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The relation between mindfulness and perceived self-efficacy towards coping with negative affect in recovering alcoholics

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THE RELATION BETWEEN MINDFULNESS AND PERCEIVED SELF-EFFICACY TOWARDS COPING WITH NEGATIVE AFFECT IN RECOVERING ALCOHOLICS

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DEDICATION

I would like to dedicate this research to all those who have struggled, and who continue to struggle, with addiction. To those we have lost to this disease, you will never be forgotten. And to those who fight each day for their recovery, your stories truly do inspire.

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ABSTRACT

Negative affect can be a highly potent trigger for relapse among those in recovery for alcoholism, whereas self-efficacy has been identified as an important factor for relapse prevention. Much research has attempted to identify factors and interventions that can enhance self-efficacy and improve the coping ability of those in recovery to manage negative affect. This study sought to determine whether dispositional mindfulness might be a useful tool in this regard, by investigating for a possible relationship between this variable and self-efficacy towards coping with negative affect. Additional variables (i.e., length of time abstinent, meditation frequency/duration, history of polysubstance abuse/dependence, and history of psychiatric co-morbidity) were also examined for possible relationships with these two constructs. Adult participants ($N = 104$) with a history of alcohol abuse/dependence were recruited via online support groups and websites that adhere to the principles of Alcoholics Anonymous (AA), to take an anonymous online survey consisting of: a demographic questionnaire, the Cognitive and Affective Mindfulness Scale-Revised (CAMS-R), and the Alcohol Abstinence Self-Efficacy Scale (AASE). Chi-square analyses, and independent samples *t* tests and one-way ANOVAs, were conducted to provide information regarding possible meaningful relationships between variables and differences between groups within variables. Results of this study lend some support for the assertion that those with higher levels of dispositional mindfulness may also have greater self-efficacy towards successfully managing negative affect. Findings also reveal some evidence for a positive relationship between length of time abstinent, and both mindfulness and self-efficacy. Caution should be taken, however, when drawing conclusions from these findings due to the disproportionate number of participants who

reported doing extremely well in their recovery and having high confidence in their ability to abstain from alcohol use. Limitations of the study are discussed.

Introduction

Drug and alcohol addiction is a grave issue that plagues the world at large. Considerable resources and research have been dedicated to uncovering predictors of relapse and designing effective interventions to help recovering addicts/alcoholics successfully cope with such factors (Marlatt & Donovan, 2005). Many recovering addicts/alcoholics may have the desire to abstain from using, but may also lack the self-belief or perceived self-efficacy to actually refrain from using, which may ultimately help contribute to their relapse (Maisto, Connors, & Zywiak, 2000; Maisto, Clifford, Stout, & Davis, 2008). This is especially likely to occur during high-risk situations, such as when experiencing negative affect (Baker, Piper, McCarthy, Majeskie, & Fiore, 2004; Connors, Longabaugh, & Miller, 1996). However, a recovering addict/alcoholic who possesses an effective coping tool to successfully manage his/her negative affect, may have a greater level of self-efficacy to cope with this trigger without engaging in substance use, and thus would be less likely to actually relapse (Britton et al., 2010; Rogojanski, Vettese, & Antony, 2011). One such coping tool, which is becoming increasingly popular as a therapeutic intervention for helping individuals tolerate difficult feelings like negative affect, is the practice of mindfulness (Breslin, Zack, & McMain, 2002; Witkiewitz, Brown, & Donovan, 2011). From this body of research, this study proposed an investigation of the recovering alcoholic population, to ascertain the potential relationship between one's level of mindfulness and his/her perceived self-efficacy to cope with negative affect without engaging in alcohol use. A positive relationship between mindfulness and self-efficacy in coping could provide some preliminary support for the benefits of teaching mindfulness as a coping tool to the recovering alcoholic population, as a means of both improving sense of self-efficacy towards coping with negative

affect without engaging in alcohol use, and ultimately increasing chances of maintaining sobriety.

Costs of Addiction

Drug and alcohol addiction is a serious problem that affects both the United States and the global community, with high rates of relapse contributing to significant costs (Bouchery, Harwood, Sacks, Simon, & Brewer, 2011; Dawson, Goldstein, & Grant, 2007; Harwood, 2000; National Institute on Drug Abuse [NIDA], 2006; National Institute on Drug Abuse [NIDA], 2007; Office of National Drug Control Policy [ONDCP], 2001; Office of National Drug Control Policy [ONDCP], 2004; United Nations Office for Drug Control and Crime Prevention [UNODCCP], 2002). Due to these costs and the prevalence of alcohol abuse/dependence across the United States, coupled with the incredibly high rates of relapse seen after treatment, the need to develop more effective interventions in this area is as pressing as ever (Hasin, Stinson, Ogburn, & Grant, 2007).

Theories and Treatment Protocols for Relapse Prevention

Although there appears to be a lack of tested theoretical models regarding treating recovering addicts and alcoholics, there clearly is not a lack of drug and alcohol treatments and interventions. Some of the more common forms of treatment are: pharmacological treatment (Welsh & Liberto, 2001), family therapy (Meyers, Apodaca, Flicker, & Slesnick, 2002), addiction recovery support groups (Ramanathan & Reischl, 1999; Wells, Peterson, Gainey, Hawkins, & Catalano, 1994), cue exposure treatment (Bernaldo de Quirós Aragón, Labrador, & De Arce, 2005; Conklin & Tiffany, 2002; Corty & Coon, 1995; Franken, De Haan, Van der Meer, Haffmans, & Hendriks, 1999), contingency management (Farabee, Rawson, & McCann, 2002; Marlatt & Donovan, 2005), motivational interviewing (Marlatt & Donovan, 2005; Miller

& Rollnick, 2002), and cognitive-behavioral therapy (Knight, Simpson, & Dansereau, 1994; Marlatt & Donovan, 2005; McCracken, Holmes, & Corrigan, 1998).

Pharmacological management of relapse prevention (e.g., antabuse, methadone, etc.) is a form of treatment that has been given increasingly more attention over the years, but tends to be paired with other forms of psychosocial treatments in order to provide the patient with a more effective comprehensive treatment program (Welsh & Liberto, 2001). Such psychosocial treatments often address specific social and environmental factors that have been shown to be important in producing positive changes in substance use behaviors. One such treatment approach involves addressing familial and relational factors that may have contributed to the development and/or maintenance of these behaviors (Meyers, Apodaca, Flicker, & Slesnick, 2002). These treatments generally focus on improving familial or marital/couples relations by fostering increased closeness and more effective communication, while some also apply behavioral principles (i.e., teaching family members how to reward sober behavior) and emphasize learning new coping skills. Addiction recovery support groups (e.g., 12-step groups such as Alcoholics Anonymous) are another type of common social intervention, which focus on improving coping skills and self-efficacy, as well as help convey accurate substance use expectancies to its participants (Ramanathan & Reischl, 1999; Wells et al., 1994).

Another type of treatment, known as cue exposure treatment (CET), focuses on helping recovering addicts and alcoholics navigate a specific threatening situation to sobriety referred to as cue reactivity. Cue reactivity is a frequently observed phenomenon in substance-dependent individuals, where they have physiological and/or subjective reactions (e.g., cravings to use, mood swings, and anxiety) to substance-related stimuli, to which they have been classically conditioned (Franken et al., 1999). While the results regarding the effectiveness of this treatment

have varied (Bernaldo de Quirós Aragón, Labrador, & De Arce, 2005; Conklin & Tiffany, 2002; Corty & Coon, 1995; Franken et al., 1999), the research on CET does highlight the importance of developing a well-supported treatment intervention that can help recovering addicts and alcoholics cope with the physiological and/or subjective reactions they are likely to experience while trying to maintain their sobriety.

Another method of treatment that has received some support is known as contingency management (CM), which is an approach that is based on the application of operant conditioning principles to drug-use behavior (Farabee, Rawson, & McCann, 2002). It tries to generate a system of external incentives and disincentives to motivate behavior change. However, one of the critiques of this treatment is that it does not specifically address intrinsic motivation to abstain from substance use (Marlatt & Donovan, 2005), which would seemingly be a necessary component for any recovering addict or alcoholic in trying to maintain their sobriety. Two therapy approaches that do address intrinsic motivation, as they are based on the assumption that it is a required ingredient for change, are motivational enhancement therapy (MET) and motivational interviewing (MI; Marlatt & Donovan, 2005; Miller & Rollnick, 2002). These treatments can facilitate self-efficacy and have been shown to increase stage of change movement, as well as positive outcome expectancies and reduced relapse (Marlatt & Donovan, 2005).

A final common type of treatment approach to substance dependence, which is centered on the principles of cognitive-behavioral therapy (CBT), focuses on altering maladaptive cognitions and/or behaviors to reduce substance use and help maintain sobriety (Knight, Simpson, & Dansereau, 1994; McCracken, Holmes, & Corrigan, 1998). While there are a variety of treatments of this nature, perhaps the most recognized and empirically-tested

cognitive-behavioral model of relapse is known as Relapse Prevention (RP), which was originated by G. Alan Marlatt in 1978 (Marlatt & Donovan, 2005). RP incorporates several empirically-supported variables that are critical to treating substance dependence, which were also cited by some of the already reviewed treatment approaches, such as enhancing self-efficacy and one's ability to cope with potential triggers to relapse (e.g., relational stressors, cravings, and mood swings).

Marlatt's theory of relapse prevention. Marlatt's cognitive-behavioral protocol for substance dependence has been empirically tested and is based on well-established theoretical concepts (Carroll, 1996; Carroll et al., 2004; Farabee, Rawson, & McCann, 2002; Irvin, Bowers, Dunn, & Wang, 1999). It was the first cognitive-behavioral model of the relapse process and was originally created for alcohol abuse, but has since been expanded to nearly all major areas of addiction, including illicit drugs. This model focuses on the individual's response in a high-risk situation and describes how these types of situations are often comprised of an interaction between individual (e.g., emotional state, ability to cope, self-efficacy) and environmental risk factors (e.g., availability of the substance, cue exposure, social influence). The model hypothesizes that if the individual utilizes an effective coping strategy during such situations, s/he is likely to experience "a heightened sense of self-efficacy [i.e., a personal perception of mastery over the specific risky situation (Bandura, 1977)]" (Larimer, Palmer, & Marlatt, 1999, p. 153), and be more likely to abstain from engaging in substance use. However, if an individual is not able to use an effective coping strategy, perhaps because they lack such a strategy and/or do not possess the confidence to manage the situation, his/her "self-efficacy may decline and/or outcome expectancies may become more positive" (Witkiewitz, Marlatt, & Walker, 2005, p.

212), leading to an increased probability of substance use (Larimer, Palmer, & Marlatt, 1999; Marlatt & Donovan, 2005; Witkiewitz et al., 2005).

Treatments based on this model involve: assessment of substance use and general functioning in the past week for the patient, skills training and practice, and planning for the week ahead and discussing how to implement the newly acquired coping skills into real settings. RP treatment also focuses on identifying high-risk situations for relapse, as well as monitoring of coping skills and self-efficacy, along with lifestyle factors that may increase the likelihood of an individual experiencing a high-risk situation. After these potential high-risk situations and relapse triggers are identified, the therapist implements cognitive-behavioral interventions, such as cognitive restructuring, increasing self-efficacy, teaching coping strategies, and encouraging mastery experiences. The therapist can then work with the client to develop a "relapse road map," which maps out possible scenarios that help prepare the client to manage high-risk situations and utilize effective coping responses. This intervention serves to enhance self-efficacy towards maintaining sobriety, as does practicing new skills outside of sessions, which is also generally seen as an integral part of RP treatment (Marlatt & Donovan, 2005).

Empirical support for Marlatt's relapse prevention. While the empirical support for Marlatt's relapse prevention as a superior treatment compared to alternative treatments is not overwhelming, there have been some studies that have demonstrated this to be the case (Carroll et al., 2004; Farabee, Rawson, & McCann, 2002). Some studies have also shown that when RP is combined with other forms of treatment, it can produce an even more effective form of treatment than others on their own (Carroll, 1996; Irvin et al., 1999; Schmitz, Stotts, Rhoades, & Grabowski, 2001). Moreover, even among studies which do not reveal RP to be a superior treatment, many still reveal it to be an effective relapse prevention treatment (Carroll, 1996;

Gonzalez, Schmitz, and DeLaune, 2006; Irvin et al., 1999), such as was found to be the case in previous studies by the National Institute of Drug Abuse (NIDA; as cited in Marlatt & Donovan, 2005). Finally, one particular meta-analysis of studies that examined RP treatment also found it to be most effective when specifically treating those with alcohol problems (Irvin et al., 1999). While the literature does not clearly demonstrate RP to be superior to other approaches, there is support for it being at least as effective, if not more so, than other treatments. Furthermore, the fact that these findings come after such thorough examination of RP lends additional credence to the model/treatment itself and the theoretical concepts on which it is based (e.g., the importance of having coping tools for high-risk situations and to build self-efficacy in being able to utilize them successfully).

High-risk Situations and Predictors of Relapse

Within the relapse prevention literature for addiction, considerable effort has been made to identify salient predictors of relapse (Bottlender & Soyka, 2005a; Gossop, Stewart, Browne, & Marsden, 2002; Marlatt, 1996). Some studies have shown that chronic stress and substance availability contribute to the risk of alcohol or drug use following treatment (Tate, Brown, Glasner, Unrod, & McQuaid, 2006), while others have shown treatment dropout (Bottlender & Soyka, 2005b) and cravings (Oslin, Cary, Slaymaker, Colleran, & Blow, 2009) to be significant predictors of relapse for those dependent on alcohol. Prior to creating his cognitive-model for relapse, Marlatt (1996) created a preliminary taxonomy for alcoholism relapse, where he attempted to identify common categories of high-risk determinants for relapse. His initial five category taxonomy of high-risk situations was later revised and expanded by him into eight categories, organized into one of two major classes: intrapersonal-environmental determinants and interpersonal determinants. Within these two major classes, the eight subcategories

consisted of five within the intrapersonal-environmental determinants category (coping with negative emotional states, coping with negative physical-physiological states, enhancement of positive emotional states, testing personal control, and giving into temptation or urges) and three within the interpersonal category (coping with interpersonal conflict, social pressure, and enhancement of positive emotional states).

The Relapse Replication and Extension Project (RREP), a study funded by the National Institute on Alcohol Abuse and Alcoholism (NIAAA; Lowman, Allen, & Stout, 1996), demonstrated Marlatt's revised taxonomy to have highly variable reliability with respect to most of the categories, with the category of negative emotional states having consistently high reliability. The findings of this study also concurred with Marlatt's original findings, where negative emotional states and social pressure to drink were the most frequently selected high-risk situations for relapse. This is consistent with Marlatt and Gordon's (1980) original qualitative investigation of relapse episodes as well, where they found negative emotional state to be the strongest predictor of relapse in a sample of male alcoholics (37% of the sample reported that negative affect was the primary relapse trigger; as cited in Marlatt & Donovan 2005).

Negative affect as a predictor of relapse. Negative affect has been identified by numerous recent studies as an incredibly potent trigger for relapse (Baker et al., 2004; Baker, Japuntich, Hogle, McCarthy, & Curtin, 2006; Connors et al., 1996; Kenford et al., 2002). Moreover, those with alcohol abuse/dependence issues may be particularly susceptible to this risk factor (Cannon et al., 1992). Results from a factor analysis conducted on Marlatt's relapse taxonomy provide an indication of how strong a risk factor negative affect can be (Zywiak, Connors, Maisto, & Westerberg, 1996). These authors found that, among a heterogeneous alcohol treatment sample, negative emotions were positively associated with blood alcohol level

on the first day of lapse, duration of lapse, and occurrence of second lapse. This is also consistent with studies that have shown those individuals who have a higher degree of psychopathology with respect to symptoms of depression and anxiety tend to be at greater risk for relapse (Bottlender & Soyka, 2005a; Solomon et al., 2007).

In an effort to explain the connection between negative affect and relapse in greater detail, Baker et al. (2004) devised a model that purports that drug addiction is negatively reinforced by the escape and avoidance of negative affect. They reason that negative affect is a common withdrawal symptom to all addictive substances, and that it "is not only a universal element of withdrawal, but evidence suggests that it is the motivationally prepotent element" (p. 34), and that substance use leads to rapid and efficient alleviation of this aversive experience. They describe how even low levels of negative affect can bias response options and prompt substance-use routines, and that interruptions in substance use or the experience of significant stressors, can each elicit increased negative affect that can also prompt renewed substance use. Moreover, they maintain that high levels of negative affect tend to both increase levels of hot information processing (i.e., basis of emotionality) and decrease the amount and effect of cool information processing (i.e., cognitive ability to self-regulate), which according to Metcalfe and Mischel (1999), hinders the application of cognitive control resources to the process of coping with, and regulating, negative affect. This is consistent with research that has shown negative affect to be associated with impairment in short-term impulse control and decision-making (Gonzalez, Reynolds, & Skewes, 2011).

As potential support for this model, many studies have demonstrated not only that negative affect constitutes a risk factor for alcohol relapse, but that drinking alcohol can specifically serve as a maladaptive coping response to escape negative affect (Arbeau, Kuiken, &

Wild, 2011; Martens et al., 2008; Ostafin & Brooks, 2011; Rousseau, Irons, & Correia, 2011). One such study by Carpenter and Hasin (1999) even demonstrated significant differences among participants with a DSM-IV alcohol dependence diagnosis compared to those without a diagnosis in terms of their mean drinking to cope with negative affect scores. According to these authors, these findings suggest that alcohol dependence could in part develop as a result of drinking to cope with negative affect behaviors.

Based on the information presented, negative affect and affect regulation clearly appear to be sensitive predictors of relapse, with substance use often being negatively reinforced by the removal of this aversive stimulus. Moreover, due to the potential for cognitive control resources to be compromised during the experience of negative affect, recovering alcoholics are likely to have difficulty utilizing their cognitive processes in an adaptive manner during this high-risk situation. Therefore, perhaps a form of intervention that does not rely so heavily on responding to one's cognitions during these challenging moments would be more beneficial.

Contributing Factors to Maintaining Abstinence

Many studies have sought to identify specific factors that are effective in helping those with alcohol and substance dependence successfully navigate high-risk situations and stay sober (Cheung & Cheung, 2003; Connors et al., 1996; Mckay & Weiss, 2001). For example, possession of positive social capital has been shown to be a protective factor (Cheung & Cheung, 2003), with participation in a 12-step program being a common example of this (Tonigan & Beatty, 2011). Other studies have demonstrated more generally the importance of having coping skills at one's disposal to manage triggers and avoid relapse (Connors et al., 1996; Lowman et al., 1996; Sideridis, 2006). Moreover, research has shown that not only is it important for recovering alcoholics and addicts to possess effective coping tools to manage high-risk

situations, such as when experiencing negative affect, but that it is also vital to possess self-efficacy in being able to employ them during these situations (Burleson and Kaminer, 2005; Maisto et al., 2000; Moos, 2007).

Self-efficacy. According to Bandura's (1977) self-efficacy theory, "an efficacy expectation is the conviction that one can successfully execute the behavior required to produce the outcomes" (p. 193), and when applied to the field of relapse prevention, refers to one's confidence in his/her ability to abstain from alcohol or drug use in high-risk situations (Burleson & Kaminer, 2005; Maisto et al., 2000). Bandura (1977) asserts that the strength of belief that individuals have in their own effectiveness is likely a determining factor in whether they will try to cope with a particular situation. He contends that, given adequate skills and sufficient motivation, "efficacy expectations are a major determinant of people's choice of activities, how much effort they will expend, and of how long they will sustain effort in dealing with stressful situations" (p. 194). The question of whether perceived self-efficacy is a contributing factor to maintaining abstinence for recovering alcoholics and addicts has been examined by numerous studies throughout the literature, with many of them providing support for this construct (Gwaltney et al., 2002; Gwaltney, Shiffman, Balabanis, & Paty, 2005; Moos & Moos, 2007; Sheffer et al., 2009; Shiffman et al., 2000).

In addition to Marlatt's (1978) model, other models of relapse have highlighted the importance of self-efficacy as a construct in predicting relapse (Connors, Maisto, & Zywiak, 1996), and substantial research has demonstrated a relation between self-efficacy and abstinence (Brown, Seraganian, Tremblay, & Annis, 2002; Burleson and Kaminer, 2005; Hser, 2007; Van Zundert, Ferguson, Shiffman, & Engels, 2010). Self-efficacy has also been found to be a

significant predictor of lapse and relapse specifically among those with issues of alcohol abuse and dependence (Maisto et al., 2000; Maisto et al., 2008).

Given the importance of self-efficacy for behavior change, various research has attempted to pinpoint factors that can lead to self-efficacy enhancement (Bandura, 2012), and specifically within the context of relapse prevention (Hyde, Hankins, Deale, & Marteau, 2008). One factor that has been identified as a potential contributor to increasing one's efficacy is having a serviceable coping skill (Bandura, 1977; Maisto, McKay, & O'Farrell, 1998; Moos, 2007). In his discussion of social learning and stress and coping theories, Moos (2007) describes how coping and self-efficacy can reinforce each other, and that improvement in both self-efficacy and coping tend to bolster one's ability to remain abstinent, even when presented with severe stressors. Various studies have produced findings that seem to lend support to this assertion (Litt, Kadden, Kabela-Cormier, & Petry, 2008; Skutle, 1999), such as those that have shown higher ratings of self-efficacy and better psychological functioning among individuals who are abstinent during the first year after treatment (Maisto et al., 1998; Maisto, Clifford, Longabaugh, & Beattie, 2002; Maisto et al., 2008). These findings suggest that as individuals are able to increase their success at applying their coping skills (i.e., remain sober), their self-efficacy to use them tends to increase as well.

There have been a number of different psychometric measures designed to assess self-efficacy in the context of relapse prevention, including: the Situational Confidence Questionnaire (SCQ; Annis, 1982), Alcohol Abstinence Self-Efficacy Scale (AASE; DiClemente, Carbonari, Montgomery, & Hughes, 1994), Relapse Situation Efficacy Questionnaire (RSEQ; Gwaltney et al., 2001), and Drug-Taking Confidence Questionnaire (DTCQ; Sklar & Turner, 1999). One particular measure, the AASE, was designed to assess Bandura's (1977) construct of self-

efficacy applied to alcohol abstinence. It focuses on one's self-efficacy or confidence to abstain from drinking in a variety of circumstances that were based on both Marlatt's (1996) relapse categories and surveys of drinkers in treatment. While the initial version of the AASE was developed in 1983, a shortened 20-item version was later developed in 1994, which is comprised of four 5-item subscales, each measuring a different type of relapse precipitant: (a) Negative affect, (b) Social positive, (c) Physical and other concerns, and (d) Withdrawal and urges.

Relation between Self-efficacy and Negative Affect

Research on self-efficacy within relapse prevention has also highlighted ways in which negative affect and self-efficacy are related to one another, including how they may influence one's ability to abstain from alcohol and/or substance use (Drobes, Meier, & Tiffany, 1994; Gwaltney et al., 2001; Schorr et al., 2009). For example, Drobes et al. (1994) found that among cigarette smokers, situations rated as likely to generate the most negative affect were associated with the highest ratings of urges, as well as the lowest ratings of confidence towards being able to abstain from smoking. Findings such as these again highlight the need to identify a truly effective coping response for managing negative affect for those in recovery. This is not only so that recovering alcoholics can possess an effective tool for this high-risk situation, but also to help them build self-efficacy in being able to utilize such a tool during these moments, a factor that has been shown to be predictive of adaptive coping (Drwal, 2008).

Coping Tools for Negative Affect

While some research has found cognitive-behavioral guided approaches to be effective at maintaining abstinence (Cheung, Lee, & Lee, 2003) and specifically as a coping tool for negative affect among those with alcohol dependence (Vaughan et al., 2012), and other studies have pointed to the benefits of using an avoidance coping style (Gossop et al., 2002), there are also

studies that have discovered potential limitations to these approaches (Moos & Moos, 2006), particularly when negative affect is experienced (Baker et al., 2004; Ben-Zur, 2009; Drobes et al., 1994; Reijntjes, Stegge, Terwogt, & Hurkens, 2007). Thus, based on some of these findings regarding the potential limitations of cognitive and avoidant coping responses, perhaps a different (or at least supplemental) approach to coping with negative affect would be more effective. But for this to be the case, it would have to address the different aforementioned challenges that negative affect presents to those trying to abstain. More specifically, it would be preferable if it both did not require extensive cognitive responding (e.g., use large amounts of cognitive control resources or altering of cognitions) *and* it assisted in impulse control, as these abilities have been shown to be impaired when experiencing high levels of negative affect. Finally, a non-avoidance-based approach would also seemingly be more ideal, as research has shown avoidance coping to be largely ineffective as a coping strategy for emotion regulation (Baker et al., 2004; Ben-Zur, 2009; Reijntjes et al., 2007). One such concept, which is relatively new to Western psychology, is known as mindfulness, and it shows potential for being able to address each of these concerns.

Mindfulness as a Coping Tool for Negative Affect

Throughout the literature, mindfulness has been referred to as a potentially effective coping technique for negative affect (Arch & Craske, 2006; Feldman, Hayes, Kumar, Greeson, & Laurenceau, 2007; Goodall, Trejnowska, & Darling, 2012). Mindfulness, which has its roots in Buddhist teachings, can be described quite simply as moment-to-moment awareness. It can be cultivated by purposefully paying attention to those things we normally do not give much thought, so that we do not "routinely and unknowingly waste enormous amounts of energy in reacting automatically and unconsciously to the outside world and to our own inner experiences"

(Kabat-Zinn, 1990, p. 11). Practicing mindfulness is to completely "own" each moment of one's experience, no matter good or bad, and to do so with non-judgmental acceptance. Since mindfulness practice requires those to observe their present experience rather than respond to it, it therefore seems like it might be useful in facilitating impulse control. It also appears by definition to be antithetical to avoiding one's emotional experience, which the reviewed research suggests is largely ineffective. Moreover, by simply asking those to pay attention to their present experience without judgment, it does not require them to try to alter their experience in any specific manner, such as by applying cognitive control processes, which has also been shown to be challenging when experiencing negative affect. Therefore, at first glance, mindfulness does appear to have the requisite components for a truly effective coping tool for negative affect for the recovering alcoholic population. However, further review of the literature for this construct should help provide some clarity regarding its efficacy with respect to these issues.

Mindfulness has garnered support as an effective intervention for a wide variety of psychological difficulties (Baer, 2003), including findings that have shown it to be strongly correlated with self-reported use of adaptive emotion regulation strategies (Feldman et al., 2007). In terms of specific treatment methods, its principles play an integral part in well-established interventions such as Dialectical Behavior Therapy (Lynch, Chapman, Rosenthal, Kuo, &, Linehan, 2006) and Acceptance and Commitment Therapy (Hayes et al., 2004). In addition, it has been found to be effective in reducing residual depressive symptoms (Teasdale et al., 2008), has been found to be a potential "buffer" against behavioral tendencies that lead to overeating (i.e., impulsivity and trait disinhibition; Lattimore, Fisher, & Malinowski, 2011), and has been championed as a useful adjunct treatment to complement and enhance traditional cognitive-behavioral approaches to anger management (Wright, Day, & Howells, 2009). Mindfulness-

Based Stress Reduction (MBSR) has also been shown to help improve coping ability for individuals in high-demand, high-stress work environments (Walach et al., 2007).

Within the mindfulness literature, not only is mindfulness described as being a type of meditation, but it is also conceptualized by some as an inherent, natural capacity of every individual, whether they have previous meditation experience or not (dispositional or trait mindfulness; Brown & Ryan, 2003). While some have questioned whether mindfulness during meditation and everyday mindfulness are related concepts (Thompson & Waltz, 2007), studies that have specifically investigated the nature of dispositional mindfulness have found it to be associated with similar types of adaptive psychological functioning and benefits as mindfulness meditation (e.g., improved emotional regulation abilities; Goodall et al., 2012; Orzech, Shapiro, Brown, & McKay, 2009). Mindfulness has also been found to be related to some of the Big Five personality traits, as well as trait affect, where it was shown to have negative relationships with both negative affect and neuroticism, and a positive relationship with conscientiousness (Giluk, 2009). Moreover, as additional support for mindfulness being an effective tool for emotion regulation, mindfulness has been found to be related to neural activity associated with effective control of negative affect, both with respect to dispositional mindfulness and mindfulness intervention (Creswell, Way, Eisenberger, & Lieberman, 2007; Farb et al., 2010; Modinos, Ormel, & Aleman, 2010).

Various psychometric measures have been designed to try to adequately capture the different aspects of mindfulness, including: the Kentucky Inventory of Mindfulness Skills (KIMS; Baer, Smith, & Allen, 2004), Mindful Attention Awareness Scale (MAAS; Brown & Ryan, 2003), Freiburg Mindfulness Inventory (FMI; Walach, Buchheld, Buttenmuller, Kleinknecht, & Schmidt, 2006), Cognitive and Affective Mindfulness Scale-Revised (CAMS-R;

Feldman et al., 2007), and Toronto Mindfulness Scale (TMS; Lau et al., 2006). One particular measure, the CAMS-R, was designed to capture four specific components of mindfulness identified in previous operational definitions (Bishop et al., 2004; Kabat-Zinn, 1990), including: "the ability to regulate attention, an orientation to present or immediate experience, awareness of experience, and an attitude of acceptance or non-judgment towards experience" (Feldman et al., 2007, p. 187). The CAMS-R was also created to be used as a self-report measure of dispositional mindfulness that is written in clear everyday language, so that it is understandable to individuals with no previous experience with mindfulness practice or meditation.

