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Mindfulness as a Moderator of Risk Factors for Alcohol-Related Problems

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Abstract
Excessive drinking among college students remains a problem affecting not only the students themselves but the individuals they come in contact with, the institutions they attend, and the communities in which they reside. Further research examining risk and protective factors is needed to help inform prevention and treatment efforts being implemented on college campuses. A number of researchers have suggested that impulsivity and drinking to relieve stress both predict problem drinking among college students. Studies examining this relationship have been somewhat inconsistent indicating the possible presence of a moderating variable. Mindfulness may be conceptually related to these risk factors and mindfulness-based interventions are increasingly being used in treatment programs targeting substance abuse. Few studies, however have examined how mindfulness might be related to college drinking. The aim of this dissertation was to investigate the relationship between alcohol-related problems and the following factors: (1) impulsivity, (2) stressful life events, and (3) mindfulness. The Mindful Attention Awareness Scale (Brown & Ryan, 2003) and the Inventory of College Students’ Recent Life Stress (Osman, Barrios, Longnecker, & Osman, 1994) were used to measure level of mindfulness and stress among college students, respectively. As expected, impulsivity predicted the risk for negative consequences related to drinking even after frequency of consumption was accounted for. In addition, level of mindfulness significantly moderated the relationship between impulsivity and alcohol-related problems. It appears that having a disposition towards mindfulness may be a protective factor when it comes to the relationship between impulsivity and alcohol related problems. Contrary to expectations, a significant relationship was not found between stressful life events and alcohol-related problems. The implications and limitations of these findings, as well as recommendations for future research, are discussed.

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MINDFULNESS AS A MODERATOR OF RISK FACTORS FOR ALCOHOL-RELATED PROBLEMS

A DISSERTATION

SUBMITTED TO THE FACULTY

OF

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BY

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Abstract

Excessive drinking among college students remains a problem affecting not only the students themselves but the individuals they come in contact with, the institutions they attend, and the communities in which they reside. Further research examining risk and protective factors is needed to help inform prevention and treatment efforts being implemented on college campuses. A number of researchers have suggested that impulsivity and drinking to relieve stress both predict problem drinking among college students. Studies examining this relationship have been somewhat inconsistent indicating the possible presence of a moderating variable. Mindfulness may be conceptually related to these risk factors and mindfulness-based interventions are increasingly being used in treatment programs targeting substance abuse. Few studies, however have examined how mindfulness might be related to college drinking. The aim of this dissertation was to investigate the relationship between alcohol-related problems and the following factors: (1) impulsivity, (2) stressful life events, and (3) mindfulness. The Mindful Attention Awareness Scale (Brown & Ryan, 2003) and the Inventory of College Students’ Recent Life Stress (Osman, Barrios, Longnecker, & Osman, 1994) were used to measure level of mindfulness and stress among college students, respectively. As expected, impulsivity predicted the risk for negative consequences related to drinking even after frequency of consumption was accounted for. In addition, level of mindfulness significantly moderated the relationship between impulsivity and alcohol-related problems. It appears that having a disposition towards mindfulness may be a protective factor when it comes to the relationship between impulsivity and alcohol related problems. Contrary to expectations, a significant relationship was not found between stressful life events and alcohol-related problems. The implications and limitations of these findings, as well as recommendations for future research, are discussed.

Keywords: Mindfulness, alcohol use, college students, impulsivity, and stress.
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Review of the Literature

College Drinking: Use and Associated Problems

Alcohol misuse continues to be a concern on many college campuses throughout the United States. There is evidence that while the number of students who do not drink is growing, so too is the number of students who engage in heavy drinking (Johnston, O’Malley, Bachman & Schulenberg, 2008). When compared to their same-age peers, college students consistently show higher rates of binge drinking and experience a greater number of problems associated with their drinking (Johnston et al., 2008; SAMHSA, 2003; U.S. Department of Health and Human Services, 1997). Knight et al. (2002) found that nearly one-third (31%) of the college students they sampled met the Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition (DSM-IV) criteria for alcohol abuse and 6.3% met criteria for dependence. These numbers are especially high when considering only 8.5% of Americans in the general population meet criteria for either alcohol dependence or abuse (Grant et al., 2004).

The negative consequences associated with alcohol use vary from relatively short-term effects such as nausea and impaired motor functioning, to longer-term effects such as problems with authorities and death (for an extensive review see Perkins, 2002). Data integrated from sources such as the Highway Traffic Safety Administration and the Center for Disease Control and Prevention indicate that every year at least 1,500 college students between the ages of 18 and 24 die in accidents related to alcohol and nearly 600,000 are unintentionally injured (Hingson, Heeren, Winter, & Wechsler, 2005). Although many students who engage in heavy drinking do not go on to develop problems
with alcohol later in life (a phenomenon known as “maturing out”), there does appear to be a relationship between early age drinking and problem use in middle adulthood.

Zucker et al. (2006) found that heavy drinking at all of the ages they assessed (18, 20, 22, 24 and 26) individually accounted for 12%-19% of the variance in alcohol use disorders at age 35. Other examples of ways alcohol misuse can follow students long after they are out of college is impaired academic performance. Poorer academic performance may result in decreased job competitiveness which in turn can limit income potential later in life. Alcohol consumption has been associated with poorer performance on tests as well as missed classes (Wechsler et al., 2002). Presly, Meilman, and Cashin, (1996) found that increased alcohol consumption was inversely related to self reported grade averages. Students with A averages consumed an average of 3.4 drinks per week while those with B averages consumed 4.5, those with C averages 6.1, and those with D or F averages consumed 9.8 drinks per week.

Those who drink are not the only targets of the negative consequences associated with alcohol use. As many as 55% of students who do not engage in binge drinking report they have experienced at least two negative effects from their peer’s drinking (Wechsler et al., 2002). The most commonly reported effects include study/sleep interruption (60%), taking care of an intoxicated student (47%), being insulted or humiliated by an intoxicated student (29%) and getting into an argument or quarrel with an intoxicated student (19%). College institutions may suffer from losses in tuition revenue when their students fail or drop out of school because of their drinking. Higher rates of noise disruptions, property damage, and police visits are reported in neighborhoods in close proximity to schools whose students report higher drinking rates.
In sum, alcohol misuse among college students is a prevalent behavior that can have a wide ranging impact.

**Risk Factors Associated with Alcohol Use and Alcohol-Related Problems**

Given the extent of alcohol misuse among college students and the magnitude of the consequences that can result, researchers have attempted to identify both risk and protective factors that can be targeted in prevention and treatment efforts. A variety of risk factors have been implicated in accounting for the variability seen in drinking patterns and problems. These include biological factors (e.g., gender and ethnicity), environmental factors (e.g., size of institution and fraternity/sorority membership), psychological factors (e.g., personality and mood), and social factors (e.g., peer attitudes and community involvement) (Baer, 2002; Jessor, Costa, Kruger, & Turbin 2006; O’Malley & Johnston, 2002; Toomey & Wagenaar, 2002). Baer (2002) conducted an extensive review of individual differences in drinking among college students and concluded that two most strongly associated patterns with increased negative consequences were impulsivity/sensation seeking and consuming alcohol to relieve stress/anxiety.

