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BASICS: A Program Evaluation of a Campus Group Alcohol Intervention Program

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BASICS: A PROGRAM EVALUATON OF A CAMPUS

GROUP ALCOHOL INTERVENTION PROGRAM

A Dissertation

Submitted to the School of Graduate Studies and Research

in Partial Fulfillment of the

Requirements for the Degree

Doctor of Psychology

Paige Morrison

Indiana University of Pennsylvania

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Indiana University of Pennsylvania
School of Graduate Studies and Research
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Title: BASICS: A Program Evaluation of a Campus Group Alcohol Intervention Program

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A majority of college students drink, and alcohol is seen as a normal part of the college experience (NIAAA, 2013; Park, 2004). Alcohol use results in many negative consequences including academic, safety, health, and intuitional problems This study explores the effectiveness of Brief Alcohol Screening and Intervention for College Students (BASICS) in a group setting at reducing rates of drinking, risk of alcohol-related disorders, and related problems. This evaluation also examines the program's effect on students current Stage of Change. A total of 141 college students, with 44 receiving the group program and 97 serving as a comparison group, were participants in this study. Group BASICS was only effective at reducing average blood alcohol content (BAC) ($p<.01$). Group BASICS did not affect students' Stage of Change, peak BAC, average drinks per week, peak drinks consumed, binge drinking, alcohol risk, or alcohol-related problems. This study adds to the body of literature that finds BASICS ineffective when utilized in a group setting.

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CHAPTER ONE

INTRODUCTION

From 2001 to 2011 there was an 11% increase in the number of 18- to 21-year-olds

attending college (Snyder & Dillow, 2013). The National Center for Education statistics

estimates that 41% of Americans between 18 and 24 years of age attend college (Snyder &

Dillow, 2013). In the Fall of 2014, this number was approximately 21 million (National Center

for Education Statistics, 2013). As this opportunity becomes attained by many, the related risks

need to be identified and mitigated. One of the primary risks associated with college is alcohol

use and abuse. A majority of college students drink and alcohol is seen by many as a normal part

of the college experience (NIAAA, 2013; Park, 2004), despite a large number of students being

underage. Current alcohol consumption levels in campus environments are related to dangerous

outcomes in safety, mental and physical health, academics, and long-term well-being (NIAAA,

2013; Wechsler et al., 2002). Due to the negative effects of drinking, colleges and universities

are looking to develop programs to help those with Alcohol Use Disorder or dangerous

behaviors. Many of these programs are specifically targeted at those with legal and campus

citations related to alcohol use because such citations often indicate alcohol-related problems.

These programs seek to decrease the number of alcohol-related incidents, such as dangerous

drinking or underage drinking, on campus.

CHAPTER TWO

REVIEW OF THE LITERATURE

Drinking on College Campuses

Underage drinking and excessive drinking are important issues on college campuses. According to the National Institute of Alcohol Abuse and Alcoholism (NIAAA), four out of five college students drink, and 60% of students 18-20 consume alcohol illegally (NIAAA, 2013). Students spend $5.5 billion on alcohol every year (Federal Trade Commission, 1999). This expenditure exceeds spending on other beverages, including coffee and soda. It is also more money than students spend on school supplies and textbooks.

More than 40% of students have engaged in a dangerous form of alcohol consumption which brings blood alcohol concentration (BAC) levels to 0.08 g/dL, known as "binge drinking," at least once in the past two weeks. Using five different sources of data, the Harvard School of Public Health College Alcohol Study (CAS), the Core Institute (CORE), Monitoring the Future (MTF), National College Health Risk Behavior Survey (NCHRBS) and the National Household Survey on Drug Abuse (NHSDA) databases, O'Malley and Johnston (2002) found a high rate of drinking and dangerous drinking in college students consistent with the NIAAA data discussed above (NIAAA, 2013). College students also consume more alcohol than their non-college attending peers (O'Malley & Johnston, 2002).

Drinking intensity is on the rise in this population, and two out of five students meet the criteria for heavy drinkers (O'Malley & Johnston, 2002; Wechsler, Kee, Kuo, & Lee, 2000). Heavy drinking was defined as consuming 5 or more drinks in a row in the past two weeks (O'Malley & Johnston, 2002) Over a six-year period, starting in 1993, more students drank, were drunk in the past month, drank to be drunk, and had higher rates of drinking problems than in

previous years (Wechsler et al., 2000). The most sought after parts of the American college experience were: partying, social connections, dormitory living, fraternities, sororities and organized athletics. These happen to be activities with a higher correlation with heavier drinking levels (Wechsler, Dowdall, Davenport, & Castillo, 1995). This mass acceptance and participation in the drinking culture has far reaching negative effects on students and the broader college community, which will be discussed in depth below. There have been some positive changes in recent years with a slight decrease in drinking levels, but more significant and long lasting changes are required (O'Malley & Johnston, 2002).

Effects of College Drinking

Many students who choose to drink experience problems related to their alcohol use. From 1993 to 2001, there have been national increases in alcohol-related negative interactions with the police, rates of injury, academic decline, and interpersonal struggles. About 20% of student drinkers, those who consumed alcohol in the past 30 days, experienced five or more problems related to alcohol consumption (Wechsler et al., 2002).

Crimes. Aside from underage drinking, many other crimes are associated with alcohol use by college students including vandalism, assault, and sex crimes (NIAAA, 2013). Yearly, as many as 696,000 students are physically assaulted by another student while using alcohol (*either* party) (NIAAA, 2013). Driving under the influence increased by almost 5% in American college age adults, according to the National Highway and Traffic Safety Administration between, 1998 and 2001 (Hingson, Heeren, Winter, & Wechsler, 2005), and nearly 40% of students have been passengers in cars with drivers who were under the influence (Hingson, Heeren, Zakocs, Kopstein, & Wechsler, 2002). Between 5-12% of students admitted to having trouble with

police or campus authorities, and about 8% had destroyed property (Perkins, 2002). Engaging in these behaviors is not only unsafe for students; such behavior is also costly for universities.

Sexual assaults, including date rape, are also associated with alcohol use, with an estimated 97,000 reported cases occurring when the victim or perpetrator had been consuming alcohol, each year. Over 100,000 students, per year, reported being too intoxicated to know if they had consented to sexual activities in which they had engaged (NIAAA, 2013). Acquaintance rape and coercion have also been related to victim and perpetrator alcohol use (Perkins, 2002). According to Abbey (2002), alcohol also increases the likelihood of sexual assault through several interrelated pathways in college students. These pathways include increasing the beliefs that those who drink, especially women, are more promiscuous or easier to seduce, causing deficits in higher order processing that normally inhibits dangerous behaviors, reducing the capacity to defend oneself, and promoting the norm of heavy drinking. Men who have been drinking are more likely to interpret a female's friendly behaviors as being a sign of sexual interest and are more likely to feel comfortable using force to attain sex (Abbey, 2002).

The theory of alcohol myopia (Steele & Josephs, 1990) has often been used to explain this relationship between alcohol and sexual assault. According to the theory of alcohol myopia, when one is drinking, a smaller amount of information is received and processed. The scope of information processing and its efficiency remains high for simple and highly salient cues, but more distal and complex cues are often not processed or are not processed as fully. Therefore, certain immediate aspects of interactions, such as a friendly or flirtatious manner, may have a disproportionate influence on behavior, like not assessing for danger cues. This may lead to a pattern of dangerous follow-up behaviors, which are often carried out to prevent conflict rather than inhibit unsafe behavior, such as following a person to a quiet isolated area to talk and seem

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amiable, rather than rejecting the invitation as it may not be safe (Cooper, 2002; Steele & Josephs, 1990). According to the alcohol myopia theory, sexually aroused men who have been drinking miss women's cues that they are uninterested and are overly sensitive to friendly cues, which are more salient in their aroused state (Abbey, 2002). In addition, women are less likely to notice or correctly interpret danger cues when they are intoxicated and are more likely to engage in relationship enhancing behaviors, such as being friendly (Testa, VanZile-Tamsen, Livingston, & Buddie, 2006). Although alcohol myopia is generally discussed theoretically, a qualitative study found that 55% of women who experienced sexual aggression while they were under the influence alcohol, believed their judgement had been impaired and they had engaged in activities or been in situations that would have been unlikely if they were sober (Testa & Livingston, 1999).

With 5-12% of alcohol using students experiencing some type of trouble with police or campus security, and potentially more being cited by campus officials, it is likely that many college students will be mandated to some type of treatment or alcohol education program. "Mandated students" are defined as those who are required to participate in an alcohol education, treatment, or evaluation program, due to violations of the alcohol policy on campus or alcohol laws (DiFulvio, Linowski, Mazziotti, & Puleo, 2012). A review study was completed by Faden and Baskin (2002) looking at the alcohol policies of the top 52 colleges and universities as ranked by *US News and Report*. If a violation of an alcohol policy occurs either with the police or campus officials: 42.3% of schools require students to attend alcohol education session(s) and 36.6%, require an evaluation with mandated alcohol treatment, if recommend by the assessment (Faden & Baskin, 2002).

Death, injury, and health concerns. The effects of high levels of alcohol consumption manifest themselves in multiple domains, including overall health and safety. In one year, 2001, there were a reported 1,717 student deaths because of alcohol usage, including traffic deaths (Hingson et al., 2005). This was an increase of 100 deaths compared to 1998, three years prior (Hingson, et al., 2005). Almost 600,000 students between 18 and 24 are unintentionally injured annually due to alcohol use, and half of these students are under 21 years old (NIAAA, 2013). In addition, more than 50% of traffic deaths are alcohol-related in this age range (Hingson et al., 2005). In a self-report study, 15% of students stated they had been injured due to their alcohol use (Perkins, 2002). Eckardt and colleagues (1998) found that even moderate levels of alcohol consumption can cause neurochemical changes in the brain that can result in psychomotor retardation and cognitive impairments. These types of impairments can lead to increases in injury and death.

Alcohol use affects students' health and well-being in less direct ways as well. College students consuming alcohol are 10-15% less likely to use safe sex practices (Perkins, 2002), and according to the NIAAA (2013) statistics, an estimated 400,000 students engage in unprotected sex while under the influence each year, increasing the risk of unwanted pregnancy and STIs. Alcohol myopia might contribute to this link as cues for less salient future consequences, including contracting a STI or conceiving an unwanted pregnancy, may be ignored or processed less thoroughly than cues of the positive and immediate prospect of engaging in sex (Cooper, 2002). However, more research is needed to test this hypothesis as variation occurs from person to person in this area.

Perkins (2002) found that 31% of students had experienced memory loss due to alcohol consumption. Adolescents and college students are more susceptible to alcohol induced memory

dysfunction, as alcohol has a more potent effect due to the stage of their brain development (Zeigler et al., 2005). At least 30% of alcohol using college students, reported that they had lost 30 minutes to 24 hours recovering from physical symptoms/illnesses they associated with alcohol use (Perkins, 2002). This cuts into valuable studying, working, and healthy living time.

Mental health. Many mental health disorders and symptoms have been associated with college drinking including increased risk of alcohol abuse, alcohol dependence, and suicidal thoughts and actions (NIAAA, 2013). Knight and Colleagues (2001) estimated the prevalence of alcohol abuse and dependence in college students utilizing DSM-IV-TR criteria (See Appendix A, Chart 1), and found that 31.6% could be classified with an alcohol abuse disorder and 6.3% with dependence. Over half of the 14,000 students studied reported at least one of the following symptoms/criteria with the following frequencies of endorsement: alcohol use in hazardous situations (27.2%), alcohol-related school problems (26.7%), recurrent interpersonal strain (12.4%), and recurrent legal issues (3.3%). Tolerance, a key component in many conceptualizations of dependence, was found in 17% of students. Similarly, 22% experienced some symptoms of withdrawal. An estimated 15% of students reported drinking more or longer than they had initially planned and 8% continue drinking despite psychological and/or physical problems. As many as one in ten people under 24, suffer from an Alcohol Use Disorder, and only 5% of those with an Alcohol Use Disorder seek or receive treatment (Knight, et al., 2001; NIAAA, 2013). In the DSM-5, dependence and abuse were combined into one disorder, Alcohol Use Disorder (APA, 2013) (See Appendix A, Chart 1). However, the new diagnostic classification has not been substantially incorporated into the college alcohol use literature, limiting the availability of adjusted statistics.

