COMPARISON OF SUPERVISION TRAINING TECHNIQUES IN A MOTIVATIONAL ENHANCEMENT INTERVENTION ON COLLEGE STUDENT DRINKING

A Dissertation in
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by

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Abstract

The Brief Alcohol Screening and Intervention for College Students (BASICS; Dimeff et al., 1999) has resulted in reduced drinking outcomes when delivered in a controlled research environment. With continued concern over heavy student drinking, universities are implementing peer-based individual interventions, of which 85% are implementing variations of BASICS. The majority of these programs are not utilizing supervision procedures found to be efficacious in past research studies (Mastroleo et al., 2008). The role of supervision on the ability to deliver a BASICS intervention with fidelity is unclear. To examine this, BASICS interventions commonly practiced in university settings (Common Practice Approach; CPA) were compared to peer delivered BASICS interventions using the supervision in published studies (Evidence-Based Application Approach, EAA ; Larimer et al., 2001). Peer counselors were randomized to either the CPA or EAA group and trained to deliver a BASICS intervention. EAA peer counselors received supervision while the CPA trained peer counselors did not. Motivational Interviewing (MI: Miller & Rollnick, 2002) skill demonstration across BASICS sessions was examined to test the effects of supervision on skill acquisition. To test intervention effects, undergraduate students were randomly selected and assigned to one of three groups (Control, EAA, CPA). Differences post-intervention on drinking norms beliefs, protective behavior engagement, and drinking outcomes (total drinks per week, weekend drinking, heavy drinking episodes, peak BAC, total negative alcohol related consequences) were compared to test the role of supervision on intervention efficacy. Both treatment groups found similar post-intervention results lending continued support for BASICS as an efficacious intervention. Findings also identify the importance of
supervision as a vital training component to ensure MI adherence and BASICS fidelity.

Limitations and directions for future research are noted.
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CHAPTER I: INTRODUCTION

Background

Most colleges and universities have an increased awareness that alcohol and other drug use is a national concern and that implementing effective prevention and intervention programs is a challenge (Grossman, Canterbury, Lloyd, & McDowell, 2001). With college students undergoing major life transitions, they are prone to significant alcohol-related risks in which early intervention may prevent the development of more risky behavior (Larimer, Turner, Anderson, Fader, Kilmer, Palmer, et al., 2001). Studies as early as 1953 and 1967 noted the threat alcohol abuse has on the academic, social, and physical well-being of college students (Sanford, 1967; Strauss & Bacon, 1953). It was not until the mid-1970s, however, that colleges were asked to respond to this threat nationally (Kraft, 1976). According to the 2006 National College Health Association Survey, only 17.2% of traditional aged (18 – 24) college students surveyed reported never using alcohol. With the majority of college students currently consuming alcohol, colleges must consider secondary prevention programs targeting students who are already drinking (Marlatt, Baer, Kivlahan, Dimeff, Larimer, Quigley, et al., 1998).

Secondary prevention programs where peers deliver information and services have a long history in the student setting (D'Andrea & Salovey, 1996). The use of peers to deliver alcohol interventions with college students has been strongly debated over the last decade as universities have searched to find effective, yet inexpensive methods to change drinking behaviors within the college community (Fromme & Corbin, 2004; Larimer et al., 2001; Marlatt et al., 1998). Larimer et al. found that peers are at least as effective as professional level staff at promoting change in drinking behavior among
college students with the use of brief motivational interventions. Ender and Newton (2000) also identified peer providers as having the capacity to be as, or more, effective than professionals at delivering some services. Dimeff et al. (1999) stated, “Peers are commonly believed to socialize one another to drink by modeling, imitating, or reinforcing drinking behavior” (p. 11). Fromme and Corbin (2004) and Bergin-Cico (2000) noted students relate better to peers than to older adults, that peer-delivered programs have a stronger influence on students’ attitudes and behavior, and using upper class students to implement substance abuse programs may be effective for first-year students. This may be due to the strong influence peers have upon one another lending support for the effectiveness of peer based interventions and education programs in creating behavior change in college students (Astin, 1993; D’Andrea & Salovey, 1996).

Previous Individually Based Alcohol Intervention Program Studies

Studies have shown individually based motivational interventions are effective at reducing drinking behavior among college students (e.g., Larimer et al., 2001; Marlatt et al., 1998). One successful program used to reduce alcohol use in college students is the Brief Alcohol Screening and Intervention for College Students (BASICS; Dimeff et al., 1999). The National Institute of Alcohol Abuse and Alcoholism (NIAAA) Call to Action (2002) report has identified BASICS (Dimeff et al., 1999) as a Tier I intervention approach. This Substance Abuse and Mental Health Services Administration (SAMHSA) model program (2005) is a manualized treatment protocol that has been successful in reducing drinking and negative consequences when delivered in a controlled research environment (Larimer et al., 2001; Marlatt et al., 1998). Although the BASICS model has evolved over the years from a multiple session intervention with professional counselors
to a one-time 50-minute session with peer providers, reductions in drinking over time with sustained results have been found.

Due to a continuing need on college campuses to find effective and inexpensive methods to combat problems associated with underage drinking, universities are implementing peer-based individual interventions of which 85% are using variations of BASICS with peers as providers. The majority of these peer delivered programs, however, are not utilizing training, supervision, or evaluative procedures found to be efficacious in past research studies (Mastroleo, Mallett, Ray, & Turrisi, in press).

Successful Alcohol Peer Counseling Implementation Procedures

Larimer et al. (2001) used 2-days of training, two individual supervision meetings per peer counselor following training, conducted assessments of counselor competency prior to intervention implementation, and continued supervision throughout the intervention implementation period (Evidence-Based Application Approach, EAA). Through this training approach, individuals who completed the intervention with peer providers drank less per occasion and reported lower peak blood alcohol content (BAC) than control group participants. In fact, when compared to professional providers conducting the same intervention, peers were found to be at least as effective as professionals (Larimer et al.). This training, supervision, and evaluative approach documents the success of a peer delivered BASICS intervention to reduce drinking behaviors among college students. Not all peer delivery programs incorporate such stringent intervention designs.

Mastroleo et al. (2008) observed another modal peer delivery system for alcohol interventions in university settings including a similar 2-day training, but with no
supervision prior to or during the intervention protocol, and no assessment of peer
counselor competency or behavioral outcomes (Common Practice Approach, CPA). This
approach shows unstandardized training and supervision approaches that, when combined
with using peers as providers, may result in uncertain effects on the fidelity and efficacy
of the intervention. The assumption that some counseling is better than no counseling at
all may not apply when non-professional peers deliver a BASICS intervention. In fact,
motivational interventions implemented poorly can result in iatrogenic effects (Miller &
Rollnick, 2002; Thrasher, Golin, Earp, Tien, Porter, & Howie, 2006).

Peer Counselor Training

Keeling and Engstrom (1993) identified the importance of incorporating a training
format, style, content, and time frame that most closely matches the needs of individual
peer counselors and programs. A wide variety of protocols exist to train peer counselors
to effectively implement program procedures (e.g., weekend training, semester based
courses). Also noted is the important role peer counselor supervision plays. Training
undergraduate peer counselors with limited experience in intervention delivery requires
careful training and close supervision to ensure continued quality improvement (Conant,
Sloane, & Zimmer, 1993). Similar skill training information is infused into preparation
protocols (i.e., active listening, relationship building skills), however, the incorporation of
supervision approaches varies greatly between programs (i.e., weekly individual
meetings, weekly group meetings, no supervision; Hatcher, 1995a). Little consistency
between programs has been noted in the literature, even though continued supervision of
peer counselors is a vital component of quality assurance in peer counselors’ ability to
deliver an appropriate intervention (Conant Sloane & Zimmer, 1993). Supervision of peer
counselors seems necessary for appropriate implementation, yet little is known about its effects and impact on peer counselors’ abilities.

Peer Counseling Evaluation

Two distinct types of evaluation are noted related to peer counseling programs. First, formal evaluations are used to examine program efficacy and peer counselors’ ability to create behavior change (Salovey & D’Andrea, 1984). The second form of evaluation is process evaluation in which peer counselors’ ability to deliver the intended intervention is examined. Few process evaluations are noted within the peer counseling literature (Fennell, 1993). Salovey and D’Andrea (1984) noted a lack of evaluations examining the appropriateness of programs to impact positive change on their target populations.

Despite some examination of peer counselor skill acquisition (Carter & Janzen, 1994) and client knowledge acquisition (e.g., Gates & Kennedy, 1989; Stuart, Waalen, & Haelstromm, 2003) the lack of evaluation may explain why little is known about peer counselor effectiveness to enhance healthy or reduce harmful behaviors. The lack of evaluation has the potential to stunt the growth of peer programs nationwide (Keeling and Engstrom, 1993) while the combined use of evaluations (i.e., summative and formative) may lead program directors to more clearly understand the true effects of peer counseling programs on college campuses. Keeling and Engstrom (1993) noted the importance of continued evaluation to not only enhance the usefulness of programs, but to also protect clients from any potential harm or danger that may ensue if a program is not delivered in an appropriate manner.
Peer counseling interventions have become valued approaches across the United States that aim to create behavior change and promote healthy lifestyles (Lauria, 2001; Salovey & D’Andrea, 1984). Peer counseling implementation approaches vary between institutions as individual programs employ personalized training and preparation for peer providers. Although significant findings have been identified related to behavior change, little is known about the impact inconsistent implementation protocols have on behavior change and desired outcomes as a result of varying training approaches and few evaluative efforts.

The use of consistent training protocols (i.e., content, structure) for peer counselor alcohol intervention programs, combined with varying supervision implementation procedures, warrants an examination of peer intervention training approaches in which supervision practices are manipulated. This formal comparison of varying implementation approaches will allow the examination of the role of supervision as a potential vital component of peer-delivered BASICS interventions. This investigation seems warranted given the widespread use of peer-delivered BASICS intervention approaches.

Statement of the Problem

Previously identified effective BASICS treatment approaches, coupled with varying levels of training and supervision, raise questions regarding the effectiveness of peer counselors with untested training protocols. Despite past efficacy studies in which supervised peer counseling interventions reduced alcohol use among heavy drinking college students, no research has examined intervention impact using varying levels of supervision. Implementation of BASICS interventions with no supervision may either not
change drinking behaviors or may potentially negatively impact student participants. Therefore an examination of peer-led BASICS interventions with varying levels of supervision, as it compares to a no treatment control group, is warranted in order to identify the intervention impact on drinking outcomes.

Research Questions

Comparing two documented training approaches (EAA, CPA) and a no treatment control group on peer counselors’ ability to acquire the necessary skills to implement a BASICS intervention with fidelity and its subsequent impact on undergraduate student participant drinking behavioral outcomes leads to the following research questions:

1. How does EAA supervision impact peer counselors’ abilities to perform Motivational Interviewing (MI) skills when compared to the CPA group on session evaluations completed using the Peer Proficiency Assessment (PEPA)?

2. How does the BASICS intervention impact participants’ use of protective alcohol behavioral strategies?

3. How does the BASICS intervention impact participants’ beliefs about alcohol drinking norms?

4. How do drinking outcomes (i.e., total drinks per week, weekend drinking, peak blood alcohol content [BAC], heavy drinking episodes, and negative alcohol related consequences) differ at follow-up for participants completing a BASICS intervention performed by an EAA or CPA trained peer counselor when compared to control group participants?
Significance of the Research

Differences between previously identified effective peer-led BASICS implementation procedures will be compared to an approach commonly found on university campuses to reduce heavy drinking among college students. Through this examination the role supervision has on enhancing peer counselors’ ability to attain the necessary skills to conduct a BASICS session with fidelity will be observed. Additionally, the subsequent impact on college student drinking behavior will be examined allowing comparisons between previously tested and untested intervention approaches. This research will expand the field of knowledge related to peer counseling intervention approaches and their ability to reduce heavy drinking.

Noteworthy Parameters

Careful consideration has been given to the limitations and where possible, steps were taken to reduce them. First, there was a possibility individuals included in this study may also be cited for a university alcohol offense during the study due to their high risk drinking status. If sanctioned, they may have been required to attend a BASICS session with a peer counselor through the Office of Health Promotion and Education. This possibility was extremely low since the sample was drawn from over 10,000 incoming freshman students during the first weeks of the fall semester. It was also only a consideration for the research to the extent that the offense occurred after baseline, but before the research intervention, otherwise the citation would be evidence that the intervention was less effective at reducing legal consequences. This situation occurring was extremely low in probability, however, just before BASICS sessions peer counselors asked study participants if anything had changed since they completed the baseline
survey. Follow-up surveys also asked participants to report any campus cited alcohol offense, the timing of the event, and educational interventions completed as a result of the infraction. If the participant reported an alcohol related offense, they still participated in the session but were removed from subsequent analyses.

A second issue was the potential of self-report biases. Instructional sets that encourage honest responding on the part of individuals, including assurances of confidentiality, and the use of objective measures of alcohol use and consequences shown to be reliable and valid were adopted. Data collection was also structured so respondents provided answers on web questionnaires to encourage honest responding. Lastly, self-reported alcohol use is the cornerstone of the vast majority of prevention research (e.g., Hurlbut & Sher, 1992; Pandina & Johnson, 1990; Turrisi, Jaccard, Kelly, & Valera, 1994; White & Labouvie, 1989; Williams, Aitken, & Malin, 1985) and the reliability and validity of such reports has been affirmed repeatedly in diverse populations.

There also existed the possibility of an individual endorsing criterion in accordance with alcohol dependence. An alcohol dependence screening of participants was conducted through the survey in which individuals meeting criteria for severe alcohol dependence were considered inappropriate for the study. In these instances, similar to past studies (e.g., Larimer et al., 2001) the students’ data was removed from the study. These students were still eligible to participate in the study intervention while being offered additional referrals for professional treatment.
Definitions

*Peer counseling.* The use of active listening and problem solving skills, along with knowledge about human growth and development, to counsel people who are equals in a one-on-one setting.

*Heavy drinking.* The consumption of 4 or more drinks for females, 5 or more drinks for males, in a single sitting over a two hour period of time.

*EAA approach.* Evidence Based Application Approach; The training approach identified by Larimer and colleagues (2001) in a peer-led BASICS intervention with Greek life university students. This approach includes a weekend training (12 hours), two supervised role plays prior to intervention implementation by each peer counselor, on-going weekly group supervision throughout the intervention implementation period, counselor evaluation to determine his or her ability to conduct a BASICS intervention with fidelity, and student participant evaluation of drinking behaviors pre and post intervention (Larimer et al., 2001).

*CPA approach.* Common Practice Approach; The training approach identified by Mastroleo et al. (2008) through a national study of alcohol peer counseling programs. This approach includes a weekend training (12 hours), no supervised role plays prior to intervention implementation, no on-going weekly group supervision throughout intervention implementation, no counselor evaluation to determine ability to conduct a BASICS intervention with fidelity, and no student participant evaluation of drinking behaviors pre and post intervention (Mastroleo et al., in press).

*MI Skills.* The variables of peer counselor competency needed to deliver the BASICS intervention with fidelity. Specifically, peer counselors use of reflective
listening, rapport building, and use of open and closed ended questions will be identified through the behavior count measures of the Peer Proficiency Assessment (PEPA).

*Intervention variables.* The variables related to drinking norms beliefs and protective factors were surveyed. These specific variables are the focus of the BASICS intervention in which norms are challenged and corrected and protective factors are identified and supported as a way to enhance their use. It is through challenging and correcting misperceptions of these aspects of alcohol use that drinking outcomes and behaviors are changed.

*Project COMET.* This is the title of project that will be used for correspondence with participants. COMET stands for *Comparison of Motivational Enhancement Trainings.*
CHAPTER II: REVIEW OF THE LITERATURE

College Student Drinking

College student drinking has been a focus of university administrators for decades. Despite prevention efforts and public health policies, heavy and hazardous drinking among college students remains a significant health concern (Dimeff et al., 1999) putting them at greater risk for experiencing alcohol-related consequences (Abbey, 2002; Baer, Kivlahan, & Marlatt, 1995; O’Malley & Johnston, 2002; Turrisi, Mallett, Mastroleo, & Larimer, 2006; Wechsler, Dowdall, Maenner, Gledhill-Hoyt, & Lee, 1998; Wood, Sher, & Strathman, 2000). According to the 2006 National College Health Association Survey, 65,397 (69.6%) college students surveyed reported using alcohol at least once in the past 30 days. Additionally, 31.7% of females and 46% of males reported at least one binge (heavy) drinking episode, defined as consuming five or more alcoholic drinks in one sitting, within the past two weeks (American College Health Association, 2006). Although some concerns have been raised regarding the use of self-report data and the validity of such collection methods, past reviews has shown self-report data to be accurate (Babor, Stephens, & Marlatt, 1987; Babor, Steinberg, Anton, & Del Boca, 2000; Carroll, 1995; Maisto, McKay, & Connors, 1990). Collateral informants, individuals nominated by the client to corroborate self-reported drinking behaviors, have been used to assess the validity of college student self-report data (Curtin, Stephens, & Bonenbarger, 2001; Stacy, Widaman, Hays, & DiMatteo, 1985). A recent study examined the relationship between self and collateral reports of alcohol use in a sample of college students (Laforge, Borsari, & Baer, 2005). Results found little support for college student drinkers underreporting drinking behaviors and consequences lending
continued support for this method of data collection. With approximately 18% of college students (ages 18-24) meeting Diagnostic and Statistical Manual IV (DSM-IV; American Psychiatric Association, 1994) criteria for alcohol abuse or dependence in the past year (Dawson, Grant, Stinson, & Chou, 2004), students within this population are at high risk for negative consequences associated with drinking (Wechsler, Molnar, Davenport, & Baer, 1999). Consequences such as academic difficulties (Bergen-Cico, 2000; Wechsler et al., 1998), blackouts, personal injury, physical illness (e.g., hangover, nausea, vomiting), unintended and unprotected sexual activity, suicide, sexual coercion and acquaintance rape, impaired driving, and legal repercussions are often found among college students (Perkins, 2002).

Alcohol Related Consequences

Perkins (2002) notes alcohol is routinely cited by researchers, college administration, staff, and students themselves as the most pervasively misused substance on college campuses. Most college students will mature out of heavy drinking and alcohol-related consequences without the need for treatment, yet college students consistently place themselves in potentially harmful situations with a risk of negative consequences until this maturation takes place (Dimeff et al., 1999). Perkins (2002) stated, “Risky drinking behavior may be the cause or important contributing factor in many academic, emotional, physical, social, and legal problems experienced by undergraduates” (p. 92). The most common consequence of alcohol use for college students is difficulty in meeting academic responsibilities. Substance abuse among first-year students may increase drop-out rate due to poor academic performance, missed classes, and disruptive living environments (Bergen-Cico, 2000). Presley, Meilman,
Cashin, and Lyerla (1996) found an association between heavy drinking and poor academic achievement with students who had an A average reporting drinking 3.2 drinks per week, while students with a D average consumed 8.4 drinks per week. Wechsler and colleagues (1998), in a 1997 nationwide college alcohol survey of 14,521 students at 4-year colleges, found that 24% of students reported missing a class and 19% of students reported getting behind in schoolwork as a consequence of drinking.

In addition to missed class time and getting behind academically, alcohol has also been implicated in other negative consequences for college students. Two distinct categories, damage to self and damage to others, have been identified as resulting from alcohol use and high risk drinking (Perkins, 2002). Perkins noted damage to self as including: blackouts, personal injury, physical illness (e.g., hangover, nausea, vomiting), unintended and unprotected sexual activity, suicide, sexual coercion and acquaintance rape, impaired driving, and legal repercussions. The Spring 2006 National College Health Assessment survey identified of students surveyed, 35.7% did something they later regretted, 29.8% forgot where they were or what they did, 19.2% physically injured themselves, 13.9% had unprotected sex, and 6.1% had been involved in a fight during the past year as a consequence of drinking (AHCA, 2007). Although great consequences exist for the individuals engaged in high-risk drinking, other members of the university community are also impacted by heavy alcohol use.

The impact upon other members of the university community including property damage and vandalism, physical and interpersonal fights, and sexual violence are also directly linked to college student drinking (Perkins, 2002). Second hand effects of drinking have been reported by students within college communities as disruptions in
study or sleep habits, unwanted sexual advances, and being humiliated or insulted by someone who had been drinking (Dimeff et al., 1999). Due to these negative drinking related consequences, much research has focused on more efficient and effective prevention methods to help curb the negative effects of alcohol use on college students and the role peers have in changing behaviors.

College Alcohol Abuse Interventions

Various interventions aimed at reducing harm and high-risk drinking behaviors have been developed as a reaction to high levels of alcohol use and associated negative consequences among college students. Specifically, several approaches have been evaluated in recent years. These include individual counseling with peers and professional counselors (Barnett, Tevyaw, Fromme, Borsari, Carey, Corbin et al., 2004; Borsari & Carey, 2005; Carey, Carey, Maisto, & Henson, 2006; Larimer et al., 2001; McNally, Palfai & Kahler, 2005; Murphy, Duchnick, Vuchinich, Davison, Karg, Olson et al., 2001), personal feedback (mailed or computerized) on drinking behaviors (Collins, Carey, & Sliwinski, 2002; Larimer, Lee, Kilmer, Fabiano, Stark, Geisner et al., in press; Lysaught, Wodarski, & Parris, 2003; Neal & Carey, 2004; Neighbors, Larimer, & Lewis, 2004; Saunders, Kypri, Walters, Larforge, & Larimer, 2004), group based education and/or motivation feedback classes (Fromme & Corbin, 2004; Guarna, 2000; LaChance, 2004; Peeler, Far, Miller, & Bringham, 2000; Steffian, 1999), expectancy challenge based interventions (Corbin, McNair, & Carter, 2001; Keillor, Perkins, & Horan, 1999; Kulick, 2002; Mush-er-Eizenman & Kulick, 2003; Wiers & Kummeling, 2004), CD-ROM educational interventions (Barnett et al., 2004; Donahue, Allen, Maurer, Ozols, & DeStefano, 2004; Sharmer, 2001), and pamphlet or motivational speaker interventions.
Individually Based Motivational Enhancement Interventions

Individually based motivational enhancement sessions in which professional or peer counselors aim to engage students in identifying motivations to reduce drinking behaviors and negative consequences have been empirically supported and are being widely implemented on campuses (Mastroleo et al., in press). Specifically, the Brief Alcohol Screening and Intervention for College Students (BASICS; Dimeff et al., 1999) uses individualized personal feedback sessions to enhance students’ motivations to change high risk drinking behaviors, thereby reducing consequences such as hangovers, unplanned sexual activity, physical illness, and blackouts.

BASICS was originally designed as a brief, professionally led two-session motivational enhancement intervention aimed at reducing drinking and alcohol related harm among heavy and hazardous drinking college students. The original model consisted of two 50-minute individual counseling sessions and combined assessment of an individual’s drinking behaviors, related attitudes about alcohol, motivation to change drinking behavior, feedback about personal risk factors, and advice about ways to moderate drinking. A computer-generated personalized graphic feedback form was included summarizing the material discussed between the participant and counselor delivering the intervention. BASICS combined information about alcohol effects, personal risk factors, discussion of both cognitive and behavioral approaches to moderate drinking, and strategies to enhance motivation to change heavy drinking behaviors (Dimeff et al., 1999).
BASICS is based upon work by Miller and Rollnick (1991, 2002) in which a minimal interaction between a participant and mental health professional focuses on risk factors associated with drinking and enhancing a client’s motivation to change behavior. Brief interventions such as BASICS have been noted as particularly effective for individuals similar to heavy drinking college students. Positive effects using such approaches have been found for individuals experiencing minimal alcohol problems while drinking in hazardous and potentially harmful ways but not meeting criteria for severe alcohol dependence (Institute of Medicine, 1990). Dimeff et al. (1999) identify brief interventions to be as effective as more intensive treatment approaches for individuals who are not severely alcohol-dependent. These interventions can be a cost-effective method of providing services to a large number of individuals.

