating, work, or with parents), while drinking to socialize was not. Cooper theorized that drinking to cope with negative emotions led to a deficit in abilities to cope in healthier ways and an increased reliance on alcohol to regulate overwhelming emotions. Cooper and colleagues later showed that drinking to cope mediated the relationship between expectations of alcohol reducing tension and both alcohol use and drinking problems (Cooper, Frone, Russel, & Mudar, 1995).

More recent research has continued to show that motivations to drink to cope with overwhelming emotions are especially problematic for college students. Drinking to cope appears to be predicted by both negative affect (Shaver, Veilleux, & Ham, 2013) and depressive symptoms (Bravo et al., 2016) as well as an expectation that drinking will alleviate negative affect (Jones, Corbin, & Fromme, 2001). Though motivations to drink to cope and to socialize are both associated with higher levels of alcohol consumption in undergraduates (Lewis, Phillippi, & Neighbors, 2007), when controlling for consumption levels, drinking to cope has been shown to be related to negative alcohol-related consequences (Merrill, Wardell, & Read, 2014; Gonzalez, Reynolds, & Skewes, 2011; Kenny et al., 2015) while drinking to socialize has

not (Patrick, Lee, & Larimer, 2011). Merrell and colleagues (2014) hypothesized that drinking to cope may relate to negative consequences regardless of alcohol consumption because this motive indicates a tendency to cope in maladaptive ways. Indeed, they found that coping motives were related to poor self-care, impaired control, and diminished self-perception (Merrill et al., 2014).

Drinking to cope may not just be harmful in the short-term; this motivation for alcohol use has been related to long-term difficulties. Students who drink to cope may have trouble "maturing out" of heavy drinking patterns if their use is reinforced by a reduction of negative affect after drinking. They may forgo learning more adaptive coping strategies, leading to long-term health problems as well as substance dependency (Ham & Hope, 2003). For example, in a large sample of adults, higher baseline motivations to drink to cope predicted more drinking problems up to 10 years later (Holahan, Moos, Holahan, Cronkite, & Randall, 2001).

In contrast, drinking to socialize has been shown to be less problematic and more normative compared to drinking to cope. Drinking to socialize involves drinking with others, is more commonly reported among college students (Lewis et al., 2008; Roos, Pearson & Brown, 2015), and has been shown to be unrelated to alcohol use/dependency or negative alcohol-related consequences (Patrick, Lee, & Larimer, 2011).

Mindfulness as a Protective Factor

Identifying protective factors is of great importance in preventing negative alcohol-related consequences while in college and also potential substance dependency throughout later adulthood. One protective factor may be mindfulness, a construct that has become the focus of increased research interest in recent years. Mindfulness refers to a state of mind in which one can be aware of feelings, thoughts and perceptions in the present moment without judgment (Shapiro & Carlson, 2009). While some research has focused on the utility of mindfulness-based

interventions in reducing substance abuse (e.g., Witkiewitz & Bowen, 2010), research also shows that trait mindfulness, an individual difference variable, is important as well (e.g., Karyadi, VanderVeen, & Cyders, 2014; Bowen & Enkema, 2014). Trait mindfulness, often assessed with the Five Facet Mindfulness Questionnaire (FFMQ; Baer et al, 2008), has been favorably related to many indices of mental and physical health, including fewer negative alcohol-related consequences, less engagement in impulsive drinking-related behaviors, and lower rates of substance use disorder (Pearson, Brown, Bravo, & Witkiewitz, 2015; Roos et al., 2015; Murphy & MacKillop, 2012).

Trait mindfulness may be particularly relevant to drinking to cope with negative emotions: because trait mindfulness is related to better emotion regulation abilities, mindfulness may reduce the need to drink to cope with overwhelming emotions (Goldin & Gross, 2010; Erisman & Roemer, 2010). Additionally, some research has linked trait mindfulness, drinking to cope, and negative alcohol-related consequences. For example, in a sample of undergraduates, drinking to cope mediated the relationship between two facets of the FFMQ and higher levels of problematic drinking patterns (Vinci, Spears, Peltier, & Copeland, 2016). In another sample of undergraduates, lower levels of mindfulness predicted higher motivations to drink to cope which in turn predicted more alcohol use and negative alcohol-related consequences (Roos et al., 2016). Drinking to socialize may show similar relationships with trait mindfulness, as certain facets of mindfulness have been related to motivations to drink to socialize on the bivariate level (Vinci et al., 2016; Roos et al., 2016). However, because drinking to socialize is not typically associated with negative alcohol-related consequences, it has not mediated the relationship between trait mindfulness and alcohol-related consequences (e.g., Roos et al., 2016; Patrick et al., 2011),

Therefore, research indicates that while both motivations to drink to socialize and to cope may relate to trait mindfulness, only motivations to drink to cope mediates the relationship between trait mindfulness and negative alcohol-related consequences, such that lower levels of trait mindfulness predict higher motivations to drink to cope, which predicts higher levels of negative alcohol-related consequences. No study has examined whether drinking to cope or socialize mediates the relationship between trait mindfulness and *positive* alcohol-related consequences; thus, hypotheses regarding these relationships are exploratory in nature.

Alcohol-Related Consequences

Previous research on drinking motives and alcohol-related consequences typically focused only on negative alcohol-related consequences. Park (2004) was the first to examine positive alcohol-related consequences in college students and found positive consequences to be more frequent and extreme than negative consequences, indicating the importance of including these consequences in future research. However, negative alcohol-related consequences include consequences that are more normative and minor, such as waking up with a hangover, to more severe consequences, such as sustaining an injury or having trouble with the police. These negative consequences may constitute different phenomena. Positive consequences also range from feeling more relaxed about sex to feeling better able to express oneself, which could also represent different factors.

Indeed, one study of college students found that certain consequences typically presented as "negative" in the alcohol-related consequences literature, such as having a hangover, were viewed as neutral (27.8% of the sample) or even positive (24.9%), while consequences such as being arrested were more commonly perceived as negative (92.5%; Mallett, Bachrach, & Turrisi, 2008). This finding suggests less severe negative consequences may be a separate factor from

more severe consequences if they are viewed differently by students. Another study of first-year undergraduate students utilized latent class analysis and found that their sample could be categorized into four different classes in regards to negative alcohol-related consequences: 1) very few or no negative alcohol-related consequences; 2) academic problems, 3) injured self, and 4) severe problems (Rinker, Diamond, Walters, Wyatt, & DeJong, 2016). Thus, while literature suggests there may be distinct subfactors of alcohol-related consequences, no study has examined the factor structure of the Positive and Negative Consequences of Alcohol Scale (Park, 2004).

Alcohol Consumption

It is also important to determine whether the amount of alcohol consumed moderates the relationship between drinking motivations and alcohol-related consequences, or if those who consume more alcohol demonstrate stronger relationships between drinking motivations and alcohol-related consequences. Drinking to cope has been related to higher levels of alcohol consumption compared to those who do not drink to cope (Park & Levenson, 2002) and drinking to cope has been shown to correlate with alcohol use while drinking to socialize does not (Roos et al., 2016; Merrill & Read, 2010). The average number of drinks per day and frequency of drinking days were associated with membership in three classes of negative alcohol-related consequences (academic problems, injured self, and severe problems) in Rinker and colleagues' (2016) latent class analysis of undergraduates. While a previous study found that alcohol consumption moderated the relationship between perceived drinking norms and alcohol-related consequences (Lewis et al., 2010), no research has examined alcohol consumption as a moderator of drinking motivations and alcohol-related consequences.

Gender

Many studies have found that gender is important to consider when examining drinking motivations, alcohol consumption, and alcohol-related consequences. College men are both more likely to binge drink and experience negative-alcohol related consequences than are women (Rinker et al., 2016; Park, 2004; Park & Grant, 2005; Johnston et al., 2016), though one study of undergraduates found that drinking to cope was related to more alcohol-related consequences for women but not for men (LaBrie, Ehret, Hummer, & Prenovost, 2012). Research also indicates that women are more likely to report drinking for coping motives than are men (Norberg, Norton, Olivier, & Zvolensky, 2010; Stewart, Zvolensky, & Eifert, 2001). Additionally, research indicates there may be no gender differences in trait mindfulness (e.g., Soysa & Wilcomb, 2013).

