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Mindfulness Mediates the Relationship Between Anxious Attachment
and Coping Motives for Alcohol Consumption

A Thesis submitted in partial satisfaction of the requirements
for the degree of Master of Arts

in

Psychological Sciences

by

Erik Buchholz

Committee in charge:

Professor Linda Cameron, Chair
Professor Jeff Gilger
Professor Anna Song

2016

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2016

Dedication

I dedicate this work to my mom, who always offered me her kind words and support throughout this program.

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Abstract

Objective: To determine what factors of mindfulness mediate the relationship between attachment and coping motives for drinking.

Design: We conducted a correlational, longitudinal study with young adults completing surveys at Time 1 (T1) and 30 days later (T2).

Methods: We recruited adults ages 18-24 from across the United States to complete online surveys at Time 1 (N=330) and Time 2 (N=271; 82% retention) 30 days later. Surveys included measures of attachment style, mindfulness, and coping motives for drinking.

Results: We used a bootstrapping method to test for indirect effects with multiple mediators. The effects of T1 anxious attachment on T2 coping motives for drinking was completely mediated by three factors of T1 mindfulness. Anxious attachment predicted reduced acting with awareness, nonreactivity, and nonjudgmental attitudes. Coping motives were predicted by less acting with awareness, nonreactivity, and nonjudgmental attitudes. Lastly, there were significant total effects. So, higher levels of awareness, nonreactivity, and nonjudgmental attitudes predicted reduced use of coping motives for drinking, but higher anxious attachment predicted greater coping motives via these mindfulness factors.

Conclusion: While both anxious attachment and mindfulness predict the use of coping motives, mindfulness mediates the relationship between anxious attachment and coping motives. Future binge-drinking interventions may incorporate training in mindfulness skills. Given that interventions designed to increase mindfulness have better success than those designed to alter attachment style, this intervention approach seems promising, especially for those with substance abuse issues.

Mindfulness Mediates the Relationship Between anxious attachment and Coping Motives for Alcohol Consumption

Introduction

Excessive alcohol use is a significant problem among young adults. In the United States, binge-drinking has the highest prevalence (28.2%) and intensity (9.3 drinks per average session) among 18-24-year olds (Kanny, Liu, Brewer, Garvin & Balluz, 2012). Furthermore, binge drinkers are 14 times more likely than non-binge drinkers to drive while intoxicated (Naimi, Brewer, Modhad, Denny, Serdula & Marks, 2003). Although young adults drink excessively for a variety of reasons, they often use alcohol to cope with distress (Kuntsche, Knibbe, Gnel, & Engels, 2005). Better emotion regulation skills may improve the ability of drinkers to reduce their use of alcohol as a coping strategy. Emotion regulation “refers to the processes by which individuals influence which emotions they have, when they have them, and how they experience and express these emotions” (Gross, 1998, p. 275). Two factors that may affect emotion regulation skills are mindfulness and attachment style. Specifically, secure attachment style has been related to adaptive ways in experiencing emotions (Mikulincer & Shaver, 2007), and mindfulness has been associated with adaptive emotion regulation (Hayes & Feldman, 2004). Studies have also indicated that both factors predict drinking behavior and motives (Fernandez, Wood, Stein & Rossi, 2010; Molnar, Sadava, DeCourville & Perrier, 2010; Roos, Pearson & Brown, 2015).

It is possible that mindfulness actually mediates the relationship between attachment style and drinking motives. Ryan, Brown and Creswell (2007) suggested the bi-directional effects of mindfulness and attachment: Secure attachment predisposed individuals to maintain mindful awareness, and dispositional mindfulness predisposed individuals to be more open to intimate relationships. Even though secure attachment may predispose greater mindful awareness, we suggest that mindfulness is the driving force behind emotion regulation skills, which then predict drinking motives. In fact, mindfulness can be considered an emotional regulation skill because it overlaps with the acceptance and awareness components of another factor related to emotion regulation, difficulties with emotion regulation (Pepping, Davis & O'Donovan, 2012). Mindfulness fundamentally involves relating to *emotions*, whereas attachment involves relating to *others*. Mindfulness may permit individuals to respond to situations in a receptive and open manner rather than ruminating and turning to alcohol. Consequently, we conclude that the relationship between attachment style and drinking motives will be mediated by dispositional mindfulness. The present study was designed to examine whether the relationship between attachment and coping motives is mediated by mindfulness.

Attachment and Alcohol Use

Attachment style is defined as “the systematic pattern of relational expectations, emotions, and behavior that results from internalization of a particular history of attachment experiences and consequent reliance on a particular attachment-related strategy of affect regulation (Mikulincer, Shaver & Pereg, 2003, p. 79). Attachment is comprised of two dimensions: anxiety (frequent relationship worries, a fear of rejection, and strong need for closeness) and avoidance (strong self-reliance and emotional distance from others). According to attachment theory, children bond with a caregiver and these interactions serve as a template for future relationships (Bowlby, 1969; Fraley & Shaver, 2000; Sroufe, 2005). Children with parents who respond appropriately to their needs and affective cues are better able to respond appropriately to others and form secure, healthy