To capture the important components of a brief motivational intervention, the acronym “FRAMES” is used to describe the process and necessary components of a successful brief motivational intervention. The components of Feedback, Responsibility, Advice, Menu, Empathy, and Self-efficacy are employed to assist clients in identifying and enhancing motivation to change drinking behavior to a less harmful level. Feedback refers to offering information about current health status, normative behavior, and associated risks. Responsibility allows clients to emphasize their role in behavior change. Counselors offer Advice on what to change and offer suggestions on how to modify behavior to reduce hazardous outcomes. Options are discussed as a Menu of treatment alternatives that offer the client a range of options from which to select a course of action. Empathy is essential to help clients feel as though their counselor is able to understand the salient concern from their perspective, while maintaining an outside, reality based
viewpoint. Finally, the counselor’s role is to help clients develop and enhance *Self-efficacy* to believe they can make successful changes. (Miller & Rollnick, 1991) It is the combination of these components that facilitate a client’s movement toward change and less risky drinking behavior and associated harm (Dimeff et al., 1999; Miller & Rollnick, 2002).

The use of personalized graphic feedback summaries during the brief motivational intervention helps illustrate an individual’s drinking behaviors and associated risks as reported in previously gathered self-report data. Participants complete a comprehensive battery of instruments examining drinking behaviors and other risk factors. A personalized feedback form is then created using the participant’s most current information related to a summary of drinking behaviors, comparison to general college student drinking norms, risk factors (e.g., family history), cognitive factors (e.g., beliefs about drinking effects), and consequences associated with drinking. The personalized feedback offers an outline and structure for client discussions about current and past drinking behavior. It has been discussed that providing participants with results from survey data in a graphic form contributes to increased comprehension and retention of material (Dimeff et al., 1999). Using this type of feedback is a common practice in motivational enhancement therapy (Miller & Rollnick, 1991).

Recently, BASICS has been modified to a more brief approach in which counselors (professional or peer) meet for one 50-minute motivational feedback intervention with college students with an aim of reducing current heavy drinking practices and related negative outcomes. Efficacy studies have shown this brief individual motivational feedback intervention significantly reduced alcohol consumption and
negative consequences with effects remaining through a two-year follow-up (Marlatt et al., 1998).

Professional vs. Peer Led BASICS Interventions

A range of research has explored the efficacy of BASICS when using professional level counselors as interventionists (e.g., Larimer et al., 2001; Marlatt et al., 1998; McNally et al., 2005). Professional counselors in these studies were defined as individuals with a master’s degree in counseling or a closely related field, Ph.D. level psychologists, and Ph.D. clinical psychology trainees. In contrast, Larimer et al. (2001) used undergraduate students as peer counselors to deliver a BASICS intervention. Both professional and peer counselors were trained in Motivational Interviewing (MI) skills as well as the BASICS intervention and research protocols.

Professional Led Interventions

Marlatt and colleagues (1998) recruited and randomly assigned 348 high risk incoming first year college students (as determined by identifying students with a pattern of heavy alcohol consumption and a history of problems related to alcohol use) to either the intervention program, where they received a BASICS intervention along with assessment procedures, or to a no-treatment control group. Findings identified statistically significant differences between treatment and control groups with participants in the BASICS condition reporting drinking less frequently over time, less quantity over time, and less peak quantity over time compared to those in the control condition. BASICS participants also reported significantly fewer alcohol-related problems on the Rutgers Alcohol Problems Inventory (White & Labouvie, 1989). Also observed were fewer symptoms of alcohol dependence as measured by the Alcohol
Dependence Scale (Skinner & Horn, 1984) when compared to control participants. Both control and experimental condition participants found significant decreases in alcohol consumption and drinking problems over a two year time span, however, the treatment effect for drinking problems was greater for those in the BASICS condition.

Barnett et al. (2007) compared a Brief Motivational Intervention (BMI) using master’s and Ph.D. level counselors to a Computerized-Delivered Intervention (CDI) with the Alcohol 101 CD-ROM for mandated students (i.e., students sanctioned to a university intervention after an alcohol offense). Both the BMI and CDI groups included a 25-minute booster condition in which either a follow-up meeting (BMI condition) or review of a portion of the Alcohol 101 CD-ROM (CDI condition) were given at 1 month post intervention. After three months, participants in both conditions had reduced the number of drinking days per week, number of heavy drinking days, and average number of drinks. After 12 months, participants in the CDI condition increased drinks per occasion and BMI participants increased frequency of drinking. Positive findings, however, identified BMI participants were more likely to pursue additional help at 3 months and engaged in more protective behavioral strategies at both follow-up time points compared to CDI group participants (Barnett et al.).

Borsari and Carey (2005) found participants completing a BMI had a significantly greater reduction in alcohol problems after 3 and 6-month follow-up when compared to participants in an individual alcohol education session. In contrast, White et al. (2006) found comparable changes in drinks consumed, peak BAC, and drinking and heavy drinking frequency with a 2-session BASICS model BMI and written BASICS feedback (WF) only. Lack of an assessment only and wait-list control group, however, limits
interpretation of these findings. White and colleagues (2007) extended this research and after a long term follow-up (15 months) identified students in the BMI intervention reported significantly lower levels of alcohol related problems than those in the WF condition. Additional findings pointed towards the BMI intervention curbing increases in alcohol consumption (e.g., drinks per week, frequency of alcohol use) between follow-up assessments (4 months, 15 months).

Murphy, Duchnick, Vuchinich, Davidson, Karg, Olsen et al. (2001) tested a 50-minute BASICS session to an educational intervention (video + 20 minute generic alcohol discussion) and an assessment only (AO) control group. Although no reductions in overall drinking were found, individuals identified as heavy drinkers (upper 50%) significantly reduced drinks per week and heavy drinking frequency after completing a BASICS session when compared to both the AO and educational intervention groups. Despite the limited sample size, the authors were encouraged by their findings. Following this study, Murphy and colleagues (2004) expanded their findings by assigning heavy drinkers to either a 30-50 minute BASICS intervention or a written BASICS feedback intervention. Results identified both groups reducing drinks per week, frequency of drinking and heavy drinking, and negative alcohol related consequences, yet no differences were found between treatment groups (Murphy et al.).

Neal and Carey (2004) also examined the usefulness of a BMI feedback session when compared to two other intervention options. The authors compared the BMI condition to receiving alcohol information through a didactic lecture and pamphlet and a “personal strivings” condition (feedback regarding individuals’ goals and role alcohol plays in achieving those goals) with heavy drinking college students. No effects on
drinking were observed in any of the three conditions after a 3-week follow-up. Further results indicated increased intentions to change in the BMI condition relative to the other groups, despite no behavioral changes.

A study conducted by McNally et al. (2005) found reductions in average drinks per week, heavy-drinking episodes, and negative consequences for a BMI condition after a 30-minute motivational feedback intervention modeled from BASICS. In this study, the BASICS condition was compared to an attention control group. Results also indicated the BMI was associated with increased self-ideal drinking discrepancy and cognitive dissonance post-intervention, yet neither mediated the intervention effect (McNally et al).

Gregory (2001) focused on college athletes and compared three interventions. The first, a feedback and skills group containing personalized feedback on alcohol use, norms, and consequences as well as skills for reducing risks; second, a two-session feedback with minimal focus on skills training; and third, a group using a workbook with similar information as the other two groups but intended to be used by participants independently. Individuals in the three session feedback group had larger decreases in perceived drinking related norms and positive expectancies related to alcohol use than individuals in the other conditions. Both feedback groups reported experiencing significantly fewer alcohol related negative consequences than those in the workbook group. Despite reductions in alcohol related norms, expectancies, and consequences, no significant decreases in actual alcohol consumption were observed within any of the conditions (Gregory).

Finally, McCambridge and Strang (2004, 2005) examined an individual MI condition when compared to an assessment only (AO) group with illicit drug-using
students. Drinks per week, frequency of cannabis use, and likelihood of smoking at the 3-month follow up point were reduced for participants in the MI condition when compared to AO group participants, but these same effects were not sustained at the 12-month follow-up point.

In sum, the use of professional level counselors as interventionists in a brief motivational intervention have been successful in reducing drinking behaviors (e.g., drinks per week), negative alcohol related consequences, and normative perceptions of college student drinking. These findings showed promise for the use of BASICS and similar interventions when using professionally trained counselors, thereby lending support for testing intervention effects with undergraduate peer counselors.

*Peer Based Alcohol Intervention Approaches*

A recent trend toward incorporating peer counseling into alcohol interventions has led to new applications for motivational feedback approaches. A number of studies have examined the use of peer based techniques to effectively impact drinking behaviors and consequences (Barnett, Far, Mauss, & Miller, 1996; Larimer et al., 2001; Miller, 1999; Schall, Kemeny, & Maltzman, 1991; Schroeder & Prentice, 1998). Only a skills-based group approach (Miller, 1999), an education approach based on norms information (Schroeder & Prentice, 1998), and an individually based motivational intervention (Larimer et al., 2001) have been efficacious in reducing alcohol use and consequences.

Larimer and colleagues (2001) expanded the research on BASICS with a high-risk population of college students using peer providers. First-year members of Greek social organizations were assigned to either a brief individualized feedback session with a peer or professional counselor, or an assessment only control condition. Findings showed
the fraternity members in the treatment group had a decrease in drinks per week (15.5 to 12) and peak BAC (.12% to .08%) whereas the control group had an increase in drinks per week (14.5 to 17) and no change in peak BAC over time. Peer providers were at least as effective as professional providers in reducing average drinks consumed per week in the first known comparison study of peers to professionals in an alcohol use reduction intervention (Larimer et al., 2001). The findings in this study lend support in using BASICS, a SAMSHA model program, in a manner providing opportunity for lower cost implementation and potential widespread use across U.S. college campuses through the use of peers as intervention providers.

*Implementation of an Individual Peer Based Alcohol Intervention*

A national survey conducted by Mastroleo et al. (2008) examined individual peer-based alcohol intervention approaches and identified 25% of respondents using BASICS and an additional 60% of programs using a close approximation of BASICS. It would seem then that successful results of the study by Larimer et al. (2001) may have prompted an expansion of peer based counseling programs designed to reduce alcohol use and negative consequences with heavy drinking college students. In the Larimer study, peer counselors were trained over a multi-day training seminar followed by completing supervised role plays. Following each simulated client intervention session, individualized feedback was presented to peer counselors by clinical supervisors focusing on the characteristics of good intervention delivery. Skills such as reflective listening, use of open vs. closed ended questions, and engaging in a non-judgmental manner were discussed to enhance the peer counselors skill level for intervention delivery and fidelity (Mastroleo et al.).
In contrast to this level of training, Mastroleo et al. (2008) found modal training time for peer counselors as 10 hours with one-third conducting trainings over one weekend. Additionally, only a minimal number of programs reported using some form of supervision. The majority of programs incorporating peer counselor supervision use peer counselor self reports of how well they believe they did in their own sessions. This is in stark contrast to the methods described in Larimer et al. (2001). Forty-one percent used weekly and 11% used monthly or semester/quarterly supervision meetings. Finally, less than 30% of university peer-based alcohol intervention programs evaluated peer counselor competency prior to, or during, the intervention. Of the programs implementing peer counselor competency evaluations, 92% of this group use subjective evaluation procedures such as peer counselor self-report. Few programs evaluate the effectiveness of the intervention on drinking outcomes and negative consequences. In fact, only 14% of programs implementing peer counseling interventions track participants’ alcohol use post intervention to examine intervention efficacy (Mastroleo et al., in press).

Although the manualized BASICS treatment is being incorporated into college alcohol prevention efforts, substantial variations in implementation procedures as they relate to the training and competency evaluation of peer counselors have been identified. Despite the use of a standardized treatment approach, the lack of training guidance within the manual and individual interpretation of implementation approaches have allowed for wide variations in training protocols. It is difficult, therefore, to determine fidelity to the intervention and resulting outcomes among training protocols found in practice (Common
Practice Approach; CPA) compared to empirically supported designs evaluated through research (Evidence-based Application Approach, EAA; Larimer et al., 2001).

As discussed, Larimer et al. (2001) found support for peer-led BASICS sessions in enhancing drinking behavior changes. This intervention includes a one-on-one discussion about personal drinking behaviors, accurate normative drinking information with comparisons to perceived normative beliefs, negative consequences, and information on drinking reduction techniques. There is little information included in the BASICS manual describing training implementation components despite research studies placing emphasis on training and supervision (e.g., Barnett et al., 2007; Carey et al., 2006; Larimer et al., 2001).

Peer Counselor Program Implementation

Varying levels of training and supervision exist within the variety of content areas for peer counseling, yet little has been documented about implementation methods and effectiveness of peer counseling programs. Within the small body of literature documenting effective implementation plans for peer counseling programs, specific themes and models have served as a basis of knowledge to aide in the integration of a peer based counseling program into the overall prevention and intervention services offered on college campuses (Brown, 1977; Hatcher, Walsh, Reynolds, & Sullivan, 1995a). Most researchers point toward the importance of training and supervision as essential components of a successful intervention, however varying procedures and outcome based research show strong discrepancies between programs (Conant Sloane & Zimmer, 1993; Keeling & Engstrom, 1993; Salovey & D’Andrea, 1984).
Peer Counselor Training

Although a limited amount of literature exists on peer counselor programs overall, an even smaller amount of research and discussion has surrounded the issues of program implementation. While there are an array of peer training methods within the multiple types of peer counseling programs across the United States, a number of common themes have emerged. With many programs using similar education and intervention approaches, Hatcher et al. (1995) identify the importance of peer training as vital to the success of each program. Conant Sloane and Zimmer (1993) noted “model peer education efforts are based on carefully trained and closely supervised programs that ensure continuing quality improvement” (p. 241).

Keeling and Engstrom (1993) suggest adjusting the format, style, substance, time frame, and content to meet the individual needs of each peer counseling group. Multiple layers of training have been identified in the literature ranging from didactic instruction, active listening skill training, role-playing, specific content information instruction, interpersonal skill identification and training, issues surrounding confidentiality, and supervision (Hatcher, Walsh, Reynolds, & Sullivan, 1995b; Keeling & Engstrom, 1993; Morey & Miller, 1993; Myrick, Highland, & Sabella, 1995; Ramsay & Hoffman, 2004; Yaccarino, 1995). The training process reaches beyond the content and facilitation training and includes a variety of formats and methods including weekend trainings, day long seminars, and semester based credit courses (Morey & Miller, 1993; Myrick et al., 1995; Ramsay & Hoffman, 2004; Stuart et al., 2003). Although a variety of training methods are being used for the many types of programs, no known research has
examined the impact various training methods have on the outcomes of peer counselor content comprehension and ability to perform counseling services.

Despite a lack of research examining varying training methods and the ability to meet program objectives and desired client outcomes, organized training manuals have been developed to aide in developing new peer counseling programs within a university structure (Dimeff et al., 1999; Hatcher et al., 1995b). Semester long, weekend, and workshop training protocol have been used to teach the skills needed to perform as a peer counselor. Although formats are different, similar content has been incorporated through each training protocol. Each program described in the literature identifies teaching basic listening and helping skills along with content specific to the needs of individual peer programs (e.g., alcohol information, safe sex practices). The amount of time spent on each area varies, as do total hours in training and methods of teaching content.

One program stated using 70 hours of academic training plus additional time in practical training areas for an alcohol/drug and other health peer counseling program (Edelstein & Gonyer, 1993). Examples of other programs describe spending 8-12 hours of didactic training with one or two supervision sessions (Larimer et al., 2001), 30 hours over a two-week period (Pyle & Snyder, 1971), 30 hours during a 2-credit semester training course (Allen, 1993), and a four day training workshop prior to the beginning of the academic year (Pitts, 1996). Although variation in time and format are duly noted, content and the integration of skill development are the most important components of a peer counselor training program (Keeling & Engstrom, 1993).

Content of training almost always includes training peer counselors in the use of active listening, empathic responses, genuineness in sessions, positive regard for clients,
relationship building skills, nonverbal behavior training, role-playing, communication skills, job-specific training, and the integration of skills (Allen, 1974; Allen, 1993; Danish & Brock, 1974; Delworth, Moore, Millick, & Leone, 1974; Hatcher, 1995a; Pitts, 1996). Identification of these skills has been pulled from literature related to the microcounseling skills approach and their perceived effective use in peer counseling (Ivey, 1971). Specific training for each element is integrated as decided by program directors and trainers based upon individual needs for each program. Keeling and Engstrom (1993) support this method as they describe the importance of developing specific training protocol to best match the needs of each individual group of peer counselors. Although the training protocol may change based on the needs of a group of peer counselors, providing training on basic counseling and listening skills is conducted within the majority of peer counselor training programs.

One final component of training discussed in the literature is the importance of supervision of peer counselors during training and as they see clients. Initial and ongoing training and supervision of peer counselors has been described as critical to program success from the perspective of both services delivered to clients and the education of the peer counselors (Murasky & Sevig, 1995).

Peer Counselor Supervision

As the importance of baseline and initial training has been noted, the use of continued training and supervision is a vital component of quality assurance in the implementation of peer counseling programs (Conant Sloane & Zimmer, 1993). Among the variety of programs, supervision and fidelity to the intervention has been described differently. Some programs offer weekly meetings to revisit training topics and discuss
client progress (Murasky & Sevig, 1995; Ramsay & Hoffmann, 2004), others use supervision to discuss ongoing cases and concerns (Morey & Miller, 1993), and still others note no specific continued supervision or tracking of peer counselor abilities (Bauman, 1993; Croll, Jurs, & Kennedy, 1993; Fabiano, 1993; Nagelberg, Hodge, & Ketzer, 1980; Stuart et al., 2003; Yaccarino, 1995). The way in which supervision is carried out has varied across programs. Some use individual weekly meetings (Pitts, 1996) while others use small group meetings (Murasky & Sevig, 1995) as a primary method of supervision. Because many programs have failed to note use of supervision as a method of training adherence and intervention fidelity, the published literature leaves an inconclusive understanding of how supervision of peer counselors occurs. Larimer et al. (2001) noted using ongoing supervision throughout the intervention implementation period. A description of the process of incorporating supervision of peers into continued support has been sparsely documented even though the use of supervision is noted for many peer counseling programs.

Hatcher et al. (1995b) noted the use of early integration of supervision as an important component of a quality peer counseling program. The authors describe the process of incorporating supervision into the overall program model through an initial conversation surrounding feelings toward authority figures, what the peers like and expect from a supervisor, and distortions that can take place in a supervisory relationship. Hatcher et al. go on to note the manner in which parallel process (Doehrman, 1976) may impact the peer counseling relationship and their work with clients. The concept of parallel process comes from psychotherapy literature in which supervisory interactions impact client sessions between counselors and counselees. Hatcher et al. (1995b) state
understanding this process may help college students as they work in the role of peer counselors. The concept is described through examples in which unconscious communication between peer counselors and clients is identified and tied back to interactions found in the supervisory relationship. Hatcher and colleagues believe awareness of this phenomenon is helpful in aiding peer counselors to provide more useful services for their clients.

To assure useful service to clients, the use of supervision is essential to client care and intervention fidelity (Hatcher et al., 1995b). One example of a supervision model for peer counselors is described by Murasky and Sevig (1995) for the support of a crisis phone counseling service provided to college students. Peer counselors are trained to answer crisis calls from fellow undergraduate students for issues such as suicide emergencies, test anxiety, and how to help a friend with an eating disorder. Supervision for this program begins immediately following completion of the initial training protocol. Peer counselors are asked to complete a program evaluation of the initial training and note specific areas in which they desire additional training. This leads to follow-up training workshops to enhance peers’ understanding of particular content areas.

Each peer counselor also meets individually with the program coordinator for a one-on-one supervision meeting to discuss goals and what he or she needs for support. The goal of this individual meeting is to establish good rapport between the peer counselors and coordinator. Following the initial meeting, the coordinator maintains office hours for peer counselors to stop by and receive additional individual supervision as needed. As a supplement to the initial meeting, weekly small group supervision sessions are conducted for peers led by a member of the professional staff. These
meetings are used to discuss issues, phone calls, and personal development in more detail. Murasky and Sevig (1995) believe this method of supervision offers a comprehensive model while allowing for flexibility to best meet the needs and learning methods of each peer counselor.

Not all programs describe the components of peer counselor supervision, however, some identify using individual and/or weekly meetings to offer support and continued training and development of peer counselors (Hatcher et al., 1995b; Larimer et al., 2001; Murasky & Sevig, 1995; Pitts, 1996). Information regarding important training components have been well documented in publications (Brown, 1977; D’Andrea & Salovey, 1996; Hatcher et al., 1995b; Pitts, 1996), yet the same information has not been described for supervision as it pertains to peer counselor development and continued support despite being identified as a necessary component for successful peer counseling interventions (Hatcher et al., 1995b).

Current BASICS Implementation Procedures

Adherence to BASICS fidelity is assured through training sessions offered nationwide to allow university administrators the opportunity to learn successful ways in which to implement a BASICS intervention program. Yet, universities often implement BASICS programs without training or supervision guidance. Due to the wide availability of the BASICS manual (e.g., available at Amazon.com), program administrators are able to access the manual and implement intervention programs without the empirically validated training.

The lack of training guidance in the manual results in program administrators having to make interpretations of critical intervention components (e.g., counselor competency,
supervision), which would theoretically have an impact on fidelity and subsequent efficacy. With 85% of university programs using components of the BASICS intervention coupled with less than 50% using supervision, it is clear that, in practice, BASICS is left to be interpreted by the individuals implementing the program (Mastroleo et al., in press). Literature discussing effective implementation strategies for peer counseling programs emphasizes the importance of peer counselor training and supervision as vital components for successful interventions (Conant Sloane & Zimmer, 1993; Keeling & Engstrom, 1993; Hatcher et al., 1995a; Maxwell, 1997), therefore variations in these components may impact both fidelity to intervention protocol and efficacy of peer-led BASICS sessions.

Larimer and colleagues (2001) described intervention training protocol as 8-12 hours of didactic training over two days incorporating alcohol information, accurate normative information, drinking reduction techniques, and MI principles. Initial training was followed with one or two supervised interviews before beginning the study and on-going, group supervision. The individual supervised interventions allowed program trainers to determine peer counselor skill level and subsequent ability to conduct an appropriate intervention. All peer counselors met intervention competency requirements for intervention fidelity through evaluation by trainers. Follow-up group supervision occurred weekly and allowed peer counselors the opportunity to discuss difficult cases while receiving continued feedback on their counseling skills and adherence to the intervention (Larimer et al.). The strict adherence to MI and intervention fidelity show the role empirical science has in the development and implementation of the BASICS intervention, yet not all programs using BASICS incorporate similar competency criteria.
Traditional university based training approaches include a 2-day training, no supervision prior to or during intervention protocol, and no implementation variable evaluation (Mastroleo et al., in press).

With the noted implementation differences between research and practice settings, it is difficult to determine if BASICS intervention programs without supervision are being implemented in a way that will result in lowering high risk drinking behaviors and related negative outcomes. In addition, studies examining the effectiveness of MI intervention approaches aimed to reduce alcohol use have found when sessions are conducted in a manner that is more confrontational clients drink more (Miller, Benefield, & Tonigan, 1993). This is important to note as peer-led BASICS sessions that are not evaluated for counselor competency and/or drinking outcomes have the potential to do harm by impacting clients to drink more.

Conclusion

Concerns over high-risk student drinking continue to grow (Baer, 2002) and universities are incorporating peer based prevention efforts to combat the problem (Lauria, 1996; Mastroleo et al., in press; Salovey & D’Andrea, 1984). An examination of training protocols is therefore needed to ensure interventions are delivered appropriately and are reducing alcohol related negative consequences as intended. Through examination of the influence training variations have on peer counselor competency variables (e.g., reflective listening, use of open ended questions) and drinking outcomes (e.g., peak BAC, total drinks, heavy drinking behavior), identification of effective and efficient components of training and supervision as they influence drinking behaviors will be exposed. Overall, the ability to determine the role individual training protocols
have on changes in drinking outcomes is important to advance the field of theoretically driven prevention science and reduce harm associated with high-risk drinking behavior.

