A Brief Personalized Feedback Intervention Integrating a Motivational Interviewing Therapeutic Style and Dialectical Behavioral Therapy Skills for Depressed or Anxious Heavy Drinking Young Adults

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This is to certify that I have examined this copy of a doctoral dissertation by

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Abstract

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This randomized clinical trial assessed the impact of two interventions for depressed and/or anxious heavy drinking college students. Participants included 145 (60.0% female) students who completed one of three conditions: the Brief Alcohol Screening and Intervention for College Students (BASICS; n=49); a Dialectical Behavioral Therapy (DBT) skills enhanced version of BASICS (DBT-BASICS; n=43); or a Relaxation Control Condition (RCC; n=53). DBT-BASICS and BASICS were delivered one-on-one in a 60-minute session including feedback regarding drinking behavior, norms, consequences, and risk reduction tips, and conducted in a motivational interviewing style. DBT-BASICS also included feedback regarding depression and anxiety levels and related norms, identification and reinforcement of existing coping skills, therapist self-disclosure via skills training, and brief training in three skills from the skills group component of DBT. DBT-BASICS surpassed RCC and BASICS for reducing alcohol related problems at three-month follow-up. DBT-BASICS

outperformed RCC based on improvements in depression, anxiety, coping drinking, and emotion regulation, at one and three-month follow-ups. DBT-BASICS' effects on three-month drinking related problems was mediated by improvements in depression, difficulties regulating emotions, and coping drinking. Relative to RCC, BASICS was associated with fewer difficulties regulating emotions at one-month follow-up, and decreased drinking to cope at three-month follow-up, but these effects were not as strong as they were for DBT-BASICS. Findings provide initial support for the efficacy of DBT-BASICS in reducing drinking problems, coping drinking, depression, and anxiety and improving emotion regulation among depressed and/or anxious coping drinking college students.

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Introduction

Heavy drinking and alcohol-related problems are both commonly reported among U.S. college students. Over 80% of students report drinking alcohol, and almost half report heavy episodic drinking (4+/5+ drinks per occasion for women and men, respectively; U.S. Department of Health and Human Services, 1997). Peak lifetime alcohol use generally occurs in late teens and early 20s, but college students drink more and experience more alcohol-related problems in comparison to non-students (Hingson, Heeren, Winter, & Wechsler, 2005; Johnston, O'Malley, Bachman, & Schulenberg, 2008). Heavy drinking is associated with harmful consequences among students including unwanted, unplanned, and unprotected sexual experiences; physical injuries or illness, and significant legal, academic and psychological difficulties (Abbey, 2002; Cooper, 2002; Larimer, Lydum, Anderson, & Turner, 1999; Leibsohn, 1994; Perkins, 2002, Schulenberg et al., 1996; Wechsler et al. 1994; 1998).

College Drinking Patterns and Coping Drinking Motives

In a review of drinking rates and related problems, Baer (2002) suggested two primary patterns of heavy drinking among college students, based upon Zucker and colleagues' model of alcoholism risk (Zucker, 1987, 1994; Zucker, Fitzgerald, & Moses, 1995). The first group includes those who are impulsive, sensation seeking, and drink primarily for social reasons. This category is hypothesized to account for most students who drink heavily during their college years and then "mature out" of heavy drinking (Baer, 2002; Brennen, Walfish, & Aubuchon, 1986; Ham & Hope, 2003). The second, smaller group includes those whose drinking is related to negative mood, and who are motivated to drink in

order to gain relief from negative emotions such as those related to depression and anxiety (Ham & Hope, 2003). These drinking motives are referred to as coping motives. The presence of high coping motives is associated with greater drinking quantity and frequency, adult alcohol dependence, and increased likelihood of developing long term drinking problems (Britton, 2004; Cooper, 1994; Cooper et al., 1995). Drinking to cope is related to a number of other difficulties, including anxiety and anxiety sensitivity (Carrigan, Drobes, & Randall, 2004; Carrigan, & Randall, 2003; Novak, Burgess, Clark, & Zvolensky, 2003; Stewart, Samoluk, & MacDonald, 1998), depression (Holahan et al., 2004, Wood, Nagoshi & Dennis, 1992), insecure attachment style and a negative model of self (McNally, Palfai, Levine & Moore, 2003). Further, drinking to cope is the drinking motive repeatedly and most strongly associated with drinking related problems - or life problems caused by alcohol use (Britton, 2004, Kuntsche, Knibbe, Gmel, & Engels, 2005).

College Coping Drinkers at Risk for Long Term Problems

Reported rates of alcohol use disorders among college students vary, with rates indicating that approximately 8 to 32% of college students meet criteria for alcohol abuse and 6-13% for alcohol dependence (Clements, 1999; Dawson, Grant, Stinson, & Chou, 2004; Knight et al., 2002; Slutske, 2005). Of students diagnosed during college with alcohol abuse or dependence, 30 to 43% will continue to meet these criteria after college graduation (Fillmore & Madanik, 1984; Grant, 1997; Kilbey, Downey & Breslau, 1998; Temple & Fillmore, 1985). It is unclear how to distinguish between college students who will maintain alcohol use disorders and those who will not (Schulenberg et al., 1996). However, several risk factors for long-term problems have been identified. Initial findings suggest heavy

solitary drinking (Christiansen, Vik, & Jarchow, 2002), while atypical of college student drinkers, is related to greater risk for future alcohol problems. These solitary drinkers tend to be more likely to use alcohol to cope, have more depressive symptoms, and have less confidence in their own abilities to regulate their negative emotions. The presence of an anxiety disorder during freshman year also increases risk for alcohol dependence even four and seven years later (Kushner, Sher & Erickson, 1999). In summary, research to date indicates that coping motives and mood related problems are important variables to consider in targeting those at risk of alcohol use disorders. Intervention and prevention efforts aimed at detouring long-term alcohol problems in college students should be guided by our understanding of these findings.

BASICS Interventions

Many students who drink heavily and experience alcohol related problems, if identified early in their college careers, respond successfully to brief interventions (Marlatt et al., 1998). Interventions incorporating motivational interviewing (Miller & Rollnick, 2002), alcohol related skills training, and personalized feedback have the most support for efficacy among college students (Larimer & Cronce, 2002; 2007). Brief motivational or skills based approaches have been designated as Tier 1 interventions by National Institute on Alcohol Abuse and Alcoholism (NIAAA, 2002), indicating strong support for their efficacy. The prototypical example of this type of brief intervention is the Brief Alcohol Screening and Intervention for College Students (BASICS) curriculum (Dimeff, Baer, Kivlahan, & Marlatt, 1999) which incorporates motivational enhancement, risk awareness, expectancy information, and personalized normative feedback, as well as suggestions for less risky drinking habits.

BASICS, identified by the Substance Abuse and Mental Health Services Administration (SAMHSA, 2003) as a Model Program and a member of their National Registry of Evidence-based Programs and Practices (SAMHSA, 2008), has been shown to reduce frequency and quantity of drinking and reduce alcohol related problems in comparison to assessment only control (e.g., Baer et al., 2001; Larimer et al., 2001). Although students often show significant reductions in drinking rates and related problems over time regardless of intervention or control group status (e.g., Marlatt et al., 1998), BASICS appears to accelerate the maturational process, resulting in fewer alcohol related problems and less consumption over the course of a student's college career (Baer et al., 2001).

For some college students, even the most efficacious treatments, such as those involving brief motivational or skills-based interventions, are not helpful in the long-term. In a four year follow-up of a BASICS intervention, 2.6% of high-risk drinkers who received BASICS became worse, and 36.5% reported no drinking changes after four years (Baer et al., 2001). Thus, despite the overall efficacy of BASICS and the fact that on the whole four year outcomes compared favorably to the control group, these results indicate that for some individuals, BASICS is not successful at producing or maintaining post-intervention behavior change and thus could be improved. Given these rates, it is possible that those students who are unresponsive to BASICS and similar interventions, as well as those who continue or go on to have alcohol disorders, constitute significantly overlapping groups.

BASICS Adaptation for Coping Drinkers

Research indicates college students who have higher self-efficacy in regulating negative emotions are less likely to report either drinking problems (Kassel, Jackson, Unrod,

2000) or maladaptive coping patterns, such as drinking to cope. Coping drinkers may lack skills to otherwise functionally modulate their moods (Cooper et al., 1995; Kuntsche et al., 2005). This is hypothesized to lead to a problematic cycle where the individual's life problems remain unresolved (due to lack of skillful coping) and therefore feed the cycle of drinking to cope (Cooper et al., 1995; Kassel et al., 2000). One route for reducing risk for long term alcohol problems may be to target vulnerable individuals (i.e., those with mood problems and who drink to cope), and to reinforce skillful means of regulating emotions and offer additional emotion regulation skills. If effective, this could lead to less coping drinking and fewer alcohol related problems. Indeed, it has been suggested that early interventions for drinking problems should focus on eliminating dysfunctional or avoidant coping (e.g., drinking to cope) and enhancing positive coping (Hasking, 2006).

While BASICS reduces alcohol-related problems and alcohol consumption, it may be primarily efficacious for accelerating the maturational process to more regulated drinking among those who drink mainly for social and/or enhancement motives. BASICS and other brief motivational interventions do not contain mood or emotion components, and to date do not focus specifically on those who use alcohol for emotion regulatory reasons. Dialectical Behavioral Therapy (DBT; Linehan, 1993a; b) is a treatment developed primarily to treat those with severe difficulties regulating emotions and has been efficacious in treating those with borderline personality disorder (Linehan et al., 1999), antisocial behaviors (McCann, Ball, & Ivanoff, 2000), and eating disorders (Telch, Agras, & Linehan, 2001), among other groups. The skills group component of DBT focuses primarily on increasing skills for dealing with negative emotions such as those associated with anxiety and depression (i.e.,

improving emotion regulation). In order to address the specific issues of coping drinkers, the current study tested a modification of the existing BASICS to include an emotion focus and emotion regulation skills from DBT (DBT-BASICS).

Hypothesized Relations

The current study evaluated a DBT-skills enhanced version of the BASICS (DBT-BASICS) in a randomized clinical trial with mood-disordered heavy drinking college students who engage in coping drinking. DBT-BASICS was compared to the BASICS intervention and a relaxation control condition (RCC). Based on the existing support for BASICS, we hypothesized that DBT-BASICS would be comparable to BASICS on drinking outcomes. However, because DBT-BASICS addressed the motivation of drinking to cope it could also be hypothesized to outperform BASICS because of reduced drinking to cope could lead to reduced overall drinking. We thought DBT-BASICS would lead to overall mood improvements based on improved emotion regulation skills, and we further hypothesized that DBT-BASICS would improve not only emotion regulation abilities, but also lead to reduced depression, anxiety, and tendency to drink to cope as compared to BASICS and RCC. In terms of mediation, we hypothesized that improvements in abilities to regulate emotions and mood would mediate the pathway from DBT-BASICS to fewer alcohol related problems and decreased drinking. Because of the strong link between coping drinking and alcohol related problems, we further hypothesized that decreases in coping drinking would mediate the pathway between DBT-BASICS and decreased alcohol related problems.

Methods

Screening Participants

All study procedures were approved by the University of Washington Human Subjects Review Board. Participants were voluntary members of the University of Washington Psychology Department Subject Pool. The Subject Pool is an administrative mechanism that coordinates the activities of department researchers and undergraduate research participants. During the second week of the quarter participants completed the Beyond BASICS screen, along with unrelated research measures during a "Questionnaire Day" in their 50-minute Psychology 101 class. The 5-minute Beyond BASICS screen included an assent form, a screening survey (see screening measures below), and request for contact information. Screening participants did not receive incentives for screening participation.

Beyond BASICS screenings were conducted during the quarters of autumn 2007 (546 students, 440 provided consent and contact information), winter 2008 (507 students, 463 provided consent and contact info), spring 2008 (250 students, 217 provided consent and contact info), and autumn 2008 (1033 students, 838 provided consent and contact info). On the evening of Questionnaire Day, Beyond BASICS screens were separated from other questionnaires and then visually analyzed for study eligibility. Screening participants (2336) included 911 males (39.0%) and 1,425 females ranging in age from 18-32 years ($M = 19.3$, $SD = .98$). A total of 1958 (83.8 %) screens were completed with contact information included; another 378 individuals completed the survey but were not considered for study participation because they directly declined further participation (N=197) or because they left

the personal contact information portion of the screen blank (N=181). Racial makeup of the sample was 51.8% Caucasian, 32.6% Asian/Asian American, 7.5% multi-racial, 1.8% Native Hawaiian/Pacific Islander, 1.5% African American, 0.9% Native American, 2.4% other, with 1.6% not reporting racial background. Ethnically, 4.2% were Latino/a. The majority of participants (95.3%) self-identified as heterosexual/straight, whereas 1.6% identified as bisexual, 0.6% as gay male, 0.2% as lesbian, and 1.0% as questioning, with 1.3% not reporting their sexual orientation.

Screening Measures

Drinking Behavior

Drinking Motives were assessed using the Drinking Motives Questionnaire (DMQ; Cooper, 1994). The DMQ includes 20 items, 5 items for each motive. Examples of items from each subscale include "it helps you enjoy a party" (Social), "you like the feeling" (Enhancement), "so you won't feel left out" (Conformity), and "Because you feel more self-confident and sure of yourself" (Coping). The DMQ has been found to have good internal validity, with alphas ranging from .84 to .88 (Cooper, 1994), and .88 in the current study. The Coping subscale coefficient alpha was .90 for the screening sample, but we used a four item version of the coping subscale, which was more reliable (.92) and which better reflected the construct of coping drinking which we were assessing. Items utilized included: "To forget your worries"; "Because it helps when you feel depressed or nervous"; "To cheer you up when you are in a bad mood"; "To forget about your problems." Responses ranged from 1 "Never/Almost Never," to 3 "Half of the time," and 5 "Almost Always/Always." Among

college students the most common motives for drinking are Social, followed by Enhancement, Coping, and Conformity (Neighbors, Larimer, Geisner & Knee, 2004).

Weekly and Binge Drinking were assessed using two questions: 1) a modification of the Harvard Alcohol Survey item assessed NIAAA's (2004) redefined "binge drinking" criteria: "Over the past month, how many times have you had 5 or more drinks (4 or more for women) over a 2-hour period?" and 2) "On average over the past month, how many days per week have you consumed alcohol?" (Dimeff et al., 1999). These two items resulted in a coefficient alpha of .66. Demographic information collected included age, sex, race and ethnicity, sexual orientation, weight (in order to calculate Blood Alcohol Level, BAL), and class standing.

Mood

The Beck Depression Inventory-II (BDI; Beck, Steer, Brown, & Ranieri, 1996) is a 21-item self-report questionnaire measuring severity of depression symptoms experienced in the past two weeks. The BDI was chosen for its overlap/correspondence with the depression diagnostic symptoms (American Psychiatric Association, Diagnostic and Statistical Manual-IV, 1994) and because of its high rate of research use and the resulting comparability to other clinical research results. Internal consistency measurements have yielded sufficient reliability: coefficient alpha of .93 ($N = 120$) in a college student sample, and .92 ($N = 500$) in a clinical sample (Beck et al., 1996). The clinical ranges for BDI are generally rated as: 0 - 13 = minimal, 14 - 19 = mild, 20 - 28 = moderate, and 29 - 63 = severe depression. However, the BDI is not intended to diagnosis depression and Beck et al. (1996) state that it is intended for use once a depression diagnosis has already been made. The coefficient alpha of the

current study was .87. Each BDI item is rated on a 4-point scale, 0 representing the absence of the symptom (e.g., I don't have any thoughts of killing myself) and 3 indicating the most severe form of the symptom (e.g., I would kill myself if I had the chance).

The Beck Anxiety Inventory (BAI; Beck, Epstein, Brown, & Steer, 1988) is a 21-item self-report measure designed specifically to discriminate between anxiety and depression as measured by the BDI. The BAI measures severity of anxiety symptoms and has been found to differentiate between anxious and non-anxious diagnostic groups in a variety of clinical populations. According to the scoring manual (Beck et al., 1988), scores of 8 - 15 reflect mild anxiety, 16 - 25 indicate moderate anxiety, and 26 - 63 indicate severe anxiety. In a U.S. census matched community sample, a score of 3 aligned with the 50^{th} percentile and a score of 10 aligned with the 80^{th} percentile (Gillis, Haaga, & Ford, 1995). In a sample of 350 undergraduates, these rates were higher ($M = 13.41$, $SD = 8.96$; Osman et al., 1997). The coefficient alpha for the screening sample is .90. Each BAI item is rated on a 4-point scale: 0 (not at all) to 3 (severely, I could barely stand it).

Study Eligibility and Participants

Study eligibility was based on both drinking behavior and emotional experiences. Participants were considered eligible if they binge drank at least once in the past month (NIAAA, 2004), drank at least weekly (Dimeff et al., 1999), reported that at least "some of the time" they drank to deal with negative emotions (based on a 4-item version of the Coping subscale; Cooper, 1994), and reported a score of 14 or greater on the BDI or the BAI (Beck et al., 1996; 1988). Within our screening sample, 27% reported that at least "some of the time" they drank for one or more of the reasons comprising the four Coping subscale items

utilized in the current study. Participants also had to indicate willingness to be contacted for the longitudinal study and provide their name and contact information. Of the 2336 students screened, 202 (8.6%) met screening criteria. All participants who met eligibility criteria were randomly assigned to condition at that time, though participants were not notified of their randomization status to avoid participation bias. Randomization prior to first office visit (when study intervention occurred) was necessary due to the rolling recruitment process and the necessity of preparing the intervention feedback sheets prior to participants coming into the lab. Participants were randomly assigned by the first author via a web-based random number sequencer (http://www.randomizer.org) to BASICS (n = 67), DBT-BASICS (n = 67), or Relaxation Control Condition (RCC) (n = 66). These students were contacted via email from a university email address (e.g., basics@u.washington.edu). The email message referenced their consent for contact at the screening survey and provided a general description of the purpose of the project and incentives and an invitation to participate with a weblink to further information. Incentives included up to .3 GPA points extra credit (for their introductory psychology course) for completion of baseline assessment, office visit including study condition, and 1-month follow-up assessment. Participants received $25 for completion of their 3-month assessment.

Of the 202 eligible, 145 (71.78%) were successfully recruited into the study. There were no differences between those eligible and enrolled versus those eligible but not enrolled on any demographic characteristics or screening criteria. RCT participants included 58 (40%) men and 87 (60%) women ranging in age from 17 to 26 (M = 18.92, SD = 1.22). Participants were 65.52% Caucasian, 25.52% Asian, 4.83% Multi-Racial, 2.07% Other, 1.38% African

American, and .69% American Indian/Alaska Native. 4.83% were Hispanic/Latino/a. The sample largely identified as heterosexual (98.60%), while the remainder identified as bisexual.

Consent, Baseline, and Office Visit

Students indicating continued interest were then emailed a consent form, weblink to the online Baseline Survey, and a PIN number to logon to the Baseline Survey. Consenting participants completed the Baseline Survey online through the DATSTAT Illume survey system. If students consented and completed baseline, they were scheduled to come in for an office visit to receive BASICS, DBT-BASICS, or our Relaxation Control Condition (RCC). Participants received reminder emails and phone calls to reduce no-show rates and increase retention. Upon arrival in our offices, a research assistant reviewed the consent form further and provided additional optional forms (a broader audio release form, a collateral contact sheet, and release of records to collect additional data from the registrar). Participants were then oriented to their condition. The office visit lasted an average of 1.5 hours, including their intervention or relaxation session.

Baseline and Follow-up Assessment Measures

Screening measures, in addition to the drinking and mood measures described below, were assessed at Baseline Survey, and one-month and three-months post-baseline. Participants completed follow-up assessments online from a location of their choosing. Coefficient alphas for the baseline remained consistent with those of screening (BDI = .92, BAI = .91, DMQ = .83, Weekly and Binge Drinking = .55).

Drinking Behavior

Peak drinking episode drinks and time, and average drinks per week were collected as a measure of drinking behavior. Peak drinking episode was assessed with the question, "Think of the occasion you drank the most this past month. How much did you drink?" and "How many hours did you spend drinking on that occasion" from the Quantity-Frequency Index (Dimeff et al., 1999). This information was used to compute BAL for peak drinking occasion. Average drinks per week were assessed with the Daily Drinking Questionnaire where participants were queried about, on average, the number of drinks they drank on each day (Monday through Sunday) over the past month (Collins et al., 1985).