relationships. Children with unresponsive parents tend to form avoidant attachment styles in which they anticipate that others will ignore or reject them in times of need. Consequently, they tend to seek alternatives to seeking emotional support to regulate negative emotions arising from stressful situations. Children with parents who provide erratic and intrusive attention tend to form anxious attachment styles, in which they seek attention and reassurance of relationship support from others. They may seek comfort from other sources when these attention and support needs are unmet. Such sources may include using alcohol as a coping strategy to manage distress arising from relationship problems and other stressors (Brennan & Shaver, 1995). In fact, insecure attachment is related to higher substance abuse problems in adolescents (Bell, Forthun & Sun, 2000), alcohol addiction (DeRick & Vanheule, 2007; DeRick, Vanheule & Verhaeghe, 2009; Fonagy et al., 1996; Rosentein & Horowitz, 1996; Vungkhanching, Sher, Jackson & Parra, 2004), and greater drinking problems. In addition, other studies have demonstrated the effects of both types of insecure attachment. Evidence suggests that anxious attachment predicts higher levels of coping motives for drinking alcohol, and that this motive mediates the relationship between anxious attachment and alcohol use (McNally, Palfai, Levine & Bianca, 2003). Avoidant attachment is also positively related to high-risk drinking in college freshman (Doumas, Turrisi & Wright, 2004), but it has not been found to be related to drinking motives. Taken together, these findings suggest that attachment styles predispose individuals to turn toward alcohol as an emotion regulation strategy.

Mindfulness and Emotion Regulation

Mindfulness is an emotion regulation skill that can reduce motives to use alcohol to cope with distress (Witkiewitz, Marlatt & Walker, 2005). Dispositional mindfulness is described as “paying attention in a particular way: on purpose, in the present moment, and nonjudgmentally” (Kabat-Zinn, 2003, p. 145). To better understand the emotion regulation skills and strategies inherent in mindfulness, dispositional mindfulness is commonly divided into five facets: (1) observing feelings (ability to notice sensations), (2) describing feelings (ability to articulate those sensations), (3) acting with awareness (ability to avoid distraction), (4) nonjudgmental attitudes (ability to avoid criticizing feelings), and (5) non-reactivity to situations (pausing before thoughtfully responding rather than reacting automatically). Overall, dispositional mindfulness is inversely associated with two prominent measures of emotional distress, anxiety and depression (Bernstein, Tanay, & Vujanovic, 2011; Gonzalez, Vujanovic, Johns, Leyro, & Zvolensky, 2009). In addition, individual facets are associated with anxiety and depression. For instance, anxiety is inversely associated with the facets of non-reactivity and describing, whereas depression is inversely associated with non-judging and non-reactivity (Desrosiers, Klemanski & Nolen Hoeksema, 2013a). Mindfulness training programs have also been shown to reduce anxiety and depression (Baer, 2003; Carmody & Baer, 2008; Coffey, Hartman & Fredrickson, 2010; Greeson, 2008; Hofmann, Sawyer, Witt & Oh, 2010; Kabat-Zinn et al., 1992; Roemer & Orsillo, 2002).

To better understand how dispositional mindfulness may affect anxiety and depression, mediation analyses have determined that different factors mediate mindfulness's relationship with anxiety and depression. For instance, rumination and worry mediate the relationship between dispositional mindfulness and anxiety. By contrast, rumination and reappraisal mediate the relationship between dispositional mindfulness and depression (Desrosiers, Klemanski & Nolen Hoeksema, 2013b). Therefore, mindfulness capabilities can promote adaptive emotion regulation by reducing

rumination (Deyo, Wilson, Ong & Koopman, 2010) and worry (Delgado, Guerra, Perakakis, Vera, del Paso & Vila, 2010) and promoting the use of cognitive reappraisal (Garland, Gaylord & Park, 2009). Mindfulness has also been associated with neural activity indicative of emotion regulation skills, such as tendencies to appraise ambiguous stimuli in a positive manner and to deploy attention away from distressing stimuli. For example, individuals high (versus low) in mindfulness exhibit reduced neural activity in the right amygdala and increased activity in the prefrontal cortex when seeing neutral faces (Creswell, Way, Eisenberger & Lieberman, 2007). These results indicate active attempts to reappraise stimuli and dampen emotional responses. Another study found lower late positive potentials in EEG readings in individuals high in mindfulness, suggesting reduced attention to emotion stimuli (Brown, Goodman & Inzlicht, 2013). In sum, mindfulness seems to encompass a variety of facets and emotional regulation strategies.

Mindfulness and Alcohol Use

Mindfulness has typically been associated with lower levels of alcohol use. For example, individuals higher in the factors of describing feelings and awareness have demonstrated relatively lower levels of alcohol use (Fernandez, Wood, Stein & Rossi, 2010). Those lower in awareness, nonreactivity, and nonjudgmental attitudes also tended to be more likely to display substance abuse disorders (Levin, Dalrymple & Zimmerman, 2014). In addition, the factors of describing, awareness, and nonjudging have been associated with lower use of coping motives in drinking (Roos, Pearson & Brown, 2015). Individuals high in mindfulness who are in treatment for alcohol use also demonstrate better indicators of recovery. For instance, recovering alcoholics who are high in trait mindfulness report lower craving scores and greater alcohol-related self-efficacy than their low-mindfulness counterparts (Garland, Boettinger, Gaylord, Chanon & Howard, 2012). Furthermore, recovering alcoholics who are higher in mindfulness have also demonstrated greater cardiovascular recovery after exposure to alcohol-related images (Garland, 2015). We suggest that mindfulness may permit individuals to be present with their feelings of distress or cravings, but be less likely to act on them. That is, mindfulness can promote adaptive emotion regulation. For instance, those higher in mindfulness report higher feelings of positive affect and a stronger belief that they can change their negative mood states (Jimenez, Niles & Park, 2010). Mindfulness can both inhibit emotional distress and promote adaptive regulation of distress. As a result, individuals high in mindfulness may experience fewer urges to turn to alcohol as means for coping with distress.