Despite the noted positive effect of university peer counselors, little evaluation has been done to justify the existence of peer-led intervention programs to reduce heavy and hazardous college student drinking (Larimer & Cronce, 2002, 2007). The lack of information regarding the effectiveness of peer-led intervention programs based on training variations for heavy drinking college students leaves a gap in the literature that warrants evaluation to identify the usefulness of such programs as well as variations between an Evidence-Based Application Approach (EAA) and the Common Practice Approach (CPA). The combination of peers as providers and using unstandardized training and supervision approaches can result in uncertain effects on the fidelity and efficacy of the intervention. The assumption that some counseling is better than no counseling at all may not apply when non professional peers deliver a BASICS intervention. In fact, motivational interventions implemented poorly can result in iatrogenic effects (Miller & Rollnick, 2002; Thrasher et al., 2006; Tollison, Lee, Neighbors, Neill, Olsen, & Larimer, 2008). A formal comparison of these diverse implementation approaches as proposed in this study is warranted given the widespread use of BASICS.
CHAPTER III: METHODOLOGY

Research Design

This study compared two BASICS training methods (i.e., CPA, EAA) on post-intervention student participant alcohol use behaviors as they relate to the prescribed training protocol when compared to a control group. The peer counselor training protocols included identical recruiting methods, counselor skills training, and alcohol related knowledge content. Programs only differed in supervision practices. Consistent with the BASICS training method used in typical university settings as identified by Mastroleo et al. (2008), the first training protocol incorporated a 2-day training workshop followed by no supervision meetings (CPA). The second 2-day training protocol (EAA), modeled after empirically supported BASICS interventions, was supplemented by supervised interviews focused on individual counseling skill development and ongoing supervision throughout the implementation of the intervention (e.g., Larimer et al., 2001).

The design for this study was a pretest-posttest control group design (Heppner, Kivlighan, & Wampold, 1999) in which random assignment of participants was made to one of three groups (EAA, CPA, Control). Through this design, the effect of the independent variable (training method) on the dependent variables (MI skills, intervention variables, drinking outcomes) was possible. The use of two treatment groups makes comparisons between treatment and control groups possible, as well as comparing differences between the treatment groups. Random assignment of participants to the three groups was used to minimize individual difference variable influences among participants across groups (Campbell & Stanley, 1963).
The basic experimental design is presented in Table 3.1 using symbolic representation described by Campbell and Stanley (1963). The Rs represents random assignment to condition. The Xs represent the administration of the 50-minute peer intervention (Tx), and 0s represent observation through administration of surveys. The design was intended to assess the impact of the intervention on college students at a delayed posttest (near the end of the academic term).

Table 3.1.

<table>
<thead>
<tr>
<th>Group</th>
<th>Assignment to Condition</th>
<th>Baseline</th>
<th>Tx</th>
<th>Follow-Up</th>
<th>n</th>
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</thead>
<tbody>
<tr>
<td>EAA Protocol</td>
<td>R</td>
<td>0</td>
<td>X_{EAA}</td>
<td>0</td>
<td>74</td>
</tr>
<tr>
<td>CPA Protocol</td>
<td>R</td>
<td>0</td>
<td>X_{CPA}</td>
<td>0</td>
<td>82</td>
</tr>
<tr>
<td>Control Group</td>
<td>R</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>82</td>
</tr>
</tbody>
</table>

*Note. Tx = Treatment*

Current research has only investigated the influence of the intervention on drinking outcomes with no study of variations in training models or implementation variables when using peers as the providers. The inclusion of a no-treatment control permitted the assessment of whether the CPA delivery of BASICS had an iatrogenic effect. This was be a formal test to examine differences between the EAA and CPA approaches, and whether the CPA approach was harmful and increased drinking rates.

Study participants were selected at random to participate in brief, 50-minute peer-led BASICS sessions. Assessment of baseline to short-term follow-up (approximately 3 months) post BASICS on drinking behaviors, beliefs, and associated outcomes were
conducted between treatment and control groups. Through this design, the short-term comparative benefits of receiving an intervention from either a CPA or EAA trained peer counselor could be evaluated.

This study incorporated two specific components as reflected in the following sections. First, training of peer counselors describing recruitment, specific training protocols, and organization of the two distinct groups of peer counselors (i.e., EAA, CPA) are discussed. Next, study organization including participants, instruments, procedures, and data analysis are addressed. Instruments are further organized into MI skills (e.g., peer counselor reflective listening, rapport building, questions, alcohol information disseminated), intervention variables (e.g., drinking norms, protective factors, drinking expectancies), and drinking outcomes (e.g., peak BAC, total DDQ, negative consequences, binge episodes) that were used for data analysis. Instruments used for creating feedback forms and demographics are also identified.

Peer Counselor Recruitment and Selection

Undergraduate students were recruited to complete a peer counselor training program in which they were trained to deliver individual BASICS sessions with fellow undergraduate students aimed at reducing alcohol use and negative consequences. Potential peer counselors were recruited through class announcements in various introductory psychology, biobehavioral health, and human development classes at The Pennsylvania State University. This method of recruitment has been found to yield highly motivated, intelligent, and committed peer counselor trainees in similar projects (e.g., GOALS; Mallett, Turrisi, Larimer, Mastroleo, Ray, Geisner, Grossbard et al., 2007, LITES; Turrisi, Mastroleo, Stapleton, & Mallett, 2008). This method is currently used by
universities to recruit peer counselors to provide peer delivered BASICS interventions in practice based settings (Mastroleo et al., 2008).

Peer counselors are defined as undergraduate students falling within the traditional college student age range (18-24). This characteristic is important because the clients will consist of undergraduate students of the same age group. Selection criteria was based upon an application where individuals described reasons for interest, past related work experience, college GPA, anticipated date of college graduation, and additional time commitments. Recruitment included a group informational session during which the overall project was discussed and timeline for implementation was identified for interested undergraduate students. Individuals interested in applying then completed an application and scheduled an individual interview with the principal investigator and training staff. During a semi-structured individual interview, evaluation of communication skills, individual motivation, and ability to interact in a one-to-one capacity was conducted (see Appendix B). This method has been used in past research (e.g., Larimer et al., 2001) and in other peer counseling intervention studies (i.e., GOALS).

Students accepted into the peer counseling training program were expected to meet the following criteria: GPA of 3.0 or higher, graduation date no earlier than December 2007, and a minimum time availability of 10 hours per week to dedicate to the project during the months of September and October 2007. Peer counselor candidates were evaluated on level of interest as it relates to future career goals and past work experience. Individuals previously trained in Motivational Interviewing and/or BASICS interventions were excluded from study eligibility. Lastly, a subjective evaluation of the
potential peer counselor’s ability to interact in a one-to-one situation was also assessed through the individual interview process. Although an initial academic performance criterion (i.e., GPA) was considered an important component of the evaluation, the subjective evaluation was used as an evaluative supplement in cases where potential candidates did not meet the 3.0 minimum GPA criteria. Due to the nature of the skills needed to conduct effective counseling based interventions (i.e., good interpersonal skills), applicants who did not meet the initial inclusion criteria (GPA) were not excluded from consideration. This selection method has been used in past research studies (Larimer et al., 2001) and was used in this study to be as consistent with past research study practices as possible.

**Peer Counselors**

*Selection process.* Fifty undergraduate students attended informational meetings held between April 2 and 10, 2007. Of these individuals, 49 expressed continued interest in the project and completed applications. Only two individuals who completed applications did not participate in individual interviews, therefore 47 undergraduate students were interviewed individually by the principal investigator and training team (see Appendix B for interview protocol). After all individual interviews were completed, potential candidates were subjectively rank ordered and the top 20 individuals (based on above noted criteria) were invited to participate in the training program to become peer counselors. Individual email messages were sent to the 20 individuals congratulating them on their selection and requested a reply within 48 hours with their decision to become involved with the project. Of these 20 individuals, 19 accepted positions as peer counselors. These individuals were then registered to receive 3 course credits of
independent study for the fall 2007 semester and told they would be randomly assigned to one of two, 2-day training groups. Random assignment to training condition was assured by each applicant agreeing to participate in either of the training protocols prior to assignment. Individuals not selected ($N = 27$) were sent individual email messages thanking them for their interest and informing them of the decision to not include them in the project.

*Peer counselor randomization.* Selected peer counselors were randomly assigned to one of two training groups, initially labeled blue or white for identification purposes, and scheduled for their training. It was decided to randomly assign supervision status at the end of the training to ensure the training staff would be unbiased throughout, ensuring identical training. Upon completing the training, random assignment to training condition (EAA, CPA) was made through use of a coin flip. Results of this process identified the white group becoming the EAA trained group and the blue group becoming the CPA group. All future references used to identify the training groups will use the terms EAA (supervised group) and CPA (non-supervised group).

*EAA group characteristics.* Ten peer counselors were assigned as members of the EAA group. Peer counselors were primarily Caucasian ($N = 9$) with one identifying as multiracial. The mean age of the group was 20.4 ($SD = .84$) years. Academic majors of the group included: five Psychology, one Biobehavioral Health, one Human Development and Family Studies, two Communications, and one Rehabilitation Services. Mean GPA was 3.55 ($SD = .36$) with no prior counseling work experience.

*CPA group characteristics.* Nine peer counselors were assigned as members of the CPA group. Peer counselors were primarily Caucasian ($N = 8$) with one African
American. The mean age of the group was 21 ($SD = 1.5$) years. Academic majors of the group included: three Human Development and Family Studies and one each in Psychology, Business, Advertising, Marketing, Public Relations, and Rehabilitation Services. Mean GPA was 3.25 ($SD = .60$) with no prior counseling work experience.

Independent t-test and chi-square analyses of differences between the EAA and CPA training groups showed no significant differences in work related experiences, GPA, or other individual characteristics prior to initiating and completing training.

Training Procedures

Training was conducted in two successive 2-day (12 hours) trainings during the four days prior to the start of the fall 2007 semester. Both peer counselor trainee groups completed identical BASICS training workshops. Training protocol can be found in Appendix B. Training workshops consisted of a review of the BASICS manual, videotaped examples of BASICS and MI interventions, practice exercises, and use of the individual graphic feedback information used in each peer counseling session. Specific training components included information on reflective listening skills, use of open and closed ended questions, change talk facilitation, rapport building strategies, and dealing with resistant clients. Peer counselor trainees were instructed on specific alcohol information related to BAC levels, expectancy information, college normative beliefs, risk and protective factors, family history, and other general alcohol information as described in the BASICS manual (Dimeff et al., 1999).

Trainer characteristics. Training sessions were led by the principal investigator and four additional training team members. All trainers had been trained to conduct BASICS training sessions, and MI skills, and have conducted similar trainings with
undergraduate peer counselors. In addition, all trainers were currently involved with other on-going efficacy trials conducting the identical intervention (i.e., BASICS). The quality of the trainers was of the highest level and each was working with senior scientists (e.g., Drs. Mary Larimer and Jason Kilmer) in the field of training peer counselors to conduct BASICS interventions. Ladany (2007) suggests problems associated with poorly trained psychotherapists are partly due to variability in competence in psychotherapy trainers. As students model the behaviors of faculty members, whose abilities naturally vary in clinical and teaching/supervising competence, the methods of instilling counseling skills becomes vital to developing competent therapists. Therefore, the level of ability of trainers for peer led BASICS sessions is also vital to ensuring effective delivery of interventions.

The members of the EAA group were randomly assigned to meet with one of two individual supervisors. Supervisors for this project were two Ph.D. students. One, the principal investigator, was an advanced doctoral student in Counselor Education. The other was a second year Biobehavioral Health doctoral student. Both had received specific training on how to supervise peer counselors in MI skills and BASICS interventions and each had over three years of experience in supervising peer counselors to conduct BASICS sessions.

*Role Play Procedures*

After random assignment to supervisors, each member of both groups (EAA, CPA) conducted a minimum of two role plays upon training completion (identified as Baseline, BASICS 1). Role plays are practice sessions in which all aspects of the intervention are conducted with a simulated client. Through role play completion, each
peer counselor was given the opportunity to rehearse newly learned skills while becoming more comfortable with the BASICS protocol, facilitation of the intervention session, and the personalized graphic feedback sheets. This method has been used in past studies to prepare peer counselors to conduct individual intervention sessions (e.g., Larimer et al., 2001).

**EAA group.** All members of the EAA group conducted a minimum of two role plays (identified as Baseline, BASICS 1), however five individuals in this group conducted one additional role play (identified as BASICS 2). The aim of this additional role play was to solidify the newly learned intervention skills. Role play sessions were audio recorded for use in future analysis examining baseline skills and changes in abilities of peer counselors to conduct a BASICS session. The EAA group completed individual supervision after each role play session to discuss procedures and protocol related to the intervention.

Supervision consisted of one hour of individual feedback on their role play session during which motivational interviewing skill acquisition and enhancement was discussed through review of an audio recorded role play session. In addition, specific attention was given to peer counselors’ ability to relay correct alcohol content information. When misinformation was disseminated during the session, the supervisor corrected the content for the peer counselor to ensure correct content would be offered to study participants. Once peer counselors began completing interventions with participants, members of this group continued in weekly individual supervision and also participated in weekly group supervision for one hour per week each. Group supervision
was used to discuss continued development of counseling skills and individual client issues and concerns.

**CPA group.** All nine members of the CPA group conducted two role plays (identified as Baseline, BASICS 1). These sessions were audio recorded for use in future analysis examining baseline skills and changes in abilities of peer counselors to conduct a BASICS session. Following these role plays, CPA group training was completed and peer counselors were deemed prepared to conduct BASICS sessions with study participants. CPA group members did not receive any feedback on their sessions and were told they would receive supervision at the end of the study. This protocol is typical of methods used by universities to conduct BASICS trainings with peer counselors (Mastroleo et al., 2008).

**Supervision and intervention fidelity.** The Peer Proficiency Assessment (PEPA) was used as a supervision and fidelity tool by the individual supervisors to examine counselor competency through content analysis of the role play sessions. The PEPA identifies counts of MI behaviors during an evaluation of the first 15 minutes of each BASICS session. These behavior counts are summed and ratios of open to closed questions and simple to complex reflections are identified to determine MI adherence. Competency to conduct an efficacious peer counseling session is operationally defined as ratios of open to closed ended questions and complex to simple reflections. PEPA competency levels define interactions between peer counselors and clients meeting a 3:2 ratio of open to closed questions and a 3:2 ratio of complex to simple reflections. Additionally, evaluation of peer counselors’ dissemination of correct alcohol content information was conducted as a second component of intervention fidelity. Each session
was rated to evaluate the effectiveness of training protocol and individual peer counselors on their ability to integrate MI principles and alcohol content information matching intervention protocol. Upon completion of training and role plays, peer counselors were scheduled to conduct peer interventions with study participants.

As an additional precaution, EAA and CPA peer counselors and all other project personnel (project managers, MI trainers, MI supervisors) were instructed to refer all project related questions to the Principal Investigator (PI) to avoid contamination effects. EAA and CPA peer counselors were scheduled on separate clinical days to avoid intergroup contact. This was done to ensure peer counselors in the CPA group (who were not receiving supervision) were not given additional instruction or guidance beyond the initial training they had received.

Study Participants

Procedures

A random sample of 950 first semester freshman students, drawn from the overall population of 6,483 and selected through Data Warehouse at The Pennsylvania State University, were invited to participate in the research study. Data Warehouse is a host site for student information including demographic information, email addresses, and other contact information. Potential participants were initially mailed an introductory letter to their campus address inviting them to participate. Embedded within the invitation letter was a link and personalized identification number (PIN) describing how to gain access to detailed information about the study, the consent form, and web-based survey. A total of 468 undergraduate students logged into the survey, completed baseline measures, and were screened for heavy drinking tendencies yielding a 49.3% response rate. Of this
initial 468, 238 participants met criteria for study inclusion and were randomly assigned to one of the three study groups (EAA, CPA, Control). Qualifying participants met criterion for age (over 18 years of age), active student status, and drinking behaviors (i.e., heavy episodic drinking). Heavy drinking was operationalized as students reporting consuming 4 or 5 drinks (for females and males, respectively) in a two hour period within the past two weeks. This definition of heavy episodic drinking has been used in past studies examining individually based motivational interventions (Borsari & Carey, 2005). Since BASICS was designed for use with heavy drinking college students, examination of differences in intervention effectiveness using a sample of heavy episodic drinkers is appropriate.

Assessment/Intervention. After logging into the baseline survey, individuals gave implied informed consent by checking a box agreeing to participate in the research study (see Appendix A for implied informed consent form). Individuals agreeing to study procedures were then taken to the web-based baseline survey. Individuals declining participation were thanked for their time and were not presented with the baseline survey. All participants who completed the baseline measure and stated they had engaged in heavy drinking in the past two weeks were then randomized to one of the three conditions (EAA, CPA, Control) and told they had qualified for the study. Individuals not endorsing previous heavy drinking episodes were told they did not qualify and were thanked for their time. All individuals completing the baseline survey were paid $20 after submitting the survey.

Individuals assigned to one of the two treatment groups were contacted by phone to schedule a 50-minute individual motivational feedback session with one of the peer
counselors within two weeks of completing the baseline assessment. Once scheduled to complete the BASICS session with a peer counselor, participants were emailed a reminder with directions to the office in which the session would take place. Treatment group participants met individually with peer counselors to discuss their current drinking behaviors through use of the BASICS model of motivational enhancement (Dimeff et al., 1999). Each client session was audio recorded and evaluated for adherence to BASICS and Motivational Interviewing protocol using the PEPA (Mastroleo et al., under review). Upon finishing the BASICS session participants were paid $10.

The timeline of data collection allowed for evaluation of first-year students’ drinking behaviors to be examined during the first full semester following their transition to college. This time has been identified as a high-risk period (Bergin-Cico, 2000) and allows examination of the efficacy of each intervention training approach to reduce alcohol use with a heavy drinking population. The three month post intervention follow-up data allowed for examination of students’ drinking experiences to be examined during the height of integration into campus culture. All qualified participants completed an identical online survey inquiring about current drinking behaviors and perceived beliefs about alcohol at the three month follow-up. Those completing the follow-up survey were mailed a check for $20. DATSTAT Illume software was employed for survey administration and data collection via a secure web-based program. Prior to study initiation an application to the university Social Sciences Institutional Review Board was completed and subsequently approved.
Sample

Respondents consisted of 238 freshmen (48% female, \(n = 114\)) from a large, rural, public Northeast university. Participants were randomly selected from a university database the first week of classes during the fall 2007 academic term. Participants were primarily Caucasian (92.44%), with 3.36% Asian, 1.68% Multiracial, 0.42% Native Hawaiian or Other Pacific Islander, 0.42% African American, and 1.68% “other.” Additionally, 12% of the sample identified as Hispanic/Latino. This distribution is consistent with the University population as a whole as 13% of students identify as non-White. The mean age of the sample was 18.12 years (\(SD = .37\)). After randomization to condition, 82 participants (45 females; 55%) were assigned to the CPA group, 74 (30 females; 41%) were assigned to the EAA group, and 82 (39 females; 48%) were assigned to control. Of the 82 CPA participants invited to complete a BASICS intervention, 35 (43%) completed. Of the 74 EAA participants invited to complete a BASICS intervention, 26 (35%) completed. Follow-up surveys were sent via-email to all individuals meeting study inclusion criteria (i.e., heavy drinking behavior) in mid-November 2007 (approximately 3 months from baseline). Of the 238 follow-up surveys delivered to study participants, 201 (47.3% females) completed measures for an 84.5% follow-up rate. Of participants completing follow-up measures, 86.5% (\(n = 71\)) of the control group, 84% (\(n = 69\)) of the CPA group, and 82.4% (\(n = 61\)) of the EAA group completed measures. Of individuals in the treatment groups, 38% (\(n = 31\)) of CPA and 28% (\(n = 21\)) of EAA group participants completed both the BASICS intervention and follow-up measures. Demographics for study participants are described in Table 3.2. See Figure 3.1 (p. 70) for the participation flow diagram.
Table 3.2  

*Personal Demographics: Description of Sample (Intent to Treat; Treatment Completed)*

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<th>n</th>
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Note. $n =$ number, $m =$ mean, $sd =$ standard deviation
Instruments

Instruments have been separated into four distinct categories: MI skills used to examine peer counselor training and abilities based on training protocols; intervention variables used in data analysis to explore intervention effects; drinking outcome measures; and instruments used to collect student participant information for development of individual feedback forms. See Table 3.3 (p. 62) for identifying baseline and follow-up assessment instruments. All instruments were drawn from the previous literature on college alcohol consumption (Baer, 1994; Baer, Stacy, & Larimer, 1991; Collins, Parks, & Marlatt, 1985; Larimer et al., 2001; Turrisi, Wiersma, & Hughes, 2000; Turrisi, Jaccard, Taki, Dunnam, & Grimes, 2001; Wechsler et al., 1998) and are located in Appendices C through G.

MI Skills (Appendix C)

MI skills were used to examine level of peer counselor competency to conduct a BASICS intervention with fidelity. Behavior counts identified through the PEPA were examined at Baseline, BASICS 1, BASICS 2, and BASICS 3 sessions for each peer counselor conducting interventions. Examination of numbers of open and closed ended questions, and simple and complex reflections were used to create a sum score of competency.

Peer Proficiency Assessment (PEPA: Mastroleo, Mallett, & Turrisi., under review). The PEPA measures the effectiveness of individual peer counseling sessions. The PEPA was validated using 20 randomly drawn BASICS peer counseling sessions completed as a part of a study examining the efficacy of BASICS interventions with a high-risk college drinking population. After evaluation of all 20 sessions by two master
coders and six undergraduate coders, correlations between scores were examined for instrument validity. Results identified all correlation scores ($r$) ranging between .60 and .90 between master coders, between undergraduate and master coders, and between undergraduate coders. The correlation score of .60 was due to one outlier and most scores ranged from .70 to .90. All master coder correlation scores ranged between .78 and .90 (Mastroleo et al., under review). To date, no reliability or validity studies using this tool have been published.

The initial 15-minutes of each audio-recorded session was evaluated to rate peer counselor use of reflective listening statements and the use of open and closed ended questions. Initially, BASICS role-play and intervention sessions completed by peer counselors in the EAA and CPA groups were evaluated for session fidelity and adherence to intervention protocol. Behavior counts of open and closed ended questions and simple and complex reflective statement were identified and scored. Closed questions include the number of yes/no questions and answers with restricted range (e.g., how many drinks did you have?) that were asked in the fifteen minute session. Open-ended questions are questions that are designed to elicit open-ended responses. Coders tallied each closed or open ended question. Simple reflections are statements that convey understanding but offer little or no meaning to client statements (e.g., repeat, rephrase). Complex reflections are defined as statements made by the peer counselor where substantial meaning is inferred or hypothesis testing is explored (e.g., paraphrase, double-sided reflection, reflection of feeling). Complex reflections are used to convey a deeper meaning to the picture the client is developing and are used to assist the client in developing discrepancy
and engaging in change talk. Coders tallied and recorded simple and complex reflections (Mastroleo et al., under review).

Each session was rated by a team of session coders to evaluate the effectiveness of training protocol and individual peer counselors on their ability to integrate MI principles and skills matching intervention protocol. Coders were trained undergraduate students who had completed a three hour training session, had received supervision on their coding skills, and had over 20 hours of previous coding experience. Correlation scores \( r \) ranged between .50 and .89 between coders.

**Intervention Variables (Appendix D)**

Intervention variables were used to create the personalized graphic feedback sheet used in the BASICS intervention and examine changes in student participant norm beliefs about campus drinking behaviors and protective behavioral strategies used post-intervention.

**College Drinking Norms**

*Daily Drinking Questionnaire (DDQ; Collins et al., 1998).* Participants were asked to identify weekly drinking behaviors for typical college students through use of the DDQ (Collins et al., 1998). This seven question scale has the ability to identify perceived drinking normative behaviors without upper or lower limits imposed upon participant responses. Item samples include, “Consider a typical week during the last month. How much alcohol, on average (measured in number of drinks), do typical college student (of your same sex) drink on each day of a typical week?” with a response scale provided for each day of the week (e.g., Monday_____ , Tuesday______ , etc.; Collins et al.). No published psychometric properties were found for the scale, however
multiple studies have used the DDQ with similar populations and had good success in identifying typical drinking behaviors with college students (e.g., Borsari & Carey, 2005; Larimer et al., 2001).

**Protective Behavior Engagement**

_**National College Health Assessment Survey (NCHA-ACHA, 2000).**_ Individuals’ participation in 14 protective behaviors related to drinking was assessed using the National College Health Assessment Survey (ACHA, 2000). Items asked participants to identify behaviors they engage in while drinking. Sample items included: “Please indicate how often you do the following based on the corresponding choices: a) Switch between alcoholic and non-alcoholic beverages, b) Eat before and/or during drinking, c) Set limits on how much you drink based on your blood alcohol level, and d) Use a designated driver.” Response options were scored on a 1 – 6 scale with “1” = I don’t drink, “2” = Always, “3” = Usually, “4” = Sometimes, “5” = Rarely, and “6” = Never (NCHA-ACHA).