Alcohol Related Problems were evaluated using the Rutgers Alcohol Problem Index (RAPI; White & Labouvie, 1989). The RAPI is a 23-item questionnaire that assesses both quantity and severity of health (psychological, physical, and neuropsychological) and social (family life and social relations) consequences related to drinking. Items are rated for frequency of occurrence on a Likert-type scale measured from "never" (1) to "more than 10 times" (4). We utilized a three-month time period, such that total scores represent the overall extent of alcohol related problems in the past three months. This results in only two comparable timepoints (baseline and three-month follow-up), as one-month results only included past month problems. The RAPI version used for this study included 2 additional items which assessed riding with a drunk driver and driving while intoxicated. The coefficient alpha in this sample was .89.

Mood

Difficulties Regulating Emotions were measured using the Difficulties in Emotion Regulation Scale (DERS; Gratz & Roemer, 2004). The DERS includes 36 items which make

up six subscales. Response options range from 1, indicating "almost never" (0-10%) to 5, indicating "almost always" (91-100%) on a 5-point Likert-type scale. Based upon an integrative model of emotion regulation (Gratz & Roemer, 2004), the DERS assesses ability to modulate emotional arousal, degree of emotional awareness, understanding and acceptance of emotional arousal, and capacity to function in daily life despite one's emotional state. The DERS has previously demonstrated good psychometric properties and predictive validity in non-clinical college student samples (Gratz & Roemer, 2004). A college sample (N=695) collected at the University of Washington, found that students scored an average total score of 82 (*SD* = 20) (Whiteside et al., 2007). The internal consistency was alpha = .89.

Condition Descriptions

BASICS and DBT-BASICS

All intervention sessions were digitally audio-taped and conducted in private offices on the university campus. Participants were reminded that the session would be digitally audio taped. BASICS and DBT-BASICS interventions were conducted one-on-one with a feedback specialist (therapist) and lasted approximately 60 minutes. The therapist opened with an ice-breaking discussion, asking the participant about their year in school, major, and current psychology classes. The therapist employed a motivational interviewing approach, utilizing strategies such as reflection, rolling with resistance, and emphasizing personal control (Miller & Rollnick, 2002). The participant was told that the session would focus on review and discussion of personalized feedback generated from their answers to the baseline questionnaire. Throughout the session, participants were encouraged to ask questions and asked to consider the feedback in the context of their own personal goals and values. A

discussion summary was provided by the therapist several times throughout the feedback session, and at the conclusion of the session.

Participants in both interventions received two pages of personalized feedback regarding alcohol and two pages of "Tips Sheets" with suggestions for how to moderate drinking and the effects of drinking on performance and sleep. Following introductions, ice-breaking, and administrative tasks, the participant was oriented to the two-page personalized feedback sheet, with alcohol-related content divided into 6 sections: drinking patterns, perceived norms for drinking among U.S. citizens and University of Washington college students of the same gender, expected positive effects of drinking and experienced negative consequences of drinking, tolerance myths, and results of a risk factors assessment.

The therapist began the alcohol portion of the feedback discussion by asking open-ended questions about how drinking fit into the participant's life (e.g., "if I was a fly on the wall, what would a typical occasion of drinking look like to me?"). This gave the therapist a sense of the participant's drinking patterns and provided a foundation for the rest of the session. From this point, the dyad spent time on each section of the feedback sheet. Significant attention was paid to the participant's perceived norms for the quantity and frequency of alcohol consumption; perceived norms were directly compared to actual campus norms for these behaviors. The feedback included discussion of what the individual liked and did not like about drinking, and also included exploration of beliefs that were likely to lead to higher rates of drinking for the participant. Regardless of condition, the participant was given his or her personalized feedback sheets, a personalized (for sex and weight) wallet sized Blood Alcohol Content (BAC) chart, the relevant "Tips Sheets" (see below), and a

resource list for psychological services at the end of the session.

DBT-BASICS Intervention

Participants in the DBT-BASICS intervention spent less time with their therapist discussing the alcohol portion and in addition to the alcohol feedback, received two additional feedback pages that were emotion-focused in content. The first page provided graphical comparisons of the participant's depression and anxiety levels to those of other college students. The therapist usually presented this information by saying, "College is the time in life when we are most likely to experience depression and anxiety. Here you can see from the graphs that you are above the average college student in terms of overall feelings of sadness [depression] and stress [anxiety]. The feelings that you are having are not uncommon, but the degree to which you are experiencing them may be something important to pay attention to. How does that fit with your experience?" The participant also received normative graphical feedback regarding emotion regulation abilities (based on the subscales from the DERS), with comparisons to a sample of college students. If the student was high on judgment of his or her own emotions (e.g., non-acceptance subscale), then the therapist would, with consent, share research findings that suggest that judging one's emotions is not helpful in that it generally serves to intensify negative emotions. During this section of feedback the therapist would gently and empathetically probe about the participant's own experiences with depression and anxiety, asking if and how these states were impacting the participant's life. The impact of heavy drinking on mood was also discussed (i.e., both research findings and the participant's personal experience).

On the second page of the emotion related feedback there were two sections. The first functioned to reinforce effective coping skills that the participant already endorsed, based on his or her responses to the COPE inventory (Carver, Scheier, & Weintraub, 1989) from the baseline survey. The therapist would reinforce skill use by saying, "Here we have highlighted ways of managing stress and anxiety that you are already doing – that maybe you just do naturally. These also happen to be research supported ways of managing stress." This was followed by a brief discussion of these skills and the ways in which the participant integrated them into his or her life. Finally, in the bottom section of the second page of emotion feedback, the participant was offered three DBT skills, which were listed and described on the page (see description below). At this point, three specific DBT skills (i.e., Mindfulness, Opposite Action and Mindfulness of Current Emotion) were discussed as options for dealing with specific problems or questions that the student raised. For example, the student might have said, "I can't seem to get myself to study. I get overwhelmed and irritated, and then I just want to go and get drunk." The therapist might respond with, "You are frustrated with this cycle. I know other college students who had similar situations. Some of them found a useful way of dealing with it. Would you be interested in hearing more about this?" The therapist then proceeded to help the student identify a possible DBT strategy. With permission from the participant, the therapist described these skills by providing the skill definitions, giving a personal example of use from their own life (therapist self-disclosure was used to normalize the use of these skills), and by sharing potential roadblocks to effectively using these skills. Therapist self-disclosure of effective DBT skill use is a recommended method for the teaching of DBT skills (Linehan, 1993b). Following DBT skill

didactics, the participant was asked if he or she could imagine using these skills, Mindfulness, Mindfulness of Current Emotion, and Opposite Action, in his or her own life. The participant was asked to imagine the kind of situations in which each specific skill would be used and what that use might look like. The participant was also given two additional "Tips Sheets" (not received by BASICS participants) which further outlined the three DBT skills and asked if he or she would consider reading these over on his or her own time. What follows is a more complete description of the three skills taught in DBT-BASICS.

Mindfulness.

Mindfulness is described as a way of paying attention to or having awareness of the present moment sans judgment. It is presented at a way of being in the world that is more effective (e.g., presenting research that doing one thing in the moment is more effective than multi-tasking). Participants were introduced to the importance of being *one-mindful* (i.e., doing one task in the moment), taking a nonjudgmental stance, and doing things effectively. Therapists discussed ways of watching one's own thoughts like a scientist – noticing and observing them without becoming attached to them.

Opposite Action.

Opposite Action is acting alternatively to an emotional urge that if acted upon will make the situation worse or be ineffective in meeting one's goals (e.g., getting a good grade in a public speaking course). For example, when anxious the emotion is fear and the urge is often to hide (e.g., not attend class where one has to give a presentation). The opposite action for anxiety would be to approach what one was afraid of and throw oneself fully into engaging in that behavior (e.g., attend class and participate entirely in the presentation topic,

not engaging in negative evaluative thinking if it comes up). The trick with opposite action is to do it all the way – such that thinking style, voice tone and facial expression, and body posture are all in line with the opposite of the urges related to the negative emotion.

Mindfulness of Current Emotion.

Mindfulness of Current Emotion is a strategy for managing strong emotions as arise by focusing on the internal physiological sensations of that emotion. Attention is directed away from thoughts and towards feeling the physical sensations of whatever emotion the individual is feeling. As time passes, the intensity of the emotion decreases. This is often described by DBT therapists as an alternative way to deal with a problem (e.g., if a problem cannot be solved, such as the death of a loved one, and must be tolerated).

Relaxation Control Condition

The RCC session was also approximately 60 minutes to control for effects of time in office. Participants were told that they had been randomized to a relaxation session and given a brief explanation: "We think that college students do not *schedule in* enough time to relax. While they may end up relaxing at times, that time can also be somewhat stressful because it often involves avoidance of responsibilities. Therefore, we have scheduled the next hour as specific relaxation time. The only rule during this time is that you *not do any work, whatsoever.* We have provided magazines, internet access and a phone for you here. We will ask you to rate your stress level prior to and following the session. It is important that I do not see your score, so I have provided an envelope for you to keep these ratings in. Do you have any questions so far?"

Therapist Training

The five study therapists were comprised of 1 clinical psychology PhD (UW) student, four Bachelor's level professional staff, and one advanced undergraduate. Therapists were trained in both conditions including a 2-day didactic workshops covering motivational interviewing skills (Miller & Rollnick, 2002), basic alcohol information, and the BASICS intervention. Therapists were trained by Jason Kilmer, PhD and Sean Tollison, MS. Subsequent training specific to DBT-BASICS was provided by the first author who has a ten-year training history in DBT. Following each training workshop, therapists' skills were sharpened through role-plays (mock individual feedback sessions) with volunteer college students and other therapists, and by weekly individual and group supervision sessions.

Intervention Integrity

During the intervention phase, all sessions were reviewed for adherence and competence by the first author or a MITI-trained psychology masters level graduate student. Therapists were provided with written feedback which was reviewed during weekly group supervision in order to avoid therapist drift.

Results

Baseline Completion

Of those RCT eligible and randomized, 43 of 67 DBT-BASICS participants (64.18%), and 49 of 67 BASICS participants (73.13%) completed consent and the Baseline Survey and 41 and 45 of these completed their intervention respectively. For the RCC, 53 out of 66 participants (79.10%) completed consent and Baseline and 50 attended the relaxation session. There were no statistically significant differences between conditions in baseline completion or intervention attendance rates. Primary outcome analyses were conducted on baseline completion, regardless of intervention completion. See Figure 1 for further description of screening and assessment completion rates.

Attrition and Missing Data

Missing data were due primarily to attrition. Of 145 participants, 123 (84.83%) and 100 (68.97%) completed the one and three-month follow-up assessments respectively. At one-month follow-up, attrition rates were not significantly different across the three conditions, with 88.37% (n = 38 of 43) of participants in the DBT-BASICS intervention completing the one-month follow-up assessment as compared to 85.71% (n = 42 of 49) of participants in the BASICS intervention and 81.13% (n = 43 of 53) of participants in the RCC, χ^2 (df = 2, N = 145) = 1.12, $p = ns$. Attrition rates for three-month follow-up were also not significantly different across the three conditions, with 72.09% (n = 31 of 43) of participants in the DBT-BASICS intervention completing the follow-up assessment as compared to 71.43% (n = 35 of 49) of participants in the BASICS intervention and 64.15% (n = 34 of 53) of participants in the RCC, χ^2 (df = 2, N = 145) = .91, $p = ns$. Additionally, a

few participants did not complete one or more items resulting in minor discrepancies in degrees of freedom. The means for outcome measures are presented by condition for baseline, one-month and three month follow-up assessments in Table 1.

Sex

Preliminary analyses were conducted to examine sex differences in drinking and depression and anxiety symptoms at baseline and to evaluate whether sex accounted for changes in drinking or emotion outcomes. Consistent with previous research, at baseline, in comparison to men, women reported higher levels of depression, t (141) = 3.17, $p < .001$, d = .53, and anxiety, t (141) = 2.23, $p < .001$, d = .38. Men reported *lower* difficulties regulating emotions, t (143) = -2.42, $p < .05$, d = .40. Men and women did not differ significantly with respect to drinks per week t (143) = 1.62, p = *ns*, d = .27, binge drinking, t (143) = 1.62, p = *ns*, d = .27, or drinking problems, t (142) = 1.24, p = *ns*, d = .21. Sex did not explain unique variance in follow-up outcomes after controlling for baseline outcomes. Furthermore, none of the results reported below were affected when controlling for sex and therefore results are collapsed across sex.

Data Analytic Strategy

Analysis of Covariance

Analyses of outcomes were conducted with SPSS Version 17 (SPSS Inc., 2008) using analysis of covariance (ANCOVA; Field, 2005). ANCOVAs were conducted by selecting the General Linear Model (GLM): Univariate. Simple contrasts were chosen to examine the effects of our predictor variable (treatment condition, where 1 = RCC, 2 = BASICS, and 3 = DBT-BASICS). SPSS provides three main categories of output for ANCOVA: Test of

Between-Subjects Effects, Parameter Estimates, and Contrast Results. In evaluating condition effects on outcomes we covaried baseline outcomes. Thus, outcomes at follow-up were examined as a function of treatment condition controlling for corresponding baseline outcomes.

The Test of Between-Subjects Effects provides a significance test indicating if the covariate significantly effects the outcome. It also provides the significance test for treatment condition's effect on outcome while accounting for the covariate. The *F*-ratios for the Test of Between-Subjects Effects were calculated by dividing the mean squares for the effect by the mean squares for the residual. The degrees of freedom used to assess the F-ratio are the degrees of freedom for the effect of the model and the degrees of freedom for the residuals of the model.

Degrees of freedom for the Parameter Estimates t-tests are calculated by subtracting one greater than the number of predictors from the sample size. Parameter estimates for variables (predictor and covariate) are directly interpretable. The *b*-values represent the differences between the means of the variables as the mean outcome differences between each group. The reference group for Parameter Estimates is always the greatest number of the predictor variable, in this case DBT-BASICS, and *t*-tests indicate whether the variable means significantly differ.

Contrast Results provide alpha levels and *b*-values and *S.E.* comparison of Level 2 vs. Level 1 (BASICS vs. RCC), and Level 3 vs. Level 1 (DBT-BASICS vs. RCC). Levene's test for equality of error variances was utilized to test the null hypothesis that the error variance of the outcome variable is equal across conditions. In addition to the usual assumptions of

ANOVA, the homogeneity of the regression slopes assumption was also tested. The Sidak correction, as recommended by Field (2005), was applied to adjust the alpha level to control for multiple significance tests. Effect sizes are reported using Cohen's *d* (Cohen, 1988). Cohen's *d* was chosen based on readers' likely familiarity with it as an indicator of effect size. By convention, effects in the ranges of .2, .5, and .8 are considered small, medium, and large, respectively. For tests of parameter estimates, Cohen's *d* was calculated using the formula $d = 2t/\sqrt{df}$ (Rosenthal & Rosnow, 1991). For omnibus tests *F's* were converted to *t's* using the formula $t = \sqrt{F}$.

Mediation

Emotion outcomes and coping drinking motives were proposed as mediators of intervention efficacy for drinking changes. Tests of mediation were conducted according to criteria established by Baron and Kenny (1986) and expanded by MacKinnon and Dwyer (1993). Evidence of mediation requires an intervention effect on outcome and an intervention effect on the proposed mediator. Further, the intervention effect should be weakened or become non-significant when controlling for the mediator.

ANCOVA Results

Emotion related outcomes

Depression.

The covariate, baseline depression, revealed significant effects on depression at one-month, $t(111) = 9.89, p < .001, d = 1.88$, and three-month follow-up, $t(91) = 9.28, p < .001, d = 1.95$. Controlling for the covariate, there was a significant effect of treatment condition on depression at one-month, $F(2, 111) = 3.66, p = .029, d = .36$, and three-month follow-up,

F (2, 91) = 3.80, p = .026, d = .41. Planned contrasts revealed that receiving DBT-BASICS significantly reduced depression compared to RCC at one-month, t (111) = 2.68, p = .009, d = .51, and three-month follow-up, t (91) = 2.76, p = .007, d = .41 (see Figures 2 and 3). There was a non-significant trend for DBT-BASICS to be superior to BASICS for depression outcomes at one-month, t (111) = 1.76, p = .081, d = .33, but not at three-month follow-up, t (91) = 1.43, p = .155, d = .30. BASICS was not associated with significant reduction in depression compared to RCC at one-month, t (111) = .92, p = .36, d = .17, or three-month follow-up, t (91) = 1.37, p = .17, d = .29.

Anxiety.

Baseline anxiety accounted for significant variance in anxiety at one-month, t (111) = 9.27, p < .001, d = 1.76, and three-month follow-up, t (91) = 6.58, p < .001, d = 1.38. There was a significant effect of treatment condition on levels of anxiety after controlling for the effect of the covariate at one-month, F (2, 111) = 4.63, p = .01, d = .41, but not three-month, F (2, 91) = 2.03, p = .14, d = .30. We found significant between group differences on anxiety for the contrast at one-month, t (111) = 3.04, p = .003, d = .58, and at three-months, t (91) = 1.99, p = .05, d = .42, such that DBT-BASICS outperformed RCC over the follow-up periods (see Figures 4 and 5). Further planned contrasts revealed that DBT-BASICS was not significantly more effective for anxiety reduction than BASICS at one-month, t (111) = 1.49, p = .14, d = .28, or three-months, t (91) = 1.33, p = .19, d = .28. BASICS was not associated with a significant reduction in anxiety over RCC at either one-month, t (111) = 1.55, p = .13, d = .29, or three-months, t (91) = .66, p = .51, d = .14.

Emotion regulation.

The covariate, baseline difficulties regulating emotion, was significantly related to the participant's one-month, t (116) = 9.65, $p < .001$, $d = 1.79$, and three-month difficulties regulating emotions, t (92) = 9.86, $p < .001$, $d = 2.06$. There was a significant effect of treatment condition on difficulties regulating emotion after controlling for the effect of the covariate at one-month, F (2, 116) = 4.84, $p = .01$, $d = .56$, but not three-month, follow-up, F (2, 92) = 2.19, $p = .12$, $d = .31$. Planned contrasts revealed that participants receiving DBT-BASICS exhibited significantly reduced difficulties regulating emotion compared to those receiving RCC at one-month, t (116) = 3.02, $p = .003$, $d = .56$, and three-month follow-up, t (92) = 2.05, $p = .04$, $d = .43$ (see Figures 6 and 7). DBT-BASICS was not significantly better than BASICS at one-month, t (116) = .95, $p = .35$, $d = .18$, or three-month outcomes, t (92) = .74, $p = .46$, $d = .15$. BASICS was associated with a significant reduction in difficulties regulating emotions over RCC, t (116) = 2.11, $p = .04$, $d = .39$ at one-month, but not at three-month follow-up, t (92) = 1.35, $p = .18$, $d = .28$.

Drinking Related Outcomes

Drinking problems.

The covariate, baseline alcohol related problems, was significantly related to the participant's three-month alcohol related problems, F (1, 96) = 24.72, $p < .001$, $d = .34$. At three-month follow-up there was a trend towards a significant effect of treatment condition on alcohol related problems after controlling for the effect of the covariate, F (2, 96) = 2.85, $p = .06$, $d = .34$. Planned contrast results for alcohol problems at three-month follow-up, controlling for baseline problems, revealed that DBT-BASICS was associated with significant reductions in alcohol related problems at three-month assessment relative to RCC,

t (96) = 2.02, p = .05, d = .41, and BASICS, t (96) = 2.15, p = .03, d = .44 (see Figure 8). BASICS was not associated with a significant reduction in alcohol related problems over RCC, t (96) = .14, p = .89, d = .03. Alcohol problems were not analyzed for one-month outcomes because the time period (i.e., past month), was not consistent with baseline or three-month outcomes (i.e., past three months).

Coping drinking motives.

The covariate, baseline coping drinking motives, was significantly related to the participant's one-month coping drinking motives, F (1, 117) = 90.87, p < .001, d = 1.76, and three-month coping drinking motives, F (1, 96) = 80.78, p < .001, d = 1.85. There was a significant effect of treatment condition on levels of coping drinking motives after controlling for the effect of the covariate at one-month, F (2, 117) = 3.29, p = .04, d = .33, and near significant effect at three-month follow-up, F (2, 96) = 2.99, p = .06, d = .35. Planned contrasts revealed that receiving DBT-BASICS significantly reduced coping drinking motives compared to receiving RCC at one-month, t (117) = 2.47, p = .02, d = .46, and at three-months, t (96) = 2.23, p = .03, d = .46 (see Figures 9 and 10). DBT-BASICS did not out-perform BASICS on coping drinking motives at one-month, t (117) = .72, p = .47, d = .13, or three-month follow-up, t (96) = .32, p = .75, d = .07. BASICS was associated with a trend toward reduction in coping drinking motives over RCC at one-month, t (117) = 1.78, p = .08, d = .33, and significant improvement over RCC at three-month, t (96) = 1.97, p = .05, d = .40.