**Impulsivity.** Numerous behavioral and biological studies (including both human and animal subjects) have linked impulsivity with alcohol misuse in the general population (for extensive reviews, see Lejuez et al., 2010 and Sher et al., 1999). Although the direction of this relationship can be seen in the reverse (e.g., state induced impairment in behavior control due to the disinhibiting effects of alcohol), non cross-sectional studies indicate having a predisposition towards trait impulsivity increases the risk of alcohol misuse. For example, Grano et al. (2004) conducted a longitudinal study of 5,433 adult
participants over the course of two years and found that the likelihood of becoming a heavy drinker was higher among impulsive individuals even when baseline drinking was accounted for. Zucker (2006) examined drinking behaviors spanning the interval from toddlerhood to early middle adulthood. They found that children with slower rates of increase in behavioral control—a characteristic of personality which is thought to be conceptually related to impulsivity—were more likely to drink, to report having been drunk, and to experience alcohol-related problems by the age of 14.

The association between impulsiveness and increased alcohol use has also been well established in research examining college students (Baer, 2002; Brenan, Walfish & Aubuchon, 1986; Cooper, Agocha, & Sheldon, 2000). In fact, a pattern of impulsivity and sensation seeking is one of the most consistently replicated findings in research on individual differences in college drinking (Baer, 2002). It appears, however, that the relationship between impulsivity and alcohol-related problems is not so straightforward. Camatta and Nagosi (1995) found that college students who scored higher on measures of impulsiveness and venturesomeness also engaged in significantly higher levels of alcohol use, but found no significant correlation between impulsivity and alcohol problems. Magid and Colder (2007) found that certain factors of impulsiveness were significantly related to alcohol problems, while others were not. Alternatively, other researchers have found that impulsivity was positively correlated with both alcohol use and alcohol-related problems (e.g., Huchinson, Patck-Peckham, Cheong, & Nagoshi [1998]; Simons, Carey, & Gaheer [2004]; Stoltenber, Butien, & Birgenheir [2008]).

One possible reason for this discrepancy may be the fact that impulsiveness is often associated with sensation seeking and is sometimes defined interchangeably with it.
Impulsivity is characterized as a general tendency to act without planning or thinking ahead of time (Eysenck, Pearson, Easting, & Allsopp, 1985), whereas sensation seeking describes a general tendency to seek out novel and stimulating experiences (Eysenck et al., 1985; Zuckerman, 1979). Although both of these constructs are similarly related to increased risk for alcohol use, they appear to be differentially related to alcohol problems (Magid & Colder, 2007; MacKillop et al., 2007). Students who impulsively drink may do so at potentially risky times (e.g., the night before an exam) or in risky places (e.g., in a car) which increases the likelihood of problems independent of levels of alcohol use. Students who are prone to sensation seeking tend to drink in order to achieve arousal but are also more likely to plan ahead of time (e.g., making arrangements to travel with a designated driver) therefore reducing their likelihood of experiencing negative consequences.

**Stressful life events.** There is some evidence that the experience of stressful life events may be another important risk factor for both alcohol use and problems. Carney, Armeli, Tennen, Affleck, and O’Neil (2000) and Mohr, Armeli, Tennen, Carney, Affleck, and Hromi (2001) conducted a series of community-based diary studies of drinking habits among an adult population and found that participants reported greater alcohol consumption on days when they encountered certain types of negative events. Similarly, Nation and Heflinger (2006) found that the experience of stressful life events significantly predicted frequency of alcohol use and binge drinking. Unfortunately, these studies did not examine the direct relationship between stressful life events and negative consequences incurred while drinking. Other studies, however, have looked at indirect relationships. For example, the use of alcohol for negative affect regulation (referred to as
coping motives) has consistently been shown to be significantly predictive of alcohol-related problems (Kuntsche, Knibbe, Gmel, & Engels, 2006; Simons, Gaier, Correia, Hansen, & Christopher, 2005).

The relationship between stressful life events and alcohol related problems is likely multilayered. According to Rutledge and Sher (2001) “At present, it is widely accepted that in order to fully explicate the relationship of stress to alcohol consumption, the effects of individual-difference moderator variables must be considered” (p. 457). This is also likely true of the relationship between impulsivity and alcohol related problems. Mindfulness is one such variable that may moderate the relationships between experience of stress and problem drinking and impulsivity and problem drinking. Impulsive type drinking and stress-based drinking are similar in that they involve behaving mechanically which is conceptually contrary to mindfulness. As will be discussed further, mindfulness is associated with increased awareness and distress tolerance. Impulsive students who are prone to behaving in a rash manner may be less likely to drink in problematic ways if they are more mindful and therefore aware of their surroundings and internal processes. Students who tend to drink to alleviate stress may do so less often if they have higher levels of trait mindfulness. That is, the ability to tolerate distress associated with stressful experiences may impact drinking-related problems, such that those with higher levels of mindfulness may be less likely to revert to drinking to alleviate distress when they encounter stressful life events.

**Mindfulness**

**Mindfulness Defined.** The concept of mindfulness is rooted in the Eastern spiritual tradition of Buddhism (Kabat-Zin, 2003). Although it is explicitly articulated in
Buddhist tradition, it is a concept that can also be found in other spiritual traditions and contemporary teachings (Kabat-Zin, 2003). In recent decades mindfulness has become a topic of increasing interest to Western psychologists and medical providers. Mindfulness has been defined as “the awareness that emerges through paying attention on purpose, in the present moment, and nonjudgmentaly to the unfolding of experience moment by moment” (Kabat-Zinn, 2003, p. 145). Others have described it as “the wakeful experience of life, an alert participation in the ongoing process of living” (Gunaratana, 2002, p.141). There is, however, no one agreed upon scientific definition. Bishop et al. (2004) have proposed that there are three dimensions emphasized in mindfulness training: (a) maintaining attention to a single point of awareness (which aids in disengagement from thoughts and emotions that inevitably arise), (b) attending to objective qualities of experience without immediately acting upon them, and (c) remaining open to experience with an attitude of acceptance.

Mindfulness is understood to be innate to all humans. The degree to which we are mindful from moment to moment differs both within and between individuals. According to Buddhist psychology, mindfulness leads to more accurate perceptions of one’s inner state (of emotions, thoughts, and images) and decreased emotional reactivity to negative affect (Buchheld, Grossman, & Walach, 2001). Mindfulness techniques such as Vipassana meditation have been shown to be effective in reducing impulsiveness and increasing tolerance of common stressors (Emavardhana & Tori, 1997). Developers of mindfulness-based treatments have offered a number of theories as to why mindfulness skills might lead to reductions in problematic symptoms and behaviors. Although further research is needed to test these hypothesized mechanisms of change, they offer clues as
to how increased levels of mindfulness may impact risk factors for problem drinking.

**Mechanisms of Change.** It has been hypothesized that mindfulness-based practices may act as a form of exposure treatment (Baer, 2003; Linehan, 1993). For example, in mindfulness meditation, practitioners are encouraged to sit with uncomfortable bodily sensations (e.g., muscle aches), thoughts (e.g., “I can’t stand this”), and emotions (e.g., anxiety) that arise when sitting for long periods of time without shifting positions or attempting to avoid/relieve them. Prolonged exposure to painful sensations in the absence of catastrophic consequences might lead to a reduction in the emotional response elicited by the uncomfortable sensations.