As the psychological benefits of mindfulness have become increasingly evident, researchers have attempted to shed greater light on the question of what its specific mechanisms are that help facilitate its positive effects. Such studies have cited improved working memory (Jha, Stanley, Kiyonaga, Wong, & Gelfand, 2010), attentional control (Walsh, Balint, Smolira, Fredericksen, & Madsen, 2008), metacognitive awareness (Corcoran, Farb, Anderson, & Segal, 2010), and even enhanced neural affect regulation pathways as possible explanatory variables (Creswell et al., 2007). Others have highlighted the ability of mindfulness practice to positively affect cognitions as the reason for its effects (Gilbert & Christopher, 2010; Sears & Kraus, 2009). Although it is perhaps still unclear what allows mindfulness to be so effective, the strong empirical support that exists for it as an emotional regulation tool is very evident, and there is growing justification within the literature for its specific use as a relapse prevention technique (Bowen et al., 2006; Bowen et al., 2009; Witkiewitz et al., 2005).

Breslin, Zack, and McMain (2002), in fact, presented an information-processing analysis that specifically speaks to how mindfulness may be effective for this population in this regard. As already alluded to in this review, these authors describe how some behavioral strategies, such

as trigger-avoidance strategies, and cognitive strategies, such as cognitive restructuring, are commonly-used relapse prevention techniques, but that they may not be as effective for certain triggers like affect-related triggers. The reason for this is that specific types of triggers can not be completely avoided, and when experiencing negative affect, change strategies like cognitive restructuring may be less feasible because the individual often has less control during these instances and is less amenable to these change strategies (Baker et al., 2004; Breslin et al., 2002). Mindfulness, however, allows the individual to be exposed to a trigger, like negative affect, without responding to it behaviorally. By learning to focus one's attention on substance use triggers, as opposed to "fleeing them psychologically (i.e., suppression, distraction) or behaviorally (i.e., drug use), mindfulness restores a measure of control to attentional processes that were previously out of control" (Breslin et al., 2002, p. 292). Findings by various studies seem to lend support to this assertion that mindfulness enables a person to more effectively experience and tolerate his/her negative affect without feeling as if s/he must respond to it (Arch & Craske, 2006; Orzech et al., 2009; Waters et al., 2009). In other words, mindfulness would allow the recovering alcoholic to learn how to tolerate their negative affect without feeling the immediate need to remove their aversive experience by engaging in alcohol use.

Breslin et al. (2002) also describe how mindfulness may not only be effective in desensitizing attention and memory to substance-related triggers like negative affect, but it can also help disrupt the automaticity that often occurs in drug or alcohol relapse. They therefore contend that the ability to take a mindful, decentered perspective may also help deter relapse by increasing awareness of automatic responses to relapse triggers. Findings by Levesque and Brown (2007) offer support for this assertion, in that they discovered dispositional mindfulness can have a moderating effect on the relation between implicit motivational self-concept (i.e.,

automatic processes) and daily behavioral motivation, where those who measured higher in dispositional mindfulness tended to demonstrate more autonomously motivated behavior. These authors thus suggest that "mindfulness may serve a de-automatization function" (p. 296), or in other words, provide an "undoing" of automatized processes, the same type of aforementioned processes that can lead to relapse. Breslin et al. (2002) therefore argue that due to mindfulness' emphasis on both increasing awareness of automatic processes and desensitizing affect-related triggers, it can supplement other cognitive-behavioral relapse prevention strategies by perhaps addressing some of their shortcomings in these areas.

Considerable studies have already provided evidence for mindfulness as an effective coping tool for relapse prevention (Bowen et al., 2006; Bowen et al., 2009; Vallejo & Amaro, 2009; Vidrine et al., 2009; Witkiewitz et al., 2005; Witkiewitz & Bowen, 2010). Additionally, mindfulness has not only been shown to be related to decreased substance use, but also related to improved ability to cope with negative affect among those with issues of substance abuse or dependence (Brewer et al., 2009; Witkiewitz et al., 2011; Wupperman et al., 2012; Zgierska et al., 2008). Moreover, in addition to receiving support as a stand-alone relapse prevention treatment, mindfulness has also been shown to effective when paired with other forms of substance abuse treatments (Alfonso, Caracuel, Delgado-Pastor, & Verdejo-Garcia, 2011; Courbasson, Nishikawa, & Shapira, 2011; De Dios et al., 2012), though not all studies have demonstrated its effectiveness in this regard (Alterman, Koppenhaver, Mulholland, Ladden, & Baime, 2004).

Despite promising findings for mindfulness as a treatment for substance use disorders, it seems that more research needs to be done to better understand the specific variables that contribute to its effects, as well as the factors that allow it to be most efficacious, especially

among the substance abusing population (Zgierska et al., 2009). Some studies have already sought to answer these questions and have cited variables such as decreased automatic appetitive responses to drinking (Garland, 2011; Ostafin & Marlatt, 2008), impulsivity (Murphy & MacKillop, 2012), and attentional disengagement from alcohol cues (Garland, 2011) as possible mechanisms of action for mindfulness. However, not only does it appear that these issues still need further investigation, but so does the question of how mindfulness may relate to other empirically supported predictors of relapse, such as negative affect and self-efficacy. These variables have already been identified as key contributing factors to relapse prevention, but how each may relate to each other is still not entirely clear.

Relation between Mindfulness, Negative Affect, and Self-efficacy

Given the potential benefits of mindfulness as a relapse prevention coping tool for negative affect, it seems likely that those with greater mindfulness might report higher levels of self-efficacy towards coping with negative affect. However, while a number of studies have analyzed the relationship between mindfulness and relapse prevention, and many have thoroughly examined negative affect and self-efficacy as predictors of relapse, there appears to be a limited number of studies that have attempted to examine how all of these variables might relate to one another. Some studies have investigated the relationship between mindfulness and self-efficacy in other domains than that of relapse prevention though (Chang et al., 2004; Gilbert & Waltz, 2010). For example, Gilbert and Waltz (2010) demonstrated that degree of mindfulness in everyday life (i.e., dispositional mindfulness) predicted exercise self-efficacy and diet self-efficacy, as well as physical activity, and fruit and vegetable intake. In addition, other studies have examined mindfulness, self-efficacy, and negative affect together, but again, not with respect to relapse prevention (Durrant, Clarke, Tolland, & Wilson, 2007). One such study

by Durrant and colleagues showed that, among an acute inpatient population, those who received a modified CBT intervention with mindfulness-based components, reported increased self-efficacy with respect to coping style and increased internal locus of control, as well as increased confidence in expressing emotions and improved ability to use coping strategies to deal with emotions.

Despite the dearth of literature in this specific area, however, it should be noted that there have been a few studies that have examined mindfulness, self-efficacy, and negative affect in the context of relapse prevention (Britton et al., 2010; Lee, Bowen, & An-Fu, 2011; Rogojanski et al., 2011). Rogojanksi and colleagues (2011) discovered that those who partook in learning a mindfulness-based strategy for coping with cigarette cravings demonstrated increased self-efficacy in coping with urges and reduced negative affect. Similarly, Lee et al. (2011) found that, among a sample of incarcerated adult males with substance use disorders, those who participated in a Mindfulness-Based Relapse Prevention intervention demonstrated significant improvements in depressive mood and drug refusal self-efficacy. Finally, Britton and colleagues (2010) demonstrated that mindfulness meditation training was related to improvement in psychological distress and self-efficacy towards resisting substance use, in a sample of adolescent outpatients with sleep problems and substance use disorders. Each of these studies has produced promising and encouraging findings with respect to the relations between mindfulness, self-efficacy, and negative affect among those with substance abuse difficulties, and based on these findings, it appears that increased use of mindfulness to cope with negative affect has the potential to lead to increased self-efficacy in managing this trigger, just as Breslin and colleagues (2002) had suspected.

In spite of some of these early discoveries, however, many questions remain. For one, there do not appear to be many studies that have examined the effects of these variables together among those who primarily struggle with issues of alcohol abuse/dependence. Secondly, it appears as though most studies that have looked at these variables tend to have conceptualized mindfulness as being more of a state, or something that has perhaps developed as a result of one experiencing a mindfulness (or mindfulness-related) intervention of some sort. However, not many studies, if any at all, have examined these variables in the context of conceptualizing mindfulness as a trait or something that is dispositional in nature (i.e., everyday mindfulness). In fact, a recent article by Dakwar and colleagues (2011) marked the first attempt to assess mindfulness impairments in individuals seeking treatment for substance use disorders, and they did so utilizing baseline levels of mindfulness. They found that the mindfulness means of most drug groups were below the national mean, with polydrug users scoring lower than did monodrug users. They concluded that their findings suggest that mindfulness deficits may be common among those with substance use disorders and that these deficits may be even more severe for particular sub-groups within this population.

As there has been found to be variation in baseline or dispositional levels of mindfulness among sub-groups of the substance abusing population, it would seemingly be fruitful to investigate whether there is also variation within a particular subgroup, such as those with issues of alcohol abuse/dependence. Moreover, it could also be valuable to ascertain whether any variation in mindfulness relates specifically to ratings of self-efficacy towards coping with negative affect, as the literature dictates it might. Finally, to acquire an indication of whether these variables actually correlate with improved ability to avoid lapses or relapses, it would be useful to investigate whether they are also associated with ability to abstain from alcohol use.

Summary

Significance of the study. To the best of this author's knowledge, this was the first study to examine whether there is a relationship between level of dispositional mindfulness and self-efficacy towards coping with negative affect, as well as the first to do so by specifically looking at individuals who primarily struggle with issues of alcohol abuse or dependence. If a significant positive relationship were to be found, this could provide justification for further investigation into the possibility of providing mindfulness interventions to recovering alcoholics as either a primary or adjunctive treatment to CBT or 12-step models.

Purpose of the study and research questions. The overall purpose of this study was to investigate whether there is a relationship between level of mindfulness and perceived self-efficacy towards coping with negative affect among those with issues of alcohol abuse/dependence. It was expected that those with higher levels of mindfulness will tend to have higher levels of self-efficacy towards coping with negative affect without engaging in alcohol use. Additionally, higher levels of mindfulness and self-efficacy towards coping with negative affect were expected to be positively related to length of time abstinent from alcohol. It was also expected that those individuals who have been abstinent for greater than one year will have higher levels of self-efficacy and mindfulness than those who have been abstinent for less than one year. Moreover, higher levels of mindfulness and self-efficacy towards coping with negative affect were expected among those who did not have a history of abuse/dependence with substances other than alcohol and did not have a history of co-morbidity (i.e., being diagnosed with a psychiatric disorder other than a substance-related disorder). Higher levels of mindfulness and self-efficacy towards coping with negative affect were also expected to be found among those who tend to meditate more often. The study sought to address the following questions:

1. Is the level of mindfulness related to the level of self-efficacy towards coping with negative affect?
2. Is the level of mindfulness related to the length of time abstinent from alcohol?
3. Is the level of self-efficacy towards coping with negative affect related to the length of time abstinent from alcohol?
4. Do those who have been abstinent for greater than one year have significantly higher levels of self-efficacy than those who have been abstinent for less than one year?
5. Do those who have been abstinent for greater than one year have significantly higher levels of mindfulness than those who have been abstinent for less than one year?
6. Is the frequency and/or duration of time spent meditating related to the level of mindfulness?
7. Is the frequency and/or duration of time spent meditating related to the level of self-efficacy towards coping with negative affect?
8. Do those with a history of abuse/dependence with substances other than alcohol have significantly lower levels of mindfulness than those who do not have a history of abuse/dependence with substances other than alcohol (i.e., alcohol only group)?
9. Do those with a history of abuse/dependence with substances other than alcohol have significantly lower levels of self-efficacy towards coping with negative affect than those who do not have a history of abuse/dependence with substances other than alcohol (i.e., alcohol only group)?

10. Do those with a history of co-morbidity (i.e., being diagnosed with a psychiatric disorder other than a substance-related disorder) have significantly lower levels of mindfulness than those without a history of co-morbidity?
11. Do those with a history of co-morbidity (i.e., being diagnosed with a psychiatric disorder other than a substance-related disorder) have significantly lower levels of self-efficacy towards coping with negative affect than those without a history of co-morbidity?

Methodology

Research Approach

This study was conducted utilizing a quantitative, correlational research design: a descriptive approach that allows for hypothesis testing of essentially any type of variable in any situation (Mitchell & Jolley, 2001). This approach contributes to the generation of causal hypotheses based on whether significant correlational relationships are found between the variables examined. Given the paucity of literature on the relation between mindfulness and self-efficacy towards coping with negative affect, this approach was utilized to explore a possible relationship between the two variables without prematurely assuming causality.

This study used an online survey design. Participants filled out an online survey composed of items related to demographics/background information, the participant's level of dispositional mindfulness, and his/her perceived self-efficacy towards abstaining from alcohol use. The utilization of online surveys to collect data confers a variety of different benefits (Cantrell & Lupinacci, 2007). One such benefit is that of greater anonymity, which can help participants feel increased comfort in openly responding to sensitive questions, and therefore contribute to reduce researcher-influenced bias and social response bias. Since questions related to substance use and relapse can be sensitive in nature, this point is especially pertinent to this study. Furthermore, online surveys also allow for greater ease in collecting data without being concerned about the constraints of geographical location and inaccessibility of study participants. Additionally, Miller and colleagues (2002) specifically found web-based assessment techniques to be a suitable alternative to traditional paper-based methods of commonly used measures of alcohol use.

Participants

The target sample consisted of approximately 100 individuals who have a history of alcohol abuse or dependence, as this number should provide adequate power to detect a significant correlation (i.e., assuming medium effect size using .05 alpha level; Cohen, 1992). The selection criteria also included that the participants be at least 18 years old and able to read English at a 6th grade level. Only persons whose primary substance of abuse has been alcohol participated. Participants were recruited from online support groups and websites that adhere to the principles of Alcoholics Anonymous. Recruitment from these support groups/websites was expected to help foster a larger cross-section, as Alcoholics Anonymous does not impose restrictions on those who want to participate; they are open to anyone who seeks help with overcoming alcoholism (Alcoholics Anonymous, n.d.). Recent research has also suggested good ethnic diversity among Alcoholics Anonymous support groups, in that they were found to be a commonly sought form of treatment for those with issues of alcohol abuse/dependence among Whites, Hispanics, and Blacks (Schmidt, Ye, Greenfield, & Bond, 2007). Furthermore, since these meetings are both open to and attract individuals at various stages of their recovery process, this was also expected to help ensure greater variability in this study's sample.

Instruments

Participants were asked to fill out an online survey that consisted of items from measures related to demographic/background information, level of mindfulness, and level of perceived self-efficacy towards abstaining from alcohol use.

Demographic/background information. Demographic and background information (see Appendix A), such as age, sex, race/ethnicity, level of income, educational attainment, religious affiliation, and history of alcohol/substance, was collected from the participants. The

demographic questionnaire consisted of 17 items. These data were gathered in an effort to compare and draw inferences related to the primary and secondary variables under investigation.

Level of mindfulness. To assess for level of mindfulness, the Cognitive and Affective Mindfulness Scale-Revised (CAMS-R; Feldman et al., 2007), was utilized (see Appendix B). This instrument is a 12-item self-report measure that is a revised version of the Cognitive and Affective Mindfulness Scale (CAMS) and was designed to be brief, yet capture the breadth of the construct of mindfulness. One of the strengths of the CAMS-R is that it demonstrates an acceptable level of internal consistency for a brief measure (α=.76). It has also been found to have good discriminant validity, as well as good convergent validity, in that it strongly correlates with other measures of mindfulness such as the MAAS and FMI (Feldman et al., 2007).

Perceived self-efficacy/perceived self-efficacy toward coping with negative affect. To assess for level of perceived self-efficacy towards abstaining from alcohol use, and specifically, perceived self-efficacy toward coping with negative affect (without engaging in alcohol use), the shortened version of the Alcohol Abstinence Self-Efficacy Scale (AASE; DiClemente et al., 1994) was utilized (see Appendix C). The reliability estimates for each of the AASE's four subscales (Negative affect, Social/positive, Physical and other concerns, and Withdrawal and urges) are: .88, .82, .83, and .81, respectively, with the overall AASE scale having an alpha of .92, leading the authors to conclude that the shortened version of the AASE represents a brief and psychometrically sound measure of an individual's self-efficacy to abstain from drinking. It should be noted that while the participants were asked to fill out the entire 20-item self-report measure and that this study was interested in analyzing data for each of the subscales, the primary research question of this study was essentially addressed through analyzing the data specific to only the Negative affect subscale.

Procedures

The researcher obtained the approval of Pepperdine University's Institutional Review Board (IRB). This process helps promote the well-being of potential participants and ensures that participants understand their rights. After approval was granted, a recruitment effort was initiated utilizing a purposive sampling (snowball sampling) method (Trochim, 2006). Purposive sampling targets a specific group of people (in this case those with issues of alcohol abuse/dependence) and is a useful method when a desired population is difficult to recruit for a study. Participants were recruited within online support groups and websites that adhere to the principles of Alcoholics Anonymous. The researcher first introduced himself, his intentions, and provided information about the study in an initial brief introductory e-mail message/online post that was distributed to the gatekeepers/moderators of these support groups and websites (see Part One of Appendix D). Once gatekeepers/moderators of these support groups and websites granted permission to provide them additional information about the study, including how to participate, they were then asked in a second e-mail/online post to distribute information about this study and the URL link to the online survey to members of their group and other interested individuals who met criteria for the study (see Part Two of Appendix D). This information was contained within a "flyer" that was also provided by this researcher within the second e-mail/online post (see Appendix E). The flyers contained the following information: (a) inclusion criteria for participation in the study, (b) intent of the study, (c) confidentiality and anonymity, (d) voluntary participation, (e) instructions on how to access online survey, including the link for the survey; and (f) researcher's contact information. Prospective participants might also have learned about the study from other potential participants who decided to forward the information about the study to those they thought might have been interested. Additionally, if an interested

prospective participant contacted the researcher on his/her own volition requesting information on how to participate, the "flyer" was provided to him or her. This "flyer" was also provided to any gatekeepers/moderators who responded that they did not wish to distribute information about the study, but wanted to participate in the study themselves. When a sufficient number of participants had not been reached after two weeks of data collection, an additional prompt for participation was delivered to the website and online support group gatekeepers/moderators who initially granted permission to provide them additional information about the study (see Appendix F). Furthermore, those moderators/gatekeepers who had already been sent the initial contact message (see Part One of Appendix D), but had yet to provide a response after at least two weeks from the date the initial message was sent, were also sent a follow-up message prompting them to respond, along with the initial contact message (see Part One of Appendix D) once again. Once the target sample was met, gatekeepers/moderators were delivered a message thanking them for their assistance and requesting that they stop distributing information about the study (see Appendix G). The study's survey link was also disabled at that point.

When the participants accessed the online survey, their consent for participation was given by clicking an "I agree" button located after the informed consent form (see Appendix H). Configuring the online survey to not disclose the IP address of survey respondents to the researcher helped ensure anonymity. The online survey itself consisted of items related to the following three categories: (a) Demographic/background information, (b) Level of mindfulness, and (c) Perceived self-efficacy towards abstaining from alcohol use. It should also be noted that, while this study involved no more than minimal risk, mental health and sobriety support resources were provided following the questionnaire, whether or not it was completed, to assist with any distress that may have arisen (see Appendix I).

Throughout the recruitment and data collection phase, the researcher was cognizant of and committed to the five APA Ethical Principles of: (a) Beneficence and Nonmaleficence, (b) Fidelity and Responsibility, (c) Integrity, (d) Justice, and (e) Respect for People's Rights and Dignity (American Psychological Association, 2010).

Analysis

The data was coded and prepared for computerized analysis using SPSS 12.0. Descriptive statistics and other appropriate statistical analyses were conducted, including: (a) means and standard deviations, (b) Chi-square analyses to provide information regarding possible meaningful relationships between variables, and (c) independent samples *t* tests and one-way ANOVAs to provide information about possible differences between groups within variables.

Limitations and Delimitations

While some of the potential benefits of using an online survey approach have already been described in this review, there are also inherent limitations of this design that should be acknowledged. For example, due to the anonymity that online data collection provides, it is essentially impossible to follow-up with individuals regarding missing data (Cantrell & Lupinacci, 2007). Another potential problem with internet data collection is self-selection and sample bias, in that those who provide data are individuals who have chosen to volunteer for participation (Hobbs & Farr, 2004). As with most survey research, the representativeness of the sample is an area of concern as well, and specifically with online data collection, the issue of internet accessibility can be a limitation in this regard. Recent reports, however, indicate that the demographics of internet users in the United States are becoming more inclusive (U.S. Department of Commerce: NTIA, 2011). For example, according to a study by ClickZ Network

(as cited in Granello & Wheaton, 2004), internet use is increasing at a rate of 2 million new internet users each month, with internet use by individuals in the lowest income households (less than $15,000 per household per year) growing 25% for 1999 and 2000. Additionally, internet use among African-Americans increased an annual rate of 33% and by 30% for Hispanics, for 2000. More recent studies have also shown that upwards of 79% of adult Americans are at least occasional internet users and project that internet access will continue to increase with the advent of wireless technology (Horrigan, 2009). These figures clearly show a positive trend in internet usage across the population. However, despite the United States rapidly moving towards full digital inclusion, a "digital divide" still remains with respect to certain demographic variables (e.g., income, education, and ethnicity; U.S. Department of Commerce: NTIA, 2011). Therefore, despite the positive trend in internet usage, a possible limitation of this approach may continue to be the issue of accessibility for certain demographic groups.

Assumptions of the Study

The following assumptions were implicit in this study:

1. The participants who participated in the study were sufficiently representative of the larger recovering alcoholic population.
2. Measures utilized were sufficiently reliable and valid.
3. Participants responded to the survey in a reasonably honest and accurate manner.

Limitations

The following limitations are noted:

1. The sample, although assumed to be representative of the larger recovering alcoholic population, was not randomly drawn and may not have been fully representative due to the issue of limited internet accessibility for certain demographic groups.

2. The study was bound by general limitations of using self-report measures to generate data, such as: (a) participants may give inaccurate responses or have a tendency to portray themselves in a positive light (e.g., social desirability) and (b) questionnaires are vulnerable to participants giving consistently high or low ratings.
3. The general limitations of using a correlational design, such as: (a) the lack of control over independent variables and (b) the inability to establish cause-and-effect relationships.
4. This study focused primarily on intrapersonal coping strategies and not as much on interpersonal/social support-based coping strategies, which have also been shown to be important factors to maintaining sobriety among those in recovery for alcoholism.
5. Persons who were interested in the concepts of this study or were doing especially well in their recovery may have been more motivated to participate.
6. The sample size for this study was relatively small.

Delimitations

The following delimitations are noted:

1. The sample consisted of individuals who volunteered to participate in the study.
2. The sample was comprised of individuals who could read and understand English.
3. The online survey method of data collection conferred greater anonymity, which may have served to decrease social response bias and researcher-influenced bias.

Hypotheses

1. Scores on the CAMS-R will be significantly and positively related to scores on the AASE negative affect subscale.
2. Scores on the CAMS-R will be significantly and positively related to the length of time abstinent from alcohol.
3. Scores on the AASE negative affect subscale will be significantly and positively related to the length of time abstinent from alcohol.
4. Those who have been abstinent for greater than one year will have significantly higher scores on the AASE compared to those who have been abstinent for less than one year.
5. Those who have been abstinent for greater than one year will have significantly higher scores on the CAMS-R than those who have been abstinent for less than one year.
6. Frequency of time spent meditating will be significantly and positively related to scores on the CAMS-R.
7. Duration of time spent meditating will be significantly and positively related to scores on the CAMS-R.
8. Frequency of time spent meditating will be significantly and positively related to scores on the AASE negative affect subscale.
9. Duration of time spent meditating will be significantly and positively related to scores on the AASE negative affect subscale.

10. Those with a history of abuse/dependence with substances other than alcohol will have significantly lower scores on the CAMS-R than those who do not have a history of abuse/dependence with substances other than alcohol (i.e., alcohol only group).
11. Those with a history of abuse/dependence with substances other than alcohol will have significantly lower scores on the AASE negative affect subscale than those who do not have a history of abuse/dependence with substances other than alcohol (i.e., alcohol only group).
12. Those with a history of co-morbidity (i.e., being diagnosed with a psychiatric disorder other than a substance-related disorder) will have significantly lower scores on the CAMS-R than those without a history of co-morbidity.
13. Those with a history of co-morbidity (i.e., being diagnosed with a psychiatric disorder other than a substance-related disorder) will have significantly lower scores on the AASE negative affect subscale than those without a history of co-morbidity.

RESULTS

Descriptive Analysis

The final sample for this study consisted of 104 participants. Nine cases were dropped from analysis due to incomplete data. Fifty-three (51.0%) of the participants were female and 51 (49.0%) were male. Ages of the participants ranged from 30-74, with the average age being 55.5 years old. Eighty-one (77.9%) of the participants identified as heterosexual, 16 (15.4%) identified as gay/lesbian, and 6 (5.8%) identified as bisexual. Ninety-five (91.3%) identified as Caucasian, 4 (3.8%) as Mixed Ethnicity, 2 (1.9%) as Other, 1 (1.0%) as African-American, and 1 (1.0%) as Pacific Islander. Forty-seven (45.3%) participants reported being married, 20 (19.2%) identified as divorced, 17 (16.3%) as being in a relationship (but not married), 13 as being single (12.5%), 4 identified as widowed (3.8%), and 3 (2.9%) as being separated. The sample tended to be well-educated, with 38 (36.5%) participants having a four year college degree, 27 (26.0%) of the participants reported having a professional degree (e.g., M.A., Ph.D., etc.), 18 (17.3%) having one or more years of college (without a degree), 9 (8.7%) having a two year college degree, 6 (5.8%) reported less than one year of college, 5 (4.8%) being high school graduates, and 1 (1.0%) participant reported having ten or more years of school (without a diploma). In terms of occupational status, 45 (43.3%) participants reported being employed full time, 42 (40.4%) participants reported being unemployed, and 15 (14.4%) participants reported being employed part time. Reported annual family income tended to vary considerably, as 14 (13.5%) reported earning less than $15,000, 5 (4.8%) reported earning $15,000-$24,999, another 5 (4.8%) reported earning $25,000-$34,999, 20 (19.2%) participants reported earning $35,000-$49,999, 19 (18.3%) reported earning $50,000-$74,999, 11 (10.6%) reported earning $75,000-$99,999, 18 (17.3%) reported earning $100,000-$149,999, and 10 (9.6%) reported earning $150,000 or more.

With regard to the religion/spiritual affiliation of the sample, 62 (59.6%) participants reported being spiritual, but not religious, 26 (25.0%) participants identified as Christian, 6 (5.8%) as Other, another 6 (5.8%) as None, 2 (1.9%) as Buddhist, and 1 (1.0%) participant identified as Jewish. Forty-two (40.4%) participants reported participating in mental health treatment at the time of the study, whereas 62 (59.6%) reported not participating. Participants also generally reported being frequently connected with the Alcoholics Anonymous online community, as 31 (29.8%) participants reported they connected more than once daily, 44 (42.3%) reported that they connected daily, 10 (9.6%) connected weekly, 4 (3.8%) participants reported they connected twice monthly, another 4 (3.8%) reported they connected less than monthly, and 9 (8.7%) reported never connecting. Participants also generally reported that they frequently attended face-to-face Alcoholics Anonymous meetings, in that 15 (14.4%) reported they attended daily, 57 (54.8%) reported they attended weekly, 3 (2.9%) participants attended twice monthly, 6 (5.8%) attended monthly, 16 (15.4%) attended less than monthly, and 7 (6.7%) reported that they never attended.

Mindfulness and Self-efficacy in Coping with Negative Affect

The scores for alcohol abstinence self-efficacy, for both the total ($M = 4.43$; $SD = 0.85$) and negative affect scales ($M = 4.36$; $SD = 0.98$), were split into two separate groups: extremely confident in abstaining (average scores equaling at least 4.5 on the AASE; $n = 67$) and less than extremely confident in abstaining (average scores equaling less than 4.5 on the AASE; $n = 37$). This was done due to the skewed distribution of self-efficacy scores across the sample (i.e., a very large frequency of participants indicated they were “extremely confident” in their ability to abstain from alcohol use), which not only precluded the use of correlational analysis with this variable, but also necessitated that scores be split into these two separate groups (i.e., extremely

confident and less than extremely confident) for meaningful analysis. It should be noted that the less than extremely confident group, on average, still reported being moderately confident in their ability to abstain from alcohol use when experiencing negative affect (M = 3.32, SD = 0.99).

With respect to mindfulness (CAMS-R) scores (M = 37.43; SD = 5.94), the distribution of responses appeared to be reasonably normal, allowing this variable to be treated as interval data for analysis. To investigate a possible relationship between mindfulness and self-efficacy in coping with negative affect, the means for mindfulness were compared between those who were extremely confident in abstaining when experiencing negative affect (M = 38.83, SD = 5.52) and those who were less than extremely confident (M = 34.91, SD = 5.91; see Table 1). Between these two groups, a mean difference of 3.92 was found, with those who were extremely confident scoring higher in mindfulness. An independent samples t test revealed this difference to be significant [t (102) = 3.38, $p < .05$], with a moderate effect size (Cohen's d = .69), indicating that those who report greater mindfulness also report greater self-efficacy in coping with negative affect without engaging in alcohol use. Though the Pearson correlation was not the primary statistical procedure utilized for analysis due to the aforementioned reasons, the Pearson correlation coefficient for these two variables is also included (see Appendix K) to demonstrate additional support for the above results.

Length of Time Abstinent in Relation to Mindfulness

Length of time abstinent was grouped into three different categories: less than 1 year *(n* = 9), between 1 and 10 years *(n* = 31), and greater than 10 years *(n* = 64). These specific groupings were chosen as a good fit with the frequency distribution of this variable (note: the heavy skew and concern for tied ranks also precluded the use of correlational analysis for this variable).