Binge drinking.

In this sample, binge drinking was a low base rate behavior (see Table 1). The

covariate, baseline binge episodes, was significantly predicted by the participant's one-month, t (118) = 10.98, $p < .001$, $d = 2.02$, and three-month binge episodes, t (95) = 7.62, $p < .001$, $d = 1.56$. There was not a significant effect of treatment condition on levels of binge episodes after controlling for the effect of the covariate at one-month, F (2, 118) = .75, $p = .48$, $d = .16$, or three-month follow-up, F (2, 95) = .60, $p = .55$, $d = .16$. Planned contrasts for one-month binge drinking outcomes revealed that receiving DBT-BASICS or BASICS did not significantly reduce binge episodes compared to receiving RCC, t (118) = 1.00, $p = .32$, $d = .18$; t (118) = 1.13, $p = .26$, $d = .21$ (see Figure 11). Planned contrasts for three-month outcomes revealed that receiving DBT-BASICS or BASICS did not significantly reduce binge episodes compared to receiving RCC, t (95) = 1.07, $p = .29$, $d = .22$; t (95) = .78, $p = .44$, $d = .16$ (see Figure 12). Furthermore, BASICS was not associated with a significant reduction in binge episodes over RCC at one-month, t (118) = .13, $p = .89$, $d = .02$, or three-month follow-up, t (95) = .32, $p = .76$, $d = .07$.

Drinks per week.

There was a failure of randomization for the drinks per week outcome at baseline, such that those in the BASICS condition consumed significantly more drinks per week prior to participation in the study (mean drinks per week, F (2, 142) = 5.00, $p = .008$, $d = .41$) than those in DBT-BASICS or Control conditions. Therefore, we only compared DBT-BASICS to RCC. Baseline drinks per accounted for significant variance in one and three-month drinks per week outcomes, t (78) = 12.51, $p < .001$, $d = 2.83$; t (62) = 18.56, $p < .001$, $d = 4.71$. After controlling for baseline drinks per week, there was not a significant effect of DBT-BASICS over RCC at one-month or three-month, t (78) = 1.56, $p = .122$, $d = .35$; t (62) = .94,

$p < .351$, $d = .24$ (see Figures 13 and 14).

Peak blood alcohol content (BAC).

The covariate, baseline peak BAC, was significantly related to the participant's one-month peak BAC level at one-month and three-month follow-ups, t (118) = 9.83, $p < .001$, $d = 1.81$; t (96) = 5.64, $p < .001$, $d = 1.18$. There was not a significant effect of treatment condition on peak BAC level after controlling for the effect of the covariate at one-month, t (118) = .99, $p = .133$, $d = .18$, or at three-months, t (96) = .38, $p = .90$, $d = .13$. Planned contrasts revealed that receiving DBT-BASICS did not significantly reduce peak BAC compared to RCC, t (118) = .44, $p = .65$, $d = .08$, or compared to BASICS, t (118) = .1.39, $p = .17$, $d = .25$, at one-month. The same was true for three-month assessments, DBT-BASICS vs. RCC: t (96) = .23, $p = .82$, $d = .05$, and DBT-BASICS vs. BASICS: t (96) = .61, $p = .54$, $d = .12$. Similar to DBT-BASICS, BASICS was not associated with significant reduction in peak BAC over RCC at one-month, t (118) = .44, $p = .65$, $d = .08$ or three-month, t (96) = .23, $p = .82$, $d = .05$ (see Figures 15and 16).

Mediation Analyses

Based on our hypotheses, we examined one-month difficulties regulating emotions, depression, anxiety, and drinking to cope as independent putative mediators of the DBT-BASICS effect on three-month alcohol related problems. Thus we examined these three potential mediation relationships, evaluating the relevant indirect effects of DBT-BASICS on alcohol related problems. A series of regression models were estimated using SPSS. In the first regression model, treatment assignment and baseline difficulties regulating emotions and alcohol related problems were entered as the independent variables, difficulties regulating

emotions at the one-month follow-up was included as the mediator, and alcohol related problems at the three-month follow-up period was the dependent variable. The direct effects of treatment group predicting difficulties regulating emotions and treatment group predicting alcohol related problems were estimated using multiple regression analyses (Cohen, Cohen, West, & Aiken, 2003). Next, simple mediation effects were tested using the product of coefficients method (MacKinnon, Lockwood, Hoffman, West & Sheets, 2002). We estimated the simple mediation effects using PRODCLIN (MacKinnon, Fritz, Williams, & Lockwood, 2007) with empirical bootstrapping to obtain standard errors and confidence intervals for the indirect effect. Two more regression models followed this, testing for mediation with coping drinking motives, and depression. Therefore, for the above steps, baseline and one-month emotion regulation difficulties were replaced with baseline and one-month relevant coping drinking motives variables, and finally with depression replacing baseline and one-month emotion regulation with relevant depression variables.

Results from the mediation analyses, while controlling for sex, drinks per week, and baseline levels, indicated that all three variables were shown to mediate the effect of DBT-BASICS on drinking related problems (see Figures 17,18 and 19. Specifically, improvements in emotion regulation abilities at one-month significantly mediated the relationship between DBT-BASICS and decreased alcohol related problems. Results from the mediation analyses also indicated that decreases in coping drinking motives at one-month significantly mediated (95% CI = .18 – 2.39) the relation between DBT-BASICS and decreased alcohol related problems. Further, decreases in one-month depression outcomes significantly mediated (95% CI = .07 – 2.25) the relation between DBT-BASICS and decreased three-month alcohol

related problems. The absence of zero in the 95% confidence interval is comparable to a p-value < .05. Thus, the effect of DBT-BASICS on 3-month drinking related problems appears to be due, at least in part, to its improvement of emotion regulation abilities, coping drinking motives, and depression at the one-month follow-up assessment. The mediation models were also conducted using change scores (i.e., emotion regulation changes from baseline to 1-month, coping drinking motives changes from baseline to 1-month, and depression changes from baseline to 1-month) as the mediators. Results were entirely consistent with the models that did not use change scores. Thus, absolute levels of emotion regulation abilities, coping drinking motives, and depression scores 1-month following intervention (controlling for sex, drinks per week, and baseline levels), as well as the change in emotion regulation and depression from baseline to 1-month follow-up significantly mediated the relation between treatment assignment and number of 3-month drinking related problem.

Discussion

This study examined the efficacy of two brief interventions for college students experiencing depressed and/or anxious mood who also engage in heavy episodic or "binge" drinking and who drink at least some of the time to cope with their emotions. This specific population was targeted for an enhanced version of the empirically supported BASICS intervention (Dimeff et al., 1999; Marlatt et al., 1998) because these students are at risk for developing long-term alcohol problems based on their problems with mood and tendency to use alcohol to deal with these moods (Christiansen, Vik, & Jarchow, 2002; Cooper et al., 1995; Kuntsche et al., 2005; Kushner, Sher & Erickson, 1999). Existing interventions for college students were not designed to specifically address the needs of this particular subset of college student drinkers. DBT-BASICS represents an integration of the BASICS intervention with skills from the group component of DBT (Linehan, 1993a; b), specifically incorporating Mindfulness, Opposite Action, and Mindfulness of Current Emotion.

DBT-BASICS Reduces Problems and Improves Mood

DBT-BASICS resulted in substantial improvements in alcohol related problems over and above the other two conditions, RCC and BASICS. This intervention project is among the very first that we are aware of show that focusing on mood and coping with mood can lead to reduced drinking to cope and reduced alcohol related problems. Furthermore, results from our study indicate positive support for DBT-BASICS across the majority of outcome variables. As hypothesized, DBT-BASICS was more successful than RCC at addressing emotional issues. This was repeatedly supported with significant outcomes for DBT-BASICS in comparison to RCC for depression, anxiety, emotion regulation, and coping motives for

drinking. Despite lack of specific focus on emotion regulation, BASICS was also helpful to some extent in these areas, showing significant improvements over RCC in emotion regulation at one-month follow-up and in coping drinking at thee-month follow-up.

Coping Drinkers and Drinking Outcomes

Contrary to our hypotheses, neither intervention significantly decreased drinking outcomes. This is notable given that BASICS researchers reliably find significant results for decreases in drinking (e.g., drinks per week, binge frequency, drinks per occasion, drinks per week; SAMHSA, 2008). As is illustrated in Figures 11-16, drinking did reduce for all groups, except for minor increases in peak BAL for RCC. However, in all cases of drinking outcomes the slopes of both DBT-BASICS and BASICS are noticeably steeper than for those of RCC. BASICS researchers generally find effects in the small to medium range (e.g., .15 to .43 for Cohen's d, see SAMHSA, 2008), which is not inconsistent with those found in our much smaller sample size. For example, DBT-BASICS compared to RCC was associated with effect sizes such as $d = .18$ and $d = .22$ for one and three-month binge episodes. Compared to RCC on reductions in drinks per week, DBT-BASICS demonstrated $d = .35$ and $d = .24$. BASICS also demonstrated similar effect sizes compared to RCC, exhibiting $d = .21$ and $d = .16$ for one and three-month binge results.

Our failure to detect effects for DBT-BASIC and BASICS drinking outcomes may be in part due to our small sample size – but it is also possible that it reflects the different ways in which college students with mood problems and coping motives drink. Indeed, the drinking literature has established a strong link between drinking to cope, and increased drinking related problems that is not present for other drinking motives and remains after

controlling for drinking rates (Grant et al., 2007; Neighbors et al., 2007). Individuals who drink to cope have been described as phenomenologically different from other types of drinkers, such as those drinking to enhance positive emotions (e.g., Colder, 2001; Cooper et al., 1995). In comparison to students who drink primarily for social or celebratory reasons and who are not struggling with mood, coping drinkers drinking patterns and contexts (social, emotional, physiological) are likely different. Thus, interventions for this group may benefit from a focus on reducing alcohol related consequences, improving mood, and improving alternative coping, rather than targeting alcohol use per se.

Neighbors et al. (2007) concluded that for the average heavy drinking college student, normative feedback about alcohol is a key active ingredient in BASICS for reduced drinking. It may be that this particular component is less relevant for students drinking for coping rather than social or celebratory reasons. However, the inclusion of normative feedback about depression and anxiety levels, as in DBT-BASICS, may serve a different function than normative feedback about alcohol consumption (serving to *validate* the participant's emotional experience rather than *correct* discrepancies in perception). Linehan and others posit that validation of emotional states is a key component in preparation for changing the behaviors maintaining those states (Linehan, 1993a). Further research is necessary to disentangle these relationships.

It is also not surprising that BASICS had some positive effect on emotion outcomes. Therapists in BASICS and DBT-BASICS were taught, in true motivational interviewing (Miller & Rollnick, 2002) style, to be emphatic while genuinely listening to and attempt to reflect what each participant was expressing. Therapists were rated as highly competent,

warm and understanding by participants in both BASICS and DBT-BASICS. The therapeutic style, along with one-on-one attention and problem-solving around drinking, may have led to increased optimism regarding participants' own ability to cope effectively, which has been related to improved mood in prior research (Geisner et al. 2006). However, it is notable that in all cases means and effect sizes for emotion related variables favor DBT-BASICS.

Limitations

One aspect of the current study that limits these findings is that all results are self-report. While not feasible with the resources of this trial, other methods of assessment might be to collect physiological measurements of emotion regulation (e.g., respiratory sinus arrhythmia; Porges, 1995) at each time-point to assess whether these change across treatment condition and time. In order to reduce socially-desirable responding, participants were reminded at each assessment point that all answers were confidential (Babor, Stephens & Marlatt, 1987; Darke, 1998). Additionally, the sample size of the current study is small, and attrition further reduced our sample. In some cases, our effect sizes were notable, but yet results were not statistically significant. It is likely that the small sample size also contributed to the failure of randomization for drinks per week. Finally, the follow-up periods were not long enough to assess whether there are any long-term effects of DBT-BASICS or BASICS for this population. Future research should include a larger sample size and longer follow-up to address these issues.

Conclusions

Current interventions for high-risk college student drinkers reduce drinking rates and problems and speed the maturational process out of heavy drinking (Baer et al., 2001). While

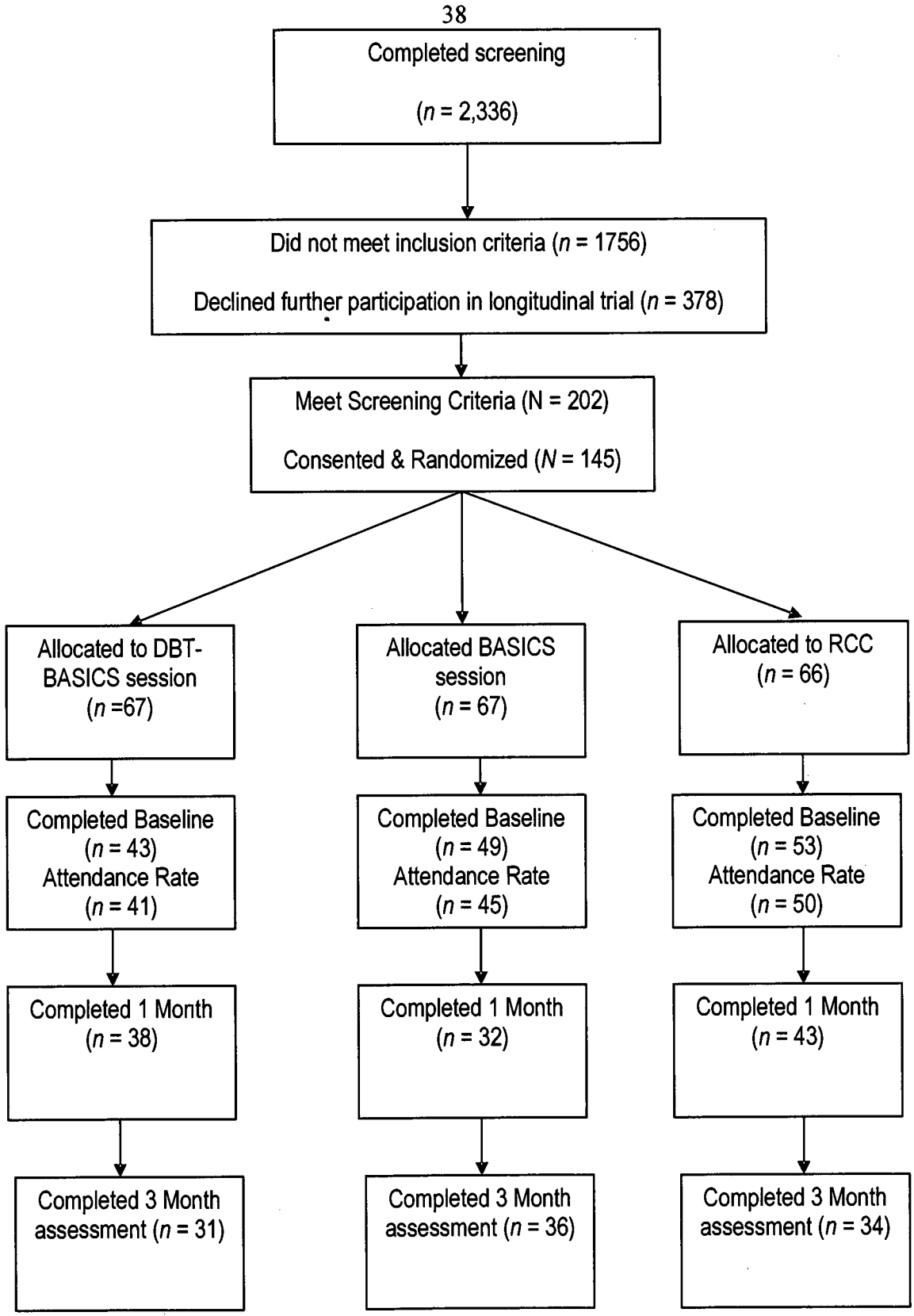
there is limited research indicating which college students will not mature out of heavy drinking, preliminary research and findings in the general population suggest those experiencing mood problems and those drinking to manage their moods are among those at highest risk. Recent research has resulted in suggested modifications for alcohol-related prevention and interventions efforts for college student drinkers. Based in part on the findings that drinking which co-occurs with negative affect and coping drinking motives leads to greater rates of alcohol related problems among college students (Park & Grant, 2005), it has been suggested that clinicians conducting alcohol-related prevention and intervention consider drinking motives, particularly coping drinking motives, in their screening and assessment efforts in order to identify those at greatest risk for alcohol related problems (Ham, Bonin, & Hope, 2007; Martens et al., 2008). Further, the development of drinking motive specific interventions has been suggested in response to the variability in college student drinker types (i.e., social, coping; Birch et al., 2008; Kuntsche, von Fischer, & Gmel, 2008; Ham et al., 2007). The current study provides strong preliminary support for the efficacy of this type of intervention (i.e., DBT-BASICS) for reducing problems related to mood and alcohol and improving emotion regulation.

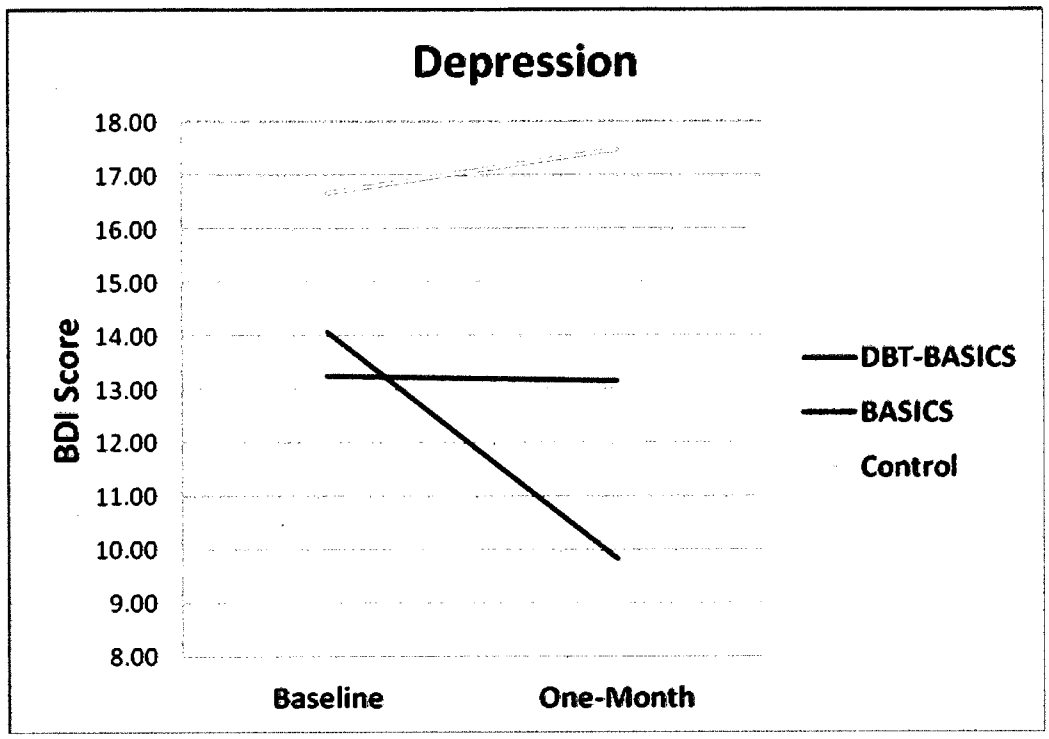
Table 1

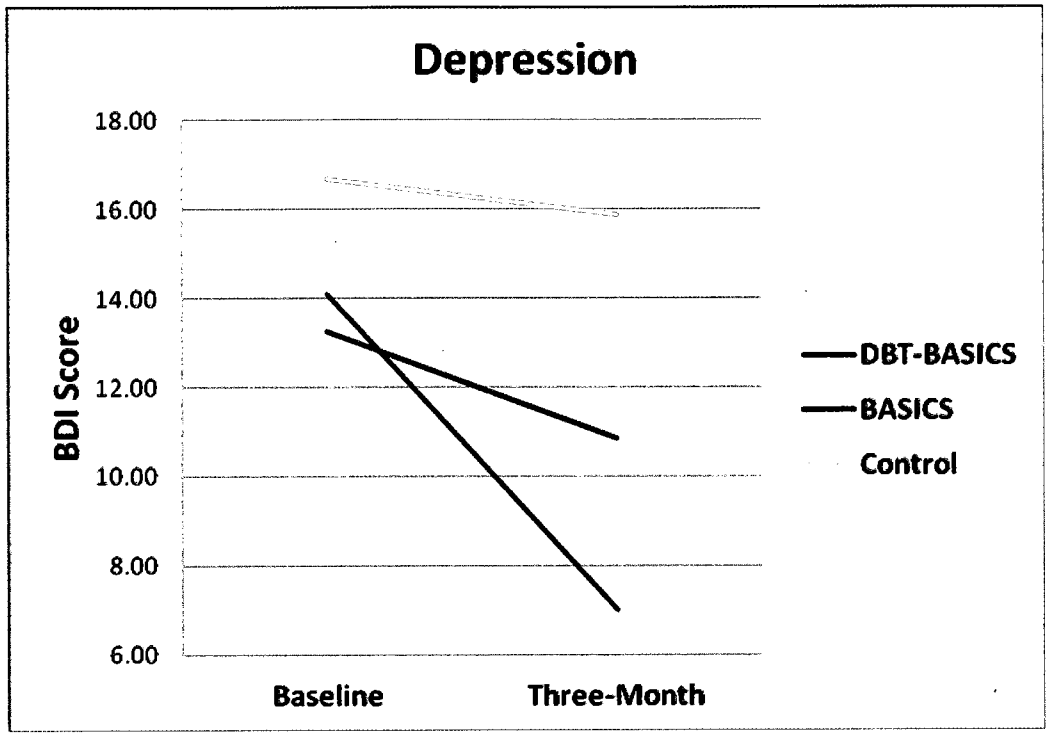
Means and standard deviations of outcome measures at baseline, one-month, and three-month follow-up