Attachment and Mindfulness

Although researchers have tended to consider attachment style and mindfulness as independent predictors of motives to use alcohol to cope with distress, we suggest that attachment styles may critically shape mindfulness factors and that mindfulness tendencies in turn shape coping motives. Evidence suggests that attachment styles predict mindfulness tendencies. For example, Shaver Lavy, Saron and Mikulincer (2007) found that secure attachment was associated with greater mindfulness tendencies and that the two attachment factors accounted for 42% of the variance in the five mindfulness factors. Avoidant attachment was associated with all five factors of mindfulness whereas anxious attachment was associated with three factors (i.e., awareness, nonreactivity, and nonjudgmental attitude). In other words, avoidant participants exhibited deficits in all facets of mindfulness whereas anxious participants exhibited difficulties in remaining present with the experience without reactions or judgment.

The outcomes for mindfulness studies mirror those observed with secure attachment and psychosocial outcomes. For instance, both attachment style and mindfulness tendencies include associations with numerous positive outcomes (Barnes, Brown, Krusemark, Campbell & Rogge, 2007; Carson, Carson, Gil & Baucom, 2004), such as lower stress reactivity (Diamond, Hicks & Otter-Henderson, 2006), better self-regulation (Shaver & Mikulincer, 2002), more constructive responses to relationship conflict (Collins & Feeney, 2000), and better relationship satisfaction (Tracy, Shaver, Albino & Cooper, 2003). It is possible that parents promote a secure attachment in part through giving their children open and receptive attention during their interactions. By modeling these attentional styles, securely attached children develop mindful attitudes toward other social situations and relationship partners (Ryan, Brown & Creswell, 2007). We suggest that attachment styles shape mindfulness skills, which act as emotional management strategies that predict coping motives for drinking. As a result, we anticipate that they will mediate relationship between attachment and coping motives.

Present Study Aims

Drawing on attachment, mindfulness, and emotion regulation theory and research, we developed and tested the proposed model in Figure 1 and Figure 2. Specifically, we hypothesized that insecure attachment would be associated with lower levels of all facets of dispositional mindfulness: observing feelings, describing feelings, acting with awareness, nonjudgmental attitudes, and nonreactivity. We hypothesized that these five facets, in turn would be associated with higher levels of motives to consume alcohol as a means of coping with distress. Because previous research has shown that anxious attachment loads onto awareness, nonreactivity and nonjudgmental attitudes, we expected these three factors to be the strongest mediators of the relationships between anxious attachment and coping motives. Furthermore, in line with previous research, we anticipated that all five factors of mindfulness would be strong mediators for the relationship between avoidant attachment and coping motives.

To test the proposed model, we recruited young adults ages 18-24 to complete survey measures of attachment, mindfulness, and coping motives at the study onset and one month later. We employed a longitudinal design so as to test whether attachment and mindfulness at Time 1 predicts coping motives over the subsequent month. We used a one-month time period because we determined that a month would be the smallest amount of time necessary to predict differences in drinking motives over time. Although the data are correlational, the longitudinal design improves on a cross-sectional design in which data are more likely to reflect both coping motive's influences on mindfulness and mindfulness influences on coping motives.

Methods

Participants and Procedure

The IRB of the University of California, Merced, approved this study. Participants were recruited through an online survey website, Mechanical Turk. Mechanical Turk samples tend to be more diverse than traditional samples of college students, and data quality is high when compared with other survey methods (Buhrmester, Kwang, & Gosling, 2011). Furthermore, Paolacci, Chandler, and Ipeirotis (2010) have commented that these samples are comparable in terms of gender, race, age, and education demographics to those participating in online psychology experiments hosted by discussion boards. While the study did not explicitly mention the sampled discussion boards, examples include the social psychology network, SampleSize Subreddit, Psychology Research on the Net, PsychStudies, and Psych Forums. MTurk users were invited to complete a screening survey assessing age, race, and gender. Of the 1190 respondents, 478 met the eligibility criterion of falling within the 18-24 age range and they received an invitation to participate in the full study. Participants ($N = 330$, 69% of those invited) provided informed consent and completed online questionnaires at Time 1 (T1) and Time 2 (T2, $N = 271$; 82.1% of those completing the T1 questionnaire) 30 days later. Demographic characteristics, attachment, and mindfulness were measured at T1; coping motives were measured at both time points. Table 1 presents the demographic characteristics of the sample. T2 participants did not differ from the rest of the T1 sample in age, race, gender, education, work status, coping motives at T1, attachment style, and mindfulness factors. The subsample of T1 participants who did not complete the T2 survey demonstrated the same comparison with the T2 participants, except for lower scores on average for differences in the nonreactivity ($t(328) = -2.78, p = .006$) and nonjudgmental attitude ($t(328) = -2.74, p = .006$) factors of mindfulness.

Measures

Participants first filled out surveys on mindfulness, then attachment, then drinking motives, then demographics at T1. At T2, they filled out drinking motive surveys. At the end of each time point, participants were paid \$2.00.