The protective behaviors scale has been used in a wide variety of alcohol related research and is used as a component of the feedback form discussed in the BASICS intervention. Data from the ACHA-NCHA assessment were compared with other national datasets examining similar behaviors and was found to have good construct validity and good item reliability. The data are considered to be reliable and valid assessments, and were a representative sample of U.S. college student behaviors (ACHA-NCHA, 2008). Item reliability in recent studies was found with $\alpha = .94$ (Larimer et al., 2007).
**Drinking Outcome Measures (Appendix E)**

Four drinking outcome measures were used to examine changes in drinking behavior among study participants as well as aide in creating the personalized graphic feedback form. Examination of drinking outcome items allows exploration of treatment effects on number of drinks consumed per week (total DDQ), peak blood alcohol levels (BAC; QF/peak), number of heavy drinking episodes, and negative alcohol related consequences (Total RAPI).

*Daily Drinking Questionnaire (DDQ; Collins, Parks, & Marlatt, 1985).* Drinking rates were evaluated using a modified version of the DDQ. Participants reported their typical drinking on each day of the week, averaged over the last three months. The Daily Drinking Questionnaire is a 15-item, self-report measure of drinking quantity and frequency that assess both typical and heaviest alcohol use. Students are asked to indicate their average alcohol consumption for each day of the week over the previous three months (Collins et al., 1985). The weekly sum of typical daily drinking over the past month and typical quantity of alcohol consumed on a weekend evening were chosen to reflect typical drinking patterns in the sample as these items met inclusion criteria and sufficiently represented the construct of typical drinking behavior.

The use of this scale has been documented in similar studies with a college student population (i.e., Fromme & Corbin, 2004; Larimer et al., 2001) and has shown the ability to identify drinking behaviors without upper or lower limits imposed upon participant responses. Recent research identified internal reliability for the seven drinking quantity questions was .79 (Corbin, Morean, & Benedict, 2008). Item samples include, “Consider a typical week during the last month. How much alcohol, on average
(measured in number of drinks), do you drink on each day of a typical week?” with a response scale provided for each day of the week (e.g., Monday______, Tuesday______). Follow-up questions asked respondents to identify the number of hours they would typically spend consuming the previously identified number of drinks. “During the past 30 days, how many times have you gotten drunk, or very high from alcohol?” with a response scale of: “Never,” “1 to 2,” “3 to 4,” “5 to 6,” “7 to 8,” and “9 or more” (Collins et al., 1985). These scales have been effective in determining changes in drinking patterns in other studies of college student drinking (Baer, 1993; Marlatt, Baer, & Larimer, 1995).

**Quantity/frequency/peak Index (QF).** Participants reported their typical drinking frequency, quantity, and the single greatest amount of alcohol consumption (peak consumption), and hours spent drinking during the past month on the Quantity/Frequency Index. A computerized algorithm was used to produce estimations of typical and peak blood alcohol levels based upon the quantity and rate of consumption, body weight, and gender. Blood alcohol levels were calculated as the ratio of milligrams of alcohol per 100 milliliters of blood and reported as a percentage (Dimeff et al., 1999) using the formula:

\[
\text{BAC} = \left( \frac{\text{consumption}}{2} \right) \times \left( \frac{\text{GC}}{\text{weight}} \right) - (0.016 \times \text{hours})
\]

**Formula 1.**

**Blood Alcohol Content (BAC)**

where (a) consumption = number of drinks consumed, (b) hours = number of hours over which the drinks were consumed, (c) weight = weight in pounds, and (d) GC = gender constant (9.0 for women and 7.5 for men; Matthews & Miller, 1979). This value was
illustrated on the personalized graphic feedback form used by the peer counselors. These scales have been noted to be effective in changing drinking patterns in college students as indicated in other studies (Larimer et al., 2001; Marlatt et al., 1998). No psychometric properties were found for the scale, however, multiple studies have used the QF with similar populations and had good success in identifying quantity and frequency of drinking behaviors with college students (e.g., Larimer et al., 2001; Borsari & Carey, 2005)

Heavy drinking (Wechsler, Davenport, Dowdall, & Moeykens., 1994). The measure of heavy drinking was based on the work of Wechsler and colleagues (1994) and asks male individuals to report the number of times during the past two weeks that they had five or more drinks (females = 4 or more drinks) in a row on a single occasion (e.g., in the same evening). Previous research with adolescents and adults found non-significant correlations between these measures and indices of social desirability (all $rs \leq .08$), reasonably high test-retest reliability estimates (all $rs \geq .3$), and good convergence between the indices of drinking quantity/frequency (all $rs \geq .7$; e.g., Jaccard & Turrisi, 1987; Turrisi & Jaccard, 1991).

Negative Alcohol Related Consequences

Rutgers Alcohol Problem Index (RAPI; White & Labouvie, 1989). The RAPI was used to assess alcohol-related consequences. The RAPI consists of 23-items and assesses the role alcohol plays in social, academic, and personal functioning over the past year. Examples of items include, “How many times, while you were drinking, were you unable to do your homework or study for a test” and “went to work drunk or high?” Response options were, “never,” “1-2 times,” “3-5 times,” “6-10 times,” and “more than 10 times.”
The RAPI has a reported internal reliability of .92 and has been used in numerous research studies examining college student alcohol use and associated negative consequences with success (e.g., Barnett et al., 2007, Larimer et al., 2001).

Additional Instruments for Graphic Personalized Feedback Form (Appendix F)

Instruments focused on alcohol dependence, perceived injunctive norms, lifetime alcohol use related to problematic drinking, negative alcohol related consequences, and family history of alcohol abuse were used to create the personalized graphic feedback form.

Alcohol Effects

Comprehensive Effects of Alcohol Scale (CEOA; Fromme, Stroot, & Kaplan, 1993). The CEOA is a 30-item measure of common outcome expectancies that assesses both perceived likelihood and value of the effects. Results of this assessment were used in the feedback sessions as a way to personalize discussion of alcohol’s non-specific and placebo effects on social behaviors. There are two components to the CEOA. The first examines outcome expectancies through items such as, “If I were under the influence from drinking alcohol I would a) enjoy sex more, b) peaceful, c) take risks, and d) act sociable.” Responses are on a 4-point Likert scale ranging from 1 = disagree to 4 = agree. The second component examines subjective alcohol effects on survey items with responses on a 5-point Likert scale ranging from 1 = bad to 5 = good (Fromme et al., 1993). The CEOA has been widely used in both college student and high-school aged populations and recent data indicate it maintains good internal consistency reliability (alpha’s range from .59-.89) and acceptable test-retest reliability in adolescent samples ages 11-17 (.41-.65 across 3 months; Fromme & D’Amico, 2000).
Core Alcohol Norms Survey (Core Institute, 2004). Exploration of college normative beliefs was conducted with two items: “a) Overall, what percentage of students do you think consume no alcoholic beverages at all, and b) Overall, what percentage of students do you think consumed five or more drinks in a row (males or four or more drinks in a row (females) on at least one occasion in the last two weeks?” Space is provided for respondents to fill in the appropriate number. Reliability data indicated the items have good reliability with alpha scores ranging from .41-.74 (Core Institute, 2005).

Brief Drinker Profile (BDP; Miller & Marlatt, 1984). Two items from the BDP were used to assist in creating the feedback sheets related to risk of alcohol dependence. These items were used to assess family history of alcohol problems and were reported as an item in the client feedback form. Participants were asked: “Do you think your biological mother is/was an alcoholic?” The same question was repeated for biological father. Response options were 1 = Yes, 2 = No, and 3 = Don’t know/ not sure. This scale was used to determine level of risk for future dependence and was included in the feedback sheet. If participants answered yes to either question they were identified as “higher risk” on the feedback sheet. If participants answered, “no” or “unsure,” they were assigned “average risk” on the feedback sheet. Since a positive family history of alcoholism has been shown to be a risk factor for problem drinking and the development of future alcohol problems in individuals (Hawkins, Catalano, & Miller, 1992), inclusion of this information on the feedback form may have some impact on college students future drinking behaviors.

Drinking Norms Rating Form (DNRF; Baer, Stacy, & Larimer, 1991). The DNRF, a 15-item scale, was used to measure individual perceived norms (descriptive
norms) of alcohol use. Participants estimate the typical drinking patterns of important reference groups (i.e., closest friends, typical college students). Students are also asked to estimate their own consumption over the past year (Dimeff et al., 1999). The DNRF has been used to highlight biases in ratings of group norms and can be used to demonstrate that perceptions of drinking are related to personal drinking patterns (Baer, McLaughlin, Burnside, & Pokorny 1988; Baer et al., 1991). An item example includes “On how many occasions have you and the following groups had alcohol to drink (more than just a few sips) during the last 12 months?” A seven-point scale is provided with the following responses: 0 = 0 occasions, 1 = 1-2 occasions, 2 = 3-5 occasions, 3 = 6-9 occasions, 4 = 10-19 occasions, 5 = 20-39 occasions, and 6 = 40 or more occasions. The same response options are used to explore the question: “On how many occasions have you and the following groups been drunk or very high from drinking alcoholic beverages?” (Baer et al., 1991). No psychometric properties were found for the scale, however, multiple studies have used the DNRF with similar populations and good success in identifying perceived drinking norms with college students (e.g., Borsari & Carey, 2005; Larimer et al., 2001).

*Young Adult Alcohol Problems Screening Test (YAAPST; Hurlbut & Sher, 1992).* The YAAPST is a 27-item questionnaire that assesses lifetime and past-year's frequency of negative consequences of alcohol use among college students. It assesses both traditional consequences (e.g., hangovers, blackouts, driving while intoxicated) and consequences presumed to occur at higher rates in a college student population (e.g., missing class, damaging property, getting involved in regrettable sexual situations). Hurlbut and Sher (1992) report the YAAPST has demonstrated good test-retest reliability.
(.73 past year) and internal consistency with coefficient alphas of .83 (past year).

Response options ranged on a 10-point scale from “never” to “40x or more in the past year.” Sample questions include: “Have you showed up late for work or school because of drinking, a hangover, or an illness caused by drinking?”, “Have you ever been in a fight as a result of your drinking?”, “Have you felt very sick to your stomach or thrown up after drinking?”, and “Have you driven a car when you knew you had too much to drink to drive safely?” (Hurlbut & Sher).

Additional Instruments (Appendix F)

Social Desirability/Impression Management Scale (Paulhus, 1984). A 3-item shortened version of a measure created by Paulhus (1984) of social desirability/impression management was included in the survey. Using the measure created by Paulhus (1984), social desirability in the context of impression management (where a respondent purposely tries to create a good impression) and self-deception (where the respondent actually believes his or her positive self-reports) will be examined. The measure shows reasonable test-retest reliability and coefficient alphas (in the 0.70 range). Items included: “Sometimes I rather enjoy going against the rules,” “There have been times when I have worried a lot about something that was not really important,” and “Every now and then I get into a bad mood, and no one can do anything to please me.” Participants were asked to state if the statements were true about themselves by responding either “Yes” or “No” to the prompt (Paulhus). This scale has been used in other alcohol related studies with good reliability (e.g., Turrisi, Mastroleo, Mallett, Larimer, & Kilmer, 2007).
**Demographic, background, and college context measures.** Standard demographic and background measures were obtained for study participants. This included age, gender, race, ethnicity, and sexual orientation, and was to describe the sample and identify the ability of the current sample to act as a representative sample of the larger university population. Additionally, participants’ weight data was collected in order to complete the formula for BAC calculation.

Table 3.3
*Baseline and Follow-up Survey Assessments*

<table>
<thead>
<tr>
<th>Measure</th>
<th>Baseline Survey</th>
<th>Follow-up Survey</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Drinking Outcome Measures</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Daily Drinking Questionnaire-participant (DDQ)</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Quantity/Frequency/Peak Index (QF)</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Heavy Drinking</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Rutgers Alcohol Problem Index (RAPI)</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td><strong>Intervention Variables</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Daily Drinking Questionnaire-typical college student (DDQ)</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>National College Health Assessment (NCHA)</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td><strong>Additional Instruments for Graphic Personalized Feedback</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Brief Drinking Profile (BDP)</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Comprehensive Effects of Alcohol Scale (CEOAA)</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Core Alcohol Norms Survey</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Drinking Norms Rating Form (DNRF)</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Young Adult Alcohol Problems Screening Test (YAAPST)</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td><strong>Additional Instruments</strong></td>
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<td></td>
</tr>
<tr>
<td>Social Desirability/Impression Management Scale</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Demographics</td>
<td>X</td>
<td>X</td>
</tr>
</tbody>
</table>
Research Questions, Data Analyses Plan, and Expected Results

Skill acquisition of EAA and CPA trained counselors and drinking outcomes of student participants in relation to research condition (i.e., EAA, CPA, Control) was examined. Each research question, subsequent data analysis, and expected outcome is identified and discussed in turn.

Research question 1: How does EAA supervision impact peer counselors’ abilities to perform Motivational Interviewing (MI) skills when compared to the CPA group on session evaluations completed using the Peer Proficiency Assessment (PEPA)?

Analysis. A 4 x 2 (time; Baseline vs. BASICS 1 vs. BASICS 2 vs. BASICS 3 x group; CPA vs. EAA) mixed ANOVA was employed to examine changes in skill acquisition as identified through behavior counts on the PEPA (open and closed questions, simple and complex reflections). Mean and standard deviation scores between groups were identified and using mixed ANOVA procedures, skill acquisition differences between EAA and CPA trained peer counselors were examined.

Expected results. Due to randomization of peer counselors to condition, it was expected no differences in skill level would be observed at baseline (after completing training) between EAA and CPA peer counselors on all MI skills (e.g., open and closed questions, simple and complex reflections). However, following supervision meetings, the EAA trained peer counselors would increase their use of open questions, simple, and complex reflections while decreasing their use of closed questions. It was expected CPA peer counselors would remain constant in all MI skill demonstration (see Figures 3.2-3.5).
Figure 3.2.

*Expected PEPA Behavior Counts for Open Questions*

Figure 3.3.

*Expected PEPA Behavior Counts for Closed Questions*

Figure 3.4.

*Expected PEPA Behavior Counts for Simple Reflections*
Research question 2: How does the BASICS intervention impact participants’ use of protective alcohol use behavioral engagement?

Analysis. A Group (EAA, CPA, control) X Time (baseline, follow-up) mixed measures ANOVA was used to test the impact of the intervention on protective alcohol use behaviors as measured by the NCHA-ACHA were examined. For all analyses, mean differences on changes in engaging in protective behaviors differences between control and treatment groups were conducted as well as differences between treatment groups to identify potential differences in protective behavior engagement due to peer counselor supervision condition.

Expected results. It was expected that individuals completing the BASICS intervention with an EAA trained peer counselor would have a greater increase in using alcohol protective behaviors than participants completing the intervention with a CPA trained peer counselor. It was also expected that participants in both treatment groups (EAA, CPA) would have a greater increase in using alcohol protective behaviors than control group participants (see Figure 3.6).
Research question 3: How does the BASICS intervention impact participants’ beliefs about alcohol drinking norms?

Analysis. A Group (EAA, CPA, control) X Time (baseline, follow-up) mixed measures ANOVA was used to test the impact of the intervention on beliefs about drinking norms through analysis of perceived typical college student drinking. DDQ items (total drinks per week) were examined to identify changes between control and treatment group participants. For all analyses, mean differences on normative perceptions differences between control and treatment groups were conducted as well as differences between treatment groups to identify potential differences in normative beliefs due to peer counselor supervision condition.

Expected results. It was expected that individuals completing the BASICS intervention with an EAA trained peer counselor would more correctly report typical college student drinking norms than participants completing the intervention with a CPA trained peer counselor. It was also expected that participants in both treatment groups
(EAA, CPA) would more correctly report typical college student drinking norms than control group participants (see Figure 3.7).

![Figure 3.7.](image)

*Expected Effects on Beliefs about Drinking Norms for 3 Groups (Control, EAA, CPA)*

**Research question 4:** How do drinking outcomes (i.e., total drinks per week, weekend drinking, peak BAC, heavy drinking episodes, and negative alcohol related consequences) differ at follow-up for participants completing a BASICS intervention performed by an EAA or CPA trained peer counselor when compared to control group participants?

**Analysis.** A Group (EAA, CPA, control) X Time (baseline, follow-up) mixed measures ANOVA was used to test the impact of the intervention on a given outcome variable (e.g., DDQ items: total drinks per week, weekend drinking; peak BAC; heavy drinking episodes, total negative alcohol related consequences). Mean differences on drinking behaviors through item analysis of DDQ items (total drinks per week), weekend drinking (Friday and Saturday night drinking), peak BAC, heavy drinking episodes, and negative alcohol related consequences (through analysis of summed RAPI items) were
compared between treatment groups and between treatment and control groups. Examination of differences between treatment groups (CPA, EAA) were compared to identify outcome effects based upon intervention supervision approach, as well as differences between treatment and control groups to identify potential increases in drinking due to the lack of peer counselor supervision given for the CPA group.

Expected results. In all analyses, it was expected groups would be similar at baseline in regards to drinking behaviors and outcomes. Following treatment, participants completing the BASICS intervention with an EAA trained peer counselors were expected to have the greatest reductions in drinking outcomes, followed by smaller reductions for participants completing a BASICS intervention with a CPA trained peer counselor. No changes were expected to occur for control group participants. Therefore, an interaction effect was expected with differences found in treatment effects between EAA and CPA trained peer counselor participants. See Figure 3.8 for an example of expected intervention effects on total drinks per week. Similar trends in data are expected for all outcome variables (e.g., weekend drinking, heavy drinking episodes, total RAPI).

Figure 3.8.

*Expected Effects for Total Drinks per week for 3 Groups (Control, EAA, CPA)*
The scientific and clinical significance of the effects utilizing the magnitude estimate approach was assessed as described in Jaccard (1998). According to Jaccard, statistical significance refers to the case when the null hypothesis is rejected, whereas magnitude estimation approaches emphasize the importance of the size of the effect. To utilize magnitude estimation approaches the researcher must specify a priori an effect size that differentiates a trivial effect from a meaningful effect. If the effect size observed in the study is less than the criterion for meaningfulness, then the result is deemed nonsignificant, even if the null is rejected. In the present study, Cohen’s (1988) $d$ statistic to assess clinical significance of main effects and interactions was used. An effect was deemed clinically and statistically significant to the extent that the $d$ was greater than or equal to .20. This was based upon past research examining similar intervention effects and sample sizes (e.g., Borsari & Carey, 2006). In all analyses, Tukey’s HSD post-hoc tests were used to examine where group differences lie and to protect against inflated Type I error (Tabachnick & Fidell, 2001).
Figure 3.1.
Participation flow diagram.
Note. DNAB = Did not attend BASICS, CB = Completed BASICS, NFU = No Follow-up, CFU, Completed Follow-Up, Tx = Treatment Completed, ITx = Intent to Treat
CHAPTER IV: RESULTS

Missing Data Analysis

Preliminary analyses identified a small percentage of missing data (less than 5%) across all measures. The missing data were assumed to be random and not systematic in nature due to the small amount of missing data present in the study (Jaccard & Guilama-Ramos, 2002). Therefore, the EM method as implemented in SOLAS to impute missing data was used (Little & Rubin, 2002) and all missing data was imputed prior to data analysis.

Data Analysis

Due to the nature of the research study examining treatment effects of an intervention aimed at reducing drinking behaviors in a sample of voluntary first-year college students as they transition to college, analyses on drinking outcome data has been conducted with the sample in two ways. First, examinations of differences in drinking outcome variables post-intervention were conducted on the intent to treat sample. This sample includes all participants randomly assigned to groups (control, CPA, EAA) regardless of their attendance and participation in the BASICS intervention. Second, identical analyses were conducted on the drinking outcome variables on control group participants and only those who completed the BASICS intervention and follow-up survey. These analyses allow comparisons between control and treatment groups for individuals who received the BASICS intervention and permit examinations between treatment groups to identify differences that may be a result of peer counselor supervision approaches.
When examining the statistical and clinical significance of findings, three levels were used to identify differences at the standard \((p < .05)\), moderate \((p < .10)\), and clinical \((p < .25)\) levels of significance. Past research has examined findings at both the \(.05\) (e.g., Larimer et al., 2001; Marlatt et al., 1998) and \(.10\) (e.g., Barnett et al., 2007) levels. Examining differences at the \(p < .25\) level will allow examination of trends that might have added clinical significance. Past research has identified the need to reach beyond previously accepted statistical levels of significance (i.e., \(p < .05\)) when examining the clinical utility of interventions (e.g., Dworkin, Turk, Wyrwich, Beaton, Cleeland, Farrar et al., 2008, Kazdin, 2008, Roberts, Neal, Kivlahan, Baer, & Marlatt, 2000). A summary of all drinking outcome variable results can be found in Table 4.1 (page 85).

For examination of differences between groups (e.g., EAA vs. CPA), Tukey’s HSD post-hoc tests were conducted by computing critical difference (CD) scores using the formula described in Turrisi (2001). The formula used in the computation was:

\[
CD = q \sqrt{\frac{M_{	ext{within}}}{n}}
\]

Formula 2. Critical Difference

The value for \(q\) was identified at both the \(.05\) \((q = 3.36)\) and \(.10\) \((q = 2.931)\) level of significance using the \(q\)-value table in Hinkle, Wiersma, and Jurs (2003) for examination of mean differences between groups. The value for \(n\) was computed as the harmonic mean for the analysis. For examination of between-group differences, the computed CD
score was compared to the computed difference between means for the groups (e.g., EAA total DDQ follow-up mean minus CPA total DDQ follow-up mean). In cases when the subtracted difference score is greater than the computed CD score, it is determined a significant difference at the established CD level (i.e., .05 or .10).

When examining differences in MI skill use and acquisition by group (EAA vs. CPA), analyses were conducted and examined in the same manner. First, examination of main interaction effects were evaluated at the \( p < .05, .10, \) and .25 levels of statistical significance. Then, Tukey’s HSD post-hoc tests were conducted to identify where differences lie between groups (e.g., CPA and EAA) and between BASICS sessions (i.e., Baseline, BASICS 1, BASICS 2, BASICS 3) based on specific skill components demonstrated and scored using the PEPA. The value for \( q \) was identified at both the .05 \((q = 4.89)\) and .10 \((q = 4.36)\) level of significance using the \( q \)-value table in Hinkle et al. (2003). The CD score was computed using Formula 1 (see page 63).

**MI Skills Acquisition by Group**

*Research Question 1*

How does EAA supervision impact peer counselors’ abilities to perform Motivational Interviewing (MI) skills when compared to the CPA group on session evaluations completed using the Peer Proficiency Assessment (PEPA)?

*Analyses.* Peer counselors’ abilities to acquire the necessary MI skills to complete a BASICS intervention with fidelity were examined through behavior counts of MI skills (i.e., open and closed questions, simple and complex reflections) using the PEPA coding instrument. Comparisons between BASICS sessions by group (EAA vs. CPA) were conducted to identify changes in skill acquisition due to completion (or lack thereof) of
supervision meetings. In total, four BASICS sessions were included in the analyses for each peer counselor to determine changes in MI skill acquisition over time. All peer counselors who conducted a minimum of four BASICS sessions (including role plays) were included in the analyses. In each peer counselor group (CPA, EAA) one individual did not meet the required four BASICS sessions to be included in the analyses, therefore nine EAA peer counselors and eight CPA peer counselors were included in the analyses.

**Summary Findings of Research Question 1**

Examining mean differences of open and closed question and simple and complex reflection behavioral counts revealed significant differences over time and improvement of skill demonstration as measured by the PEPA (Mastroleo et al., under review). Specifically, peer counselors in the EAA group were notably less skilled at use of closed ended questions and complex reflections at baseline when compared to peer counselors in the CPA group. After supervision meetings, the EAA group was able to meet or exceed the level of skill demonstration observed in the CPA peer counselors. Additionally, EAA peer counselors were found to have a consistent level of improvement in demonstrating use of open questions when compared to peer counselors in the CPA group. This same trend was found in relation to using simple reflections as a consistent level of improvement was observed from Baseline to BASICS 3 for EAA peer counselors where CPA peer counselors seemed to plateau in their skill demonstration improvement. Results for individual analyses of skill demonstration are now discussed in turn.