Purpose of Present Project

As previous research indicates that drinking motivations may mediate the relationship between trait mindfulness and alcohol-related consequences, and that alcohol consumption may moderate the relationship between drinking motivations and alcohol-related consequences, the present study aimed to test a moderated-mediation model of these variables (see conceptual Figure 1). Thus, the aims of the current study were:

In Study 1,

1. Determine the factor structure of the Positive and Negative Consequences of Alcohol Scale (Park, 2004) through exploratory factor analysis in a sample of undergraduates. It is hypothesized that the factor structure will be more complex than simply positive and negative factors.

In Study 2,

2. Confirm the factor structure of the Positive and Negative Consequences of Alcohol Scale (Park, 2004) through confirmatory factor analysis in a second sample of undergraduates; it is hypothesized that the same factor structure will hold in the second sample.
3. Test if there are gender differences for trait mindfulness, motivations to consume alcohol, alcohol-related consequences, alcohol consumption, and the relationships between these variables. It is hypothesized that there will be no gender differences in trait mindfulness, men will report higher alcohol consumption, women will report higher levels of drinking to cope, and women will demonstrate stronger relationships between drinking to cope and alcohol-related consequences. Additional hypotheses regarding correlations between drinking motivations, alcohol-related consequences, and alcohol consumption were exploratory due to a lack of previous research. Hypothesizes regarding gender differences for specific alcohol-related consequences were also exploratory, as the factors had yet to be determined.
4. Test a moderated mediation model to determine if:
    a. Drinking motivations (drinking to cope, drinking to socialize) mediate the relationship between trait mindfulness and the alcohol-related consequences factors. It is hypothesized that drinking to cope will mediate the relationship between mindfulness and any alcohol-related consequences that are *negative* in nature, while drinking to socialize will not as it will not relate to negative alcohol-related consequences. Hypotheses regarding *positive* alcohol-related consequences will be exploratory in nature due to a lack of previous research.
    b. Alcohol consumption moderates the relationship between drinking motives and the alcohol-related consequences factors. It is hypothesized that for those who

consume more alcohol, the relationship between drinking motivations and alcohol-related consequences will be stronger.

Study 1: Exploratory Factor Analysis of Alcohol-Related Consequences

The purpose of the first study was to perform exploratory factor analysis on the Positive and Negative Consequences of Alcohol Scale (Park 2004) to determine if the factor structure is more complex that simply positive and negative factors. We utilized a cross-sectional sample of undergraduates and selected only students who reported consuming alcohol in the past month.

Methods

Procedure/Sample. Students from a large public institution in the northeast participated in this study in order to earn class credit for introductory psychology courses. Recruitment and data collection were conducted through an anonymous university participant pool system. From a larger dataset (n = 230), we examined only students who reported drinking at least one alcoholic beverage in the past 30 days (n = 165).

Measures

Demographics and alcohol consumption. Demographic information such as gender, race and age was collected. A screening question was used to determine inclusion in the present analyses: "In the past 30 days, have you had an alcohol drink?', with response options of "yes" or "no". Those who selected "yes" were included in the exploratory factor analyses. We also collected information on binge-drinking to characterize the drinking patterns of our sample: "In the past 30 days, have you had 5 or more alcoholic drinks on a single occasion?" with response options of "yes" and "no", and the same item regarding the past 7 days.

Alcohol-related consequences. Alcohol-related consequences were measured with the 23-item Positive and Negative Consequences of Alcohol Scale (Park, 2004), a compilation of

items from the Negative Consequences Scale (Wechsler, Dowdall, Davenport, & Castillo, 1994) and adapted alcohol outcome expectancy items from Kushner, Sher, Wood, and Wood (1994). Participants were instructed to "Rate each consequence you have experienced in the past 2 months as a result of your alcohol use." Items spanned various consequences, such as negative consequences (e.g., "having a hangover", "missing class", "damaging property", and "trouble with police") as well as positive consequences (e.g., "felt relaxed", "performed tasks better", "fit in with people"). Participants rated items on a 1 (*Never*) to 5 (*Very frequently*) scale.

Analyses. All exploratory factor analyses were conducted with Mplus (Muthen & Muthen, 2012) using Maximum likelihood (ML) extraction, GEOMIN factor rotation, and 1000 iterations.

Missing Values. Little's test showed that data were missing completely at random for all variables of interest. Less than 2% of the data were missing; therefore, multiple imputation was not used, as recommended by Dong and Peng (2013).

Results

Demographics. Sample demographics are presented in Table 1. The sample (n = 165) was mostly White (63.6%) and female (56.9%) with a mean age of 18.33 (SD = 1.32) years. Almost 75% of the sample reported binge drinking in the past 30 days and 37% reported binge drinking in the past 7 days.

Exploratory Factor Analysis. The scree plot (eigenvalue > 1.0) indicated a four-factor fit. The overall fit of the four-factor model was good (Chi-Square = 485.61, df = 167, $p < .001$, RMSEA = .089, 90% CI = .080 – 0.098, CFI = .91, TLI = .86, SRMR = .04). However, six items demonstrated high cross-loadings ("miss class", "behind in school", "forget where you were", "forgot school problems", "not using protection", "performed tasks better"). The four-factor

exploratory factor analysis was re-run with these six items removed; this model demonstrated good fit as well (Chi-Square = 217.05, df = 87, $p < .001$, RMSEA = .079, 90% CI = .066 – 0.092, CFI = .95, TLI = .92, SRMR = .03). All items loaded onto the four factors with loadings ranging from .44 to .88 without high cross-loading; see Table 2 for final items and loadings.

The four factors were: 1) romantic/sexual consequences ("more romantic", "unplanned sex"); 2) positive (non-romantic) consequences ("felt 'cool'", "better expression"); 3) mild negative consequences ("had a hangover", "argue with friends"); and 4) severe negative consequences ("damage property", "trouble with police", "got hurt or injured").

Discussion

As hypothesized, the Positive and Negative Consequences of Alcohol Scale demonstrated a more complex factor structure than simply positive and negative consequences. Four factors were extracted, two of which consisted of mostly positive consequences items (romantic/sexual consequences, positive (non-romantic) consequences), and two of which consisted of all negative consequences items (less-severe negative consequences, and severe negative consequences). Interestingly, the "unplanned sex" item, which would typically be viewed as a negative consequence, loaded onto the romantic/sexual consequences factor instead of either of the negative consequences factors. These factors were used in Study 2 to determine if they exhibit differential relationships with the other variables of interest.

Study 2: Moderated Mediation Models

The purpose of Study 2 was to confirm the factor structure of the Positive and Negative Consequences of Alcohol Scale in a new sample of undergraduates. Additionally, this study tested whether drinking motivations mediated the relationship between trait mindfulness and alcohol consequences and whether the amount of alcohol consumed moderated the relationship

between drinking motives and alcohol-related consequences (see Figure 1 for conceptual model). Gender differences for trait mindfulness, drinking motivations, alcohol consumption, and alcohol-related consequences as well as the correlations between these variables were tested.

Methods

Procedure/Sample Students from a large public institution in the northeast participated in this study to earn class credit for introductory psychology courses. Recruitment and data collection were conducted through an anonymous university participant pool system. From a larger dataset (n = 440), we examined only students who reported drinking at least one alcoholic beverage in the past 30 days (n = 296).

Measures

Descriptive statistics for scales/items are reported in Table 3.

Motivations to drink were measured with the drinking to cope and drinking to socialize subscales of the Motivations for Alcohol Use Scale (Cooper, 1994). The instructions given were, "Thinking of all the times you drink, how often would you say that you drink for each of the following reasons?" Items such as, "To forget about your problems" (drinking to cope) and "To be sociable" (drinking to socialize) were rated on a 1 (*Never/almost never*) to 5 (*Almost always/always*) scale. A four-factor model for the Motivations for Alcohol Use showed that drinking to cope and drinking to socialize were unique factors with good internal consistency reliabilities (α = .84 and .85; Cooper, 1994). The reliabilities in the current sample were very good (drinking to cope α = .91; drinking to socialize α = .89).