Impact on academic performance. Alcohol consumption has been associated with student's struggling academically in higher education, with 25% of students reporting that their school work was negatively affected by their use or someone else's use of alcohol (NIAAA, 2013; Perkins, 2002). GPA also appears to be negatively influenced by alcohol use. "A" students drink an average of 3.4 drinks per week, while "B", "C," and "D/F" students report consuming an average of 4.5, 6.1 and 9.8 drinks per week, respectively. Drinking also affected both high-risk (males: 22+ drinks per week, females 15+ drinks per week) and low-risk (males < 22 drinks per week, females < 15 drinks per week) drinkers academically. Amongst low-risk users, 11% missed class due to drinking and 3% reported a low grade due to alcohol consumption. Amongst high-risk drinkers, about half had missed class due to Veisalgia and 15% had experienced a low grade due to alcohol consumptions. Males who drank five or more drinks, and females who drank four or more alcoholic beverages, two times a week, were three times more likely to report that they were behind in school work due to alcohol. When this increased by one more day a week (three occurrences), students were eight times as likely to be behind (Perkins, 2002). Lower drinking rates are found in students who report being highly concerned about academic performance, the arts, and community service. A small, but interesting correlation indicated that those who drank more, spent fewer hours studying or volunteering (Wechsler et al., 1995).

Brown, Tappert and colleagues (2000) found neuropsychological deficits in middle adolescents who consumed alcohol, which may also affect academic outcomes. Heavy drinking and the experience of withdrawal, were related to poor memory function, verbal skill deficiencies, poor visuospatial cognition, as well as lower vocabulary and information scores on the WAIS subscales. Student drinkers also underutilized semantic clustering strategies when

learning, which, when implemented, increases efficiency of recall. After three weeks of alcohol abstinence, the same neuropsychological deficits were not present when learning new information. Thus, if students can stop drinking and continue in recovery, they may be able to boost performance or return to previous levels of academic performance.

Effects on other students. Other non-drinking or low drinking students are also affected by the behaviors of those who choose to drink. According to the 1999 Harvard School of Public Health Alcohol study (Wechsler, 2000), a large majority of low-risk drinkers (non-binge drinkers) and abstainers had their studies or sleep interrupted by the drinking activities of other students. Almost half of low-risk or non-drinkers had taken care of a drunken student (Wechsler et al., 2002). More than one third had been insulted or humiliated by drinkers. Property damage and being pushed, hit, or assaulted was reported by 16 % low-risk drinking students and 11% alcohol abstaining students. Almost one quarter (23%) of students had experienced an unwanted sexual advance by a student who had been drinking. Students can also be affected by any dangerous crimes committed or engaged in by their drinking classmates, such as fights, sexual assaults, or vandalism. As many as 55% of students experienced at least two secondhand effects of alcohol consumption (Wechsler et al., 2002). This puts even non-drinkers at risk for negative outcomes that can affect their overall college experience.

Institutional effects. College drinking and its negative outcomes cost colleges and universities a large amount of money via institutional costs and damage. Large numbers of drinking students can create image problems for colleges (Perkins, 2002). Schools can develop a reputation as a "party school" which can affect their ability to attract high-quality students. Problematic drinking can also create a poor relationship with the town where the college or university is located (Perkins, 2002). Students commit crimes and do not respect the town in

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which the colleges are located. Vandalism and destruction of property are some of the crimes commonly committed by college drinkers (Wechsler, Dowdall, Maenner, Gledhill-Hoyt, & Lee, 1998). These crimes often cause damage to property on in the town or on campus, including dorm rooms. There are also costs associated with managing to criminal activity and delinquent drinking behaviors, including paying for police and staff who respond to these reports during and after the occurrence (Perkins, 2002).

Finally, drinking causes colleges to lose tuition money. As discussed, students who drink and drink often, have poor academic outcomes (Brown, 2000; Perkins, 2002; Wechsler et al, 1995). This can lead to students leaving the school and increasing attrition rates (Perkins, 2002). Students may also be forced to leave due to disciplinary action.

The effects of college drinking, reach every corner of the campus including public relations and interactions with the surrounding community. Alcohol use affects academic performance of those who choose to drink. It directly affects the neurochemical composition of the brain resulting in differences in cognition and perception. This can manifest itself in illegal behavior, alcohol myopia, and decreased functioning. The whole process, from purchasing the alcohol to the negative outcomes, has the potential to cost students and colleges monetarily, socially, and health-wise.

<div align="center">

Binge Drinking
</div>

Definition and Prevalence

According to the NIAAA (n.d) the definition of binge drinking is a pattern of drinking that brings blood alcohol concentration (BAC) levels to 0.08 g/dL. This typically occurs after four drinks for women and five drinks for men in about two hours. The four or five drinks in two hours or in a short period of time is the standard used in most research to describe binge

drinking. According to the NIAAA (2013) and other research (Wechsler et al., 1998; Wechsler et al., 2000), about two in five college students can be identified as a binge drinker and one in four as a frequent binge drinker (three or more binge drinking episodes in the past two weeks). When looking at the rest of the population, the rate of binge drinking is lower, with 14% meeting criteria for infrequent binge drinking and 11% for frequent binge usage. Binge drinking is associated with a variety of negative long-term and short-term effects, including negative consequences to others (Wechsler et al., 2000).

Problems Associated with Binge Drinking

Wechsler and colleagues (2002) have been studying college binge drinking since 1993 for the Harvard School of Public Health College Alcohol Study. In 2002, Wechsler and colleagues released the most updated version of the findings. They surveyed students at 119 four year colleges who had been surveyed in previous iterations of this study in: 1992, 1997, and 1999, via mail survey. The 2001 survey had a reported response rate of 52% overall (22-86% range at each school). They defined frequent binge drinkers as those who had binged three or more times in the past two weeks, occasional binge drinkers as those who binged one to two times in the past two weeks, and non-binge drinkers as those who consumed alcohol in the past year, but did not binge in the last two weeks. Students who did not drink in the past year were considered abstainers. Overall, the rate of binge drinking has remained stable since 1993, despite many attempts to address the issue by both schools and the government. However, there has been an increased polarization in drinking, where more students are reporting abstaining or frequent binge drinking. In 1993, one in seven students abstained and in 2001, that increased to one in five. Similarly, one in five students were frequent binge drinkers in 1993 while in 2001 the number was one in four (Wechsler, et al., 2002).

The rate of binge drinking on campus is a good indicator of how many negative events will occur at a university including: assaults, rapes, alcohol poisonings, and emergency room visits because of drinking (Wechsler & Nelson, 2001). First, higher overall campus alcohol use rates are related to more incidences of alcohol-related diagnosis (Knight et al., 2001). Additionally, non-binge drinking students on high binge drinking campuses, are twice as likely to experience negative second-hand effects of alcohol use compared to those on low binge drinking campuses (Wechsler et al., 2000). Occasional binge drinkers are five times more likely to report at least five drinking- related problems compared to non-binge drinkers. Those who were classified as frequent binge drinkers, were up to 15 times more likely to experience any drinking-related problems than non-binge drinking students. Frequent binge drinkers consume 66% of the alcohol on campus. Those who binge drink more than once a week experience high rates of class absences, commit more acts of vandalism, and engage in driving after drinking more frequently (Wechsler et al., 2000).

The frequency and type of drinking a student engages in, can be predictive of diagnosis. Frequent binge drinkers are 19 time more likely to be diagnosed as alcohol dependent based on DSM-IV-TR criteria and 13 times more likely to abuse alcohol, compared to those who do not drink at such heavy levels. Those who are occasional binge drinkers, are four times more likely to have an alcohol-related disorder than non-binge drinkers. However, binge drinkers are unlikely to seek treatment while in college. Clinicians are also likely to miss these issues, as many students do not conceptualize their drinking as problematic and accuracy of self-perception may be low (Knight et al., 2001).

Those who choose to binge drink may experience other physical and psychological problems and mental health symptoms. Frequent binge drinkers are significantly more likely to

have 14 or more unhealthy days (physically or mentally) in the past month than infrequent or non-binge drinkers (Okoro et al., 2004). Among binge drinkers, intoxication harms are common, with 41.5% reporting: being sick, nausea, vomiting, headaches, and "hangovers". At least one third of drinkers in this category experience a wide range of negative impacts on their health including feeling "rundown" (low energy, low resistance), internal organ damage or related strain (issues with stomach, liver, heart, blood), and other health issues (e.g. gaining weight). About 25% experience disturbances of sleep (too much or too little) and/or mental health problems, including cognitive impairment. Also, as discussed previously, the highest rate of alcohol-related injuries is found in this group (Lown, 2007).

Binge drinking may also be predictive of poorer life outcomes as far as ten years after college. Jennison (2004) found that binge drinking is related to lower levels of education attainment, decreased post-college earnings, and lower career potential. These students are less likely to graduate, and if they do complete their degree, are less likely to go into a white collar or prestigious career, obtain the career advancement they were working for, or continue with education. Heavy binge drinking and risky drinking behavior are predictive of dependence or abuse ten years after college. This is a continuous model of excessive drinking as students are not "maturing out" of these levels of usage. These alcohol-related problems are viewed as progressive such that they gradually develop into more significant problems and possible disorders later in life.

Drinking on campus is a significant problem with negative outcomes affecting the health and well-being of students who abstain, drink in a low-risk manner, and engage in high-risk drinking. The effects of drinking can be seen in crime rates, health outcomes, academic accomplishment, and lifetime achievement. College students, more than the average, engage in

dangerous drinking, such as binge drinking. Those students who end up having negative encounters with the law or campus officials, are likely to be binge drinkers. Thus, the areas of drinking, and specifically binge drinking, must be addressed in any program implemented with college students.

BASICS: Brief Alcohol Screening and Intervention for College Students

Summary

Brief Alcohol Screening and Intervention for College Students (BASICS) was developed in 1999 by Dimeff, Baer, Kivlahan, & Marlatt, as a harm reduction approach to combat the negative health, academic, interpersonal and other impacts of drinking on college campuses. The primary goal is identified as "To move a student in the direction of reducing risk behaviors and harmful effects from drinking as opposed to focusing explicitly on a specific drinking goal" (Dimeff et al., 1999, pg. 2). BASICS is also an Alcohol Skills Training Program (ASTP), thus, the curriculum is generally skills based, aimed at reducing the harmful consumption, problems, and risks. It is one of many ASTP approaches to alcohol-related problems and is considered the least intensive, most flexible, and most personalized. It was developed based on two main approaches to addiction and alcohol use treatment: cognitive behavioral group treatment and brief interventions.

The designers of BASICS worked for about 15 years to develop the program and test its efficacy with the college student population (SAMHSA, n.d.). It is a secondary prevention program for high-risk students who have alcohol-related problems, drink heavily, or may be in the process of developing an alcohol problem. BASICS is a preventative intervention, targeted at students aged 18-24, who have experienced, or are at risk, for a variety of alcohol-related problems and a possible Alcohol Use Disorder diagnosis. The program is based on a model of

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integration of capability deficits, developmental aspects, and motivational components. It assumes that many students lack the information and/or coping skills required to drink moderately. It also assumes that developmental milestones associated with college, including being away from home and parents, and engaging in adult activities, which students perceive should include alcohol, contributes to alcohol consumption. Personal and environmental factors are also taken into consideration, including faulty beliefs, inaccurate norms, peer pressure, and the culture of alcohol use. These personal and environmental factors may inhibit the use of behavioral skills to promote safe drinking. It is also designed to be administered by those with basic counseling skills, but without expert knowledge about alcohol or extensive training in addiction counseling. The BASICS manual is self-contained and can facilitate implementation, prevention, education, and treatment services for college students.