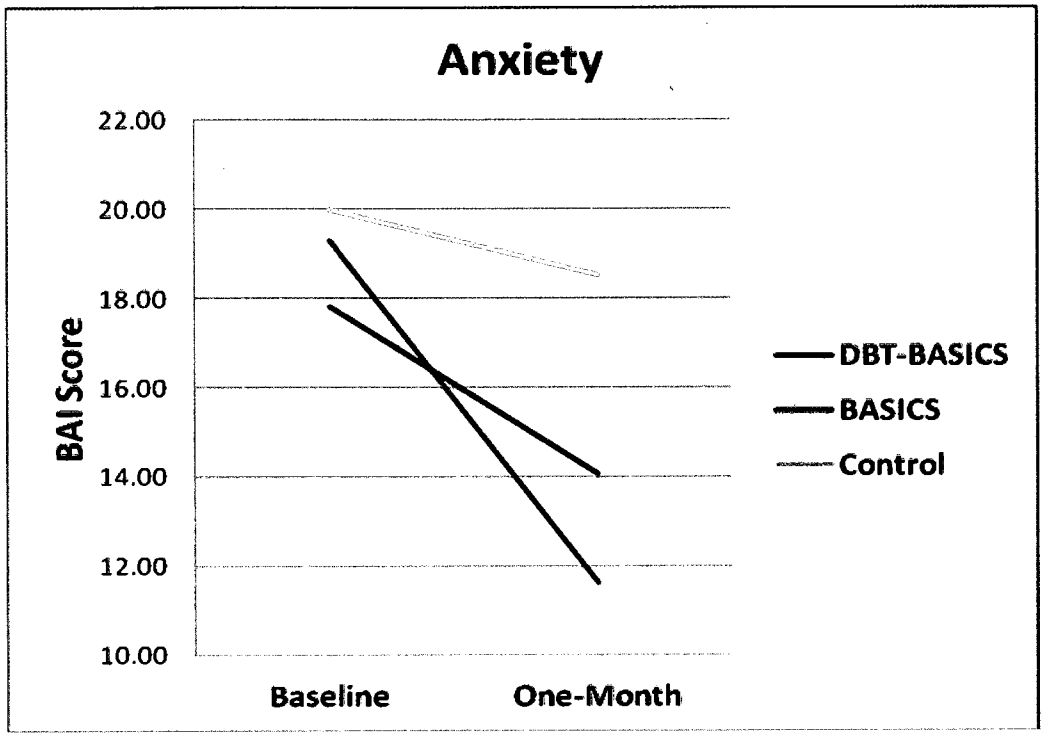
Outcome (SD)	DBT-BASICS			BASICS			RCC		
	Baseline N = 43	One-Mo N = 38	Three-Mo N = 31	Baseline N = 49	One-Mo N = 32	Three-Mo N = 36	Baseline N = 53	One-Mo N = 43	Three-Mo N = 34
Binge Freq	2.38 (3.20)	1.42 (2.18)	1.26 (2.35)	2.84 (3.02)	2.10 (2.55)	1.94 (2.54)	1.94 (2.44)	1.72 (2.57)	1.76 (2.49)
Drinks/Wk	10.47 (9.22)	7.53 (8.38)	7.39 (7.79)	15.22 (11.52)	12.05 (11.01)	9.43 (9.31)	9.68 (7.21)	8.56 (7.80)	8.00 (6.99)
Peak BAL	.16 (.10)	.12 (.10)	.14 (.09)	.22 (.12)	.17 (.10)	.16 (.12)	.16 (.08)	.15 (.09)	.14 (.10)
Drinking Probs	10.81 (8.29)		5.10 (5.17)	9.86 (7.26)		7.91 (11.61)	10.64 (6.98)		8.59 (8.75)
Coping Drink	8.58 (4.19)	6.73 (3.72)	6.61 (3.91)	7.96 (3.43)	6.68 (3.42)	6.34 (2.62)	8.60 (3.94)	8.63 (4.36)	8.26 (4.34)
Depression	14.09 (8.25)	9.83 (8.91)	7.00 (7.14)	13.24 (6.74)	13.16 (9.72)	10.84 (8.60)	16.68 (9.00)	17.50 (12.50)	15.88 (14.19)
Anxiety	19.30 (11.04)	11.63 (10.58)	8.41 (9.61)	17.82 (10.31)	14.08 (10.69)	11.38 (8.60)	20.00 (10.92)	18.52 (14.18)	13.09 (11.78)
Emotion Reg	90.73 (21.98)	82.59 (20.98)	79.37 (22.07)	89.18 (19.44)	86.47 (20.15)	83.63 (22.53)	97.18 (22.27)	99.28 (27.58)	91.02 (21.45)

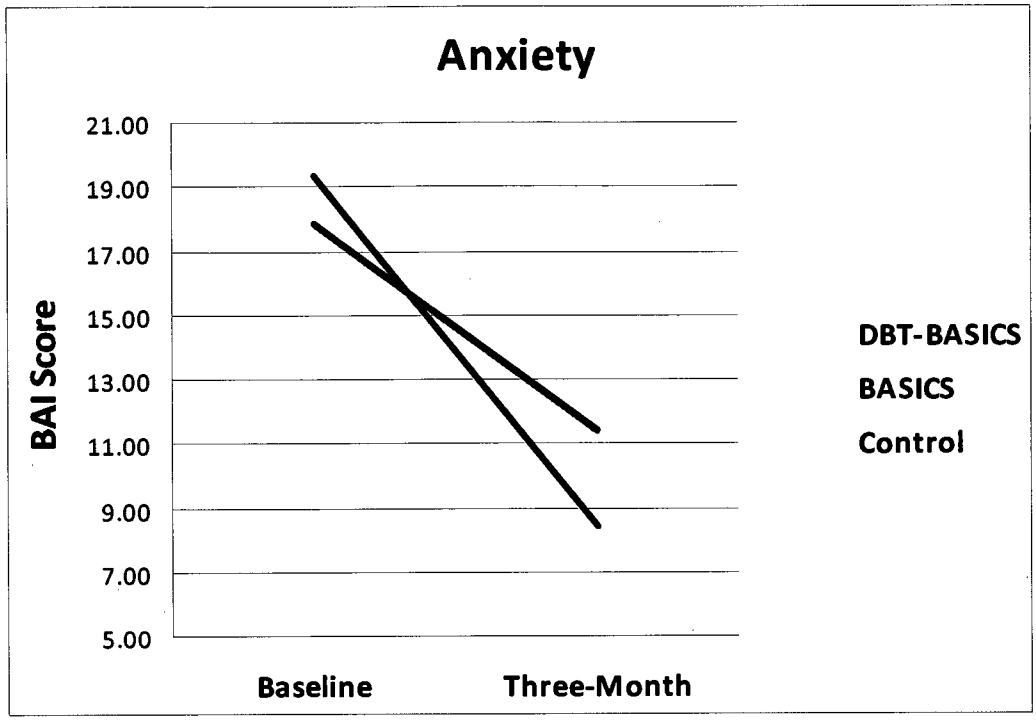
Note. DBT-BASICS = Dialectical Behavioral Therapy-BASICS; BASICS = Brief Alcohol Screening and Intervention for College; RCC = Relaxation Control Condition

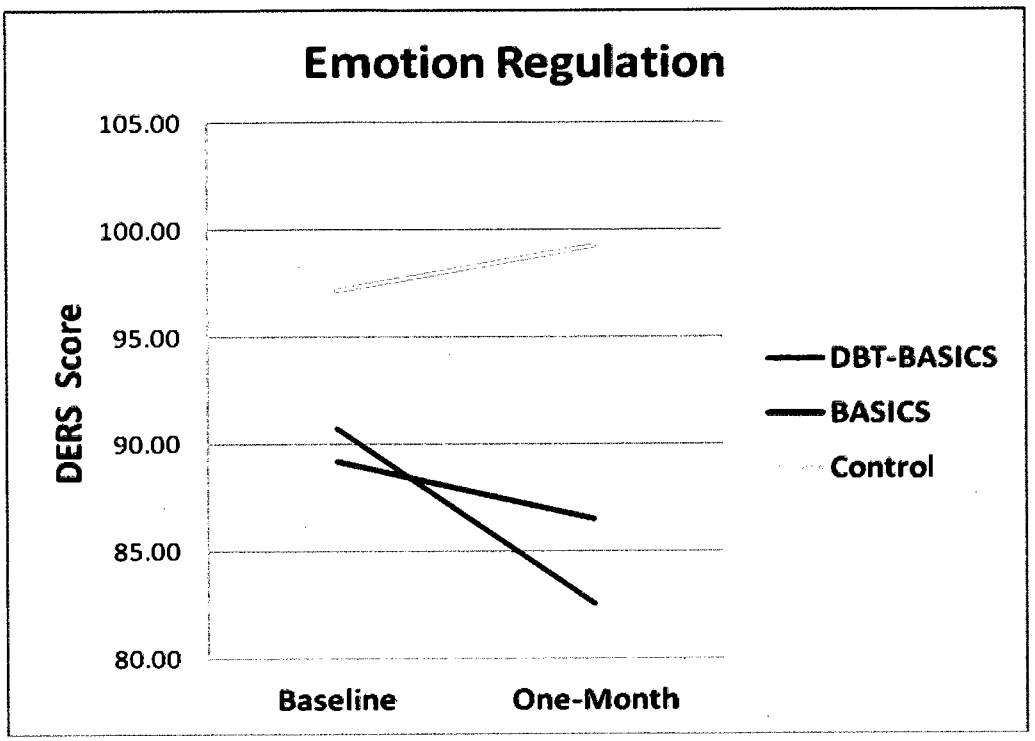

Completed screening
(n = 2,336)
Did not meet inclusion criteria (n = 1756)
Declined further participation in longitudinal trial (n = 378)
Meet Screening Criteria (N = 202)
Consented & Randomized (N = 145)
Allocated to DBT-BASICS session (n =67)
Allocated BASICS session (n = 67)
Allocated to RCC (n = 66)
Completed Baseline (n = 43) Attendance Rate (n = 41)
Completed Baseline (n = 49) Attendance Rate (n = 45)
Completed Baseline (n = 53) Attendance Rate (n = 50)
Completed 1 Month (n = 38)
Completed 1 Month (n = 32)
Completed 1 Month (n = 43)
Completed 3 Month assessment (n = 31)
Completed 3 Month assessment (n = 36)
Completed 3 Month assessment (n = 34)

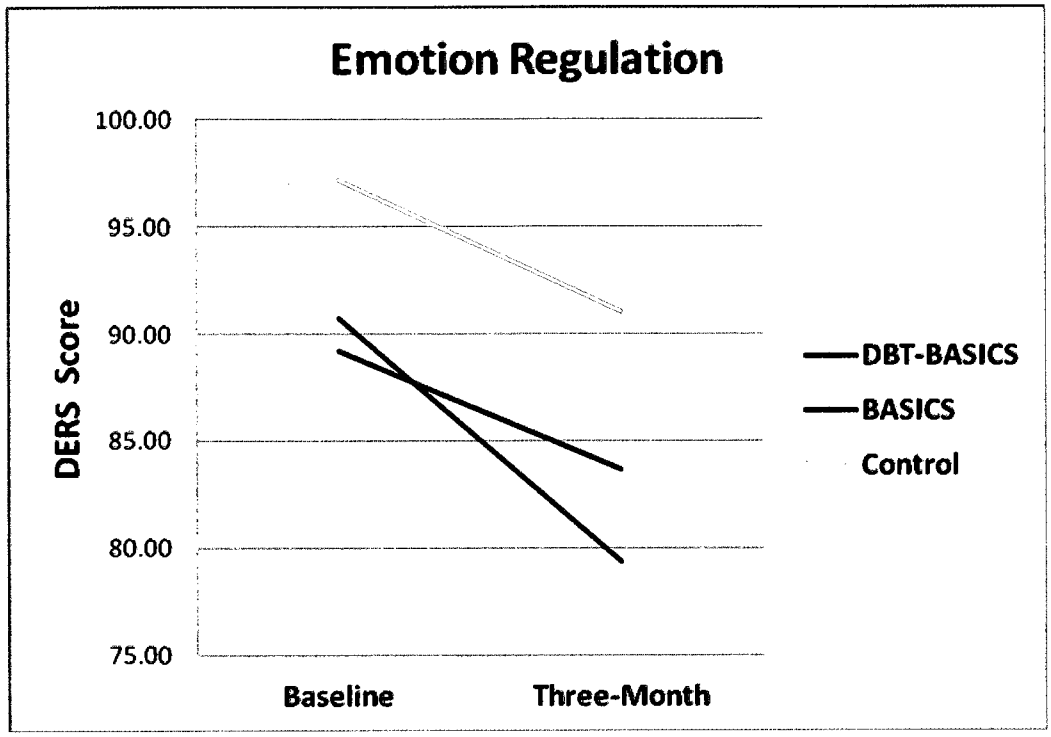

Depression
18.00
17.00
16.00
15.00
14.00
13.00
12.00
11.00
10.00
9.00
8.00
BDI Score
Baseline
One-Month
DBT-BASICS
BASICS
Control

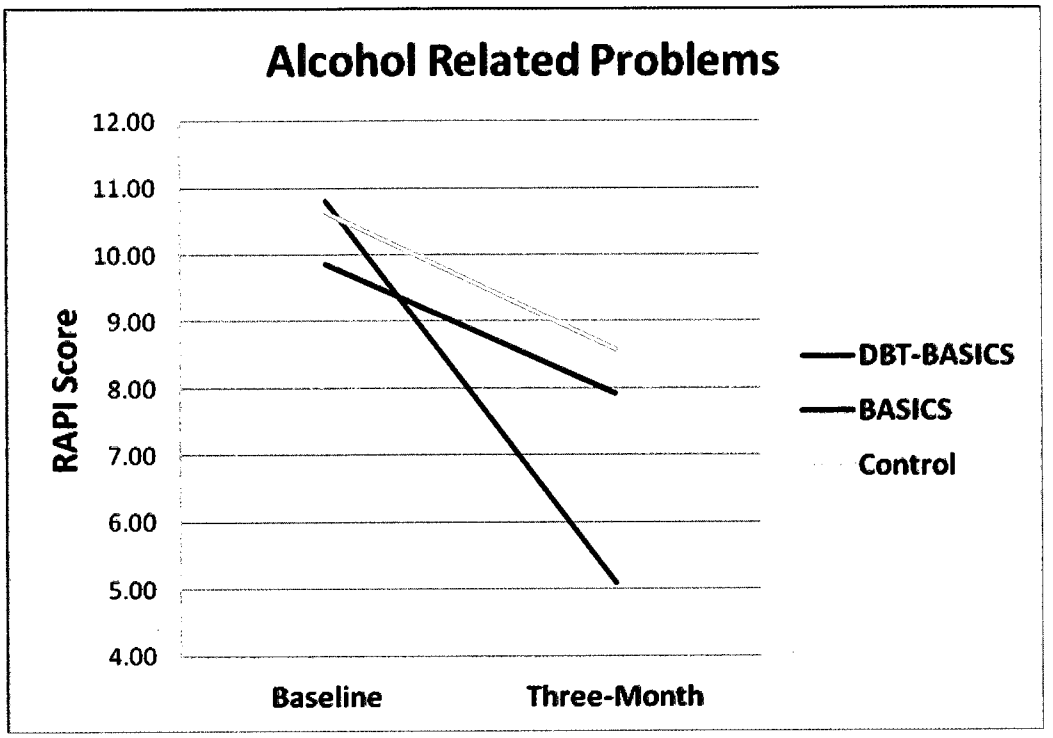

Depression
18.00
16.00
14.00
12.00
10.00
8.00
6.00
BDI Score
Baseline
Three-Month
DBT-BASICS
BASICS
Control

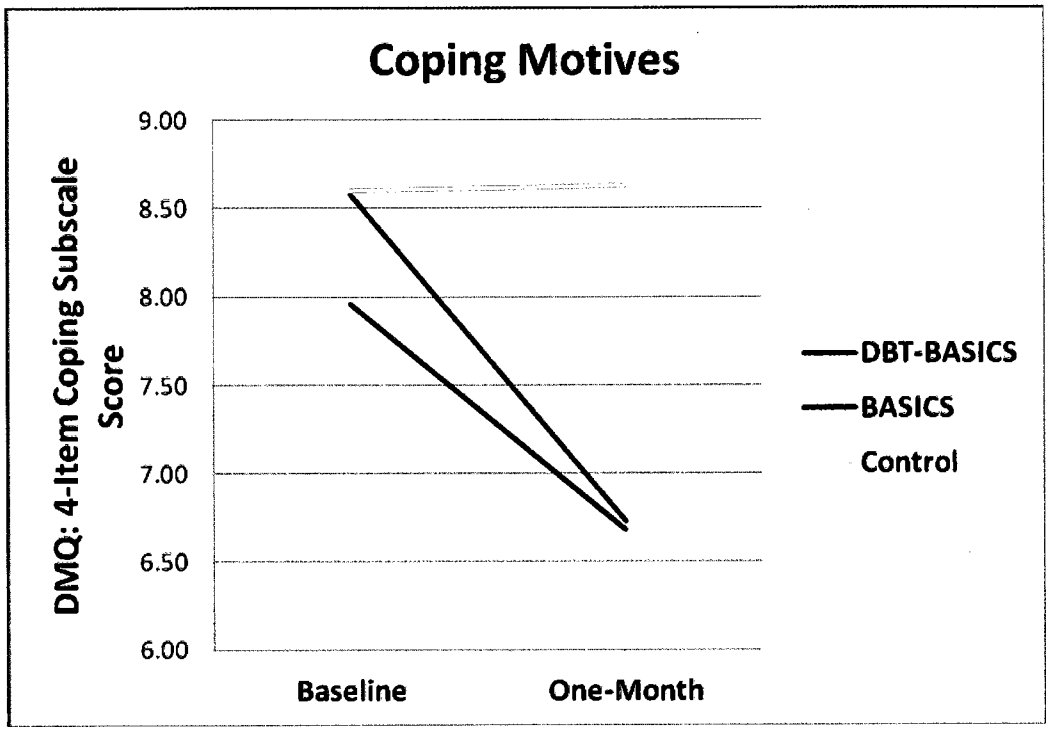

Anxiety
22.00
20.00
18.00
16.00
14.00
12.00
10.00
BAI Score
Baseline
One-Month
DBT-BASICS
BASICS
Control