Moreover, these categories are also similar to those that have been used by past membership surveys of Alcoholics Anonymous (A.A. World Services, 2011). Length of time abstinent and mindfulness were examined for a possible meaningful relationship, which was done by conducting a one-way ANOVA to compare mindfulness means among the three length-of-time abstinent groups (i.e., less than one year, between one and ten years, and greater than ten years). The omnibus F from this overall analysis was statistically significant [F (2, 101) = 7.03, $p < .05$], indicating that there was a significant difference among the mindfulness means of these groups (see Table 2). Post-hoc comparisons were then conducted to determine which specific groups were significantly different from each other. The Games-Howell test was utilized, as there was some concern for unequal sample sizes and possible heterogeneity of variance among these groups, and this test has been shown to be preferable in these instances (Howell, 2007). The results of this test indicated that the mean score for mindfulness for those who had been abstinent for less than one year (M = 30.73, SD = 7.01) was significantly different than those who had been abstinent between one and ten years (M = 37.90, SD = 5.37), with a large effect size (Cohen's d = 1.25). Additionally, the mean score for mindfulness for those who had been abstinent for less than one year (M = 30.73, SD = 7.01) was significantly different than those who had been abstinent for greater than ten years (M = 38.15, SD = 5.54), with a large effect size (Cohen's d = 1.30). These results suggested that those who have been abstinent for greater than one year report higher levels of mindfulness than those who have been abstinent for less than one year. Though the Pearson correlation was not the primary statistical procedure utilized for analysis due to the aforementioned reasons, the Pearson correlation coefficient for these two variables is also included (see Appendix K) to demonstrate additional support for the above results.

Length of Time Abstinent in Relation to Self-efficacy in Coping

Length of time abstinent and self-efficacy in coping with negative affect was examined for a possible meaningful relationship through chi-square analysis. The results of this analysis produced a statistically significant relationship, $\chi^2(2, N = 104) = 20.96, p < .05$, with a generally strong association (Cramer's $V = .45$). Closer examination of the frequencies (see Table 3) revealed that for those participants who had been abstinent for less than one year, 0.0% were extremely confident in abstaining when experiencing negative affect. However, for those who had been abstinent between one and ten years, 58.1% were extremely confident in abstaining when experiencing negative affect. Furthermore, for those who had been abstinent for greater than ten years, 76.6% were extremely confident in abstaining when experiencing negative affect. This finding suggested that those who have been abstinent longer tend to be more confident in their ability to abstain from alcohol use when experiencing negative affect.

The specific question of whether there was a meaningful difference in self-efficacy in abstaining from alcohol use between those who had been abstinent for less than one year compared to those who had been abstinent for greater than one year was also explored through a chi-square analysis. The results of this analysis produced a statistically significant relationship, $\chi^2(1, N = 104) = 17.07, p < .05$, with a generally strong association (Cramer's $V = .44$). Examination of the frequencies (see Table 4) revealed that for those participants who had been abstinent for less than one year, 0.0% were extremely confident in abstaining from alcohol use. However, for those who had been abstinent for greater than one year, 73.7% were extremely confident in abstaining from alcohol use, indicating that there was a meaningful relation between self-efficacy in abstaining from alcohol use and remaining abstinent for at least one year. Though the Pearson correlation was not the primary statistical procedure utilized for analysis due

to the aforementioned reasons, the Pearson correlation coefficient for these two variables is also included (see Appendix K) to demonstrate additional support for the above results.

Meditation and Mindfulness

Mindfulness was examined with respect to meditation frequency and meditation duration to determine if a meaningful relation existed between these variables. The distribution for meditation frequency revealed a somewhat clear split in responses among the sample and was therefore divided into two separate groups, which were labeled: frequent meditators (those who meditate daily or weekly; $n = 65$) and infrequent meditators (those who meditate monthly or less; $n = 39$). When mindfulness means of frequent meditators ($M = 38.66$, $SD = 5.42$) and infrequent meditators ($M = 35.38$, $SD = 6.27$) were compared (see Table 5), a mean difference of 3.28 was found, which was revealed to be significant by an independent samples t test [$t\ (102) = 2.81$, $p < .05$], with a moderate effect size (Cohen's $d = .57$). This finding indicated that those who were frequent meditators scored higher in mindfulness than those who were infrequent meditators. Meditation duration was also grouped into three different categories: Short (1-10 minutes; $n = 48$), intermediate (10-20 minutes; $n = 29$), and long (greater than 20 minutes; $n = 11$). When mindfulness means were compared among these three meditation duration groups utilizing a one-way ANOVA, no significant differences were found [$F\ (2, 85) = 2.65$, $p = .08$].

Meditation and Self-efficacy in Coping with Negative Affect

Self-efficacy in coping with negative affect was also examined in relation to meditation frequency and meditation duration to ascertain whether a meaningful relation existed between these variables. However, chi-square tests for both meditation frequency [$\chi^2(1, N = 104) = 1.75$, $p = .19$] and meditation duration [$\chi^2(2, N = 88) = 3.00$, $p = .22$], in relation to self-efficacy in coping with negative affect, did not reveal any significant findings.

History of Polysubstance Abuse/Dependence in Relation to Mindfulness and Self-efficacy in Coping with Negative Affect

Mean scores for mindfulness and frequencies for self-efficacy in coping with negative affect were also compared between those with a history of substance abuse/dependence other than alcohol (n = 58) and those without a polysubstance abuse/dependence history (n = 46). Mindfulness means between these two groups revealed a mean difference of 0.47, which was revealed to be non-significant by an independent samples t test [t (102) = 0.40, p = .69]. This suggested that there was not a meaningful relation between reported mindfulness and history of polysubstance abuse/dependence. Similarly, a meaningful relation between self-efficacy in coping with negative affect and history of polysubstance abuse/dependence was also not found after conducting a chi-square test for these two variables [$\chi^2(1, N = 104) = 1.93, p = .17$].

History of Psychiatric Co-morbidity in Relation to Mindfulness and Self-efficacy in Coping with Negative Affect

Mean scores for mindfulness and frequencies for self-efficacy in coping with negative affect were also compared between those with a history of psychiatric co-morbidity (other than a substance-related disorder; n = 68) and those without (n = 36). Mindfulness means for these groups had a difference of 2.0, which was found to be non-significant by an independent samples t test [t (102) = 1.64, p = .10], suggesting that there was not a meaningful relation between reported mindfulness and history of psychiatric co-morbidity. Additionally, chi-square analysis showed no significant relationship between self-efficacy in coping with negative affect and history of psychiatric co-morbidity [$\chi^2(1, N = 104) = 0.01, p = 0.93$].

DISCUSSION

This study sought to investigate a possible relation between level of mindfulness and self-efficacy towards coping with negative affect (without engaging in alcohol use) among those in recovery from alcoholism. Negative affect was selected as a focal point due to the tremendous potency it has as a trigger for those in recovery (Baker et al., 2004; Zywiak et al., 1996). Based on the review of the literature, it was expected that those with higher levels of mindfulness would tend to have higher levels of self-efficacy towards coping with negative affect without engaging in alcohol use. While the heavily skewed distribution of self-efficacy scores (i.e., much of the sample indicating extreme confidence in their ability to abstain) precluded the use of correlational analysis, an alternative analysis of the data did reveal some support for this primary hypothesis. Specifically, those who reported being extremely confident in abstaining from alcohol use when experiencing negative affect scored significantly higher as a group in mindfulness than those who reported being less than extremely confident. This lends support to the assertion that those with higher levels of mindfulness may also have greater self-efficacy in successfully managing negative affect. However, it is important to note that the overwhelming majority of the sample reported confidence in abstaining from alcohol use, when experiencing negative affect. Given the established relation within the literature between mindfulness and regulation of negative affect (Creswell et al., 2007; Feldman et al., 2007; Modinos et al., 2010), it is not surprising that those who tend to rate themselves as having greater qualities of mindfulness also feel more confident in their capacity to effectively cope with difficult feelings.

The question of whether self-efficacy and mindfulness relate to length of time abstinent was also investigated. Based on findings from previous studies that have shown both mindfulness (Bowen et al., 2006; Witkiewitz et al., 2005) and self-efficacy (Burleson &

Kaminer, 2005; Maisto et al., 2000) to be important factors in relapse prevention and in maintaining one's abstinence, it was expected that meaningful relationships would also be found between each of these variables and length of time abstinent. An examination of the relation between self-efficacy when experiencing negative affect and length of time abstinent revealed such a relationship, with the frequency distribution analysis indicating that those who had been abstinent longer tended to have more confidence in their ability to abstain from alcohol use when experiencing negative affect. This finding seems to lend additional support to the assertion that self-efficacy is an important predictor in maintaining one's sobriety, and therefore, is a factor that should continually be considered when assessing the efficacy of relapse prevention treatment. Furthermore, this finding also indicates that it may not just be self-efficacy in the general sense that is important, but also self-efficacy in specific high-risk situations, such as when experiencing negative affect.

Another important finding of this study, which involved the relationship between self-efficacy and length of time abstinent, was that those who had been abstinent for greater than one year tended to be higher in self-efficacy compared to those who had been abstinent for less than one year. This was another supported hypothesis of this study, which provides additional support for the assertion that remaining abstinent for at least one year can be an important benchmark in the recovery process for alcoholism, a finding that has been highlighted in numerous previous studies (Maisto et al., 2002; Maisto et al., 2008).

Since self-efficacy appears to be an important construct with respect to maintaining one's abstinence, a reasonable question might then be to ask what conditions contribute to enhance self-efficacy. As described in the review, this question has been investigated by numerous studies already (Bandura, 2012; Maisto et al., 1998), with some showing that having a

serviceable coping skill can lead to increased self-efficacy (Moos, 2007). This investigator found that mindfulness could serve as a useful coping tool to those in recovery by helping them manage potential triggers, such as negative affect, which would seemingly lead to increased self-efficacy in managing this type of high-risk situation. While this study did not specifically investigate whether increased mindfulness directly contributes to increased self-efficacy, findings from this investigation provide some support for the idea that those with greater mindfulness qualities tend to have greater efficacy in utilizing effective coping skills and ultimately remaining abstinent. Specifically, this study found that those who had been abstinent for less than one year scored significantly lower in mindfulness compared to those who had been abstinent for between one and ten years, as well as compared to those who had been abstinent for greater than ten years. While it is difficult to draw any firm conclusions from this finding, it is consistent with previous findings that have demonstrated an association between increased mindfulness and improved relapse prevention outcomes (Bowen et al., 2009; Vidrine et al., 2009). Furthermore, the greater mindfulness scores among those who reported being abstinent for at least one year could also be a reflection of increased ability to cope with the difficult thoughts, feelings, or sensations that often present as triggers to relapse. In other words, perhaps as individuals in recovery become more adept at managing these triggers, their improved coping ability is reflected in, and possibly even related to, them having increased qualities of mindfulness. Moreover, as individuals have improved ability to cope, self-efficacy might also increase, and seemingly produce a reinforcing effect between the two; previous studies have described how these two variables can tend to augment each other (Moos, 2007). A final point to make about this finding is that it once again speaks to the potential significance of attaining sobriety for at least one year. This is a benchmark that has already been described as important

with respect to not only self-efficacy differences for those in recovery, but also improved psychological functioning (Maisto et al., 2002). Based on the current findings, it may be that greater mindfulness is a component of the improved psychological functioning associated with achieving one-year sobriety.

As mindfulness is a form of meditation, the question of whether frequency or duration of time spent meditating is related to mindfulness scores, was also investigated. However, a meaningful relationship was only found between mindfulness and frequency of time spent meditating, with frequent meditators (who meditate daily or weekly) reporting significantly higher mindfulness scores than infrequent meditators (who meditate monthly or less). Duration of time spent meditating was not found to be significantly related to mindfulness scores. At first glance, this may appear somewhat puzzling. However, past research has actually demonstrated similar findings, in that meditation frequency (and not duration or even the specific type of meditation) was found to be associated with mindfulness skills and psychological well-being (i.e., lower perceived stress; Schoormans & Nyklicek, 2011). Therefore, these findings suggest that how long one meditates is not as important as how often, and that the act of simply engaging in frequent meditation, even for short spurts, may be enough to confer psychological benefits. It is also worth noting that the high frequency of participants in this study who identified as "Spiritual, but not religious," as well as the large number of participants who reported that they frequently meditate, should probably not be surprising, given the emphasis that Alcoholics Anonymous teachings place on spirituality and meditation (Swora, 2004).

When meditation frequency and duration were examined with respect to self-efficacy towards coping with negative affect, no significant results were found. As frequency of meditation was found to be significantly related to mindfulness scores, it is somewhat surprising

that meditation frequency was not found to also have a significant relationship with self-efficacy towards coping with negative affect. Analysis of the frequency distribution did reveal that frequent meditators had a higher frequency of those who were extremely confident in being able to cope with negative affect (compared to infrequent meditators), but not to a large enough degree to be statistically significant. The reason for this lack of significance is not entirely clear. Maybe there is not a direct enough relationship between these two variables or perhaps it is due to lack of precision in the alternative statistical analysis that had to be utilized (due to the distribution of the self-efficacy scores). Regardless, future research would be useful in helping to explore the relationship between these two variables in more detail.

Given that previous findings have shown polysubstance users to have greater deficits in mindfulness than monosubstance users (Dakwar et al., 2011), it was also hypothesized that those with a history of substance abuse/dependence with substances other than alcohol would have lower levels of both mindfulness and self-efficacy towards coping with negative affect, compared to those without such a history (i.e., only have a history of abuse/dependence with alcohol). However, a significant difference was not found between these two groups with respect to these variables. This can possibly be attributed to this study's measuring of a *history* of poly-substance abuse/dependence as opposed to measuring *current* poly-substance abuse/dependence. This was done intentionally, though, as the goal was to recruit individuals whose primary substance of abuse has been alcohol. However, had current poly-substance abuse/dependence been targeted and measured, it is possible that a significant relationship would have been found.

Finally, those with a history of co-morbidity (i.e., being diagnosed with a psychiatric disorder other than a substance-related disorder) were also hypothesized to have lower levels of

both mindfulness and self-efficacy towards coping with negative affect compared to those without such a history. This was based on previous studies that have shown individuals with a higher degree of psychopathology with respect to symptoms of depression and anxiety tend to be at greater risk for relapse (Bottlender & Soyka, 2005a; Solomon et al., 2007). However, the results of this study failed to demonstrate a significant difference between these two groups with respect to either of these variables, which again could be attributed to the lack of specificity in assessing for *current* co-morbidity.

Limitations

Several limitations of this study should be noted. One major limitation of the study is the lack of generalizability of the results to the general population of those in recovery from alcoholism. This is due to the sample being skewed toward certain demographic groups, and in particular, to the online Alcoholics Anonymous community. More specifically, the demographics of the sample were heavily skewed toward individuals who were older, well-educated, and Caucasian. One possible explanation for this may have to do with the aforementioned "digital divide" that still exists with respect to certain demographic variables (e.g., income, education, and ethnicity; U.S. Department of Commerce: NTIA, 2011). Despite the United States rapidly moving towards full digital inclusion and the trend that African-Americans, in particular, are quickly growing in their mobile internet use (Horrigan, 2009), this may still be a contributing factor. A second possible explanation for the skewed demographics has to do with the demographic composition of Alcoholics Anonymous members. Even though some research as suggested that Alcoholics Anonymous support groups are a commonly sought form of treatment for those with issues of alcohol abuse/dependence among various ethnic groups (Schmidt et al., 2007), a recent Alcoholics Anonymous World Services (2011)

membership survey actually indicates that the vast majority of members are Caucasian (87%). In addition, members also generally tend to be somewhat older (average age of 49). Therefore, the ethnic and age-related make-up of the present sample appears to be rather consistent with that of the general Alcoholics Anonymous membership.

It should also be noted that a substantial proportion of participants in this study responded that they were unemployed, which was surprising given the educational level of the sample, as well as perhaps incongruent with the wide range of reported family income. This could be a product of a limitation in the design of the survey, which failed to provide a response option of "retired" for current occupational status, thus forcing many participants to select "unemployed" when in fact they had retired from active employment. This is also a very likely scenario given the relatively high percentage of retired individuals (17%) who comprise the Alcoholics Anonymous membership (A.A. World Services, 2011).

An additional limitation that must be acknowledged is the unexpected small number of participants who reported being abstinent for less than one year. While approximately 27% of the Alcoholics Anonymous membership consists of individuals who report being sober less than one year (A.A. World Services, 2011), only 9% of this study's sample fell into this group. Moreover, approximately 36% of the Alcoholics Anonymous membership report being abstinent for greater than ten years compared to 62% of this study's sample. These disparities are somewhat surprising and reveal the participants of this study to be rather successful as a whole in terms of their recovery, and not surprisingly, to have rather high levels of self-efficacy towards abstaining from alcohol use. One possible reason for this disparity could be a product of self-selection, where those who are doing especially well in their recovery are more motivated to participate in studies such as this one. Another possibility is that there is a different distribution

with respect to length of time abstinent specifically within the online Alcoholics Anonymous community. Future studies would be helpful in teasing out these questions and hopefully have greater success at attaining a more varied sample of the recovery process, as this could also lead to a wider distribution of self-efficacy scores than this study's sample provided. It should also be noted that while steps were taken to analyze the data in a conservative manner when examining the length of time abstinent variable, caution should still be taken when drawing conclusions, due to the small number within this group.

Additional limitations that should be mentioned include acknowledging the general limitations of using self-report measures to generate data, such as the possibility that participants provide inaccurate responses or have a tendency to portray themselves in a positive light, though this should be mitigated by the anonymity of this study's survey design (Cantrell & Lupinacci, 2007). Questionnaires utilized may also be vulnerable to participants giving consistently high or low ratings. Moreover, as this study utilized a correlational design, it also contains the general limitations of this approach, including lack of control over independent variables and inability to establish cause-and-effect relationship.

Implications and Conclusions

To the best of this author's knowledge, this was the first study to examine whether there is a relationship between level of dispositional mindfulness and self-efficacy towards coping with negative affect, as well as the first to do so by specifically looking at individuals who primarily struggle with issues of alcohol abuse or dependence. While a true correlational relationship could not be established due to the nature of the data, a significant relationship was discovered between level of dispositional mindfulness and self-efficacy towards coping with negative affect, thus providing some support for the assertion that increased mindfulness is

associated with increased self-efficacy in coping with negative affect among recovering alcoholics. More research is needed to establish the specific relationship between these two variables, as well as investigate the possibility that interventions aimed at enhancing mindfulness would also contribute to increased self-efficacy in coping with negative affect. The implication of this possibility is particularly meaningful given the potent threat of negative affect as a trigger to relapse for those in recovery. Future studies should also attempt to establish whether increases in these variables relate to increased time remaining abstinent, as the findings from this study indicate that it might. Special emphasis should continue to be placed on attaining the one-year mark for sobriety, as it continues to reveal itself to be a critical benchmark for those in recovery from alcoholism. Finally, additional research is needed to better assess the generalizability of this study's findings to the greater population of those in recovery from alcoholism, as well to those who struggle with other forms of addiction. The findings from this study contribute to the growing body of literature on the beneficial effects of mindfulness for those who suffer from issues of substance abuse/dependence. More research is needed to continue to explore both the potential and efficacy of mindfulness as a coping tool and intervention for those in recovery.

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APPENDIX A

Demographic and Background History Questionnaire

Demographic and Background History Questionnaire

Instructions: Please read, check each question carefully and provide your response to each item by entering or selecting your answer. Please try not to skip any items and try to answer the items as accurately as you can.

1. Age: _____

2. Gender: ○Male ○Female ○Transgender

3. Sexual Orientation: ○Heterosexual ○Gay/Lesbian ○Bisexual ○Transgender

4. Relationship status: ○Married ○Divorced ○Separated ○Widowed ○In a relationship (but not married) ○Single

5. Ethnicity: ○African-American ○Asian ○Caucasian ○Latino/Latina ○Native American ○Pacific Islander ○Mixed ethnicity ○Other

6. Highest level of education: ○Professional (M.A., M.S., Ph.D., M.D., J.D., etc.) ○Four year college degree ○Two year college degree ○One or more years of college, without degree (also business or trade school) ○Less than one year of college (also business or trade school) ○High school graduate (12 years of school) ○Ten or more years of school, without diploma (part high school) ○Seven to nine years of school ○Less than seven years of school

7. Present occupational status: ○Employed full time ○Employed part time ○Unemployed

8. Level of annual family income: ○Less than $15,000 ○$15,000-$24,999 ○$25,000-$34,999 ○$35,000-$49,999 ○$50,000-$74,999 ○$75,000-$99,999 ○$100,000-$149,999 ○$150,000 or more

9. Current religious or spiritual affiliation: ○Christianity ○Judaism ○Islam ○Buddhism ○Hinduism ○Spiritual, but not religious ○Other_____ ○None

10a. Meditation practice: ○Very frequently meditate (daily) ○Frequently meditate (weekly) ○Infrequently meditate (monthly) ○Hardly ever meditate (rarely do so, but have done it before) ○Never meditate (have no history of meditating)

10b. If you meditate, how long do you meditate each time on average? ○1-5 minutes ○6-10 minutes ○11-20 minutes ○More than 20 minutes ○Not applicable

11. Have you ever been diagnosed with depression, anxiety, or any other mental disorder (other than a substance-related disorder)? ○Yes ○ No

12. Are you currently participating in any mental health treatment (e.g., getting counseling or therapy, taking psychotropic medications such as antidepressants, attending therapy groups that are not 12-step groups, etc.)? ○Yes ○ No

13. Have you ever abused or become dependent on substances other than alcohol? ○Yes ○No If so, please list:_____

14. How long have you been abstinent from alcohol? ○Less than 1 week ○Between 1 week and 1 month ○Between 1 and 6 months ○Between 6 and 12 months ○Between 1 and 5 years ○Between 5 and 10 years ○Greater than 10 years

15. How often do you connect online with the Alcoholics Anonymous recovery community? ○More than once daily ○Daily ○Weekly ○Twice monthly ○Monthly ○Less than monthly ○Never

16. How often do you attend face-to-face Alcoholics Anonymous meetings (i.e., meetings that take place in person and are not online)? ○Daily ○Weekly ○Twice monthly ○Monthly ○Less than monthly ○Never

APPENDIX B

Cognitive and Affective Mindfulness Scale-Revised (CAMS-R)

CAMS-R

People have a variety of ways of relating to their thoughts and feelings. For each of the items below, rate how much each of these ways applies to *you*.

1 Rarely/Not at all	2 Sometimes	3 Often	4 Almost Always

_____ 1. It is easy for me to concentrate on what I am doing.

_____ 2. I am preoccupied by the future.

_____ 3. I can tolerate emotional pain.

_____ 4. I can accept things I cannot change.

_____ 5. I can usually describe how I feel at the moment in considerable detail.

_____ 6. I am easily distracted.

_____ 7. I am preoccupied by the past.

_____ 8. It's easy for me to keep track of my thoughts and feelings.

_____ 9. I try to notice my thoughts without judging them.

_____ 10. I am able to accept the thoughts and feelings I have.

_____ 11. I am able to focus on the present moment.

_____ 12. I am able to pay close attention to one thing for a long period of time.

APPENDIX C

Alcohol Abstinence Self-Efficacy Scale (AASE)

AASE

LISTED BELOW ARE A NUMBER OF SITUATIONS THAT LEAD SOME PEOPLE TO USE ALCOHOL.
WE WOULD LIKE TO KNOW HOW CONFIDENT YOU ARE THAT YOU WOULD NOT DRINK ALCOHOL IN EACH SITUATION.

CIRCLE THE NUMBER THAT BEST DESCRIBES YOUR FEELINGS OF CONFIDENCE TO NOT DRINK ALCOHOL IN EACH SITUATION DURING THE PAST WEEK ACCORDING TO THE FOLLOWING SCALE:

1=Not at all confident
2=Not very confident
3=Moderately confident
4=Very confident
5=Extremely confident

Situation	Confident not to drink alcohol				
	Not at all	Not very	Moderately	Very	Extremely
1) When I am in agony because of stopping or withdrawing from alcohol use.	1	2	3	4	5
2) When I have a headache.	1	2	3	4	5
3) When I am feeling depressed.	1	2	3	4	5
4) When I am on vacation and want to relax.	1	2	3	4	5
5) When I am concerned about someone.	1	2	3	4	5
6) When I am worried.	1	2	3	4	5
7) When I have the urge to try just one drink to see what happens.	1	2	3	4	5
8) When I am being offered a drink in a social situation.	1	2	3	4	5
9) When I dream about taking a drink.	1	2	3	4	5

Situation	Confident not to drink alcohol				
	Not at all	Not very	Moderately	Very	Extremely
10) When I want to test my will power over drinking.	1	2	3	4	5
11) When I am feeling a physical need or craving for alcohol.	1	2	3	4	5
12) When I am physically tired.	1	2	3	4	5
13) When I am experiencing some physical pain or injury.	1	2	3	4	5
14) When I feel like blowing up because of frustration.	1	2	3	4	5
15) When I see others drinking at a bar or a party.	1	2	3	4	5
16) When I sense everything is going wrong for me.	1	2	3	4	5
17) When people I used to drink with encourage me to drink.	1	2	3	4	5
18) When I am feeling angry inside.	1	2	3	4	5
19) When I experience an urge or impulse to take a drink that catches me unprepared.	1	2	3	4	5
20) When I am excited or celebrating with others.	1	2	3	4	5

APPENDIX D

Two-part introduction and recruitment message to gatekeepers/moderators

Part One: To be sent to gatekeepers/moderators to introduce research study:
My name is Chris Link and I am a doctoral student in clinical psychology at Pepperdine University Graduate School of Education and Psychology (GSEP). I am currently conducting a research study for my doctoral dissertation requirement, under the supervision of Daryl Rowe, Ph.D., Professor of Psychology. This study involves the examination of select variables associated with alcohol relapse for those in recovery.

I am hoping you would be willing to distribute information about my research project to potential participants for the study. I am seeking to obtain approximately 100 participants who have a history of alcohol abuse/dependence and are willing to complete brief, confidential online surveys. Participation in this study will take approximately 20 to 30 minutes. The goal of the study is to increase our understanding of factors related to abstaining from alcohol use for those in recovery. Findings from this study will not only potentially contribute to the scientific literature in this area, but also possibly assist in improving the effectiveness of relapse prevention treatment. Please let me know if you would be willing to provide information about my study, including how to participate, to your fellow group members or any other individuals who are eligible to participate and you think may be interested. Thank you very much!

Sincerely,

Chris Link, M.A.

Part Two: To be sent to gatekeepers/moderators after obtaining permission to recruit:
My name is Chris Link and I am a doctoral student in clinical psychology at Pepperdine University Graduate School of Education and Psychology (GSEP). I am currently conducting a research study for my doctoral dissertation requirement, under the supervision of Daryl Rowe, Ph.D., Professor of Psychology. This study involves the examination of select variables associated with alcohol relapse for those in recovery. Thank you for granting me permission to recruit from your members. Thank you for agreeing to distribute information about my research project to your fellow group members.

Please feel free to distribute the attached “Recruitment Flyer” (located below this message) about my study to your fellow group members or any other individuals who are eligible to participate and you think may be interested. Thank you very much!

Sincerely,

Chris Link, M.A.

APPENDIX E

Recruitment "Flyer"

ARE YOU SOMEONE WHO HAS A HISTORY OF ALCOHOL PROBLEMS OR ARE IN RECOVERY FROM ALCOHOLISM? IF SO, YOUR EXPERIENCE IS VALUABLE AND NEEDED!

Participants are invited to take part in a research study on factors related to abstaining from alcohol use. More scientific research is needed on alcoholism, relapse, and recovery. The purpose of this study is to explore possible factors that may contribute to maintaining recovery from alcohol abuse or dependence.

WHO CAN PARTICIPATE?

To participate in the study, you **must** meet all of the following criteria: Be at least 18 years old, have a history of alcohol abuse or dependence, and be able to read English at a 6th grade level. ***We are only interested in persons whose primary substance of abuse has been alcohol.***

WHAT IS INVOLVED?

If you decide to participate in the study, you will be asked to complete brief online surveys. Questions within the surveys will ask about your background and experiences, your perceived ability to cope with various situations without engaging in alcohol use, and how you relate to your thoughts and feelings. Participation in this study will take approximately 20 to 30 minutes.

ANONYMITY AND CONFIDENTIALITY

Given the importance of anonymity for both 12-step programs and the ethical standards of psychological research, confidentiality will be maintained at all times and is taken very seriously. Participation is strictly voluntary and you may withdraw at any time.

IF YOU ARE INTERESTED

If you are interested, and think you are eligible to participate in the study and would like to participate, you can begin the surveys at the web address below: [INSERT WEB ADDRESS]

Also, please feel free to forward this information regarding this study to anyone else that might be interested (and meets criteria for the study). Thank you!

If you have additional questions you would like answered, please contact me at the following:

Chris Link, M.A.
Pepperdine University
Graduate School of Education and Psychology
alcoholresearchstudy2013@gmail.com

You may also contact Daryl Rowe, Ph.D., who supervises my project. He may be reached at Daryl.Rowe@pepperdine.edu.

APPENDIX F

Follow-up recruitment message to gatekeepers/moderators

My name is Chris Link and I am a doctoral student in clinical psychology at Pepperdine University Graduate School of Education and Psychology (GSEP). Two weeks ago, I distributed information regarding a research study I am currently conducting for my doctoral dissertation requirement, under the supervision of Daryl Rowe, Ph.D., Professor of Psychology. I am still in the process of collecting data and am hoping to recruit additional participants to complete a brief, confidential online survey for my study. I am once more providing the information about my research project, including how to participate, for you to distribute to your fellow group members or any other individuals who are eligible to participate and you think may be interested (please find this information below this message). Thank you very much!