Attachment

The Experience in Close Relationships-Relationship Structure Questionnaire (ECR-RS) assesses the attachment of individuals to their mothers (Fraley, Heffernan, Vicary & Brumbaugh, 2011). This 9-item measure assesses the dimensions of anxious attachment (3 items, $\alpha = .88$) and avoidant attachment (6 items, $\alpha = .92$). Respondents are asked whether they had a relationship with their mother, whether they currently maintain that relationship, and to rate agreement with statements regarding that relationship. Sample statements include “It helps to turn to this person in times of need” and “I talk things over with this person.” Ratings range from 1 (*totally disagree*) to 6 (*totally agree*). Anxious attachment and avoidant attachment scores were calculated by averaging their respective items.

Mindfulness

The Five Factor Mindfulness Questionnaire (FFMQ) assesses trait mindfulness (Baer, Smith, Hopkins, Krietemeyer & Toney, 2006). This 39-item measure assesses the dimensions of observing ($\alpha = .83$), describing ($\alpha = .91$), acting with awareness ($\alpha = .87$), nonjudgmental attitude ($\alpha = .87$), and nonreactivity to situations ($\alpha = .75$). Respondents

are asked to rate how much each statement represents themselves, ranging from 1 (*never true*) to 5 (*always true*). Sample statements, respectively, include “When I’m walking, I deliberately notice the sensations of my body moving; I’m good at finding words to describe my feelings; When I do things, my mind wanders off and I’m easily distracted; criticize myself for having irrational or inappropriate emotions; I perceive my feelings and emotions without having to react to them.” Scores were determined by averaging the scores for each subscale. *Drinking Motive Questionnaire-Revised Short Form*

The coping motives subscale of the Drinking Motive Questionnaire-Revised Short-form (DMQ-R-SF; Kuntsche & Kuntsche, 2009) was used to measure motives to use alcohol to cope with distress. For T1, participants rated how often they drank in the last 12 months for a variety of motivations using a 4-point scale, ranging from 1 (*never*) to 4 (*almost always*) (3 items; $\alpha = .82$). Sample items include “because you want to forget your problems” and “because it helps you when you feel depressed or nervous.” At T2, the time period was in the last month. Scores were determined by averaging the items at each time point.

Demographics

Participants answered questions on age, race/ethnicity, gender, education, work status, and romantic relationship status. Because of insufficient numbers for multiple race/ethnicity groups, race was coded as dichotomous variable (white/not white).

Strategy for Analysis

To compare race/ethnicity and sex, we used chi-square tests. To compare ages, attachment style, and mindfulness between groups, we used t-tests. Pearson correlations were calculated for zero-order coefficients. We analyzed whether the five factors of mindfulness mediated the relationship between attachment style and coping motives. We used the SPSS version of the Process macro (Hayes & Preacher, 2014) to calculate the indirect effects of multiple mediators with a boot-strapping method of 5,000 (Shrout & Bolger, 2002). The model included anxious attachment and avoidance as the predictor variables, the five mindfulness factors as mediating variables, and coping motives as the outcome variable.

To conclude complete mediation: (1) The total effect of the IV on the DV must be significant, (2) the path from the IV to the mediators must be significant, (3) the direct effect of the mediators on the DV must be significant, and (4) the total effect of the IV on the DV must be nonsignificant when the mediators are included in the analysis with the IV.

Results

Preliminary Analysis

Table 2 displays zero-order correlations of T1 attachment style, T1 mindfulness, and T2 coping motives. No demographic variables were included in these correlations because none was significant. Avoidant and anxious attachment were negatively associated with the mindfulness factors of describing feelings, acting with awareness, nonjudgmental attitudes, and nonreactivity, but not with the factor of observing feelings. Anxious attachment was negatively associated with coping motives whereas avoidant attachment was not correlated with coping motives. The mindfulness factors of acting with awareness, nonreactivity, and nonjudgmental attitudes were associated with lower levels of coping motives whereas observing feelings and describing feelings were unrelated to coping motives.

Anxious Attachment, Mindfulness, and Coping Motives

Table 3 shows the direct relationships of anxious attachment with outcomes. Anxious attachment was associated with lower levels of describing feelings, acting with awareness, nonreactivity, and nonjudgmental attitudes. Furthermore, greater amounts of acting with awareness, nonreactivity, and nonjudgmental attitudes predicted lower coping motives. Table 4 and Figure 3 show the total, indirect and direct relationships of anxious attachment with coping motives via mindfulness. The total predictive relationship of anxious attachment on coping was significant, and the total indirect relationships of mindfulness on coping were significant. Anxious attachment had significant indirect relationships with coping motives through awareness of feelings, nonreactivity, and nonjudgmental attitudes. Because anxious attachment did not demonstrate direct predictive effects on coping, its relationship with coping was completely mediated by the three mindfulness factors. anxious attachment

Avoidant Attachment, Mindfulness, and Coping Motives

Table 4 shows the direct effects of avoidant attachment on outcomes. Avoidant attachment was associated with lower levels of describing feelings, acting with awareness, and nonjudgmental attitudes. In addition, greater amounts of acting with awareness, nonreactivity, and nonjudgmental attitudes predicted coping motives. Because avoidant attachment did not have a direct effect on coping motives, it will not be discussed further.

Discussion

These results are consistent with the literature on attachment, mindfulness, and alcohol use. Greater insecure attachment predicted less mindfulness, which predicted lower coping motives. Furthermore, anxious attachment significantly predicted the same three factors of mindfulness that Shaver Lavy, Saron and Mikulincer (2007) found. These results contribute to the literature by specifying which factors of attachment predict coping motives. Rather than insecure attachment in general predicting coping motives, only anxious attachment was a significant predictor. Furthermore, only three factors of mindfulness predicted coping motives rather than all five factors of mindfulness as a whole. Lastly, these results indicate that anxious attachment's predictive power for coping motives is completely mediated by three factors of mindfulness (e.g., acting with awareness, nonreactivity, and nonjudgmental attitudes).