According to the manual (Dimeff et al., 1999), BASICS is built on an empathetic, non-judgmental, non-labeling and non-confrontational style. It attempts to help students reduce alcohol consumption and negative outcomes due to drinking, promote healthy choices in the college student population, and provide information and coping skills that reduce risky behaviors. These goals are attained using harm reduction principles, motivational interviewing, enhancement techniques, and cognitive behavioral self-management (Evidence Based Practices for Substance Abuse, 2013). The program is also designed to correct false beliefs about alcohol's effects and provide correct alcohol use norms, to counter ideas that heavy drinking patterns are the norm on campus (Dimeff et al., 1999). It does this via brief and limited interventions that are designed to prompt students to change their current drinking patterns. Students are generally referred to the program through screening processes, disciplinary action, medical/health services, or housing. Benefits associated with the BASICS program include increased awareness of the

risk associated with alcohol use, development of safer alcohol use choices, including: where, when, and how much to drink; and awareness of outcomes including health problems, social issues, and legal/campus problems. The Substance Abuse and Mental Health Service Administration (SAMHSA) identified BASICS as a model program (National Registry of Evidence-based Programs and Practices, 2014).

The BASICS protocol for intervention includes a pre-interview self-report questionnaire and two 50 minute interviews. The questionnaire and first session are used to gather students' individual information, including alcohol consumption pattern, alcohol beliefs, social norm views, and family history of use/addiction. The second session should occur one to two weeks after the initial interview. During the second session, the facilitator provides personalized feedback on alcohol use norms, facts on norms, facts to debunk alcohol myths, teaching tools to reduce future risks associated with use, and strategies to assist in changing current drinking patterns or risky behaviors (Evidence Based Practices for Substance Abuse, 2013). Two sessions are generally considered sufficient for students to create meaningful changes in their drinking patterns and reduce negative outcomes. The questionnaire and other documentation used is tailored to the location where the program is being implemented. The workbook provides a guide to inform the development of these tools, but ultimately, they are unique to the site, reflecting the flexibility and individual nature of the program (Dimeff, 2009). Additional services can be added, by the provider. BASICS can also be used as a first step to seeking additional services or to help a person maintain changes.

The manual details specifics for each session. For the initial assessment and feedback session, it covers objectives, overview, and session preparation. It also covers important factors in the sessions including: rapport building, orientating, and getting an initial commitment or

strengthening an existing commitment. For the initial interview, the manual also provides ways to assess high-risk lifestyle and health behaviors, typical drinking pattern, and episodic drinking occasions. For therapists who do not have training in substance use and addiction treatment, sections on assessment of alcohol dependence, gathering family history, and other substance use / mental health disorders are included. Self-report measures are provided and summarized for use in this stage, including: the Daily Drinking Questionnaire, the Rutgers Alcohol Problems Inventory, and the Readiness to Change Questionnaire. For the second, or feedback session, the manual provides guidelines for the selection of drinking goals, usage of computer-generated graphic feedback, developing and using a Blood Alcohol level (BAC) chart, and creating a tips sheet. These allow feedback to be tailored to the responses and needs of the individual student. The manual also discusses the clinical process and approach for providing effective feedback and advice using Motivational Interviewing (MI), cognitive, behavioral, and harm reduction techniques. Clinicians and students discuss drinking patterns, norms, and expectancies, and clinicians provide Individualized feedback to challenge perceived norms. Clinicians also cover risks and consequences of alcohol use, and related recommendations. The manual includes example dialogue, related research, relevant statistics, necessary skills, and possible topics of discussion. It also prepares therapists for possible student responses to BASICS, based on current Stage of Change.

Harm Reduction

Harm reduction approaches to alcohol misuse, utilize a treatment based on moderation and controlled drinking. This approach stands in contrast to the abstinence or zero tolerance model which posits that the client should not engage in any alcohol or drug use to prevent negative outcomes (Marlatt & Witkiewitz, 2002). According to the harm reduction model, lifestyle

changes usually occur over time, and incremental changes and reductions are encouraged and emphasized as a focus of treatment. Harm reduction techniques focus on reducing risky behaviors that can jeopardize the person's own health and public health overall. The focus is on pragmatism and realism, rather than the idealism often associated with abstinence only policies (Petrie, 2012). Thus, BASICS focuses on decreasing higher risk behavior, rather than specific drinking goals or abstinence (Evidence Based Practices for Substance Abuse, 2013). Reductions could be seen in any of the areas discussed in the Effects of College Drinking section, including personal problems, crimes, and institutional costs. In a review of literature, Marlatt, and Witkiewitz (2002) demonstrated that moderation-oriented treatments can be as effective as abstinence only treatments. Harm reduction interventions are also more attractive options to those who are looking to be a part of treatment. These styles of treatment allow for a flexible approach to drinking and its related problems. As a harm reduction approach to treatment, BASICS is designed to be flexible and individualized for the person's needs, circumstances, and goals. Each session is fit to the client's own factors, including circumstances, severity of use, abuse, or dependence, and risk factors (Dimeff et al., 1999).

The assumptions of BASICS are rooted in the harm reduction model and informed its development (Dimeff, et al., 1999). The assumptions discussed in the manual include:

- Student-chosen drinking goals are more powerful than drinking goals set or enforced by others.
- The factors that help maintain heavy drinking in college students differ from factors that maintain these patterns in older adults. Brief interventions targeted at college students are most likely effective if they address or focus on these unique factors.

- Risk reduction, without requiring specific outcomes such as abstinence or full moderation of drinking behaviors, is a valid goal unto itself for brief interventions in high-risk drinking populations.

- Goals for college students, within a brief intervention, should be realistic and achievable; they need not include the elimination of all possible or present risks.

- Behavioral slips or lapses should be considered normal.

- Engaging in moderate drinking, to decrease harmful effects, can be as pleasurable and enjoyable for people, as heavier, more hazardous drinking.

- Successful experiences, that move a person in the direction of goal achievement, are more important than immediate and complete elimination of risks.

- Risk reduction can be an ongoing process where students can practice and improve over time.

- Treatment should focus on a stepped approach with the least intensive interventions applied first, prior to moving to more intensive ones.

Motivational Interviewing

A common technique or style associated with harm reduction approaches is Motivational Interviewing (MI), which, as discussed previously, is a component of the BASICS program. MI was developed by William Miller, and is a client-centered therapeutic style, meant to evoke and strengthen individual and personal motivation for change (Miller, 1983). The client, rather than their therapist, develops and expresses the arguments for change (Miller & Rose, 2010). This style helps people work through ambivalence and commit to making a change (Miller, 1983). MI was developed as an alternative to more confrontational styles that had become popular in the treatment of addictions. MI combines aspects of other styles of therapy. MI uses supportive,

non-judgmental, and person-centered counseling techniques commonly found in the Rogerian therapy style. The intervention also draws from Bem's self-perception theory, which suggests that people are more likely to be committed to change, if they hear themselves defend the concepts. Thus, MI utilizes a directive method, to resolve ambivalence and promote change, while exploring the client's own arguments for change in a supportive environment (Hettema, Steele & Miller, 2005). MI is based on four basic principles: expressing empathy, developing discrepancy, rolling with resistance, and supporting efficacy (Rollnick, Heather & Bell, 1992).

Ambivalence in substance users is often a measure of conflict between indulgence and restraint. Dimeff and colleagues (1999) discussed how students will naturally vary on this factor, prior to entering the program. The degree of ambivalence is affected by many factors including, but not limited to: the amount of time a student has spent thinking about their prior use; their experience of severe or salient negative consequences of drinking, someone close to them experiencing severe or salient negative consequences of drinking, length of time they have experienced the problems, and prior efforts to change their drinking pattern. As a decision-making event arises, this conflict becomes more extreme. It is the role of the interviewer to explore the conflict; encouraging patients to express their arguments to change, and elicit this information in a constructive way. These methods ae chosen in contrast to the interviewer being explicitly in favor of change or restraint. The freedom of choice, ultimately, lies with the patient.

Readiness to change, a key component of MI, is conceptualized as a linear continuum in comparison to the discrete stages presented by Prochaska and DiClemente (1986) in their Stages of Change Model. At the far end, the patients do not consider change, do not engage in progress towards decision making, and do not change behavior. The middle areas, are considered a state of ambivalence about their behavior overall. At the top of the scale, they are about to, or are

actively engaging in change. People can fluctuate on this spectrum within their process of change. A successful outcome in MI, is not only seeing a direct behavior change, but also moving a patient forward on the spectrum. This is done by making stage appropriate interventions, using micro skills and strategies (Rollnick, Heather, & Bell, 1992).

Although change is conceptualized linearly, Stages of Change, are utilized as a "roadmap" within BASICS to inform therapists' tasks (Dimeff et al., 1999). See Chart 2 (Appendix A) for summary of client stage and appropriate therapist motivational tasks. The Stages of Change include five stages: precontemplation, contemplation, preparation, action, and maintenance (Prochaska, DiClemente & Norcross, 1992). Precontemplation, is described as the stage where there is no foreseeable behavior change or need for it in the future. People in this stage, are often unaware, or under aware, of the negative impact drinking is having on their life. Others, may be aware of their problems, and therefore they entered treatment, or they had some coercion from an outside force. They may feel as if they are being forced into change, and may even demonstrate change when the coercion is in place; however, it often does not persist once the outside pressure is removed. Those, in this stage, may "wish" to change, but lack serious consideration, and it is unlikely that there will be any measurable manifestation of change in the next six months (Prochaska, DiClemente & Norcross, 1992). Resistance is a key factor in this stage. When working with college students in this stage, the primary objective should be to increase awareness of the hazardous or problematic nature of their drinking. This may be done by drawing their attention to: money spent drinking, hours spent drinking, or recovering from drinking. Raising doubts about their understanding of the drinking pattern, lack of negative consequences as related to their drinking etc., is a focus in this stage as well. One must "roll with the resistance" that is present, rather than confronting it head on. It is important to have the

person develop their own arguments to change, by removing any feelings that they are being coerced by the therapist.

Once the students move from precontemplation to contemplation, by starting to think about the pro/cons of their behavior, the therapist's task and focus must change. The contemplation stage, is where people have developed an awareness that a problem exists, and are thinking about changing their behaviors. However, no commitment has been made to act (Prochaska, DiClemente & Norcross, 1992). The task of the therapist, when working with someone in this stage, is to help them resolve their ambivalence. This can be done by creating the understanding that the benefits of change will outweigh those of maintaining the current pattern. The person, must also want to change on their own and not feel pressure to do so. The therapist may try to tip the balance of ambivalence, in favor of behavior change. This can be done by having he client identify reasons to change and the risks of not changing. For a student, reasons to change, may include more time to study and a possible increase in academic performance. Risks associated with not changing, may include not being accepted to graduate school, decreased GPA, and disputes with police or campus authorities. Empowering the student to feel like they can make the desired change, is also a therapist's goal when working within this stage.

In the next stage, the preparation stage, the practitioner should set out to help the person select the best routes to enact change (Prochaska, DiClemente & Norcross, 1992). This can be done by providing educational resources and supplying information about recovery resources such as Alcoholics Anonymous or Moderation Management. Different treatment approaches can be reviewed with the person and they can explore their options. Praise and positive reinforcement should be provided when the individual takes steps towards action and change.

People in the preparation phase are in the process of combining intention and behavioral actions They may report small behavioral changes, such as slight reductions in use. They are intending to make changes or take effective action within the next month (Prochaska, DiClemente & Norcross, 1992).

The action phase is when the individual truly does begin to act and engage in steps towards change. The individual modifies his or her environment or behavior to promote change. Encouragement and positive reinforcement should be provided by the facilitator. Overt behavioral changes become apparent and commitment of time and energy is necessary from the person. People are classified as being in this stage if they have altered their hazardous or risky drinking behaviors for one day to six months. The action phase receives the highest level of attention from professional and lay people alike, as modifications are easy to identify and reward. However, action is not equivalent to sustained change, and the factors/stages prior to action are also important. Attention to the maintenance stage is necessary for prolonged and sustained change (Prochaska, DiClemente & Norcross, 1992).