Sincerely,

Chris Link, M.A.

APPENDIX G

Thank you message to gatekeepers/moderators

I would like to take a moment to sincerely thank you for your assistance with my dissertation project. Your help has enabled me to recruit participants, and as a result, conduct my study. At this point, you may stop distributing the information about participating in this study, as data is no longer being gathered.

If you have any additional questions or comments about the study, please contact me any time at alcoholresearchstudy2013@gmail.com.

Sincerely,

Chris Link, M.A.

APPENDIX H

Informed Consent Form

Informed Consent

I. I agree to participate in a research study being conducted by Chris Link M.A., Doctoral Candidate in Clinical Psychology at Pepperdine University in Los Angeles, California to fulfill dissertation requirements, under the supervision of Daryl Rowe, Ph.D., Professor of Psychology.

II. I understand that participation in this study is completely voluntary and that there will be no negative consequences if I choose not to participate. In addition, I understand I may choose to stop participating in the study at any time, for any reason, and there will be no adverse consequences to me.

III. I understand the purpose and nature of the research study is to examine possible factors related to abstaining from alcohol use in those who have a history of alcohol problems or are in recovery from alcoholism. I also understand that this study is ***only*** interested in those persons whose primary substance of abuse has been alcohol.

IV. My participation in this study will consist of completing three questionnaires that will ask about the following areas: background information and experiences (e.g., age, occupation, education, alcohol/substance use history); how I relate to my thoughts and feelings; and my confidence in abstaining from alcohol use in various situations.

V. I understand that participation in this study will be confidential. I will not be asked to divulge any personally identifying information on any of the research forms or questionnaires. Any findings from this study that are published in professional journals or shared with other researchers will only involve group data with no personally identifying information included. The online surveys will also be configured not to disclose the IP address of survey respondents to the researcher. Security of the data will be maintained by password protecting the data files, as well as by storing the data on a password protected USB drive for 5 years after the study. The USB drive will be stored in a locked cabinet during this time, for which only the principal investigator will have the key. After 5 years of storing the data files, they will then be destroyed in a secure manner.

VI. My participation in this study will take approximately 20 to 30 minutes. I understand that the materials are written in English.

VII. I understand that there is no direct benefit to me for my participation in this research. However, I may feel a sense of satisfaction from contributing to a research study of those who have a history of alcohol problems or are in recovery from alcoholism. Findings from this study will not only potentially contribute to the scientific literature in this area, but also possibly assist in improving the effectiveness of relapse prevention treatment.

VIII. I understand that participation in this study involves no more than minimal risk. Such risk is similar to what is encountered in daily life or during the completion of routine psychological questionnaires. It is possible that I may experience some emotional discomfort in responding to certain questions about my experience in abstaining from alcohol use, or regarding how I relate to my thoughts and feelings. I understand that I am free to not answer any questions that I do not want to answer. I also understand that I may contact Chris Link, M.A. at alcoholresearchstudy2013@gmail.com or the dissertation chair, Daryl Rowe, Ph.D. at Daryl.Rowe@pepperdine.edu should I have any concerns that I wish to discuss further. Mental health and sobriety support resources will be provided following the questionnaire, whether or not it is completed, to assist with any distress that may arise.

IX. In the event that I have any questions regarding participation in this research project, I understand that I may also contact Doug Leigh, Ph.D., Chairperson of the Graduate and Professional Schools Institutional Review Board (GPS IRB), at Pepperdine University Graduate School of Education & Psychology, 6100 Center Drive, 5th Floor, Los Angeles, CA 90045, or by telephone at 310-568-2389, or at Doug.Leigh@pepperdine.edu.

X. I understand the information regarding participation in this research project. All of my questions have been answered to my satisfaction. I have read this informed consent document and I have understood it. I understand that I am free to print this Informed Consent document if I want to retain a copy. I hereby consent to participate in the research described above.

“I agree” (button for participants to click within survey)

If you do not wish to participate, you may close the browser window.

APPENDIX I

Mental health and Sobriety Support Resources

National Drug & Alcohol Treatment Hotline
800-662-HELP (4357)

Suicide & Crisis Hotline
1-800-999-9999

International World-Wide Suicide & Crisis Hotlines
http://www.suicidehotlines.com/international.html

APPENDIX J

Accompanying Tables

Table J1

Mindfulness means by level of self-efficacy (in coping with negative affect)

	Mindfulness	
Level of self-efficacy (in coping with negative affect)	N	M (SD)
Less than extremely confident	37	34.91 (5.91)
Extremely confident	67	38.83 (5.52)

Table J2

Mindfulness means by length of time abstinent

	Mindfulness	
Length of time abstinent	N	M (SD)
Less than 1 year	9	30.73 (7.01)
Between 1 and 10 years	31	37.90 (5.37)
Greater than 10 years	64	38.15 (5.54)

Table J3

Frequency distribution of length of time abstinent by level of self-efficacy (in coping with negative affect)

	Level of self-efficacy (in coping with negative affect)		
	Less than extremely confident	Extremely confident	
Length of time abstinent	n (% within abstinence)	n (% within abstinence)	Total
Less than 1 year	9 (100.0%)	0 (0.0%)	9
Between 1 and 10 years	13 (41.9.0%)	18 (58.1%)	31
Greater than 10 years	15 (23.4%)	49 (76.6%)	64
Total	37 (35.6%)	67 (64.4%)	104

Table J4

Frequency distribution of length of time abstinent by level of self-efficacy

	Level of self-efficacy		
	Less than extremely confident	Extremely confident	
Length of time abstinent	n (% within abstinence)	n (% within abstinence)	Total
Less than 1 year	9 (100.0%)	0 (0.0%)	9
Greater than 1 year	25 (26.3%)	70 (73.7%)	95
Total	34 (32.7%)	70 (67.3%)	104

Table J5

Mindfulness means by frequency of meditation

	Mindfulness	
Meditation Frequency	N	M (SD)
Infrequent Meditators	39	35.38 (6.27)
Frequent Meditators	65	38.66 (5.42)

APPENDIX K

Pearson Intercorrelations between Mindfulness, Self-efficacy (in coping with negative affect), and Length of Time Abstinent

	1	2	3
1. Mindfulness	--	.35**	.31**
2. Self-efficacy (in coping with negative affect)		--	.52**
3. Length of time abstinent			--

** Correlation is significant at the 0.01 level (2-tailed). $N = 104$.

APPENDIX L

IRB Approval Notice

PEPPERDINE UNIVERSITY

Graduate & Professional Schools Institutional Review Board

May 13, 2013

Christopher Link
[redacted]

Protocol #: P0413D04
Project Title: The relation between mindfulness and perceived self-efficacy towards coping with negative affect in recovering alcoholics

Dear Mr. Link,

Thank you for submitting your application, *The relation between mindfulness and perceived self-efficacy towards coping with negative affect in recovering alcoholics*, for expedited review to Pepperdine University's Graduate and Professional Schools Institutional Review Board (GPS IRB). The IRB appreciates the work you and your advisor, Daryl Rowe, completed on the proposal. The IRB has reviewed your submitted IRB application and all ancillary materials. As the nature of the research met the requirements for expedited review under provision Title 45 CFR 46.110 (Research Category 7) of the federal Protection of Human Subjects Act, the IRB conducted a formal, but expedited, review of your application materials.

I am pleased to inform you that your IRB application was granted **Approval** contingent upon receiving permissions from the moderators/gatekeepers of the support groups and websites from where you intend to recruit participants. Please submit the permission letter(s) to the GPS IRB before recruiting potential participants.

The IRB approval begins today, **May 13, 2013** and terminates on **May 13, 2014**. In addition, your application to waive documentation of informed consent, as indicated in your **Application for Waiver or Alteration of Informed Consent Procedures** form has been **approved.**

Your final consent form has been stamped by the IRB to indicate the expiration date of study approval. One copy of the consent form is enclosed with this letter and one copy will be retained for our records. **You can only use copies of the consent that have been stamped with the GPS IRB expiration date to obtain consent from your participants.**

Please note that your research must be conducted according to the proposal that was submitted to the GPS IRB. If changes to the approved protocol occur, a revised protocol must be reviewed and approved by the IRB before implementation. For ***any*** proposed changes in your research protocol, please submit a Request for Modification form to the GPS IRB. Please be aware that changes to your protocol may prevent the research from qualifying for expedited review and require submission of a new IRB application or other materials to the GPS IRB. If contact with subjects will extend beyond **May 13, 2014**, a **Continuation or Completion of Review Form** must be submitted at least one month prior to the expiration date of study approval to avoid a lapse in approval.

A goal of the IRB is to prevent negative occurrences during any research study. However, despite our best intent, unforeseen circumstances or events may arise during the research. If an unexpected situation or adverse event happens during your investigation, please notify the GPS IRB as soon as possible. We will ask for a complete explanation of the event and your response. Other actions also may be required depending on the nature of the event. Details regarding the timeframe in which adverse events must be reported to the GPS IRB and the appropriate form to be used to report this

information can be found in the *Pepperdine University Protection of Human Participants in Research Policies and Procedures Manual* (see link to "policy material" at [illegible]).

Please refer to the protocol number denoted above in all further communication or correspondence related to this approval. Should you have additional questions, please contact me. On behalf of the GPS IRB, I wish you success in this scholarly pursuit.

Sincerely,

Doug Leigh, Ph.D.
Chair, Graduate and Professional Schools IRB
Pepperdine University
Graduate School of Education & Psychology
6100 Center Dr. 5th Floor
Los Angeles, CA 90045
[illegible]
W: 310-568-2389
F: 310-568-5755

cc: Dr. Lee Kats, Vice Provost for Research and Strategic Initiatives
Ms. Alexandra Roosa, Director Research and Sponsored Programs
Dr. Daryl Rowe, Graduate School of Education and Psychology

APPENDIX M

Literature Review Table and References

Costs of Addiction					
Author/ Year/ Title	**Research Questions/ Objectives**	**Sample**	**Variables/ Instruments**	**Research Approach/Design**	**Major Findings**
Office of National Drug Control Policy (ONDCP). (2001). National household survey on drug abuse, 2001.	To release information from the 2001 National Household on Drug Abuse (NHSDA).	The NHSDA interview about 70,000 people age 12 years or older (in every state) over a 12-month period.	Drug abuse; national statistics.	Informational publication.	In the United States, the National Household Survey on Drug Abuse (2001) found that 15.9 million Americans age 12 and older used an illicit drug in the month immediately before the survey interview, and that 3.2 million were dependent on or abused illicit drugs. This estimate represents 7.1 percent of the population who are 12 years or older.
United Nations Office for Drug Control and Crime Prevention (UNODCCP). (2002). *Global illicit drug trends 2002*.	To provide data and information related to the global illicit drug problem.	Wide variety of samples and sampling methods were utilized.	Global illicit drug use.	Informational publication.	According to the United Nations Office for Drug Control and Crime Prevention (UNODCCP), there are approximately 185 million people worldwide who are current drug users. They estimate that 147 million are cannabis users, 33 million use amphetamines, 7 million use Ecstasy, 13 million use cocaine, and 13 million use opiates.
National Institute on Drug Abuse (NIDA). (2007). Drugs, brains, and behavior: The science of	To present information that helps reveal connections between drug addiction and the brain.	Not applicable.	Drug addiction; brain changes; behavior.	Informational publication.	The National Institute on Drug Abuse (NIDA) estimates the relapse rate for drug addiction to be between 40% and 60%. Chronic drug abuse can alter the neurochemistry of one's reward circuitry within the brain, contributing to an experience of decreased enjoyment for activities that used to be more enjoyable. However, increasing use of drugs tends to

addiction.					contribute to heightened levels of enjoyment and pleasure that can then be very reinforcing.
Dawson, D.A., Goldstein, R. B., & Grant, B. F. (2007). Rates and correlates of relapse among individuals in remission from DSM-IV alcohol dependence: A 3-year follow-up.	To examine longitudinal changes in recovery status among individuals in remission from alcohol dependence, including rates and correlates of relapse.	2,109 individuals who met criteria for full remission from alcohol dependence.	DSM-IV Alcohol Abuse and Dependence; Recovery Status.	Secondary data analysis; logistic regression models.	Findings show that for those recovering specifically from alcohol dependence, approximately 40% and 60% appear to relapse during the first few months after treatment. Moreover, this number can climb to as high as 70 to 80% by end of the first year after treatment.
Office of National Drug Control Policy (ONDCP). (2004). The economic costs of drug abuse in the United States, 1992-2002.	To provide more current estimates of the societal costs of drug abuse.	Wide variety of samples and sampling methods were utilized.	Drug abuse; societal costs.	Informational publication.	The economic cost of drug abuse in 2002 for the United States was estimated to be at $180.9 billion, an increase of $73.3 billion from 1992. The costs of drug abuse have increased an average 5.3 percent per year from 1992 to 2002.
National Institute on Drug Abuse (NIDA). (2006). Principles of drug abuse treatment for criminal justice populations: A research- based guide.	To release a publication that presents key principles of drug abuse treatment for the criminal justice populations.	Not applicable.	Drug abuse treatment; criminal justice populations.	Informational publication.	Publication describes how the estimated cost of treating drug abuse in 2007 was estimated to be $14.6 billion, an amount that may seem large, but is really only a fraction of the overall societal costs. The overall cost to society of drug abuse was estimated to be $193 billion.

Harwood, H. (2000). Updating estimates of the economic cost of alcohol abuse: Estimates, updating methods, and data.	To provide updated estimates of the economic costs of alcohol abuse in the United States.	Not reported.	Not applicable.	Secondary data analysis.	Article reports that the annual economic cost of alcohol abuse in the United States, according to the National Institute on Alcohol Abuse and Alcoholism, is estimated to be at $184.6 billion in 1998.
Hasin, D.S., Stinson, F.S., Ogburn, E., & Grant, B.F. (2007). Prevalence, correlates, disability, and comorbidity of DSM-IV alcohol abuse and dependence in the United States.	To present nationally representative findings on the prevalence, correlates, psychiatric comorbidity, and treatment of DSM-IV alcohol abuse and dependence.	A sample of 43, 093 U.S. adults.	Lifetime and 12-month DSM-IV alcohol abuse and dependence.	Correlational.	This article describes the relatively high prevalence of both lifetime and 12-month alcohol abuse (17.8% and 4.7%, respectively) and dependence (12.5% and 3.8%, respectively) among those in the United States.
Bouchery, E.E., Harwood, H.J., Sacks, J.J., Simon, C.J., & Brewer, R.D. (2011). Economic costs of excessive alcohol consumption in the U.S., 2006.	To update prior national estimates of the economic costs of excessive drinking.	Obtained from national databases.	Costs for health care, productivity losses, and other effects.	Secondary data analysis.	This study examined the economic cost of excessive drinking for the United States in 2006 and estimated it to be $223.5 billion. On a per capita basis, the economic cost of excessive alcohol consumption in the U.S. is approximately $746 per person.

Theories and Treatment Protocols for Relapse Prevention					
Author/ Year/ Title	**Research Questions/ Objectives**	**Sample**	**Variables/ Instruments**	**Research Approach/Design**	**Major Findings**
Welsh, C.J., & Liberto, J. (2001). The use of medication for relapse prevention in substance dependence disorders.	Provide a review of the literature concerning the use of medication to prevent relapse of substance use.	Not applicable.	Pharmacological management of relapse prevention.	Literature review.	Pharmacological management of relapse prevention has become increasingly popular and is often paired with psychosocial treatments. There are at least five different strategies commonly utilized in the pharmacological treatment of addictions: "agonist" or "substitution" therapy, blocking or decreasing the effects of the drug of concern through the use of receptor antagonists, the use of medication that produces a conditioned aversive reaction to the substance of concern, the use of medication to reduce the reinforcing properties of the substance of concern, and the use of medication to increase the metabolism or elimination of the substance of concern from the body.
Meyers, R.J., Apodaca, T.R., Flicker, S.M., & Slesnick, N. (2002). Evidence-based approaches for the treatment of substance abusers by involving family members.	Identify empirically supported family-oriented interventions to substance use.	Not applicable.	Substance abuse treatment; family/marital therapy.	Literature review.	Describes various family/relational approaches for substance abuse. Community reinforcement and family training (CRAFT) operates on the assumption that family members can play a powerful role in helping to engage a resistant loved one into therapy. It uses an overall positive, non-confrontational approach that emphasizes learning new skills to cope with old problems. Marital/couples therapy is based on the assumption that marital factors contribute to the development and maintenance of substance abuse problems, as well as contribute to relapse. By including both the substance abuser and non-using spouse in treatment, the therapist attempts to change the maladaptive marital patterns and thereby decrease substance use. Family therapy, an approach that has become

					increasingly popular, assumes that addiction often develops within a family context and can be maintained or worsened by family interactive processes. Substance abuse is a type of problem that can reflect dysfunction in the family system as a whole. Consequently, many researchers and clinicians consider family therapy to be an essential element in successful substance abuse treatment, as well as relapse prevention.
Ramanathan, C.S., & Reischl, T.M. (1999). Innovative approaches to predicting and preventing addiction relapse.	To present research findings that support the development of a working theoretical model with critical variables and causal pathways that affect addiction relapse.	Not applicable.	Relapse prevention; alcoholism.	Theoretical formulation.	The review discusses how addiction recovery support groups, which are weekly support groups, are another type of common intervention used. These groups focus on improving the group member's coping skills and self-efficacy, as well as convey accurate substance use expectancies. They typically meet in a community setting for 10 weeks in small groups of 8 to 10 persons, where they focus on strategies for promoting self-efficacy in coping responses and also developing a clear understanding of the negative consequences that come with substance use. Each session should be led by a professionally trained human service worker.
Wells, E.A., Peterson, P.L., Gainey, R.R., Hawkins, J.D., & Catalano, R.F. (1994). Outpatient treatment for cocaine abuse: A controlled comparison of relapse prevention and twelve-step approaches.	To assess the efficacy of treatment for cocaine abuse and to compare the effectiveness of a CBT relapse prevention with that of a 12-step recovery support group.	110 participants seeking treatment.	Drug use; ASI.	Experimental.	Authors talk about how the twelve-step treatment model is another well-known recovery support group and how it focuses on surrendering to a higher power. Results revealed no differential effect of treatment type on cocaine or marijuana use, yet participants in both conditions reduced use. Both conditions also showed reduced alcohol use from pre- to post-treatment. Those in 12-step group showed greater increase from post-treatment to 6-month follow-up in alcohol use than did those in the relapse prevention condition.

Franken, I.H.A., De Haan, H.A., Van der Meer, C.W., Haffmans, P. M.J., & Hendriks, V.M. (1999). Cue ractivity and effects of cue exposure in abstinent posttreatment drug users.	Examine the occurrence and nature of cue reactivity in subjects who have been treated for drug dependence.	16 detoxified opiate-addicted patients who previously completed intensive inpatient treatment.	Craving scale; profile of mood states; physical symptoms checklist.	Experimental.	CET consists of a protocolized, repeated, exposure to drug-related cues, in an attempt to reduce cue reactivity by extinction. Cue reactivity to drug-related stimuli is a frequently observed phenomenon in drug-dependent individuals, where they have physiological and/or subjective reactions to drug-related stimuli that they have been classically conditioned to. Subjective reactions can come in the form of cravings to use the drug of choice, subjective withdrawal symptoms, subjective drug-agonistic effects, mood swings, and anxiety. Physiological reactions can include skin conductance, heart rate, salivation, and body temperature. Findings from this study found that prior to CET, cue reactivity was still present among 16 detoxified opiate-addicted patients after 12 months of intensive inpatient treatment. Yet after participants went through CET, cue reactivity reduced, and this effect maintained for (at least) six weeks after the final CET session.
Bernaldo de Quirós Aragón, M., Labrador, F. J., & De Arce, F. (2005). Evaluation of a group cue-exposure treatment for opiate addicts.	Evaluate efficacy of a group cue-exposure treatment to reduce or extinguish classically conditioned responses to drug-related stimuli.	24 detoxified opiate addicts	Psychophysiological responses and subjective measures (subjective craving; PANAS).	Experimental design.	This study demonstrated the effectiveness of a group cue exposure treatment in significantly reducing conditioned responses to drug-related stimuli for opiate addicts, as measured by skin conductance level (SCL) and positive affect.
Conklin, C.A., & Tiffany, S.T. (2002). Applying extinction research and	To evaluate the efficacy of cue-exposure addiction treatment and to review modern animal learning	9 cue-exposure addiction treatment outcome studies.	Not applicable.	Meta-analysis.	Results found no consistent evidence for the efficacy of cue exposure treatment. They also found that procedures derived from the animal learning literature that should maximize the potential of extinction training are hardly ever used in cue exposure treatments.

theory to cue-exposure addiction treatments.	research in order to create recommendations to enhance this treatment.				
Corty, E.W., & Coon, B. (1995). The extinctions of naturally occurring conditioned reactions in psychoactive substance users: Analog studies.	To develop an analog approach to the study of the conditioned reactions to drug stimuli.	30 men in a residential center for alcohol and drug dependency.	Amount of salivation.	Experimental; within subjects design, repeated measure.	Findings showed that conditioned reactions can be extinguished, that spontaneous recovery occurs (when conditioned drug responses or cue reactivity reoccur when drug related cues are presented a long interval after the responses had apparently been extinguished), and that conditioned reaction increases after "relapse." Also showed that massed extinction trials lead to greater extinction than do spaced trials.
Farabee, D., Rawson, R., & McCann, M. (2002). Adoption of drug avoidance activities among patients in contingency management and cognitive-behavioral treatments.	To assess differences in the effects of CBT and non-CBT treatments (such as contingency management and methadone maintenance) on substance use outcomes.	97 cocaine-dependent subjects.	Urinalysis; ASI; DAA.	Experimental.	Contingency management (CM) is based on the application of operant conditioning principles to drug-use behavior. These techniques generate a system of incentives and disincentives to motivate behavior change. A common form of this is the issuing of vouchers redeemable for goods and services as a reward for demonstrating acquisition of treatment goals. CM has shown itself to be successful in drug-free (non-methadone) outpatient treatment, as well as in methadone clinic settings. While it has traditionally focused on reinforcing abstinence, it has also been used to increase the frequency of positive, non-drug-related behaviors. However, findings from this study revealed that those who were exposed to CBT reported more frequent use of drug-use avoidance activities than did those assigned to either the CM or control conditions, providing support for CBT as a more effective treatment.
Marlatt, G. A., & Donovan, D. M. (2005).	To provide a review of maintenance	Not applicable.	Relapse prevention; addictive behaviors.	Review of the literature and presentation of	The authors discuss how one of the major downsides of contingency management is that it does not specifically address intrinsic

Relapse prevention: Maintenance strategies in the treatment of addictive behaviors (2nd ed.).	strategies in the treatment of addictive behaviors, which includes presenting their own model/treatment for relapse prevention.			theoretical treatment approach.	motivation. Two forms of therapy that do address intrinsic motivation in order to facilitate change in drug-using behavior are motivational enhancement therapy (MET) and motivational interviewing (MI); they have been shown to enhance self-efficacy and increase stage of change movement, as well as positive outcome expectancies and reduced relapse. Perhaps the most recognized and empirically-tested cognitive-behavioral model of relapse is known as Relapse Prevention (RP), which was originated by G. Alan Marlatt in 1978. This model focuses on the individual's response in a high-risk situation and describes how if the individual is not able to use an effective coping strategy, it will lead to increased probability of substance use. While the use of techniques and interventions for RP can vary with the setting, population, and specific "version" used, there are general similarities found throughout RP treatments. Treatment approaches are comparatively brief, but highly structured. They are organized closely around well-specified treatment goals and have an articulated agenda for each session, where discussion remains focused on issues related to substance use. Progress toward treatment goals is monitored closely and frequently, and the therapist takes an active stance throughout treatment. Treatments are often scheduled into thirds (the "20/20/20" rule), where the first third involves assessment of substance use and general functioning in the past week for the patient, the second third is devoted to skills training and practice, and the final third focuses on planning for the week ahead and discussing how to implement the newly acquired skills into real settings. Another common and vital aspect of RP

					treatment is identifying high-risk situations for relapse (environmental stressors, personality characteristics, etc.). The authors describe how negative affect is one such situation and refer to findings from Marlatt and Gordon's (1980), which was an original qualitative investigation of relapse episodes, where they found negative emotional state to be the strongest predictor or relapse in a sample of male alcoholics (37% of the sample reported that negative affect was the primary relapse trigger). Treatment also focuses on monitoring coping skills, self-efficacy, and lifestyle factors, which may increase the probability of an individual being in a high-risk situation. Once these potential relapse triggers and high-risk situations are identified, the therapist implements cognitive and behavioral interventions, such as coping strategies, enhancing self-efficacy, and encouraging mastery over successful outcomes. A large component of RP is educationally-oriented, in that the therapist tries to cognitively restructure the client's misperceptions and maladaptive thoughts. This can consist of challenging myths related to positive outcome expectancies of taking the drug, discussing the abstinence violation effect, as well as generally preparing clients for the possibility of relapse. Since the probability of having a lapse is high for recovering drug addicts, it is critical to restructure clients' negative thoughts about lapses, and make them realize that lapses are just part of the process in the road to recovery. In addition, RP focuses on trying to maintain a lifestyle balance for the client. One way of doing this is helping them reduce stressors through relaxation exercises, as well as increase pleasurable activities. Once all of this is in place, the therapist can then work with the

					client in developing a "relapse road map," which maps out possible scenarios that help prepare the client for navigating high-risk situations and utilizing the appropriate coping responses. This primarily serves to help enhance self-efficacy and prevent lapses. Practicing new skills outside of sessions is generally seen as an integral part of RP treatment approaches as well. In terms of RP's efficacy, the authors describe how the National Institute of Drug Abuse (NIDA) conducted two studies with cannabis users that demonstrated relapse prevention to be an effective form of treatment.
Miller, W.R., & Rollnick, S. (2002). *Motivational interviewing: Preparing people for change* (2nd ed.).	To provide a detailed description of motivational interviewing, including how to implement it as a clinical intervention.	Not applicable.	Motivational interviewing; behavior change.	Review of the literature and presentation of theoretical treatment approach.	The authors describe how motivational interviewing (MI) involves attention to natural language about change, which can lead to more effective conversations about it, and ultimately enhance intrinsic motivation for change. It consists of a mixture of motivational psychology, client-centered therapy, and process of change, and is focused on reducing harmful behaviors.
McCracken, S.G., Holmes, E.P., & Corrigan, P.W. (1998). Cognitive behavioral strategies for persons with mental illness and substance abuse problems.	Presented two models to organize the cognitive-behavioral approaches to treatment of the addictions.	Not applicable.	Cognitive-behavioral therapy; stages of change; relapse.	Theoretical formulation.	CBT is based on the basic assumption that by cognitively altering or restructuring a patient's maladaptive cognitions, it can lead to an improvement in their behavior. One type of CBT technique that has more of a focus on the patient's behaviors is called behavioral chaining. This involves the therapist and client working backwards from a recent lapse in an attempt to identify any early triggers or cues to their drug use. It basically serves as a cognitive road map that enables the client and therapist to identify points in the chain where an alternative behavior could have been used to prevent the drug use from occurring.

Knight, K., Simpson, D. D., Dansereau, D.F. (1994). Knowledge mapping: A psychoeducational tool in drug abuse relapse prevention training.	Examined the effectiveness of relapse prevention training (RPT), a part of an outpatient drug education program.	83 drug addicted probationers.	RPT Manual; Knowledge Map Supplements.	Experimental.	Knowledge mapping uses graphical presentations of information in a node-link-node format that is intended to enhance communication effectiveness and help facilitate the understanding of how the client's personal behavior and attitudes are related to his or her drug use. Program participation improved during the use of RPT. Participants in the RPT program also scored higher on knowledge tests administered after each lesson.
Witkiewitz, K., Marlatt, G.A., & Walker, D. (2005). Mindfulness-based relapse prevention for alcohol and substance use disorders.	To describe an approach to alcohol and drug problems called mindfulness-based relapse prevention and to gather preliminary data on the effects of Vipassana meditation in reducing alcohol/substance use.	29 participants in the 10-day Vipassana meditation course and 59 participants in the control group. Participants were inmates from a minimal security rehab center, many of whom were heavy alcohol and substance abusers.	Drug Abuse Severity Test; Average number of drinks per week; Average marijuana, powder cocaine, and crack cocaine use per week; Drinking-related locus of control, Drinking-related consequences (Short Inventory of Problems); Optimism (Life Orientation Test), and Thought suppression (White Bear Suppression Inventory).	-Literature review and theoretical formulation, as well as quasi-experimental design.	The authors describe how the main goal of mindfulness-based relapse prevention is to develop awareness and acceptance of thoughts, feelings, and sensations thru practicing mindfulness, and to employ these mindfulness skills as an effective coping strategy during high-risk situations. Education about cravings and instruction on the application of mindfulness skills on the experience of craving is an essential tool in developing awareness and acceptance of psychological and physiological reactions to substance withdrawal. Specific relapse prevention strategies (teaching effective coping skills, enhancing self-efficacy, etc.) can be used in combination with regular mindfulness practice to provide an opportunity to form an association b/w being mindful with implementation of relapse prevention skills. Mindfulness provides clients with a new way of processing situational cues and monitoring one's reaction to environmental contingencies. Repeated exposure to being mindful in high-risk situations without submitting to the urge to use substances or act impulsively on substance-related cues will lead to increased self-efficacy and the counter-conditioning of positive and negative reinforcement previously associated with the effects of an addictive

					substance. Challenging positive outcome expectancies and educating about the abstinence violation effect will remain a major focus of the Tx. The idea of maintaining one's focus on the present moment, which is central to mindfulness, compliments these concepts very well. Self-efficacy will also build by praising clients for their efforts, validating the challenge of mindfulness practice, and recognizing the small increments toward positive change. Preliminary data demonstrates initial support for the effectiveness of one type of mindfulness practice (Vipassana meditation) in reducing alcohol and drug use, and substance use-related problems: Ss showed significant improvements from pre-course to 3-month follow-up on the Drug Abuse Severity Test, average number of drinks per week, average marijuana, powder cocaine, and crack cocaine use per week, drinking-related locus of control, drinking-related consequences, optimism, and thought suppression The control group also demonstrated significant improvements in average marijuana use per week and thought suppression. Significant time by Tx interactions over the 3-month period demonstrated the marked improvement in the Vipassana group compared to the control group on the drug abuse severity test, average weekly drug use, including peak weekly marijuana and powder cocaine use, and optimism.