These mediation results for mindfulness are promising because they suggest that individuals who struggle with alcohol may benefit from interventions that target mindfulness. Interventions have been successful in changing dispositional mindfulness in the past (Hedges $g = .42$, for a meta-analysis see Khoury et al., 2013). By contrast, interventions that target changing attachment style in infants have demonstrated lower effect sizes ($d = .17$, for a meta-analysis on changing attachment in infants, see van Ijzendoorn, 1995). In addition, attachment style often remain constant throughout life (Baldwin & Fehr, 1995, $r = .70$; Fraley, 2002). In other words, it is fortuitous that mindfulness mediates the relationship between attachment style and coping motives because attachment style appears difficult to change and would not provide a viable target for change. Mindfulness fundamentally involves a set of skills to regulate emotions, reducing rumination (Deyo, Wilson, Ong & Koopman, 2010), worry (Delgado, Guerra, Perakakis, Vera, del Paso & Vila, 2010), depression, and anxiety (Bernstein, Tanay, & Vujanovic, 2011; Gonzalez, Vujanovic, Johns, Leyro, & Zvolensky, 2009; Zvolensky et al., 2006). Teaching these emotional regulation skills through mindfulness may be a viable option for lowering the use of alcohol as a coping motive in individuals. Furthermore, interventions may benefit such individuals most by focusing on three facets (e.g., acting with awareness, nonreactivity and nonjudgmental attitudes) of mindfulness rather than all five.

It is possible that these three factors may interact to reinforce each other and promote effective emotion regulation. If individuals are aware of emotions, they can use them as objects of attention and respond with nonreactivity and nonjudgmental attitudes. Consequently, they may no longer need to ruminate on negative emotions and turn toward alcohol as a coping strategy. Other researchers have articulated similar theories, but emphasize different factors. Bowen et al. (2009) found that Mindfulness-Based Relapse Prevention (MBRP) tended to help reduce craving in individuals suffering from substance use disorders. Witkiewitz, Bowen, Douglas, and Hsu (2013) further analyzed their data and evaluated an underlying latent factor: a composite of acting with awareness, nonjudgmental attitudes and acceptance. Note that acceptance is not a facet of mindfulness, but it is a factor conceptually related to the present nonjudgmental awareness inherent in mindfulness. They determined that this latent factor mediated MBRP treatment and craving. They suggest that all three components of this latent factor interact to support a reduction in craving. To explain this interaction, the authors describe three situations: (1) if an individual is not aware of craving, he can not feel acceptance toward those cravings, so drug use continue, (2) if an individual is aware of craving, he may not accept them, which further feeds the craving and drug use, and (3) if an

individual is ashamed of his craving, he does not accept it, which promotes negative affect, which also feeds the craving and drug use. In all these cases, individuals would benefit from acting with awareness, not judging their cravings, and feeling an acceptance toward their cravings. While this framework is coherent, it does not explain why nonreactivity would be excluded as an important factor. One would expect that reactions to shame would fuel the shame/craving cycle, which would imply that nonreactivity is a viable factor. To explain the important difference between this study and our study, we suggest emphasizing the lack of anxious attachment measurements in the previous study. That is, for anxiously attached individuals, acting with awareness, nonreactivity, and nonjudgmental attitudes interact in an important way.

Note that individuals with anxious attachment demonstrate “exaggerated appraisal of threats, negative self views, and catastrophic views about transactions with other people” (Mikulincer, Shaver & Pereg, 2003, p. 85). They ruminate more on worries (Mikulincer & Florian, 1998), and negative thoughts chain to other negative thoughts (Mikulincer & Orbach, 1995). Even in the absence of threat, attachment worries are present (Mikulincer, Gillath & Shaver, 2002). In other words, they have a great deal of practice in *judging* information as threats and *reacting* to it by chaining negative thoughts together. These practices can fuel negative affect that motivates drinking as a coping strategy. Furthermore, they may have so much practice at it that they are simply not *aware* they are doing it. As a result, getting skills in nonjudgmental attitudes, nonreactivity and acting with awareness may assist them in breaking the habit and halt coping motives.

However, this study has several limitations. First, the study occurs over a short time period. Future studies should assess the mediational role of mindfulness over a longer time period. Second, actual drinking behavior should be assessed, as well as other motives (e.g. social, mood enhancement, and conformity). Third, personality traits should be assessed as additional confounds. Research implicates relationships between extraversion and neuroticism with different drinking motives and behaviors (Kuntsche, von Fischer & Gmel, 2008; Stewart & Devine, 2000). Last, this sample was predominantly male. Future studies should evaluate a more balanced sample, as neurotic anxious girls demonstrate higher use of coping motives for alcohol use (Kuntsche, Knibbe, Gmel & Engels, 2006)