Those in the maintenance stage are working to prevent relapse and consolidate gains made during the action stage. It is a continuation of change rather than the end of change. If someone had been free of the high-risk or hazardous drinking behaviors and engaged in behaviors incompatible with drinking for six months or more, they are in the maintenance stage. The role of the therapist is to provide the individual with relapse prevention skills and tools (Dimeff et al, 1999; Prochaska et al., 1992). The MI model utilized by BASICS allows harm reduction changes to be sufficient for action and behavior change. However, in a strict Stage of Change model, complete abstinence is necessary for action and maintenance.

According to Prochaska and colleagues (1992), it is highly important to match treatment type and tasks to the individual's current Stage of Change. Failure to appropriately engage a client at their current stage can lead to treatment failure. Similarly, if the treatment tasks match the Stage of Change there is an increased chance of success. Thus, the BASICS guide is used to provide stage-based MI techniques, which increases the chance of a student's successes within the program.

For BASICS intervention to be successful from the MI perspective, a student does not have to begin safer drinking habits. Most students enter the program at a precontemplation level (Dimeff et al., 1999). Although it would be a very positive outcome to have someone enter BASICS at a precontemplation stage and end in an action phase, other outcomes can also be a success, including identifying or recognizing harmful patterns and resolving ambivalence. MI assumes that the student will persist in the direction of change well after the end of the intervention. This view reflects the humanistic perspective underlying this approach; people are envisioned as naturally inclined to move towards balance and wellness (Association for Humanistic Counseling, n.d.).

Larimer and Cronce (2002) found that MI could reduce high levels of drinking in college freshman who engaged in risky drinking behaviors and had many alcohol-related problems. Many college students begin this pattern of heavy drinking before they first arrive on campus and it persists in college, eventually affecting academic performance. Increasing students' motivation to change their drinking habits has been shown to be an effective intervention. Normative feedback and information on alcohol expectancies can build motivation when combined with MI techniques to influence behavior changes. This approach is similar to the one used in BASICS.

Students who participate in MI treatment focused on responsible drinking and mindfulness practices regarding alcohol consumption often reduce the amount they drink and have fewer alcohol-related problems. LaBrie, Pederson, Lamb & Quinlan (2007) found that participants reduced the number of monthly drinks consumed by 51% with the largest changes occurring in the heaviest drinkers. There were also reductions in total number of drinking days per month and maximum number of drinks in one sitting. Frequent binge drinkers, the highest risk group, reduced their monthly drinking days by 57% and their maximum number of drinks per occasion by 46% , This group decreased their number of alcohol-related problems as well. Alcohol policy violations were also less frequent in the MI treatment group compared to the no-treatment control group. Only 3% of MI students received a campus violation during the intervention timeframe and the three months that followed compared to 10% of the participants in the control group. The reduction in drinking and negative consequences were also present three months after the intervention (LaBrie, Pederson, Lamb, Quinlan, 2007).

Brief Motivational Interviewing (BMI) was developed in clinical and health settings to provide consultations in which patients can articulate their reasons to change and concerns about changing (Rollnick, Heather, & Bell, 1992). Brief sessions are short-term, occurring for a small number of sessions, such as 1 to 2 sessions. They are time limited with strategies taking 5-15 minutes to implement. These short types of interventions are known as microskills and strategies that are taught to the consultants during a 12 to 15-hour training program, like the training program used for BASICS (Dimeff et al., 1999). The skills used with a client are chosen based on their level of ambivalence and current readiness to change. The main goal is to see change in the near future, and not to focus on change within the session (Rollnick, Heather, & Bell, 1992). The MI used in BASICS is considered BMI.

Although developed in clinical and hospital settings, BMI has also been found to be effective with college students. Terlecki, Larimer, & Copeland (2010) examined BMI with mandated students and volunteer college students. Mandated students were college students who violated a campus alcohol policy and were mandated to alcohol treatment. Due to their violation, they were referred to this study. Mandated students could choose the standard treatment on campus or the BMI intervention. Volunteer students were high-risk, heavy drinkers identified via the Alcohol Use Disorder Identification Test (AUDIT). Students with very severe use patterns, students currently engaged in treatment, students who had received treatment previously, and students who made requests for more intensive treatment, such as rehabilitation, were excluded from the study because BMI is considered best suited for those with symptoms of abuse who do not meet the criteria for dependence. The AUDIT, the Rutgers Alcohol Problem Index (RAPI), and the Daily Drinking Questionnaire (DDQ) were implemented to gather baseline information and post-treatment outcomes. Terlecki, Larimer, & Copeland (2010) found a decrease in risky behavior in all mandated students, including those in treatment as usual. Treatment as usual is other active treatments already being used to treat risky substance use. It was suggested by the authors that this was because they had been subjected to a disciplinary process. However, a larger decrease was found when the disciplinary process was paired with BMI. For example, those in the in the BMI condition decreased peak drinking by .75 drinks while those in treatment as usual decreased their peak drinks by .62 drinks. BMI was also found to be an effective method for reducing high-risk alcohol use and associated problems amongst mandated students. Those in BMI reduced their mean quantity of drinks per week by 7.63 drinks, while the treatment as usual group reduce their weekly alcohol consumption by 2.25 drinks. Non-mandated volunteers also benefitted from BMI with peak drinking decreasing by

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1.45 standard drinks and drinks per week decreasing by 5.24 standard drinks. Based on these findings, the authors proposed that BMI may help reduce recidivism and alcohol-related consequences by decreasing risky drinking, identifying and intervening with high-risk drinkers, and providing treatment alternatives that are short-term and effective. Similar decreases in drinking behaviors in mandated students have been found in multiple studies (i.e. Mastroleo, Oakley, Eaton, & Borsari, 2014; Michael, Curtin, Kirkley, Jones, & Harris, 2006; White, et al., 2006). Long-term change has also been found with the use of BMI. When a follow-up study was completed 15 months after students participated in BMI with personal feedback, researchers found a sustained decrease in peak BAC, drinks per week, alcohol-related problems, and frequency of use. BMI with personalized feedback was more effective than receiving written feedback on its own (White, Mun, Pugh, & Morgan, 2007).

Cognitive Behavioral Self-Management

Self-management was developed as a component of Relapse Prevention Therapy (RPT) used in the treatment of addictions (Larimer & Palmer, 1999). The RPT model integrates multiple cognitive and behavioral approaches that are tailored to be effective at each of the 11 steps in the relapse process. The 11 steps of relapse include: Lifestyle imbalance, desire for indulgence, urges and cravings, rationalization, denial, engaging in high-risk situations, lack of coping response, decreased self-efficacy, positive outcome expectancies, initial use, and abstinence violation effect (Larimer, Palmer, & Marlatt, 1999). It is based on the biopsychosocial model. The interventions are broken into two main categories: the first category focuses on immediate determinants of relapse, such as high-risk situations, coping skills, and abstinence violations. While the second focuses on covert antecedents of relapse. Global self-

management strategies fall into the second category. The two groups are further broken down into skill training, cognitive restructuring and lifestyle balancing.

The purpose of global self-management is to modify lifestyle factors and covert antecedents that can increase one's exposure to an addictive substance or decrease resistance in high-risk situations. One works to increase balance in life and develop coping skills such as noticing early warning signs, identifying and countering cognitive distortions, and identifying relapse set-ups. Lifestyle balancing can include positive activity planning and behavioral activation. An example of cognitive restructuring in self-management is urge management and stimulus-response techniques, which aim to decrease urges and cravings. This can include removing all things associated with the alcohol use. Skill training may include techniques like relaxation or guided imagery for relaxation or mindfulness (Larimer & Palmer, 1999).

Within BASICS, the focus is less on relapse prevention and more on indicated prevention targeted to people who are already experiencing at least some manifestation of a certain problem or several risk factors (Dimeff et al., 1999). The emphasis is on both covert and overt behaviors and psychological processes that underlie the hazardous drinking pattern. The original model focused on three areas anticipating and preventing relapses, coping effectively with relapses that do occur, and reducing global health risk with balance and moderation. Within BASICS, students are taught how to anticipate, identify, and manage high-risk situations, develop a more balanced lifestyle and develop tools to handle struggles as they arise. This is done through nine principles of cognitive behavioral relapse prevention that were specifically adapted to the BASICS population and their unique issues. As students are able to cope with more high-risk situations, they develop self-efficacy that helps future goal building and attainment, and setbacks

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or goal violation effects, which are negative, counterproductive reactions mistakes in recovery, are seen as learning experiences. The nine principles are discussed below:

1. Identifying High-Risk Drinking Situations- Therapists help students increase their awareness of their drinking behavior and to identification of situational factors that contribute to hazardous use. Students are encouraged to engage in self-monitoring and reflection about where, when, and with whom they drink. Individuals identify subtle situational factors that are often difficult to discern outside of general drinking habits.

2. Providing accurate information about alcohol - Students learn to understand long-term effects of alcohol, but often fail to look at short-term negative outcomes. Therapists provide information in areas such as calculating blood alcohol content, measuring a standard drink, tolerance, sex differences, etc. This prepares students to discuss drinking and safety.

3. Identifying personal risk factors- Personal factors can contribute to the development of alcohol-related problems. These factors include family history of alcohol dependence/abuse, behavioral and impulse issues, and other substance use. Students receive individualized feedback about their unique risk factors and practitioners can recommend indicated treatments.

4. Challenging of Myths and Positive Alcohol Expectancies - Therapists encourage students to examine their beliefs about drinking and alcohol expectancies. Therapists provide individuals with factual drinking norms and challenge false beliefs with information and relevant statistics.

5. Establishing More Appropriate and Safer Drinking Goals- Moderation, drinking to avoid intoxication or alcohol-related problems, is promoted for people who want to continue

use. Students are helped to define and set limits and determine when they have had enough to drink.

6. <u>Managing High-Risk Situations-</u> Therapists teach strategies to initiate and maintain safer drinking limits. These are practiced through role play and homework. The cognitive strategies taught include reminding oneself of goal, using imagery and engaging in self-talk to overcome urges associate with use. The behavioral techniques include avoiding high-risk situations, being assertive, and engaging in alternative or incompatible activities.

7. <u>Learning from Mistakes</u> **-** Mistakes are identified as a part of the change process and the negative effects of mistakes or goal violations are mitigated. Lapses, slips, and mistakes are not seen as failures, but opportunities to learn more about one's self and high-risk situations. They are also seen as opportunities to improve the skills required to better handle future situations.

8. <u>Increasing Self-Efficacy</u> - Practitioners aid students in increasing their belief in their ability to attain and maintain change by increasing self-efficacy. The focus is on two forms of self-efficacy: resistance self-efficacy (Ellickson, 1984), and harm reduction self-efficacy (Marlatt & Witkiewitz, 2002). Resistance self-efficacy is the perceived ability to resist pressures to drink/use. Harm reduction self-efficacy is one's perceived ability to experiment or use in a way that reduces harm for oneself.

9. <u>Attaining Lifestyle Balance</u> **-** Students learn to balance what they feel they must do and what they want to do. The focus is on developing positive activities to replace or interfere with maladaptive behavioral patterns. There is also a focus on developing a

healthier lifestyle, managing time, and overcoming academic barriers without unhealthy

study habits and the desire for partying as a reward.

Irvin, Bowers, Dunn, & Wang (1999) did a meta-analytic review of RPT studies on alcohol,

smoking, and substance use from 1975 to 1995 including 26 studies and 9,504 total participants.

They found that treatment effects were strong and reliable for decreasing alcohol use. RPT

reliably and effectively reduced substance use and promoted enhanced psychosocial adjustment

when compared to other proposed treatment or treatment as usual. While the overall effect size

($r = .14$) of treatment on reducing substance use and increasing psychosocial adjustment was

small, Irvin and colleagues (1999) suggested, that the effect was important given the extreme and

often devastating effects that are associated with relapse. Furthermore, the effect size for alcohol

use was higher, $r = .37$, on reduction of substance use and psychosocial adjustment. Farrell,

Choquette, & Cutter (1998) found that RPT has similar positive outcomes in the treatment of

alcohol yielding decreased usage fewer relapses. However, very little research exists on RPT as a

treatment for college students with similar high-risk drinking behavior, such as binge drinking.