Some problematic behaviors, such as problematic drinking, may develop out of attempts to avoid negative states (Marlatt, 1985). Alcohol use becomes negatively reinforced when it provides temporary relief from perceived problems such as negative affect or painful cravings. In mindfulness practices, individuals are encouraged to sit with feelings and thoughts even when those feelings are experienced as uncomfortable or negative; this in itself may act as a form of exposure, interrupting the conditioned cycle. Students who are encounter higher levels of stress in their life but who are also higher in levels of mindfulness may be less likely to drink in order to reduce their stress and therefore less likely to experience problems associated with drinking.

Similarly, researchers have attempted to look at the effect of mindfulness in reducing experiential avoidance. For example, Murray (2005) found that college males who completed Mindfulness-Based Stress Reduction (MBSR; Kabat-Zinn, 1990) training showed a significant reduction in avoidant coping compared to those who did not receive the training. Baer, Smith, and Allen (2004) examined the relationship between the
subscales on the Kentucky Inventory of Mindfulness (KIMS) and a measure of experiential avoidance (the Acceptance and Action Questionnaire; AAQ, Hayes et al., 2004). They found that experiential avoidance was significantly negatively correlated with 3 of the 4 mindfulness subscales (i.e., Describe, Act with Awareness, and Accept without Judgment). No significant correlation was found between the Observe subscale and avoidance suggesting that simply observing one’s experience may not be associated with avoidance of the experience.

Mindfulness practitioners recognize that some experiences cannot readily be changed, but that it may be possible to reduce susceptibility to act in problematic ways in response to them. Mindfulness may be correlated to increased affect tolerance and decreased impulsive reactivity in the presence of states perceived to be negative. Marlatt (2002) suggests that, “meditation practice helps clients with addictive behavior problems develop a detached awareness of thoughts, without ‘overidentifying’ with them or reacting to them in an automatic, habitual manner. Urges and cravings can be monitored and observed without ‘giving in’ and engaging in the addictive behavior in an impulsive manner” (p. 47). Thus, meditation, as well as other mindfulness promoting techniques, may change how one relates to thoughts and emotions rather than changing or eliminating the states themselves. Mindfulness may provide individuals with a unique perspective on their own internal experience, in which it is recognized that thoughts are just thoughts, sensations are just sensations, and emotions are just emotions that do not necessarily dictate specific action (Bishop et al., 2004).

Individuals undergoing mindfulness training are encouraged to maintain an attitude of nonjudgmental acceptance to their thoughts, feelings and sensations (Baer,
Mindfulness, therefore, may be a conduit for acceptance: the ability to experience pain, thoughts, feelings, urges etc without trying to change, escape, or avoid them (Baer, 2003). It is believed that this form of acceptance is central to therapeutic change. In the mindfulness-based treatment Dialectical Behavior Therapy (DBT; Linehan, 1993), this process is referred to as “Radical Acceptance” and is a central concept within a set of distress tolerance skills. Linehan argues that the ability to tolerate and accept distress is important for two reasons: (a) pain and distress are an unavoidable part of life, attempting to deny them can lead to increased pain (i.e., suffering) and (b) non-acceptance leads to maladaptive behaviors that interfere with our effort to establish desired change. She also emphasizes the difference between acceptance and approval, asserting that acceptance has nothing to do with evaluating a situation as good or bad, rather acknowledging its reality.

**Mindfulness-Based Interventions for Alcohol and Substance Use.** Given the growing recognition of mindfulness as a potentially beneficial factor in reducing problems with alcohol and other forms of substance use, a number of practitioners and have incorporated mindfulness-based techniques in their treatment efforts. Studies evaluating the effectiveness of these interventions have been promising. Gifford et al. (2004) compared a pharmacological based treatment for smoking cessation called Nicotine Replacement Therapy (NRT) with a version of Acceptance and Commitment Therapy (ACT) tailored to target smoking behaviors. ACT is a behavioral model of therapy that incorporates mindfulness strategies. They found similar quit rates at post-treatment and a significant difference at 1-year follow-up such that those who were in the
ACT condition had significantly better outcomes at 1-year follow-up than those in the NRT condition.

Linehan et al. (1999) randomly assigned twenty-eight women with a dual diagnosis of Borderline Personality disorder and Substance Dependence disorder to one of two conditions: a DBT treatment group which included mindfulness skills and a treatment as usual group (TAU). The TAU condition consisted of referrals to substance abuse and/or mental health counselors and programs in the community or continued work with their individual therapists if they were already in therapy. Post-treatment those who were assigned to the DBT group had significantly greater reductions in substance use than those who were assigned to the TAU group.

Even brief training in techniques aimed at increasing mindfulness levels have been associated with reductions in substance use. Bowen et al. (2006) evaluated the effectiveness of a 10-day Vipassana meditation (VM) course on substance use rates in an incarcerated sample. They found that inmates who volunteered to participate in the VM course reported significantly less substance use (e.g. marijuana, crack cocaine, and alcohol) as well as less endorsement of alcohol-related negative consequences when compared to inmates who received treatment as usual.

Witkiewitz, Marlatt, and Walker (2005) have developed a treatment for substance use disorders which combine’s cognitive-behavioral techniques for relapse prevention with mindfulness-based practices mindfulness-based relapse prevention (MBRP). Zgierska et al. (2008) conducted a pilot study which examined a modified version of MBRP which specifically targeted problem drinking in an outpatient adult population. They found that the modified MBRP treatment was associated with an increase in
number of days abstinent during the mediation portion of the treatment but returned to baseline after 16 weeks. They also found a decrease in number of heavy drinking days. Witkiewitzk and Bowen (2010) examined outcomes of a MSBR treatment group and a TAU group and found the MSBR attenuated the relationship between depression and craving for alcohol and/or drugs which is believed to be associated with increased rates of substance use relapse.

An underlying premise of these studies has been that the interventions employed are resulting in increases in participant level of mindfulness. Unfortunately there are few studies which have directly examined this presumption. It is also not clear whether individuals who already display higher levels of trait mindfulness might be less inclined to develop problem substance use behavior.