Trait mindfulness was measured with the Five Facet Mindfulness Questionnaire (FFMQ; Baer et al., 2008). The sum score of the FFMQ was used in the current analyses. Participants rated items such as, "I think some of my emotions are bad or inappropriate and I shouldn't feel

them" on a 1 (*Never or very rarely true*) to 5 (*Very often or always true*) scale. The FFMQ has demonstrated good construct validity (Baer et al., 2008) and the internal consistency reliability in the current sample was acceptable ($\alpha = .69$).

Alcohol-related consequences was measured with the Positive and Negative Consequences of Alcohol Scale (Park, 2004); only items from the factor analysis performed in Study 1 were retained and used for the current study.

Alcohol consumption was used to select participants for the present study. Participants answered, "In the past 30 days, have you had an alcohol drink?' with response options of "yes" or "no".

Drinks consumed per month was estimated by asking participants how many days they drank in the past month (1-31) and how many drinks on average they consumed each time they drank. These two numbers were multiplied together to represent the estimated number of drinks consumed per month.

Analyses.

Missing Values Little's test showed that data were missing completely at random for all variables of interest. Less than 2% of the data were missing; therefore, multiple imputation was not used, as recommended by Dong and Peng (2013).

Descriptive Statistics and Correlations. Frequency analysis was performed for gender, race, and alcohol consumption, and the mean and standard deviation were calculated for age (see Table 1). Descriptive statistics (means, standard deviations, ranges) were performed for trait mindfulness, motivations to drink (to cope, to socialize), drinks per month, and alcohol-related consequences (see Table 2). Descriptive statistics are reported for the entire sample as well as women and men separately. T-tests were used to compare group means between women and

men. Correlations were also computed among drinking motivations, alcohol-related consequences, trait mindfulness, and alcohol consumption for the entire sample and for women and men separately (Table 4).

Confirmatory Factor Analyses. All confirmatory factor analyses were conducted with Mplus using the ML estimator (Muthen & Muthen, 2012) and 1000 iterations. The factors were rotated with Geomin factor rotation. Factors were based on results from Study 1.

Moderated Mediation. Eight regression models were used to determine whether drinking motivations (drinking to cope, drinking to socialize) mediated the relationship between trait mindfulness and the four alcohol-related consequences factors found in Study 1, and whether number of drinks consumed in the past month moderated the relationship between drinking motivations and alcohol-related consequences. Regression models were run with the PROCESS module in SPSS (Hayes, 2012). Variables were mean-centered and indirect effects were tested using a bootstrap estimation approach with 5,000 samples and bias-corrected estimates.

Results

Sample Demographics. See Table 1 for Study 2 sample demographics. The sample was primarily White (69.9%) and female (70.9%) with a mean age of 19.04 (SD = 1.25) years. Approximately 68% of the sample reported binge drinking in the past 30 days and 39.2% reported binge drinking in the past 7 days.

Descriptive Statistics. Descriptive statistics for drinking motivations, alcohol-related consequences, trait mindfulness, and drinks per month are presented in Table 3. Students reported higher motivations to drink to socialize than to drink to cope. Scale scores on the alcohol-related consequences were highest for positive consequences, followed by romantic/sexual consequences, mild negative consequences, and severe negative consequences.

Participants reported drinking a mean of 5.43 (SD = 3.37) days in the past month and a mean of 5.68 (SD = 2.24) number of drinks per drinking session and a mean of 33.89 (SD = 27.56) estimated drinks in the past month. Means on all of these variables were computed for women and men separately; t-tests were used to compare group means (see Table 3). Women reported significantly fewer drinks per drinking day (M = 5.26) than men (M = 6.78; t = 4.91, p < 0.01); otherwise, women's and men's means were not significantly different across the variables of interest.

Confirmatory Factor Analysis. The factor structure found through exploratory factor analyses in Study 1 was used for confirmatory factor analysis in Study 2. The overall fit of the four-factor model was good (Chi-Square = 400.42, df = 129, p < .001, RMSEA = .083, 90% CI = .074 – .092, CFI = .88, TLI = .85, SRMR = .07). All factor loadings were greater than .40.

Correlations. Correlations among trait mindfulness, drinking to cope and to socialize, the four alcohol-related consequences factors, and drinks per month are presented in Table 4. Higher levels of trait mindfulness were related to lower levels of drinking to cope (r = -.28, p < .01) but were not related to drinking to socialize. Drinks per month was positively related to both drinking to cope (r = .43, p < .01) and drinking to socialize (r = .39, p < .01) as well as frequencies of all four types of alcohol-related consequences (romantic/sexual consequences, r = .49; positive consequences, r = .44; mild negative consequences, r = .53; severe negative consequences, r = .32; p's < .01). Drinking to cope was positively correlated with all four of the alcohol related-consequences scales (romantic/sexual consequences, r = .44; positive consequences, r = .57; mild negative consequences, r = .52; severe negative consequences, r = .30; p's < .01) as was drinking to socialize (romantic/sexual consequences, r = .39; positive

consequences, r = .55; mild negative consequences, r = .45; severe negative consequences, r = .17; p's < .01).

Correlations among variables of interest were also run separately for women and men. While trait mindfulness was not significantly correlated with romantic/sexual consequences in the full sample or for just men, it was negatively correlated for women. Additionally, while drinking to socialize was correlated with severe negative consequences in the full sample and for women, it was not significantly correlated for men.

Drinking to Cope Moderated Mediation Models. Regression analyses indicated that drinking to cope significantly mediated the relationship between trait mindfulness and all four alcohol-related consequences. See Table 5 and Figure 2 for results of the moderated mediation models.

Romantic and sexual consequences. Trait mindfulness significantly predicted drinking to cope (B = -3.01, p < .001). Drinking to cope significantly predicted romantic/sexual consequences (B = 0.05, p < .001), and trait mindfulness did not significantly predict romantic/sexual consequences, indicating complete mediation. The indirect effect was significant (B = -0.24, SE = 0.06, 90% CI = -0.37 – -0.13) and the percentage of the mediation was 88%. Approximately 9% of the variance in drinking to cope was accounted for by trait mindfulness, and approximately 19.5% of the variance in romantic/sexual consequences was accounted for by trait mindfulness, drinking to cope, and drinks per month. Drinks per month was not a significant moderator of the relationship between drinking to cope and romantic/sexual consequences. However, number of drinks per month did significantly predict romantic/sexual consequences (B = 0.01, p < .001).

Positive consequences. Trait mindfulness significantly predicted drinking to cope (B = -3.01, p < .001). Drinking to cope significantly predicted positive consequences (B = 0.08, p < .001), and trait mindfulness predicted positive consequences (B = 0.17, p = .04). The indirect effect was significant (B = -0.27, SE = 0.06, 90% CI = -0.39 – 0.16) and the percentage of the mediation was 64%. Approximately 9% of the variance in drinking to cope was accounted for by trait mindfulness, and approximately 37.9% of the variance in positive consequences was accounted for by trait mindfulness, drinking to cope, and drinks per month. Drinks per month was not a significant moderator of the relationship between drinking to cope and positive consequences. However, number of drinks per month did significantly predict positive consequences (B = 0.01, p < .001).

Mild negative consequences. Trait mindfulness significantly predicted drinking to cope (B = -3.01, p < .001). Drinking to cope significantly predicted mild negative consequences (B = 0.05, p < .001), and trait mindfulness did not significantly predict mild negative consequences, indicating complete mediation. The indirect effect was significant (B = -0.22, SE = 0.05, 90% CI = -0.31 – -0.13) and the percentage of the mediation was 78%. Approximately 9% of the variance in drinking to cope was accounted for by trait mindfulness, and approximately 22.8% of the variance in mild negative consequences was accounted for by trait mindfulness, drinking to cope and drinks per month. Drinks per month was a significant moderator of the relationship between drinking to cope and mild negative consequences (B = 0.0002, p = .01), such that those who consumed more drinks per month demonstrated a stronger relationship between drinking to cope and mild negative consequences. Number of drinks per month also significantly predicted mild negative consequences (B = 0.01, p < .001).