RPT is often integrated into larger treatment formats, such as BASICS, and not examined

individually.

Effectiveness of BASICS

BASICS has been found to be effective for both mandated and volunteer students

(Terlecki et al., 2010) at reducing alcohol consumptions and related consequences. Both saw

decreases in drinks per week with mandated students decreasing consumption by an average of

7.63 drinks and volunteers decreasing consumption by an average of 5.24 drinks. Mandated

students also saw a decrease in alcohol-related problems. Being involved with the disciplinary

process itself causes a decrease in drinking, as discussed previously. There was a larger

reduction in both alcohol use and alcohol-related consequences, however, with the addition of the BASICS intervention. Large, long-term effects of the BASICS intervention, including decreases in alcohol consumption, have been found consistently in other studies as well, and the effects appear to persist (Baer et al., 2001; Gil-del-Real, 2012). Marlatt and colleagues (1998) found that two years after BASICS was implemented with randomly assigned freshman students at high-risk for alcohol use problems and/or disorders there was a decrease in drinking rates and negative alcohol-related consequences compared to the no-treatment control group. The results of a recent meta-analysis (Gil-del-Real, 2012) also showed decreases in both control participants and those in the intervention in drinking behaviors. In the BASICS intervention groups, there was a significantly higher rate of deceleration, leading to more substantial decreases in alcohol use, consequences, and dependence rates. In another study, BASICS was shown to be effective independent of individual factors including gender and conduct disorder (Terlecki et al., 2010).

Students who partake in BASICS respond positively to the program (Murphey et al., 2001). They rate it more favorably than education only programs run by the same counselors, and 52% of the students in BASICS reported that it had a positive effect on their drinking behaviors as compared to 20% of those in an education only intervention. Consistent with student perceptions, researchers found that there were small to moderate effects of BASICS on alcohol consumption over the educational model, leading to a decrease in drinking. This supports the ideas that students respond to the empathic, non-judgmental, and non-confrontational style of BASICS over a purely educational approach.

DiFulvio and colleagues (2012) studied the effectiveness of BASICS with mandated students in a naturalistic (college campus) setting. They looked at 1,898 students (1,390 in BASICS, 508 comparison group) who were mandated to the BASICS program or randomly

selected from a pool of high-risk drinkers for inclusion in the comparison group. Students were

mandated to the BASICS program for violating the university's alcohol policy. Repeat offenders

and self-referred students were omitted. The BASICS intervention was carried out by master's

level facilitators trained in MI with on-going training to increase fidelity. Analysis revealed that

those in the BASICS group showed a significant decrease in the number of drinks they

consumed per occasion, BAC, weekly drinks and frequency of binge drinking relative to control

participants at a 6-month follow-up. There was no significant effect on daily drinking amount,

peak drinks consumed, consequences of alcohol use, and problem drinking AUDIT scores

indicated that the intervention was most effective with moderate to high-risk drinkers. The

effectiveness of the intervention was present at a data collection point two years after the

program ended, suggesting the effects of the intervention persisted overtime. However, the

reduced drinking rates were still in a dangerous range and more intervention may be necessary.

Amaro and colleagues (2010) also found that BASICS was effective when administered

naturalistically in a college health centers and influenced students' Stage of Change. In this

study, the BASICS intervention was employed with students who were referred to the study from

the health center as they reported drinking more than four drinks on one occasion in the past

month or using illegal drugs. Students participated in two BASICS sessions. A follow-up

survey, to measure long-term effects, was administered six months later. The results of this

study indicated that students decreased their overall drinking and binge drinking during the six

months encompassed by the study. The typical consumption per week was reduced by 2.6

drinks, and students consumed an average of 2.4 fewer drinks per weekend. The peak number of

drinks consumed during a six-month period decreased by 1.2 drinks, and peak weekend drinking,

in the same six month period, decreased by 1.3 drinks. The abstinence rate increased by 5% and

binge drinking decreased by 17%. These decreases were all statistically significant. Protective factors against alcohol use and alcohol-related problems such as setting drinking limits, using a designated driver, or choosing not to drink increased. There were also decreases in alcohol-related consequences, as measured by the Rutgers Problem Index, and distress, as measured by the Perceived Stress Scale. These effects were mediated by readiness to change, where higher readiness to change was related to increases in protective factors and larger drops in alcohol use (as high as 10%). This research demonstrates that BASICS can be used within a naturalistic setting and that it may act on students' Stage of Change and Readiness to change. It also identifies a key issue in working with the college population; usage and readiness to change varies drastically in students.

Effectiveness in a group setting. With 5-12% of students admitting to alcohol-related involvement with police or campus authorities, one-on-one interventions, as prescribed in the BASICS manual, may not be feasible. Because dangerous drinking continues to increase and the culture of alcohol is still prevalent on college campuses, group interventions may be viewed as more efficient and may be more likely to be implemented by college administrators to maximize the number of students helped and minimize cost. Barnett and Read (2005) found that most interventions implemented on campuses were performed with groups. It is important to realize however, that the research examining the effectiveness of group interventions with college students is limited and the results have been mixed.

When comparing Cognitive Behavioral Therapy, a component of BASICS, as a group versus individual therapy for the treatment of alcohol and drug use, results supported the use of groups. People in groups were more likely to adhere to treatment, and participants in individual and group treatment exhibited similar degrees of improvement (Marques, & Formigoni, 2001).

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Similarly, MI, another principle of BASICS, has been found to be more effective in a group

format for those mandated to substance use treatment compared to treatment as usual, in groups

and individually. Lincourt, Kuettell, & Bombardier (2002), supported by the work of Yalom

(1985), identified several advantages to group treatment including meeting the needs of more

people at a lower cost, vicarious learning and modeling, the positive support of peers, and the

experience of universality. Similar findings have been noted in treatments for other forms of

substance use including cocaine and opiates, but few studies have examined alcohol use

independently (Schmitz et al., 1997 Gottheil et al., 2014)

Despite the aforementioned findings, there are some concerns that arise when

implementing group interventions with the adolescent population. Dishion, McCord, & Poulin

(1999) reported that group interventions can lead to increased engagement in illegal or dangerous

behaviors and substance use, especially in adolescents. Normalization of negative behaviors and

learning new negative behaviors have varying contributions to increased delinquency and rate of

substance use. The authors found that potentially damaging effects of peer group interventions

may also be magnified for high-risk students. Adolescents and young adults are often the

recipients of the BASICS intervention; thus, it is difficult to predict the effectiveness of the

BASICS intervention when administered in a group format.

Faris and Brown (2003) addressed group dynamics related to BASICS that could possibly

lead to a less effective intervention in a group format. These counterproductive dynamics

included elaboration likelihood, production blocking, and social loafing. The primary concept of

the elaboration likelihood principle is that attitude change is more likely to occur when people

think deeply about the subject matter via a central route of processing rather than more

peripheral processing (Petty & Cacioppo, 2012). MI within a group may not be able to move

along this "central route" for all participants, as it may not be able to capture the interest of all members concurrently. This may decrease its effectiveness. Production blocking is a barrier to idea generation that is pivotal to productive MI. Students must develop their own ideas and arguments around change. However, as a group becomes larger, people lose the time and space to share ideas and spend time listening to others. People may forget what they want to say before they have a chance to say it, or they may struggle to process the comments of the other group members. Finally, social loafing occurs when people decrease their efforts when they are part of a group (Lateen, Williams, & Harkins, 1979). Similar to production blocking, people may be less engaged or not speak. They may also fail to fully engage with the material which could lead to decreased central processing. These factors, as discussed above, can decrease the intervention's chances of success, however, Faris and Brown (2003) found that these counterproductive dynamics can be addressed if facilitators monitor and intervene when they become apparent.

The only study examining the effectiveness of BASICS administered to groups of students mandated to treatment was performed by Hill (2013). This study examined the effectiveness of BASICS administered to small groups of high-risk drinkers in a naturalistic setting (counseling and testing center). BASICS did not reduce hazardous drinking in this study relative to control participants who were on the waitlist for treatment. Furthermore, hazardous drinking increased slightly, but not significantly, amongst students in both conditions. There was also no change in alcohol consequences, readiness to change, student engagement, or harm reduction. When controlling for baseline differences, frequency of alcohol use, and alcohol consequences were significantly lower in the BASICS group. These decreases were small, however, as was the sample size for the study (25 students completed the intervention and 27

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students were in the control group). Given the small sample size, the external validity of the positive findings is questionable and meaningful improvements in other variables may not have been detected due to low power. Further research examining the effectiveness of BASICS administered in a group format is required to draw firm conclusions about the effectiveness of this intervention strategy.

Purpose of this Study

The purpose of this study was to evaluate the BASICS program at Indiana University of Pennsylvania (IUP), which is administered partially in a group format. The specific goals of the study were to determine whether BASICS administered in this way decreases hazardous drinking behaviors and helps students progress in the Stages of Change. The BASICS program at IUP is mandated when a student has violated one of the university's alcohol policies. The first session in this intervention, is performed with groups of 16 students or less and is 1.5 hours in duration. The second session is completed individually using the participant's unique drinking data and history. The second session occurs two weeks after the first and is between 15 and 30 minutes in duration. As discussed above, BASICS has been found efficacious with mandated college students and can lead to healthier outcomes. However, this modified version using groups, extended first sessions, and abridged second sessions may not produce the same outcomes due to group dynamics and failure to adhere to the manual. This study was designed to resolve this ambiguity and to determine if this modified program can be an effective group intervention.

Hypotheses

The main hypothesis of this evaluation is that the BASICS intervention will decrease the dangerous drinking patterns and consequences experienced by participants compared to participants in the comparison group, who were not mandated to treatment. Specific findings are

expected to include a decrease in number of drinks per week, peak drinks, average BAC, peak

BAC, risk level for alcohol-related disorders, and alcohol-related consequences. It is also

expected that the changes should be mediated by shifts in the participants' Stages of Change,

towards increased awareness, as BASICS is built on an MI model (Dimeff, 1999). As drinking

patterns, rates of use, and related consequences often differ with sex, separate exploratory

analyses will also be performed using the data obtained from males and females.

CHAPTER THREE

METHOD

Participants

The research participants attended a medium sized northeastern university. All procedures performed in this study were approved by the university's Institution Review Board for the Protection of Human Subjects. The group outcomes from this study were shared with the university's Office of Alcohol, Tobacco, and Other Drugs to provide information for future program development. The Office of Alcohol, Tobacco, and Other Drugs was not given access to any individual's data or record of participation.

Participants in the intervention group were mandated to attend in the BASICS program. Data were collected between February and April of 2016. BASICS is mandated when a student has been sanctioned by the university for violating the alcohol use policy. The reasons for sanctions vary from having alcohol paraphernalia (e.g. posters, shot glasses) to more severe infractions such as public drunkenness or driving under the influence. These sanctions can occur separately or in tandem with criminal charges. Due to this variation, mild to heavy drinkers were represented, with more students falling into the mild category.

In the intervention group, 126 students completed the first survey administered immediately before the first BASICS session, and 44 of the 126 students completed the final survey which was administered approximately two weeks later, immediately after the second BASICS session. The completion rate for the intervention group was 34.9%. According to the Office of Alcohol, Tobacco and Other Drugs, 156 students went through BASICS during the data collection timeframe. Although student participation in the BASICS program was mandatory, participation in this program evaluation study was voluntary. Participation, or lack

thereof, did not affect participants' ability to complete the BASICS program. Students who completed all stages of the program evaluation study were entered in a random drawing for two $25 gift cards for a local grocery store.

A comparison group of 97 students was recruited from the Psychology Department subject pool. The students comprising the comparison group partially fulfilled a course requirement for General Psychology 101 by taking part in this study. Because BASICS is a required program for those referred, participants could not be randomly assigned to the intervention and comparison groups. Alcohol abstinence, defined as no alcohol consumed in the last year, was an exclusion criterion for the comparison group because participants in the intervention group had been mandated to the BASICS program for an alcohol-related offense making it unlikely that these students abstained from alcohol. No additional restrictions related to the amount or frequency of alcohol use were imposed on the comparison group because students could be mandated to the BASICS program for a wide range of alcohol-related offenses reflecting varying levels of involvement with alcohol. The comparison group was expected to be similar to the BASICS intervention group. Data were collected from participants in the comparison group on two different occasions separated by two weeks. The study completion rate for the comparison group was 82.2% with 118 participants completing the first survey and 97 completing the second survey.