Larimer, M. E., Palmer, R. S., & Marlatt, G. A. (1999). Relapse prevention: An overview of Marlatt's cognitive-behavioral model.	Provides a theoretical explanation for the relapse process and strategizes/conceptualizes the appropriate places to intervene to improve relapse prevention.	Not applicable.	High risk situations; coping responses; self-efficacy.	Theoretical model formulation.	Model proposes that: Immediate determinants (e.g., high-risk situations, coping skills, outcome expectancies, and the abstinence violation effect) and covert antecedents (e.g., lifestyle factors and urges and cravings) can contribute to relapse. Specific strategies for intervention are: Identifying specific high-risk situations and enhancing the client's skills for those situations, increasing the client's self-efficacy, eliminating myths regarding alcohol's effects, managing lapses, and restructuring the client's perceptions of the relapse process. Global strategies for intervention: Balancing client's lifestyle and helping him or her develop positive addictions, employing stimulus control techniques and urge-management techniques and developing relapse road maps. Research that has evaluated this model suggests that some modifications may be necessary (the assessment of high-risk situations and conceptualization of covert and immediate antecedents of relapse, e.g.). In general, the research findings overall provide support for the model of the relapse process and the effectiveness of the Tx strategies based on the model.
Empirical Support for Marlatt's Relapse Prevention					
Author/ Year/ Title	**Research Questions/ Objectives**	**Sample**	**Variables/ Instruments**	**Research Approach/Design**	**Major Findings**
Carroll, K.M., Fenton, L. R., Ball, S.A., Nich, C., Frankforter, T.L., Shi, J., & Rounsaville, B. J. (2004).	Compare the effectiveness of disulfiram therapy with that of placebo condition in reducing cocaine use and compare the effectiveness of	121 individuals meeting criteria for cocaine dependence.	Frequency of cocaine use; urine toxicology screens.	2 X 2 factorial design study.	Provides empirical support for Marlatt's relapse prevention, as it showed it to be more effective when compared to interpersonal therapy (IPT). Across all outcome measures, patients assigned to the CBT (RP) condition, reduced their cocaine use significantly more than those assigned to IPT, and patients assigned to disulfiram reduced their cocaine

Efficacy of disulfiram and cognitive behavior therapy in cocaine-dependent outpatients.	2 active behavioral therapies (CPT and IPT) in reducing cocaine use.				use significantly more than those in the placebo conditions.
Schmitz, J.M., Stotts, A.L., Rhoades, H.M., & Grabowski, J. (2001). Naltrexone and relapse prevention treatment for cocaine-dependent patients.	Evaluate the relative effectiveness of pharmacotherapy (naltrexone) and psychotherapy (RP therapy), as well as the potential benefits of combining the two modalities.	85 ambulatory cocaine-dependent participants, enrolled in the Tx study after completing intake and detox program.	Structured Clinical Interview for DSM-IV, Addiction Severity Index, Clinical Global Impression of Improvement Scale, Cocaine Craving Scale, Side Effects Checklist, Drug-taking Confidence Questionnaire, self-report of involvement in outside support group; assessment of cocaine use (DV) conducted weekly thru urine tests; measures given at intake and posttreatment (some given weekly during Tx as well).	Factorial design; double-blind, placebo-controlled.	Another form of combination treatment involving RP is pairing it with pharmacotherapy. This study examined RP in conjunction with naltrexone for cocaine addicts. They conducted a double-blind, placebo-controlled, study with 85 cocaine-dependent participants. The therapy consisted of a 12 week outpatient treatment (either RP or standard drug counseling) and (50 mg of naltrexone or placebo). The results indicated a significant interaction, where those in the RP/naltrexone condition had significantly fewer cocaine-positive urine samples than participants in the other conditions.
Gonzalez, V.M., Schmitz, J.M., & DeLaune, K.A. (2006). The role of homework in cognitive-behavioral therapy for cocaine	Examine the effect of homework compliance on treatment outcome during relapse prevention (RP) therapy.	123 participants receiving RP for cocaine dependence.	SCID-IV; URICA; completion of homework; urine specimens.	Correlational.	This study examined the effect of homework compliance on treatment outcome for those receiving RP. Homework consisted of self-monitoring of urges, coping strategies, and drug use, as well as practicing coping skills, among other things. Regression analysis revealed a significant relationship between homework compliance and cocaine use that was moderated by readiness to change, in that homework compliance predicted less cocaine use during treatment, but only for those

dependence.					participants higher in readiness to change. These results provide support for one of the common interventions (homework) utilized in the RP protocol.
Carroll, K.M. (1996). Relapse prevention as a psychosocial treatment: A review of controlled clinical trials.	Sought to evaluate the efficacy of Marlatt's relapse prevention treatment.	24 randomized controlled trials that evaluated the Tx approach of "relapse prevention" or evaluated a coping skills approach that explicitly utilized the work of Marlatt.	Evaluated substance use outcomes among adult smokers, alcohol, cocaine, marijuana, and other types of substance abusers.	Meta-analysis.	Found that RP is at least as effective as other treatments, but not significantly better than alternative treatments, both at post-treatment and follow-up. She also found that it is most effective when treating smoking and when treating the more severe cases of addiction in general. Also found that RP seems to be more effective when used in conjunction with pharmacological treatments. Carroll reported the concept of a "delayed emergence effect," where the true effects of RP may not show up in patients until a significant time has passed since treatment. Carroll suggests that this effect may be occurring due to sustained or continuing improvement associated with the implementation of learned coping skills thru RP treatment.
Irvin, J.E., Bowers, C.A., Dunn, M.E., & Wang, M.C. (1999). Efficacy of relapse prevention: A meta-analytic review.	Perform a meta-analysis to assess for the overall effectiveness of Marlatt and Gordon's (1985) relapse prevention (RP) and the extent to which certain variables may relate to Tx outome.	26 published (22) and unpublished (4) studies with 70 hypothesis tests representing a sample of 9,504 participants.	Substance use and overall psychosocial adjustment (e.g., clients' ratings of the severity of their problem, marital adjustment, acquisition of cognitive and behavioral coping and problem-solving skills to avoid relapse, self-efficacy, locus of control, and depression).	Meta-analysis.	Irvin found that RP is most effective when treating alcohol, which indicates, along with Carroll's finding regarding smoking, that RP may be most effective with licit substances. Interestingly enough, though, Irvin also found that RP is most effective when used to treat polysubstance use disorders. Considering that those with addictions to multiple substances often constitute some of the more extreme cases of substance abuse, this finding seems to agree with what Carroll discovered regarding its effectiveness with severe cases as well. Both studies found that RP seems to be more effective when used in conjunction with pharmacological treatments.

High-risk Situations and Predictors of Relapse					
Author/ Year/ Title	**Research Questions/ Objectives**	**Sample**	**Variables/ Instruments**	**Research Approach/Design**	**Major Findings**
Marlatt, G.A. (1996). Taxonomy of high-risk situations for alcohol relapse: evolution and development of a cognitive-behavioral model.	Provide historical overview of the development of the taxonomy of high-risk situations for relapse in patients receiving abstinence-based treatment for alcoholism.	137 participants from treatment programs (70 male chronic alcoholics, 35 heroin addicts, and 35 smokers).	Four open-ended questions derived from Drinking Profile follow-up interview (Marlatt, 1976): used for both preliminary and expanded taxonomy.	Review of support for Marlatt's taxonomy of high-risk situations and theoretical basis for his cognitive model.	Marlatt created a preliminary taxonomy for alcoholism relapse, where he attempted to identify common categories of high-risk determinants for relapse. His initial taxonomy of high-risk situations consisted of five different categories: frustration and anger, social pressure, intrapersonal temptation, negative emotional state, and miscellaneous other situations. This taxonomy was later revised and expanded by him into eight categories, which were organized into one of two major classes: intrapersonal-environmental determinants and interpersonal determinants. Intrapersonal-environmental determinants refer to an individual's response to factors that cannot be attributed to another person or group. Such determinants primarily consist of psychological, physical, or even environmental events, where the influence does not come directly from other individuals. Interpersonal determinants, however, refer to situations where the significant influence can be attributed to other individuals' involvement. Within these two major classes, the eight subcategories consisted of five within the intrapersonal-environmental determinants category and three within the interpersonal category. The five intrapersonal-environmental subcategories were: coping with negative emotional states, coping with negative physical-physiological states, enhancement of positive emotional states, testing personal control, and giving into temptation or urges. Within the interpersonal category, the three

					subcategories consisted of: coping with interpersonal conflict, social pressure, and enhancement of positive emotional states.
Lowman, C., Allen, J., Stout, R.L. (1996). Replication and extension of Marlatt's taxonomy of relapse precipitants: overview of procedures and results.	Summarize the results of the Relapse Replication and Extension and Project (RREP), where Marlatt's taxonomy of high-risk situations was tested for reliability and validity.	563 Ss from 15 sites that offered a variety of approaches to alcoholism Tx (criteria: 18 yo, met diagnostic criteria for abuse or dependence w/in past 6 mo., no co-morbid severe drug or psychiatric Dx, able to read at 8th grade level).	Alcohol Dependence Scale, BAI, BDI, Comprehensive Drinker Profile, Coping Behavior Inventory, Diagnostic Interview Schedule-Revised, Effectiveness of Coping Behavior Inventory, and Form 90.	Replication study.	Their results demonstrated the taxonomy to have highly variable reliability with respect to most of the categories. However, one category in particular, negative emotional states was revealed to have consistently high reliability. In fact, the findings of this study concurred with Marlatt's original findings, where negative emotional states and exposure to social pressure to drink were the most commonly identified high-risk situations for relapse. An alternative taxonomy provided little more predictive validity than Marlatt's original taxonomy even though it measured more dimensions of relapse prevention and provided greater analytic flexibility. Reasons for Drinking Questionnaire seemed to be a successful psychometric transformation of Marlatt's taxonomy and one that did demonstrate predictive validity. Coping responses are noted to be effective predictors of relapse under both time-intensive (Marlatt) and time-extensive (RREP) models.
Tate, S.R., Brown, S.A., Glasner, S.V., Unrod, M., & McQuaid, J.R. (2006). Chronic life stress, acute stress events, and substance availability in relapse.	Compare alternative relapse models that integrate a reported contextual precipitant (substance availability), chronic stressors, and recent stressful life events, as well as examine how these risk factors impact	Sample consisted of 102 substance-dependent veterans enrolled in the Alcohol and Drug Treatment Programs and Mental Health Programs at the VA San Diego Healthcare	Semi-structured assessment for the genetics of alcoholism, lifetime version, timeline follow back (measures alcohol and drug use for the 3 months prior to Tx), assessment of substance availability (contextual cue assessment and open-ended questions), life events assessment, Psychiatric	Correlational.	Severe chronic stressors (more than 5 times as likely compared to those who did not experience such stress) and substance availability (more than threefold compared to successful avoidance of use observed in "near miss"episodes) predicted an increased risk of initiating substance use posttreatment. Chronic stressors and immediate substance availability were associated with less prolonged substance use (i.e., chronic stressors were associated with fewer days of substance use over the next month; drinking in the context of substance availability was related to less drinking than those who resumed use w/o alcohol present in

	characteristics of posttreatment substance use.	System. They also must have used alcohol and/or drugs w/in previous 3 months and must have endorsed the goal of future abstinence.	Epidemiology Research Interview (PERI), & semi-structured interview.		the immediate context, in that they had seek it out). Substance availability also predicted fewer total drinks consumed. Unlike chronic stressors, recent stressful life events were not predictive of posttreatment substance initiation or severity. Findings support a model were chronic stressors and substance availability independently contribute to the risk of alcohol or drug use following Tx
Bottlender, M., & Soyka, M. (2005b). Outpatient alcoholism treatment: Predictors of outcome after 3 years.	Investigated predictors of relapse 3 years after completion of an intensive outpatient treatment program for alcoholism.	103 alcohol-dependent who were taking part in an outpatient treatment program.	BDI; STAI; OCDS.	Correlational.	The strongest predictor found for relapse after treatment was treatment drop-out. Women were also found to be at an increased risk for relapse.
Oslin, D.W., Cary, M., Slaymaker, V., Colleran, C., & Blow, F.C. (2009). Daily ratings measures of alcohol craving during an inpatient stay define subtypes of alcohol addiction that predict subsequent risk for resumption of drinking.	The purpose was to examine the course of affective symptoms and cravings for alcohol use during the initial 25 days of residential treatment for alcoholism, as well as examine the relationship between these symptoms and recovery outcomes.	95 alcohol-dependent participants.	MINI; Form 90; OCDS; SIPs; SF-12; PHQ9; POMS; PANAS; Penn Alcohol Craving.	Latency analysis; correlational.	Results revealed three different groups of individuals for craving types (elevated cravings throughout, initially elevated cravings but then slight improvement, and relatively low cravings throughout). Alcohol craving class was associated with negative affect. The authors contend that their findings from this study suggest that non-cue induced alcohol craving may define a subtype of alcohol dependence that is less responsive to treatment and could explain heterogeneity in treatment outcomes.

Negative Affect as a Predictor of Relapse					
Author/ Year/Title	**Research Questions/ Objectives**	**Sample**	**Variables/ Instruments**	**Research Approach/Design**	**Major Findings**
Baker, T.B., Piper, M.E., McCarthy, D.E., Majeskie, M.R., & Fiore, M.C. (2004). Addiction motivational reformulated: An affective processing model of negative reinforcement.	To provide a reformulation of the negative reinforcement model of drug addiction.	Not applicable.	Negative reinforcement; drug addiction.	Theoretical model formulation.	Negative affect has been identified by numerous studies as an incredibly potent trigger for relapse. Their model purports that drug addiction is negatively reinforced by the escape and avoidance of negative affect. They portend that negative affect is common among the withdrawal symptoms of all addictive agents, and that not only is it a universal element of withdrawal, but evidence suggests it is the motivationally predominant element as well. They further assert that as a consequence, the aversiveness of the withdrawal syndrome prompts drug self-administration, which is then rapidly and efficiently alleviated by the drugs. Furthermore, the addicted individual learns to detect the interoceptive (internal) cues of negative affect whenever drug levels begin to decline in the body, which can occur on a preconscious level, biasing response options and prompting drug-use routines. In other words, the individual may be aware of their desire to take drugs, but he or she is typically unaware of the motivational impetus. They also assert that, in addition to drug use occurring as a proceduralized motivational processing routine, which occurs at low levels of affect, interruptions in drug use or the occurrence of significant stressors will both produce strong negative affect that can prompt renewed drug use as well. They maintain that high levels of negative affect tend to both increase levels of hot information processing and decrease the amount and influence of cool

					information processing. They assert that cognitive control resources are most likely to influence drug use at moderate levels of negative affect. However, they also point out that even those who are able to access their cognitive resources, may not necessarily be able to abstain from drug use, as declarative memory and controlled processes may often be "corrupted," as a means of promoting or rationalizing drug use. According to their model, this will occur "because negative affect, even at moderate levels, is aversive and intrinsically primes escape and avoidance strategies when they are available."
Baker, T.B., Japuntich, S.J., Hogle, J.M., McCarthy, D.E., & Curtin, J.J. (2006). Pharmacologic and behavioral withdrawal from addictive drugs.	To present model detailing how pharmacologic and behavioral withdrawal can prompt drug use and relapse.	Not applicable.	Pharmacologic and behavioral withdrawal from addictive drugs.	Critical literature review and theoretical formulation.	Authors contend that recovering addicts undergo both pharmacologic and behavioral withdrawal when trying to remain abstinent. Researchers should focus on a subset of withdrawal symptoms that possess motivational relevance: negative affect and urges. When recovering addicts stop using drugs, they withdraw from both the drug molecule and from the self-administration ritual. The absence of the self-administration ritual exacerbates negative affect and urges, making such symptoms prolonged and intense.
Connors, G.J., Longabaugh, R., & Miller, W.R. (1996). Clinical commentary on replications and extensions of Marlatt's relapse research: Looking forward and back to relapse:	To summarize the prominent clinical and research implications of the Relapse Replication and Extension Project (RREP).	Original RREP study had 563 clients.	Key concepts include: Marlatt's RP, reliability, validity, antecedents, attributions, and coping.	Review/commentary on research implications of RREP.	It was found to be difficult to achieve reliability of coding with the original three-level system, although with only two levels of classification, more reasonable albeit variable reliability was found; this was found under the best research conditions with extensive training and practice. While modifications may improve the taxonomy's reliability, RREP data suggests that a better strategy is to measure possible antecedents of relapse by continuous scales. The data suggests that there is reasonably consistent evidence for two common antecedents of relapse: negative emotional states and positive emotional states

Implications for research and practice.					in a social context. There appears to be a stronger relationship for women than men between negative emotions and relapse. Negative affect emerged not only as a frequently reported antecedent in the retrospective taxonomy, but also as a principal component derived from relapse scales and a prospective predictor of drinking. Thus, mood monitoring may be a good tool for detecting impending relapse. Antecedents of relapse demonstrate only modest consistency within individuals from one occasion to the next. The attributions clients make regarding the causes of relapses may exert a significant effect on future drinking episodes. Stable and internal attributions (like those that are often associated with a dispositional disease model) may serve to perpetuate relapse. RREP studies suggest that the availability of coping skills appears to be a strong protective factor, and ineffective coping, a consistent predictor of relapse. Prospectively measured events were more reliable predictors of relapse than were retrospective categories of antecedents.
Cannon, D. S., Rubin, A., Keefe, C. K., Black, J. L., Leeka, J. K., & Phillips, L. A. (1992). Affective correlates of alcohol and cocaine use.	Investigated the affective correlates of alcohol and cocaine use.	90 males (either cocaine or alcohol dependent) from inpatient substance abuse treatment programs for study 1 and 21 inpatients who met criteria for alcohol and cocaine dependence for study 2.	Inventory of Drinking Situations; General Temperament Survey.	Correlational.	Those with alcohol abuse/dependence issues may be particularly susceptible to the risk factor of negative affect, as findings revealed that substance use in negative affect states was reported more often by alcoholics than by cocaine addicts. Alcohol was also found to more likely be used in negative affect situations than was cocaine.

Zywiak, W.H., Connors, G.J., Maisto, S.A., & Westerberg, V.S. (1996). Relapse research and the reasons for drinking questionnaire: A factor analysis of Marlatt's relapse taxonomy.	To conduct a factor analysis of Marlatt's relapse taxonomy as assessed by the Reasons for Drinking Quesionnaire.	263 clients initiating alcoholism treatment.	RFDQ; ADS; BAI; BDI; STAXI; Form 90 interview; Brief Drinker Profile.	Factor analysis.	Results from a factor analysis conducted on Marlatt's relapse taxonomy, as assessed by the Reasons for Drinking Questionnaire, provide an indication of how strong a risk factor negative affect can be. These authors found that, among a heterogeneous alcohol treatment sample, negative emotions were positively associated with blood alcohol level on the first day of lapse, lapse duration, and occurrence of a second lapse.
Bottlender, M., & Soyka, M. (2005a). Efficacy of an intensive outpatient rehabilitation program in alcoholism: Predictors of outcome 6 months after treatment.	Evaluate the efficacy of an outpatient treatment program.	103 alcohol-dependent patients.	BDI; OCDS; STAI.	Correlational.	Patients with a higher degree of psychopathology measured by the Beck Depression Inventory (depression) and State-Trait Anxiety Inventory (anxiety) relapsed more often. Higher severity of alcohol dependence, higher number of prior treatments, and a stronger alcohol craving were also found to have a negative impact (non-abstinence).
Solomon, L.J., Higgins, S.T., Heil, S.H., Badger, G.J., Thomas, C.S., & Bernstein, I.M. (2007). Predictors of postpartum relapse to	To examine predictors of postpartum relapse.	87 women who quit smoking during pregnancy.	BSI; BDI; other assorted questionnaires.	Correlational.	Findings showed that having higher depression scores at the end of pregnancy were associated with increased risk of relapse postpartum (women who stop smoking during pregnancy). Most women's first postpartum cigarettes were unplanned, in the presence of another smoker, and while experiencing negative affect.

smoking.					
Kenford, S.L, Smith, S.S., Wetter, D.W., Jorenby, D.E., Fiore, M.C., & Baker, T.B. (2002). Predicting relapse back to smoking: Contrasting affective and physical models of dependence.	Investigate the ability of 2 models (physical and affective) to predict relapse back to smoking at 6 months postquit.	632 smokers; inclusion criteria: ages 21-65, Hx of smoking a min. 15 cigarettes per day for past year, having an expired CO level>10 ppm, being motivated to quit smoking.	Affect model variables: Negative affect scale of PANAS, PSS (stress), Hx of depression, Smoking Consequences Questionnaire, Three Factor Coping Scale; Physical dependence model: number of precessation cigarettes, prequit expired CO, prequit blood nicotine level, prequit blood cotinine level, compulsive use (FTQ), withdrawal severity (Minnesota Withdrawal Index).	Double-blind, placebo- controlled, randomized experimental study.	Results supported both models, but the most potent predictor of outcome was post-quit negative affect. Moreover, a history of depression and negative affect experienced within the first week post-quit were supported by tests of the affect regulation model. The results of their study overall suggest that affect and affect regulation are sensitive indicators of dependence and relapse. Withdrawal severity was best predictor of abstinence among traditional measures of physical dependence.
Metcalfe, J., & Mischel, W. (1999). A hot/cool-system analysis of delay of gratification: Dynamics of willpower.	To provide a 2-system framework for understanding the process that enable or undermine self-control or "will power."	Not applicable.	Hot and cool systems; emotionality; cognitive control.	Theoretical formulation.	The authors describe how the hot system is the basis of emotionality and undermines efforts at self-control. The cool system, on the other hand, is cognitive, contemplative, and strategic, and contributes to self-regulation and self-control. Therefore, during high levels of negative affect and increased levels of hot information processing, the application of cognitive control resources to the process of affective coping and regulation is hindered.
Arbeau, K.J., Kuiken, D., & Wild, T.C. (2011). Drinking to enhance and to cope: A daily process study of motive specificity.	To examine whether motive specificity (i.e., whether theoretically plausible trait and situational antecedents) differs in ability to predict the extent to which	81 university students	Drinking Motives Questionnaire; Sensation Seeking Scale; conscientiousness subscale of NEO Five Factor Inventory; AUDIT.	Correlational; between-subjects.	Showed that daily negative affect predicted daily coping-motivated (CM) ratings, where high trait-CM students where more likely to report daily CM drinking when they reported high levels of daily negative affect. Results showed that daily negative affect predicted daily CM ratings, but not enhancement-motivated (EM) ratings, in that high trait-CM students were more likely to report daily CM drinking when they reported high levels of

	alcohol consumption is motivated by coping or enhancement.				daily affect. In contrast, low trait-CM students were relatively unaffected by daily negative affect in relation to daily CM drinking. These findings are consistent with previous research indicating that negative affect is rather influential in motivating daily coping motivated drinking among students who typically report drinking to cope with negative affect.
Martens, M.P., Neighbors, C., Lewis, M.A., Lee, C.M., Oster-Aaland, L., & Larimer, M.E. (2008). The roles of negative affect and coping motives in the relationship between alcohol use and alcohol-related problems among college students.	To assess the moderating effect of two factors (negative affect and coping drinking motives) with respect to alcohol use and alcohol-related problems.	316 college students who reported using alcohol.	Alcohol use; RAPI; PANAS; DMQ.	Correlational.	Study found that among college students high in coping drinking motives (i.e., how often individuals drink for coping-related motives generally related to reducing negative affect), there was a significantly stronger relationship between alcohol use and alcohol-related problems for those high in negative affect compared to those low on the construct. This relationship was consistent across three separate measures of alcohol use (peak drinking, drinks per week, and drinking frequency per week).
Rousseau, G.S., Irons, J.G., & Correia, C.J. (2011). The reinforcing value of alcohol in a drinking to cope paradigm.	Explore the relation between negative mood and the reinforcing value of alcohol (while clarifying the role of coping motives).	44 participants with a history of recent alcohol use.	DDQ; MCP; DMQ; PANAS; LEC.	Experimental.	Findings showed drinking to cope to be a moderator between mood and preference for alcohol in a laboratory environment, where negative mood was significantly related to choices on the multiple choice procedure (a method that allows discrete choices between a drug and an alternative) among participants who reported a high level of drinking to cope. The results suggest that specialized treatments designed to help college students who drink to cope with negative affect are warranted.

Ostafin, B.D., & Brooks, J.J. (2011). Drinking for relief: Negative affect increases automatic alcohol motivation in coping-motivated drinkers.	Study looked to investigate whether negative affect would increase the strength of automatic alcohol-approach associations in individuals who drink to cope with negative emotion.	65 undergraduate students who consisted of regular drinkers who were high or low in motivation to consume alcohol to cope with negative emotion.	DMQ-R; IAT; AUDIT; SAM.	Quasi-experimental.	Findings demonstrated that, among regular drinkers who are high in motivation to consume alcohol to cope with negative emotion, negative affect induction increased the strength of automatic alcohol-approach associations. Results indicated that the negative affect induction increased the strength of automatic alcohol-approach associations in participants with high coping motivation but not in participants with low coping motivation.
Carpenter, K.M., & Hasin, D.S. (1999). Drinking to cope with negative affect and DSM-IV alcohol use disorders: A test of three alternative explanations.	Evaluate three alternative explanations or models: risk-factor, generalizing, and epiphenomena for previous the findings that there are greater levels of drinking to cope with negative affect among problem drinkers relative to nonproblem drinkers.	777 community residents.	In-person structured interview (AUDADIS) and self-report measures (BDI, RFD).	Correlational, cross-sectional design.	This study demonstrated significant differences in mean drinking to cope with negative affect scores between those participants with a DSM-IV alcohol dependence diagnosis and those without a diagnosis. According to them, these results provide evidence for the notion that drinking to cope with negative affect may actually have an etiological role in the development of alcohol dependence.
Gonzalez, V.M., Reynolds, B., & Skewes, M.C. (2011). Role of impulsivity in the relationship between depression and alcohol problems among	Examined whether aspects of impulsivity and drinking to cope with negative affect help account for relationship between depression and alcohol problems.	143 emerging adult college drinkers with at least minimal depressive symptoms.	Alcohol use, alcohol problems (B-YAACQ), drinking to cope (DMQ-R), depression (BDI-II), impulsivity (UPPS; DDQ).	Correlational.	This study produced findings which suggested that, among emerging adult college drinkers with at least minimal depressive symptoms, alcohol use is particularly problematic, in part due to depression's association with drinking to cope, as well as its association with negative urgency (i.e., impulsivity triggered by negative affective states). In other words, it appears that the experience of negative affect can trigger alcohol use, not only because it can serve as a coping response to an aversive experience, but also because it can impair short-term impulse control and decision making. Assuming this is

emerging adult college drinkers.					the case, it would seemingly be quite difficult for those trying to abstain while experiencing negative affect, to effectively apply cognitive control resources as a coping response.
Contributing Factors to Maintaining Abstinence					
Author/ Year/ Title	**Research Questions/ Objectives**	**Sample**	**Variables/ Instruments**	**Research Approach/Design**	**Major Findings**
McKay, J. R., & Weiss, R. V. (2001). A review of temporal effects and outcome predictors in substance abuse treatment studies with long-term follow-ups: Preliminary results and methodological issues.	Provide a review to examine the stability of substance use outcomes and the factors that moderate or mediate these outcomes.	12 alcohol and drug treatment studies with follow-ups of two years or more.	Drug/alcohol, personal health, and social functioning.	Meta-analysis.	The analysis found that stronger motivation and coping at baseline consistently predicted better drinking outcomes.The during- and posttreatment predictor results indicated that better long-term substance use outcomes were associated with better performance while in treatment, more self-help involvement during and after treatment; lower psychiatric, social/family, and legal problem severities, and fewer treatment readmissions, lower life stress, and better coping responses after treatment. These findings suggest that positive long-term outcomes are related to the performance of pro-recovery behaviors that are believed to prevent relapse (e.g., coping and self-help participation) and low problems severity in associated areas.
Cheung, Y. W., & Cheung, N. W. T. (2003). Social capital and risk level of posttreatment drug use: Implications for harm reduction	Applies the social capital framework to analyze how a treated addict's social network affects the risk level of posttreatment drug use.	200 male former clients of voluntary residential treatment in Hong Kong.	Risk level of posstreatment drug use (self-report of heroin use); family support; participation in social groups; licit employment; reassociation with drug-using peers.	Correlational.	Findings showed that the possession of different types of social capital (i.e., resources embodied in the structure of social relations such as interpersonal ties and institutional linkages) may impact recovering heroin addicts. They found that the possession of positive social capital greatly increases the treated addict's likelihood to reduce the risk level of post-treatment drug use, while possessing negative social capital reduces such likelihood.

among male treated addicts in Hong Kong.					
Tonigan, J.S., & Beatty, G.K. (2011). Twelve-step program attendance and polysubstance use: Interplay of alcohol and illicit drug us.	The aim was to advance understanding of the efficacy of 12-step programs by examining the temporal relationships between alcohol and illicit drug use among 12-step program affiliates.	253 early 12-step affiliates without extensive histories of Alcoholics Anonymous (AA) attendance (recruited from substance use treatment and community-based AA).	Form 90; iCassette Drug Screen-4 Panel Test; SOCRATES.	Correlational.	Results revealed that 12-step attendance was predictive of reductions in substance use and that illicit drug use was a robust predictor of later use of alcohol, although the frequency and intensity of drinking were contingent on whether participants sustained 12-step program affiliation. Findings therefore suggest that 12-step participation may serve as a protective factor after substance use occurs.
Sideridis, G. D. (2006). Coping is not an 'either' 'or': the interaction of coping strategies in regulating affect, arousal and performance.	To examine the association between coping, affect, and stress during demanding, stressful tasks, and to examine the presence of a synergy between coping strategies towards regulating stress, affect, and performance.	Study 1: 53 undergraduate psychology students; Study 2: 48 undergraduate students.	PANAS; Ways of Coping questionnaire; physiological stress response.	Correlational.	Findings revealed that having more than one coping strategy at one's disposal may be more adaptive to successfully cope with potential triggers. Results also indicated that emotion-focused coping was associated with significantly elevated negative affect compared to problem-focused coping.