**Mindfulness and College Student Alcohol Use.** Given the promising results of mindfulness based treatments and the extent of alcohol problems on college campuses, the relationship between trait-levels of mindfulness and alcohol use/problems among students is of interest. Leigh, Bowen, and Marlatt (2005) administered the Freiberg Mindfulness Inventory (FMI; Buchheld et al., 2001) to undergraduate students and, contrary to expectations, found that the FMI demonstrated a significant positive relationship with frequent binge-drinking. Upon review of this finding they performed a t-test on the subscales of the FMI and discovered frequent binge drinking was only positively associated with the Mind/Body Awareness Subscale. These findings were later replicated in a study by Leigh and Neighbors (2009) who found that the mind/body awareness subscale of the FMI was positively associated with drinking among college students. The authors of these studies hypothesize that the ability to “tune-into”
mind/body experiences might facilitate the drive to seek pleasurable experiences or avoid negative ones and thus promote the drive to drink. Another explanation might be problems in the assessment instrument that was used to measure mindfulness levels in both studies. The FMI was developed and normed with individuals participating in mindfulness retreats. The developers caution that the instrument may not be valid with individuals who have not had exposure to the practice of mindfulness meditation (Buchheld et al., 2001). They note that such participants are at an increased risk for misinterpreting the questions. Also, the FMI may be more appropriate for measuring state mindfulness (e.g., experiences during meditation practice) and not general trait mindfulness. It is unclear whether a different mindfulness measure, designed to assess trait mindfulness and normed with a college population such as the Mindfulness Attention Awareness Scale, (MAAS; Brown & Ryan, 2003) would produce different results.
Purpose of the Present Study

The problems associated with student alcohol use continue to be a concern on many college campuses across the United States. Further identification of risk and protective factors and the relationship between them is needed to aid in the development of effective prevention and treatment approaches and to target those at risk. Previous research has shown that alcohol use is a consistent predictor of both heavy drinking and alcohol related problems. Research looking at impulsivity and stressful life events has been less consistent; however, a number of studies suggest that alcohol use and problems are at least partially accounted for by these two risk factors. It appears that this inconsistency may be due to neglect of the role of a moderating variable in the relationship between stressful life events and impulsivity in relation to problem drinking. The concept of mindfulness may be conceptually related to these risk factors and has not been extensively examined in the alcohol-related problems research literature. Those who have written about the concept of mindfulness argue that increased levels of mindfulness are associated with decreased impulsivity, increased negative affect tolerance, and decreased experiential avoidance (Roemer & Orsillo, 2003; Segall, 2005).

The results from several studies suggest that mindfulness-based interventions may be effective in treating substance and alcohol-related problems. Although differences exist between college problem drinking and adult substance dependence, some of the mechanisms by which they are maintained may be similar. Exposure, behavior control, and acceptance have been proposed as possible mechanisms of change in mindfulness-based treatments for substance use and they may also have applications for college binge drinking populations. These mechanisms are believed to be associated with increased
approach coping and decreased impulsivity. Similarly, research suggests that those with high trait levels of mindfulness possess many of the same characteristics indicative of those who have received mindfulness training (Brown & Ryan, 2003). Therefore, the purpose of this dissertation is to assess whether trait-like mindfulness moderates the relationship between alcohol-related problems and two of its common predictors: stressful life events and impulsivity.

Statement of the Hypotheses

Hypothesis 1. Alcohol use, impulsivity, stressful life events, and mindfulness were all expected to be significant predictors of alcohol related problems. More specifically, alcohol use, impulsivity, and stressful life events were expected to evince a positive relationship with alcohol-related problems, and mindfulness was expected to evince a negative relationship with alcohol-related problems.

Hypothesis 2. It was expected that mindfulness would moderate the relationship between impulsivity and alcohol-related problems, such that impulsivity would be more strongly related to alcohol-related problems when mindfulness is low than when mindfulness is high.

Hypothesis 3. It was expected that mindfulness would moderate the relationship between stressful life events and alcohol-related problems, such that stressful life events would be more strongly related to alcohol-related problems when mindfulness is low than when mindfulness is high.
Method

Participants

Participants were recruited from three undergraduate colleges in Oregon and Colorado. As the aim of this study was to gather preliminary data and in the interest of conserving cost and time, a convenience sample was used. Table 1 provides demographic data on the sample. A total of 125 students agreed to participate in the study; 84 identified as being female and 41 identified as being male. Average participant age was 24 ($SD = 8$). Thirty-one percent of respondents were in their Freshman year of college, 25% Sophomore, 31% Junior, and 13% Senior. The majority of participants identified as being Caucasian (76.6%), while 8.9% reported being Asian or Pacific Islander, 8.1% Mixed, 2.4% African American or Black, 2.4% Latino or Hispanic, .8% Native American or Alaska Native. Respondents were also asked questions about their current meditation experience and practices. The majority (74%) denied currently engaging in a mediation practice. Of those who did endorse currently meditating, 16% reported meditating one or more times a day, 72% reported meditating one or more times a week, and 12% reported meditating less than weekly.
### Table 1

**Demographic Information of the Sample (N = 125)**

<table>
<thead>
<tr>
<th>Variable</th>
<th>n (%)</th>
<th>M (SD)</th>
<th>Median</th>
<th>Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age (years)</td>
<td>125 (100.0)</td>
<td>24 (8)</td>
<td>20</td>
<td>18 - 64</td>
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<tr>
<td><strong>Sex</strong></td>
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</tr>
<tr>
<td>Male</td>
<td>41 (32.8)</td>
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</tr>
<tr>
<td>Female</td>
<td>84 (67.2)</td>
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<td></td>
</tr>
<tr>
<td><strong>Ethnicity</strong></td>
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<tr>
<td>African-American/Black</td>
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<td></td>
</tr>
<tr>
<td>Asian/Pacific Islander</td>
<td>11 (8.9)</td>
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</tr>
<tr>
<td>Latino/Hispanic</td>
<td>3 (2.4)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Native Amer/Alaska Native</td>
<td>1 (.8)</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>White/European Origin</td>
<td>95 (76.6)</td>
<td></td>
<td></td>
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<tr>
<td>Mixed</td>
<td>10 (8.1)</td>
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<tr>
<td>Other</td>
<td>1 (.8)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Year in School</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Freshman</td>
<td>37 (29.8)</td>
<td></td>
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<td></td>
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<tr>
<td>Sophomore</td>
<td>30 (24.2)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Junior</td>
<td>38 (30.6)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Senior</td>
<td>16 (12.9)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Current Meditation Practice</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>27 (21.8)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>No</td>
<td>81 (65.3)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Meditation Frequency</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>One or more times a day</td>
<td>4 (3.2)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>One or more times a week</td>
<td>18 (14.5)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Less than once a week</td>
<td>3 (2.4)</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Measures

Demographic Questionnaire. This instrument was developed by the principal investigator and faculty advisor. The questionnaire asks participants to provide the following demographic information: age, gender, ethnicity, and year level in school (see Appendix A).

Meditation Practice Survey. This instrument includes several questions to assess current meditation practice, including whether the student currently meditates, the duration of practice history, the amount of time spent meditating, and to what extent the student perceived that he or she carried out the meditative practice into daily life. These questions were sampled from a survey used by Brown and Ryan (2003). An additional question of “What kind of meditation do you practice?” was added also added to this survey (see Appendix B).

Quantity/Frequency/Volume-30 Questionnaire (QFV-30). This questionnaire is a brief assessment instrument used to assess overall frequency of alcohol consumption, average amount per occasion, and frequency of heavy drinking days during the past 30 days (revised from Form 90QFV-30 Miller, 1996; casaa.unm.edu/inst.htm). Reliability estimates for this instrument were not provided by the developers; however, convergent validity has been found between quantity-frequency instruments and other measures of alcohol consumption (Grant et al., 2005). Only frequency of alcohol consumption over the last 30 days was used in statistical analysis (see appendix C).