*Open ended question skill demonstration by group.* A 4 x 2 (time; Baseline vs. BASICS 1 vs. BASICS 2 vs. BASICS 3 x group; CPA vs. EAA) mixed ANOVA was conducted on number of open ended questions used as coded on the PEPA. Analyses
revealed a significant interaction, $F(3, 16) = 4.096, p < .10, \eta^2 = .214$. As seen in Table 4.2, no differences were found at baseline between the CPA and EAA groups.

Examination showed the CPA group having initial improvement from baseline to future sessions but saw the improvement plateau and then skill level decrease across time. As demonstrated in Figure 4.1, the EAA group showed continued improvement over time after supervision, identifying a greater gain in skill demonstration by using three or more open ended questions when compared to the CPA group.

Table 4.2.  
**MI Skills: Open Ended Questions**

<table>
<thead>
<tr>
<th></th>
<th>Baseline</th>
<th>BASICS 1</th>
<th>BASICS 2</th>
<th>BASICS 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>CPA</td>
<td>10.75 (1.44)</td>
<td>13.81 (1.39)</td>
<td>13.5 (1.15)</td>
<td>11.31 (1.10)</td>
</tr>
<tr>
<td>EAA</td>
<td>11.39 (1.36)</td>
<td>15.56 (1.31)</td>
<td>14.78 (1.08)</td>
<td>15.17 (1.04)</td>
</tr>
</tbody>
</table>

MD = 0.64<sup>ns</sup>  MD = 1.75<sup>ns</sup>  MD = 1.28<sup>ns</sup>  MD = 3.86<sup>ns</sup>

*Note. MD = Mean Difference, ns = non-significant.*

Figure 4.1. *Open Ended Question Skill Demonstration by Group*

*Closed ended question skill demonstration by group.* A 4 x 2 (time; Baseline vs. BASICS 1 vs. BASICS 2 vs. BASICS 3 x group; CPA vs. EAA) mixed ANOVA was conducted on number of closed ended questions used as coded on the PEPA. Analyses revealed a significant interaction, $F(3, 16) = 5.238, p < .05, \eta^2 = .259$. As seen in Table 4.3, differences were found at Baseline between the CPA and EAA groups where the
CPA group demonstrated using almost six fewer closed ended questions than the EAA group. Examination showed the CPA group skill level remained relatively unchanged over time where the EAA group showed continued improvement after supervision (see Figure 4.2), identifying a greater gain in skill demonstration (i.e., decreased number of closed ended questions). EAA peer counselors reduced the number of closed ended questions by approximately five following Baseline, BASICS 1, and two supervision sessions.

Table 4.3.  
MI Skills: Closed Ended Questions

<table>
<thead>
<tr>
<th></th>
<th>Baseline Mean (SD)</th>
<th>BASICS 1 Mean (SD)</th>
<th>BASICS 2 Mean (SD)</th>
<th>BASICS 3 Mean (SD)</th>
</tr>
</thead>
<tbody>
<tr>
<td>CPA</td>
<td>5.81 (1.89)</td>
<td>5.44 (1.65)</td>
<td>5.25 (1.14)</td>
<td>7.06 (1.43)</td>
</tr>
<tr>
<td>EAA</td>
<td>11.39 (1.78)</td>
<td>10.33 (1.55)</td>
<td>6.67 (1.08)</td>
<td>8.61 (1.35)</td>
</tr>
</tbody>
</table>

MD = 5.58\text{ns} MD = 4.49\text{ns} MD = 1.42\text{ns} MD = 1.55\text{ns}

Note. MD = Mean Difference, ns = non-significant.

Figure 4.2. Closed Ended Question Skill Demonstration by Group

Simple reflection skill demonstration by group. A 4 x 2 (time; Baseline vs. BASICS 1 vs. BASICS 2 vs. BASICS 3 x group; CPA vs. EAA) mixed ANOVA was conducted on the number of simple reflections used as coded on the PEPA. Analyses revealed a significant interaction, $F(3, 16) = 3.447, p < .10, \text{eta}^2 = .187$. As seen in Table 4.4, no differences were found at Baseline between the CPA and EAA groups.
Examination showed the CPA group having modest improvement from Baseline to future BASICS sessions but saw the improvement plateau. As demonstrated in Figure 4.3, the EAA group showed a larger increase in skill level following the first supervision meeting (BASICS 1) by increasing use of simple reflections by two. Although the CPA and EAA groups demonstrated similar skill levels at BASICS session 3, the EAA group increased their skill ability more quickly than the CPA group following supervision.

Table 4.4.  
**MI Skills: Simple Reflections**

<table>
<thead>
<tr>
<th></th>
<th>Baseline Mean (SD)</th>
<th>BASICS 1 Mean (SD)</th>
<th>BASICS 2 Mean (SD)</th>
<th>BASICS 3 Mean (SD)</th>
</tr>
</thead>
<tbody>
<tr>
<td>CPA</td>
<td>2.50 (0.50)</td>
<td>2.31 (0.62)</td>
<td>3.50 (0.63)</td>
<td>3.38 (0.70)</td>
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<tr>
<td>EAA</td>
<td>2.50 (0.48)</td>
<td>4.11 (0.58)</td>
<td>4.78 (0.59)</td>
<td>4.33 (0.66)</td>
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</tbody>
</table>

**Note.** MD = Mean Difference, ns = non-significant.

Figure 4.3. Simple Reflection Skill Demonstration by Group

Complex reflection skill demonstration by group. A 4 x 2 (time; Baseline vs. BASICS 1 vs. BASICS 2 vs. BASICS 3 x group; CPA vs. EAA) mixed ANOVA was conducted on number of complex reflections used as coded on the PEPA. Analyses revealed no significant effects, $F(3, 16) = .029, p > .25$, $\eta^2 = .002$. As seen in Table 4.5, no differences were found at baseline between the CPA and EAA groups although the CPA group showed a slightly more advanced level of skill demonstration. Examination
showed the CPA group having no improvement from Baseline to future BASICS sessions with a steady decrease in skill demonstration from Baseline to future sessions. The EAA group showed a consistent improvement in skill demonstration following the supervision meetings (Baseline to BASICS 3, see Figure 4.4). The CPA group had a higher baseline skill level that declined over time, where supervision seemed to improve MI skills of the EAA peer to reach and exceed CPA peer counselors’ level of skill demonstration.

Table 4.5.  
**MI Skills: Complex Reflections**

<table>
<thead>
<tr>
<th></th>
<th>Baseline Mean (SD)</th>
<th>BASICS 1 Mean (SD)</th>
<th>BASICS 2 Mean (SD)</th>
<th>BASICS 3 Mean (SD)</th>
</tr>
</thead>
<tbody>
<tr>
<td>CPA</td>
<td>5.19 (0.71)</td>
<td>4.38 (0.69)</td>
<td>4.19 (0.86)</td>
<td>4.13 (0.77)</td>
</tr>
<tr>
<td>EAA</td>
<td>3.39 (0.67)</td>
<td>4.06 (0.65)</td>
<td>5.72 (0.81)</td>
<td>5.17 (0.73)</td>
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</tbody>
</table>

MD = 1.80<sup>ns</sup>  MD = 0.32<sup>ns</sup>  MD = 1.53<sup>ns</sup>  MD = 1.04<sup>ns</sup>

*Note.* MD = Mean Difference, ns = non-significant.

Figure 4.4. *Complex Reflection Skill Demonstration by Group*

Protective Alcohol Use Behavior Engagement (NCHA-ACHA Assessment)

**Research Question 2**

How does the BASICS intervention impact participants’ use of protective alcohol use behavioral engagement?

*Intent to treat.* A 2x 3 (time; baseline, follow-up x group; Control, CPA, EAA) mixed ANOVA was conducted on protective behavior engagement as measured by the
ACHA-NCHA. Contrary to what was expected, no significant effects were observed in the analyses, all $F_{s} < 4.00, ps > .25$. See Table 4.6.

*Treatment completed.* A 2 x 3 (time; baseline, follow-up x group; Control, CPA, EAA) mixed ANOVA was conducted on protective behavior engagement as measured by the ACHA-NCHA. Contrary to what was expected, no significant effects were observed in the analyses, all $F_{s} < 4.00, ps > .25$. See Table 4.6.

Table 4.6.

<table>
<thead>
<tr>
<th></th>
<th>Baseline</th>
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</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mean (Standard Deviation)</td>
<td>Mean (Standard Deviation)</td>
</tr>
<tr>
<td>Intent to Treat</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control</td>
<td>58.79 (7.79)a</td>
<td>59.97 (11.01)a</td>
</tr>
<tr>
<td>CPA</td>
<td>58.03 (9.36)a</td>
<td>59.34 (7.52)a</td>
</tr>
<tr>
<td>EAA</td>
<td>58.70 (9.65)a</td>
<td>58.54 (10.36)a</td>
</tr>
<tr>
<td>Treatment Completed</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control</td>
<td>58.79 (7.79)a</td>
<td>59.97 (11.01)a</td>
</tr>
<tr>
<td>CPA</td>
<td>58.36 (8.66)a</td>
<td>59.43 (8.44)a</td>
</tr>
<tr>
<td>EAA</td>
<td>60.90 (6.43)a</td>
<td>59.55 (7.89)a</td>
</tr>
</tbody>
</table>

All $p$’s > .25

Drinking Norms Beliefs

*Research Question 3*

How does the BASICS intervention impact participants’ beliefs about alcohol drinking norms?

*Intent to treat.* A 2 x 3 (time; baseline, follow-up x group; Control, CPA, EAA) mixed ANOVA was conducted on college drinking norms (perceived total DDQ for typical college students). As expected, the strongest effect was the main effect of time, $F(2, 198) = 5.125, p < .05, \eta^2 = .049$. As seen in Table 4.7, follow-up comparisons using the Tukey HSD post-hoc test revealed significant differences ($p < .05$) between the mean
of the pretreatment assessment in the CPA group (mean = 27.64, SD = 11.22) and the mean of the post-treatment assessment (mean = 19.55, SD = 11.09). The same was found for differences between the mean of the pretreatment assessment in the EAA group (mean = 25.28, SD = 11.14) and the mean of the post-treatment assessment (mean = 19.18, SD = 13.21). Additional follow-up comparisons using the Tukey HSD post-hoc test revealed significant differences ($p < .1$) between the control (mean = 22.83, SD = 14.81) and EAA groups (mean = 19.18, SD = 13.21). Although there was a trend in the anticipated direction observed between the participants in the control and CPA groups, the difference was not found to be statistically significant at the $p < .25$ level. In sum, examination of means revealed that the control group beliefs remained unchanged where both treatment groups (CPA, EAA) reduced beliefs of typical college student norm drinking by approximately 6 drinks per week (See Figure 4.5).

_Treatment completed._ A 2 x 3 (time; baseline, follow-up x group; Control, CPA, EAA) mixed ANOVA was conducted on college drinking norms (perceived total DDQ for typical college students). As expected, the strongest effect was the main effect of time, $F(2, 120) = 10.693$, $p < .001$, $\eta^2 = .151$. As seen in Table 4.7, follow-up comparisons using the Tukey HSD post-hoc test revealed significant differences ($p < .05$) between the mean of the pretreatment assessment in the CPA group (mean = 27.04, SD = 11.48) and the mean of the post-treatment assessment (mean = 14.45, SD = 6.297). The same was found for differences between the mean of the pretreatment assessment in the EAA group (mean = 26.29, SD = 14.71) and the mean of the post-treatment assessment (mean = 13.48, SD = 12.41). Additional follow-up comparisons using the Tukey HSD post-hoc test revealed significant differences ($p < .05$) between the control (mean =
22.83, SD = 14.81) and CPA groups (mean = 14.45, SD = 6.297) and the control (mean = 22.83, SD = 14.81) and EAA groups (mean = 19.18, SD = 13.21). In sum, examination of means revealed that the control group beliefs remained unchanged, where both treatment groups (CPA, EAA) reduced beliefs of typical college student norm drinking by approximately 13 drinks per week (See Figure 4.6).

Table 4.7.

<table>
<thead>
<tr>
<th>Drinking Norms Beliefs</th>
<th>Baseline Mean (Standard Deviation)</th>
<th>Follow-Up Mean (Standard Deviation)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Intent to Treat</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control</td>
<td>23.86 (11.83)a</td>
<td>22.83 (14.82)a</td>
</tr>
<tr>
<td>CPA</td>
<td>27.64 (11.22)a</td>
<td>19.55 (11.09)b*</td>
</tr>
<tr>
<td>EAA</td>
<td>25.28 (11.14)a</td>
<td>19.18 (13.21)b*</td>
</tr>
<tr>
<td><strong>Treatment Completed</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control</td>
<td>23.86 (11.83)a</td>
<td>22.83 (14.82)a</td>
</tr>
<tr>
<td>CPA</td>
<td>27.04 (11.48)a</td>
<td>14.45 (6.28)b*</td>
</tr>
<tr>
<td>EAA</td>
<td>26.29 (14.71)a</td>
<td>13.48 (12.41)b*</td>
</tr>
</tbody>
</table>

* p < .05

Figure 4.5.

Drinking Norms Beliefs for 3 Groups (Control, EAA, CPA): Intent to Treat
Participants’ Drinking Outcomes

Research Question 4

How do drinking outcomes (i.e., total drinks per week, weekend drinking, peak BAC, heavy drinking episodes, and negative alcohol related consequences) differ at follow-up for participants completing a BASICS intervention performed by an EAA or CPA trained peer counselor when compared to control group participants?

Total Drinks per Week

Intent to treat. A 2 x 3 (time; baseline, follow-up x group; Control, CPA, EAA) mixed ANOVA was conducted on total drinks per week (total DDQ). The strongest effect was the main effect of time, $F(2, 198) = 2.436, p < .10, \eta^2 = .024$. As seen in Table 4.8, follow-up comparisons using the Tukey HSD post-hoc test revealed significant differences ($p < .05$) between the means of the pretreatment assessment in the CPA group (mean = 16.22, SD = 9.96) and the mean of the post-treatment assessment (mean = 13.28, SD = 8.41). No significant differences were found between the mean of the pretreatment assessment in the EAA group and the mean of the post-treatment assessment or between groups post-intervention (all $ps > .25$). In sum, examination of means revealed that the
control group total drinks remained unchanged where both treatment groups (CPA, EAA) reduced total drinks per week by approximately 2.5 drinks per week (See Figure 4.7).

Treatment completed. A 2 x 3 (time; baseline, follow-up x group; Control, CPA, EAA) mixed ANOVA was conducted on total drinks per week (total DDQ). The strongest effect was the main effect of time, $F(2, 120) = 3.74, p < .05$, $\eta^2 = .059$. As seen in Table 4.8, follow-up comparisons using the Tukey HSD post-hoc test revealed significant differences ($p < .05$) between the mean of the pretreatment assessment in the CPA group (mean = 16.23, SD = 7.76) and the mean of the post-treatment assessment (mean = 11.42, SD = 6.69). In sum, examination of means revealed the control group total drinks remained unchanged where both treatment groups (CPA, EAA) reduced total drinks per week by approximately 4 (CPA group) and 2.5 (EAA group) drinks per week (See Figure 4.8).

Table 4.8.

<table>
<thead>
<tr>
<th>Total Drinks per Week</th>
<th>Intent to Treat</th>
<th>Follow-Up</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Baseline Mean (Standard Deviation)</td>
<td>Mean (Standard Deviation)</td>
</tr>
<tr>
<td><strong>Control</strong></td>
<td>14.21 (10.78)$^a$</td>
<td>14.59 (11.86)$^a$</td>
</tr>
<tr>
<td>CPA</td>
<td>16.22 (9.96)$^a$</td>
<td>13.28 (8.41)$^a$</td>
</tr>
<tr>
<td>EAA</td>
<td>15.15 (9.2)$^a$</td>
<td>13.92 (10.2)$^a$</td>
</tr>
<tr>
<td><strong>Treatment Completed</strong></td>
<td>Control</td>
<td>CPA</td>
</tr>
<tr>
<td>Control</td>
<td>14.21 (10.78)$^a$</td>
<td>16.23 (7.76)$^a$</td>
</tr>
<tr>
<td>CPA</td>
<td>14.59 (11.86)$^a$</td>
<td>11.42 (6.69)$^{b*}$</td>
</tr>
<tr>
<td>EAA</td>
<td>13.0 (5.91)$^a$</td>
<td>11.57 (8.05)$^a$</td>
</tr>
</tbody>
</table>

* $p < .05$
Figure 4.7.  
*Total Drinks per week for 3 Groups (Control, EAA, CPA): Intent to Treat*

Figure 4.8.  
*Total Drinks per week for 3 Groups (Control, EAA, CPA): Treatment Completed*

Weekend Drinking

*Intent to treat.* A 2 x 3 (time; baseline, follow-up x group; Control, CPA, EAA) mixed ANOVA was conducted on weekend drinking (summed DDQ for Friday and Saturday). The strongest effect was the main effect of time, $F(2, 198) = 1.50, p < .25$, $\eta^2 = .015$ at the previously identified clinically significant value. As seen in Table 4.9, no significant differences were found between the means of the pretreatment assessment and the means of the post-treatment assessment for the CPA or EAA groups or between groups post-intervention (all $p s > .25$). Examination of means revealed that the control group’s total weekend drinks remained unchanged where both treatment groups (CPA, EAA) reduced weekend total drinks per week by approximately 2 drinks per weekend.
Although no differences were observed between the CPA and EAA group, the groups differed significantly from the control group (See Figure 4.9).

Treatment completed. A 2 x 3 (time; baseline, follow-up x group; Control, CPA, EAA) mixed ANOVA was conducted on weekend drinking (summed DDQ for Friday and Saturday). As expected, the strongest effect was the main effect of time, $F(2, 120) = 3.988$, $p < .05$, $\eta^2 = .062$. As seen in Table 4.9, follow-up comparisons using the Tukey HSD post-hoc test revealed significant differences ($p < .05$) between the mean of the pretreatment assessment in the CPA group (mean = 12.87, SD = 5.34) and the mean of the post-treatment assessment (mean = 9.42, SD = 5.35). Although there was a trend in the anticipated direction observed for the participants in the EAA group post-treatment, the difference was not found to be statistically significant at the $p < .25$ level. Additional follow-up comparisons using the Tukey HSD post-hoc test revealed no significant differences ($p > .25$) between groups. Examination of means revealed the control group total weekend drinks remained unchanged where both treatment groups (CPA, EAA) reduced weekend total drinks per week by approximately 3 (CPA) and 1.5 (EAA) drinks per weekend (See Figure 4.10).

Table 4.9. Total Weekend Drinking

<table>
<thead>
<tr>
<th>Intent to Treat</th>
<th>Baseline Mean (Standard Deviation)</th>
<th>Follow-Up Mean (Standard Deviation)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Control</td>
<td>10.87 (6.25)$^a$</td>
<td>10.63 (7.35)$^a$</td>
</tr>
<tr>
<td>CPA</td>
<td>12.42 (6.27)$^a$</td>
<td>10.71 (6.26)$^a$</td>
</tr>
<tr>
<td>EAA</td>
<td>11.54 (5.24)$^a$</td>
<td>10.23 (5.96)$^a$</td>
</tr>
<tr>
<td><strong>Treatment Completed</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control</td>
<td>10.87 (6.25)$^a$</td>
<td>10.63 (7.35)$^a$</td>
</tr>
<tr>
<td>CPA</td>
<td>12.87 (5.34)$^a$</td>
<td>9.42 (5.34)$^b$</td>
</tr>
<tr>
<td>EAA</td>
<td>10.57 (3.75)$^a$</td>
<td>9.14 (5.37)$^a$</td>
</tr>
</tbody>
</table>

* $p < .05$
Figure 4.9. 
*Total Weekend Drinking for 3 Groups (Control, EAA, CPA): Intent to Treat*

Figure 4.10 
*Total Weekend Drinking for 3 Groups (Control, EAA, CPA): Treatment Completed*

**Peak BAC**

Peak BAC was computed using participants reported single greatest amount of alcohol consumed (peak consumption) and hours spent drinking during the past month on the Quantity/Frequency Index (Dimeff et al., 1999). Using the computerized algorithm for BAC found on page 56, estimations of peak blood alcohol levels based upon the quantity and rate of consumption, body weight, and gender were calculated.

*Intent to treat.* A 2 x 3 (time; baseline, follow-up x group; Control, CPA, EAA) mixed ANOVA was conducted on peak BAC. As seen in Table 4.10, no significant effects were observed in the analyses, $F(2, 198) = .922, p > .25, \eta^2 = .009$ (See Figure 4.11).
Treatment completed. A 2 x 3 (time; baseline, follow-up x group; Control, CPA, EAA) mixed ANOVA was conducted on peak BAC. The strongest effect was the main effect of time, $F(2, 120) = 1.44, p < .25$, eta$^2 = .023$ at the previously identified clinically significant value. As seen in Table 4.10, follow-up comparisons using the Tukey HSD post-hoc test revealed significant differences ($p < .05$) between the mean of the pretreatment assessment in the CPA group (mean = .197, SD = .129) and the mean of the post-treatment assessment (mean = .139, SD = .079). Although there was a trend in the anticipated direction observed for the participants in the EAA group post-treatment, the difference was not found to be statistically significant at the $p < .25$ level. Additional follow-up comparisons using the Tukey HSD post-hoc test revealed no significant differences ($p > .25$) between groups. Examination of means revealed all groups (control, CPA, EAA) had overall reductions in peak BAC across time (See Figure 4.12).

Table 4.10.
**Peak BAC**

<table>
<thead>
<tr>
<th></th>
<th>Baseline Mean (Standard Deviation)</th>
<th>Follow-Up Mean (Standard Deviation)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Intent to Treat</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control</td>
<td>.17 (.112)$^a$</td>
<td>.15 (.115)$^a$</td>
</tr>
<tr>
<td>CPA</td>
<td>.18 (.110)$^a$</td>
<td>.15 (.086)$^a$</td>
</tr>
<tr>
<td>EAA</td>
<td>.16 (.079)$^a$</td>
<td>.15 (.122)$^a$</td>
</tr>
<tr>
<td><strong>Treatment Completed</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control</td>
<td>.17 (.112)$^a$</td>
<td>.15 (.115)$^a$</td>
</tr>
<tr>
<td>CPA</td>
<td>.197 (.129)$^a$</td>
<td>.139 (.079)$^b^*$</td>
</tr>
<tr>
<td>EAA</td>
<td>.154 (.065)$^b$</td>
<td>.134 (.083)$^b^*$</td>
</tr>
</tbody>
</table>

* $p < .05$
Heavy Drinking Episodes

Intent to treat. A 2 x 3 (time; baseline, follow-up x group; Control, CPA, EAA) mixed ANOVA was conducted on peak BAC. As seen in Table 4.11, no significant effects were observed in the analyses, $F(2, 198) = 1.04, p > .25, \eta^2 = .010$ (See Figure 4.13).

Treatment completed. A 2 x 3 (time; baseline, follow-up x group; Control, CPA, EAA) mixed ANOVA was conducted on peak BAC. The strongest effect was the main effect of time, $F(2, 120) = 3.988, p < .10, \eta^2 = .038$. As seen in Table 4.11, follow-up comparisons using the Tukey HSD post-hoc test revealed significant differences ($p < .05$).
between the mean of the pretreatment assessment in the CPA group (mean = 3.68, SD = 2.12) and the mean of the post-treatment assessment (mean = 1.94, SD = 1.77). Similar results were found between pre- and post-treatment assessment for both the EAA group ($p < .05$) as well as the control group ($p < .10$). Additional follow-up comparisons using the Tukey HSD post-hoc test revealed significant differences ($p < .05$) between the control (mean = 2.30, SD = 2.02) and EAA groups (mean = 1.19, SD = 1.72). Although there was a trend in the anticipated direction observed between the participants in the control and CPA groups, the difference was not found to be statistically significant at the $p < .25$ level. In sum, examination of means revealed: a) the control group reduced the number of heavy drinking episodes in the past two weeks by one episode; b) the CPA group reduced heavy drinking episodes by almost two; and c) the EAA group reduced number of heavy drinking episodes by over two in the past two weeks (See Figure 4.14).