Severe negative consequences. Trait mindfulness significantly predicted drinking to cope (B = -3.01, p < .001). Drinking to cope significantly predicted severe negative consequences (B = 0.01, p < .001), and trait mindfulness did not significantly predict severe negative consequences, indicating complete mediation. The indirect effect was significant (-0.06, SE = 0.02, 90% CI = -0.10 – -0.02) and the percentage of the mediation was 83%. Approximately 9% of the variance in drinking to cope was accounted for by trait mindfulness, and approximately 21.8% of the variance in severe negative consequences was accounted for by trait mindfulness, drinking to cope, and number of drinks. Number of drinks per month was not a significant moderator of the relationship between drinking to cope and severe negative consequences. However, number of drinks per month did significantly predict severe negative consequences (B = 0.003, p < .001).

Drinking to Socialize Moderated Mediation Models. Regression analyses indicated that drinking to socialize did not significantly mediate the relationship between trait mindfulness and all four alcohol-related consequences, as the A path of the mediation model (trait mindfulness to drinking to socialize) was only marginally significant (p = .08). However, results of the full models are reported below. See Table 6 and Figure 3 for results of the moderated mediation models.

Romantic and sexual consequences. Trait mindfulness marginally predicted drinking to socialize (B = -1.59, p = .08). Drinking to socialize significantly predicted romantic/sexual consequences (B = 0.01, p < .001), and trait mindfulness did not significantly predict romantic/sexual consequences, indicating complete mediation. The indirect effect was not significant (B = -0.01, SE = 0.04, 90% CI = -0.09 – 0.01). Approximately 2% of the variance in drinking to socialize was accounted for by trait mindfulness, and approximately 25% of the

variance in romantic/sexual consequences was accounted for by trait mindfulness, drinking to socialize, and drinks per month. Number of drinks per month was not a significant moderator of the relationship between drinking to socialize and romantic/sexual consequences. However, number of drinks per month did significantly predict romantic/sexual consequences (B = 0.003, p < .001).

Positive consequences. Trait mindfulness marginally predicted drinking to socialize (B = -1.59, p = .08). Drinking to socialize significantly predicted positive consequences (B = 0.06, p < .001), and trait mindfulness did not significantly predict positive consequences, indicating complete mediation. The indirect effect was significant (B = -0.13, SI = 0.08, 90% CI = -0.29 – -0.01) and the percentage of the mediation was 56.5%. Approximately 2% of the variance in drinking to socialize was accounted for by trait mindfulness, and approximately 35% of the variance in positive consequences was accounted for by trait mindfulness, drinking to socialize, and drinks per month. Number of drinks per month was not a significant moderator of the relationship between drinking to socialize and positive consequences. However, number of drinks per month did significantly predict positive consequences (B = 0.01, p < .001).

Mild negative consequences. Trait mindfulness marginally predicted drinking to socialize (B = -1.59, p = .08). Drinking to socialize significantly predicted mild negative consequences (B = 0.04, p < .001), and trait mindfulness did significantly predict mild negative consequences. The indirect effect was not significant (B = -0.01, SE = 0.04, 90% CI = -0.08 – 0.08). Approximately 2% of the variance in drinking to socialize was accounted for by trait mindfulness, and approximately 25% of the variance in mild negative consequences was accounted for by trait mindfulness, drinking to socialize, and drinks per month. Number of drinks per month was not a significant moderator of the relationship between drinking to socialize and mild negative

consequences. However, number of drinks per month did significantly predict mild negative consequences (B = 0.01, p < .001).

Severe negative consequences. Trait mindfulness marginally predicted drinking to socialize (B = -1.59, p = .08). Drinking to socialize did not significantly predict severe negative consequences, and trait mindfulness did not significantly predict severe negative consequences. The indirect effect was not significant (B = -0.001, SE = 0.01, 90% CI = -0.01 – 0.0). Approximately 2% of the variance in drinking to socialize was accounted for by trait mindfulness. Number of drinks per month was not a significant moderator of the relationship between drinking to socialize and severe negative consequences. However, number of drinks per month did significantly predict severe negative consequences (B = 0.001, p < .001).

Discussion

This study replicated the factor structure found in Study 1 and found evidence to support four of the eight moderated mediation models. Specifically, all four of the models testing drinking to cope as a mediator between trait mindfulness and the four alcohol-related consequences scales were significant, while of models testing drinking to socialize as a mediator were either only marginally significant (for romantic/sexual consequences, positive consequences, and mild consequences) or not significant (for severe negative consequences). Drinking to socialize was not a significant mediator because it was only marginally predicted by trait mindfulness. While the pathway from drinking to socialize to *mild* negative consequences was significant, the pathway from drinking to socialize and *severe* negative consequences was not. These results support the hypothesis that different motivations to drink are related to distinct consequences, and the fact that drinking to cope was related to severe negative consequences suggests this motivation is particularly problematic for college students.

When testing drinks per month as a moderator of the relationship between drinking to socialize and severe negative consequences, it was only significant for one of the eight models: for the relationship between drinking to cope and mild negative consequences, such that those who drank more demonstrated a stronger relationship between drinking to cope and mild negative consequences. Additionally, results showed few differences by gender, though the small sample size for men indicates these results should be interpreted cautiously. Consistent with previous research, men reported a higher drinking frequency (Rinker et al., 2016). Men did not demonstrate a significant relationship between drinking to socialize and severe negative consequences, while women did, suggesting that drinking to socialize may be more problematic for women than for men.

Conclusions

These studies provided several contributions to research examining relationships between trait mindfulness, motivations to drink, and alcohol-related consequences. First, factor analysis was used to determine the factor structure of the Positive and Negative Alcohol-Related Consequences Scale (Park, 2004) in order to measure alcohol-related consequences in a more specific manner. As was hypothesized, more than two factors were found; exploratory and confirmatory factor analyses provided support for four factors (romantic/sexual consequences, positive consequences, mild negative consequences, and severe negative consequences). Separate factors existed within the negative consequences realm and the romantic/sexual consequences factor contained both positive and negative consequence items. Thus, examining alcohol-related consequences by factors rather than simply positive or negative consequences will provide more nuanced results in future research in this field.

Study 2 demonstrated that drinking to cope mediated the relationship between trait mindfulness and the four alcohol-related consequences, as was expected. This set of findings builds upon previous research showing that drinking to cope mediated the relationship between trait mindfulness and only alcohol-related *problems* (e.g., Roos et al., 2016), as the current study demonstrated that drinking to cope predicted a range of consequences, including *positive* consequences. Thus, it may be the case that individuals who tend to drink to cope both lack more adaptive, healthy coping strategies that could lead to negative consequences *and* experience reinforcement of this coping style from subsequent positive alcohol-related consequences.

As hypothesized, drinking to socialize was not a significant mediator in the moderated mediation models. Trait mindfulness only marginally predicted drinking to socialize in all four models, and drinking to socialize was only related to three of the alcohol-related consequences and did not predict severe alcohol-related consequences. This finding suggests that drinking to cope may be more problematic than drinking to socialize in that it not only tends to have stronger relationships to negative alcohol-related consequences (Merrill et al., 2014; Gonzalez et al., 2011; Kenny et al., 2015), but is particularly relevant in terms of *severe* negative consequences, such as getting in trouble with the police or getting injured. This relationship between drinking to cope and severe consequences may be due to the fact that individuals who tend to drink to cope with overwhelming emotions tend to lack adaptive, healthy coping strategies in general and tend to have impaired self-control and poorer self-care (Merrill et al., 2014), putting them at greater risk of more severe consequences.

Unexpectedly, Study 2 did not find evidence that the number of drinks consumed per month moderated the relationship between either drinking to cope and drinking to socialize and the alcohol-related consequences factors except for that between drinking to cope and mild

negative consequences, such that high levels of alcohol use strengthened the relationship between drinking to cope and mild negative consequences. As drinking amount was only a significant moderator in one of eight models, it appears that this variable is not of great importance when considering the relationship between drinking motivations and consequences. When predicting severe negative consequences, it may matter more whether an individual is drinking to cope, and therefore may lack more adaptive coping strategies, or drinking to socialize, and therefore may possess higher levels of adaptive coping strategies, rather than considering how much alcohol the individual consumes.