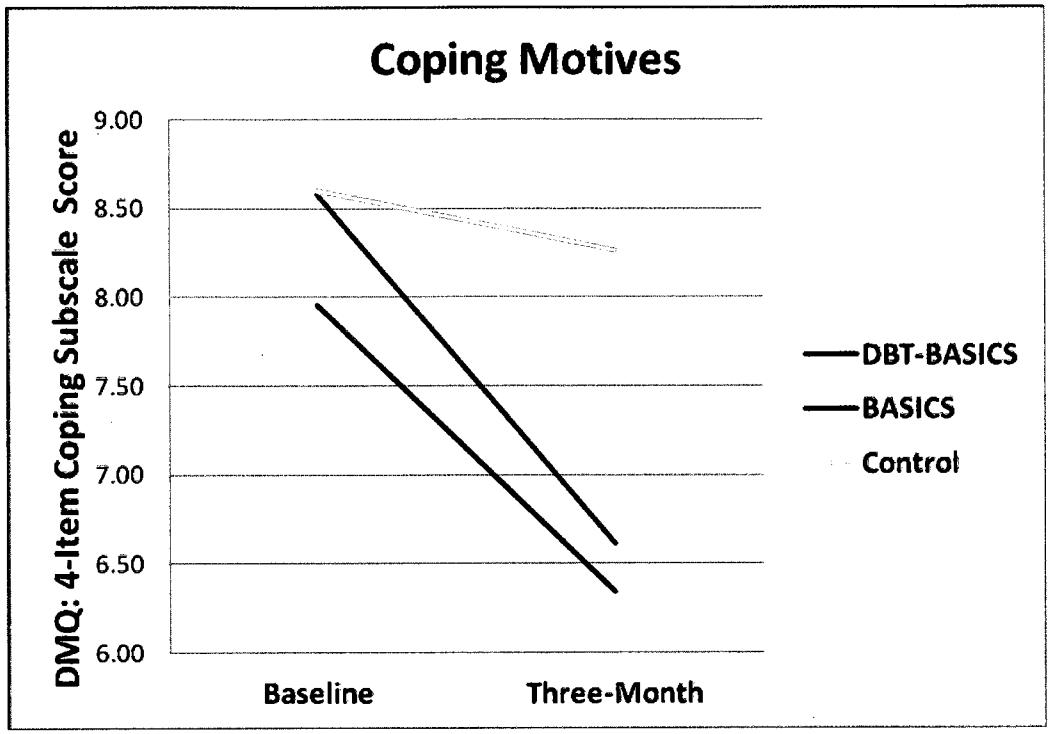

Anxiety
21.00
19.00
17.00
15.00
13.00
11.00
9.00
7.00
5.00
BAI Score
Baseline
Three-Month
DBT-BASICS
BASICS
Control

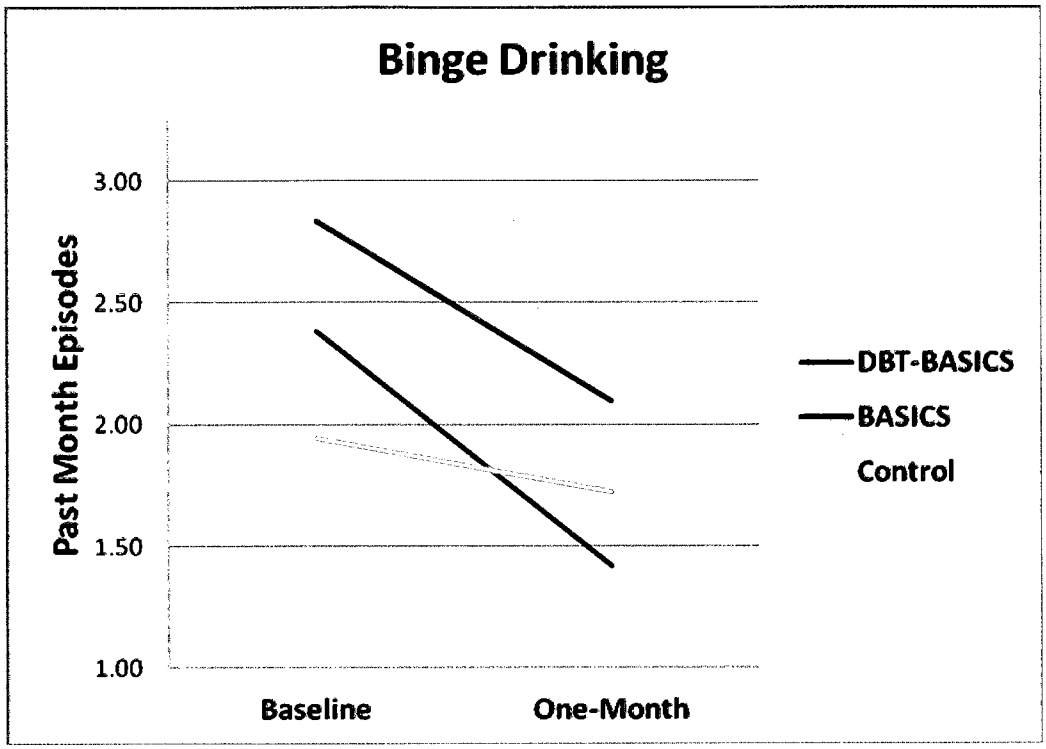

Emotion Regulation
105.00
100.00
95.00
90.00
85.00
80.00
DERS Score
Baseline
One-Month
DBT-BASICS
BASICS
Control

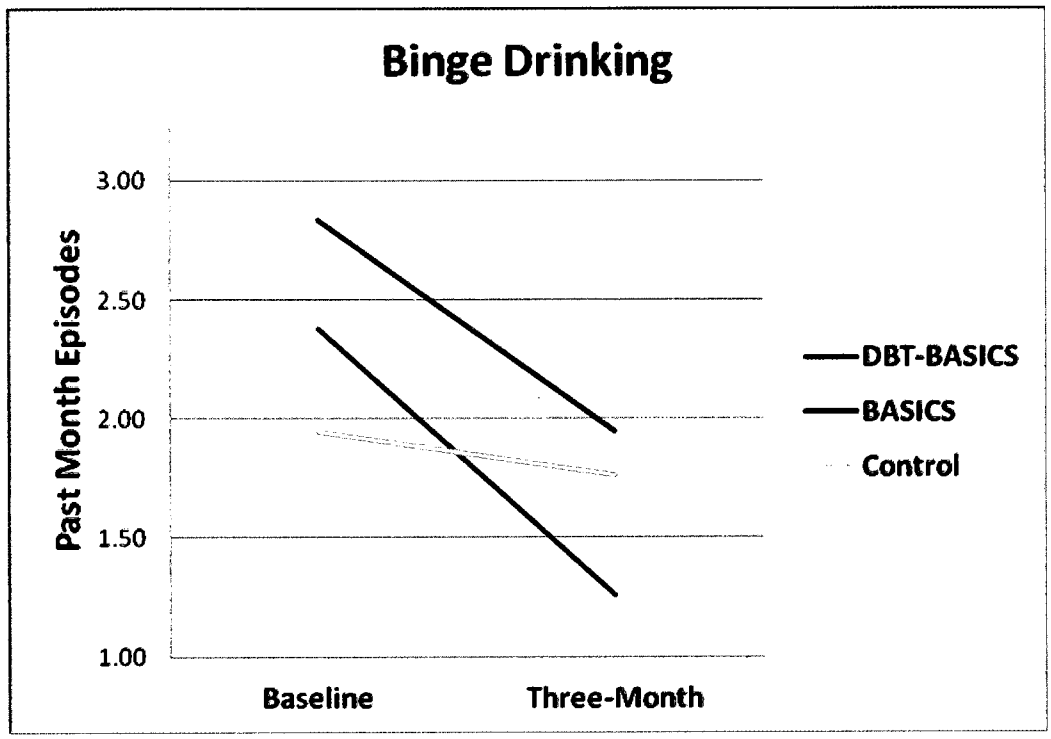

Emotion Regulation
100.00
95.00
90.00
85.00
80.00
75.00
DERS Score
Baseline
Three-Month
DBT-BASICS
BASICS
Control

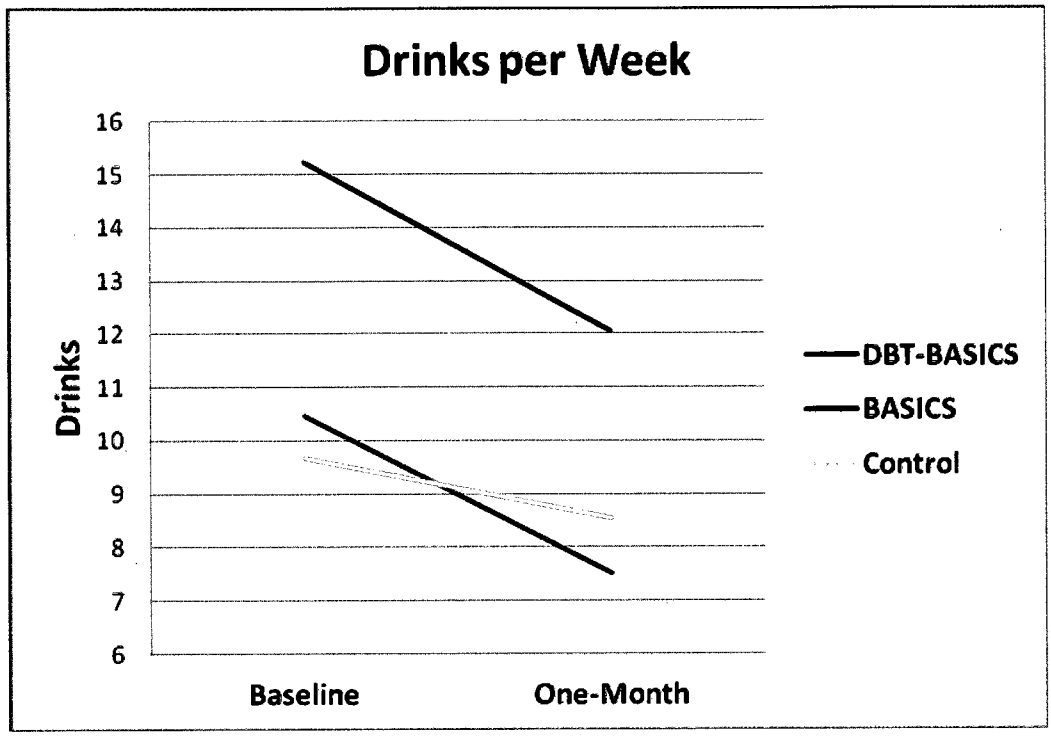

Alcohol Related Problems
12.00
11.00
10.00
9.00
8.00
7.00
6.00
5.00
4.00
RAPI Score
Baseline
Three-Month
DBT-BASICS
BASICS
Control


Coping Motives
DMQ: 4-Item Coping Subscale Score
9.00
8.50
8.00
7.50
7.00
6.50
6.00
Baseline
One-Month
DBT-BASICS
BASICS
Control

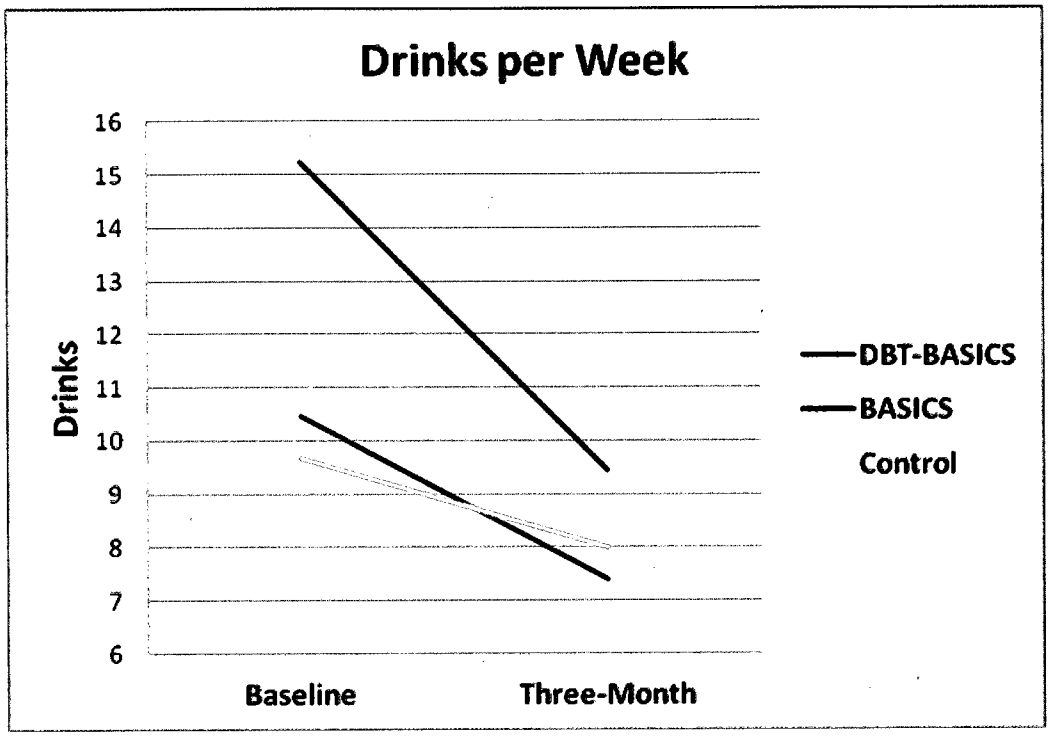

Coping Motives
DMQ: 4-Item Coping Subscale Score
9.00
8.50
8.00
7.50
7.00
6.50
6.00
Baseline
Three-Month
DBT-BASICS
BASICS
Control


Binge Drinking
Past Month Episodes
3.00
2.50
2.00
1.50
1.00
Baseline
One-Month
DBT-BASICS
BASICS
Control

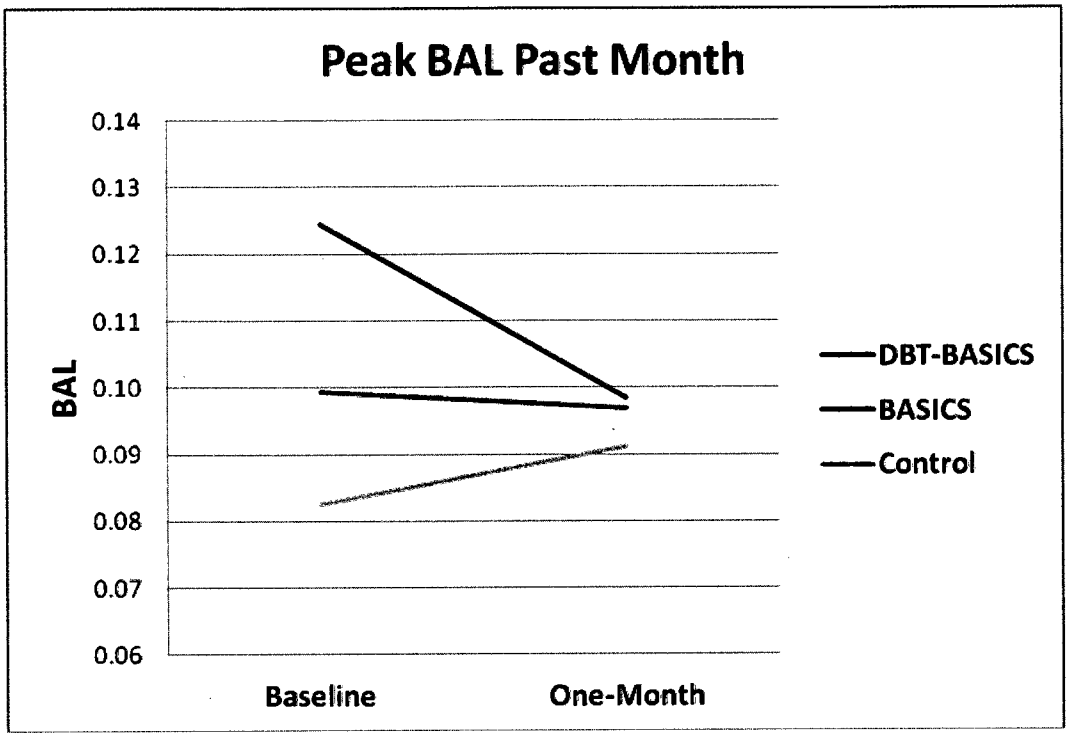

Binge Drinking
Past Month Episodes
3.00
2.50
2.00
1.50
1.00
Baseline
Three-Month
DBT-BASICS
BASICS
Control

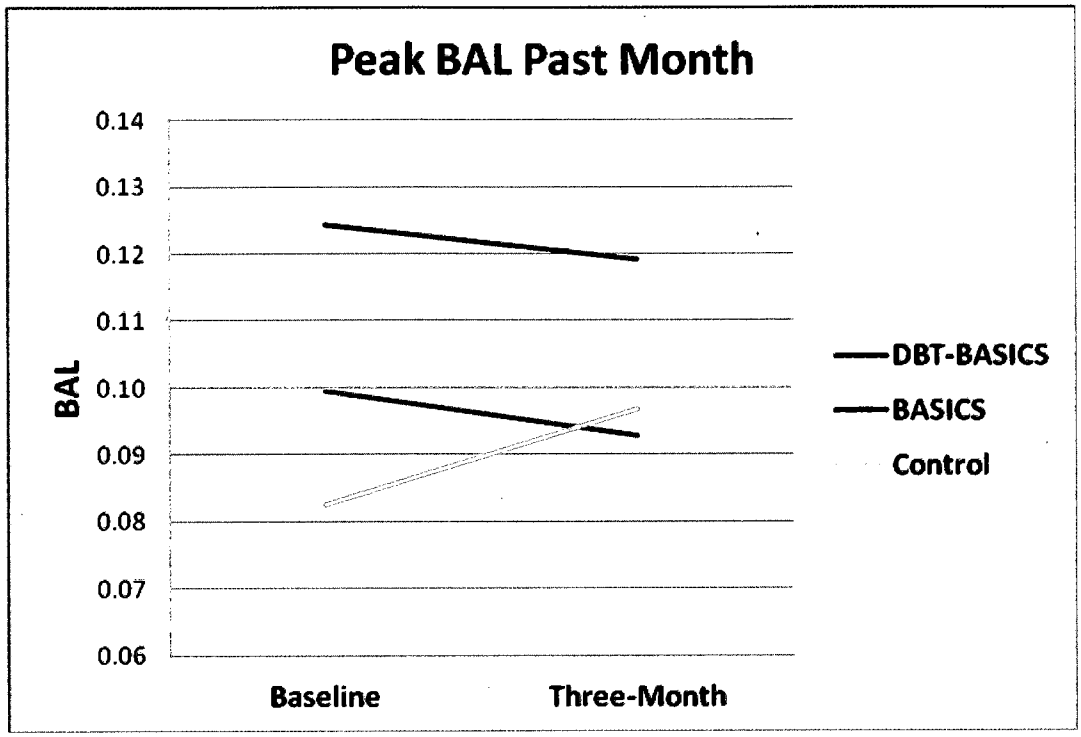


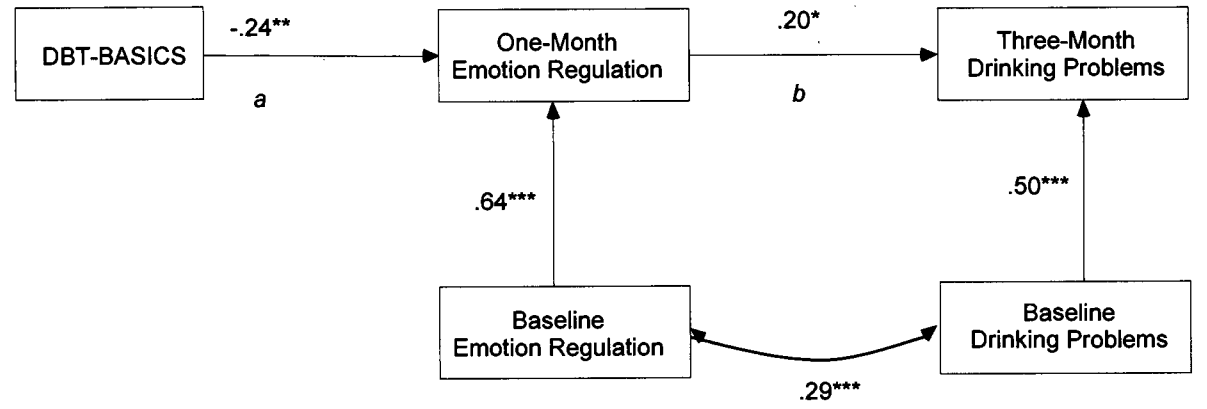
Note: There was a failure of randomization for BASICS drinks per week at baseline. BASICS is included for illustrative purposes.