Table 4.11

Heavy Drinking Episodes

<table>
<thead>
<tr>
<th>Intent to Treat</th>
<th>Baseline Mean (Standard Deviation)</th>
<th>Follow-Up Mean (Standard Deviation)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control</td>
<td>3.31 (2.28)$^a$</td>
<td>2.3 (2.02)$^b$</td>
</tr>
<tr>
<td>CPA</td>
<td>3.55 (2.07)$^a$</td>
<td>2.25 (1.87)$^b$</td>
</tr>
<tr>
<td>EAA</td>
<td>3.61 (2.4)$^a$</td>
<td>2.07 (2.21)$^b$</td>
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<td>Treatment Completed</td>
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<tr>
<td>Control</td>
<td>3.31 (2.28)$^a$</td>
<td>2.3 (2.02)$^b$</td>
</tr>
<tr>
<td>CPA</td>
<td>3.68 (2.12)$^a$</td>
<td>1.94 (1.77)$^b$</td>
</tr>
<tr>
<td>EAA</td>
<td>3.24 (2.3)$^a$</td>
<td>1.19 (1.72)$^b$</td>
</tr>
</tbody>
</table>

* $p < .05$
Negative Alcohol Related Consequences (Total RAPI)

*Intent to treat.* A 2 x 3 (time x group; Control, CPA, EAA) mixed ANOVA was conducted on total negative alcohol related consequences (i.e., total RAPI score). As seen in Table 4.12, no significant effects were observed in the analyses, $F(2, 198) = .273, p > .25, \eta^2 = .003$ (See Figure 4.15).

*Treatment completed.* A 2 x 3 (time; baseline, follow-up x group; Control, CPA, EAA) mixed ANOVA was conducted on total negative alcohol related consequences (total RAPI score). As seen in Table 4.12, the strongest effect was the main effect of time, $F(2, 120) = 2.34, p < .10, \eta^2 = .038$. Follow-up comparisons using the Tukey HSD post-hoc test revealed significant differences ($p < .05$) between the mean of the pretreatment assessment in the EAA group (mean = 28.38, SD = 3.32) and the mean of
the post-treatment assessment (mean = 30.82, SD = 6.90). This, however, was not in the anticipated direction as results showed an increase in reported total RAPI scores for the EAA group. Additional follow-up comparisons using the Tukey HSD post-hoc test revealed significant differences ($p < .10$) between the CPA (mean = 28.52, SD = 4.73) and EAA groups (mean = 30.82, SD = 6.90). Although there was a trend in the anticipated direction observed between the participants in the control and CPA groups, the difference was not found to be statistically significant at the $p < .25$ level. In sum, examination of means revealed the control group and EAA group increased total number of reported negative alcohol related consequences, while the CPA group reduced total number of negative alcohol related consequences by one (See Figure 4.16).

Table 4.12

*Negative Alcohol Related Consequences (Total RAPI)*

<table>
<thead>
<tr>
<th></th>
<th>Baseline Mean (Standard Deviation)</th>
<th>Follow-Up Mean (Standard Deviation)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Intent to Treat</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control</td>
<td>27.85 (4.4)a</td>
<td>28.86 (6.24)a</td>
</tr>
<tr>
<td>CPA</td>
<td>28.93 (5.08)a</td>
<td>29.45 (7.01)a</td>
</tr>
<tr>
<td>EAA</td>
<td>30.38 (5.39)a</td>
<td>30.68 (6.44)a</td>
</tr>
<tr>
<td><strong>Treatment Completed</strong></td>
<td></td>
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</tr>
<tr>
<td>Control</td>
<td>27.85 (4.4)a</td>
<td>28.86 (6.24)a</td>
</tr>
<tr>
<td>CPA</td>
<td>29.39 (4.49)a</td>
<td>28.52 (4.73)a</td>
</tr>
<tr>
<td>EAA</td>
<td>28.38 (3.32)a</td>
<td>30.82 (6.9)b*</td>
</tr>
<tr>
<td>* $p &lt; .05$</td>
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</tr>
</tbody>
</table>

*Figure 4.15*

*Negative Alcohol Related Consequences (Control, EAA, CPA): Intent to Treat*
Secondary Analyses

To examine the potential influence of gender on drinking outcomes, a series of mixed measure ANCOVAs were conducted using gender as a covariate. Analyses revealed a gender x drinking outcome (e.g., total DDQ, weekend drinking) interaction; however, this did not explain additional variance above the impact of group on the given drinking outcome. Although gender was found to be significant, the results did not alter the impact of intervention effects. Further, examination of the relationship between drinking measures and indices of social desirability/impression management (Paulhus, 1984) identified non-significant correlations.
Table 4.1  
*Summary of Results on Intervention and Drinking Outcome Variables*

<table>
<thead>
<tr>
<th>Drinking Outcome Variable</th>
<th>P &lt; .05</th>
<th>P &lt; .10</th>
<th>P &lt; .25</th>
</tr>
</thead>
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<tr>
<td><strong>Protective Behavior Engagement</strong></td>
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<tr>
<td>Intent to Treat</td>
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<td>n/s</td>
<td>n/s</td>
</tr>
<tr>
<td>Treatment Completed</td>
<td>n/s</td>
<td>n/s</td>
<td>n/s</td>
</tr>
<tr>
<td><strong>Drinking Norms Beliefs</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Intent to Treat</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Treatment Completed</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td><strong>Total Drinks per Week</strong></td>
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</tr>
<tr>
<td>Intent to Treat</td>
<td>n/s</td>
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<td>X</td>
</tr>
<tr>
<td>Treatment Completed</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td><strong>Weekend Drinking</strong></td>
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</tr>
<tr>
<td>Intent to Treat</td>
<td>n/s</td>
<td>n/s</td>
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<tr>
<td>Treatment Completed</td>
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<td>X</td>
<td>X</td>
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<tr>
<td><strong>Peak BAC</strong></td>
<td></td>
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</tr>
<tr>
<td>Intent to Treat</td>
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<td>n/s</td>
<td>n/s</td>
</tr>
<tr>
<td>Treatment Completed</td>
<td>n/s</td>
<td>n/s</td>
<td>X</td>
</tr>
<tr>
<td><strong>Heavy Drinking Episodes</strong></td>
<td></td>
<td></td>
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<tr>
<td>Intent to Treat</td>
<td>n/s</td>
<td>n/s</td>
<td>n/s</td>
</tr>
<tr>
<td>Treatment Completed</td>
<td>n/s</td>
<td>X</td>
<td>X</td>
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<tr>
<td><strong>Negative Alcohol Related Consequences</strong></td>
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<td></td>
</tr>
<tr>
<td>Intent to Treat</td>
<td>n/s</td>
<td>n/s</td>
<td>n/s</td>
</tr>
<tr>
<td>Treatment Completed</td>
<td>n/s</td>
<td>X</td>
<td>X</td>
</tr>
</tbody>
</table>

*Note.* n/s = Non-significant findings; x = significant findings.
CHAPTER V: DISCUSSION

Through the implementation of a BASICS intervention conducted with high risk first-year college students, the usefulness of peer counselor supervision was examined in an effort to understand the importance of this training aspect in delivering an intervention with protocol adherence. Examination of behavior counts on MI skill demonstration identified supervision enhancing a peer counselors’ ability to conduct the intervention with fidelity. The use of supervision with the EAA peer counseling group created equally skilled peer counselors across both groups (EAA, CPA) allowing for the delivery of identical interventions. It would seem then that supervision has the capacity to improve the ability of less skilled peer counselors to reach the level necessary to conduct a BASICS intervention with fidelity. This in turn led to no differences between the treatment groups when examining study participant drinking outcomes, however both treatment groups were able to reduce total drinks per week, weekend drinking, peak BAC, and heavy drinking episodes when compared to the no treatment control group. This chapter further describes the results identified in Chapter IV. A discussion of the identified results, implications for professionals, limitations, and future research are included. Results and discussion are organized by research questions.

Research Question One

The first research question aimed to identify the impact of supervision on peer counselors’ (EAA) abilities to perform Motivational Interviewing skills when compared to a group of peer counselors not receiving supervision (CPA). This was done through examination of behavior counts on the PEPA. No differences in skill level were expected at baseline (after completing training) between EAA and CPA peer counselors on all MI
skills (e.g., open and closed questions, simple and complex reflections) due to the stringent selection process used for choosing peer counselors. Following supervision meetings, EAA trained peer counselors were expected to increase their use of open questions and simple and complex reflections while decreasing their use of closed questions. CPA peer counselors were expected to remain at a constant MI skill level demonstration. A mixed ANOVA was employed to examine changes in skill acquisition as identified through behavior counts on the PEPA (i.e., open and closed questions, simple and complex reflections).

**Baseline Differences**

Examination of baseline differences post training, but prior to supervision, identified the CPA group (non-supervision) demonstrating an advanced skill level when compared to the EAA group on use of closed ended questions and complex reflections. As an important skill in conducting MI, counselors selectively choose specific questions and reflective statements to direct the conversation towards exploration of the client’s mixed feelings about alcohol and behavior change (Ginter & Choate, 2003; Walters & Baer, 2005). When more closed questions than open questions are asked, negative client outcomes (i.e., more drinking) have been the result (Thrasher et al., 2006). In comparing the EAA and CPA groups at baseline, the EAA group asked over double the number of closed questions compared to the CPA group, while maintaining a 1:1 ratio of open to closed questions. Past studies have found treatment effects when closer to a 2:1 ratio of open to closed questions are used (Moyers et al., 2006). These results highlight the importance of a reduced number of closed questions, while supporting the need for open
questions to create a dialogue that engages the student in self-evaluation while sharing information (Baer & Peterson, 2002).

**Supervision Impact on Closed Question Use and Open:Closed Question Ratio**

Supervision seemed to reduce the number of closed questions asked in the EAA group from the baseline role play to BASICS session 3 (see Table 4.3, p. 66). After two supervised BASICS sessions, EAA peer counselor ratio of open to closed questions improved from 1:1 to 2:1. In comparison, the CPA group remained constant over time in mean number of closed-ended questions asked across three BASICS sessions (i.e., 5.81, 5.44, 5.25) with a slight increase during the fourth session (7.06). The proportion of open to closed questions for the CPA group also remained constant at a 2:1 ratio. These findings highlight the potential impact of supervision to improve MI skills in this area when peer counselors have an initial deficiency in closed-ended question skill demonstration, while also ensuring an open to closed-ended question ratio of 2:1 is maintained across time.

**Supervision Impact on Open Question Use**

Across time, peer counselors in both groups demonstrated good skill levels in asking open ended questions. This is essential, as use of this skill is helpful in establishing an open relationship with the client as well as supporting and enhancing intrinsic motivation to change (Miller & Rollnick, 2002). It seems this skill may be more easily acquired after initial training, yet supervision might impact a sustained use of open questions across time. Despite small differences between the CPA and EAA groups in open question skill demonstration over time, there is some uncertainty as to whether being in supervision acts as a reminder of the importance of engaging in a more open
dialogue manner. Through continued supervision, the EAA group was coached on ways to change closed-ended questions to open, thereby offering continued support to interact in this manner. Miller, Yahne, Moyers, Martinez, and Pirritano (2004) note having an expert coach can be helpful in skill improvement through offering specific advice. The CPA group did not receive this direction, therefore they may have developed habits inconsistent with MI and initial training. In working with undergraduate peer counselors with limited counseling/MI skills training prior to involvement, it would be only natural that initial skill levels would diminish over time without reinforced training or guidance since similar findings with professional level counselors were identified by Miller and colleagues (2004).

*Role of Supervision on Reflections*

*Simple reflections.* As identified through analyses of behavior counts, there were no differences between the groups at baseline for simple reflections. Over time, the EAA group almost doubled the number of simple reflections while CPA peer counselors increased at a slower rate. This may be due to a number of factors. First, as peer counselors attempt to reflect content offered by their clients, they often “spoil” or change the reflective statement (i.e., simple reflection) into a closed question with the intonation of their voice (i.e., raising their voice at the end of the sentence). Through coaching and supervision, the EAA group likely made the necessary adjustments to discontinue this behavior. Second, since simple reflections are also used to help the counselor understand the client’s concerns through clarification, it may be peer counselors increased their use of such statements in an effort to more clearly understand the client, rather than mechanically moving through the manualized intervention. It is possible that as peer
counselors become more comfortable with the intervention material and format, they become more engaged with their client. This could result in more simple reflections in an effort to clarify client statements or to display empathy.

*Complex reflections.* Training in the skill of reflective listening focuses mainly on the importance of complex reflections. Miller and Rollnick (2002) identified these statements as providing an in-depth interpretation of the client’s comments. When compared to simple reflections, which usually involve repeating or rephrasing the client’s statements, using complex reflections is an important skill to help change the client’s drinking behaviors as well as maintain the collaborative interaction between peer counselor and client (Miller & Rollnick, 2002). These more skillful reflections are often used to roll with clients’ resistance and develop discrepancy between the target and current behaviors (Ginter & Choate, 2003). Again, baseline BASICS sessions identified the CPA group using more complex reflections after training compared to the EAA group (means = 5.59 vs. 3.39). After engaging in supervision, the EAA group increased the use of complex reflections to create a ratio slightly greater than 1:1 (complex: simple). This is important as Tollison et al. (2008) found more simple reflections were related to increased rates of drinking post-intervention. These effects, however, were attenuated by the use of more complex reflections, lending support for the importance of complex reflections to decrease drinking rates after a BASICS intervention. It is unclear which aspect of supervision enhanced peer counselors use of complex reflections, yet similar to thoughts identified as reasons for increases in simple reflections, supervision may help peer counselors more clearly conceptualize clients’ concerns and methods in which to develop discrepancy and roll with resistance. This would naturally be reflected in the use
of more skillful reflections (i.e., complex) as peer counselors’ counseling self-efficacy may increase, making hypothesis testing and challenging more comfortable and natural during BASICS sessions.

**Overall Role of Supervision**

The EAA group was able to attain a similar level of MI skill demonstration as members of the CPA group following individual supervision. After completing identical trainings, the CPA group attained a superior baseline skill level when compared to the EAA group. The role supervision seems to have played is in helping less skilled peer counselors attain the necessary skills to conduct a BASICS intervention with fidelity. Although university peer counseling programs screen potential peer counselors to identify individuals who are likely to be successful in completing training and delivering efficacious interventions, it is unclear which individual characteristics result in a peer counselor being able to do so. As identified through this study, peer counselors who are naturally skilled may need less supervision post training to implement successful interventions; however, identifying these individuals through interviews is difficult. All peer counselors for this project were interviewed and met identical baseline characteristics prior to selection. Despite the fact that peer counselors were randomly assigned to supervision condition, individuals more skilled at MI skills were selected for the CPA group thereby creating differences in the two groups at baseline. The role supervision seems to have played was in creating equally skilled peer counselors once all training and role plays were complete. It is unclear what the results would have been if the more skilled peer counselors would have been assigned supervision instead. One hypothesis is that there would have been significant differences between results of the
peer counseling groups where the more skilled group, after receiving supervision, would have impacted stronger reductions in drinking behaviors with the possibility of no drinking reductions for the other group. An alternative hypothesis is that a ceiling effect may take hold, meaning peer counselors can only attain a certain skill level that eventually plateaus regardless of additional training/ supervision.

Implications for Professionals

The identification that individuals more skilled in MI skill acquisition is important and likely has implications for future BASICS intervention implementation with peer counselors. When using a 2-day training model, supervision potentially attenuates skill deterioration over time with peer counselors able to obtain MI skills immediately following training. For individuals slightly deficient in initial skill demonstration post-training, supervision likely offers the needed support and coaching to help peer counselors reach an appropriate skill level to conduct an intervention with fidelity. In both instances, the impact is the potential for change in drinking outcomes over time, supporting an efficacious intervention. Further, no previous research has identified the optimal number of supervision sessions to help peer counselors attain the necessary skills to conduct interventions. Based on the findings of this study it may be that using a minimum of two supervision sessions prior to study initiation is sufficient to help peer counselors solidify their skills and conduct BASICS interventions with fidelity.

Future Research

A range of future research has been identified through this research study related to MI skill acquisition. First, examining both individual characteristics impacting skill acquisition and the role supervision plays with more skilled peer counselors seems
warranted to identify ways in which to continue support for university peer counseling programs as well as making selection, training, and on-going support more cost effective. Second, examining changes in peer counselor self-efficacy to conduct interventions over time may be valuable in identifying causes for improved delivery and skill demonstration, as well as identifying this as an area to target in supervision. Finally, more research is needed to identify not only intrinsic peer counselor characteristics resulting in successful MI skill acquisition, but specifically the role supervision may have on individual skill acquisition for individuals deficient in the intrinsic characteristics held by successfully trained peer counselors.

Examination of BASICS Intervention Effects

Research Question Two

The second research question asked how involvement in the BASICS intervention impacts participants’ use of protective behaviors regarding alcohol use. It was expected that participants in both treatment groups (EAA, CPA) would have a greater increase in using alcohol protective behaviors than control group participants. Moreover, individuals completing the BASICS intervention with an EAA trained peer counselor should have had greater increase in protective behaviors use than participants completing the intervention with a CPA trained peer counselor. A mixed measures ANOVA was used to test the impact of the intervention on protective alcohol use behaviors as measured by the NCHA-ACHA.

Results indicated no changes in use of protective behaviors regardless of condition (Control, CPA, EAA). It would seem then that the intervention had no impact on increasing participants’ use of protective behaviors. Although this may be true, it is
important to note that individual analyses of specific protective strategies were not conducted. It may be that the participants in the treatment groups shifted their use of protective strategies to more closely align with methods required to reduce certain negative drinking outcomes (e.g., blackout drinking). The way in which the current data were analyzed may not be sensitive enough to identify these changes. Since the role of specific protective strategies are still unknown, the impact of no changes in protective strategies does not necessarily mean changes in drinking behaviors and negative outcomes are impossible. The goal in changing participants’ use of protective behaviors is related to past research findings identifying increases in protective behaviors associated with changes in negative drinking outcomes (e.g., Martens, Taylor, Damann, Page, Mowry, & Cimini, 2004). So although the summed scores on the NCHA-ACHA survey did not change during the short-term follow up (3 months) of this study, specific changes to protective strategies not identified in the summed NCHA score and longer term effects not evaluated in this study may have occurred.

Future Research

Given the findings, it would seem important then to examine the role of specific protective behaviors as they relate to negative drinking outcomes and changes in drinking behaviors. Future research examining how particular protective alcohol use behaviors are perceived by college students may enhance BASICS through targeting these behaviors during the intervention. This knowledge may also help BASICS trainers and supervisors to focus interactions with peer counselors in an attempt to highlight more salient client concerns and possibly identify areas in which to focus discussion and enhance motivation to change. This could be done through etiological work examining the use of protective
behaviors as well as through process examinations of BASICS interventions to determine
the nature of these conversations during the session.

Research Question Three

The third research question asked how the BASICS intervention impacts
participants’ beliefs about alcohol drinking norms. It was expected individuals
completing the BASICS intervention with an EAA trained peer counselor would more
correctly report typical college student drinking norms than participants completing the
intervention with a CPA trained peer counselor. Further, it was also expected participants
in both treatment groups (EAA, CPA) would more correctly report typical college student
drinking norms than control group participants. A mixed measures ANOVA was used to
test the impact of the intervention on beliefs about drinking norms through analysis of
perceived typical college student drinking DDQ items (total drinks per week) to identify
changes between control and treatment group participants.

As expected, both treatment groups reported typical college drinking norms more
accurately than individuals in the control group. These results revealed the educational
impact of the intervention to correct misperceptions of college student alcohol use.
College students often overestimate the drinking behaviors of their peers (Perkins &
Weschler, 1996; Thombs, Wolcott, & Farkash, 1997; Wood, Nagoshi, & Dennis, 1992)
and past research has identified that correcting peer drinking normative misperceptions
reduces participants’ drinking behaviors (for review see Larimer & Cronce, 2002, 2007).
Current study findings lend continued support for peer-led BASICS interventions to
establish accurate drinking norm beliefs, regardless of peer training condition.
Future Research

In order to more clearly understand the underlying mechanisms of change related to normative beliefs, future studies should examine the meditational effect of changing normative perceptions to identify their role in changing college student drinking behavior. Although both treatment groups aided in correcting normative misperceptions, little is known about the process of this change. The role supervision has on helping peer counselors to more clearly articulate true college drinking norms is unknown as both groups seemed to attain similar outcomes on changing misperceptions. Future process examination of BASICS sessions may help to gain insight to the way in which this change takes place for study participants. In addition, there may be some benefit in examining the process of supervision and the way in which information is conveyed, received, and then implemented in BASICS sessions. This could likely help future BASICS trainers and supervisors train peer counselors more efficiently, making training more cost effective.

Research Question Four

The final research question asked how a variety of drinking outcomes (i.e., total drinks per week, weekend drinking, peak BAC, heavy drinking episodes, and negative alcohol related consequences) differ at follow-up for participants completing a BASICS intervention performed by an EAA or CPA trained peer counselor when compared to control group participants. Multiple mixed measures ANOVAs were used to test the impact of the intervention on a given outcome variable (e.g., DDQ items: total drinks per week, weekend drinking; peak BAC; heavy drinking episodes, and total negative alcohol related consequences). In addition, examination of differences between treatment groups
(CPA, EAA) were compared to identify outcome effects based upon intervention supervision approach, as well as differences between treatment and control groups. It was expected that participants completing the BASICS intervention with an EAA trained peer counselor would report the greatest reductions in drinking outcomes, followed by smaller reductions for participants completing a BASICS intervention with a CPA trained peer counselor. No changes were expected to occur for control group participants.

**Drinking Outcome Results Summary**

After completing the BASICS intervention (i.e., treatment completed) findings revealed similar impacts on drinking outcomes were observed regardless of treatment group. Specifically, reductions in total drinks per week, weekend drinking, and heavy drinking episodes were significant when compared to the no treatment control group. These findings are important in that both treatment groups reduced drinking. This lends continued support for the BASICS intervention using peer counselors. Although only short-term effects were measured, past research has found sustained intervention effects 12 months post intervention after similar reductions in short-term drinking changes (Carey et al., 2006).

**Reductions in Heavy Drinking**

The significant finding related to reduction in number of heavy drinking episodes between EAA, CPA, and control group participants is valuable. The ultimate goal of programming is to reduce negative alcohol related consequences and the amount of drinks consumed in one sitting. Reducing the number of heavy drinking episodes is vital to reducing alcohol related harm. Wechsler and colleagues (2002) reported as many as 44% of college students report heavy drinking (binge drinking) often resulting in a range
of associated problems. In order to reduce some of these heavy drinking alcohol related problems, BASICS aims to educate and create discrepancy for participants about the impact of engaging in this behavior. Follow-up communication about how to develop protective strategies to reduce the possibility of future heavy drinking episodes and associated negative consequences are discussed during the BASICS session. Study findings revealed an intervention effect for both treatment groups in reducing the number of heavy drinking episodes within three months of completing the intervention despite no changes in use of protective factors as previously identified. EAA trained peer counselors reduced number of heavy drinking episodes to just over one in a two week period of time. Although the control group and CPA group also reduced the number of heavy drinking episodes, the rate at which the EAA group was able to reduce this number is a significant study finding. The reasons for the greater reduction in heavy drinking episodes by participants in the EAA group are unclear, however one hypothesis is that through supervision, the importance of targeting this behavior may have been solidified. Since CPA peer counselors only completed a 2-day training, this may not have had the same impact on establishing the importance of reducing this behavior. By reducing the number of heavy drinking episodes, the potential for reducing harm associated with heavy drinking is also greatly reduced. Over the long term, this may greatly reduce future problems while also creating the opportunity for college students to be successful in their first semester of college and beyond.

Impact on Alcohol Related Negative Consequences

The intervention did not impact reductions in reported alcohol related problems when examining summed scores on the Rutgers Alcohol Problem Index (RAPI; White &
Although one might expect to also find reductions in alcohol related problems after significant reductions in drinking behaviors, this is not always the case after a three month follow-up. Larimer and colleagues (2001) also reduced heavy drinking behaviors with a high-risk college student population, but did not identify significant reductions in alcohol related problems. Similar to the Larimer et al. (2001) study, lack of reductions in alcohol related problems may be due in part to continued heavy drinking behaviors by study participants, despite the marked reduction in alcohol consumption rates. As noted by Weschler et al (1998, 1999), continued heavy episodic drinking is associated with continued risk for negative consequences. There is also the possibility that the lack of measured reductions in consequences is based upon participants’ interpretation of what constitutes a negative consequence. Recent studies have found college students do not identify consequences such as hangovers, blackouts, and unintentional sex as negative and instead express neutral feelings about these consequences (Mallett, Bachrach, & Turrisi, in press). The BASICS intervention is designed to develop discrepancy about drinking behaviors after identifying negative experiences encountered when drinking. If a student does not believe an experience is negative, but instead feels neutral about the consequence, developing discrepancy about ways to reduce the drinking leading to such experiences is difficult. Therefore, the intervention may not have an impact on the drinking behaviors leading directly to reductions in specific negative consequences measured by the RAPI (White & Labouvie, 1989). Further, the RAPI may lack the sensitivity needed to detect shifts in negative consequences due to the nature of questions (e.g., Not able to do your homework or study
for a test, Caused shame or embarrassment to someone) as students instead might blame consequences on other, unknown reasons.