It is also important to note that trait mindfulness predicted less drinking to cope and only marginally predicted less drinking to socialize. Thus, mindfulness interventions for college students may be particularly useful if designed for individuals who tend to drink to cope. Mindfulness interventions have been shown to increase emotion regulation abilities (Goldin & Gross, 2010; Erisman & Roemer, 2010), which are relevant for individuals who have trouble coping with overwhelming emotions.

Consistent with previous research (e.g., Rinker et al., 2016), men reported consuming more drinks per drinking day than women. Contrary to previous research (e.g., Johnston et al., 2016), women and men did not differ in terms of mean levels of negative alcohol-related consequences (i.e., they did not score differently on either the mild or severe negative consequences scales). Additionally, women did not report higher motives to drink to cope than men, as has been found in previous studies (e.g., Norberg et al., 2010; Stewart et al., 2001). In terms of relationships between variables, trait mindfulness related to the alcohol-related consequences differently by gender: for women, trait mindfulness related to less romantic/sexual consequences, and for men, mindfulness related to less mild negative consequences. Mindfulness

interventions may be better suited for one gender over the other depending on the targeted alcohol-related consequence of the intervention.

Limitations

This study is limited in several ways. First, these data were collected at the same time in studies cross-sectional in design; thus, neither causality nor even temporality can be inferred between trait mindfulness, motivations to drink, and alcohol-related consequences. For example, it is unclear whether drinking to cope actually causes negative alcohol-related consequences or whether both drinking to cope and negative consequences may be predicted by a general lack of adaptive coping strategies. Second, the measurement of motivations to drink alcohol asked students to identify how often they drink to cope or drink to socialize while considering all times they have drank, while alcohol-related consequences of alcohol were measured over the past two months. Thus, we were unable to capture whether a specific incident of drinking was motivated by a need to cope and led to specific negative alcohol-related consequences. Third, this sample consisted primarily of White women; it is unclear how these relationships hold for more racially diverse groups. Though certain analyses were conducted separately for women and men, the sample largely consisted of women, making it more difficult to infer gender differences, and full moderated mediation models could not be run separately by gender due to a lack of power.

Future Directions

Future research can further clarify causality by examining these variables longitudinally. Specifically, a daily diary study could capture data related to the same drinking incident, such as the number of drinks consumed, the specific motives for drinking, and the alcohol-related consequences that follow. This strategy would allow for stronger inferences of causality between these variables. Additionally, a more diverse sample in terms of race and gender would allow

researchers to make better inferences about how these relationships hold across various groups as well as determine if mindfulness interventions will be more or less helpful for specific groups such as gender and racial groups.

Overall, this study provides evidence for researchers to measure alcohol-related consequences in a nuanced manner, to consider the importance of what is motivating a student to engage in alcohol use, and to consider that mindfulness interventions may be particularly useful for students who tend to drink to cope with overwhelming emotions. By continuing to explore the associations among these factors, interventions can be modified for specific purposes and populations in order to decrease the rate of negative alcohol-related consequences and perhaps even long-term consequences such as alcohol use disorders.

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Figure 1. Theoretical moderated mediation model.

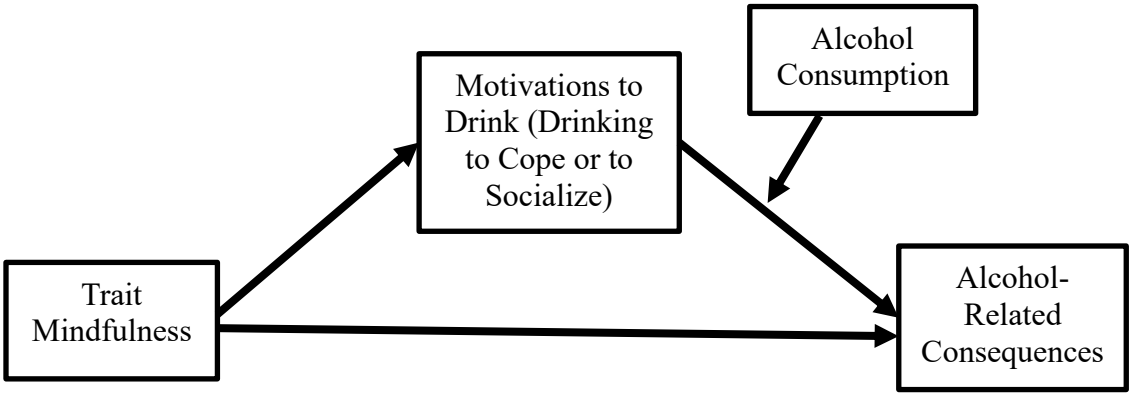


Table 1. Sample demographics for Study 1 and 2

	Study 1		Study 2	
Characteristic	***N***	**Percentage**	***N***	**Percentage**
Gender				
Female	94	56.9%	210	70.9%
Male	61	37.0%	62	20.9%
Transgender Female	0	0%	1	0.3%
No response	10	6.1%	23	7.8%
Race				
White	105	63.6%	207	69.9%
Black or African American	10	6.1%	10	3.4%
Asian	24	14.5%	31	10.5%
More than one race	12	7.2%	21	7.1%
No response	14	8.5%	27	9.1%
Age	M = 18.33, SD = 1.32		M = 19.04, SD = 1.25	
Alcohol Consumption				
More than 5 drinks at one time in past 30 days	123	74.5%	200	67.6%
More than 5 drinks at one time in past 7 days	61	37.0%	116	39.2%

Table 2. Positive and negative alcohol-related consequences scale exploratory factor analysis loadings

Items	Romantic/sexual consequences	Positive consequences	Mild negative consequences	Severe negative consequences
Unplanned sex	0.46*	0.01	0.12	0.39*
More romantic	0.84*	0.01	0.05	-0.01
More relaxed about sex	0.80*	0.07	0.05	0.05
Felt “cool”	-0.05	0.54*	0.18*	0.17*
More creativity	0.16	0.51*	-0.08	0.28*
Felt relaxed	0.18	0.69*	-0.01	-0.19*
Better expression	0.14	0.71*	0.03	-0.02
Felt better about self	-0.15	0.89*	0.02	-0.01
Fit in with people	0.00	0.82*	0.03	0.05
Added enjoyment to a meal	0.12	0.48*	-0.12	0.01
Have a hangover	0.07	-0.02	0.63*	-0.07
Regret something	0.09	0.06	0.72*	0.05
Argue with friends	0.01	0.03	0.52*	0.45*
Damage property	0.27*	0.03	-0.06	0.68*
Trouble with police	-0.02	-0.03	0.05	0.75*
Got hurt or injured	0.02	0.21*	0.14	0.55*
Overdose	-0.02	-0.07	-0.04	0.78*

Note: * $p < .05$

Table 3. Study 2 scale/item descriptive statistics

Scale	Total Sample		Women		Men		*t* (women and men)
	M (SD)	Range	M (SD)	Range	M(SD)	Range	
Trait mindfulness	3.16 (0.45)	1.87 – 4.53	3.18 (0.47)	1.87 – 4.53	3.10 (0.40)	2.00 – 4.20	1.12
Drinking to cope	2.02 (0.94)	1.00 – 5.00	2.03 (0.94)	1.00 – 5.00	2.00 (0.89)	1.00 – 4.20	0.03
Drinking to socialize	3.25 (1.01)	1.00 – 5.00	3.23 (1.01)	1.00 – 5.00	3.22 (1.02)	1.00 – 5.00	-0.35
Days consumed alcohol in past month	5.43 (3.37)	1.00-20.00	5.53 (3.41)	1.00-20.00	5.28 (3.23)	1.00-16.00	-0.82
Drinks consumed on average per drinking day	5.68 (2.24)	1.00 - 12.00	5.26 (1.96)	1.00-11.00	6.78 (2.41)	1.00-12.00	4.91**
Drinks per month	33.89 (27.56)	1.00 – 150.00	32.37 (26.58)	1.00 – 150.00	38.55 (28.92)	1.00 – 128.00	1.32
Romantic/sexual consequences	1.70 (0.89)	1.00 – 5.00	1.65 (0.86)	1.00 – 5.00	1.58 (0.86)	1.00 – 4.67	0.42
Positive consequences	1.90 (0.75)	1.00 – 4.38	1.88 (0.74)	1.00 – 4.38	1.88 (0.77)	1.00 – 3.88	-0.42
Mild negative consequences	1.69 (0.70)	1.00 – 4.33	1.67 (0.68)	1.00 – 3.67	1.68 (0.72)	1.00 – 4.33	-0.62
Severe negative consequences	1.13 (0.33)	1.00 – 3.75	1.11 (0.32)	1.00 – 3.75	1.16 (0.36)	1.00 – 3.25	-1.08