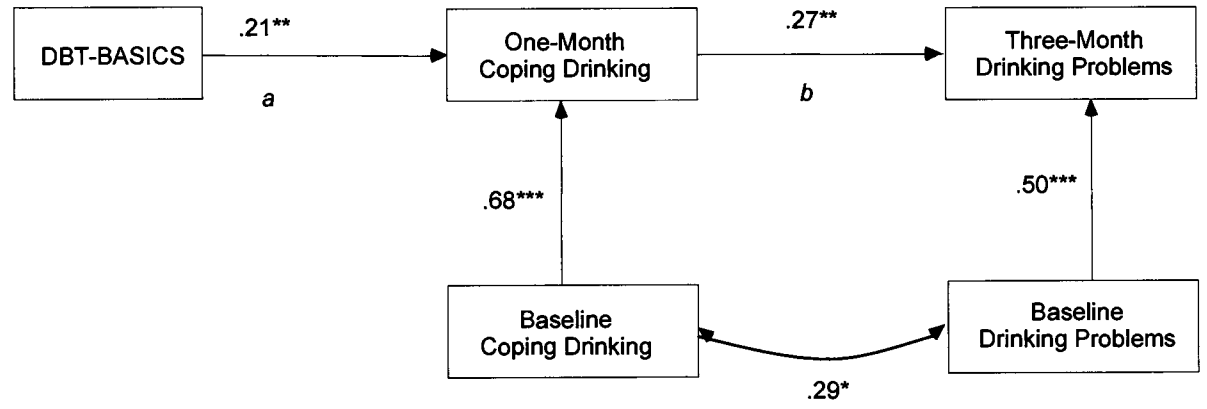


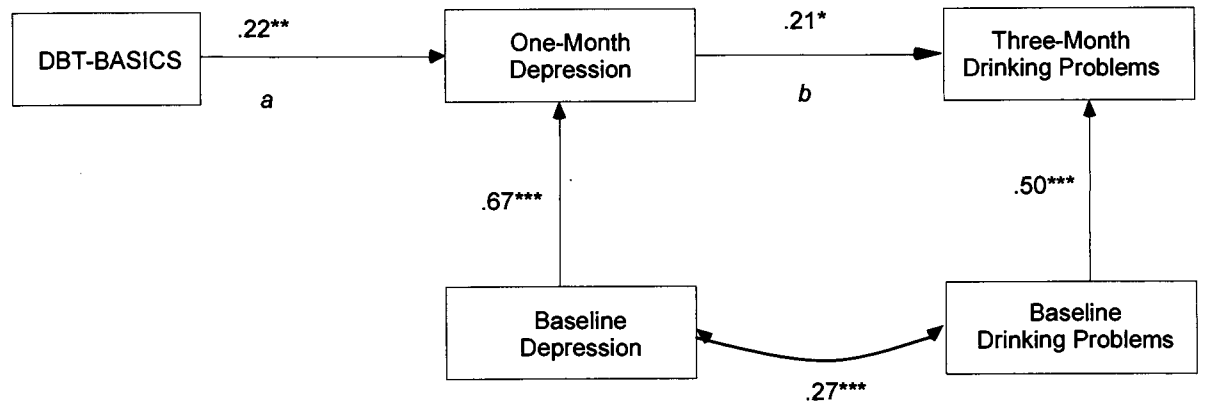
Note: There was a failure of randomization for BASICS drinks per week at baseline. BASICS is included for illustrative purposes.


Peak BAL Past Month
0.14
0.13
0.12
0.11
0.10
0.09
0.08
0.07
0.06
BAL
Baseline
One-Month
DBT-BASICS
BASICS
Control


Peak BAL Past Month
BAL
0.14
0.13
0.12
0.11
0.10
0.09
0.08
0.07
0.06
Baseline
Three-Month
DBT-BASICS
BASICS
Control


DBT-BASICS
-.24**
a
One-Month
Emotion Regulation
.20*
b
Three-Month
Drinking Problems
.64***
.50***
Baseline
Emotion Regulation
Baseline
Drinking Problems
.29***


DBT-BASICS
.21**
a
One-Month
Coping Drinking
.27**
b
Three-Month
Drinking Problems
.68***
.50***
Baseline
Coping Drinking
Baseline
Drinking Problems
.29*


DBT-BASICS
.22**
a
One-Month
Depression
.21*
b
Three-Month
Drinking Problems
.67***
.50***
Baseline
Depression
Baseline
Drinking Problems
.27***

Bibliography

Abbey, A. (2002). Alcohol-related sexual assault: a common problem among college students. *Journal of Studies on Alcohol, Supplement 14,* 118-128.

American Psychiatric Association (1994). *Diagnostic and statistical manual of mental disorders* (4th ed.). Washington, DC: Author.

Babor, T. F., Stephens, R. S., & Marlatt, G. A. (1987). Verbal report methods in clinical research on alcoholism: Response bias and its minimization. *Journal of Studies on Alcohol, 48*, 410-424.

Baer, J. S. (2002). Student factors: Understanding individual variation in college drinking. *Journal of Studies on Alcohol, Supplement 14*, 40-53.

Baer, J. S., Kivlahan, D. R., Blume, A. W., McKnight, P., & Marlatt, G. A. (2001). Brief intervention for heavy drinking college students: 4-year follow-up and natural history. *American Journal of Public Health, 91*, 1310-1316.

Baron, R. M., & Kenny, D. A. (1986). The moderator-mediator variable distinction in social psychological research: Conceptual, strategic, and statistical considerations. *Journal of Personality and Social Psychology, 51*, 1173-1182.

Beck, A. T., Epstein, N., Brown, G., Steer, R. A. (1988). An inventory for measuring clinical anxiety: Psychometric properties. *Journal of Consulting and Clinical Psychology, 56,* 893-897.

Beck, A. T., Steer, R. A., Ball, R., & Ranieri, W. F. (1996). Comparison of Beck Depression Inventories-IA and-II in psychiatric outpatients. *Journal of Personality Assessment, 67*, 588 – 597.

Birch, C. D., Stewart, S. H., Wiers, R. W., Klein, R., M., MacLean, A., D. & Berish, M. J. (2008). The mood-induced activation of implicit alcohol cognition in enhancement and coping motivated drinkers. *Addictive Behaviors, 33,* 565-581.

Brennen, A. F., Walfish, S., & Aubuchon, P. (1986). Alcohol use and abuse in college students: A review of individual and personality correlates. *International Journal of Addictions, 21,* 449-474.

Britton, P. C. (2004). The relation of coping strategies to alcohol consumption and alcohol-related consequences in a college sample. *Addiction Research and Theory, 12*, 103-114.

Carrigan, M. H., Drobes, D. J., & Randall, C.L. (2004). Attentional bias and drinking to cope with social anxiety. *Psychology of Addictive Behaviors*, *18*, 374-380.

Carrigan, M. H. & Randall, C. L. (2003). Self-medication in social phobia: A review of the alcohol literature. *Addictive Behaviors, 28*, 269-284.

Carver, C. S., Scheier, M. F., & Weintraub, J. K. (1989). Assessing coping strategies: A theoretically based approach. *Journal of Personality and Social Psychology, 56*, 267-283.

Christiansen, M., Vik, P. W., & Jarchow, A. (2002). College student heavy drinking in social contexts versus alone. *Addictive Behaviors, 27,* 393-404.

Clements, R. (1999). Prevalence of alcohol-use disorders and alcohol-related problems in a college student sample. *Journal of American College Health, 48*, 111–118.

Cohen, J. (1988). *Statistical power analysis for the behavioral sciences* (2nd ed.). Hillsdale, NJ: Lawrence Erlbaum Associates.

Cohen, J., Cohen, P., West, S. G., Aiken, L. S. (2003). *Applied multiple regression/correlation analysis for the behavioral sciences* (3 ed.). Mahwah, New Jersey:Taylor & Francis, Inc.

Colder, C. R., (2001). Life stress, physiological and subjective indexes of negative emotionality, and coping reasons for drinking: Is there evidence for a self-medication model of alcohol use? *Psychology of Addictive Behaviors, 15*, 237-245.

Collins, R. L., Parks, G.A., & Marlatt, G.A. (1985). Social determinants of alcohol consumption: The effects of social interaction and model status on the self-administration of alcohol. Journal *of Consulting and Clinical Psychology, 53*, 189–200.

Cooper, M. L. (1994). Motivations for alcohol use among adolescents: Development and validation of a four-factor model. *Psychological Assessment, 6,* 117-128.

Cooper, M. L., Frone, M.R., Russell, M., & Mudar, P. (1995). Drinking to regulate positive and negative emotions. A motivational model of alcohol use. *Journal of Personality and Social Psychology, 69,* 990-1005.

Cooper, M. L. (2002). Alcohol use and risky sexual behavior among college students and youth: evaluating the evidence. *Journal of Studies on Alcohol Supplement,* 101-117.

Darke, S. (1998). Self-report among injecting drug users: A review. *Drug and Alcohol Dependence, 51,* 253 - 263.

Dawson, D. A., Grant, B. F.,Stinson, F. S. & Chou, P. S. (2004). Another look at heavy episodic drinking and alcohol use disorders among college and noncollege youth. *Journal of Studies on Alcohol, 65,* 477-488.

Dimeff, L. A., Baer, J. S., Kivlahan, D. R., & Marlatt, G. A. (1999). *Brief alcohol screening and intervention for college students.* New York: Guilford Press.

Field, A. P. (2005). *Discovering statistics using SPSS* (2nd edition). London: Sage.

Fillmore, K. M. & Midanik, L. (1984). Chronicity of drinking problems among men: A longitudinal study. *Journal of Studies on Alcohol, 45*, 228-236.

Geisner, I. M., Neighbors, C., & Larimer, M. E. (2006). A randomized clinical trial of a brief, mailed intervention for symptoms of depression. *Journal of Consulting and Clinical Psychology. 74*, 393-399.

Gillis, M. M., Haaga, D. A. F., & Ford, G. T. (1995). Normative values for the Beck Anxiety Inventory, Fear Questionnaire, Penn State Worry Questionnaire, and Social Phobia and Anxiety Inventory. *Psychological Assessment, 7*, 450-455.

Grant, B. F. (1997). Prevalence and correlates of alcohol use and DSM-IV alcohol dependence in the United States: Results of the National Longitudinal Alcohol Epidemiologic Survey. *Journal of Studies on Alcohol 58*, 464-473.

Grant, V. V., Stewart, S. H., O'Connor, R. M., Blackwell, E., Conrod, P. J. (2007). Psychometric evaluation of the five-factor Modified Drinking Motives Questionnaire: Revised in undergraduates. *Addictive Behaviors, 32*, 2611-2632.

Gratz, K. L., & Roemer, L. (2004). Multidimensional assessment of emotion regulation and dysregulation: Development, factor structure, and initial validation of the difficulties in emotion regulation scale. *Journal of Psychopathology and Behavioral Assessment, 26,* 41-54.

Ham, L. S., Bonin, M. & Hope, D. A., (2007). The role of drinking motives in social anxiety and alcohol use. *Journal of Anxiety Disorders, 21*, 991-1003.

Ham, L. S., & Hope, D. A., (2003). College students and problematic drinking: A review of the literature. *Clinical Psychology Review, 23*, 719-759.

Hasking, P. A. (2006). Reinforcement sensitivity, coping, disordered eating and drinking behaviour in adolescents. *Personality and Individual Differences, 40*, 677-688.

Hingson, R., Heeren, T., Winter, M., & Wechsler, H. (2005). Magnitude of alcohol-related mortality and morbidity among U.S. college students ages 18–24:Changes from 1998 to 2001. *Annual Review of Public Health, 26*, 259-79.

Holahan, C. J., Moos, R. H., Holahan, C. K., Cronkite, R. C. & Randall, P. K. (2004). Unipolar depression, life context vulnerabilities, and drinking to cope. *Journal of Consulting and Clinical Psychology 72*(2), 269-275.

Johnston, L. D., O'Malley, P. M., Bachman, J. G., & Schulenberg, J. E. (2008). *Monitoring the Future national survey results on drug use, 1975-2007. Volume II: College*

students and adults ages 19-45 (NIH Publication No. 08-6418B). Bethesda, MD: National Institute on Drug Abuse.

Kassel, J. D., Jackson, S. I., & Unrod, M. (2000). Generalized expectancies for negative mood regulation and problem drinking among college students. *Journal of Studies on Alcohol, 61,* 332-340.

Kilbey, M.M., Downey, K. & Breslau, N. (1998). Predicting the emergence and persistence of alcohol dependence in young adults: The role of expectancy and other risk factors. *Experimental and Clinical Psychopharmacology, 6,* 149-156.

Knight, J. R., Wechsler, H., Kuo, M., Seibring, M., Weitzman, E. R., & Schuckit, M. A. (2002). Alcohol abuse and dependence among U.S. college students. *Journal of Studies on Alcohol, 63,* 263-270.

Kuntsche, E., Knibbe, R. Gmel, G. & Engels, R. (2005). Why do young people drink? A review of drinking motives. *Clinical Psychology Review, 25,* 841-861.

Kuntsche, E., von Fischer, M. & Gmel, G. (2008). Personality factors and alcohol use: A mediator analysis of drinking motives. *Personality and Individual Differences, 45,* 796-800.

Kushner, M. G., Sher, K. J., & Erickson, D. J. (1999). Prospective analysis of the relation between DSM-III anxiety disorders and alcohol use disorders. *American Journal of Psychiatry, 156,* 723–732.

Larimer, M. E., & Cronce, J. M. (2002). Identification, prevention, and treatment: A review of individual-focused strategies to reduce problematic alcohol consumption by college students. *Journal of Studies on Alcohol, 14*(Suppl.), 148-163.

Larimer, M. E., & Cronce, J. M. (2007). Identification, prevention, and treatment revisited: Individual-focused college drinking prevention strategies 1999–2006. *Addictive Behaviors, 32*, 2439-2468.

Larimer, M. E., Lydum, A. R., Anderson, B. K., & Turner, A. P. (1999). Male and female recipients of unwanted sexual contact in a college student sample: Prevalence rates, alcohol use, and depression symptoms. *Sex Roles, 40,* 295-308.

Larimer, M. E., Turner, A. P., Anderson, B. K., Fader, J. S., Kilmer, J. R., Palmer, R. S., et al. (2001). Evaluating a brief alcohol intervention with fraternities. *Journal of Studies on Alcohol, 62*, 370-380.

Leibsohn, J. (1994). The relationship between drug and alcohol use and peer group associations of college freshmen as they transition from high school. *Journal of Drug Education, 24,* 177-192.

Linehan M.M. (1993a). *Cognitive-behavioral treatment of borderline personality disorder.* New York, NY: Guilford Press.

Linehan, M.M. (1993b). *The skills training manual for treating borderline personality disorder*. New York: The Guilford Press.

Linehan, M., Schmidt, H., Dimeff, L., Craft, J., Kanter J., & Comtois K. (1999): Dialectical behavior therapy for patients with borderline personality disorder and drug-dependence. *American Journal on Addictions, 8,* 279-292.

MacKinnon, D. P., Fritz, M. S., Williams, J., & Lockwood, C. M. (2007). Distribution of the product confidence limits for the indirect effect: Program PRODCLIN. *Behavior Research Methods*, 39, 384-389.

Mackinnon, D. P., & Dwyer, J. H. (1993). Estimating mediated effects in prevention studies. *Evaluation Review, 17*, 144-158.

MacKinnon, D. P., Lockwood, C. M., Hoffman, J. M., West, S. G., & Sheets, V. (2002). A comparison of methods to test mediation and other intervening variable effects. *Psychological Methods, 7,* 83-104.

Marlatt, G. A., Baer, J. S., Kivlahan, D. R., Dimeff, L. A., Larimer, M. E., Quigley, L. A., Somers, J. M., & Williams, E. (1998). Screening and brief intervention for high-risk college student drinkers: Results from a 2-year follow-up assessment. *Journal of Consulting and Clinical Psychology, 66,* 604-615.

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. *Journal of Studies on Alcohol and Drugs, 69*, 412-419.

McCann, R. A., Ball, E. M., & Ivanoff, A. (2000). DBT with an inpatient forensic population: The CMHIP forensic model. *Cognitive and Behavioral Practice, 7*, 447-456.

McNally, A. M., Palfai, T. P., Levine, R. V., & Moore, B. M. (2003) Attachment dimensions and drinking-related problems among young adults: The mediational role of coping motives. *Addictive Behaviors, 28,* 1115 - 1127.

Miller, W. R., & Rollnick, S. (2002). *Motivational interviewing: Preparing people to change addictive behavior*. New York: Guilford Press.

National Institute on Alcohol Abuse and Alcoholism. (2002). A Call to Action: Changing the Culture of Drinking at U.S. Colleges. Task Force of the National Advisory Council on Alcohol Abuse and Alcoholism. (Online) Available at: http://www.collegedrinkingprevention.gov/Reports/TaskForce/TaskForce_TOC.aspx

National Institute on Alcohol Abuse and Alcoholism. (2004). NIAAA Council Approves definition of binge drinking. *NIAAA Newsletter, No 3.* Winter.

Neighbors, C., Larimer, M. E.; Geisner, I. M.; & Knee, C. R. (2004). Feeling controlled and drinking motives among college students: Contingent self-esteem as a mediator. *Self and Identity, 3*, 207-224.

Neighbors, C., Lee, C. M., Lewis, M. A., Fossos, N., & Larimer, M. E. (2007). Are social norms the best predictor of outcomes among heavy-drinking college students? *Journal of Studies on Alcohol and Drugs, 68,* 556-565.

Novak, A., Burgess, E., Clark, M., & Zvolensky, M. J. (2003). Anxiety sensitivity, self-reported motives for alcohol and nicotine use and level of consumption. *Psychology of Addictive Behaviors, 17*, 13-23.

Osman, A., Kopper, B. A., Barrios, F. X., Osman, J. R., and Wade, T. (1997). The Beck Anxiety Inventory: Reexamination of Factor Structure and Psychometric Properties. *Journal of Clinical Psychology, 53,* 7-14.

Park, C. L., & Grant, C. (2005). Determinants of positive and negative consequences of alcohol consumption in college students: Alcohol use, gender, and psychological characteristics. *Addictive Behaviors, 30,* 755–765.

Perkins, H. W. (2002). Surveying the Damage: A review of research on consequences of alcohol misuse in college populations. *Journal of Studies on Alcohol, Suppl.14*, 91-100.

Porges, S. W. (1995). Orienting in a defensive world: mammalian modifications of our evolutionary heritage. A Polyvagal Theory. *Psychophysiology. 32,* 301-318.

Rosenthal, R., & Rosnow, R. L. (1991). *Essentials of behavioral research: Methods and data analysis* (2nd ed.). New York: McGraw-Hill.

Schulenberg, J., Wadsworth, K. N., O'Malley, P. M., Bachman, J. M., & Johnston, L. D. (1996). Adolescent risk factors for binge drinking during the transition to young adulthood: Variable- and pattern-centered approaches to change. *Developmental Psychology, 32*, 659-674.

Slutske, W. S. (2005). Alcohol use disorders among US college students and their non-college-attending peers. *Archives of General Psychiatry, 62,* 321–327.

SPSS Inc. (2008). SPSS Base 17.0 for Windows User's Guide. SPSS Inc., Chicago.

Stewart, S.H., Samoluk, S. B., & MacDonald, A. B. (1998). Anxiety sensitivity and substance use and abuse. Taylor, S.(Ed). *Anxiety sensitivity: Theory, research, and treatment of the fear of anxiety*. The LEA series in personality and clinical psychology. (pp. 287-319). Mahwah, NJ, US: Lawrence Erlbaum Associates, Publishers.

Substance Abuse and Mental Health Services Administration, Center for Substance Abuse Prevention. (2003). Science-based prevention programs and principles 2002: Effective substance abuse and mental health programs for every community (DHHS Publication No. SMA 03-3764) [On-line]. Available at: http://modelprograms.samhsa.gov/textonly_cf.cfm?page=pubs_sub&pubid=3

Substance Abuse and Mental Health Services Administration. (2008). [On-line]. SAMHSA's National Registry of Evidence-Based Practices and Programs: Brief alcohol screening and intervention for college students (BASICS). Available at: http://nrepp.samhsa.gov/programfulldetails.asp?PROGRAM_ID=156

Substance Abuse and Mental Health Services Administration. (2003). *Alcohol Use and Risks Among Young Adults by College Enrollment Status*. Rockville, Md: Substance Abuse and Mental Health Services Administration, Office of Applied Studies.

Telch, C., Agras, W., & Linehan, M. (2001). Dialectical behavior therapy for binge eating disorder. *Journal of Consulting & Clinical Psychology, 69,* 1061-1065.

Temple, M. T., & Fillmore, K. M. (1985). The variability of drinking patterns and problems among young men, age 16-31: A longitudinal study. *International Journal of the Addictions, 20,* 1595-1620.

US Department of Health and Human Services. (1997). *Ninth special report to the US congress on alcohol and health.* Washington, DC: Author.

Wechsler, H., Davenport, A., Dowdall, G., Moeykens, B., & Castillo, S. (1994). Health and behavioral consequences of binge drinking in college: A national survey of students at 140 campuses. *Journal of the American Medical Association, 272,* 1672-1677.