The Mindful Attention Awareness Scale (MAAS). This 15-item questionnaire asks respondents to indicate, on a 6-point Likert-type scale (1 = almost always to 6 = almost never), their level of awareness and attention to present events and experiences. The MAAS items are designed to assess mindlessness and sample items include “I find it
difficult to stay focused on what’s happening in the present” and “I do jobs or tasks automatically, without being aware of what I’m doing.” Responses are calculated into a mean rating score with higher scores corresponding to greater levels of mindfulness. The MAAS shows a good range of internal consistency across a wide range of samples ( = .80 – .87) and excellent test re-test reliability over a 1-month time period (r = .81). The MAAS also exhibits adequate convergent validity; as expected it correlates negatively with measures of anxiety and depression and positively with measures of positive affect and self-esteem (Brown & Ryan, 2003) (see Appendix D).

The Rutgers Alcohol Problem Index (RAPI). The RAPI was used to measure the frequency of negative consequences experienced by respondents as a result of consuming alcohol over the past month. This instrument consists of 23 items assessing alcohol-related problems rated on a 5-point scale ranging from 0 (never) to 4 (10 or more times). Sample items include “got into fights, acted bad, or did mean things” and “caused shame or embarrassment to someone”. White and Labouvie (1989) reported an alpha of .90 (see Appendix E).

Eysenck Personality Questionnaire (EPQ-I). Only the Impulsiveness subscale of the EPQ was used. The EPQ-I consists of 19 questions rated on a “yes” or “no” scale. Sample items include “Do you often get into a jam because you do things without thinking?”, “Do you speak before thinking things out?”, and “Do you often do things on the spur of the moment?” Eysenck et al. (1985) reported an alpha of .79 for the EPQ-I (see Appendix F).

Inventory of College Students’ Recent Life Stress (ICSRLE). This questionnaire consists of 49 items and was designed specifically for use with college students. Respondents are asked to rate from 1 (not at all apart of my life) to 4 (very
much part of my life) the extent to which they experienced various stressors over the last month. These stressors include conflicts with romantic partners and academic demands (e.g., “Finding courses too demanding”). The ICSRLE has demonstrated adequate concurrent validity as evidenced by positive and significant correlations of the ICSRLE subscales with related measures of daily hassles (Osman et al., 1994). Kohn et al. (1990) reported an alpha of .88 (see Appendix F).

Procedure

The study was approved by Pacific University’s institutional review board prior to data collection. This researcher also received permission from the review boards for the other two institutions included in the study before recruiting on their campuses. Psychology instructors from the three institutions were contacted via email and provided information about the study. Those who were willing to allow their students to be recruited informed their students through class announcements. Participants completed self-administered, paper-and-pencil measures in small groups on campus. All participants were enrolled in a drawing for a $50 gift card to Barnes and Noble. Those who were enrolled in a course that offered extra credit for research participation received such credit. No identifying information was gathered except that on the informed consent which was kept separate from all other participant data.
Results

Data Cleaning

Before analyzing the data, each variable’s compliance with univariate and multivariate assumptions was examined using SPSS 15.0 (SPSS Inc, 2007). As suggested by Tabachnick and Fidell (2001), only those cases containing at least 85% completed data were retained for analysis. None needed to be removed for missing data as all met this criterion. Upon inspection of the distribution of scores for each measure, it was discovered that the RAPI was significantly positively kurtotic. A square root transformation was performed to reduce this (Tabachnick & Fidell, 2001). Lastly, one multivariate outlier was detected and this participant removed from the data set using Mahalanobis distances of p < .001 as a conservative benchmark (Tabachnick & Fidell, 2001). This resulted in a final sample of 124.

Distribution Characteristics and Descriptive Statistics

Descriptive statistics for each variable in the form of the mean, standard deviation, skewness and kurtosis is displayed in Table 2. The mean and the standard deviation for the MAAS ($M = 4.02, SD = 0.74$), EPQ-I ($M = 6.57, SD = 3.84$), and the ICSRLE ($M = 95.96, SD = 19.53$) in this sample are similar to those in normative samples: MAAS ($M = 3.97, SD = 0.64$; Brown & Ryan, 2003), EPQ-I ($M = 8.47, SD = 3.84$).
4.38; Eysenck et al., 1985), and ICSLRE (\(M = 93.90, SD = 16.42\); Kohn et al., 1990).

Although White and Labouvie (1988) did not report the RAPI standard deviation in their normative sample results, the mean in their nonclinical sample (\(M = 7.80\)) appears to be similar to the mean in this study (\(M = 9.22\)).

Table 2

*Means, Standard Deviations, Skewness, and Kurtosis by Variable*

<table>
<thead>
<tr>
<th>Variable</th>
<th>Mean</th>
<th>SD</th>
<th>Skewness (SE)</th>
<th>Kurtosis (SE)</th>
</tr>
</thead>
<tbody>
<tr>
<td>MAAS</td>
<td>4.02</td>
<td>0.74</td>
<td>-0.49 (.22)</td>
<td>1.53 (.43)</td>
</tr>
<tr>
<td>RAPI</td>
<td>9.22</td>
<td>11.76</td>
<td>1.77 (.22)</td>
<td>3.25 (.43)</td>
</tr>
<tr>
<td>EPQ-I</td>
<td>6.57</td>
<td>3.84</td>
<td>.53 (.22)</td>
<td>-.23 (.43)</td>
</tr>
<tr>
<td>ICSRLE</td>
<td>95.96</td>
<td>19.53</td>
<td>.52 (.22)</td>
<td>1.20 (.43)</td>
</tr>
<tr>
<td>Days D</td>
<td>5.70</td>
<td>7.04</td>
<td>1.76 (.22)</td>
<td>2.52 (.43)</td>
</tr>
<tr>
<td>T-RAPI</td>
<td></td>
<td></td>
<td>.49 (.22)</td>
<td>-.58 (.43)</td>
</tr>
</tbody>
</table>

*Note.* MAAS = Mindful Attention Awareness Scale, RAPI = Rutgers Alcohol Problems Index, EPQ-I = Eysenck Personality Questionnaire (Impulsivity), ICSRLE = Inventory of College Students’ Recent Life Stress, Days D = frequency of drinking over 30 days, T-RAPI = Transformed Rutgers Alcohol Problems Index.
Table 3 lists the zero-order correlations between variables. Problem drinking was negatively associated with level of mindfulness (r = -0.30, p = .001) and positively associated with impulsivity (r = 0.37, p < 0.001), stressful life events (r = 0.31, p = .001), and frequency of alcohol use (r = 0.58, p < .001).

To test all three hypotheses, a hierarchical multiple regression analyses was conducted. Results are summarized in Table 4. Alcohol use was entered first at step one. Consistent with hypothesis 1, frequency of alcohol use was a significant predictor of alcohol problems and accounted for 34% of the variance in alcohol problems (ΔR² = 0.34, p < .001). Impulsivity, stressful life events, and mindfulness were then entered at step two. Collectively their effect was statistically significant, contributing unique variance to the model (ΔR² = 0.15, p < .001). However, inconsistent with hypothesis 1, when examined individually only impulsivity significantly predicted alcohol problems (β = .30, p < .001). At step 3, the mindfulness X impulsivity and mindfulness X stressful life events interactions were added. Jointly, these interactions were statistically significant and accounted for an additional 3% of the variance in alcohol problems (ΔR² = .03, p = .036). When each interaction was examined individually, consistent with hypothesis 2, the interaction between mindfulness and impulsivity was statistically significant (β = -
.36, \( p = .015 \)). Inconsistent with hypothesis 3, the interaction between mindfulness and stressful life events was not statistically significant (\( \beta = 0.15, p = .196 \)).