*Changes in Peak BAC*

Although study findings did not identify changes in peak BAC at a statistically significant level, reductions in peak BAC for both treatment groups were found. Both treatment groups reduced peak BAC from above .15 to within the range of .13. This holds clinical significance when taking into account the danger of reaching a BAC of around .15 as research has shown when individuals reach this level they are at risk for blackouts. The BASICS intervention specifically targets reducing peak BAC to avoid the risk of blackouts. Peer counselors are trained to help clients understand the mechanisms and implications of blackout drinking and strategies that can be used to avoid reaching such levels. Therefore the reductions of peak BAC to the .13 range may be a direct result of the BASICS intervention. Since both groups were able to reduce peak BAC at similar levels it may seem that the use of supervision is unnecessary to reduce this drinking outcome. Although this is one hypothesis, another explanation is that the outcome may also be due to the impact the information had on the peer counselors themselves during the training, therefore helping both groups identify the importance of this BASICS component.

*Future Research*

Study findings lend continued support for the BASICS intervention with peer counselors yet additional research is needed to more clearly understand the mechanisms at work in reducing high risk college student drinking. Specifically, more research is needed to understand the impact of the intervention on specific negative consequence
reductions. Through process evaluations of BASICS sessions, changes in drinking behaviors and associated negative consequences may be uncovered leading to an understanding of how reductions in peak BAC and specific negative consequence avoidance may be learned. Further investigation of beliefs about negative consequences may also be helpful in enhancing the current BASICS intervention to more closely align with current college student beliefs about such events. Finally, mediation analyses on the various components of the BASICS feedback sheet may be useful in gaining understanding the necessary components of the intervention. This may help reduce the time of the session while offering the opportunity to focus on salient components of the intervention.

Finally, the role supervision plays in the training of peer counselors working with a mandated student population also warrants further examination. One benefit of using this intervention with mandated clients is the ability to ensure participation in the intervention due to university sanctioning rules. However, in working with mandated clients it is unclear the personality characteristics this population may hold that may impact the utility of the intervention. Past research has examined brief motivational interventions with mandated students however the majority of these studies have incorporated the use of professional counselors as interventionists (e.g., Barnett et al., 2004, 2007; Borsari & Carey, 2005). It may be that mandated students are more defensive and resistant to change and the intervention making skillful use of MI and close adherence to BASICS vital to potential successful results. In this instance, the role supervision may play in helping peers more confidently manage resistant clients, ensure
counselor self-efficacy, and contain personal anxiety is unknown and a worthy area of examination.

Limitations

Although study findings showed continued support for use of BASICS with peer counselors, it is important to note several study limitations. First, due to the intensive screening protocol implemented in this study for peer counselor selection, the baseline peer counselor characteristic variability may have been limited. Traditional peer counselor programs rarely implement such stringent recruitment and screening policies as were carried out in this study (Mastroleo et al., 2006). This limited variability in peer counselor characteristics was intentionally followed in an attempt to keep all things equal at baseline to allow for changes in MI skills to reflect the role of supervision. Had recruitment and selection of peer counselors more closely mirrored the common practice approach used by U.S. universities and identified by Mastroleo et al. (2006), the role of supervision on MI skill acquisition would have been unclear. One hypothesis is if a random group of 20 peer counselors would have been selected from the initial 50 who were screened, wider variability in baseline skills may have been present and the impact of supervision may have had varying results. This finding may identify the role initial peer counselor screening and selection holds as a vital component of a successful peer-led BASICS intervention.

An additional limitation related to the peer counselors was the age distribution across the EAA and CPA groups. Although no statistically significant difference was found between the mean ages of each group, the peer counselors in the CPA group had a mean age of 21 years (SD = 1.5) while the EAA groups mean age was 20.4 (SD = .84). In
examining the standard deviations it is clear the CPA group members had a wider age range which may also be related to more life experience and an ability to synthesize training material at a deeper level than individuals in the EAA group. This may have led to more skilled peer counselors in the CPA group, thereby creating dissimilar groups at baseline.

Also important to note is the timing of the intervention for this study. Taking into context the environment in which the intervention and research study was conducted, first semester freshman students were recruited and included during the fall semester. The campus in which the research took place boasts a strong drinking culture where the number of alcohol violations during the fall semester almost doubles that found in the spring (J. Beckwith, personal communication). This is likely due in part to freshman students transitioning to college and the high risk time frame for drinking behavior (Bergin-Cico, 2000) and the heavy drinking campus culture due to its rural location, Greek social organization membership populations, and Division I-A football status (Perkins, 2002). Intervention effects found during this time therefore are important as they identify the effectiveness of the BASICS intervention with a high-risk campus environment and student population during a crucial period in students’ transition to college.

An additional limitation was the ability to get participants to attend the BASICS session. Despite numerous email and phone contacts with participants, it was difficult to schedule appointments and often, despite a scheduled appointment, many either cancelled or simply did not show up for their BASICS session. Without the ability to conduct the BASICS intervention with potential participants, the findings have limited utility for a
larger scale intervention. This study confirmed the difficulty in scheduling and conducting the intervention with voluntary participants.

Conclusion

The use of the BASICS intervention to reduce drinking behaviors in a heavy drinking college freshman population was supported while confirming the importance of supervision in enhancing peer counselor skill levels to conduct an efficacious intervention. Similar treatment effects for clients in both treatment groups were found including reductions of total drinks per week, weekend drinking, heavy drinking episodes, and peak BAC. Past efficacy studies incorporating strict training guidelines (including peer counselor supervision) have found reductions in drinking outcomes (e.g., Carey et al., 2006; Larimer et al., 2001), therefore the impact of omitting supervision in training, as is commonly done in university peer counseling programs (Mastroleo et al., in press), on drinking outcomes was unclear.

Since both treatment groups found similar results post-intervention, it would seem the use of supervision as a training tool is unimportant and the current state of college student peer counseling programs identified by Mastroleo et al. (2008) is appropriate for reducing drinking behaviors with heavy drinking college students. However, the results of the MI skills demonstration offer an alternative finding regarding the role supervision played in creating similar results between both the EAA and CPA treatment groups. Supervision seemed to enhance the MI skill level of EAA peer counselors to successfully conduct a BASICS session with fidelity. Although naturally skilled peer counselors (CPA) were able to conduct BASICS interventions without supervision, examination of their skill level identified a potential loss of skill overtime. This may have been averted
had they received supervision. In general, this study identified the continued importance of supervision as a necessary training tool to enhance MI skill level and ensure proper delivery of BASICS interventions with peer counselors.

Future research designed to examine peer counselor traits and individual characteristics as moderators of skill acquisition seems warranted to support limited university resources when selecting, training, and supervising peer counselors. Process examinations of BASICS sessions may also be important to identify intervention components directly related to drinking behavior change and reductions in associated negative consequences. These examinations may enhance BASICS interventions to more clearly target areas impacting behavior change while also aiding peer counselor trainers in identifying specific focus areas for training and supervision with an aim of reducing college student drinking outcomes in the end.
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mID=89


APPENDIX A

IMPLIED INFORMED CONSENT FORM  PROJECT COMET
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* We cannot guarantee the confidentiality of any information sent by e-mail.

PURPOSE AND BENEFITS

The purpose of this research project is to test an educational program for incoming college students, designed to reduce the risks associated with alcohol use and help students make informed choices about drinking alcohol. We are interested in knowing how an educational program containing personalized feedback about health behaviors impacts teens' decisions to engage in different types of health related behaviors.

There may be no direct benefit to you from participating in this research. However, if you participate in the educational program, you may benefit by learning to avoid current or future risks associated with drinking alcohol. In addition, your participation helps other students by helping us improve the education and prevention programs offered on this campus and nationally.

You may refuse or withdraw from participation at any time. Decision to do so will not result in any penalty or loss of benefits.

PROCEDURES

Participation in this research is completely voluntary and confidential. If you choose to participate, here is what will happen:

1) The first step is to complete this 10-minute web survey to see if the study is right for you. This survey includes questions about your personal information (age, gender, etc.) and your health behaviors. You are free not to answer any questions you do not want to answer.

2) If the study is right for you, you will be asked to complete 2 additional surveys, the first one within the next 2 weeks. This survey will take about 45 minutes to complete.
3) Some students will be invited to participate in a single-session meeting with a PSU student to discuss health behaviors and complete a brief questionnaire at the end. You will be able to schedule the education session via email or by phone, and we will call and email* you before your appointment. This session will be audio recorded and will only be identified by your personalized PIN number and will not be linked to your name. This audio recorded session will be kept in a locked file cabinet and on a password protected computer only accessible to the research team. The audio recordings will be destroyed in 2012.

4) All participants will be asked to complete a questionnaire again during the fall semester in college. Over the course of the study, you will receive reminders, along with a URL and access PIN, to tell you when it is time to complete another survey. The questionnaires ask about your alcohol use, related beliefs, and other health behaviors.

**COMPENSATION**

You will be paid for your participation in this research. Payment will be based on your participation in the assessments— you will be paid $10 for completing the brief questionnaire, $20 when you complete the baseline survey, and $20 when you complete the fall semester survey.

**RISKS, STRESS, OR DISCOMFORT**

Some of the questionnaire items are sensitive, as described above, and you may feel uncomfortable or embarrassed about answering them. You might also become concerned about your alcohol use as you respond to some questions, and this could be uncomfortable. In addition, some of the questions ask about potentially illegal behavior, such as drinking under the legal drinking age. This information could potentially be a risk to you if it became known and could be linked to your identity.

It's possible that, over the course of this study, you could develop problems related to your alcohol use or become aware of problems you now have. If you indicate that your drinking is causing serious problems for you over time, one of the investigators will contact you to offer you referrals for additional services if you want them. If you experience discomfort or distress from completing these questionnaires, or have questions about your drinking behavior, you can contact the Principal Investigator, Nadine Mastroleo, who will be happy to talk with you about your concerns. We will provide a resource list for alcohol education and treatment programs to all participants, regardless of drinking behavior.

**OTHER INFORMATION**

This research is completely confidential. Your confidentiality will be maintained to the degree permitted by the technology use. Specifically, no guarantees can be made regarding the interception of data sent via the Internet by any third parties. That means that with the exception noted, no one outside the research team will know your identity, and we will not release your identity in any publications or reports about this research. The Office of Human Research Protections in the U.S. Department of Health and Human Services, the Office for Research Protections at Penn State and the Social Science Institutional Review Board (IRB) may review records related to this project, however your privacy will not be violated. In addition, your privacy is also protected by a federal Certificate of Confidentiality, which protects the researchers from being forced to release any research data in which you are identified, even under a court order or subpoena.
Respondent’s statement

This study has been explained to me. I volunteer to take part in this research. I am at least 18 years of age. If I have questions later about the research, I can ask one of the researchers listed above. If I have questions about my rights as a research participant, I can call the Office for Research Protections at (814-865-1775). I can call collect.

By clicking the “I agree” button and completing this survey, I acknowledge that I have read the information in this form and consent to take part in the research. Please print a copy of this informed consent form for your records.

☐ I agree to participate in this study

☐ I do not agree to participate in this study

☐ MY PERSONAL RECORDS…
  ...I have printed a copy of this page.

☐ ...I would like you to mail me a copy of this page.
APPENDIX B: PEER TRAINING MATERIALS

Peer Counselor Application

Name ____________________________ Email Address __________________________

Phone # _____ Did you play sports in high school? _____ What sports? ____________

Year in School _____________________ Expected Grad. Date _____________________

GPA _______________ Major(s) ____________________ Minor(s) __________________

How many credits are you taking? _____ How many are you taking Fall 07? ______

Have you taken statistics? ___________ Grade __________________

Have you taken Research Methods? _________________ Grade __________________

Have you taken another research methods class such as directed research? ____________

If yes, with whom? ___________________ Grade ______________________

Have you taken any counseling/helping skills classes? ___________ Grade ___________

Have you ever received training in Motivational Interviewing? ____________

If yes, where and with whom? _______________________________________________

What extra curricular activities are you involved in?
________________________________________________________________________

List qualifications and personal strengths you have that would make you a good peer
counselor.
________________________________________________________________________

Describe previous counseling experiences you have had (for example- summer camp
counselor)
________________________________________________________________________

Please state two goals you have as an undergraduate
________________________________________________________________________

If you want, comment on anything else about yourself you might like us to know
________________________________________________________________________

________________________________________________________________________

Plans after you graduate from Penn State
________________________________________________________________________
Questions for individual interview for peer counseling class admittance

1. Tell me about your interest in this class.
2. What are you hoping to get out of taking this class?
3. What are your plans after graduation and how does this fit in?
4. What are your feelings about alcohol and the match between the values of this program and your own?
5. How do you feel about talking with other college students about drinking?
6. What are some of your experiences working with people?
7. Are you able to commit to the trainings?
8. Anything else you want us to know?
9. What are your time commitments in the Fall?

In asking these questions- we grouped 1, 2, & 3 and 4 & 5 as one question to gauge their ability to hear multiple components of a sentence and answer each one in turn. (This is important in MI as the active listening skills are the key to being able to be a good peer counselor.)

We evaluated people on their ability to interact in an interpersonally confident manner while also evaluating their overall people skills and ability to carry on a conversation. We examined the extremes on each end and lent caution to individuals too talkative and those very quiet, seemingly uncomfortable, and extremely introverted.
Peer Counselor Training in Motivational Interviewing and the BASICS Intervention
2-Day Workshop
Training Schedule

Day 1: 8:30 – 3:30 PM

8:30 – 9:30 Introduction (people- intro each other exercise, what we will be doing during training)
9:30 – 10:00 What is Peer Counseling
10:00 – 10:30 Intro to Motivational Interviewing
10:30 – 10:40 Break
10:40 – 11:40 Open vs. Closed ended questions (handout exercise; “One thing I like about myself is” exercise)
11:40- 12:10 Lunch
12:10 – 1:00 Reflections- simple (group exercise: reflection options)
1:00 – 1:30 Change Talk
1:30 – 2:30 Reflections- complex (exercise: “Something I feel two ways about”)
2:30 – 2:40 Break
2:40 – 3:15 Ambivalence (exercise- handout: “Rolling with Resistance”)
3:15 – 3:30 Summary/Questions/Wrap- Up

Day 2: 9:00 – 3:30 PM

9:00 – 9:45 Review of MI concepts (intro activity- 15 minute role play to review skills)
9:45 – 10:30 BASICS Model- Harm Reduction Approach
10:30 – 10:40 Break
10:40 – 11:40 Feedback Sheet Part I- Alcohol content (intro/confidentiality, standard drink size, BAC, biphasic curve, tolerance, blackout, hangover, college drinking trends, peer norms)
11:40 – 12:10 Lunch
12:15 – 1:15 Feedback Sheet Part II- Alcohol content (peer norms, expectancy studies, family history, drug/alcohol interactions, protective factors, academic trouble, calories, sexual situations, negative consequences)
1:15 – 1:45 Feedback forms (Q & A)
1:45 – 2:00 Break
2:00 – 3:00 Putting it all together (view Mary Larimer APA video)
3:00 – 3:30 Questions/Concerns/Next steps (scheduling role plays)
# APPENDIX C

MI SKILLS PEER PROFICIENCY ASSESSMENT (PEPA)

## PEPA CODING SHEET

<table>
<thead>
<tr>
<th>I. Questions</th>
<th>II. Reflections:</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Open</strong></td>
<td>Simple</td>
</tr>
<tr>
<td></td>
<td>Repeat</td>
</tr>
<tr>
<td><strong>Closed</strong></td>
<td>Rephrase</td>
</tr>
</tbody>
</table>

**Total:**

<table>
<thead>
<tr>
<th><strong>Complex</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Paraphrase</td>
</tr>
<tr>
<td>Double-Sided Reflection</td>
</tr>
<tr>
<td>Metaphor</td>
</tr>
<tr>
<td>Reflection of Feeling</td>
</tr>
<tr>
<td>Summary</td>
</tr>
</tbody>
</table>

**Total:**
PEPA CODING DEFINITIONS

I. Questions

Open Ended Questions

Used to encourage conversation through opportunities for clients to explain and expand upon thoughts, feelings, experiences related to a topic. They are used to encourage the person to talk without feeling defensive.
Questions may start with one of the following stems:
  How...
  Tell me more...
  What...
  In what ways...

Closed Ended Questions

Caution in using this form of question as it often limits the client in expressing thoughts and feelings. These do not often encourage conversation. Often ties a client into yes/no answers. Can be used effectively to help move session along, gain clarification on a specific area that a client has mentioned, or gain permission for moving forward with a feedback session.
Questions may start with the following stems: (the main identification is the question can be easily answered with a yes/no or one word phrase answer)
  Where...
  Are you...
  Do you want to...
  Is this...

II. Reflections

Simple Reflections

Repeat
Simply repeating the speakers words
e.g. Client: Drinking makes it so much easier for me to talk to new people
     Counselor: So when you drink you find it easier to talk to new people.

Rephrasing
Repeats speakers words but replaces/substitutes some words with synonyms
Client: Drinking makes it so much easier for me to talk to new people.
Counselor: Drinking makes you more comfortable when you meet and talk to new people.

Complex Reflections

Paraphrasing
Reflects what is said but also infers meaning- hypothesis testing- amplifying change talk
Client: Drinking makes it so much easier for me to talk to new people.
Counselor: You’re more social and less nervous around new people when you drink.
**Double-Sided Reflection**
*Type of paraphrasing but reflects both sides of ambivalence described by speaker*

Series of Client Statements:
- I really like to drink when I am with my friends.
- Drinking makes it so much easier for me to talk to new people.
- I wake up really sluggish and tired after a night of drinking.
- Waking up with a hangover really ruins the rest of my day.

Counselor: On the one hand drinking with your friends seems to make it easier to talk to new people and on the other hand after a night of drinking you wake up tired and hungover which is something you don’t like feeling.

**Metaphor**
*A figure of speech in which a word or phrase literally denoting one kind of object or idea is used in place of another to suggest a likeness or analogy between them*

Client: I really want to go out and be with my friends but all they ever do is drink and I don’t want to be around that.

Counselor: You’re really stuck between a rock and a hard place.

**Reflection of Feeling**
*Emphasizes the emotional component of what is said—takes into account body language and inflection/tone in voice of client while making statements*

Client: When drunk students come home from a night out I am constantly being woken up by their noise! (Client makes statement with arms folded and in a sharp, cutting tone)

Counselor: You’re angry with the students who come home and disturb your sleep.

**Summary**
*Pulls together information from what speaker has said and captures the highlights in a succinct statement*

Series of Client statements:
- I really like to drink when I am with my friends; Drinking makes it so much easier for me to talk to new people.
- I wake up really sluggish and tired after a night of drinking; Waking up with a hangover really ruins the rest of my day.
- I know drinking causes me to be more lazy and not get as much done during my day.
- I have enjoyed the mornings when I wake up that I don’t feel tired or hungover.
- I rarely get a good night sleep on the weekends either because of my own or someone else’s drinking.

Counselor: You’ve talked about some positive things related to drinking such as it being easier to talk to new people and having fun with your friends and you have also noted that on many occasions either your own drinking or someone else’s causes you to not get as much sleep as you might like and sometimes ends up with you feeling hungover and tired.
APPENDIX D
Intervention Variables

College Drinking Norms

*Daily Drinking Questionnaire (DDQ; Collins et al., 1998)*

Consider a *typical week during the last month*.

How much alcohol, on average (measured in number of drinks *), do you think a *typical college student (of your same sex)* at your university drinks on each day of a typical week?

<table>
<thead>
<tr>
<th>Day</th>
<th>Drinks (*)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Monday</td>
<td>_______</td>
</tr>
<tr>
<td>Tuesday</td>
<td>_______</td>
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<tr>
<td>Wednesday</td>
<td>_______</td>
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<td>Thursday</td>
<td>_______</td>
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<tr>
<td>Friday</td>
<td>_______</td>
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<tr>
<td>Saturday</td>
<td>_______</td>
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<tr>
<td>Sunday</td>
<td>_______</td>
</tr>
</tbody>
</table>
Protective Behavior Engagement

National College Health Assessment Survey (NCHA-ACHA, 2000)

This next section asks about your behaviors while drinking. Please indicate how often you do the following based on the corresponding choices.

<table>
<thead>
<tr>
<th>Behavior</th>
<th>I don't drink</th>
<th>Always</th>
<th>Usually</th>
<th>Sometimes</th>
<th>Rarely</th>
<th>Never</th>
</tr>
</thead>
<tbody>
<tr>
<td>Switch between alcoholic and non-alcoholic beverages.</td>
<td></td>
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<tr>
<td>Avoid drinking games.</td>
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<tr>
<td>Eat before and/or during drinking.</td>
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<tr>
<td>Determine, in advance, not to exceed a set number of drinks.</td>
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<tr>
<td>Pace your drinks to 1 or fewer per hour.</td>
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<tr>
<td>Limit the amount of alcohol you buy by taking a certain amount of money with you when you go out.</td>
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</tr>
<tr>
<td>Set limits on how much you drink based on your blood alcohol level.</td>
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</tr>
<tr>
<td>Set limits on the number of days you drink per week</td>
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<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>Keep track of how many drinks you were having</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Think about your blood alcohol level when you drink</td>
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<tr>
<td>Choose not to drink alcohol</td>
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<tr>
<td>Use a designated driver</td>
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<tr>
<td>Have a friend let you know when you’ve had enough</td>
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<tr>
<td>Drink an alcoholic look-alike (non-alcoholic punch, beer), juice, or water</td>
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<td></td>
</tr>
</tbody>
</table>
APPENDIX E
Drinking Outcome Measures

Daily Drinking Questionnaire (DDQ; Collins, Parks, & Marlatt, 1985)

<table>
<thead>
<tr>
<th>Please use the guide below to estimate the number of drinks:</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>ONE DRINK EQUALS:</em></td>
</tr>
<tr>
<td>- 12 oz. Beer (8 oz. of Canadian, Malt Liquor, or Ice Beers, or 10 oz. of Microbrew)</td>
</tr>
<tr>
<td>- 10 oz. Wine cooler</td>
</tr>
<tr>
<td>- 4 oz. Wine</td>
</tr>
<tr>
<td>- 1 Cocktail with 1 oz. of 100 proof liquor or 1 ¼ oz. of 80 proof liquor.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>FOR EXAMPLE:</th>
</tr>
</thead>
<tbody>
<tr>
<td>- If on a typical Thursday you drink 3, 16 oz. regular beers, you would type in 4 drinks.</td>
</tr>
<tr>
<td>- If on a typical Friday you drink 1 mixed drink that contains 3, 1 oz. shots of 100 proof liquor, you would type in 3 drinks.</td>
</tr>
</tbody>
</table>

Consider a typical week during the LAST MONTH.
How much alcohol, on average, (measured in number of drinks*), do you drink on each day of a typical week and over how many HOURS?

(a) On a typical MONDAY, I have… _______ drinks(*)
    Over how many HOURS? _______ hours

(b) On a typical TUESDAY, I have… _______ drinks(*)
    Over how many HOURS? _______ hours

(c) On a typical WEDNESDAY, I have… _______ drinks(*)
    Over how many HOURS? _______ hours

(d) On a typical THURSDAY, I have… _______ drinks(*)
    Over how many HOURS? _______ hours

(e) On a typical FRIDAY, I have… _______ drinks(*)
    Over how many HOURS? _______ hours

(f) On a typical SATURDAY, I have… _______ drinks(*)
    Over how many HOURS? _______ hours

(g) On a typical SUNDAY, I have… _______ drinks(*)
    Over how many HOURS? _______ hours
During the past 30 days (about 1 month), how many times have you gotten drunk, or very high, from alcohol? (Please give your best estimate)

- O Never
- O 1 to 2 days
- O 3 to 4 days
- O 5 to 6 days
- O 7 to 8 days
- O 9 or more days

**Quantity/frequency/peak index (QF; Dimeff et al., 1999)**

Think of the occasion when you drank the most in the past month. How much did you drink? (Enter "0" if you have not drank in the past month)

_______drinks (*)

Think of the occasion you drank the most in the past month. How many HOURS did you spend drinking on this occasion? (Enter "0" if you have not drank in the past month)

_______hours

**Heavy drinking (Wechsler, Davenport, Dowdall, & Moeykens, 1994)**

Think back over the last month. How many times have you had 5 or more drinks in a row within 2 hours?