Self-efficacy					
Author/ Year/ Title	**Research Questions/ Objectives**	**Sample**	**Variables/ Instruments**	**Research Approach/Design**	**Major Findings**
Sheffer, C.E., Stitzer, M.S., Payne, T.J., Applegate, B.W., Bourne, D., & Wheeler, J.G. (2009). Treatment for tobacco dependence for rural, lower-income smokers: Outcomes, predictors, and measurement considerations.	Examine factors that predict success and measurement considerations for a statewide program that delivered evidence-based, intensive treatment for tobacco dependence.	2,350 rural, lower SES Arkansas residents receiving treatment for tobacco.	FTND; PSS-4; Stage of Change; Motivation and Self-efficacy.	Correlational.	Findings revealed self-efficacy and dependence levels at intake were robust predictors of outcomes.
Moos, R.H., & Moos, B.S. (2007). Protective resources and long-term recovery from alcohol use disorders.	Examined indices of personal and social resources drawn from social learning, behavioral economics, and social control theories as predictors of alcohol use disorder outcomes.	461 participants who initiated help-seeking for alcohol-related problems.	HDL; SCQ; Health & financial resources; A.A. participation; Life Stressors and Social Resources Inventory; Treatment participation.	Correlational.	The study found, that generally, protective resources associated with social learning (self-efficacy and approach coping), behavioral economics (health and financial resources, as well as resources associated with Alcoholics Anonymous), and social control theory (bonding with family, friends, and co-workers) predicted better alcohol-related and psychosocial outcomes. Protective resources associated with these theories also predicted remission and strengthened the positive influence of treatment.

Gwaltney, C.J., Shiffman, S., Paty, J.A., Liu, K.S., Kassel, J.D., Gnys, M., & Hickcox, M. (2002). Using self-efficacy judgments to predict characteristics of lapses to smoking.	Assess the correspondence between context-specific abstinence self-efficacy (ASE) judgments and lapse situations.	214 smokers who quit for at least 24 hours.	Episode assessments (e.g., coping); RSEQ.	Correlational.	Findings demonstrated that the ASE-first lapse profile correlation was significantly greater than zero, as well as greater than ASE-temptation and ASE-nontemptation correlations. They concluded that low-ASE contexts tend to be associated with lapses to smoking.
Connors, G.J, Maisto, S.A., & Zywiak, W.H. (1996). Understanding relapse in the broader context of post-treatment functioning.	Provide an extrapolation of the systems model to the study of relapse.	142 clients entering inpatient/outpatient treatment for alcoholism.	Form 90 Drinking Interview; Brief Drinker Profile; Diagnostic Interview Schedule; ADS; DCQ; DrInC; TAAS; CBI; STAI; RFDQ; BAI; BDI.	Correlational; path analyses and multiple regression.	A model of relapse by the authors highlights the importance of perceived self-efficacy as an important predictor to whether one relapses. They discovered that perceived self-efficacy was associated with a higher percentage of days abstinent, fewer drinks per drinking day, fewer consequences and less craving.
Burleson, J.A., & Kaminer, Y. (2005). Self-efficacy as a predictor of treatment outcomes in adolescent substance use disorders.	Examined whether higher self-efficacy is associated with higher likelihood of abstinence. Examined whether a CBT condition that focuses on enhancement of self-efficacy would show greater self-efficacy compared to those assigned to a non-CBT condition such as psychoeducation (PET).	88 adolescents referred to outpatient Tx program who had been given Dx of psychoactive substance use disorders.	Situation Confidence Questionnaire (SCQ) (self-efficacy to resist alcohol or substance use in high-risk situations) (originally reflected Marlatt's taxonomy of eight risk domains, but was revised to just focus on positive & negative affect situations, as well as urges and testing); Inventory of using situations (IUS): assesses the likelihood of using under certain	Random experimental design.	One of the measures of self-efficacy predicted subsequent drug use at the next stage: the less likely the baseline substance use under Positive Affect situations, the less likely was drug use during Tx; neither Negative Affect nor Urges and Testing SCQ scales predicted subsequent substance use (it may be that b/c the sample consists of adolescents, the lack of self-efficacy in resisting the lure of Positive Affect resulting from substance use is a more powerful predictor of subsequent use than is the ability of youths to deal with neg. emotions or urges). Ss who received CBT did not show superior levels of situational self-efficacy relative to those receiving PET. Substance use was found to predict Positive Affect at 3 months, but not in predicting negative affect,

			high-risk situations (originally based on Marlatt's 8-risk domains); Diagnostic Interview Schedule for Children (DISC-C); Urinalysis: EZ-screening essay; Random drug testing.		nor urges & testing, nor in predicting self-efficacy at 9 mo. The greater the use at baseline under Negative Affect situations or the lack of confidence to resist (at end of Tx and at 3 months), the less confidence to resist subsequently under Negative Affect conditions.
Van Zundert, R.M.P., Ferguson, S.G., Shiffman, S., & Engels, R.C.M.E. (2010). Dynamic effects of self-efficacy on smoking lapses and relapse among adolescents.	To examine whether dynamic day-to-day variations in self-efficacy predicted success in quit attempts among daily smoking adolescents.	149 adolescent, daily smokers.	Daily self-efficacy; smoking outcomes.	Correlational.	This study found self-efficacy to be relatively high and moderately variable prior to the first lapse, but decreased and more variable later on. Findings revealed lower self-efficacy significantly increased the risk that a second lapse and relapse would occur. Lower self-efficacy on a given day predicted the first lapse, the second lapse, and relapse on the following day. Individual differences in baseline self-efficacy did not predict any of the treatment outcomes.
Brown, T.G., Seraganian, P., Tremblay, J., & Annis, H. (2002). Process and outcome changes with relapse prevention versus 12-step aftercare programs for substance abusers.	Support was sought for mechanisms of action for two distinct aftercare programs for substance abusers, relapse prevention (RP) and 12-step facilitation (TSF).	Adults who had just completed intensive treatment (RP=61 and TSF=70).	Alcohol and drug use; ASI; SCL-90; B-PRPI; ADUSE.	Experimental; random assignment.	Found that relapse prevention aftercare, increases in confidence in high-risk situations provided significant contribution to the prediction of drug severity. Findings lend support for concept that relapse prevention seems to be able to generate reliable self-efficacy increases, which is linked to enhanced substance abuse outcome. Interestingly, study also found relationship between the number of TSF sessions attended and increases in confidence in high-risk situations, though increase in confidence was not a strong predictor of later outcome.

Bandura, A. (1977). Self-efficacy: Toward a unifying theory of behavioral change.	Presents the tenets of Self-efficacy Theory.	Not applicable.	Self-efficacy; outcome expectancy; coping skills.	Theoretical formulation.	The following are key assertions of Self-efficacy (SE) theory: It distinguishes between outcome expectancy (estimate that behavior will produce certain outcome) and efficacy expectation (conviction that one can execute a behavior required to produce outcome). Efficacy expectations determine how much effort people will expend/how long will persist in face of obstacles. Those who succeed will reinforce their sense of efficacy. Given appropriate skills and adequate incentives, efficacy expectations are a major determinant of how long they will sustain effort in dealing with stressful situations. Efficacy expectations have several different dimensions: magnitude, generality, and strength, and they are based on four major sources of information: performance accomplishments, vicarious experience, verbal persuasion, and physiological states. Having a serviceable coping skill at one's disposal contributes to one's sense of personal efficacy; modeling of this skill can enhance behavioral capabilities. Vicarious experience of seeing someone else succeed can enhance one's SE (not as influential as personal accomplishments though). Verbal persuasion from others can enhance one's SE (also not likely to be as strong as personal accomplishments). Elevated arousal can effect perceived SE in coping with threatening situations. Successes are more likely to enhance SE if they are attributed to one's skill rather than circumstance; successes achieved thru minimal effort reinforce stronger SE. In all conditions, the stronger the efficacy expectations, the higher the likelihood that a particular task would be successfully completed.

Hser, Y. (2007). Predicting long-term stable recovery from heroin addiction: Findings from a 33-year follow-up study.	Tried to identify predictors of long-term stable recovery from heroin addiction.	242 male narcotics addicts from the sample examined in the 33-year follow-up study of narcotics addict (original study had 581 subjects from the California Civil Addict Program from 1962-64).	Background self-report surveys; Substance use measures; Early deviance and problems; Self-efficacy on abstinence; Stress coping strategies; Psychological distress; Social support; Alcohol dependence scale; Depression (CES-D); Self-Rated Health Status (SF-36); Methods for Maintaining Drug Abstinence.	Prospective longitudinal study design (33 years).	Negative emotional states and lack of constructive coping skills are risk factors, while self-efficacy and adequate social support are protective factors in maintaining stable recovery. Problems with family and school in earlier life didn't predict recovery. Maturation does not tend to reduce drug use in heroin addicts. Recovered individuals tended to demonstrate lower levels of use of alcohol or other drugs in contrast to those of the non-recovered individuals. Recovery group more likely to have a non-drug-using supportive network, to use non-substance use strategies to cope with stressful situations, and to have more self-confidence and determination to keep from using heroin; the non-recovery group was more likely to rely on drugs to deal with stress. More whites and fewer Hispanics were in the recovery group compared to the non-recovery group. Being Hispanic, self-efficacy, and psychological distress significantly predicted recovery status ten years later.
Shiffman, S., Balabanis, M. H., Paty, J. A., Engberg, J., Gwaltney, C. J., Liu, K. S., et al. (2000). Dynamic effects of self-efficacy on smoking lapse and relapse.	To analyze self-efficacy as a dynamic construct by measuring it in real time, several times daily, during a quit attempt and to evaluate whether daily decreases in self-efficacy would predict initial lapses and relapse back to smoking.	214 smokers who quit fro at least 24 hours while in enrolled in a research smoking cessation clinic.	Self-perceived efficacy (75-item questionnaire); Random assessments of self-efficacy done approx. 4.5 times daily and consisted of single 4-point scale item: "Confident in ability to abstain?"	Non-experimental design (no control group) using ecological momentary assessment methods (EMA): electronic diary.	Daily self-perceived efficacy (SE) remained stable and high prior to first lapse; during this period, daily fluctuations in SE did not predict lapse risk (at least not beyond the prediction already obtained from baseline questionnaire data: Ss w/ lower baseline SE were more likely to lapse and daily SE measures predicted an initial lapse on the subsequent day). After the first lapse, SE decreased and became more variable. Both daily smoking and daily SE prospectively predicted progression to relapse. SE predicted relapse risk even after concurrent smoking Bx was taken into account.

Gwaltney, C.J., Shiffman, S., Balabanis, M.H., & Paty, J.A. (2005). Dynamic self-efficacy and outcome expectancies: Prediction of smoking lapse and relapse.	Examined the hypothesis that decreases in abstinence self-efficacy (ASE) and increases in positive smoking outcome expectancies (POE) should foreshadow lapses and relapses.	305 smokers who achieved initial abstinence from smoking.	Daily measures of ASE and POE; lapse; relapse.	Ecological momentary assessment.	Findings demonstrated a dynamic effect of self-efficacy in predicting smoking lapse and relapse, utilizing ecological momentary assessment data in their study. They found that both abstinence self-efficacy (ASE) and positive smoking outcome expectancies predicted the occurrence of a first lapse on the following day, and that following a lapse, variations in daily ASE predicted the onset of a relapse.
Maisto, S.A., Connors, G.J., & Zywiak, W.H. (2000). Alcohol treatment, changes in coping skills, self-efficacy, and levels of alcohol use and related problems 1 year following treatment initiation.	The purpose of this study was to apply a model based both in social learning theory and stress-and-coping research in predicting functioning following the initiation of alcohol treatment.	77 men and 65 women recruited from eight different alcohol treatment programs.	Percentage days abstinent from alcohol, number of drinks per drinking day, and the frequency of alcohol-related consequences. Form 90 Drinking Interview; Brief Drinker Profile; DIS-R; Alcohol Dependence Scale; Drinker Inventory of Consequences; Thoughts About Abstinence Scale; Coping Behaviors Inventory; SCQ; Spielberger State-Trait Anger Scale; BAI; BDI.	Correlational.	Results provided partial support for hypotheses from social learning-based model. Treatment, changes in coping skills, and self-efficacy to use those skills contributed significant, independent variance in predicting drinking outcomes beyond that explained by control variables that have consistently been shown to be associated with substance abuse treatment outcomes. However, the mediation hypotheses for the drinking outcomes were not supported: the data suggest that treatment's effects were not mediated by either change in coping skills or change in self-efficacy to use those skills. In addition, the data were not consistent with the hypothesis that coping skills effects are mediated by self-efficacy.
Maisto, S.A., Clifford, P.R., Stout, R.L., & Davis, C.M. (2008). Factors mediating the association between drinking in the	To investigate mediators of the relationships between alcohol consumption during the first year following treatment and longer term functioning; study	Outpatient Project MATCH (952 participants with current diagnosis of alcohol abuse/dependence at baseline	SCID; BDI; AASE; ASI; Form 90.	Experimental; structural equation modeling.	Findings revealed that first-year posttreatment admission alcohol use predicts longer term alcohol use, and a substantial portion of this relationship seems to be mediated thru self-efficacy at 15 months to abstain from alcohol use. Authors concluded that the benefit of sustained abstinence in the first year could be due in part to the acquisition of self-efficacy.

first year after alcohol treatment and drinking at three years.	focused on the first year after treatment and alcohol consumption three years later.	and 802 participants at three years).			
Maisto, S.A., Clifford, P.R., Longabaugh, R., & Beattie, M. (2002). The relationship between abstinence for one year following pretreatment assessment and alcohol use and other functioning at two years in individuals presenting for alcohol treatment.	The purpose was to replicate and extend research that demonstrates abstinence during the first year after treatment predicts better long term functioning in alcohol use and other areas.	187 adults who had participated in a clinical trial of the differential effectiveness of two behavioral treatments for alcohol problems.	TLFB; SCQ; PFI; ASI; Social Support from Family and Friends.	Correlational; quasi-experimental.	The findings revealed that that participants who were abstinent in the first 12 months of treatment had higher self-efficacy (to avoid drinking heavily) and better psychological functioning (in terms of negative affect) during the subsequent 12 months. These results suggest the relation between abstinence during the first year following treatment initiation or cessation and later functioning.
Bandura, A. (2012). On the functional properties of perceived self-efficacy revisited.	Addresses issues concerning the functional properties of perceived self-efficacy within the perspective of social cognitive theory.	Not applicable.	Perceived self-efficacy; social cognitive theory; control theory; trait self-efficacy theory; Big Five theory.	Critical analyses and theoretical formulation.	Author describes how people's beliefs in their capabilities are developed in four ways: mastery experiences, social modeling, social persuasion, and by relying partly on their own physical and emotional states, all of which can lead to self-efficacy enhancement. Moreover, self-efficacy beliefs influence the quality of human functioning thru cognitive, motivational, affective, and decisional processes (i.e., whether they think in self-enabling ways, their level of motivation, self-regulation of emotional states in terms of self-

					belief in coping abilities, etc.).
Hyde, J., Hankins, M., Deale, A., & Marteau, T.M. (2008). Interventions to increase self-efficacy in the context of addiction behaviors.	Describe the effectiveness of interventions aimed at increasing self-efficacy and consequently, changing addiction behaviors.	Only published, primary studies were included in the review; study design was not limited to RCTs and duplicate data were excluded. Studies eligible for inclusion were all those that measured self-efficacy pre- and post-intervention. 10 studies were deemed eligible in the end.	Self-efficacy or perceived control or perceived behavior control and intervention and increase or enhance or improve were keywords that were searched.	Literature review.	Findings revealed evidence for the effectiveness of certain interventions at increasing self-efficacy in the context of addiction behaviors. In particular, they discovered that interventions that incorporated social persuasion and mastery experiences had such an effect, a finding that corroborates some of Bandura's assertions. The authors, however, described how the most effective and efficient methods of achieving such changes remain uncertain and seem likely to vary with the addiction behavior, the duration of the problem, and the co-occurrence of other problems. One other interesting finding to note by this study was that when no significant effect of intervention on self-efficacy was found, no significant behavior change was reported. However, when a significant behavior change was reported, evidence of intervention effect on self-efficacy was also found. The authors contend that these findings therefore suggest that a change in self-efficacy may be necessary, but not sufficient for behavior change.
Moos, R.H. (2007). Theory-based processes that promote the remission of substance use disorders.	Describe four related theories about the personal and social resources that protect individuals from developing substance use disorders, as well as contribute to relapse prevention.	Not applicable.	Social Control Theory; Social Learning Theory; Stress and Coping Theory; Behavioral Economics and Behavioral Choice Theory.	Literature review and theoretical presentation.	The authors describe how another factor that has been identified as a potential contributor to enhancing one's efficacy is having a serviceable coping skill. In the author's discussion of social learning and stress and coping theories, he describes how self-efficacy and coping can augment each other, and that improvement in both coping and self-efficacy tend to strengthen one's ability to remain abstinent, even when presented with severe stressors.

Maisto, S.A., McKay, J.R., & O'Farrell, T.J. (1998). Twelve-month abstinence from alcohol and long-term drinking and marital outcomes in men with severe alcohol problems.	Investigated the relationship between abstinence from alcohol during the first year following group behavioral marital therapy (BMT), for alcohol problems and drinking and marital functioning.	73 white male veterans with severe alcohol problems.	TLFB; MAT; CBQ; MAST; SCQ; AUI.	Correlational; quasi-experimental.	This study showed that for those with severe alcohol problems, being able to abstain from alcohol during the first year following treatment was associated with a greater degree of self-efficacy not to drink heavily at each of the 6-, 18-, and 30-month follow-ups. These results led the authors to suggest that the consistently high degree of self-efficacy reported by the abstainers may have been a reflection of their consistent coping during the first year of follow-up without the use of alcohol.
Litt, M.D., Kadden, R.M., Kabela-Cormier, E., & Petry, N.M. (2008). Coping skills training and contingency management treatments for marijuana dependence: Exploring mechanisms of behavior change.	Explore the mechanisms of behavior change from a marijuana treatment trial in which CBT and contingency management were evaluated separately and in combination.	240 adults meeting criteria for cannabis dependence.	Total 90-day abstinence; Readiness to Change Questionnaire; Coping Strategies Scale.	Experimental design.	Findings showed that regardless of treatment condition, among individuals with marijuana dependence, long-term abstinence was predicted by use of coping, and in particular, by post-treatment self-efficacy for abstinence. They concluded that the most efficacious treatments for marijuana dependence are likely to be those that increase self-efficacy.
Skutle, A. (1999). The relationship among self-efficacy expectancies, severity of alcohol abuse, and	The purpose was to examine the relationship among self-efficacy expectancies and two important clinical aspects of alcohol abuse (i.e., severity of abuse	203 men receiving treatment for alcoholism.	SCQ; AVI.	Factor analysis; non-experimental.	Results revealed a significant relationship between the participants' confidence in coping with high-risk factors for heavy drinking and their severity of abuse. They found that level of confidence decreased proportionally with an increase in abuse. Moreover, perceived psychological benefits from drinking covaried with self-efficacy, where lower self-efficacy scores were found to be associated with greater

psychological benefits from drinking.	and strength of the perceived psychological benefits from drinking).				perceived psychological benefits from drinking.
Self-efficacy Measures (in context of relapse prevention)					
Author/ Year/ Title	**Research Questions/ Objectives**	**Sample**	**Variables/ Instruments**	**Research Approach/Design**	**Major Findings**
Annis, H.M. (1982). Situational confidence questionnaire.	Design a self-report questionnaire to assess Bandura's concept of self-efficacy for alcohol-related situations.	Not applicable.	Self-efficacy; alcohol-related situations.	Measure development.	This measure was designed to allow one to monitor the development of self-efficacy with respect to coping with specific drinking situations.
Sklar, S.M., & Turner, N.E. (1999). A brief measure for the assessment of coping self-efficacy among alcohol and other drug users.	Purpose was to develop a reliable and valid brief measure of coping self-efficacy for substance users across high-risk situations.	713 adults presenting for treatment with an alcohol or other drug problem.	Drug-taking Confidence Questionnaire (DTCQ); SCL-90-R; SOCRATES-revised.	Correlational.	They determined the DTCQ-8 to be a useful assessment measure for measuring and monitoring confidence levels during treatment. Results also provide support for the reliability and validity of this measure as a global indicator of coping self-efficacy.

DiClemente, C.C., Carbonari, J.P., Montgomery, R.P.G., & Hughes, S.O. (1994). The alcohol abstinence self-efficacy scale.	Describes the development and the initial psychometric properties of the AASE.	174 male and 92 female subjects who came to an outpatient alcoholism treatment clinic.	AASE; AUI; URICA.	Factor analysis; measure development.	The AASE was designed to assess Bandura's construct of self-efficacy applied to alcohol abstinence. It focused on an individual's efficacy or confidence to abstain from drinking in a range of situations that were derived from both the Marlatt relapse categories and surveys of drinkers in treatment. The original AASE scale (1983) consisted of 49 items and paralleled cigarette-smoking abstinence self-efficacy scales. It assessed for both the temptation to drink and the confidence or efficacy to abstain from drinking in each situation using participants' ratings on separate 5-point ratings scales. While the initial version of the AASE received support for reliability, it was not evaluated extensively. A shortened 20-item version was later developed (1994), which consists of four 5-item subscales that measure type of relapse precipitants: 1) Negative affect 2) Social positive 3) Physical and other concerns and 4) Withdrawal and urges. The reliability estimates for each of these subscales were: .88, .82, .83, and .81, respectively, with the overall AASE scale having an alpha of .92. The authors concluded that the shortened version of the AASE represents a brief and psychometrically sound measure of an individual's self-efficacy to abstain from drinking. It should be noted that while the participants will be asked to fill out the entire 20-item measure and that the researcher is interested in analyzing data for each of the subscales, the primary research question of this study is essentially addressed through analyzing the data specific to only the Negative affect scale.

Gwaltney, C. J., Shiffman, S., Norman, G. J., Paty, J. A., Kassel, J. D., Gnys, M., Hickcox, M., Waters, A., & Balabanis, M. (2001). Does smoking abstinence self-efficacy vary across situations? Identifying context-specificity within the relapse situation efficacy questionnaire.	Attempted to identify situational variability in a novel abstinence self-efficacy assessment (Relapse Situation Efficacy Questionnaire – RSEQ).	315 smokers who had participated in smoking cessation research study. They had to have smoked at least 10 cigarettes/day for at least 2 years. They had to report high motivation and overall efficacy to quit.	Relapse Situation Efficacy Questionnaire (RSEQ) to assess abstinence self-efficacy (ASE).	Correlational; confirmatory factor analysis.	Results suggest that individuals do discriminate among relapse-relevant contexts when making ASE judgments. Thus, ASE can be assessed for specific situational contexts. 7 meaningful ASE domains were identified: Negative Affect, Positive Affect, Restrictive Situations, Idle Time, Social-Food Situations, Low Arousal, and Craving. Substantial variance in the ASE assessment can also be captured as a single, general ASE factor. On average, smokers were less confident in their ability to abstain from smoking in negative affect contexts than in any other context. Potential quitters also generally believe that negative affect contexts will present the strongest challenges to abstinence, which may be of particular interest when designing cessation interventions. Limitation of study may be that self-efficacy assessment used 4-point scale rather than the typical 7- or 10-point scales used to maximize variability in responding.

Relation Between Self-efficacy and Negative Affect					
Author/ Year/ Title	**Research Questions/ Objectives**	**Sample**	**Variables/ Instruments**	**Research Approach/Design**	**Major Findings**
Schorr, G., Ulbricht, S., Baumeister, S.E., Rüge, J., Grothues, J., Rumpf, H., Ulrich, J., & Meyer, C. (2009). Mental health and readiness to change smoking behavior in daily smoking primary care patients.	Examine the association between daily smokers' mental health and the core constructs of the trans-theoretical model (TTM).	1,334 daily smoking primary care patients.	MHI-5; TTM; Self-efficacy; FTND.	Correlational.	Findings showed that smokers with lower levels of mental health had increased odds to contemplate quitting within the next six months compared to not intending to quit at all. Low mental health was also found to be related to lower self-efficacy expectancies in negative affect situations. They concluded that smokers with low mental health may need support to deal with negative affect situations.
Drwal, J. (2008). The relationship of negative mood regulation expectancies with rumination and distraction.	Assessed the ability of negative mood regulation expectancies to predict current depression.	105 introduction psychology college students.	Negative Mood Regulation Scale; Response Style Questionnaire; Zung Self-Rating Depression Scale.	Correlational.	Found that individuals with stronger beliefs in their ability to improve their negative mood have reported using more adaptive coping strategies, such as problem-solving and distraction. Furthermore, those individuals with weaker beliefs in their ability to improve their negative moods, reported greater use of maladaptive strategies, such as avoidance and rumination.

Coping Tools for Negative Affect					
Author/ Year/ Title	**Research Questions/ Objectives**	**Sample**	**Variables/ Instruments**	**Research Approach/Design**	**Major Findings**
Cheung, C., Lee, T., & Lee, C. (2003). Factors in successful relapse prevention among Hong Kong drug addicts.	Sought to investigate how respondents rate the importance of the 106 identified causes (of drug abstinence) and the related causal factors representing the ten identified theories for abstinence maintenance.	Data based on interviews with 21 former male clients of a major non-government drug rehab agency in Hong Kong. All had been heroin addicts, vast majority had criminal record related to drugs, they had maintained abstinence for an average period of 30.3 months, and only two had occasional lapses.	Q-sort task.	Intensive interviews (using Q-sort task) and around 30 structured questions.	Cognitive-behavioral therapy should be the best theoretically guided and empirically relevant approach to maintaining abstinence. Compared with cognitive factors, parenting, biological, social norms, and control were less important. Findings suggest that relapse prevention and abstinence maintenance are long-term effort which requires favorable cognitive development and appropriate behavioral skills more than biological, intrapsychic, and social constraint. The latter may be relevant to short-term success, but may also be inadequate to sustain long-term outcomes.

Gossop, M., Stewart, D., Browne, N., & Marsden, J. (2002). Factors associated with abstinence, lapse or relapse to heroin use after residential treatment: protective effect of coping responses.	Investigate factors associated with abstinence, lapse, or relapse to heroin use.	242 heroin-users from 23 residential programs.	SDS: Opiate Treatment Index; BSI; Processes of Change questionnaire.	Correlational; quasi-experimental.	Findings revealed that clients who avoided a full relapse to heroin use (abstinent and lapse groups) consistently made more use of cognitive, avoidance, and distraction coping strategies at follow-up than at intake.
Moos, R.H., & Moos, B.S. (2006). Rates and predictors of relapse after natural and treated remission from alcohol use disorders.	To examine the rates and predictors of 3-year remission, and subsequent 16-year relapse, among initially untreated individuals with alcohol use disorders.	461 individuals who initiated help-seeking for problems with alcohol.	HDL; SCQ; LISRES; CRI.	Correlational.	Findings revealed that compared to those who obtained help, those who did not were less likely to achieve 3-year remission and were more likely to relapse. Additionally, less alcohol consumption and fewer drinking problems, greater self-efficacy and less reliance on avoidance coping at baseline predicted 3-year remission, which was especially true for individuals who remitted without help. Among those who were remitted at 3 years, those who had less self-efficacy, relied more on avoidance coping, and who consumed more alcohol but were less likely to see their drinking as a significant problem, were more likely to relapse by 16 years.
Vaughan, M.D., Hook, J.N., Wagley, J.N., Davis, D.E., Hill, C., Johnson, B.A., & Penberthy, J.K. (2012). Changes in	To examine the relationship between changes in positive affect (PA), negative affect (NA), and drinking outcomes during a pharmaco-behavioral trial.	321 alcohol-dependent adults.	DDD; PDA; POMS.	Experimental.	All participants received cognitive-behavioral therapy (CBT) and all experienced substantial reductions in drinking, decreases in NA, and increases in PA over the course of treatment (regardless of medication dosage or placebo condition). Findings support the role of affect regulation in treatment and indicate that CBT interventions can be particularly useful in assisting those with alcohol dependence issues

affect and drinking outcomes in a pharmaco-behavioral trial for alcohol dependence.					better regulate their affective states. Also draws attention to the importance of both reducing NA and increasing PA in promoting new coping skills and reducing drinking.
Reijntjes, A., Stegge, H., Terwogt, M.M., & Hurkens, E. (2007). Children's depressive symptoms and their regulation of negative affect in response to vignette depicted emotion-eliciting events.	To examine the relationship between sub-clinical depressive symptoms and children's anticipated cognitive and behavioral reactions to two written vignettes depicting emotion-eliciting stressors.	244 children (ranging in age between 10 and 13).	Emotion-eliciting vignettes; emotion regulation strategy utilization; mood-enhancement effect of emotion regulation strategies; perceived self-efficacy; CDI.	Experimental.	Findings revealed that participants were more likely to endorse emotion-regulation strategies for which they have greater confidence in their mood enhancement effects. Results also showed that participants with higher levels of depressive symptoms were more likely to endorse cognitive and behavioral emotion-regulation strategies that are negative, passive, and/or avoidant in style.
Drobes, D.J., Meier, E.A., & Tiffany, S.T. (1994). Assessment of the effects of urges and negative affect on smokers' coping skills.	Utilize a taped-situation to elicit descriptions of how subjects would cope with high-risk circumstances for relapse to smoking.	60 cigarette smokers who recently completed a 2-week smoking cessation program.	Smoker's Coping-Response Assessment Tool.	Taped situation; MANOVA.	Found that among cigarette smokers, situations rated as likely to generate the most negative affect were associated with the highest ratings of urges, as well as the lowest ratings of confidence towards being able to abstain from smoking.