To further explore the impulsivity X mindfulness interaction, a simple slope analysis was used to plot alcohol problems regressed onto impulsivity at high (+1 SD) and low (-1 SD) values of mindfulness (see Figure 1). Consistent with hypothesis 2, participants high in mindfulness did not evidence a significant relationship between impulsivity and alcohol related problems (\( b = .07, t = 1.47, p = .14 \)), whereas participants who were low in mindfulness did (\( b = .19, t = 4.16, p < .001 \)).
Table 3

*Intercorrelations Between Variables*

<table>
<thead>
<tr>
<th></th>
<th>MAAS</th>
<th>T-RAPI</th>
<th>EPQ-I</th>
<th>ICSRLE</th>
<th>Days D</th>
</tr>
</thead>
<tbody>
<tr>
<td>MAAS</td>
<td>--</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>T-RAPI</td>
<td>-0.30**</td>
<td>--</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>EPQ-I</td>
<td>-0.45**</td>
<td>0.37**</td>
<td>--</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ICSRLE</td>
<td>-0.62**</td>
<td>0.31**</td>
<td>0.52**</td>
<td>--</td>
<td></td>
</tr>
<tr>
<td>Days D</td>
<td>-0.04</td>
<td>0.58**</td>
<td>-0.02</td>
<td>0.04</td>
<td>--</td>
</tr>
</tbody>
</table>

*Note.* **Correlation is significant at the 0.01 level (2-tailed). MAAS = Mindful Attention Awareness Scale, T-RAPI = Transformed Rutgers Alcohol Problems Index, EPQ-I = Eysenck Personality Questionnaire (Impulsivity), ICSRLE = Inventory of College Students’ Recent Life Stress, Days D = frequency of drinking over 30 days.
Table 4

Regression Analysis Predicting Alcohol-Related Problems from Alcohol Use, Mindfulness, Impulsivity, and Stressful Life Events.

<table>
<thead>
<tr>
<th>Predictor</th>
<th>β</th>
<th>ΔR²</th>
<th>FΔ</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Step 1</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Alcohol Use</td>
<td>.59</td>
<td></td>
<td></td>
<td>&lt;.001</td>
</tr>
<tr>
<td><strong>Step 2</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Alcohol Use</td>
<td>.58</td>
<td>.15</td>
<td>11.82</td>
<td>&lt;.001</td>
</tr>
<tr>
<td>Mindfulness</td>
<td>-.09</td>
<td></td>
<td></td>
<td>.282</td>
</tr>
<tr>
<td>Impulsivity</td>
<td>.28</td>
<td></td>
<td></td>
<td>.001</td>
</tr>
<tr>
<td>Stressful Life Events</td>
<td>.08</td>
<td></td>
<td></td>
<td>.326</td>
</tr>
<tr>
<td><strong>Step 3</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Alcohol Use</td>
<td>.60</td>
<td>.03</td>
<td>3.42</td>
<td>.036</td>
</tr>
<tr>
<td>Mindfulness</td>
<td>-.12</td>
<td></td>
<td></td>
<td>.168</td>
</tr>
<tr>
<td>Impulsivity</td>
<td>.24</td>
<td></td>
<td></td>
<td>.004</td>
</tr>
<tr>
<td>Stressful Life Events</td>
<td>.10</td>
<td></td>
<td></td>
<td>.262</td>
</tr>
<tr>
<td>Mindfulness X Impulsivity</td>
<td>-.25</td>
<td></td>
<td></td>
<td>.015</td>
</tr>
<tr>
<td>Mindfulness X Stressful Life Events</td>
<td>.13</td>
<td></td>
<td></td>
<td>.196</td>
</tr>
</tbody>
</table>
Figure 1. Simple slopes for impulsivity in the prediction of problem drinking at low (-1 SD) and high (+1SD) values of mindfulness. The values for impulsivity and mindfulness are centered to have a mean of zero.
**Discussion**

The purpose of this dissertation was three fold. First, it was expected that alcohol use, impulsivity, and stressful life events would show a positive relationship with alcohol-related problems, and that mindfulness would show a negative relationship with alcohol-related problems. Second, it was expected that mindfulness would moderate the relationship between impulsivity and alcohol-related problems, such that impulsivity would be more strongly related to alcohol-related problems when mindfulness was low than when mindfulness was high. Lastly it was expected that mindfulness would moderate the relationship between stressful life events and alcohol-related problems, such that stressful life events will be more strongly related to alcohol-related problems when mindfulness was low than when mindfulness was high.

As expected, a significant relationship was found between alcohol-related problems and frequency of use. Students who reported engaging in alcohol consumption more often also endorsed experiencing a greater number of problems. A significant relationship was also found between impulsivity and alcohol-related problems, even after accounting for frequency of use. Students who scored higher on the impulsiveness subscale also tended to report a greater number of negative consequences related to their drinking. As mentioned previously, the term “impulsivity” does not represent a homogenous construct. The Impulsiveness subscale of Eyseck’s Impulsiveness Questionnaire (EPQ-I) was specifically used in this dissertation because it measures rash,
unplanned behavior without consideration of consequences. The findings suggest that students high in this specific facet of impulsivity may be failing to refrain from drinking in situations where there is a higher likelihood they will experience unwelcome consequences. When exposed to conditioned stimuli associated with drinking, they may be more likely yield to their urge to drink without adequately assessing their risk for negative consequences (e.g., engaging in drinking during a lunch break between classes versus on a Friday night). It is notable that these findings are also consistent with Simons et al. (2004) and with Magid et al. (2007) who used the same measure, the RAPI, to assess alcohol-related problems. It is possible that previous discrepancies in research findings on the impulsivity-problem relationship have been due, in part, to differences in the measures used to assess problems. The RAPI has been shown to be a valid measure of alcohol related negative consequences and has been used extensively with college students. These results add further support for the use of this measure with this population.

Contrary to the other elements of hypothesis one, specifically, that stressful life events and mindfulness would predict alcohol-related problems, a significant relationship was not found when accounting for the variance related to frequency of use. The lack of significance between stressful life events and problem drinking was unexpected given social learning theory models of college drinking conceptualize alcohol consumption as a maladaptive method of coping with stress (Maisto, Carye, & Bradizza, 1999) and previous studies have linked stress with increased use (Carney et al., 2000; Mohr et al., 2001; Nation & Heflinger, 2006). An explanation for this finding may be that the number of stressful events a student experiences is not sufficient in and of itself to predict
problems with alcohol. Studies have more reliably shown students are vulnerable to problem drinking if they expect alcohol will ameliorate negative experiences (Kuntsche et al., 2006; Simons et al., 2005). Although daily struggles with stressors such as conflict with partners, dissatisfaction with school, loneliness and poor health may set the stage for problem drinking, a student’s motivation to use alcohol to alleviate such stress may be a deciding factor. It is also possible that this sample was not large enough to adequately capture the subset of students who are prone to drink to alleviate their stress.