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Appendix 1: Tables

Table 1

Characteristics of Sample at Time 1

| | N | % |
|-------------------------------|-------|------|
| Age (Mean) | 21.58 | |
| Gender | | |
| Female | 115 | 34.8 |
| Male | 215 | 65.2 |
| Race/Ethnicity | | |
| Non-hispanic white | 222 | 67.3 |
| Black | 23 | 7 |
| Hispanic white | 24 | 7.3 |
| Asian | 54 | 16.4 |
| Other | 6 | 1.8 |
| Education | | |
| High School or Less | 45 | 13.6 |
| Some College/Technical School | 179 | 54.2 |
| College Graduate | 95 | 28.8 |
| Graduate School | 11 | 3.3 |
| Employed | | |
| Full-time | 74 | 22.4 |
| Part-time | 118 | 35.8 |
| No | 138 | 41.8 |
| Romantic Relationship | | |
| Yes | 172 | 52.1 |
| No | 158 | 48.9 |

Table 2

Correlational Relationships Between Attachment Styles, Mindfulness, and Coping Motives

| | Avoidant | Anxious | Observe | Describe | Aware | Nonjudge | Nonreact |
|--------------------|---------------|---------------|--------------|--------------|---------------|---------------|----------------|
| Attachment | | | | | | | |
| Avoidant | | | | | | | |
| Anxious | .48** | | | | | | |
| Mindfulness | | | | | | | |
| Observe | -0.06 | 0.05 | | | | | |
| Describe | -.31** | -.23** | .33** | | | | |
| Aware | -.22** | -.27** | <.01 | .41** | | | |
| Nonjudge | -.20** | -.31** | -0.1 | .25** | .40** | | |
| Nonreact | -.14* | -.13* | .32** | .24** | -0.01 | -0.05 | |
| Motive | | | | | | | |
| Cope | 0.08 | .16* | 0.08 | -0.1 | -.28** | -.27** | -0.19** |

Note. *p < .05, **p < .01. For mindfulness, observe = observing feelings, describe = describing feelings, aware = acting with awareness, nonjudge = nonjudgmental attitudes, and nonreact = nonreactivity to situations.

Table 3

Summary of Total, Indirect, and Direct Effects of Anxious Attachment on Coping Motives Via Mindfulness

| Predictor | Anxious Attachment | |
|---------------------------|--------------------|-----------------|
| | B | 95% CI |
| Outcome: Coping | | |
| Total Effect | 0.14 | .01, .26 |
| Total Indirect Effect | 0.12 | .06, .21 |
| Specific Indirect Effects | | |
| Observe | 0.01 | -.01, .03 |
| Describe | -0.01 | -.04, .03 |
| Aware | 0.02 | .01, .06 |
| Nonjudge | 0.07 | .03, .13 |
| Nonreact | 0.04 | .01, .10 |
| Direct Effect | 0.01 | -.11, .13 |

Note. For mindfulness, observe = observing feelings, describe = describing feelings, aware = acting with awareness, nonjudge = nonjudgmental attitudes, and nreact = nonreactivity to situations.

Table 4

Avoidant Attachment: Summary of Direct Effects of Main Predictor Variables on Outcomes

| Outcomes | Observe | | B | Describe | | B | Aware | | Nonjudge | | Nonreact | |
|-----------|---------|-----------|--------------|-------------------|--------|--------------|-------------------|--------------|------------------|--------|-----------|--------|
| | B | 95% CI | | 95% CI | 95% CI | | B | 95% CI | B | 95% CI | B | 95% CI |
| Avoidance | -0.01 | -.10, .07 | -0.19 | -.28, -.10 | | -0.11 | -.21, -.02 | -0.12 | .22, -.01 | -0.03 | -.11, .05 | |

| Outcomes | Coping | |
|------------|--------------|-------------------|
| Predictors | B | 95% CI |
| Avoidance | 0.01 | -.08, .09 |
| Observe | 0.14 | -.03, .30 |
| Describe | 0.05 | -.11, .22 |
| Aware | -0.17 | -.32, -.01 |
| Nonjudge | -0.22 | -.35, -.09 |
| Nonreact | -0.33 | -.50, -.16 |

For mindfulness, observe = observing feelings, describe = describing feelings, aware = acting with awareness, nonjudge = nonjudgmental attitudes, and nonreact = nonreactivity to situations.