Ben-Zur, H. (2009). Coping styles and affect.	To test differential associations between coping styles and positive and negative affect.	3 separate studies (140 adolescents; 172 university students; community sample of 168 adults).	Trait version questionnaires of coping an affect (COPE scale; PANAS).	Secondary data analysis.	This study focused on the effects of coping styles on the affective components of subjective well-being. Data was derived from 3 studies with various samples (adolescents, university students, and a general population participants). Results showed that problem-focused coping (e.g., active coping, planning, and suppression of competing activities) was positively related to positive affect and negatively related to negative affect, whereas avoidance coping (e.g., mental and behavioral disengagement and denial) showed the opposite pattern of associations with positive and negative affect. Problem-focused coping also was found to be a moderator of avoidance coping effects on both positive and negative affective responses.
Mindfulness as a Coping Tool for Negative Affect					
Author/ Year/ Title	**Research Questions/ Objectives**	**Sample**	**Variables/ Instruments**	**Research Approach/Design**	**Major Findings**
Goodall, K., Trejnowska, A., & Darling, S. (2012). The relationship between dispositional mindfulness, attachment security, and emotion regulation.	To investigate how specific aspects of emotion regulation and attachment might be related to individual differences in particular aspects of dispositional mindfulness.	192 participants with no previous mindfulness training.	FFMQ; ECR-R; DERS.	Exploratory factor analysis.	This study found dispositional mindfulness to be related to both emotional regulation abilities and attachment security.
Arch, J.J., & Craske, M.G. (2006). Mechanisms of	Investigate whether a 15 minute recorded focused breathing induction	60 undergraduate students.	HAD; Brief Marlow-Crowne Social Desirability Scale; PANAS; IAPS	Experimental; random assignment.	Results showed that the focused breathing group was able to maintain consistent, moderately positive responses to the neutral slides before and after induction, while the

mindfulness: Emotion regulation following a focused breathing induction.	would decrease intensivity and negativity of emotional responses to affectively valenced picture slides, as well as tolerance to view them.		standardized system; focused breathing used Kabat-Zinn mindfulness exercise.		unfocused attention and worry groups responded significantly more negative to the slides. The focused breathing group also reported lower negative affect and greater willingness to view highly negative slides.
Kabat-Zinn, J. (1990). *Full catastrophe living: Using the wisdom of your body and mind to face stress, pain, and illness.*	To provide a practical guide to mindfulness meditation and healing.	Not applicable.	Mindfulness.	Not applicable.	Mindfulness, which has its roots in Buddhist teachings, can be described quite simply as moment-to-moment awareness. It can be cultivated by purposefully paying attention to those things we normally do not give much thought, so that we do not routinely and unknowingly waste large amounts of energy in reacting automatically and unconsciously to the outside world and to our own inner experiences. Practicing mindfulness is to completely "own" each moment of one's experience, no matter good or bad, and to do so with non-judgmental acceptance
Baer, R.A. (2003). Mindfulness training as a clinical intervention: A conceptual and empirical review.	To summarize conceptual approaches to mindfulness and empirical research on the utility of mindfulness-based interventions.	Not applicable.	Mindfulness.	Critical literature review.	Mindfulness has garnered support as an effective intervention for a wide variety of psychological difficulties, and may help to alleviate a variety of mental health problems and improve psychological functioning. Specifically, mindfulness has been found to be effective for issues such as chronic pain, as well as anxiety and depression.
Lynch, T.R., Chapman, A.L., Rosenthal, M.Z., Kuo, J.R., & Linehan, M.M. (2006).	To address a variety of potential mechanisms of change that may be associated with those aspects of dialectical behavior therapy (DBT).	Not applicable.	Mindfulness, validation, targeting and chain analysis, and dialectics.	Theoretical formulation.	Mindfulness plays an integral role in DBT. Mindfulness is primarily related to the quality of awareness than an individual contributes to the present experience. It involves letting go of attachments and becoming one with the current experience. It also entails find a middle path between extremes or polarities.

Mechanisms of change in dialectical behavior therapy: Theoretical and empirical observations.					
Hayes, S.C., Wilson, K.G., Gifford, E.V., Bissett, R., Piasecki, M., Batten, S.V., Byrd, M. & Gregg, J. (2004). A preliminary trial of twelve-step facilitation and acceptance and commitment therapy with polysubstance-abusing methadone-maintained opiate addicts.	Compared methadone maintenance alone to methadone maintenance in combination with 16 weeks of either Intensive Twelve-Step Facilitation (ITSF) or Acceptance and Commitment Therapy (ACT).	138 participants recruited from community-based methadone clinics.	SCID; ASI; BDI; ASI; SCL-90; SAS-SR.	Experimental; random assignment.	The principles of mindfulness play an integral part in well-established interventions such as Acceptance and Commitment Therapy. The addition of ACT to treatment was associated with reduced drug use and improved measures of adjustment and psychological distress.
Teasdale, J.D., Kuyken, W., Byford, S., Taylor, R.S., Watkins, E., Holden, E., White, K., Barrett, B., Byng, R., Evans, A., & Mullan, E.	Compared the efficacy of mindfulness-based cognitive therapy (MBCT) to that of maintenance antidepressant medication (m-ADM) among patients with recurrent	Two separate groups: Those receiving m-ADM (n=62) and those receiving MBCT plus support to taper/discontinue antidepressants	SCID; HRSD; BDI-II; WHOQOL-BREF; AD-SUS.	Experimental.	Results found MBCT to be more effective than m-ADM in reducing residual depressive symptoms and psychiatric comorbidity, and in improving quality of life in the physical and psychological domains. No difference in average annual cost between the two was found. Rates of ADM usage in the MBCT group was significantly reduced as well.

(2008). Mindfulness-based cognitive therapy to prevent relapse in recurrent depression.	depression who are treated with antidepressant medication (ADM).	(n=61).			
Lattimore, P., Fisher, N., & Malinowski, P. (2011). A cross-sectional investigation of trait disinhibition and its association with mindfulness and impulsivity.	To assess the relationship between trait disinhibition, impulsivity, mindfulness, and adverse psychological symptoms.	Study 1: 196 adult females; Study 2: 190 adult females.	Barratt Impulsivity Scale; TEFQ-R21; KIMS; HADS; FFMQ.	Online survey; correlational.	Findings revealed that mindfulness can be a potential "buffer" against behavioral tendencies (i.e., impulsivity and trait disinhibition) that lead to overeating. Results showed that mindfulness was negatively related to and explained 11% of variation in trait disinhibition. Impulsivity was also found to mediate the relationship between mindfulness and trait disinhibition.
Wright, S., Day, A., & Howells, K. (2009). Mindfulness and the treatment of anger problems.	Review the literature in relation to the theory and treatment of problematic anger, and determine if mindfulness may be helpful.	Not applicable.	Problematic anger; mindfulness.	Literature review.	The authors argue that, based on their review of the literature, mindfulness seems as if it would be a particularly appropriate intervention for problematic anger. It could be a useful adjunct treatment to complement and enhance traditional cognitive-behavioral approaches to anger management.
Walach, H., Nord, E., Zier, C., Dietz-Waschkowski, B., Kersig, S., & Schupbach, H. (2007). Mindfulness-based stress reduction as a	To evaluate the potential of Mindfulness-Based Stress Reduction (MBSR) for stress management for those in a high-stress professional environment.	12 volunteer, adult participants were placed in treatment group and another 11 formed the waitlist control group.	Interviews; SVF 120; SALSA; FKK; FBL; FLZ; journal entries.	Experimental.	Findings revealed MBSR to help improve coping ability for individuals in high-demand, high-stress work environments, in that those who underwent this treatment demonstrated an increase in positive strategies for coping and a decrease in negative coping strategies. Qualitative interviews also indicated that participants had attained more awareness of work-related problems contributing to stress and had become more critical toward their

method for personnel development: A pilot evaluation.					work environment.
Brown, K. W., & Ryan, R. M. (2003). The benefits of being present: Mindfulness and its role in psychological well-being.	To provide a theoretical and empirical examination of the role of mindfulness in psychological well-being; the development and psychometric properties of the dispositional Mindful Attention Awareness Scale (MAAS) are described.	Study 1: 1,253 participants (primarily undergrads) Study 2: two matched samples of 50 adults (those familiar w/ Mf practice and those who weren't) Study 3: 90 undergrads Study 4: 74 adults (sample 1), 92 undergrads (sample 2) Study 5: 58 breast and prostate cancer patients.	MAAS; NEO-PI; NEO-FFI; TMMS; MMS; SCS; RRQ; Self-monitoring scale-Revised; Need for cognition; CES-D; BDI; STAI; POMS; PANAS; Measuring of Actualization of Potential; Ryff's Personal Well-being Scales; Subjective Vitality Scale; Hopkins Symptom Checklist Somatization scale, Diener and Emmons scale of affect valence, Perceived Locus of Causality Scale, EORTC, QLQ, SOSI.	Correlational, quasi-experimental.	In the mindfulness literature, not only is mindfulness described as being a type of meditation, but it is also conceptualized as an inherent, natural capacity of every individual, whether they have previous mediation experience or not (dispositional or trait mindfulness). Findings support the psychometric adequacy and validity of the MAAS thru exploratory factor analysis and CFA. MAAS was shown to be reliable and valid for use in both college student and general adult populations. Findings provided evidence that mindfulness is associated with heightened self-knowledge, an important element of self-regulation. Correlational studies using the MAAS demonstrated that mindfulness is a distinct form of awareness and attention that is associated with a number of well-being indicators. Experience sampling and clinical studies showed that the MAAS not only predicts well-being outcomes but also is useful in the study of the temporal and situational dynamics of self-regulated behavior and well-being.
Thompson, B.L., & Waltz, J. (2007). Everyday mindfulness and mindfulness meditation: Overlapping constructs or	To investigate the construct of mindfulness and examine the relationships between measures of everyday mindfulness and mindfulness during meditation, and	Study 1: 171 undergraduate psychology students; Study 2: 185 undergraduate psychology students.	MAAS; CAMS-R; TMS; IPIP; PANAS; FFMQ.	Correlational.	Results found that everyday mindfulness correlated positively with agreeableness and conscientiousness, and negatively with neuroticism. Findings revealed little to no relationship between mindfulness during meditation and everyday mindfulness.

not?	between mindfulness measures and personality characteristics.				
Orzech, K.M., Shapiro, S.L., Brown, K.W., & McKay, M. (2009). Intensive mindfulness training-related changes in cognitive and emotional experience.	Examined the role of intensive mindfulness training on changes in day-to-day experiential processing, psychological symptoms, resilience, and well-being in two groups of community adults.	69 adult attendees at one of two 4-week residential mindfulness meditation trainings.	MAAS; FMI; EQ; AAQ-II; POMS; SWB; PANAS; SCS.	Quasi-experimental.	Study found that increases in trait mindfulness and acceptance were related to improvements in psychological symptoms, well-being, and resilience. Intensive mindfulness training was also found to be related to declines in anxiety and enhanced both subjective well-being and self-compassion.
Giluk, T. L. (2009). Mindfulness, big five personality, and affect: A meta-analysis.	Provide a more precise empirical estimate of the relationship between mindfulness and the Big Five personality traits as well as trait affect.	32 samples in 29 studies where synthesized.	Mindfulness measure and a measure of at least one Big Five personality trait.	Meta-analysis.	Findings showed mindfulness to be related to some of the Big Five personality traits, as well as trait affect, in that it was shown to have negative relationships with both negative affect and neuroticism, and a positive relationship with conscientiousness.

Modinos, G., Ormel, J., & Aleman, A. (2010). Individual differences in dispositional mindfulness and brain activity involved in reappraisal of emotion.	To investigate whether individuals differences in dispositional mindfulness would be associated with brain activity elicited during reappraisal of negative emotion.	18 university participants.	KIMS; fMRI.	Experimental.	This study found support for distinct neural differences among those higher in mindfulness, but did so when examining individual differences in dispositional mindfulness. Their results demonstrated that differences in dispositional mindfulness predicted activity in neural regions underlying appraisal, in particular, the dorsomedial prefrontal cortex. Moreover, they found this prefrontal activation to be inversely correlated with amygdala response to negative scenes, offering further evidence for its role in down-regulating emotion-generation regions. These findings therefore suggest that individual differences in dispositional mindfulness may modulate activity in neural systems involved in effective control of negative emotions.

Creswell, J.D., Way, B.M., Eisenberger, N.I., & Lieberman, M.D. (2007). Neural correlates of dispositional mindfulness during affect labeling.	Tested whether dispositional mindfulness would be associated with greater activation in areas of the PFC and deactivation of the amygdala.	27 undergraduate students.	MAAS	Correlational.	Findings suggest that mindfulness may be associated with enhancements in neural affect regulation pathways and that it, at least in part, may reduce negative affect and promote greater physical health through the process of labeling one's feelings, a central component of mindfulness practice. Mindfulness was found to be associated with greater widespread prefrontal cortical activation and reduced bilateral amygdala activity during affect labeling, compared with the control.
Farb, N.A.S., Anderson, A.K., Mayberg, H., Bean, J., McKeon, D., & Segal, Z.V. (2010). Minding one's emotions: Mindfulness training alters the neural expression of sadness.	Investigated the effects of mindfulness training (MT) on emotional experience and its neural expression.	36 participants who were recruited on enrollment in the Mindfulness-Based Stress Reduction program.	BDI-II; BAI; SCL-90-R.	Experimental.	This study found there to be differences in neural activity to sadness provocation in participants completing eight weeks of mindfulness training compared to waitlisted controls. Even though both groups displayed equivalent self-reported sadness, those who had received mindfulness training showed a distinct neural response (i.e., greater right-lateralized recruitment, including visceral and somatosensory areas associated with body sensation), as well as demonstrated substantial reductions in depression, anxiety, and somatic distress.
Bishop, S. R., Lau, M., Shapiro, S., Carlson, L., Anderson, N. D., Carmody, J., Segal, Z. V., Abbey, S., Speca, M., Velting, D., & Devins, G. (2004). Mindfulness: A proposed	Establish a testable operational definition of mindfulness (through series of meetings by authors, hoping to reach consensus).	Not applicable.	Self-regulation of attention, orientation to experience.	Literature review and theoretical formulation.	Authors propose a two-component model of mindfulness: 1) the self-regulation of attention, enabling increased recognition of mental events in the present moment and 2) adopting a specific orientation toward one's experiences in the present moment that is characterized by curiosity, openness, and acceptance. Self-regulation: observing and attending to the changing field of thoughts, feelings, and sensations from moment to moment by regulating one's focus of attention. Skills in "sustained attention" would be required to maintain an awareness of current experience. Sustained attention on one's breath keeps

operational definition.					attention anchored in current experience; skills in "switching" allow one to bring attention back to breath once thought, feelings, or sensation has been acknowledged (involves flexibility of attention). Mindfulness orientation involves making commitment to be curious about where mind wanders, as well as about different objects within one's experience at any moment; client should just take notice of each thought, feeling, and sensation that arises in consciousness. Involves a state of acceptance toward each moment (being experientially open to the reality of present moment). Mindfulness should lead to decrease in use of cognitive and behavioral strategies to avoid aspects of experience. Mindfulness may lead to a decrease in ruminative thinking due to the adoption of a decentered perspective it encourages: thoughts/feelings are transient mental events rather than reflections of self or even accurate reflections on reality. The focus is on altering the "impact" of and "response" to thoughts, feelings, and sensations; help clients stay in contact with private experiences so that they can behave more effectively. Mindfulness may be particularly effective for clinical syndromes in which intolerance of negative affect and subsequent behavioral avoidance play a central role.
Feldman, G., Hayes, A., Kumar, S., Greeson, J., & Laurenceau, J. (2007). Mindfulness and emotion regulation: The development an initial	Develop a brief self-report measure of mindfulness with items that cover the breadth of the construct and that are written in everyday language.	Study1: 548 "ethnically-diverse" university students (250 used to test preliminary model and 298 for confirmatory factor	CAMS; CAMS-R; FMI; MAAS; MASQ; Acceptance and Action Questionnaire; White Bear Suppression Inventory; Rumination/distraction Response Style Questionnaire; PSWQ; ATS-Q; TMM; CFS; MMAP.	Study 1: Structural equation modeling;Study 2: Correlational analysis.	Final outcome was a 12-item, revised version of the Cognitive and Affective Mindfulness Scale (CAMS; Kumar, Feldman, & Hayes, 2005), which was designed to be brief, yet capture the breadth of the construct of mindfulness. More specifically, it was designed to capture four specific components of mindfulness identified in previous operational definitions: 1) the ability to regulate attention, 2) an orientation to present or immediate experience, 3) awareness of

validation of the cognitive and affective mindfulness scale-revised (CAMS-R).		analysis); Study 2: "ethnically diverse" sample of college students (n=212).			experience, and 4) an attitude of acceptance or non-judgment towards experience (Bishop, Lau, Shapiro, Carlson et al., 2004; Kabat-Zinn, 2003). The authors intended for the CAMS-R to be used as a self-report measure of mindfulness and for it to be a dispositional measure of mindfulness rather than a measure that attempts to capture mindfulness states. This measure was also designed to be written in clear everyday language that would be comprehensible to individuals with no prior experience with mindfulness practice or meditation. This aspect of the CAMS-R makes it particularly attractive due to the likely minimal experience with mindfulness and/or meditation of the target sample of this study. While the original version of the CAMS was developed in a clinical sample (depressed individuals), the CAMS-R was developed with undergraduate samples. One of the strengths of the CAMS-R is that it demonstrates an acceptable level of internal consistency for a brief measure (α=.76). It has also been found to have good discriminant validity, as well as good convergent validity, in that it strongly correlates with other measures of mindfulness such as the MAAS and FMI. Findings have also shown it to be strongly correlated with self-reported use of adaptive emotion regulation strategies.
Walach, H., Buchheld, N., Buttenmuller, V., Kleinknecht, N, & Schmidt, S. (2006). Measuring mindfulness--the Freiburg	To construct and validate the Freiburg Mindfulness Inventory.	Developed thru expert interviews and literature analysis and tested in 115 Ss attending mindfulness meditation retreat; also	FMI; self-awareness; dissociation; GSI; previous meditation experience.	Principal Component Analysis; measure development.	Findings revealed FMI to be a psychometrically sound 30-item scale with internal consistency of Cronbach alpha=.93. Significantly demonstrated the increase in mindfulness after the retreat and was able to discriminate between experienced and novice meditators. They were able to develop psychometrically sound short form and demonstrate construct validity for the scale as well.

Mindfulness Inventory (FMI).		tested on 86 Ss without meditation experience, 117 Ss with clinical problems, and 54 Ss from retreats.			
Baer, R.A., Smith, G.T., & Allen, K.B. (2004). Assessment of Mindfulness by Self-Report: The Kentucky Inventory of Mindfulness Skills.	Develop a self-report inventory for the assessment of Mf skills, as well as test its psychometric characteristics and relationships w/ other constructs.	Study 1: 5 practicing psychologists experienced in DBT and six clinical grad students familiar in DBT Study 2: 205 undergrads (long version of KIMS), 215 undergrads (short version), and 26 adults with BPD (short version of KIMS) Study 3: 49 students from sample 2 (short version of KIMS) Study 4: subset of 130 of 205 students from sample 1 (long version) Study 5: an additional 115 students	KIMS (77-item and 39-item versions), demographic questionnaire, NEO-FFI (five factor model of personality), BSI, TMMS (emotional intelligence), DES, Tellegen Absorption Scale, AAQ, TAS-20 (alexithymia), PDS-IM, SWLS, MAAS.	Cross-sectional study; exploratory factor analyses; confirmatory factor analysis; both between-groups and within-groups design utilized.	Four mindfulness skills were specified: observing, describing, acting with awareness, and accepting without judgment. Results demonstrated good internal consistency and test-re-test reliability, as well as a clear factor structure (four-factor structure was found to be much better fit to data than alternative single-factor structure). Mindfulness scores often positively correlated with constructs related to mental health. Support for the multidimensional view of mindfulness was found in differential relationships between KIMS scales and other constructs. Findings suggest that a multidimensional conceptualization may be helpful in clarifying the nature of mindfulness and its relationship with other constructs.

		(completed both MAAS and KIMS) Study 6: same samples from study 1.			
Lau, M.A., Bishop, S.R., Segal, Z.V., Buis, T., Anderson, N.D., Carlson, L., Shapiro, S., & Carmody, J. (2006). The Toronto mindfulness scale: Development and validation.	Develop and validate a self-report mindfulness measure, the Toronto Mindfulness Scale (TMS).	Study 1: 390 participants with no mindfulness meditation experience; Study 2: 99 participants recruited from Mindfulness-based Relaxation Programs.	Study 1: TAS (absorption), SSAS (self-awareness), CFQ (cog. Failures), DES (dissociative experiences), NEO-FFI (openness), PMS (psych. mindedness), RRQ (rumination), Marlow-Crowne Social Desirability Scale; Study 2: TMS, Perceived Stress Scale, BSI.	Confirmatory factor analysis; correlational.	Results indicate that TMS demonstrates high internal consistency. A 2-factor structure (Curiosity, Decentering) was discovered in the initial sample and later confirmed in a second sample. Mindfulness scores were positively, but only weakly correlated with psychological constructs that included assessments of awareness, openness to experience, and curiosity about one's current experience.-The two factors of this model are consistent with the second factor of a two-component of mindfulness offered by Bishop et al. (2004): attentional quality characterized by a curious, open, accepting awareness of experience including bodily sensations, thoughts, or emotions. The results did not provide support for the first component (active self-regulation of attention). While these findings support a conceptualization of mindfulness that has at least 2 factors, authors contend that four current mindfulness questionnaires (MAAS, FMI, CAMS, MQ) are comprised of just one factor; Baer et al. (2006) support notion of mindfulness as multifaceted construct however. The Decentering subscale showed incremental validity in the prediction of perceived stress and distress (decentering or disidentification is thought to lead to a change in one's relationship to negative thoughts/feelings so they can be seen as passing events rather than reflections of reality). The TMS assesses the level of

					mindfulness during a single point in time.
Gilbert, B.D., & Christopher, M.S., (2010). Mindfulness-based attention as a moderator of the relationship between depressive affect and negative cognitions.	Investigated the role of mindfulness-based attention in lessening possible negative consequences of experiencing depressive affect.	278 undergraduate college students.	CCI; CES-D; MAAS.	Correlational.	Findings revealed depressive affect to be positively related to negative cognitions, mindfulness-based attention was inversely related to negative cognitions, and that the strength of the relationship between depressed affect and negative cognitions was significantly moderated by mindfulness-based attention. Findings provide support for mindfulness as a protective factor against the development of psychopathololology.
Sears, S., & Kraus, S. (2009). I think therefore I om: Cognitive distortions and coping style as mediators for the effects of mindfulness meditation on anxiety, positive and negative affect, and hope.	Examine cognitive distortions and coping styles as potential mediators for the effects of mindfulness meditation on anxiety, negative affect, positive affect, and hope.	57 undergraduate students.	BAI; PANAS; IBS; Brief COPE; Hope Scale.	Experimental.	Findings revealed that changes in cognitive distortions mediated the effects for reduced anxiety, negative affect, and hope in those participants who received longer combined mindfulness meditation. Longer combined meditation was also found to reduce anxiety and negative affect and increase hope.

Jha, A.P., Stanley, E.A., Kiyonaga, A., Wong, L., & Gelfand, L. (2010). Examining the protective effects of mindfulness training on working memory capacity and affective experience.	Investigate the impact of mindfulness training (MT) on working memory capacity (WMC) and affective experience.	31 male participants recruited from U.S. Marine reserves.	MMFT; PANAS; Ospan.	Experimental.	Findings from this study point to the potential of mindfulness practice to improve working memory capacity (WMC), which was found to be a mediating factor between practice time and negative affect, and thus suggests that mindfulness training-related improvements in WMC may support some of the beneficial effects of mindfulness.
Walsh, J.J., Balint, M.G., Smolira, D.R., Fredericksen, L.K., & Madsen, S. (2008). Predicting individual differences in mindfulness: The role of trait anxiety, attachment anxiety, and attentional control.	The aim was to identify possible predictors of individual differences in naturally occurring mindfulness.	Study 1: 127 psychology students; Study 2: 153 undergraduate and graduate students.	ECR-R; NEO-PI-R; MAAS; FMI; NEO-FFI; Attentional Control; Parental Nurturance; Spielberger's state-trait anxiety inventory.	Correlational.	Findings show that trait anxiety and attachment anxiety were negatively predictive of mindfulness. This study also revealed attentional control to be positively predictive of mindfulness. There was also evidence of partial mediation of attentional control on the association between trait anxiety and mindfulness. Findings from this study indicate that anxiety appears to be antagonistic to mindfulness and that control over one's attentional resources may provide part of the explanation.

Corcoran, K.M., Farb, N., Anderson, A., & Segal, Z.V. (2010). Mindfulness and emotion regulation: Outcomes and possible mediating mechanisms.	To provide a review of how problems in emotion regulation contribute to psychiatric problems and to provide an overview of psychosocial treatments.	Not applicable.	Emotion regulation; psychiatric problems; mindfulness.	Review of the literature.	Mindfulness allows oneself to live in the present moment. Mindfulness also allows for greater cognitive flexibility and has been found to be associated with increased ability to tolerate negative emotions. Greater metacognitive awareness may be one of the aspects that enable mindfulness training to enhance emotion regulation skills.
Schoormans, D., & Nyklicek, I. (2011). Mindfulness and psychologic well-being: Are they related to type of meditation technique practiced?	To examine whether practitioners of two meditation types differ on self-reported mindfulness skills and psychologic well-being.	35 participants who practiced mindfulness meditation and 20 who practiced transcendental meditation.	MAAS; KIMS; GMS; PSS; WHOQOL-BREF; meditation duration and frequency.	Correlational.	Results revealed that meditation frequency (and not duration or even the specific type of meditation) was found to be associated with mindfulness skills and psychological well-being (i.e., lower perceived stress). All self-reported mindfulness facets correlated with nearly all measures of well-being across groups.