While stressful life events and level of mindfulness were not found to be significant predictors of problem drinking in the regression analysis, they were significantly correlated with alcohol problems prior to their inclusion in the regression. It is notable that both correlations were in the expected direction (i.e., positive for stressful life events and negative for mindfulness).

The second hypothesis, that mindfulness would moderate the relationship between impulsivity and problem drinking, was supported. The relationship between impulsivity and alcohol problems grew stronger as level of mindfulness decreased. This suggests that having a disposition towards mindfulness may be a protective factor when it comes to the relationship between impulsivity and alcohol-related problems. Mindfulness has been conceptualized as a trait associated with decreased emotional reactivity and greater affective acceptance (Baer, 2003; Marlatt, 2002; Buccheld et al., 2001). Having an accepting attitude towards one’s experience whether the experience is positive or negative may interrupt the relation between impulsivity and alcohol-related problems. Students predisposed to impulsive behavior and low in trait mindfulness may be more likely to consume alcohol during emotionally charged states. If this is true, interventions
which target increasing a person’s level of mindfulness may be useful in helping to decrease problem drinking among these students.

Lastly, the third hypothesis, that mindfulness would also moderate the relationship between stressful life events and problem drinking, failed to show significance. Given that no relationship was found between stressful life events and mindfulness with alcohol related problems when considered independently, it is not surprising a significant interaction was not found.

This study adds to the research literature looking at the relationship between stress, impulsivity, and mindfulness in relation to problem drinking among college students. It appears this is the first time the MAAS has been used in a study of collegiate drinking. It is important to note that the results in this dissertation differed from those found by Leigh et al. (2005) and Leigh and Neighbors (2009). The authors of these studies found that mindfulness was positively associated with alcohol use. They used the FMI to measure mindfulness which contains a mind/body awareness subscale, which when analyzed separately from the other two subscales (Non-attachment and Openness) contained within the FMI, appeared to be responsible for the positive association. It remains unclear why this mind/body awareness aspect of the FMI is associated with increased alcohol use among college students, although the authors hypothesize this subscale may be tapping into a maladaptive form of body/mind awareness. They also note that the FMI was developed using responses from a sample that was very familiar with meditation. Although a significant relationship was not found between problem drinking and mindfulness in this dissertation, mindfulness was a significant moderator of the relationship between impulsivity and problem drinking. Given this finding is more in
line with theoretical assumptions; it adds support to the use of the MAAS in measuring mindfulness in college samples. While the FMI may be an appropriate tool for use with other populations, it may be less reliable when measuring mindfulness among college students who tend to have less experience with mediation practices.

This dissertation has some notable limitations. First, all of the findings are based on self-report measures which are subject to error based on inaccurate recall and both intentional and unintentional misrepresentation. Although steps were taken to reduce such error (such as assurances of anonymity) one cannot rule out the presence of self-report bias and/or distortion. Secondly, the study is a cross-sectional survey which did not include a mindfulness-based intervention, preventing causal interpretation. Another limitation is that participants were gathered from only a few undergraduate institutions in the state of Oregon and Colorado and lacking in ethnic diversity, limiting the generalizability of findings. Finally, it should be noted that two of the major constructs measured in this study (impulsivity and mindfulness) represent multifaceted constructs. Although the measures used in this dissertation were done so to align with the goals of this study, it is possible that the use of other measures based on different characteristics of these constructs would result in a different pattern of findings.

In conclusion, the relationship between mindfulness and problem drinking among college students remains unclear. Studies directly examining the relationship are sparse and complicated by variations in the measures used to assess mindfulness. While mindfulness did not predict problem drinking after controlling for other known predictors, it did moderate the relationship between impulsivity and problem drinking. It appears that having a disposition towards mindfulness may be a protective factor when it
comes to the relationship between impulsivity and alcohol-related problems. These results support the use of the MAAS in identifying those students who are low in mindfulness. These results also support targeting those students who are prone to rash impulsiveness as they may be more at risk for developing problems with alcohol rather than those who are prone to sensation seeking. Treatment programs that attempt to identify at risk students for alcohol-problems may benefit from focusing efforts on students who display rash decision and low levels of mindfulness. Interventions that focus on enhancing mindfulness might help ameliorate the association between impulsivity and the plethora of problems associated with drinking.
References


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inventory of college students’ recent life experiences in an American college sample. *Journal of Clinical Psychology, 50*, 856-863. doi:10.1002/1097-4679%28199411%2950:6%3C856::AID-JCLP2270500607%3E3.0.CO;2-C


Substance Abuse and Mental Health Services Administration (2003). *Results from the*


Appendix A
Demographic Questionnaire

1. What is your gender?
   _____ Male
   _____ Female
   _____ Other

2. How old are you? __________

3. What year of school are you in?
   _____ Freshman
   _____ Sophomore
   _____ Junior
   _____ Senior

4. Which group best describes your ethnicity?
   _____ African American or Black
   _____ Asian or Pacific Islander
   _____ Latino or Hispanic
   _____ Native American or Alaska Native
   _____ White or of European origin
   _____ Mixed; parents are from two or more different groups
   _____ Other (write in)___________________
Appendix B
Meditation Practice Scale

1. Do you currently meditate? _______ (if NO skip the next 5 questions)

2. What kind of meditation do you practice (name or describe)
   ________________________________________________________________
   ________________________________________________________________
   ________________________________________________________________
   ________________________________________________________________
   ______

3. For how long have you been meditating? _______

4. How often do you meditate?
   _____ One or more times a day
   _____ One or more times a week
   _____ Less than weekly

5. How long do you meditate when you do (on average)? _______

6. To what extent do you carry your meditation practice into your daily life? (circle below)

   1  2  3  4  5  6  7
   Not at all  Almost  Very  Somewhat  Very  Almost  Always
   Never  Infrequently  Frequently  Frequently  Always
Appendix C

Mindful Attention Awareness Scale

Below is a collection of statements about your everyday experience. Using the 1–6 scale below, please indicate how frequently or infrequently you currently have each experience. Please answer according to what really reflects your experience rather than what you think your experience should be.

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Almost Always</td>
<td>Very Frequently</td>
<td>Somewhat Frequently</td>
<td>Somewhat Infrequently</td>
<td>Very Infrequently</td>
<td>Almost Never</td>
</tr>
</tbody>
</table>

_____1. I could be experiencing some emotion and not be conscious of it until some time later.

_____2. I break or spill things because of carelessness, not paying attention, or thinking of something else.

_____3. I find it difficult to stay focused on what’s happening in the present.

_____4. I tend to walk quickly to get where I’m going without paying attention to what I experience along the way.

_____5. I tend not to notice feelings of physical tension or discomfort until they really grab my attention.

_____6. I forget a person’s name almost as soon as I’ve been told it for the first time.

_____7. It seems I am “running on automatic” without much awareness of what I’m doing.

_____8. I rush through activities without being really attentive to them.

_____9. I get so focused on the goal I want to achieve that I lose touch with what I am doing right now to get there.

_____10. I do jobs or tasks automatically, without being aware of what I’m doing.

_____11. I find myself listening to someone with one ear, doing something else at the same time.

_____12. I drive places on “automatic pilot” and then wonder why I went there.

_____13. I find myself preoccupied with the future or the past.

15. I snack without being aware that I'm eating.

Appendix D
Quantity/Frequency/Volume-30 Questionnaire

All of these questions ask about your drinking DURING THE PAST 30 DAYS. For each question, please write the correct number on the line provided.