_______times

If male, please skip this question.

Think back over the last month. How many times have you had 4 or more drinks in a row within 2 hours?

_______times
### Rutgers Alcohol Problem Index (RAPI; White & Labouvie, 1989)

**How many times did any of the following things happen to you while you were drinking or because of your alcohol use in the last 3 months?**

<table>
<thead>
<tr>
<th>Event</th>
<th>Never</th>
<th>1-2x</th>
<th>3-5x</th>
<th>6-10x</th>
<th>More than 10x</th>
</tr>
</thead>
<tbody>
<tr>
<td>Not able to do your homework or study for a test</td>
<td></td>
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<tr>
<td>Got into fights, acted bad, or did mean things</td>
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<tr>
<td>Missed out on other things because you spent too much money on alcohol</td>
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<tr>
<td>Went to work or school high or drunk</td>
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<tr>
<td>Caused shame or embarrassment to someone</td>
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<tr>
<td>Neglected your responsibilities</td>
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<tr>
<td>Relatives avoided you</td>
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<td></td>
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</tr>
</tbody>
</table>

**How many times did any of the following things happen to you while you were drinking or because of your alcohol use in the last 3 months?**

<table>
<thead>
<tr>
<th>Event</th>
<th>Never</th>
<th>1-2x</th>
<th>3-5x</th>
<th>6-10x</th>
<th>More than 10x</th>
</tr>
</thead>
<tbody>
<tr>
<td>Felt that you need more alcohol than you used to in order to get the same effect</td>
<td></td>
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</tr>
<tr>
<td>Tried to control your drinking by trying to drink only at certain times of the day or certain places, that is, tried to change your pattern of drinking</td>
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<tr>
<td>Had withdrawal symptoms, that is, felt sick because you stopped or cut down on your drinking</td>
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<tr>
<td>Noticed a change in your personality</td>
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<tr>
<td>Felt that you had a problem with alcohol</td>
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<tr>
<td>Missed a day (or part of a day) of school or work</td>
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<tr>
<td>Tried to cut down or quit drinking</td>
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<tr>
<td>Suddenly found yourself in a place that you could not remember getting to</td>
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</tbody>
</table>
As in the last sections, please indicate how many times any of the following things happened to you *while you were drinking* or *because of your alcohol use* in the last 3 months?

<table>
<thead>
<tr>
<th></th>
<th>Never</th>
<th>1-2x</th>
<th>3-5x</th>
<th>6-10x</th>
<th>More than 10x</th>
</tr>
</thead>
<tbody>
<tr>
<td>Passed out of fainted suddenly</td>
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<td></td>
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</tr>
<tr>
<td>Had a fight, argument, or bad feelings with a friend</td>
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<td></td>
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<td></td>
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</tr>
<tr>
<td>Had a fight, argument, or bad feelings with a family member</td>
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<tr>
<td>Kept drinking when you promised yourself not to</td>
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<tr>
<td>Felt you were going crazy</td>
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<tr>
<td>Had a bad time</td>
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</tr>
<tr>
<td>Felt physically or psychologically dependent on alcohol</td>
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</tr>
<tr>
<td>Were told by a friend or neighbor to stop or cut down your drinking</td>
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</tr>
</tbody>
</table>
**Comprehensive Effects of Alcohol Scale (CEOA; Fromme, Stroot, & Kaplan, 1993)**

**This questionnaire assesses what you would expect to happen if you were under the influence of alcohol.**

<table>
<thead>
<tr>
<th></th>
<th>Disagree</th>
<th>Slightly disagree</th>
<th>Slightly agree</th>
<th>Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>I would enjoy sex more</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I would feel dizzy</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I would feel clumsy</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>I would be loud, boisterous, or noisy</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>I would be peaceful</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>I would be brave and daring</td>
<td></td>
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<tr>
<td>I would be courageous</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>I would act aggressively</td>
<td></td>
<td></td>
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</tbody>
</table>

**These items also ask you what you would expect to happen if you were under the influence of alcohol.**

<table>
<thead>
<tr>
<th></th>
<th>Disagree</th>
<th>Slightly disagree</th>
<th>Slightly agree</th>
<th>Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>I would feel guilty</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>I would feel calm</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>I would feel moody</td>
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<td></td>
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<tr>
<td>It would be easier to talk to people</td>
<td></td>
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<tr>
<td>I would be a better lover</td>
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<tr>
<td>I would take risks</td>
<td></td>
<td></td>
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<tr>
<td>I would act sociable</td>
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</tbody>
</table>
Now, please mark a response from *bad to good* depending on whether or not you think the particular effect of alcohol is bad, neutral, good, etc. *REGARDLESS* of whether you expect it to happen to you.

The following effects of alcohol are:

<table>
<thead>
<tr>
<th>Effect</th>
<th>Bad</th>
<th>Slightly bad</th>
<th>Neutral</th>
<th>Slightly good</th>
<th>Good</th>
</tr>
</thead>
<tbody>
<tr>
<td>Enjoy sex more</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Feel dizzy</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Be clumsy</td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Be loud, boisterous, or noisy</td>
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<td></td>
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<tr>
<td>Be peaceful</td>
<td></td>
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<tr>
<td>Be brave and daring</td>
<td></td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Be courageous</td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Act aggressively</td>
<td></td>
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</tbody>
</table>

As with the last set of items, please mark a response on whether or not you think the particular effect of alcohol is bad, neutral, good, etc. *REGARDLESS* of whether you expect it to happen to you.

The following effects of alcohol are:

<table>
<thead>
<tr>
<th>Effect</th>
<th>Bad</th>
<th>Slightly bad</th>
<th>Neutral</th>
<th>Slightly good</th>
<th>Good</th>
</tr>
</thead>
<tbody>
<tr>
<td>Feel guilty</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Feel calm</td>
<td></td>
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<td></td>
<td></td>
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<tr>
<td>Feel moody</td>
<td></td>
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</tr>
<tr>
<td>Be easier to talk to</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Be a better lover</td>
<td></td>
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<tr>
<td>Take risks</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Act sociable</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Brief Drinker Profile (BDP; Miller & Marlatt, 1984)

Do you think your biological father is/was an alcoholic?

- Yes
- No
- Don’t know/Not sure

Do you think your biological mother is/was an alcoholic?

- Yes
- No
- Don’t know/Not sure

Core Alcohol Norms Survey (Core Institute, 1999)

Overall, what percentage of college students do you think consume no alcoholic beverages at all? (Just give your best estimate)

______%

Overall, what percentage of college students do you think consumed five or more drinks in a row (males) or four or more drinks in a row (females) on at least one occasion in the last two weeks? (Again, just give your best estimate)

______%
Drinking Norms Rating Form (DNRF; Baer, Stacy, & Larimer, 1991)

Please use the guide below to estimate the number of drinks:
*ONE DRINK EQUALS:
- 12 oz. Beer (8 oz. of Canadian, Malt Liquor, or Ice Beers, or 10 oz. of Microbrew)
- 10 oz. Wine cooler
- 4 oz. Wine
- 1 Cocktail with 1 oz. of 100 proof liquor or 1 ¼ oz. of 80 proof liquor.

Consider a typical week during the last month.

How much alcohol, on average (measured in number of drinks *), do your closest friends drink on each day of a typical week?

<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Monday</td>
<td>_______</td>
<td>drinks(*)</td>
</tr>
<tr>
<td>Tuesday</td>
<td>_______</td>
<td>drinks(*)</td>
</tr>
<tr>
<td>Wednesday</td>
<td>_______</td>
<td>drinks(*)</td>
</tr>
<tr>
<td>Thursday</td>
<td>_______</td>
<td>drinks(*)</td>
</tr>
<tr>
<td>Friday</td>
<td>_______</td>
<td>drinks(*)</td>
</tr>
<tr>
<td>Saturday</td>
<td>_______</td>
<td>drinks(*)</td>
</tr>
<tr>
<td>Sunday</td>
<td>_______</td>
<td>drinks(*)</td>
</tr>
</tbody>
</table>

When your close friends drink, how much (on average) does each person drink?

<table>
<thead>
<tr>
<th>They don’t drink</th>
<th>1 - 2 drinks</th>
<th>3 - 4 drinks</th>
<th>5 - 6 drinks</th>
<th>More than 6 drinks</th>
</tr>
</thead>
<tbody>
<tr>
<td>When your close friends drink, how much (on average) does each person drink?</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
How many of your close friends drink alcohol?

How many of your close friends get drunk on a regular basis (at least once a month)?

How many of your close friends drink primarily to get drunk?

### How many of your closest friends have gotten drunk in the past 30 days?

_____ Friends

These questions are about *ALCOHOLIC BEVERAGES*, including beer, wine, wine coolers, malt beverages, and liquor.

On how many occasions (if any) have you and the following groups had alcohol to drink (more than just a few sips) during *THE LAST 12 MONTHS*? (Just give your best estimate by checking the appropriate box)

<table>
<thead>
<tr>
<th></th>
<th>0 occasions</th>
<th>1-2 occasions</th>
<th>3-5 occasions</th>
<th>6-9 occasions</th>
<th>10-19 occasions</th>
<th>20-39 occasions</th>
<th>40 or more occasions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yourself</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

On how many occasions (if any) have you and the following groups been drunk or very high from drinking alcoholic beverages? (Again, just give your best estimate by checking the appropriate box)

<table>
<thead>
<tr>
<th></th>
<th>0 occasions</th>
<th>1-2 occasions</th>
<th>3-5 occasions</th>
<th>6-9 occasions</th>
<th>10-19 occasions</th>
<th>20-39 occasions</th>
<th>40 or more occasions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yourself</td>
<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Typical college</td>
<td></td>
<td></td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>students</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<td></td>
<td></td>
</tr>
</tbody>
</table>
**Young Adult Alcohol Problem Screening Test (YAAPST; Hurbut & Sher, 1992)**

*Given the list of experiences below, please indicate the number of times you have had each experience DURING THE PAST YEAR by checking the appropriate box.*

<table>
<thead>
<tr>
<th>Experience</th>
<th>No, Never</th>
<th>Yes, but not in the past year</th>
<th>1x in the past year</th>
<th>2x in the past year</th>
<th>3x in the past year</th>
<th>4-6x in the past year</th>
<th>7-11x in the past year</th>
<th>12-20x in the past year</th>
<th>21-39x in the past year</th>
<th>40x or more in the past year</th>
</tr>
</thead>
<tbody>
<tr>
<td>Have you driven a car when you knew you had too much to drink to drive safely?</td>
<td></td>
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<td></td>
<td></td>
<td></td>
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<tr>
<td>Have you had a headache (hangover) the morning after you had been drinking?</td>
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<tr>
<td>Have you felt very sick to your stomach or thrown up after drinking?</td>
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<tr>
<td>Have you showed up late for work or school because of drinking, a hangover, or an illness caused by drinking?</td>
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<tr>
<td>Have you gotten into physical fights when drinking?</td>
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<tr>
<td>Have you ever gotten into trouble at work or school because of drinking?</td>
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<tr>
<td>Have you ever been fired from a job or suspended or expelled from school because of your drinking?</td>
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<tr>
<td>Have you ever skipped an evening meal because you were drinking?</td>
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<tr>
<td>Have you become rude, obnoxious, or insulting after drinking?</td>
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<tr>
<td>Have you participated in drinking contests or drinking games (e.g. quarters, chugging contests, progressive parties)?</td>
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</tr>
</tbody>
</table>
Given the list of experiences below, please indicate the number of times you have had each experience DURING THE PAST YEAR by checking the appropriate box.

<table>
<thead>
<tr>
<th>Question</th>
<th>No, Never</th>
<th>Yes, but not in the past year</th>
<th>1x in the past year</th>
<th>2x in the past year</th>
<th>3x or more in the past year</th>
</tr>
</thead>
<tbody>
<tr>
<td>Have you damaged property, set off a false alarm, or other things like that after you had been drinking?</td>
<td></td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Have you ever received a lower grade on an exam or paper than you should have because of drinking?</td>
<td></td>
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<td></td>
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</tr>
<tr>
<td>Have you ever been arrested for drunken driving, driving while intoxicated, or driving under the influence?</td>
<td></td>
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</tr>
<tr>
<td>Have you ever been arrested, even for a few hours, because of other drunken behavior?</td>
<td></td>
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</tr>
<tr>
<td>Has drinking ever gotten you into sexual situations which you later regretted?</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Have you ever awakened the morning after a good bit of drinking and found that you could not remember a part of the evening before?</td>
<td></td>
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</tr>
<tr>
<td>Have you ever had &quot;the shakes&quot; after stopping or cutting down on drinking (for example, your hands shake so that your coffee rattles in the saucer or you have trouble lighting a cigarette)?</td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Have you ever felt like you needed a drink just after you'd gotten up (that is, before breakfast)?</td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Because you had been drinking, have you ever neglected to use birth control or neglected to protect yourself from sexually transmitted diseases?</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Because you had been drinking, have you ever had sex when you didn't really want to?</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Given the list of experiences below, please indicate the number of times you have had each experience DURING THE PAST YEAR by checking the appropriate box.

<table>
<thead>
<tr>
<th>Experience</th>
<th>No, Never</th>
<th>Yes, but not in the past year</th>
<th>1x in the past year</th>
<th>2x in the past year</th>
<th>3x or more in the past year</th>
</tr>
</thead>
<tbody>
<tr>
<td>Because you had been drinking, have you ever had sex with someone you wouldn't ordinarily have sex with?</td>
<td></td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Have you ever been pressured or forced to have sex with someone because you were too drunk to prevent it?</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Have you ever pressured or forced someone to have sex with you after you had been drinking?</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Have you ever had your property damaged because of other students' drinking?</td>
<td></td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>Have you ever had to “baby-sit” or take care of another student who drank too much?</td>
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<td></td>
</tr>
<tr>
<td>Have you ever had your study or sleep interrupted because of other students' drinking?</td>
<td></td>
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<td></td>
</tr>
</tbody>
</table>

Given the list of experiences below, please indicate the number of times you have had each experience DURING THE PAST YEAR by placing an “x” in the corresponding box.

<table>
<thead>
<tr>
<th>Experience</th>
<th>No, Never</th>
<th>Yes, but not in the past year</th>
<th>1x in the past year</th>
<th>2x in the past year</th>
<th>3x or more in the past year</th>
</tr>
</thead>
<tbody>
<tr>
<td>Have you ever been insulted or humiliated because of other students' drinking?</td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>Have you had a serious argument or quarrel because of other students' drinking?</td>
<td></td>
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</tr>
<tr>
<td>Have you ever been pushed, hit, or assaulted because of other students' drinking?</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Have you ever felt guilty about your drinking?</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Has your doctor ever told you that your drinking was harming your health?</td>
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</tr>
<tr>
<td>Have you ever gone to anyone for help to control your drinking?</td>
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</tr>
<tr>
<td>Have you ever attended a meeting of Alcoholics Anonymous because of concern about your drinking?</td>
<td></td>
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</tr>
</tbody>
</table>
APPENDIX G
Additional Instruments

Social Desirability/Impression Management Scale (Paulhus, 1984)

Please respond to the following items by indicating whether or not you think they are true about you. If you are not sure, please give your best estimate.

<table>
<thead>
<tr>
<th></th>
<th>No</th>
<th>Yes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sometimes I rather enjoy going against the rules and doing things I'm not supposed to.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>There have been times when I have worried a lot about something that was not really important.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Every now and then I get into a bad mood, and no one can do anything to please me.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Demographics

In this section, we want to get some basic background information from you.

How old are you?

_____ years old

Height (feet and inches)

_____ Feet _____ Inches

Weight: (we need this to estimate your Blood Alcohol Content)

_____ Pounds

Birth Sex: (we need this to estimate your Blood Alcohol Content)

O Male
O Female

Gender Identity:

O Male
O Female
O Transgender
Sexual Orientation:
O Bisexual
O Gay
O Lesbian
O Straight/ Heterosexual
O Questioning

Ethnic Background:
Are you Hispanic or Latino/a?
O Yes
O No

Racial Background (please check one):
O American Indian / Alaskan Native
O Asian
O Black or African American
O Multiracial Please specify:_________________________________
O Native Hawaiian or Other Pacific Islander
O White/Caucasian
O Other Please specify:__________________________________

Overall, how would you characterize the economic status of your family?
O Much lower than most families
O Moderately lower than most families
O About average
O Moderately higher than most families
O Much higher than most families

What year did you graduate from high school?___________

What was your most recent GPA?
O 0.0-0.5  O 2.0-2.5
O 0.6-0.9  O 2.6-2.9
O 1.0-1.5  O 3.0-3.5
O 1.6-1.9  O 3.6-4.0

What level of education do you plan to complete?
O Some college classes, but no degree
O Associate's degree
O Bachelor's degree
O Master's degree
O Doctorate degree (Ph.D.)
O Professional degree (M.D. [medicine], J.D. [law])
O Other Please specify:_________________________________________
Where do you live while at school?
- Residence Halls/Dorm Room
- Fraternity or Sorority House
- Off Campus Housing/Apartment/House
- With Parents
- Other Please specify: ________________________________

Do you intend to join a fraternity or sorority at your college or university?
- Yes
- No

Will you play collegiate athletics at your college or university during your first year?
- Yes
- No

*These next questions are about your alcohol use. We want to remind you that your answers are confidential and we appreciate your honesty.*

Please describe your alcohol usage:
- I have never tried alcohol
- I have tried alcohol, but currently don't drink
- I am a light, social, non-problem drinker
- I am a moderate, social, non-problem drinker
- I am a heavy, non-problem drinker
- I am a heavy, problem drinker

How old were you the first time you drank alcohol (that is, more than a few sips)?
- I have never drank alcohol O 16
- Age 10 or younger O 17
- 11 O 18
- 12 O 19
- 13 O 20
- 14 O 21 years old or older
- 15

How old were you the first time you got drunk?
- I have never been drunk O 16
- Age 10 or younger O 17
- 11 O 18
- 12 O 19
- 13 O 20
- 14 O 21 years old or older
- 15
We would like you to provide the following information regarding your LOCAL address, telephone, and email address in order for us to send you your payment for completing the survey, as well as to contact you regarding the study. This information will be downloaded and stored separately from your survey responses. Please remember all information is encrypted and is completely confidential.

1. First name  __________________
2. Last name  __________________
3. Street  __________________
4. Apt #  __________________
5. City   __________________
6. State             __________________
7. ZIP   __________________
8. Local Phone  __________________
9. Cell Phone  __________________
10. Email  ________________

We may call you, either in response to a question from you, or to remind you of an upcoming survey. We would like to know if it is okay if we leave messages for you at your local phone or your cell phone.

Is it okay to leave a message for you at your local phone number?  
Yes No
Is it okay to leave a message for you at your cell phone number?  
Yes  No
Appendix H
Sample Feedback Sheet

The COMET Project
The Pennsylvania State University
204 East Calder Way, Suite 208
State College, PA 16801

Custom Feedback for Participant XXXXXX

Your Drinking

According to the information you gave us, the number of occasions you drank (frequency) was 2 days per week.

On the weekends, you drank an average of: 10 drinks

Blood Alcohol Content

It would take approximately 31.5 hours for your past month peak Blood Alcohol Content (BAC) to return to .00, and approximately 21.79 hours for your typical week peak BAC to return to .00.

Typical Weekly Pattern

This is what you told us you drank during a typical week. Compared to other college students, your percentile rank is 91. This means that you drink as much as or more than 91 percent of students your age.
Drinking Norms

Participant: XXXXXX

This is what you told us you believed to be the average frequency and quantity of alcohol consumed by other students, as well as the actual drinking norms for PSU students.

Frequency

![Frequency Chart]

Most PSU students think other students drink more than they actually do. About 25% of PSU students don’t drink at all. Nearly 40% don’t drink enough to get drunk.

Beliefs About Alcohol Effects

Participant: XXXXXX

You listed the following alcohol effects as "good" and "likely to occur" when you consume alcohol:

- I would be peaceful
- It would be easier to talk to people
- I would act sociable

Does alcohol really do these things? Research suggests many of the social effects of alcohol are based on myths, placebo effects, and expectations we bring to the drinking situation.

Alcohol-related Problems

Participant: XXXXXX

You indicated the following alcohol-related consequences had occurred at least once in the past year:

- Had a fight or argument or bad feelings with a friend or family member.
- Neglected your responsibilities.
- Went to work or school high or drunk.
- Experienced nausea or vomiting.
- Had a hangover.

You can minimize the negative effects of alcohol by choosing to drink less or not at all.
Alcohol and Sexual Behavior

You indicated that you have had the following alcohol-related sexual experiences:

No items reported.

Alcohol doesn't improve sexual enjoyment or performance. You can reduce your risks of unwanted sexual experiences by being selective about whether and how much to drink, especially on first dates or at larger parties. Use the buddy system to watch out for friends.

Alcohol Dependence

You acknowledged the following experiences, which are associated with a pattern of dependency.

- Felt like you needed more alcohol to get the same effect...
- Have had blackouts...

Alcohol Tolerance

Based upon the data provided, we estimate your level of alcohol tolerance to be:

Very High Risk

Tolerance means needing more alcohol to get the same effect as you used to get at lower levels. Tolerance reduces pleasurable effects of alcohol and makes drinking more expensive. It can also be a sign that you are becoming dependent on alcohol.

Family History

We consider your risk based on family history to be:

Average Risk

Most people have heard that having a family history of alcohol problems increases your risk for alcohol problems yourself. While this is true, it’s also true that being aware of your drinking and making lower-risk decisions about drinking now can lessen your risk of developing an alcohol problem in the future.

Dietary Effects from Alcohol

You indicated that in a typical week you are getting the following amount of calories from alcohol: 3000

It would require 13.2 hours of brisk walking or 10.4 hours on cross training equipment to expend this number of calories each week.

Based on your weekly drinking quantity, we estimate that you will require 20 additional glasses of water per week to maintain the level of hydration needed for engaging in exercise or athletics. Each standard drink of alcohol requires one 8-ounce glass of water to restore lost hydration.

Alcohol: Financial Costs

Depending on the type of alcohol and place you purchase alcohol, you would spend between $72.00 and $88.00 per month.
These are some things you are doing to avoid negative consequences from drinking:

<table>
<thead>
<tr>
<th>Protective Factors</th>
</tr>
</thead>
<tbody>
<tr>
<td>Switch between alcoholic and non-alcoholic beverages.</td>
</tr>
<tr>
<td>Eat before and/or during drinking.</td>
</tr>
<tr>
<td>Limit the amount of alcohol you buy by taking a certain amount of money with you when you go out.</td>
</tr>
<tr>
<td>Set limits on the number of days you drink per week.</td>
</tr>
<tr>
<td>Keep track of how many drinks you were having.</td>
</tr>
<tr>
<td>Use a designated driver.</td>
</tr>
<tr>
<td>Have a friend let you know when you've had enough.</td>
</tr>
</tbody>
</table>

These are some other strategies you might use to reduce negative effects of drinking:

<table>
<thead>
<tr>
<th>Protective Factors</th>
</tr>
</thead>
<tbody>
<tr>
<td>Avoid drinking games.</td>
</tr>
<tr>
<td>Determine, in advance, not to exceed a set number of drinks.</td>
</tr>
<tr>
<td>Pace your drinks.</td>
</tr>
<tr>
<td>Set limits on how much you drink based on your blood alcohol level.</td>
</tr>
<tr>
<td>Think about your blood alcohol level when you drink.</td>
</tr>
<tr>
<td>Choose not to drink alcohol.</td>
</tr>
<tr>
<td>Drink an alcoholic look-alike (non-alcoholic punch, non-alcoholic beer), juice, or water.</td>
</tr>
</tbody>
</table>
Vita
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PUBLICATIONS


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National Institute of Alcohol Abuse and Alcoholism (NIH), F31 AA017012; Comparison of MI Training Approaches on College Student Drinking. August 2007 to June 2008, Award: $34,468 (Principal Investigator).