Mindfulness and Relapse Prevention (Coping with Negative Affect)					
Author/ Year/ Title	**Research Questions/ Objectives**	**Sample**	**Variables/ Instruments**	**Research Approach/Design**	**Major Findings**
Breslin, F.C., Zack, M., & McMain, S. (2002). An information-processing analysis of mindfulness: Implications for relapse prevention in the treatment of substance abuse.	To provide a cognitive framework for integrating mindfulness meditation into substance abuse Tx. Presents an information-processing analysis of how mindfulness can prevent relapse.	Not applicable.	Negative affect as a trigger to substance use; Desensitizing attention and memory to substance-related triggers like negative affect; Using acceptance-based approach of mindfulness to achieve this.	Literature review and theoretical formulation.	The authors describe how negative affect triggers relapse because substance use is an attempt to temporarily escape from negative affect. This attempt to avoid negative affect thru substance use leads to a conditioned association where attention is drawn to transient dysphoric states and negative affect is more closely linked in memory with substance-related cognition and drug use scripts. Mindfulness interventions try to alter the relationship an individual has to emotions and cognitions rather than attempting to modify their frequency or intensity. This acceptance-based approach may allow for a desensitization of attention and memory responses to triggers and a sensitization to formerly automatic processes. They describe how mindfulness may be effective for the substance abusing population in this regard. The authors describe how some behavioral strategies, such as trigger-avoidance strategies, and cognitive strategies, such as cognitive restructuring, are commonly-used relapse prevention techniques, but that they may not be as effective for certain triggers like affect-related triggers. The reason for this is that specific types of triggers can not be completely avoided, and when experiencing negative affect, change strategies like cognitive restructuring may be less feasible because the individual often has less control during these instances and is less amenable to these change strategies. Mindfulness, however, allows the individual to be exposed to a trigger, like negative affect, without responding to it

					behaviorally. While the initial attentional response is automatic, the behavioral response is under more volitional control. By learning to maintain attention on substance use triggers rather than "fleeing them psychologically or behaviorally," mindfulness can help restore a measure of control to attentional processes that were previously out of control. Furthermore, in their analysis, Breslin and colleagues describe how mindfulness may not only be effective in desensitizing attention and memory to substance-related triggers like negative affect, but it can also help disrupt the automaticity (i.e., sensitization) that often occurs in drug or alcohol relapse. They therefore contend that the ability to take a mindful, decentered perspective may also help deter relapse by increasing awareness of automatic responses to relapse triggers. These authors thus suggest that mindfulness may serve as a de-automatization function, or in other words, provide an "undoing" of automatized processes, the same type of aforementioned processes that can lead to relapse. Breslin and colleagues therefore argue that due to mindfulness' emphasis on both increasing awareness of automatic processes and desensitizing affect-related triggers, it can supplement other cognitive-behavioral relapse prevention strategies by perhaps addressing some of their shortcomings in these areas.
Waters, A.J., Reitzel, L.R., Cinciripini, P., Li, Y., Marcus, M.T., Vidrine, J.I., & Wetter, D.W. (2009). Associations between	To examine the association between questionnaire-assessed mindfulness and affect/cognition in smokers enrolled in a smoking cessation study.	158 adult smokers (who smoked at least 5 cigarettes per day for past year) motivated to quit smoking.	CESD; MAAS; KIMS; PANAS; PSS; Implicit Association Test (IAT).	Experimental.	Findings showed that degree of mindfulness was negatively associated with self-reported negative affect, perceived stress, and depressive symptom severity, and positively associated with positive affect. Their results showed that greater dispositional mindfulness was not only found to be related to decreased depressive symptoms, but also a more detached perspective to depression-related

mindfulness and implicit cognition and self-reported affect.					stimuli. According to the authors, this suggests that greater mindfulness is associated with weaker automatic mental associations between "depressed" and "me" concepts and/or stronger automatic mental associations between "depressed" and "not me" concepts, again perhaps indicating a lack of over-identification with one's negative affect in the more mindful individual.
Levesque, C., & Brown, K.W. (2007). Mindfulness as a moderator of the effect of implicit motivational self-concept on day-to-day behavioral motivation.	Examine the role of mindfulness as a moderator between implicit motivation and the motivation for day-to-day behavior.	83 university students (study 1) and 78 university students (study 2).	Implicit Association Test; dispositional autonomy; attitude toward autonomy; social desirability; SDS; MAAS; PLOC; PrSC; Reflection subscale of Rumination-Reflection Questionnaire.	Experience sampling strategy; correlational.	Findings revealed support for the idea that dispositional mindfulness can serve as a moderator of the effect of implicit motivational self-concept on day-to-day behavioral motivation, where those high in dispositional mindfulness demonstrated more autonomously motivated behavior. They also found that this moderating effect of awareness was specific to mindfulness and primarily occurred in spontaneous behavior.
Bowen, S., Witkiewitz, K., Dillworth, T.M., Chawla, N., Simpson, T.L., Ostafin, B.D., Larimer, M.E., Blume, A.W. , Parks, G.A., & Marlatt, G.A. (2006). Mindfulness meditation and substance use in an incarcerated population.	To evaluate the short-term effectiveness of a Vipassana mediatation (VM) course on substance use and psychosocial outcomes in an incarcerated population.	Individuals at rehabilitation facility who voluntarily participated in VM course were compared with inmates who did not take the course and only received treatment as usual (TAU). 305 inmates completed baseline assessment, 173 completed	Measures given were: Daily Drinking Questionnaire, Daily Drug-Taking Questionnaire, Short Inventory of Problems, Drinking-Related Locus of Control scale, White Bear Suppression Inventory, Brief Symptom Inventory, and Life Orientation Test.	Quasi-experimental design.	Findings provide preliminary support for the effectiveness of VM for treatment for SUDs (substance use disorders) in correctional populations. VM participants reported significantly less use of alcohol, marijuana, and crack cocaine, and significantly fewer alcohol-related negative consequences 3 months following release from NRF. Results also show preliminary support for the effectiveness of VM in improving psychosocial functioning: reported significantly lower levels of psychiatric symptoms, more internal-related locus of control, and higher levels of optimism.

		postcourse assessment, 87 completed postrelease 3-month assessment, and 78 completed 6-month assessment.			
Bowen, S., Chawla, N., Collins, S.E., Witkiewitz, K., Hsu, S., Grow, J., Clifasefi, S., Garner, M., Douglass, A., Larimer, M.E., & Marlatt, A. (2009). Mindfulness-based relapse prevention for substance use disorders: A pilot efficacy trial.	Assess the feasibility and efficacy of an 8-week outpatient Mindfulness-Based Relapse Prevention (MBRP) program compared to treatment as usual (TAU).	168 adults with substance use disorders who recently completed intensive or outpatient treatment.	Substance use (TLFB); Acceptance (AAQ); Alcohol and Drug Craving (PACS); Alcohol and Drug Use Consequences (SIP-AD); Mindfulness (FFMQ).	Experimental-controlled trial.	MBRP participants who had recently completed intensive inpatient or outpatient treatment for substance use disorders, demonstrated significantly lower rates of substance use over the four month post-intervention period compared to those who participated in treatment as usual. MBRP participants also demonstrated greater decreases in craving, and increases in acceptance and acting with awareness as compared to TAU.
Vidrine, J.I., Businelle, M.S., Cinciripini, P., Li, Y., Marcus, M.T., Waters, A.J., Reitzel, L.R., & Wetter, D. W. (2009). Associations of mindfulness with nicotine	To examine baseline associations of mindfulness with demographic variables, smoking history, dependence, withdrawal severity, and agency (self-efficacy).	158 adult smokers enrolled in a cessation trial.	WISDM-68; HSI; WSWS; Self-Efficacy Scale; AIPQ; KIMS; MAAS.	Correlational.	Findings from this study, which utilized a dispositional measure of mindfulness, revealed mindfulness to be negatively associated with level of nicotine dependence and withdrawal severity, as well as positively associated with a sense of agency (self-efficacy) regarding cessation. Furthermore, mindfulness was also found to be associated with these measures even after controlling for key demographic variables. Authors suggest that low mindfulness may be an important predictor of vulnerability to relapse among adult smokers

dependence, withdrawal, and agency.					preparing to quit.
Witkiewitz, K., Brown, S., & Donovan, D.M. (2011). Moderating effects of a craving intervention on the relation between negative mood and heavy drinking following treatment for alcohol dependence.	Purpose was to examine whether a treatment module that targeted craving would predict changes in negative mood during the 16-week combined behavioral intervention.	776 individuals with a history of heavy drinking.	Percent days abstinent; percent heavy drinking days; Form-90 interview; POMS; Obsesive-Compulsive Drinking Scale.	Secondary data analysis.	Results revealed mindfulness to be related to improvements in both drinking outcomes and negative mood. The results of this study showed that changes in negative mood were significantly related to changes in heavy drinking during treatment, and that those participants who received the craving module (consisted of several components, one of which was "urge surfing," a mindfulness-based technique used to cope with internal triggers like negative affect), reported significantly fewer heavy drinking days during treatment.
Wupperman, P., Marlatt, G.A., Cunningham, A., Bowen, S., Berking, M., Mulvihill-Rivera, N., & Easton, C. (2012). Mindfulness and modification therapy for behavioral	To assess the efficacy of Mindfulness & Modification Therapy (MMT) for behavioral dysregulation for those with alcohol abuse/dependence and aggression problems.	14 women court-referred for alcohol abuse/dependence and aggression.	TLFB; MMT.	Experimental.	Results demonstrated that women who were court-referred for alcohol abuse/dependence and aggression reported significant decreases in alcohol/drug use and aggression after participating in this mindfulness-based intervention (MMT).

dysregulation: Results from a pilot study targeting alcohol use and aggression in women.					
Vallejo, Z., & Amaro, H. (2009). Adaptation of mindfulness-based stress reduction program for addiction relapse prevention.	To evaluate the efficacy of the Mindfulness-Based Stress Reduction program (MBSR) for relapse prevention when implemented in a community-based addiction treatment setting.	161 women (highly marginalized and poor African-American and Latina women with trauma histories).	Unspecified ratings and open-ended questions regarding the MBSR program and participants' experience.	Experimental.	Findings demonstrated that MBSR could be successfully implemented in a community-based addiction treatment setting utilizing an adapted approach, in order to provide relapse prevention skills training to poor African-American and Latina women with trauma histories.
Alterman, A.I., Koppenhaver, J.M., Mulholland, E., Ladden, L.J., & Baime, M.J. (2004). Pilot trial of effectiveness of mindfulness meditation for substance abuse patients.	To compare the effectiveness of mindfulness meditation (MfM) as an adjunctive Tx to standard Tx for substance abuse patients with control group (just standard Tx).	31 substance-dependent men (14) and women (17) who were residents of recovery house and had been in Tx for up to 2 months.	Addiction Severity Index; Howden's 28-item Spirituality Assessment Scale; Reker's Life Attitude Profile-Revised; Life Orientation Test; PANAS; SF-36.	Experimental design.	Significant decreases in alcohol, drug and family-social problems were found for both groups over time, but differential group effects were not found for these problem areas. Little evidence found to indicate that MfM training resulted in more favorable outcomes that were found for the randomized group of patients who only received standard treatment. No indication of long-term effects favoring the meditation group on measures of psych health such as spirituality, personal meaning, optimism, etc. Medical problems decreased over time in the group receiving meditation, while the increased in those not receiving meditation. However, half of the MfM group participants reported practicing it for about 4 hours monthly during month 5, suggesting that the continued practice confers some benefits perhaps not detected by their measures of current problems or psychological health.

De Dios, M.A., Herman, D.S., Britton, W.B., Hagerty, C.E., Anderson, B.J., & Stein, M.D. (2012). Motivational and mindfulness intervention for young adult female marijuana users.	To test the efficacy of a brief intervention using motivational interviewing (MI) and mindfulness meditation (MM) to reduce marijuana use among young adult females.	34 female marijuana users between ages 18 and 29.	Demographics; TLFB; PDSQ.	Experimental; random assignment.	Participants randomized to the intervention group (MI-MM) were found to use marijuana on significantly fewer days than controls. Provides evidence for the feasibility and effectiveness of a brief MI-MM intervention for young adult female marijuana users.
Alfonso, J.P., Caracuel, A., Delgado-Pastor, L.C., & Verdejo-Garcia, A. (2011). Combined goal management training and mindfulness meditation improve executive functions and decision-making performance in abstinent polysubstance abusers.	To investigate the efficacy of a 7-week program of goal management training and mindfulness for reducing executive and decision-making deficits.	Outpatient sample of alcohol and polysubstance abusers (18 Ss enrolled in Tx group and 16 in standard Tx group).	Executive functions (WIAS-III subtests, BADS subtests, Trail Making Test).	Parallel groups design; pre- and post-treatment assessment.	Revealed mindfulness to be a successful complimentary intervention with goal management training, a combination that demonstrated some promise in reducing executive and decision-making deficits in an outpatient sample of alcohol and polysubstance abusers.

Courbasson, C.M., Nishikawa, Y., & Shapira, L.B. (2011). Mindfulness-action based cognitive behavioral therapy for concurrent binge eating disorder and substance use disorders.	Examined treatment outcome for those with comorbid binge eating disorder and substance use disorder.	38 individuals diagnosed with BED and SUD.	SCID-II; EDE-Q; ASI; BDI-II.	Experimental.	Findings showed that not only can mindfulness be effective in treating alcohol and substance use when paired with cognitive behavioral principles, but that it can also produce significant results in treating co-occurring disorders, like binge eating disorder. More specifically, participants significantly improved on measures of binge eating episodes, disordered eating attitudes, alcohol and drug addiction severity, and depression.
Brewer, J.A., Sinha, R., Chen, J.A., Michalsen, R.N., Babuscio, T.A., Nich, C., Grier, A., Bergquist, K.L., Reis, D.L., Potenza, M.N., Carroll, K.M., & Rounsaville, B.J. (2009). Mindfulness training and stress reactivity in substance abuse: Results from a randomized, controlled stage 1 pilot study.	Goal was to assess mindfulness training (MT) compared to cognitive behavioral therapy (CBT) in substance use and treatment acceptability, and specificity of MT compared to CBT in targeting stress reactivity.	36 individuals with alcohol and/or cocaine use disorders.	Structured clinical interview (SCID); mindfulness (FFMQ); TCS; DES.	Experimental design; random assignment.	They found that participants with alcohol and/or cocaine use disorders did not demonstrate significant differences in drug use or treatment satisfaction, when they compared mindfulness training (MT) to CBT. However, the results did suggest reduced psychological and physiological indices of stress during provocation in MT compared to CBT, thus providing evidence for the efficacy of mindfulness in helping to manage potential internal triggers, such as stress, as well as other forms of negative affect.

Zgierska, A., Rabago, D., Zuelsdorff, M., Coe, C., Miller, M., & Fleming, M. (2008). Mindfulness meditation for alcohol relapse prevention: A feasibility pilot study.	Gather preliminary data about the efficacy of meditation for relapse prevention.	19 adult alcohol-dependent graduates of an intensive outpatient program.	Biologic markers; alcohol consumption; SCL-90R; PSS; OCDS; MAAS.	Experimental.	This study revealed biological changes in participants diagnosed with alcohol-dependence, after they partook in a mindfulness meditation intervention. In addition to demonstrating significant decreases in severity of depression, anxiety, and stress, along with a significant increase in degree of mindfulness, they also found that interleukin-6, a stress-responsive and illness-sensitive cytokine, significantly decreased among the participants during the study.
Zgierska, A., Rabago, D., Chawla, N., Kushner, K., Koehler, R., & Marlatt, A. (2009). Mindfulness meditation for substance use disorders: A systematic review.	To perform a systematic review of the evidence for mindfulness meditation-based interventions (MM) for substance use disorders (SUDs).	2000 abstracts and 25 manuscrips.	Mindfulness (meditation).	Literature review.	Despite promising findings for mindfulness as a treatment for substance use disorders, the question of how it produces its effects (i.e., its mechanisms of action), and specifically how it does so within the substance abusing population, warrants much additional investigation. Findings from this review revealed that while preliminary evidence suggest MM efficacy and safety, conclusive data for Mm as a treatment of SUDs are lacking. It is also unclear which persons with SUDs might benefit most from MM.
Witkiewitz, K., & Bowen, S. (2010). Depression, craving, and substance use following a randomized trial of mindfulness-based relapse prevention.	The aim was to examine the relation between measures of depressive symptoms, craving, and substance use following mindfulness-based relapse prevention (MBRP).	168 individuals with substance use disorders.	BDI; Substance use; Penn Alcohol Craving Scale.	Experimental.	Results found MBRP to attenuate the relation between post-intervention depressive symptoms and craving two months following the intervention. They also discovered that this moderation effect predicted substance use four months post-intervention. Based on their results, the authors surmised that MBRP appears to influence cognitive and behavioral responses to depressive symptoms, which partially explains reductions in post-intervention substance use among the MBRP participants
Murphy, C., & MacKillop, J. (2012). Living	Examine the relationships between elements	116 young adults.	AUDIT; UPPS-P; MCQ; FFMQ.	Correlational.	This study found the associations between mindfulness and alcohol misuse were entirely a function of impulsivity, and that acting on

in the here and now: interrelationships between impulsivity, mindfulness, and alcohol misuse.	of impulsivity and mindfulness and to examine both variables in relation to alcohol misuse.				impulses while experiencing negative affect was significantly associated with level of alcohol consumption and level of alcohol-related risk. Moreover, they discovered that certain core mindfulness concepts (i.e., tendencies not to judge subjective experiences, not to react to inner experiences, and to be experientially aware of experiences) were inversely associated with alcohol involvement.
Garland, E.L. (2011). Trait mindfulness predicts attentional and autonomic regulation of alcohol cue-reactivity.	Explore the proposition that the extent that mindful alcohol dependent persons can successfully regulate stress and alcohol cue-reactivity, the ability to disengage attention from alcohol cues when they are no longer present should predict the degree of autonomic recovery from such cues.	58 alcohol dependent adults who had resided in a residential treatment facility.	FFMQ; HFHRV; subjective cue-reactivity; alcohol attentional bias.	Experimental.	This study found higher trait mindfulness to be significantly associated with less difficulty resisting the urge to drink and greater high-frequency heart rate variability (HFHRV) recovery from stress-primed alcohol cues. The author found that the association between mindfulness and HFHRV recovery was partially mediated by attentional disengagement from alcohol cues, thus suggesting that alcohol dependent inpatients higher in mindfulness are better able to disengage attention from alcohol cues, which subsequently predicts the degree of HFHRV recovery from such cues. These findings, therefore, provide support for the notion that trait mindfulness could index cognitive control over appetitive responses toward alcohol, which is reflected in superior attentional and autonomic regulation of stress-primed alcohol cue-reactivity.
Ostafin, B.D., & Marlatt, G.A. (2008). Surfing the urge: Experiential acceptance moderates the relation between automatic	Examine whether mindfulness moderates the relation between automatic processes and alcohol behavior.	50 undergraduate drinkers.	IAT; Hazardous Drinking; KIMS.	Correlational.	Findings indicate that trait or dispositional mindfulness may contribute to decreased automatic appetitive responses to drinking. In other words, greater mindful acceptance of current experience may weaken the positive relation between automatic alcohol-approach associations and hazardous drinking.

alcohol motivation and hazardous drinking.					
Relation Between Mindfulness, Negative Affect, and Self-efficacy					
Author/ Year/ Title	**Research Questions/ Objectives**	**Sample**	**Variables/ Instruments**	**Research Approach/Design**	**Major Findings**
Chang, V.Y., Palesh ,O., Caldwell, R., Glasgow, N., Abramson, M., Luskin, F., Gill, M., Burke, A., & Kooopman, C. (2004). The effects of a mindfulness-based stress reduction program on stress, mindfulness self-efficacy, and positive states of mind.	Examine the effects of an MBSR intervention on pain, positive states of mind, stress, and mindfulness self-efficacy.	43 participants from a private university continuing education course (28 completed follow-up measures).	Self-report demographic measures, pain rating scale, positive states of mind (PSOM), PSS (stress), MSE (mindfulness self-efficacy).	Pre/post design; no control group; MBSR intervention: modeled on Kabat-Zinn and colleagues.	Post-intervention levels of stress were significantly lower than pre-intervention levels. Mindfulness self-efficacy and positive states of mind were at significantly higher levels as well Findings do not suggest that Ss experienced significant reductions in pain and suffering from baseline to post-intervention.

Gilbert, D., & Waltz, J. (2010). Mindfulness and health behaviors.	Examined the extent to which mindful awareness is related to healthy diet and physical activity.	269 undergraduate students.	Exercise Confidence Survey; FFMQ; IPAQ; Fruit and Vegetable Screener and Fat Screener; EHCS.	Correlational.	Findings revealed that the degree of mindfulness in everyday life (i.e., dispositional mindfulness) predicted exercise self-efficacy and diet self-efficacy, as well as physical activity, and fruit and vegetable intake.
Durrant, C., Clarke, I., Tolland, A., & Wilson, H. (2007). Designing a CBT service for an acute inpatient setting: A pilot evaluation study.	Assess the efficacy of a CBT approach designed for an inpatient setting.	14 psychiatric inpatients.	MHCS; LCB; Goal Setting; Living with Emotions; CORE.	Experimental.	Findings showed that, among an acute inpatient population, those who received a modified CBT intervention with mindfulness-based components, reported increased self-efficacy with respect to coping style and increased internal locus of control, as well as increased confidence in expressing emotions and improved ability to use coping strategies to deal with emotions.
Rogojanski, J., Vettese, L.C., & Antony, M.M. (2011). Coping with cigarette cravings: Comparison of suppression versus mindfulness-based strategies.	To investigate the efficacy of a brief suppression versus mindfulness-based strategy for coping with cigarette cravings.	61 adults who self-identified as cigarette smokers.	CAMS-R; DASS-21; FTND; PANAS; RSEQ; CEQ; TLFB; VAS.	Experimental.	Results showed that participants in both conditions reported significantly lower amounts of smoking and increased self-efficacy in coping with smoking urges at the 7-day follow-up. However, only those who partook in learning a mindfulness-based strategy for coping with cigarette cravings demonstrated reductions in negative affect, depressive symptoms, and marginal reductions in their level of nicotine dependence.

Britton, W.B., Bootzin, R.B., Cousins, J.C., Hasler, B.P., Peck, T., & Shapiro, S.L. (2010). The contribution of mindfulness practice to a multicomponent behavioral sleep intervention following substance abuse treatment in adolescents: A treatment-development study.	Assess the contributions of mindfulness meditation (MM) to gains in sleep quality and self-efficacy related to substance use disorders (SUDs).	55 adolescent outpatients with SUDs; 18 completed 6-session study intervention and questionnaires.	GAIN interview (General Mental Distress, Self-efficacy, and Substance Problem Indices); worry (PSWQ); frequency of drug use; sleep patterns.	Quasi-experimental (no control).	Findings revealed that mindfulness meditation training was related to improvement in psychological distress and self-efficacy towards resisting substance use, in a sample of adolescent outpatients with sleep problems and substance use disorders. Improvements in sleep were also found.
Lee, K., Bowen, S., & An-Fu, B. (2011). Psychosocial outcomes of mindfulness-based relapse prevention in incarcerated substance abusers in Taiwan: A preliminary study.	To evaluate the effects of an adapted Mindfulness-Based Relapse Prevention on several psychosocial indices in a sample of incarcerated adult males with substance use disorders.	24 incarcerated Taiwanese adult males with substance use disorders.	DUDIT-E; DASE; Ep/En; BDI-II.	Experimental.	The study found that, among a sample of incarcerated adult males with substance use disorders, those who participated in a Mindfulness-Based Relapse Prevention intervention demonstrated significant improvements in depressive mood and drug refusal self-efficacy.

Dakwar, E., Mariani, J.P., & Levin, M.D. (2011). Mindfulness impairments in individuals seeking treatment for substance use disorders.	Investigate mindfulness levels in those presenting for substance use treatment.	315 Ss seeking treatment for substance use disorders.	MAAS.	Correlational.	At the time of study, authors claimed it marked the first attempt to assess mindfulness impairments in individuals seeking treatment for substance use disorders, and they did so utilizing baseline levels of mindfulness. They found that the mindfulness means of most drug groups were below the national mean, with polydrug users scoring lower than did monodrug users. They concluded that their findings suggest mindfulness deficits may be common in the substance using population and that there may be sub-groups in which these deficits are even more pronounced.
Methodology					
Author/ Year/ Title	**Research Questions/ Objectives**	**Sample**	**Variables/ Instruments**	**Research Approach/Design**	**Major Findings**
U.S. Department of Commerce: National Telecommunications and Information Administration (2011). *Digital Nation: Expanding Internet Usage*.	To assess and provide data for current internet usage across the United States.	54,000 households and 129,000 persons.	Internet usage.	Informational publication.	Results from this study indicate that the demographics of internet users in the United States are becoming more inclusive. However, despite the United States rapidly moving towards full digital inclusion, a "digital divide" still remains with respect to certain demographic variables (e.g., income, education, and ethnicity).

Schmidt, L.A., Ye, Y., Greenfield, T.K., & Bond, J. (2007). Ethnic disparities in clinical severity and services for alcohol problems: Results from the National Alcohol Survey.	To report lifetime estimates of the extent of unmet need for alcohol services across the 3 largest ethnic groups in America and examine factors that may contribute to ethnic differences in service use.	The study utilized the data from two NAS surveys; 1995 (2,178 cases) and 2000 (7,612 cases).	National Alcohol Surveys (from NIAAA).	Correlational.	Findings revealed few ethnic differences in service use. Specifically, findings appeared to reveal good ethnic variability among Alcoholics Anonymous support groups, in that they were found to be a commonly sought form of treatment for those with issues of alcohol abuse/dependence among Whites, Hispanics, and Blacks. However, results did reveal significant differences by ethnicity in terms of alcohol problem severity. Specifically, at higher levels of problem severity, both Hispanics and Blacks were less likely to have utilized services than comparable Whites. Hispanics reported higher-severity alcohol problems than Whites, though they were less likely to have received specialty treatment and multiple types of alcohol services, as well as more likely to cite economic and logistical barriers as reasons for not obtaining care.
Cohen, J. (1992). A power primer.	To provide a convenient, though not comprehensive, presentation of required sample sizes for .80 power to detect certain effect sizes.	Not applicable (not a research study).	Not applicable (not a research study).	Not applicable (not a research study).	Findings detail the necessary sample sizes for .80 power to detect effects at small, medium, and large sizes for eight standard statistical tests. According to this article, a study requires at least 85 individual participants to provide adequate power to detect a significant correlation (i.e., assuming medium effect size using .05 alpha level).
Alcoholics Anonymous. (n.d.). This is A.A.: An introduction to the A.A. recovery program.	Provides general information about the organization of Alcoholics Anonymous.	Not applicable (not a research study).	Not applicable (not a research study).	Not applicable (not a research study).	Alcoholics Anonymous does not impose restrictions on those who want to participate, in that they are open to anyone who seeks help with overcoming alcoholism.

Mitchell, M., & Jolley, J. (2001). *Research design explained. (4th ed.)*.	It is a textbook on research design.	Not applicable.	Research design.	Published book.	The section on descriptive methods describes one of the strengths of a descriptive approach is that that allows for hypothesis testing of essentially any type of variable in any situation. It is important to remember, though, that you must be careful not to assume causality with descriptive approaches.
Cantrell, M.A., & Lupinacci, P. (2007). Methodological issues in online data collection.	Evaluate the use of an online data collection method to survey early survivors of childhood cancer about their physical and psychosocial characteristics and health-related quality of life.	90 respondents who reported to be childhood cancer survivors.	Affect Balance Scale; Coopersmith Self-Esteem Inventory; General Health Rating Index, Nowotny Hope Scale; Personal Resource Questionnaire; Minneapolis-Manchester Quality of Life Instrument.	Web-based online survey data collection protocol.	The utilization of online surveys to collect data confers a variety of different benefits, including that of greater anonymity, which can help participants feel increased comfort in openly responding to sensitive questions, and therefore contribute to reduce researcher-influenced bias and social response bias. A limitation, however, is that due to the anonymity that online data collection provides, it is essentially impossible to follow-up with individuals regarding missing data.
Miller, E.T., Neal, D.J., Roberts, L.J., Baer, J.S., Cressler, S.O., Metrik, J., & Marlatt, G.A. (2002). Test-retest reliability of alcohol measures: Is there a difference between internet-based assessment and traditional methods	Compared Web-based assessment techniques with traditional paper-based methods of commonly used measures of alcohol use.	255 undergraduate students.	Demographics; AUDIT; ADS; RAPI; drinking rates; URICA.	Experimental.	Results found that web-based assessment techniques appear to be a suitable alternative to traditional paper-based methods of commonly used measures of alcohol use, as no significant differences were found between assessment techniques. Moreover, web-based assessment techniques have the advantage of minimizing data collection and entry errors, while increasing survey accessibility.

Trochim, W. (2006). Nonprobability sampling.	Provides a description of nonprobability sampling methods.	Not applicable.	Nonprobability sampling; purposive sampling.	Informational.	Purposive sampling (snowball sampling) targets a specific group of people and is a useful method when a desired population is difficult to recruit for a study.
American Psychological Association. (2010). Ethical principles of psychologists and code of conduct.	To describe the ethical principles and code of conduct for psychologists.	Not applicable.	APA ethical principles; code of conduct.	Informational.	The five general APA Ethical Principles are: a) Beneficence and Nonmaleficence, b) Fidelity and Responsibility, c) Integrity, d) Justice, and e) Respect for People's Rights and Dignity.
Hobbs, B.B., & Farr, L.A. (2004). Assessing internet survey data collection methods with ethnic nurse shift workers.	Aimed to verify the feasibility of internet data collection methods and instrument stability comparing individual differences and shift-work-related sleep disturbances between nurses.	138 white non-hispanic nurses and 56 American Indian/Alaskan Native nurses.	Preferences Scale; Time Awareness Questionnaire; ESS.	Correlational.	The study discussed how a potential problem with internet data collection is self-selection and sample bias, in that those who provide data are individuals who have chosen to volunteer for participation. Excessive survey length can also affect participation. They also concluded that data collection with different ethnic groups is possible, though accessing the target population may be difficult (in this study, fewer American Indian/Alaskan Native nurses volunteered).
Granello, D.H., & Wheaton, J.E. (2004). Online data collection: Strategies for research.	Provide an outline of the benefits and limitations of online data collection.	Not applicable.	Not applicable.	Literature review and commentary.	This article describes how a study by ClickZ Network (2002), reported that internet use is increasing at a rate of 2 million new internet users each month, with internet use by individuals in the lowest income households (less than $15,000 per household per year) growing 25% for 1999 and 2000.

Swora, M. (2004). The rhetoric of transformation in the healing of alcoholism: The twelve steps of Alcoholics Anonymous.	The aim is to utilize the conceptual tools of anthropology of religious healing to interpret A.A.'s recovery program, the twelve steps.	Not applicable.	Twelve steps; spirituality.	Review of literature and informational.	The author discusses how there is an emphasis placed on spirituality and meditation within the twelve step teachings of Alcoholics Anonymous. She describes how members are asked to interpret the world, their lives, and their affliction in sacred terms.
Horrigan, J. (2009). *Wireless Internet Use*.	Provide information related to current wireless internet usage by American adults.	2,253 adult Americans.	Wireless internet usage.	Informational publication.	This study reports that upwards of 79% of adult Americans are at least occasional internet users and project that internet access will continue to increase with the advent of wireless technology. Results also show that African-Americans, in particular, are quickly growing in their mobile internet use.
Howell, D. C. (2007). *Statistical methods for psychology* (6th ed.).	Present information related to statistical methods for psychology.	Not applicable.	Statistical methods for psychology; Games-Howell test.	Informational publication.	The author discusses how the Games-Howell test is a preferable post-hoc test to use when there is concern for unequal sample sizes and possible heterogeneity of variance among groups.
A.A. World Services, Inc. (2011). Alcoholics Anonymous 2011 membership survey [Brochure].	To keep members informed on current trends in membership characteristics and to provide information to the professional community.	More than 8,000 A.A. members from the U.S./Canada.	Alcoholics Anonymous; membership survey.	Informational publication.	The A.A. survey creates length of time abstinent groups that are: less than 1 year, between 1 and 5 years, between 5 and 10 years, and greater than 10 years. Results show that the vast majority of members are Caucasian (87%), generally tend to be somewhat older (average age of 49), and that a relatively high percentage are retired individuals (17%). Moreover, results indicate that approximately 27% of members report being sober less than one year and that about 36% of members report being abstinent for greater than ten years.

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