Wechsler, H., Dowdall, G. W., Maenner, G., Gledhill-Hoyt, J., & Lee, H. (1998). Changes in binge drinking and related problems among American college students between 1993 and 1997. *Journal of American College Health, 47,* 57-68.

White, H. R., & Labouvie, E., W. (1989). Toward the assessment of adolescent problem drinking. *Journal of Studies on Alcohol, 59,* 30-37.Wiser S., & Telch C. (1999). Dialectical behavior therapy for binge-eating disorder. *Journal of Clinical Psychology, 55,* 755-768.

Whiteside, U., Chen, E. Y., Neighbors, C., Hunter, D., Lo, T., & Larimer, M. E. (2007). Binge eating and emotion regulation: Do binge eaters have fewer skills to modulate and tolerate negative affect? *Eating Behaviors, 8,* 162-169.

Wood, M. D., Nagoshi, C. T., & Dennis, D. A. (1992). Alcohol norms and expectations as predictors of alcohol use and problems in a college student sample. *American Journal of Drug and Alcohol Abuse, 18,* 461- 476.

Zucker, R.A. (1987). The four alcoholisms: A developmental account of the etiologic process. In P.C. Rivers. (Ed.) Alcohol and Addictive Behaviors (Nebraska Symposium on Motivation, 1986, Vol. 34) Lincoln, NE: Univ. of Nebraska Press.

Zucker, R.A. (1994). Pathways to alcohol problems and alcoholism: A developmental account of the evidence for multiple alcoholisms and for contextual contributions to risk. In R. Zucker, G. Bovd, & J. Howard (Eds.) The Development of Alcohol Problems: Exploring the Biopsychosocial Matrix of Risk (NIAAA Research Monograph No. 26, NIH Publication No. 94-3495, pp. 255-289). Rockville, MD: Department of Health and Human Services.

Zucker, R.A., Fitzgerald, H.E., & Moses, H.D. (1995). Emergence of alcohol problems and the several alcoholisms: A developmental perspective on etiologic theory and life course trajectory. In D. Cicchetti, & D.J. Cohen (Eds.) Developmental Psychopathology, Vol. 2: Risk, Disorder, and Adaptation (pp. 677-711). New York: John Wiley & Sons.

Curriculum Vitae

Ursula Whiteside

Education

Postdoctoral Fellowship
Jul 2010 – Jun 2012

Group Health Research Institute, Seattle, WA
Two-year research fellowship involving training in effectiveness and health services delivery research.

Research Mentors: Evette J. Ludman, Greg E. Simon, Kathy A. Bradley

Clinical Internship
Jul 2009 – Jun 2010

University of Washington School of Medicine, Seattle, WA
One-year clinical internship involving rotations in psychiatry consultation-liaison, outpatient psychiatry, and inpatient psychiatry.

Research Mentor: David C. Atkins
Clinical Supervisors: Chris Dunn, Debra Kaysen, Christopher Martell, Barbara McCann, Joan Romano, Steven Vannoy, Jason Veitengruber, Doug Zatzick, Karina Uldall, Susan Bentley

Doctorate
Sep 2002 – Aug 2010

University of Washington, Seattle, WA
Major: Clinical Psychology

Graduate Mentor: Mary E. Larimer
Dissertation: "A Brief Personalized Feedback Intervention Integrating a Motivational Interviewing Therapeutic Style and DBT Skills for Depressed or Anxious Heavy Drinking Young Adults"
Dissertation Committee Members: Mary E. Larimer, Marsha M. Linehan, Alan G. Marlatt, Clayton Neighbors, William H. George, Robert J. Kohlenberg, Kelly Q. Davis

Master of Science Sep 2002 - Aug 2004	**University of Washington**, Seattle, WA Major: Clinical Psychology *Master's Thesis*: "Binge eating and emotion regulation: Do binge eaters have fewer skills to modulate and tolerate negative affect?" *Advisors*: Mary E. Larimer, Eunice Y. Chen
Bachelor of Arts Jun 1999 - Aug 2001	**University of Washington**, Seattle, WA Major: Psychology
Mar 1999 - May 1999	**Oxford University**, Oxford, England
Nov 1997 - Dec 1998	**Bemidji State University**, Bemidji, MN

Grants Awarded

NIAAA Jun 2007 - May 2009	Principle Investigator (Mary Larimer, Sponsor) *Adapting Interventions for College Student Drinkers*, National Institute on Alcohol Abuse and Alcoholism (Individual National Research Service Award, F31AA016038: $64,056.00 Total direct costs).
ADAI Mar 2007 - Feb 2009	Principle Investigator (Mary Larimer, Co-Investigator) *Beyond BASICS: Enhancing Interventions for College Students Drinking to Cope*, University of Washington's Alcohol and Drug Abuse Institute (65-1406, $19,977.29 Total direct costs).
SSCP Jan 2008	Principle Investigator *Beyond BASICS: Enhancing Interventions for College Students Drinking to Cope*," Division 12 of APA: Society for a Science of Clinical Psychology. (Dissertation Grant Award: $500).

Publications in Peer Reviewed Journals

1. **Whiteside, U.**, Cronce, J. M., Pedersen, E. R., & Larimer, M. E. (2010). Brief motivational feedback for college students: A harm reduction approach. *Journal of Clinical Psychology: In Session, 66,* 150-163.

2. Vannoy, S. D., **Whiteside, U.**, & Unutzer, J. (in press). Suicide risk protocols in research: What are the standard practices? *Suicide and Life-Threatening Behavior.*

3. Kanter, J. W., Rusch, L. C., Landes, S. J., Holman, G. I., **Whiteside, U.**, & Sedivy, S. (2009). The use and nature of present-centered interventions in cognitive and behavioral therapies for depression. *Psychotherapy: Theory, Research, Practice, Training, 46*, 220-232.

4. Lewis, M. A., Hove, M. C., **Whiteside, U.**, Lee, C., M., Oster-Aaland, L., Kirkeby, B. S., Neighbors, C., & Larimer, M. E. (2008). Fitting in and feeling fine: Conformity and coping motives as mediators of the relationship between social anxiety and problematic drinking. *Psychology of Addictive Behaviors, 22,* 58-67.

5. Neighbors, C., Lostutter, T. W., **Whiteside, U.**, Fossos, N., Walker, D. D., & Larimer, M. E. (2007). Injunctive norms and problem gambling among college students. *Journal of Gambling Studies, 23,* 259-273.

6. **Whiteside, U.**, Chen, E. Y., Neighbors, C., Hunter, D., Lo, T., & Larimer, M. E. (2007). Binge eating and emotion regulation: Do binge eaters have fewer skills to modulate and tolerate negative affect? *Eating Behaviors, 8,* 162-169.

7. **Whiteside, U.**, Pantalone, D. W., Hunter, D. A., Eland, J. K., Kleiber, B. V. & Larimer, M. E. (2007). Mentoring undergraduate research assistants at large research universities: Best practices and suggestions for success. *International Journal of Teaching and Learning in Higher Education, 19*, 325-330.

8. Wu, S. M., **Whiteside, U.**, & Neighbors, C. (2007). Differences in inter-rater reliability and accuracy for a treatment adherence scale. *Cognitive Behaviour Therapy, 36,* 230-239.

Publications in Edited Books

9. Larimer, M. E., Kilmer, J. R., **Whiteside, U.** (2009). College student drinking. In R. Ries, D. Fiellin, S. Miller, & R. Saitz (Eds.), *Principles of Addiction Medicine* (4^{th}ed.). Baltimore, MD: Lippincott Williams & Wilkins.

10. **Whiteside, U.**, Nguyen, T. T., Logan, D., Witkiewitz, K. & Marlatt, G. A. (2007). Relapse prevention for GAD. In K. Witkiewitz & G.A. Marlatt (Eds.), *Therapist's Guide to Evidence-Based Relapse Prevention.* New York: Elsevier.

11. Sayrs, J. H. R. & **Whiteside, U.** (2006). Evidence based treatments for borderline personality disorder. In J. E. Fisher & W. O'Donohue (Eds.), *Practitioner's Guide to Evidence Based Psychotherapy*. New York: Kluwer Academic Publications.

12. **Whiteside, U.**, Kohlenberg, R. J., & Tsai, M. (2005). Functional analytic psychotherapy. In Hersen, M. & Rosqvist, J. (Eds.), *Encyclopedia of Behavior Modification and Cognitive Behavior Therapy Volume I: Adult clinical Applications*. Newbury Park, CA: Sage Publications.

Publications Under Review or In Preparation

1. Comtois, K. A., Welch, S. S., **Whiteside, U.** & Linehan, M. M. *Typical treatment histories of women with borderline personality disorder.* Manuscript in preparation.

2. Hunter-Reel, D., Farris, S. G., & **Whiteside, U**. *The relationship between difficulties with emotion regulation and behavioral dyscontrol.* Manuscript in preparation.

3. Larimer, M. E., Neighbors, C., Lostutter, T. W. **Whiteside, U.**, Cronce, J. M., Kaysen, D. & Walker, D. D. *Brief motivational feedback vs. cognitive behavioral therapy for disordered gambling: A randomized clinical trial.* Under review at Journal of Psychiatric Research.

4. **Whiteside, U.**, Atkins, D. C., Kleiber, B. V., Neighbors, C. & Larimer, M. E. *A brief motivational intervention incorporating DBT skills for depressed and anxious young drinkers.* Manuscript in preparation.

5. **Whiteside, U.,** Lewis, M. A., Kleiber, B. V., Neighbors, C., Lostutter, T. W., Woods, B. A., & Larimer, M. E. *Suicidality and college student gamblers: Is severity of gambling behavior related to level of suicidality?* Manuscript in preparation.

6. **Whiteside, U.** & Atkins, D. C. A risky affair: Alcohol, infidelity, and unprotected sex among college students. Manuscript in preparation.

Professional Presentations

2010

1. Hunter-Reel, D., Farris, S. G., Whiteside, U., Bannon, K. L. (accepted for November, 2010). *Difficulties regulating emotions and behavioral dyscontrol: A replication and*

extension of Whiteside et al. (2006). Poster at annual meeting of Association for Advancement of Behavior Therapy, San Francisco, California.

2009

2. Jackson, S. C., **Whiteside, U.**, Jones, E. & Larimer, M. E. (November, 2009). *Cross-ethnic differences in protective and risk factors for binge drinking and eating disorders among Asian-American and Caucasian college women.* Poster at annual meeting of Association for Advancement of Behavior Therapy, New York, New York.
3. **Whiteside, U.** (November, 2009). *A brief DBT-informed intervention for young adults with depression, anxiety, and problem drinking.* Paper at annual ISITDBT Meeting at Association for Advancement of Behavior Therapy, New York, New York.
4. Larimer, M. E., **Whiteside, U.**, & Lostutter, T. W. (2009, May). *Suicide assessment and intervention: How it relates to problem gambling.* Plenary session at annual convention for the Western Conference on Problem Gambling, Vancouver, Washington.
5. **Whiteside, U.** (2009, May). *Incorporating motivational enhancement therapy and mindfulness based DBT skills for comorbid alcohol and mood problems: Insights and results from the treatment development trenches.* Chaired symposium at annual meeting of the Society for the Exploration of Psychotherapy Integration, Seattle, WA.

2008

6. McKay, S., Owens, M., **Whiteside, U.**, Atkins, D. & Larimer, M. E. (2008, November). *A treatment development project: Motivational interviewing including three DBT skills for young adults drinking for emotion regulation reasons.* Poster at annual convention for the Association for Behavioral and Cognitive Therapies, Orlando, Florida.
7. Owens, M., McKay, S., & **Whiteside, U.** (2008, November). *Brief alcohol interventions: What depressed and/or anxious college drinkers find helpful to talk about.* Poster at annual ISITDBT Meeting at Association for Behavioral and Cognitive Therapies, Orlando, Florida.
8. **Whiteside, U.**, Valtcheva, I., Linehan, M. M., Larimer, M. E. (2008, June). *Mindfulness based emotion regulation skills: A brief intervention for anxious or depressed drinkers*. Poster at annual Mind and Life conference, Garrison, New York.
9. McKay, S., Owens, M., & **Whiteside, U.** (2008, May). *Teaching DBT skills to depressed or anxious college drinkers*. Poster at annual University of Washington Undergraduate Research Symposium, Seattle, Washington.
10. Owens, M., McKay, S., & **Whiteside, U.** (2008, May). *Beyond basics: Post session feedback.* Poster at annual University of Washington Undergraduate Research Symposium, Seattle, Washington.
11. **Whiteside, U.**, Kleiber, B. V., Owens, M., McKay, S. M., Paves, A. P., Linehan, M. M., & Larimer, M. E. (2008, February). *Drinking and depression: A pilot study of a brief intervention.* Poster at annual Guze Symposium on Alcoholism, St. Louis, MO.

2007

12. Lewis, M. A., Hove, M. C., **Whiteside, U.**, Lee, C. M., Oster-Aaland, L., Kirkeby, B., Neighbors, C., & Larimer, M. E. (2007, July). *Social anxiety, motives, and problematic drinking.* Poster at annual convention of the Research Society on Alcoholism, Chicago, IL.
13. **Whiteside, U.**, Larimer, M. E., Linehan, M. M., Marlatt, G. A., Kleiber, B. V., & Jones, E. (2007, July). *Integrating brief motivational interventions with DBT skills.* Paper at World Congress of Behavior Therapy, Barcelona, Spain.
14. Jacobson, J. N. Randall, J., Kleiber, B. V., **Whiteside, U.**, Larimer, M. E. (2007, May) *Examining the relationship between anorectic symptomalogy and anxiety, depression, and emotion dysregulation.* Poster at annual convention for Washington State Psychological Association, Tacoma, WA.
15. Randall, J., Jacobsen, J., Kleiber, B., **Whiteside, U.**, and Larimer, M. E. (2007, May) *Binge eating and bulimia: Differences across anxiety, depression, and emotion regulation.* Poster at annual convention for Washington State Psychological Association, Tacoma, WA.
16. Kleiber, B., **Whiteside, U.**, Harned, M., & Linehan, M.M. (2007, April) *The relationship between perfectionism, emotion dysregulation, and suicidal and non-suicidal self-injurious behavior among women with borderline personality disorder.* Poster at annual conference of American Association of Suicidology, New Orleans, LA.

2006

17. Larimer, M. E., Neighbors, C., Lostutter, T. W., **Whiteside, U.**, Cronce, J. M., & Kaysen, D. L. (2006, November). *Indicated prevention of at-risk gambling: Comparison of motivational feedback and cognitive-behavioral skills training.* Paper at annual convention of the Association for Behavior and Cognitive Therapy, Chicago.
18. Tsai, M., Kohlenberg, R.J., Newring, R., Terry, C., Plummer, M., **Whiteside, U.**, Secrist, C., & Bowen, S. (2006, November). *Psychotherapy supervision: An experiential model based on Functional Analytic Psychotherapy for enhancing the CBT supervisory process.* Workshop at annual Convention of the Association for Behavior and Cognitive Therapy, Chicago.
19. Woods, B., Neighbors, C., **Whiteside, U.**, Nobles, R. H., Larimer, M. E., & Cauce, A. M. (2006, November). *Alcohol use and alcohol-related problems among African American adolescents.* Poster at annual Convention of the Association for Behavior and Cognitive Therapy, Chicago.
20. **Whiteside, U.** (2006, April). *Treating the suicidal college student.* Paper at Science Informed Case Presentation for University of Washington's Clinical Psychology Program, Seattle, Washington.

2005

21. Lostutter, T. W., Neighbors, C., **Whiteside, U.**, Kaysen, D., & Larimer, M. E. (2005, November). *Everybody gambles: The relationship between gambling norms and gambling behavior among college students.* Poster at annual convention for the Association for Behavioral and Cognitive Therapies, Washington D.C.

22. **Whiteside, U.** (2005, November). *Drinking for coping and social reasons: The highs and lows of college drinking.* Paper at annual NIAAA Trainee Workshop, Indianapolis, Indiana.
23. **Whiteside, U.**, Neighbors, C., Kleiber, B., Lostutter, T. W., Zeller, K., Kaysen, D., & Larimer, M. E. (2005, November). *Suicidality and college student gamblers: Is severity of gambling behavior related to level of suicidality?* Poster at annual convention for the Association for Behavioral and Cognitive Therapies, Washington D.C.
24. Kleiber, B., Cawley, A., **Whiteside, U.**, & Larimer, M. E. (2005, April). *Is there a relationship between parental perfectionism and suicidal behavior in young adults?* Poster at annual University of Washington Undergraduate Research Symposium, Seattle, Washington.
25. Nguyen, T., Lo, T., **Whiteside, U.**, & Larimer, M. E. (2005, April). *Self-esteem and perfectionism: A correlational study of self-esteem and perfectionism among Asian-Americans college students.* Poster at annual University of Washington Undergraduate Research Symposium, Seattle, Washington.
26. Zeller, K. A., **Whiteside, U.**, & Larimer, M. E. *Problematic eating, interpersonal difficulties, and emotion regulation.* (2005, April). Poster at annual University of Washington Undergraduate Research Symposium, Seattle, Washington.
27. Marlatt, G. A., **Whiteside, U.**, & Logan, D. (2005, March). *Relapse prevention and anxiety disorders.* Workshop at annual conference for the Anxiety Disorders Association of America, Seattle, Washington.

2004

28. Holman, G. I., Kanter, J. W., **Whiteside, U.**, Landes, S. J., Busch, A. M., and Kohlenberg, R. J. (2004, November). *In-vivo interventions in cognitive therapy for depression and their relation to outcome.* Poster at annual convention of the Association for the Advancement for Behavior Therapy, New Orleans, LA.
29. Landes, S. J., Kanter, J. W., Busch, A. M., Holman, G. I., **Whiteside, U.**, and Kohlenberg, R. J. (2004, November). *All relationship-focused interventions are not created equal: A qualitative analysis of in-vivo interventions in cognitive therapy for depression.* Poster at annual convention of the Association for the Advancement for Behavior Therapy, New Orleans, LA.
30. Larimer, M. E., **Whiteside, U.**, & Dunn, E. C. (2004, November). *Comorbid eating and alcohol problems in college students.* Paper at annual convention for the Association for the Advancement of Behavior Therapy, New Orleans, Louisiana.
31. **Whiteside, U.** (2004, November). *Clinical applications: Using chain analyses to examine and treat comorbid eating and alcohol problems.* Paper at annual convention for the Association for the Advancement of Behavior Therapy, New Orleans, Louisiana.
32. Holman, G. I., **Whiteside, U.**, Kanter, J. W., & Kohlenberg, R. J. (2004, May). *Does emphasis on the therapeutic relationship relate to improved outcomes for depression?*

A behavioral analysis. Paper at annual convention of the Association for Behavior Analysis, Boston, Massachusetts.

33. Kanter, J. W., Newring, R., Terry, C., **Whiteside, U.**, & Kohlenberg, R. J. (2004, May). *The client-therapist relationship in psychotherapy: The pot of gold at the end of a functional analysis.* Workshop at annual convention of the Association for Behavior Analysis, Boston, Massachusetts.
34. Ouellette, C. L., McKaskle, T. L., Holman, G. I., **Whiteside, U.**, Dimidjian, S. J., and Kohlenberg, R. J. (2004, May). *Therapist interpretations in behavior activation and cognitive-behavioral therapy for depression.* Poster at annual Undergraduate Research Symposium, University of Washington, Seattle, Washington.

2003

35. **Whiteside, U.** (2003, November). *Innovative approaches for eating disorders: Analyzing the mechanisms of treatment.* Chaired symposium at annual meeting of the Association for the Advancement of Behavior Therapy, Boston, Massachusetts.
36. Kohlenberg, R. J., Parker, C., Bolling, M. Y., Wexner, R., Terry, C., & **Whiteside, U.** (2003, May). *The client-therapist relationship in psychotherapy: The pot of gold at the end of a functional analysis.* Workshop at annual convention of the Association for Behavior Analysis, San Francisco, California.

2002

37. Comtois, K. A., Murray Gregory, A., **Whiteside, U.**, Levinsky, E., & Linehan, M. M. (2002, November). *The University of Washington treatment study for borderline personality disorder: Study design and implementation.* Paper at annual convention of the Association for the Advancement of Behavior Therapy, Reno, Nevada.
38. Simmons, A., **Whiteside, U.**, Witkiewitz, K., Dunn, E., Ball, J., Chan, K., Huang-Cummins, L., & McCann, B. (2002, November). *Individual CBT for binge eating disorder in a diverse sample.* Poster at annual meeting of Eating Disorder's SIG at Association for the Advancement of Behavior Therapy, Reno, Nevada.