Materials

The data collected from participants included demographic information and information about alcohol use, blood alcohol content (BAC), consequences of alcohol use, Stages of Change, and problem drinking. The selected assessments were all self-report and were chosen to cover the range of problems the BASICS program was designed to decrease. Many of these measures

have also been used in past research examining the effectiveness of the manualized BASICS program administered in an individual, rather than group, format (i.e. Amaro, et al., 2010; Baer, et al., 2001; Mastroleo, et al., 2014). Self-report measures have been found to be valid data collection tools for alcohol abusing populations and correlate highly with collateral information (Babor, Steinberg, Anton, & Del Boca, 2000). For these assessments, a drink was defined as one to one and half ounces of liquor, four to five ounces of wine, and twelve ounces of beer. The timeline for the collection of each assessment is listed in Figure 1. Data were collected using a survey composed of the following measures.

BASICS INTERVENTION GROUP

Data Collection Time 1:		Other Data Collection point:		Data Collection Time 2:

Data Collection
Time 1:

- DDQ
- RAPI
- RTCQ
- AUDIT
- Demographics
- Drinking Demographics

BASICS Group

1.5 hours

Other Data
Collection point:

- RTCQ

2 weeks

BASICS
Individual

Data Collection
Time 2:

- DDQ
- RAPI
- RTCQ
- AUDIT
- Drinking Demographics

COMPARISON GROUP

Data Collection
Time 1:

- DDQ
- RAPI
- RTCQ
- AUDIT
- Demographics
- Drinking Demographics

2 weeks

Data Collection
Time 2:
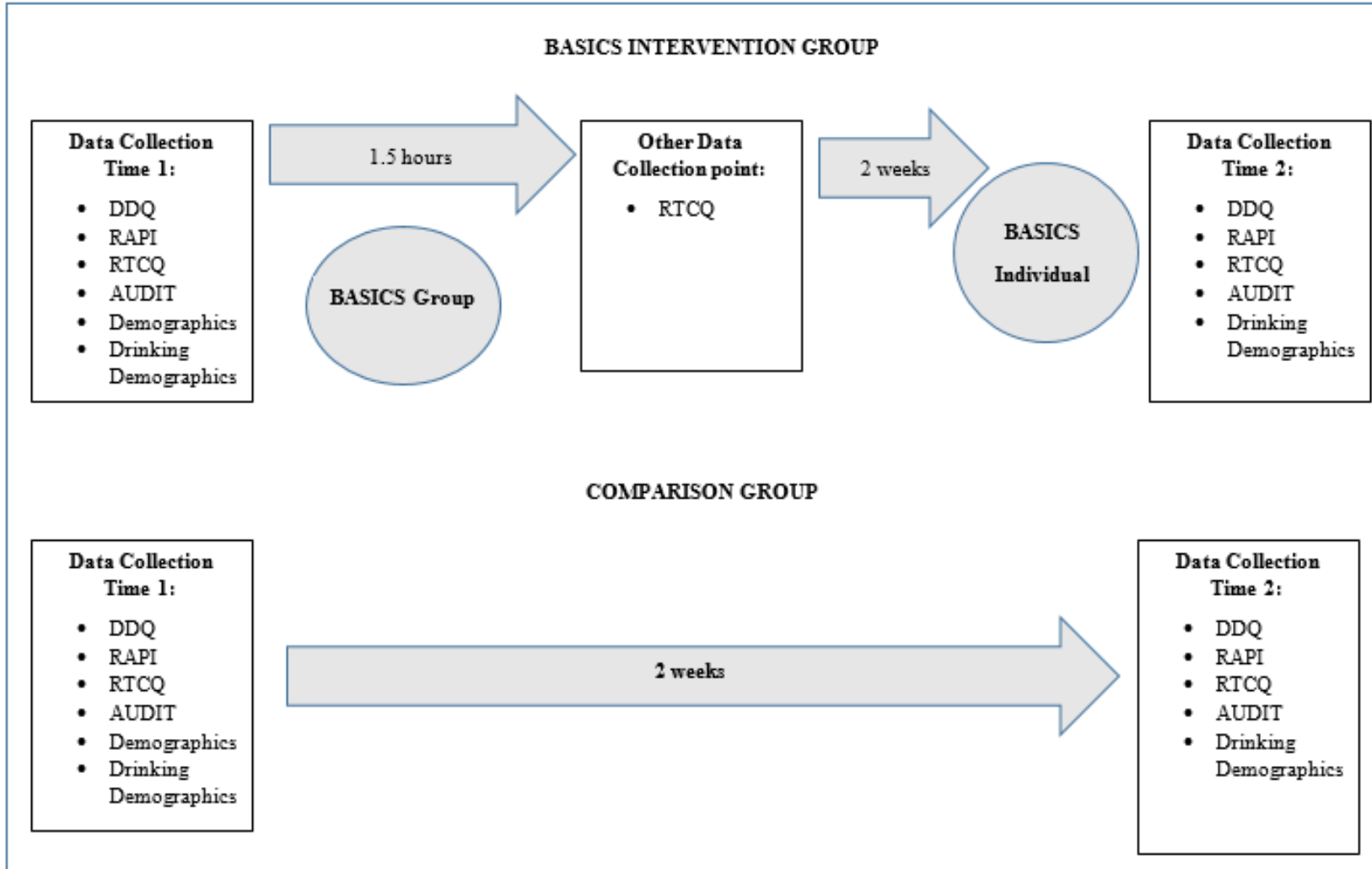
- DDQ
- RAPI
- RTCQ
- AUDIT
- Drinking Demographics

Figure 1. Timeline of intervention and data collection including measures collected at all data collection points for the Intervention and Comparison Groups.

Demographics Questionnaire

The demographic questionnaire included questions about age, sex, and race/ethnicity. The questionnaire also asked participants to indicate the average number of days they drank per week (frequency), where they drank, and where they drank most often. Participants were also asked to provide information about past alcohol-related violations including the number and type (student conduct, legal, or both) of alcohol-related violations they had and the number of times they had participated in the BASICS program.

Daily Drinking Questionnaire

Alcohol use data were collected using multiple approaches. Usage over the past two weeks was collected using a modified version of the Daily Drinking Questionnaire (DDQ) (Collins, Parks, & Marlatt, 1985). Participants were asked the number of standard drinks they consumed in the last two weeks utilizing a weekly calendar for each week. Similarly, a weekly calendar was used by the participant to chart the number of hours spent drinking over the past two weeks. Collins and colleagues (1985) found moderate convergent validity between the DDQ and the Drinking Practices Questionnaire with a correlation of $r(52)= .50$ p=.001. Many studies suggest that retrospective daily estimations are a valid and reliable way to collect consumption data, and may be more valid than the quantity /frequency measures, which are often the alternative (Del Boca & Darkes, 2003). Quantity/Frequency measures ask on average how much did you drink in a specific period of time. This is a modification of the DDQ, allowing it to be used as a retrospective estimation.

Alcohol Quantity / Frequency Questions

Additional data related to alcohol consumption patterns were also collected. Students were asked: "On a typical night out, how many standard drinks do you consume?", as well as

"On a typical night out, how many hours do you spend drinking?" Data obtained in response to these questions were used to assess the structure of typical drinking bouts, estimate blood alcohol content, and identify possible binge drinking. Participants were also asked: "In the past two weeks, in one drinking occasion, what was the most you consumed?" and "How much time did you spend drinking on that occasion?" Responses to these questions were compared to the daily drinking information that was previously acquired, to check for consistency in answering, and allow for a secondary check for binge drinking behaviors.

The Rutgers Alcohol Problem Index

The Rutgers Alcohol Problems Index (RAPI) (White & Labouvie, 1989) was utilized to identify each participant's consequences of alcohol use. This inventory consists of 19 items and asks participants to select the number of times a behavior occurred while drinking, or as a direct result of drinking, in the last 3 years. However, it can be adjusted to look at briefer, retrospective periods of time. For this study, the RAPI was used to examine behavior over the last two weeks.

The RAPI factors include: concern about drinking, irresponsibility, neglecting symptoms of alcohol dependence, interpersonal conflict, and family conflict. This measure has been found to have high internal consistency (r^2=.92). Also, a moderate to high correlation (r^2 ranging from .20 to .57) exists between RAPI scores and alcohol use (White & Labouvie, 1989). This inventory takes only five minutes to complete.

Readiness to Change Questionnaire

The Readiness to Change Questionnaire (RTCQ) is a 12-item questionnaire using a five-point Likert scale based on Prochaska and DiClemente's (1982) Stages of Change model. The RTCQ has three subscales that map onto three of the Stages of Change: precontemplation, contemplation, and action. Examples of statements mapping into each scale are as follows:

- *Precontemplation*: "My drinking is okay as it is", "It's alright for me to keep drinking as I do now"

- *Contemplation*: "I should cut down on my drinking", "I enjoy drinking, but sometimes I drink too much"

- *Action*: "I am actually changing my drinking habits right now", "Anyone can talk about wanting to do something about drinking, but I am actually doing something about it".

A change in the scale score should represent a change in a person's current Stage of Change (Rollnick, Heather, Gold, & Hall, 1992). This assessment has been demonstrated to be psychometrically sound; internal consistency assessments yielded Crobach's alpha coefficients of α = .73 for precontemplation, α = .80 for contemplation, and α =.85 for action. Test-retest reliability was r = .82, .86, and .78 for each respective scale. Concurrent validity was found between the measure and participants' thoughts of change about their own health and drinking (Tau = -.454, p < .0001) (Rollnick, Heather, Gold, & Hall, 1992). The RTCQ, is listed in the BASICS manual as a relevant instrument for the assessment of shifts in Stages of Change (Dimeff, et al., 1999). Pilot data from 24 students were used to compare responses on the RTCQ to responses on the Stages of Change Readiness and Treatment Eagerness Scale (SOCRATES) (Miller & Tonigan, 1996) before treatment and post intervention. No significant differences were found between the two measures in their ability to detect a shift in the student's Stage of Change. However, the SOCRATES is a longer, 19 question measure, that does not detect the precontemplation phase, which is likely to be common in this population. Therefore, the RTCQ was chosen due to multiple factors: its brevity, its sensitivity to the precontemplation phase, and the lack of support for the longer alternative measure.

Alcohol Use Disorder Identification Test

The Alcohol Use Disorders Identification Test (AUDIT) was designed to identify people with excessive drinking who would benefit from decreasing or ceasing drinking. This measure consists of 10 questions and takes less than five minutes to complete. It separates people into three categories: low-risk, moderate risk, and high-risk, as well as providing a numerical score. The AUDIT has been found to be effective for identifying alcohol risk factors and has been often found to be more effective than other similar tests, such as the CAGE Questionnaire and Augmented CAGE Questionnaire (Bradley et al., 1998). Within the college student population, the AUDIT has been found to be valid with a sensitivity of 91% and specificity of 60% in detecting "high-risk" alcohol users. It performed best at detecting high-risk alcohol use (87.2%) and worst at detecting those with a lifetime history of an Alcohol Use Disorder (77.5%) (Kokotailo, et al., 2004). Similarly, the AUDIT was found to be both valid and reliable, with first time offending college students and is recommended for early intervention programs, like BASICS (O'Hare & Sherrer, 1999). The AUDIT is also recommended by the NIAAA and used during their National Alcohol Screening Day (Dupre, Aseltine, Wallenstein, & Jacobs, 2004). This measure was developed and endorsed by the World Health Organization (Bohn, Babor, & Kranzler, 1995).