Note. * $p < .001$

Table 4. Correlations between variables in moderated-mediation model

Total Sample							
	1	2	3	4	5	6	7
1. Mindfulness							
2. Drinking to cope	-.28**						
3. Drinking to socialize	-.07	.53**					
4. Drinks per month	-.15*	.43**	.39**				
5. Romantic/sexual cons.	-.11	.44**	.39**	.49**			
6. Positive cons.	-.07	.57**	.55**	.44**	.57**		
7. Mild negative cons.	-.18**	.52**	.45**	.53**	.58**	.53**	
8. Severe cons.	-.07	.30**	.17**	.32**	.37**	.37**	.43**
Women							
	1	2	3	4	5	6	7
1. Mindfulness							
2. Drinking to cope	-.25**						
3. Drinking to socialize	.06	.57**					
4. Drinks per month	-.14	.40**	.48**				
5. Romantic/sexual cons.	-.14*	.44**	.41**	.51**			
6. Positive cons.	-.06	.57**	.59**	.45**	.57**		
7. Mild negative cons.	-.14	.51**	.46**	.54**	.55**	.49**	
8. Severe cons.	-.04	.25**	.21**	.37**	.32**	.32**	.43**
Men							
	1	2	3	4	5	6	7
1. Mindfulness							
2. Drinking to cope	-.36**						
3. Drinking to socialize	-.10	.48**					
4. Drinks per month	-.05	.32*	.36**				
5. Romantic/sexual cons.	-.09	.41**	.31*	.37**			
6. Positive cons.	-.04	.48**	.46**	.60**	.60**		
7. Mild negative cons.	-.36**	.45**	.45**	.43**	.64**	.59**	
8. Severe cons.	-.13	.41**	.08	.39**	.58**	.52**	.40**

Note: * $p < .05$, ** $p < .01$

Table 5. Drinking to Cope Moderated-Mediation Models

Sexual/Romantic Consequences						
Predicting Drinking to Cope						
Predictors	**B**	**SE**	**Lower CI**	**Upper CI**	***p***	**R^2**
Trait mindfulness	-3.01	0.59	-4.17	-1.85	< 0.001	0.090
Predicting Sexual/Romantic Consequences						
Trait mindfulness	0.05	0.10	-0.14	0.25	0.64	0.310
Drinking to cope	0.05	0.01	0.03	0.06	< 0.001	
Drinks per month	0.01	0.01	0.01	0.02	< 0.001	
Drinking to cope * drinks per month	< 0.001	< 0.001	<- 0.001	< 0.001	0.62	
Total, Direct, and Indirect Effects of Mediation Model						
Total Effect	-0.21	0.12	0.07	-0.44	-0.11	
Direct Effect	0.03	0.11	-0.18	0.25	0.77	
Indirect Effect	-0.24	0.06	-0.37	-0.13		
Positive Consequences						
Predicting Drinking to Cope						
Predictors	**B**	**SE**	**Lower CI**	**Upper CI**	***p***	**R^2**
Trait mindfulness	-3.01	0.59	-4.17	-1.85	< 0.001	0.090
Predicting Positive Consequences						
Trait mindfulness	0.17	0.08	0.01	0.32	0.04	0.379
Drinking to cope	0.08	0.01	0.06	0.10	< 0.001	
Drinks per month	0.01	0.01	0.001	0.003	0.01	
Drinking to cope * drinks per month	< 0.001	< 0.001	-0.001	< 0.001	0.28	
Total, Direct, and Indirect Effects of Mediation Model						
Total Effect	-0.12	0.10	-0.31	0.07	0.22	
Direct Effect	0.15	0.08	-0.01	0.31	0.07	
Indirect Effect	-0.27	0.06	-0.39	-0.16		
Mild Negative Consequences						
Predictors	**B**	**SE**	**Lower CI**	**Upper CI**	***p***	**R^2**
Trait mindfulness	-3.01	0.59	-4.17	-1.85	< 0.001	0.090
Predicting Mild Negative Consequences						
Trait mindfulness	-0.05	0.07	-0.19	0.08	0.44	0.218
Drinking to cope	0.05	0.01	0.04	0.07	< 0.001	
Drinks per month	0.01	0.001	0.01	0.012	< 0.001	

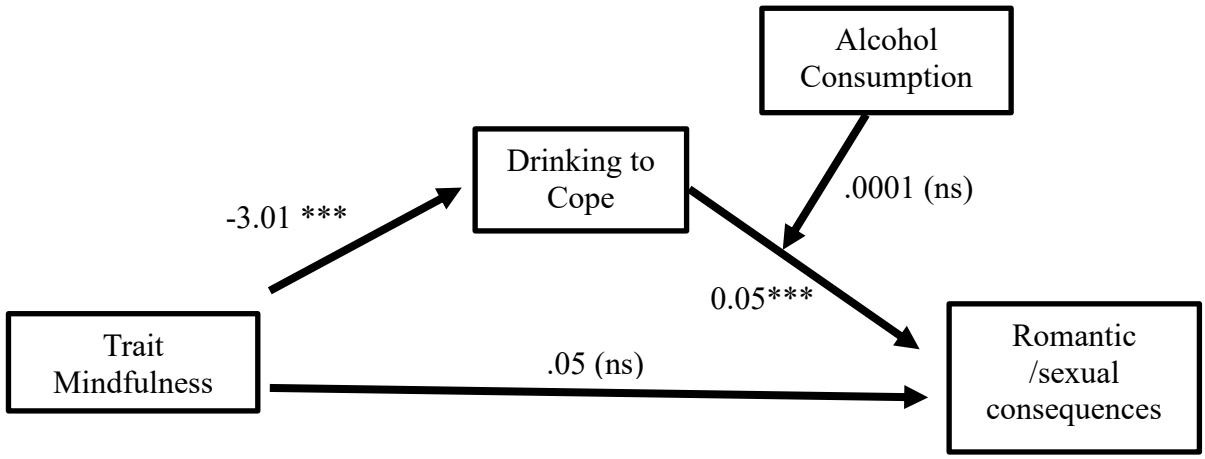
Drinking to cope * drinks per month	< 0.001	< 0.001	<0.001	<0.001	0.01	
Total, Direct, and Indirect Effects of Mediation Model						
Total Effect	-0.27	0.09	-0.44	-0.10	0.002	
Direct Effect	-0.06	0.08	-0.21	0.10	0.48	
Indirect Effect	-0.22	0.05	-0.31	-0.13		
Severe Negative Consequences						
Predictors	**B**	**SE**	**Lower CI**	**Upper CI**	***p***	**R^2**
Trait mindfulness	-3.01	0.59	-4.17	-1.85	< 0.001	0.090
Predicting Severe Negative Consequences						
Trait mindfulness	0.01	0.04	-0.07	0.09	0.73	.218
Drinking to cope	0.01	0.004	0.01	0.02	0.002	
Drinks per month	0.003	0.001	0.002	0.004	< 0.001	
Drinking to cope * drinks per month	<0.001	<0.001	<0.001	<0.001	0.18	
Total, Direct, and Indirect Effects of Mediation Model						
Total Effect	-0.05	0.04	-0.13	0.03	0.24	
Direct Effect	0.01	0.04	-0.07	0.09	0.76	
Indirect Effect	-0.06	0.02	-0.10	-0.02		