2001

39. Comtois, K. A., Welch, S. S., **Whiteside, U.**, & Linehan, M. M. (2001, November). *Understanding usual care for borderline personality disorder: Importance of diagnosis target vs. behavior.* Poster at annual convention of the Association for the Advancement of Behavior Therapy, Philadelphia, Pennsylvania.
40. **Whiteside, U.** & Linehan, M. M. (November, 2001). *The "suicidal" client: What is she reporting?* Poster at annual ISITDBT meeting at Association for Advancement of Behavior Therapy, Philadelphia, Pennsylvania.
41. **Whiteside, U.**, Gechter, K. M., Chen, H. H., Reynolds, S. K., Linehan, M. M., & Little, L. M. (2001, November). *The means of improvement: Client expectations for successful psychotherapy treatment.* Poster at annual meeting of Women's SIG at Annual Convention of the Association for the Advancement of Behavior Therapy, Philadelphia, Pennsylvania.

42. **Whiteside, U.**, Gechter, K. M., Chen, H. H., & Linehan, M. M. (2001, May). *Client expectations for improvement: How do sub-populations differ?* Paper at annual University of Washington Undergraduate Research Symposium, Seattle, Washington.

Research Experience

Mar 2005 - Jun 2009	**Principle Investigator and Research Study Coordinator**, University of Washington. *Beyond BASICS study (F31AA016038).* Coordinated all aspects of treatment development and outcome study. Executed development, IRB application, manualization, piloting, and testing a new intervention in a randomized clinical trial. Duties also included training and overseeing research assistants and study therapists, data management, writing of scholarly journal articles, and presenting data at conferences.
Mar 2004 - Jun 2009	**Psychology Subject Pool (PSP) Manager**, University of Washington. *Psychology Human Subject Pool.* Oriented and managed student participants (up to 1600 quarterly), instructors, and researchers involved in research conducted through the PSP. *Supervisor*: Frank Smoll, Ph.D.
Mar 2004 - Sep 2005	**Research Study Coordinator**, University of Washington. *Project Chance: Indicated Prevention with At-risk Gamblers (R21MH067026).* Coordination of 2-year treatment outcome study. Duties included overseeing research assistants and study therapists, data management, aid in the writing of scholarly journal articles, and presenting data at conferences. *Supervisor*: Mary E. Larimer, Ph.D.
Mar 2003 - Dec 2007	**Principle Investigator and Research Study Coordinator**, University of Washington. *Measuring the Cognitive, Behavioral, and Emotional Aspects of Eating and Alcohol Use Disorders.* Developed study, received IRB approval, and managed all aspects of cross-sectional research study (n = 1800). Duties included coordinating research assistants, data management, and presenting data at conferences.
May - Sep 2005	**Research Assistant**, University of Washington. *Alcohol Research Collaborative: Peer Programs (U01AA014742).*

Trained twelve undergraduate research assistants to conduct brief motivational peer interventions for college student drinking. Duties also included overseeing recruitment and working with IRB.
Supervisor: Mary E. Larimer, Ph.D.

Mar - Sep 2003 — **Research Assistant**, University of Washington. *Psychotherapy Process Research Project.* Coordinated training and facilitation of psychotherapy process coding of cognitive behavioral and functional analytic psychotherapy videotapes. Duties also included overseeing research assistants, data management, and presenting data at conferences.
Supervisor: Robert J. Kohlenberg, Ph.D.

Sep - Dec 2002 — **Research Assistant**, University of Washington. *Treatments for Depression project (R01MH055502).* Received training in psychotherapy process research coding for cognitive behavioral and functional analytic psychotherapies. Duties included coding psychotherapy videotapes from large depression trail.
Supervisor: Robert J. Kohlenberg, Ph.D.

Sep 2000 - Sep 2002 — **Participant and Research Therapist Coordinator**, University of Washington. *Behavioral Research and Therapy Clinics treatment trials (R01MH034486, F31MH064231, Eli Lilly F1D-US-X173, Royalty Research Fund #2339).* Duties included coordination of study therapists and recruitment and retention of participants with borderline personality disorder in clinical and experimental trials. Attended consultation teams as participant liaison. Performed structured clinical interviews, data management, and oversaw numerous research assistants in various roles.
Supervisors: Marsha M. Linehan, Ph.D., Kathryn E. Korslund, Ph.D.

Jun 1999 - Aug 2000 — **Research Assistant**, University of Washington. *Behavioral Research and Therapy Clinics.* Coordination of study therapists and large psychotherapy video library.
Supervisor: Sarah K. Reynolds, Ph.D.

Jan - Mar 1999 — **Research Assistant**, University of Minnesota. *Eating Disorders Research Program.* Conducted data entry and

cleaning. Learned inner workings of large psychological research laboratory.
Supervisor: Carol B. Peterson, Ph.D.

Teaching Experience

Jul 2010 May and Jul, 2009 Feb and Jul, 2008 Jul and Oct, 2007	**Guest Lecturer**, University of Washington. Introduction to Dialectical Behavioral Therapy given in *Clinical Psychology*. Instructors: Alan G. Marlatt, Ph.D., Diane Logan, M.S., Christine Terry, Ph.D., Dellanira Garcia, Ph.D., Susan E. Collins, Ph.D.
Mar 2010	**Invited Speaker**, *DBT-BASICS for Comorbid Alcohol and Mental Health Problems,* given to Evidence Based Treatment Centers of Seattle.
Jul 2009 - Oct 2009	**Teaching Assistant**, University of Washington. *Cognitive Behavior Therapy Seminar for Third Year Psychiatry Residents.* Topics included Behavioral and Cognitive Theory and Techniques, Case Formulation, and specific Applications for PTSD, Anxiety, and Depression. Instructor: Christopher Martell, Ph.D.
Apr 2003 - Jun 2009	**Seminar Teacher**, University of Washington. *Didactic Seminar for Volunteer and Undergraduate Research Assistants.* Ongoing weekly seminar. Topics included Research on Treatments for Depression, Eating Disorders Research and Treatment, Motivational Interviewing and DBT skills Training, Borderline Personality Disorder, Motivational Interviewing Treatment Integrity (MITI) Coding System, and Graduate School and Psychology Jobs: Applications and Interviewing.
Feb - Mar 2009	**Co-Instructor,** University of Washington. *Introduction to Motivational Interviewing*. Six week course for graduate students on the theory and application of Motivational Interviewing. Co-Instructors: Kevin King, Ph.D. and Sean Tollison, M.S.

Sep - Dec 2008	**Instructor**, University of Washington. *Stress and Coping*. Ten week course for undergraduate students on the research and clinical research applications regarding stress and coping.
Jan - Mar 2007	**Instructor**, University of Washington. *Clinical Psychology*. Ten week course for undergraduate students reviewing clinical assessment and research supported treatments.
Jan - Mar 2004	**Teaching Assistant**, University of Washington. *Abnormal Psychology*. Ten week course for undergraduate students. Instructor: Theodore Beauchaine, Ph.D.
Jun - Aug 2003	**Teaching Assistant**, University of Washington. *Introduction to Psychology*. Ten week course for undergraduate students. Instructor: Jacob Leonesio, Ph.D.
Jan - Mar 2003	**Teaching Assistant**, University of Washington. *Understanding Statistics in Psychology*. Taught two weekly sections. Ten week course for undergraduate students. Instructor: James Ha, Ph.D.
Feb 2004	**Guest Lecture.** University of Washington. Problematic Eating Behaviors given in *Abnormal Psychology*. Instructor: Theodore Beauchaine, Ph.D.
Mar 2005 Jul 2004	**Guest Lecture.** University of Washington. Clinical Case Presentation to two graduate level Clinical Psychology Courses. Instructors: Corey Fagan, Ph.D., Ronald E. Smith, Ph.D.
Mar 2003	**Invited Speaker**, Problematic Eating Behaviors given to Alpha Gamma Delta, a University of Washington Sorority.
Jun - Aug 2001	**Undergraduate Teaching Assistant**, University of Washington. *Fundamentals of Psychological Research*. Ten week course for undergraduate students. Instructor: Patricia Loesche, Ph.D.
Jan - Mar 2001	**Undergraduate Teaching Assistant**, University of Washington. *Laboratory in Animal Learning*. Ten week course for undergraduate students. Instructor: Renee Robinette, Ph.D.

Feb 1999	**Invited Speaker**, Problematic Eating Behaviors given to a University of Minnesota Sorority.
Feb 1999	**Invited Speaker**, Problematic Eating Behaviors given to a Temple of Aaron, Minneapolis, Minnesota.

Mentoring Experience

Undergraduates and Volunteers Mentored - Research
Eduardo Jones (Clinical Psychology Doctorate in progress at University of Southern California) Salene Wu (Clinical Psychology Doctorate in progress at Ohio State University)
Blair Kleiber (Clinical Psychology Doctorate in progress at University of Colorado)
Tracy Lo (Clinical Psychology Doctorate in progress at Fuller Theological Seminary)
Dorian Hunter (Clinical Psychology Doctorate in progress at Rutgers University)
Kristina Zeller (Educational Psychology Doctorate in progress at Arizona State University)
Andrew Paves (Clinical Psychology Doctorate in progress at University of Washington)
Jackie Randall (Psy.D. in progress at Pacific University)
Allison Landry (Mental Health Counseling Masters completed at Seattle University)
Lauren Deitz (Family, Couple, and Child Counseling Masters completed at Antioch Seattle)
Franchesca Nguyen (Masters in Public Health in progress at University of Washington)
Ilina Valtcheva (Masters in Counseling in progress at Seattle University)

Mentored Awards - Research
Blair Kleiber and Susan McKay (University of Washington Mary Gates Scholars)
Blair Kleiber and Susan McKay (University of Washington Mary Gates Travel Award Scholars)

Undergraduate and Volunteer – Research Supervision
Trained and supervised 100+ undergraduate and volunteer research assistants over the last 10 years.

Undergraduate and Volunteer – Clinical Supervision
Trained and supervised 20+ undergraduate and post-baccalaureate individuals in Motivational Interviewing for 10 weeks or greater.

Clinical Experience

Jul 2009 – Jun 2010	**Clinical Intern**, University of Washington, Department of Psychiatry and Behavioral Sciences. Recently completed a

four-month rotation at *University of Washington's Inpatient Psychiatry Unit*. Duties include diagnostic interviews with patients, presenting patients to team, suicide risk assessment and crisis intervention, individual psychotherapy and discharge planning. Other rotations include Harborview Psychiatry Consults and Roosevelt Outpatient Psychiatry Clinic.
Supervisors: Steven Vannoy, Ph.D. and Joan Romano, Ph.D.

Nov 2003 - Jun 2009

Therapist, University of Washington. *Psychological Services and Training Clinic*. Conducted empirically based psychotherapy with 5 individual patients.
Supervisors: Peggilee Wupperman, Ph.D., Steve Clancy, Ph.D., Amy Wagner, Ph.D., and Corey Fagan, Ph.D.

May 2007 – Jul 2008

Research Therapist, University of Washington. *Assessment and Treatment of Parasuicidal Patients R01MH034486.* Provided adherent DBT to 3 chronically suicidal and psychiatrically comorbid individuals as part of year-long treatment intervention.
Supervisors: Heidi Heard, Ph.D. and Marsha M. Linehan, Ph.D.

Sep 2005 - Sep 2006

Therapist, University of Washington. *Functional Analytic Psychotherapy (FAP).* Trained by FAP developer with a team of advanced graduate students learning and conducting FAP. Completed supervised FAP case.
Supervisors: Mary Plummer, Ph.D. and Mavis Tsai, Ph.D.

Mar 2004 - Sep 2005

Research Therapist, University of Washington. *Project Chance: Indicated Prevention with At-Risk Gamblers R21MH067026.* Provided group CBT and individual motivational feedback sessions to numerous at-risk college gamblers in randomized clinical trial.
Supervisor: Mary E. Larimer, Ph.D.

Jun 2003 - May 2007
Aug 2001 - Sep 2002

Therapist and Consult Team Member, University of Washington. *Treatment Development Clinic*. Was a member of an integrative psychotherapy consultation team. Provided individual DBT psychotherapy and telephone consultation to 5 chronically suicidal patients. Co-led (6 months) and led (12 months) weekly 2.5 hour DBT skills group with 6 to 12

	patients per group. Weekly meetings included one hour consultation and one hour didactics taught by Dr. Linehan *Supervisors*: Anthony Dubose, Psy.D., Heidi Heard, Ph.D., Marsha M. Linehan, Ph.D., and Jennifer Sayrs, Ph.D.
Apr 2002 - Jun 2003	**Research Therapist**, Harborview Medical Center. *Eating Disorders Research Unit*. As part of pilot study, provided individual CBT to 4 low-income binge-eating patients. *Supervisor*: Barbara McCann, Ph.D.
Oct 2002 - Jan 2003	**Research Therapist**, Harborview Medical Center. *Motivational Interviewing and Self-Help for Binge Eating*. As part of randomized clinical trail, provided individual Motivational Interviewing sessions to 5 binge-eating college students. *Supervisor*: Erin C. Dunn, Ph.D.

Specialized Clinical Training

Intensive Clinical Training

Mar 2010	**Cognitive-Behavioral Analysis System of Psychotherapy (CBASP) for Depression**. Seattle, Washington. One day training. *Instructor:* Christopher Martell, Ph.D.
Feb 2010	**Behavioral Activation (BA) for Depression**. Seattle, Washington. One day training. *Instructor:* Christopher Martell, Ph.D.
Jan 2010	**Motivational Interviewing (MI)**. Seattle, Washington. Eight hour training for psychology residents. *Instructor:* Christopher Dunn, Ph.D.
Jan 2010	**Behavioral Activation (BA)**. Seattle, Washington. Six hour training for psychology residents. *Instructor:* Christopher Martell, Ph.D.
Jan 2010	**Relapse Prevention Therapy (RP) for Addictions**. Seattle, Washington. One day training. *Instructor:* Katie Witkiewitz, Ph.D.
Jan 2010	**Cognitive Processing Therapy (CPT) for PTSD**. Seattle, Washington. Two day training. *Instructor:* Debra Kaysen, Ph.D.

Jun 2006	**Suicide Assessment and Intervention**. Seattle, Washington. Two day training. *Instructors:* Marsha Linehan, Ph.D. and Kathryn Korslund, Ph.D.
Oct 2005	**Acceptance and Commitment Therapy (ACT)**. Seattle, Washington. One day training. *Instructor:* Steve Hayes, Ph.D.
May 2005	**Brief Alcohol Screening & Intervention for College Students (BASICS)**. Seattle, Washington. Three day training. *Instructors:* Mary Larimer, Ph.D. & Jason Kilmer, Ph.D.
Jan 2005	**Motivational Interviewing Treatment Integrity (MITI): MI Adherence Assessment**. Seattle, Washington. Three day training. *Instructor:* Terri Moyers, Ph.D.
Nov 2004	**Conducting Transdiagnostic CBT for Eating Disorders**. Boston, Massachusetts. One day training. *Instructor:* Christopher Fairburn, Ph.D.
Jan 2004	**Personalized Motivation Enhancement Therapy for At-Risk Gamblers**. Seattle, Washington. One day training. *Instructors:* Mary Larimer, Ph.D., Denise Walker, Ph.D.
Sep 2003	**CBT Treatment of Pathological Gamblers**. Seattle, Washington. Two day training. *Instructor:* Nancy Petry, Ph.D.
Jun 2003	**Conducting Dialectical Behavioral Therapy**. Seattle, Washington. Seven day training. *Instructors:* Marsha Linehan, Ph.D. and Kate Comtois, Ph.D.
May 2003	**After Prozac: Mindfulness-Based Cognitive Therapy**. Seattle, Washington. Two day training. *Instructor:* Zindal Segal, Ph.D.
Oct 2002	**Disordered Eating: Treatment Strategies That Work**. Seattle, Washington. Two day training. *Instructor:* Lucene Wisniewski, Ph.D.
Aug 2002	**Conducting the Semi-structured Clinical Interview for DSM-IV**. Seattle, Washington. One day training. *Instructor:* Shireen Rizvi, Ph.D.
May 2002	**Eating Disorders Examination**. Seattle, Washington. One day training. *Instructor:* Shireen Rizvi, Ph.D.

Clinical Coursework at Graduate Level

Jan - Mar 2007	**Clinical Supervision Methods** *Instructor:* Corey Fagan, Ph.D.
Apr - Jun 2006	**Behavioral Activation, CBT, and Mindfulness-Based CBT** *Instructor:* Sona Dimidjian, Ph.D.
Sep - Dec 2004	**Behavioral Methods** *Instructor:* Marsha Linehan, Ph.D.
Jan - Mar 2004	**Semi-structured Clinical Interview (SCID-I) for DSM-IV** *Instructor:* Angela Murray, MSW, M.A. (Lead Linehan clinical assessor).
Jan - Mar 2004	**Behavioral Assessment** *Instructor:* Marsha Linehan, Ph.D.
Sep - Dec 2003	**Clinical Interviewing** *Instructor:* Corey Fagan, Ph.D.
Jun - Aug 2002	**Dialectical Behavioral Therapy** *Instructor:* Marsha Linehan, Ph.D.
Jun - Aug 2001	**Motivational Interviewing** *Instructors:* Mary Larimer, Ph.D. and Denise Walker, Ph.D.
Jun - Aug 2001	**Clinical Personality Assessment: MMPI & MMCI** *Instructor:* Ronald Smith, Ph.D.
Jun - Sep 2001	**Seminar in Behavior Analysis** Graduate reading and discussion group. *Instructor:* Robert Kohlenberg, Ph.D.

Specialized Training

Aug 2008	*University of Michigan's NIH Funded Training in fMRI.* Eight day training, *Instructor:* John Jonides, Ph.D.
Oct 2006	*BASICS and Beyond: Building Bridges between Research and the Practice of Brief Motivational Interventions for College Students.*

	Sponsored by Robert Wood Johnson Association and the Center for College Health and Safety and Addictive Behavior Research Center. Seattle, Washington.
Jun – Oct 2002	*Office Manager Position at DBT Center of Seattle, PLLC.* Worked with newly formed private practice group. Seattle, Washington. Supervisor: Anthony P. DuBose, Psy.D. and David Lischener, M.D.

Diversity Enhancement*

Jul 2009 – Jun 2010	**Diversity Advancement Committee**. University of Washington. Interdisciplinary committee promoting diversity recruitment and retention in Department of Psychiatry and working to improve resident and faculty understanding of individual and cultural diversity (as these relate to theories and methods of assessment, diagnosis, and effective intervention; consultation, supervision, and evaluation, and research methods/design), led by Steven Vannoy, Ph.D., MPH.
Sep 2006 – Nov 2007	**Diversity and Addictions Journal Club**. Interdisciplinary reading and discussion group led by Briana Woods, M.S.

*I have presented four posters on diversity related topics and included a strong diversity focus in an undergraduate course I taught (Stress and Coping). I have also put special emphasis on mentoring diverse students on their paths to graduate school.

Awards and Honors

Jun 2009	**Distinguished Service *Award*** Department of Psychology at the University of Washington
Jun 2009	**Distinguished Teaching Award *Nominee*** University of Washington, Department of Psychology
May 2009	**University of Washington Undergraduate Research Mentor Award *Nominee*** Undergraduate Research Program and UW Alumni Association

Feb 2008	**Travel and Meeting *Award/Scholar*** Guze Symposium on Alcohol
Jan 2008	**Dissertation Recognition Grant *Award*** Society for Science of Clinical Psychology
2005, 2004	**Wagner Memorial Travel *Award*** Department of Psychology at the University of Washington
Nov 2003	**First Place Poster Presentation *Award*** Washington State Psychological Association
Jan 1999	**Henriques International Scholarship *Award* for Oxford Study Abroad** Bemidji State University

University of Washington Clinical Psychology Graduate Program Awards: 2008 Award for Innovative Practices in Graduate Education in Psychology from the American Psychological Association, 2003 Distinguished Program Award from the Association for Behavioral and Cognitive Therapies, Tied for #1 Clinical Psychology Program in most recent US News and World Reports rankings (2008).

Professional Organizations and Service

Association for the Advancement of Behavioral and Cognitive Therapies
American Psychological Association—Division 12: Society of Clinical Psychology
Society for the Science of Clinical Psychology
Washington State Psychological Association

Sep 2003- Jun 2005 *Faculty Meeting Graduate Student Representative*, University of Washington Department of Psychology.

Sep 2002-Jun 2006 *Graduate Program Action Committee (GPAC)*, Member, University of Washington Department of Psychology.

Ad hoc Reviewer

Journal of Abnormal Psychology
General Hospital Psychiatry

Professional References

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