<div align="center">

Procedure

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The consent procedure occurred when students arrived for the BASICS intervention, but prior to the administration of the initial survey and beginning of the intervention. Students were given a consent form to read and sign. All consent and debriefing forms are in Appendix C. This information contained in the form was also summarized verbally by the research assistant for participants in the intervention group. This form indicated that participation in the study was

voluntary. Participants were also informed that the purpose of the study was to examine the effectiveness of the BASICS intervention, and that the study would be carried out over the course of two weeks in conjunction with the meetings for the BASICS program. The same consent material was presented digitally via the Qualtrics systems prior to the administration of the final data collection survey. For participants in the comparison group, a written consent form was provided via the Qualtrics survey collection system. Students had to accept the terms of consent before proceeding with each of the two surveys administered to this group. Control participants were informed that participation in the study was voluntary, that the purpose of the study was to examine the effectiveness of a campus alcohol intervention, and that the study would be carried out over the course of two weeks.

Steps were taken to ensure that the students' identity, in both groups, remained anonymous to all assistants and the primary investigator, allowing the students to be as open and honest as possible dung the survey. Each student created a unique personal identification number (PIN), known only by the student. The PIN consisted of, in order: the last two digits of their school identification number and their two-digit (day) date of birth, to create a four-number code. For example: Jane Smith, born 07/09/91, has school identification number of 12345678. Her PIN would be 7809. This pin creation system was chosen to maintain methodological consistency across participants and to facilitate easy recall by the student. The PINs and associated names were not stored together as no names were gathered outside of the consent forms. If a participant's data could not be identified across the collection points, the data were removed from the dataset.

The primary data collections for this project were conducted using surveys that included the components described in the Materials subsection above. There were two primary points of

data collection for participants in the BASICS intervention group and the comparison group. The first data collection survey was administered to the participants in the BASICS intervention group immediately before the first BASICS meeting. This survey included demographic questions, drinking demographic questions, the DDQ, Alcohol Use Questions, the RAPI, the RTCQ, and the AUDIT. The second administration occurred approximately two weeks later following completion of the BASICS intervention. This survey included the DDQ, Alcohol Use Questions, the RAPI, the RTCQ, and the AUDIT. The first survey was administered on paper by trained research assistants. Students were provided with a survey packet and were directed to be as open and honest as possible while answering the questions. The second survey was administered using the Qualtrics online survey system. In addition to these primary data collections, participants in the BASICS groups were asked to complete the RTCQ immediately following the first (group) BASICS meeting. Figure 1 depicts the time-course of data collection in relation to the components of the BASICS intervention.

Changes were made to the BASICS program to format it for a group intervention. The original and manualized format consisted for two 50-minute one-on-one interventions. The first session consists of a structured clinical interview and self-report questionnaire packet. The second session was a feedback session that include a personalized graphic feedback sheet, personalized BAC chart, and alcohol psychoeducation. The group format, tested in this study, consisted of one 90-minute group session with up to 16 participants per group and one individual session that was 15-30 minutes. During the first session, students review rules and expectations, introduce confidentiality, and privacy in the group, provide introductions and reason for being in BASICS, review pros and cons of drinking, receive social norm information, review psychoeducation on standard drinks and BAC, discuss alcohol use and the brain, signup for

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individual session, and assign homework to track alcohol consumption over the next two weeks. In between the two sessions, they completed a self-reports questionnaire packet online. This information is used to guide the 15-30 min individual session, including personalized BAC chart, personal risk factors, and suggestions for ways they can adjust their drinking.

The comparison group data was collected only via the Qualtrics survey system. Two data collection points occurred for this group, about two weeks apart. During data collection point one, comparison participants were asked to complete demographic questions, the DDQ, Alcohol Use Questions, the RAPI, the RTCQ, and the AUDIT. During the second data collection, comparison group participants were asked to complete the DDQ, Alcohol Use Questions, the RAPI, the RTCQ, and the AUDIT. Overall, each data collection generally took the participants 30-45 minutes to complete.

Data Analysis

Variables

The measures listed above, were used to create several variables for data analysis. These variables included Average Drinks Per Week, Peak Drinks, Average BAC, Peak BAC from DDQ, Peak BAC from Quantity/Frequency Questions, Binge Drinking, RAPI score, AUDIT Score, and RTCQ Stage. These variables were operationally defined as follows:

Average Number of Drinks Per Week was calculated using data collected as part of the modified DDQ. The modified DDQ asked participants to report the number of standard drinks they had consumed in the last two weeks. The average number of drinks consumed per week was calculated by dividing this number by two.

Peak Drinks was defined as the highest number of drinks consumed in one day during the last two weeks as indicated by the participant's response on the modified DDQ.

For the following variables, *Blood Alcohol Content (BAC)* was estimated using an online

calculator (BACZone, 2017) that used a modified version of the Widmark Formula (Davies &

Bowen, 1999). This calculator was used to calculate the Peak BAC from DDQ, Peak BAC from

Quantity/Frequency Questions reported, and Average BAC variables. The Widmark formula,

which is endorsed by the National Highway Traffic Safety Administration, produces a BAC

value based on the following formula: $BAC = (A/p \text{ x } r) - b \text{ x } h$ where A is the amount of alcohol

absorbed in grams, p is body weight (lbs), and r is the distribution of alcohol in the body, which

is gender dependent (r= .73 for males, r= .66 for women), b is the rate of alcohol burn off and H

is the number of hours spent drinking. The modified version of the Widmark formula used by

the BACZone calculator uses a more conservative burn off rate of .012g/hour than the rate of

.015 g / hour used in the unmodified formula (BACZone, 2017).

Peak BAC from the Quantity/Frequency questions was defined as the highest BAC levels

experienced by the participant in the last two weeks, per the participant's estimated report. It

was calculated from participants' responses to these alcohol use questions: "In the past two

weeks, in one drinking occasion, what was the most you consumed?" and "How much time did

you spend drinking on that occasion?" From this information, an alcohol quantity and drinking

duration was derived. The quantity of alcohol consumed, drinking duration, the participant's

sex, and the participant's weight were then entered into the BAC calculator to produce an

estimate peak BAC.

Peak BAC from DDQ was operationalized as the average blood alcohol content of the

participants attained by the participant when drinking. To calculate this estimated BAC, the peak

number of drinks reported in the shortest time-period and the duration of drinking was obtained

from the modified DDQ. This information, the participants sex and weight were entered into the BAC calculator to obtain an estimated BAC.

Average BAC was defined as the typical BAC a student would obtain on an average drinking night in the past two weeks. This was calculated using the responses to the following two alcohol use questions: "On a typical night out, how many standard drinks do you consume?" and "On a typical night out, how many hours do you spend drinking?". From this information, an average alcohol quantity and average drinking duration was derived. The quantity, duration, participant's sex, and participant's weight were then entered into the BAC calculator to produce an average BAC.

Binge drinking was defined as consuming 4 or 5 drinks in two hours for females and males, respectively. The number of binge drinking episodes was calculated using the information participants provided on the DDQ. Any incidents of more than 4 or 5 drinks consumed in 2 hours or less, or the mathematical equivalent, was counted as a binge drinking episode. The modified DDQ reflected on the past two weeks or 14 days. It asked participants to report the number of standard drinks they consumed and how many hours they spent drinking on each day in the past two weeks.   Thus, it is possible that the student could have reported binge drinking behaviors each day. Based on this data gathering technique, the number of binge drinking episodes could have ranged from 0 or no binge drinking episodes to 14 or daily binge drinking episodes.

Alcohol-related problems was operationalized as participants scores on the Rutgers Alcohol and Problems Inventory (RAPI). Scores can range from 0 to 69 on this measure (White & Labouvie, 1989).

Alcohol Risk Factor was defined as a student's score on the AUDIT. This is a brief screening tool designed to identify people with excessive drinking. It separates people into three categories: low-risk, moderate risk, and high-risk, as well as providing a numerical score, 0 to 40. The numerical score was utilized during data analysis. The frequencies in which students endorsed each category are reported in the demographics portion of the results section.

It should be noted that for a small number of comparison participants, one question of the AUDIT was not received during the pretest. A comparable question from the RAPI, which also assessed memory loss due to excess drinking was used a substitute. The AUDIT is scored 0 to 4 and the RAPI 0 to 3. A direct conversion was used from the RAPI creating a cap of 3 points. For reference, only one participant endorsed a response to this question on the AUDIT that was coded as a 4.

Stage of Change was determined based on the scores from the, 12 item, RTCQ. That score is then translated into one of three subscales categories: precontemplation, contemplation, and action (Rollnick, Heather, Gold, & Hall, 1992). The score for each subscale is calculated from the RTCQ. The highest score of the three is the current Stage of Change. If two stages receive the same score, the subscale higher in the Stage of Change is selected. This is based on standard scoring procedures (Rollnick, Heather, Gold, & Hall, 1992).

Data Analyses

As a part of the analysis each variable was also tested for its normality and homogeneity of variances. The Shapiro- Wilk's test was utilized to Test the distribution of each of the variables discussed above. As Table 1 shows, all listed variables, except Alcohol risk factors were not normally distributed. Each violated the normality assumption with at least p<.05, for

all groups and across both data collection points. The Alcohol risk factors, per the Shapiro-

Wilk's test, was normally distributed.

Table 1

Shapiro-Wilk's Test of Normality for Intervention and Comparison Variables

| | Intervention | | | | | | Comparison | | | | | |
| | Pretest | | | Posttest | | | Pretest | | | Posttest | | |
Variable	w	df	*p*	w	df	*p*	w	df	*p*	w	df	*p*
Average Drinks Per Week	0.822	36	<.001*	0.871	36	0.001*	0.666	90	<.001*	0.656	90	<.001*
Peak Drinks	0.873	36	0.001*	0.943	36	0.065	0.856	90	<.001*	0.762	90	<.001*
Average BAC	0.893	40	0.001*	0.91	40	0.004*	0.877	90	<.001*	0.785	95	<.001*
Peak BAC from Quantity/Frequency	0.826	36	<.001*	0.889	36	0.002*	0.805	90	<.001*	0.727	90	<.001*
Binge Drinking	0.379	42	<.001*	0.222	42	<0.001*	0.451	94	<.001*	0.368	94	<.001*
RAPI	0.853	36	<.001*	0.716	36	<0.001*	0.555	90	<.001*	0.48	90	<.001*
AUDIT	0.95	36	0.1	0.936	36	0.039*	0.898	90	<.001*	0.859	90	<.001*

Note: * Denotes violations of normality where *p* <.05

To test the homogeneity variances, Levene's Test was carried out for each variable. For Average Drinks per Week, Average BAC reported, Peak BAC reported, Alcohol Risk Factors, and Alcohol- Related Problems, homogeneity of variance was confirmed for both the pretest and posttest. Average BAC and Binge Drinking Episodes show a lack of homogeneity for both pretest and posttest. Peak drinks showed homogeneity of variances for time one, but not for time two. See Table 2 for exact statistics for each variable.

Table 2
Levene's Test of Homogeneity of Variance for All Variables

Variable	Pretest			Posttest		
	w	df	*p*	w	df	*p*
Average Drinks Per Week	0.047	138	0.829	1.08	138	0.699
Peak Drinks	0.895	138	0.346	5.005	138	0.027*
Average BAC	0.681	133	0.411	1.939	133	0.166
Peak BAC from Quantity/Frequency	0.216	128	0.643	1.295	128	0.257
Binge Drinking	7.847	134	0.006*	10.196	134	0.049*
RAPI	0.306	138	0.581	0.026	138	0.873
AUDIT	1.643	137	0.202	<.001	137	0.983

Note: * denotes violations of homogeneity where p<.05

While the majority of the variables examined violated the normality assumption required for parametric statistical analysis, the decision was made to analyze the data using several two-way, mixed model ANOVAs. Violations of the normality assumption were expected because most students engage in lower risk drinking behaviors, while only a small minority engage in the more dangerous behaviors. Similar violations were expected and appeared for the assumption of homogeneity of variances for three variables, Peak Drinks, Average BAC, and Binge Drinking Episodes. The ANOVA should be robust against these violations as none of the analyzed groups had less than 30 participants (Laerd, 2015; Wilcox, 2012)

Data for each of the above variables was analyzed using a two-way, mixed-model ANOVA. Group was a between-subjects factor with two levels (intervention group and comparison group), and Time was a within-subjects factor with two levels (time one/pretest and time two/ posttest). For participants in the intervention group data collected during the first survey administration, prior to the BASICS intervention, were used for time one and data collected after the completion of the BASICS program were used for time two. For participants in the comparison group, the data collected during the first and second survey administration, which were separated by two weeks, were used for time-points one and two, respectively. Data from the RTCQ administered to the participants in the BASICS group following the first group BASICS session were not included in the analyses, because equivalent data were not collected from comparison participants. Planned exploratory analyses were also performed to determine whether the intervention had different effects on males and females. These analyses were carried out by performing similar two-way, mixed model ANOVAs on the data collected from male and female participants separately. The analyses were considered exploratory because the sample sizes for the intervention group, when separated by sex, was not 30 or greater, making it vulnerable to the violations of the normality assumption.