Table 6. Drinking to Socialize Moderated-Mediation Models

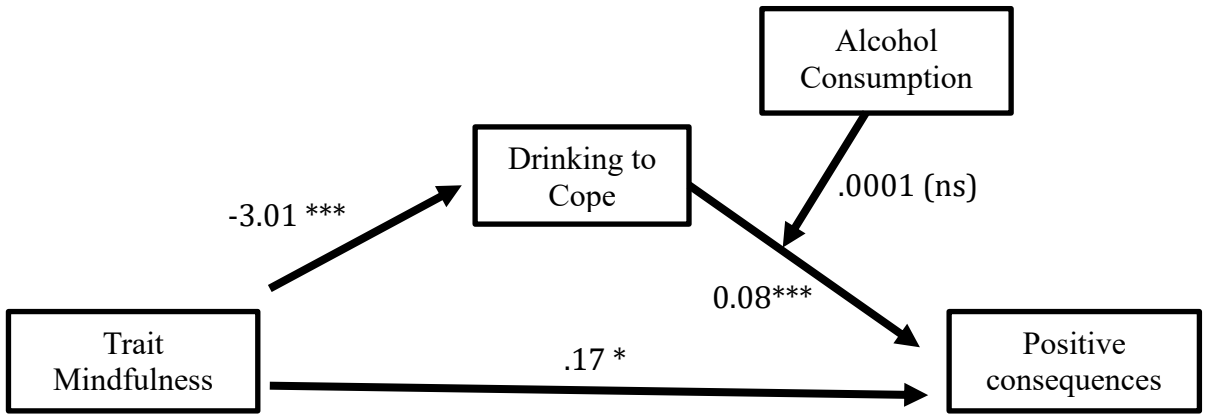
Romantic Consequences						
Predicting Drinking to Cope						
Predictors	**B**	**SE**	**Lower CI**	**Upper CI**	***p***	**R^2**
Trait mindfulness	-1.59	0.89	-3.35	0.17	0.08	0.02
Predicting Sexual/Romantic Consequences						
Trait mindfulness	-0.20	0.13	-0.47	0.06	0.12	0.25
Drinking to socialize	0.01	0.004	0.005	0.02	0.002	
Drinks per month	0.003	0.001	0.001	0.002	< 0.001	
Drinking to socialize * drinks per month	< 0.001	< 0.001	<- 0.001	< 0.001	0.18	
Total, Direct, and Indirect Effects of Mediation Model						
Total Effect	-0.21	0.11	-0.42	-0.01	0.05	
Direct Effect	-0.20	0.10	-0.40	-0.01	0.05	
Indirect Effect	-0.01	0.04	-0.09	0.01		
Positive Consequences						
Predicting Drinking to Cope						
Predictors	**B**	**SE**	**Lower CI**	**Upper CI**	***p***	**R^2**
Trait mindfulness	-1.59	0.89	-3.35	0.17	0.08	0.02
Predicting Positive Consequences						
Trait mindfulness	-0.10	0.11	-0.33	0.12	0.36	0.35
Drinking to socialize	0.06	0.01	0.05	0.08	< 0.001	
Drinks per month	0.01	0.001	0.004	0.01	< 0.001	
Drinking to socialize * drinks per month	< 0.001	< 0.001	-0.001	< 0.001	0.86	
Total, Direct, and Indirect Effects of Mediation Model						
Total Effect	-0.23	0.13	-0.49	0.03	0.07	
Direct Effect	-0.10	0.11	-0.33	0.12	0.36	
Indirect Effect	-0.13	0.08	-0.29	-0.01		
Mild Negative Consequences						
Predictors	**B**	**SE**	**Lower CI**	**Upper CI**	***p***	**R^2**
Trait mindfulness	-1.59	0.89	-3.35	0.17	0.08	0.02
Predicting Mild Negative Consequences						
Trait mindfulness	0.004	0.11	-0.21	0.23	0.97	0.25

Drinking to socialize	0.04	0.01	0.02	0.05	< 0.001	
Drinks per month	0.01	0.001	0.01	0.012	< 0.001	
Drinking to socialize * drinks per month	< 0.001	< 0.001	<0.001	<0.001	0.78	
Total, Direct, and Indirect Effects of Mediation Model						
Total Effect	-0.27	0.09	-0.44	-0.10	0.002	
Direct Effect	-0.27	0.08	-0.42	-0.11	0.001	
Indirect Effect	-0.01	0.04	-0.08	0.08		
Severe Negative Consequences						
Predictors	**B**	**SE**	**Lower CI**	**Upper CI**	***p***	**R^2**
Trait mindfulness	-1.59	0.89	-3.35	0.17	0.08	0.02
Predicting Severe Negative Consequences						
Trait mindfulness	-0.07	0.07	-0.21	0.07	0.33	.12
Drinking to socialize	0.01	0.004	-0.01	0.01	0.77	
Drinks per month	0.003	0.001	0.002	0.004	< 0.001	
Drinking to socialize * drinks per month	<0.001	<0.001	<0.001	<0.001	0.18	
Total, Direct, and Indirect Effects of Mediation Model						
Total Effect	-0.05	0.04	-0.13	0.03	0.23	
Direct Effect	-0.05	0.04	-0.13	0.03	0.23	
Indirect Effect	-0.001	0.01	-0.02	0.01		

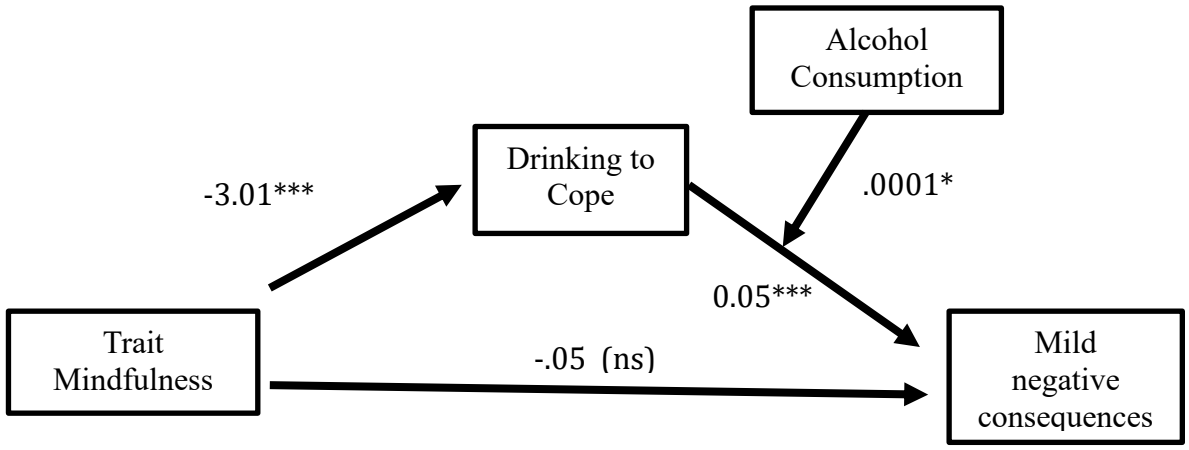
Figure 2. Drinking to Cope Moderated Meditation Models