1. During the past 30 days, on how many days did you have any beverage containing alcohol (including beer, wine, liquor, etc.)?

_____ days (out of the past 30) when I had any alcohol beverage.

For question 2 and 3, any of the following counts as one drink:
- One glass (12 ounces) of beer or
- One glass (5 ounces) of wine or
- Once ounce of liquor or other distilled spirits

2. On days when you did drink alcohol during the past 30 days, how many drinks did you usually have?

_____ drinks per drinking day

3. During the past 30 days, on how many days did you have 5 or more drinks?

_____ days (out of the past 30) when I had five or more drinks
Appendix E
Rutgers Alcohol Problem Index

Different things happen to people while they are drinking ALCOHOL or as a result of their ALCOHOL use. Some of these things are listed below. Please indicate how many times each has happened to you WITHIN THE PAST YEAR.

Use the following code:
0 = never
1 = 1-2 times
2 = 3-5 times
3 = 6-10 times
4 = more than 10 times

How many times did the following things happen to you while you were drinking alcohol or because of your alcohol use during the last year?

0 1 2 3 4 Not able to do your homework or study for a test
0 1 2 3 4 Got into fights, acted bad, or did mean things
0 1 2 3 4 Missed out on other things because you spent too much money on alcohol
0 1 2 3 4 Went to work or school high or drunk
0 1 2 3 4 Caused shame or embarrassment to someone
0 1 2 3 4 Neglected your responsibilities
0 1 2 3 4 Relatives avoided you
0 1 2 3 4 Felt that you needed more alcohol than you used to use in order to get the same effect
0 1 2 3 4 Tried to control your drinking by trying to drink only at certain times of the day or certain places
0 1 2 3 4 Had withdrawal symptoms, that is, felt sick because you stopped or cut down on drinking
0 1 2 3 4 Noticed a change in your personality
Felt that you had a problem with alcohol

Missed a day (or part of a day) of school or work

Tried to cut down or quit drinking
Suddenly found yourself in a place that you could not remember getting to

Passed out or fainted suddenly

Had a fight, argument or bad feelings with a friend

Had a fight, argument or bad feelings with a family member

Kept drinking when you promised yourself not to

Felt you were going crazy

Had a bad time

Felt physically or psychologically dependent on alcohol

Was told by a friend or neighbor to stop or cut down drinking
Appendix F
Eysenck Impulsiveness Subscale

Instructions: Please answer each question by putting a circle around the “YES” or “NO” following the questions. There are no right or wrong answers and no trick questions. Work quickly and do not think too long about the exact meaning of the question.

PLEASE REMEMBER TO ANSWER EACH QUESTION

1. Do you often buy things on impulse?_____________________________ Yes
   No
2. Do you generally do and say things without stopping to think?_________ Yes
   No
3. Do you often get into a jam because you do things without thinking?_______ Yes
   No
4. Are you an impulsive person?____________________________________ Yes
   No
5. Do you usually think carefully before doing anything?________________ Yes
   No
6. Do you often do things on the spur of the moment?___________________ Yes
   No
7. Do you mostly speak without thinking things out?____________________ Yes
   No
8. Do you often get involved in things you later wish you could get out of?____ Yes
   No
9. Do you get so “carried away” by new and exciting ideas, that you never think of the possible snags?______________________________ Yes
   No
10. Do you need to use a lot of self-control to keep out of trouble?_________ Yes
    No
11. Would you agree that almost anything enjoyable is illegal or immoral?____ Yes
    No

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12. Are you often surprised at people’s reactions to what you do or say?_______ Yes
               No

13. Do you think an evening out is more successful if it is unplanned or
    arranged at the last moment?______________________________ Yes
                No

14. Do you usually work quickly, without bothering to check?_______________ Yes
               No

15. Do you often change your interests?______________________________ Yes
               No

16. Before making up your mind, do you consider all the advantages and
    disadvantages?_________________________________ Yes
               No

17. Do you prefer to “sleep on it” before making decisions?______________ Yes
               No

18. When people shout at you, do you shout back?____________________ Yes
               No

19. Do you usually make up your mind quickly?________________________ Yes
               No
Appendix G
Inventory of College Students’ Recent Life Experiences

The following is a list of experiences which many students have some time or other. Please indicate for each experience how much it has been apart of your life over the past month. Put a “1” in the space provided next to an experience if it was not at all part of your life over the past month (e.g. “trouble with mother in law- 1”); “2” for an experience which was only slightly part of your life over that time; “3” for an experience which was distinctly part of your life; and “4” for an experience which was very much part of your life over the past month.

Intensity of Experience over Past Month
1= not at all part of my life
2= only slightly part of my life
3= distinctly part of my life
4= very much part of my life

1. Conflicts with boyfriend’s/girlfriend’s/spouse’s family _____
2. Being let down or disappointed by friends _____
3. Conflict with professor(s) _____
4. Social rejection _____
5. Too many things to do at once _____
6. Being taken for granted _____
7. Financial conflicts with family members _____
8. Having your trust betrayed by a friend _____
9. Separation from people you care about _____
10. Having your contributions overlooked _____
11. Struggling to meet your own academic standards _____
12. Being taken advantage of _____
13. Not enough leisure time _____

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14. Struggling to meet the academic standards of others

15. A lot of responsibilities

16. Dissatisfactions with school

17. Decisions about intimate relationship(s)

18. Not enough time to meet your obligations

19. Dissatisfaction with your mathematical ability

20. Important decisions about your future career

21. Financial burdens

22. Dissatisfaction with your reading ability

23. Important decisions about your education

24. Loneliness

25. Lower grades than you hoped for

26. Conflict with teaching assistant(s)

27. Not enough time for sleep

28. Conflicts with your family

29. Heavy demands from extracurricular activities

30. Finding courses too demanding

31. Conflicts with friends

32. Hard effort to get ahead

33. Poor health of a friend

34. Disliking your studies

35. Getting “ripped off” or cheated in the purchase of services

36. Social conflicts over smoking

37. Difficulties with transportation
38. Disliking fellow student(s)   
39. Conflicts with boyfriend/girlfriend/spouse    
40. Dissatisfaction with your ability at written expression   
41. Interruptions of your school work   
42. Social isolation   
43. Long waits to get service (e.g., at banks, stores, etc.)   
44. Being ignored   
45. Dissatisfaction with your physical appearance   
46. Finding course(s) uninteresting   
47. Gossip concerning someone you care about  
48. Failing to get expected job   
49. Dissatisfaction with your athletic skills