Appendix 2: Figures

Figure 1

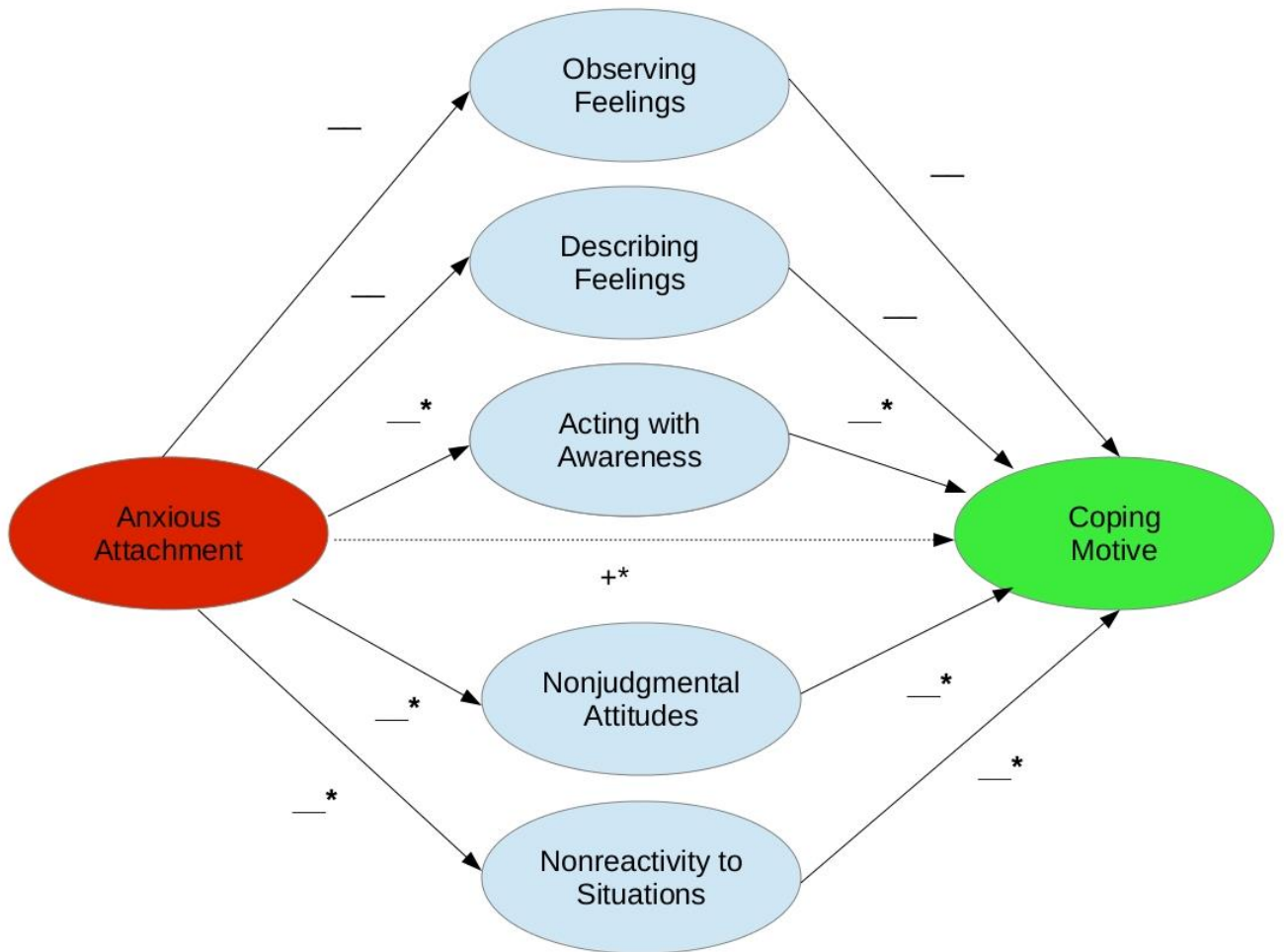


Figure 1. A hypothesized model for anxious attachment negatively predicting three factors of mindfulness, which then negatively predict coping motives. Anxious attachment is expected to be mediated by these three mindfulness factors