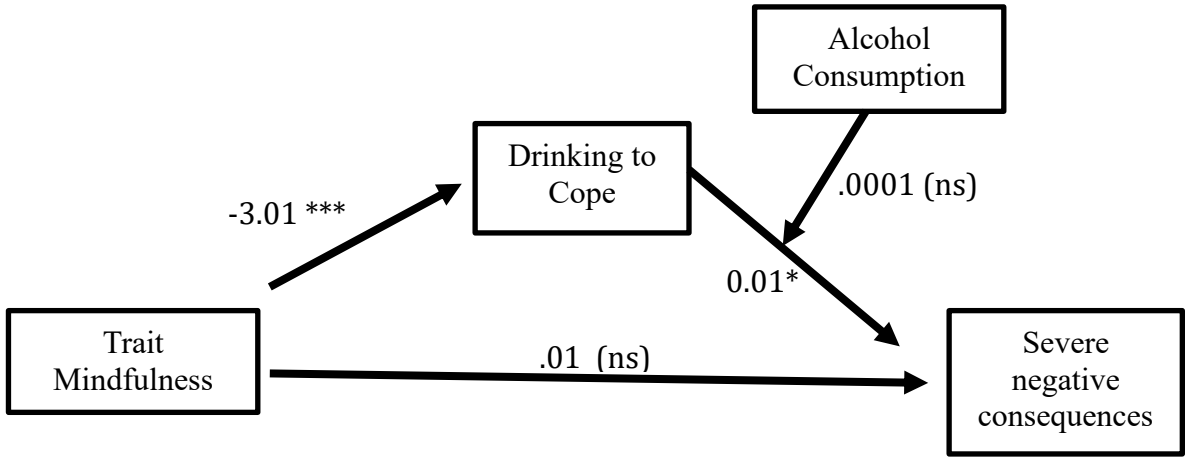
R^2 = .31, p < .001



R^2 = .38, p < .001

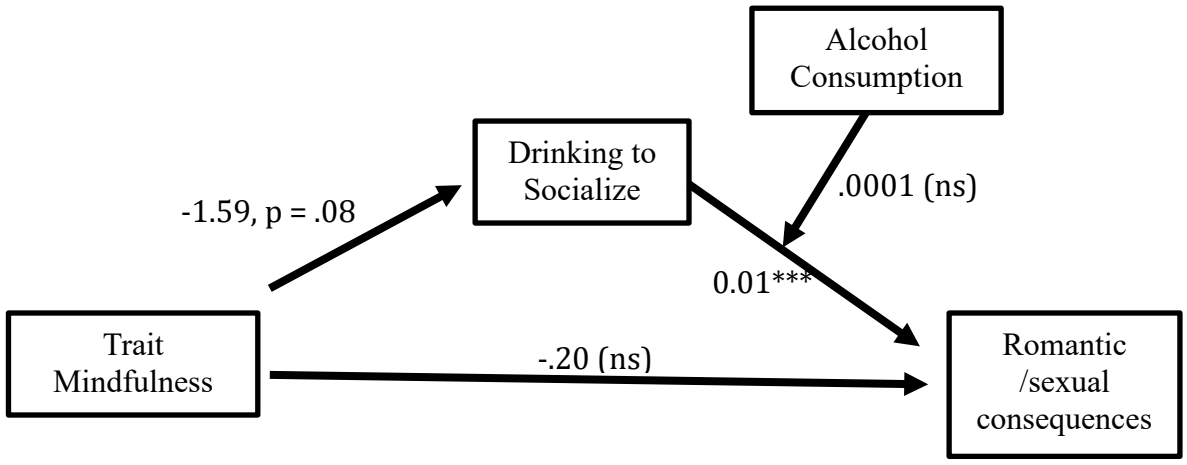


$R^2 = .22$, $p < .001$

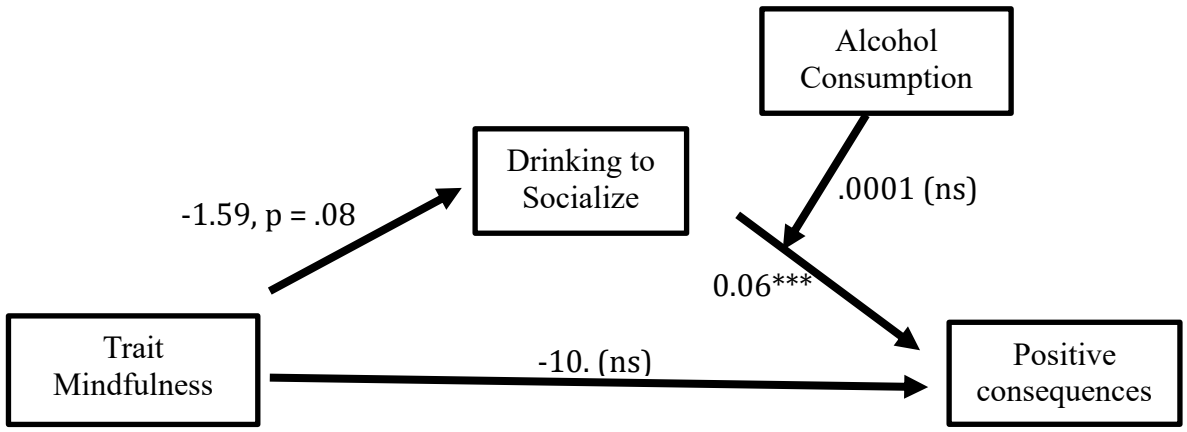


$R^2 = .22$, $p < .001$

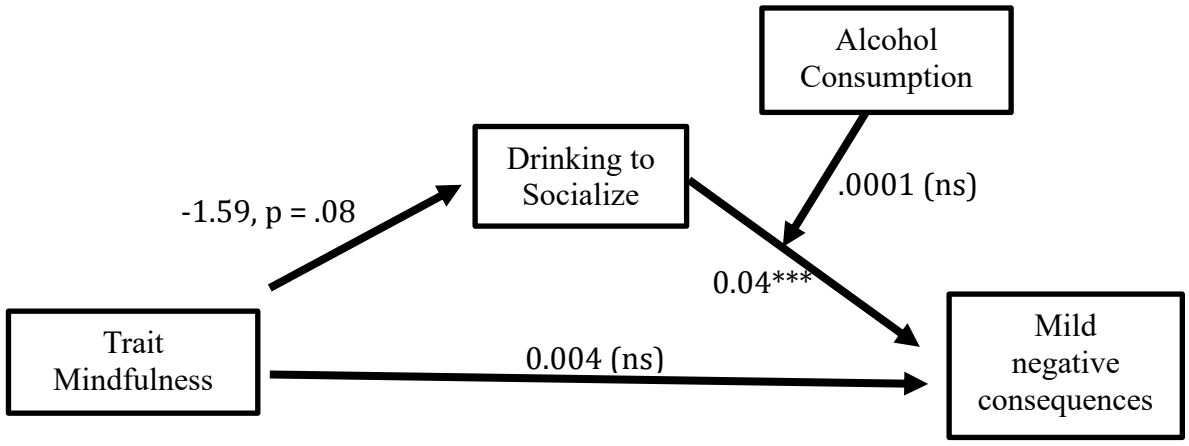
Figure 3. Drinking to Socialize Moderated Mediation Models



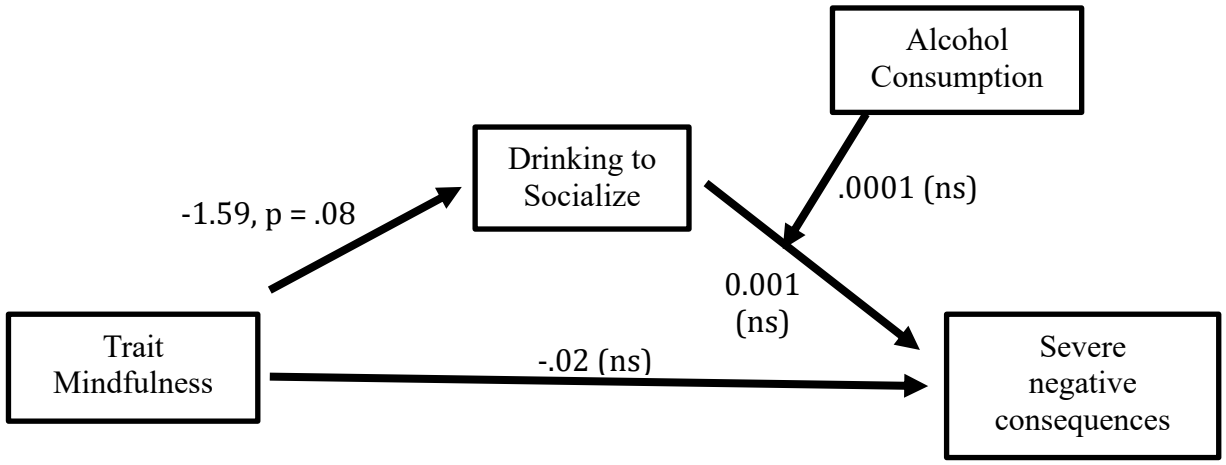
R^2 = .25, p < .001



R^2 = .35, p < .001



R^2 = .25, p < .001



R^2 = .12, ns