Figure 2

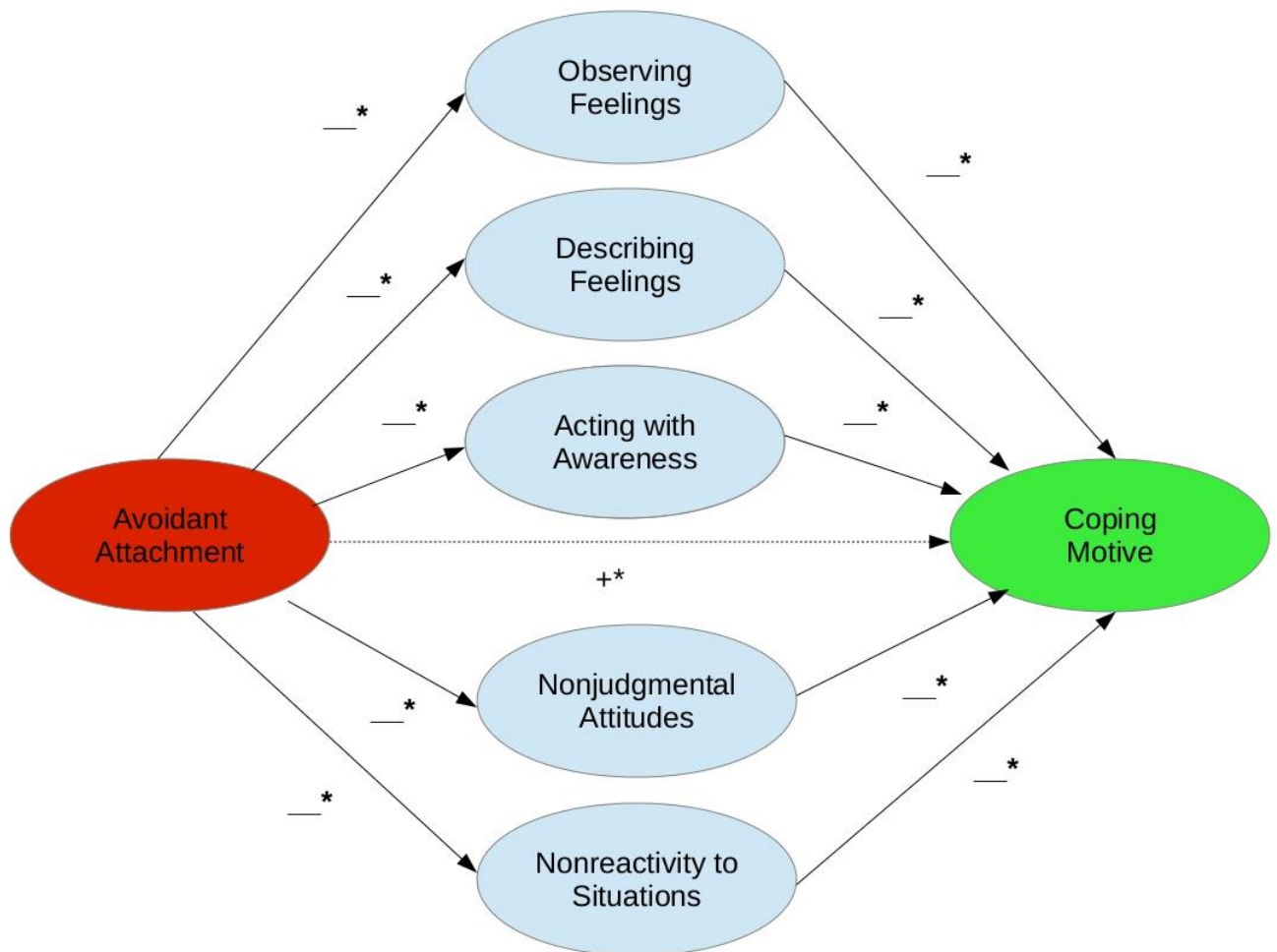


Figure 2. A hypothesized model for avoidant attachment negatively predicting all five factors of mindfulness, which then negatively predict coping motives. Avoidant attachment is expected to be mediated by these five mindfulness factors

Figure 3

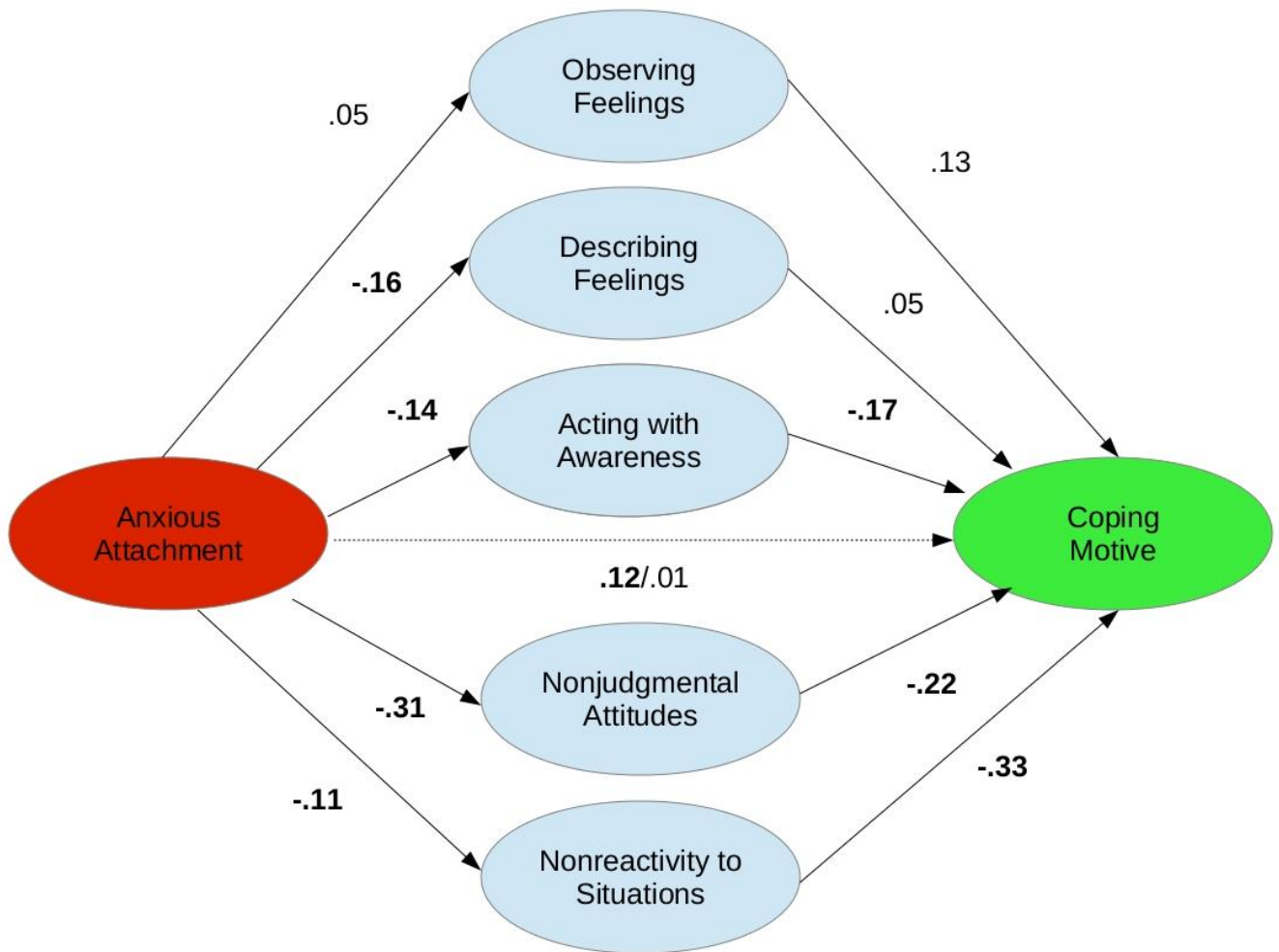


Figure 3. Anxious attachment negatively predicts four factors of mindfulness. Only three factors then negatively predict coping motives. Anxious attachment is completely mediated by the three mindfulness factors of acting with awareness, nonjudgmental attitudes, and non-reactivity to situations.