If the interaction of the mixed model ANOVA was significant, follow-up t-tests were completed to for the comparison and intervention groups. The t-test were carried out to determine in which group there was a change over time and to confirm the direction of the change (increase or decrease).

The data from the students' Stage of Change from the RTCQ was analyzed via the Wilcoxon Signed-Rank Test, a non-parametric analysis, due to the ordinal nature of the outcomes. This test is considered a nonparametric alternative to the t-test for correlated samples

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(Lowry, 2017). Changes in student's motivation was compared across time one and time two for

the intervention group and comparison group separately.

CHAPTER FOUR

RESULTS

Baseline Characteristics

The intervention and comparison groups were relatively similar at the beginning of the study. The age, sex, and race distributions of participants in the intervention and comparison groups are enumerated in Table 3. Examination of these distributions indicates that the groups were relatively similar across these variables. The mean values for age and the drinking-related variables for the two groups are enumerated in Table 4. The results of independent samples t-test (Table 4) indicated that the groups differed in two categories at baseline. The first difference was in average BAC calculated from the Quantity/Frequency questions, with the intervention group having a higher mean BAC than the comparison group. The second difference between the groups was for AUDIT scores. The intervention group had higher mean AUDIT scores than the comparison group. Importantly, however, the mean AUDIT scores for both groups were within the minimal risk range (scores less than 8). The mean time between the pretest and posttest survey administrations also differed significantly between the groups, with the intervention group requiring an average of 2.57 more days to complete the study. This may be due to participants in the BASICS group completing the second survey after the second BASICS session, which had to be scheduled one-on-one with a facilitator. The mean group values at the beginning and end of the study for this variable and all remaining variables are also enumerated in Table 5. This is further broken down by sex in Table 6 for males and Table 7 for females.

Table 3

Frequency of Ages, Sexes, and Races for Intervention and Comparison Groups

Characteristic	Intervention (n=44)		Comparison (n=97)	
Age (yrs)	n	%	n	%
18	13	29.5	32	33
19	14	31.8	44	45.4
20	9	20.5	16	16.5
21	4	9.1	7	72
22	4	9.1	4	4.1
23	0	0	1	1
24	0	0	1	1
Sex				
Male	18	40.9	37	38.1
Female	26	59.1	60	61.9
Race				
White	31	70.5	84	86.6
Black	3	6.8	5	5.2
Other/Multiracial	6	13.6	8	8.2
None Reported	4	9.1	0	0

Table 4

Descriptive Statistics (Mean and Standard Deviations) and Results of T-tests between Intervention and Comparison Groups for All Variables

	Intervention		Comparison				
	M	SD	M	SD	t	df	p
Average Drinks Per Week (number of drinks)	6.84	7.68	5.70	8.36	0.76	138	0.448
Peak Drinks (number of drinks)	3.74	3.35	3.75	3.76	0.00	138	0.996
Average BAC (g/dL)	0.11	0.08	0.07	0.07	3.15	134	0.002
Peak BAC Quantity/Frequency (g/dL)	0.11	0.11	0.09	0.11	0.70	131	0.486
Peak BAC from DDQ (g/dL)	0.08	0.10	0.08	0.10	0.05	134	0.961
Binge Drinking Episodes (number of instances)	0.12	0.33	0.27	0.67	-1.34	134	0.183
RAPI Scores	3.52	3.48	2.77	4.93	0.91	138	0.364
AUDIT Scores*	7.52	5.43	5.66	4.82	2.07	137	0.040
Age	19.36	1.26	18.99	1.03	1.86	139	0.064
Time between Surveys*	16.69	8.65	14.12	6.05	2.03	139	0.044

Note: *Significant result, p<.05

Table 5

Means and Standard Deviation for All Variables in the Intervention and Comparison Groups

	Intervention				Comparison			
	Pre		Post		Pre		Post	
Variables	M	SD	M	SD	M	SD	M	SD
Average Drinks Per Week (number of drinks)	6.84	7.68	6.16	6.34	5.7	8.36	5.77	9.21
Peak Drinks (number of drinks)	3.74	3.35	3.8	2.95	3.75	3.76	3.98	5.00
Average BAC Calculated (g/dL)	0.13	0.18	0.05	0.05	0.06	0.07	0.06	0.08
Peak BAC Reported (g/dL)	0.11	0.11	4.71	4.44	0.09	0.11	0.09	0.12
Peak BAC Calculated (g/dL)	0.08	0.1	0.07	0.06	0.08	0.1	0.08	0.12
Binge Drinking Episodes (number of instances)	0.12	0.33	0.05	0.21	0.27	0.67	0.19	0.58
RAPI Scores	3.52	3.48	2.91	4.11	2.77	4.93	2.13	4.6
AUDIT Scores	7.52	5.43	5.66	4.7	5.6	4.86	4.98	4.91

Table 6

Means and Standard Deviation of All Variables for the Males in the Intervention and Comparison Groups

Variables	Intervention				Control			
	Pre		Post		Pre		Post	
	M	SD	M	SD	M	SD	M	SD
Average Drinks Per Week (number of drinks)	9.11	9.83	8.03	8.21	6.91	8.14	8.03	11.51
Peak Drinks (number of drinks)	4.39	4.19	6.38	5.93	4.46	3.93	5.70	6.11
Average BAC Calculated (g/dL)	0.11	0.22	0.04	0.04	0.08	0.07	0.07	0.10
Peak BAC Reported (g/dL)	0.11	0.12	0.11	0.12	0.09	0.09	0.10	0.14
Peak BAC Calculated (g/dL)	0.08	0.11	0.07	0.06	0.08	0.07	0.10	0.13
Binge Drinking Episodes (number of instances)	0.12	0.33	0.00	0.00	0.30	0.78	0.30	0.78
RAPI Scores	3.78	3.95	2.94	3.40	2.53	3.69	2.32	3.81
AUDIT Scores	9.50	5.50	6.83	5.76	6.27	4.52	5.62	4.74

Table 7

Means and Standard Deviation of All Variables for the Females in the Intervention and Comparison Groups

| | Intervention | | | | Control | | | |
| | Pre | | Post | | Pre | | Post | |
Variables	<u>M</u>	<u>SD</u>	<u>M</u>	<u>SD</u>	<u>M</u>	<u>SD</u>	<u>M</u>	<u>SD</u>
Average Drinks Per Week (number of drinks)	0.12	0.33	4.87	4.36	4.95	8.47	4.38	7.21
Peak Drinks (number of drinks)	3.28	2.57	3.35	2.89	3.31	3.61	2.93	3.86
Average BAC Calculated (g/dL)	0.13	0.16	0.05	0.05	0.06	0.07	0.06	0.08
Peak BAC Reported (g/dL)	0.10	0.10	3.35	2.43	0.09	0.12	0.08	0.11
Peak BAC Calculated (g/dL)	0.09	0.09	0.08	0.06	0.08	0.11	0.07	0.11
Binge Drinking Episodes (number of instances)	0.12	0.33	0.12	0.33	0.30	0.76	0.12	0.42
RAPI Scores	6.31	5.12	2.88	4.60	5.18	5.05	2.02	5.06
AUDIT Scores	3.35	3.19	4.85	3.71	2.92	5.57	4.58	5.01

Results of Hypothesis Tests

Average BAC

Average BAC declined following participation in the BASICS program. Participants in the BASICS group had a mean BAC of 0.11 g/dL (SD =.08) prior to the intervention and a mean BAC of .07 g/dL (SD = .06) at the completion of the intervention. The mean BAC of comparison participants was 0.07 g/dL (SD = .07) and 0.08 g/dL (SD = .08), at the beginning and end of the two-week study, respectively. The results of a two-way ANOVA indicated that there was a significant main effect of Time, $F(1,133) = 7.63$, $p =.007$, on Average BAC. There was no significant main effect of Group, $F(1, 133) = .95$, $p = .330$. The Group x Time interaction effect was significant, $F(1, 133) = 9.43$, $p =.003$. This interaction is illustrated in Figure 2. Paired-samples t-tests showed that there was a significant reduction in the average BAC for the intervention group across the two data collection points, $t(39)= 3.35$, $p = .002$. In the comparison group, there was no change in average BAC across pretest and posttest, $t(94) = -.29$, $p = .774$.
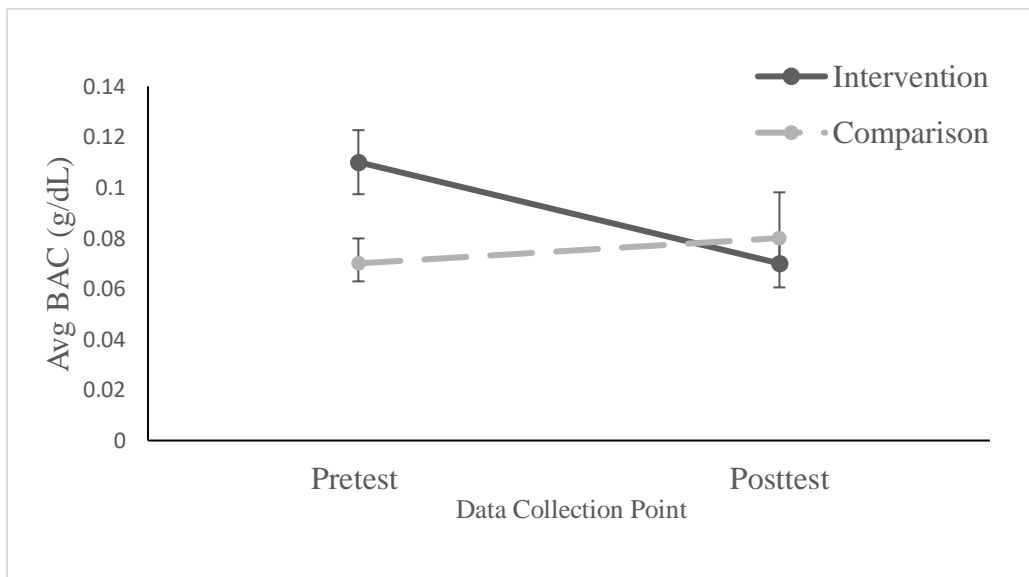

Figure 2. Change in Average BAC from pretest to posttest for the Intervention and Comparison Groups. *Error bars represent SEM.*

The average BAC of male participants also declined following the BASICS intervention. Males in intervention group reported a mean BACs of .12 g/dL (SD = .08) and .06 g/dL (SD = .05) during the pretest and posttest, respectively. Males in the comparison group reported an average BAC of .06 g/dL (SD = .06) and .08 (SD = .11) at the beginning and end of the two-week study. The results of a two-way ANOVA indicated that there was a significant main effect of Time, $F(1, 50) = 4.39$, $p = .041$. There was no main effect of Group, $F(1,50) = .56$, $p = .459$, on average BAC. The Group x Time interaction was, however, significant, $F(1, 50) = 15.35$, $p < .001$. This interaction can be seen in Figure 3. Paired-samples t-tests showed that there was a significant reduction in the average BAC for the intervention group across the two data collection points, $t(15) = 4.39$, $p = .001$. There was no change in average BAC across pretest and posttest for the comparison group, $t(35) = -1.54$, $p = .132$.
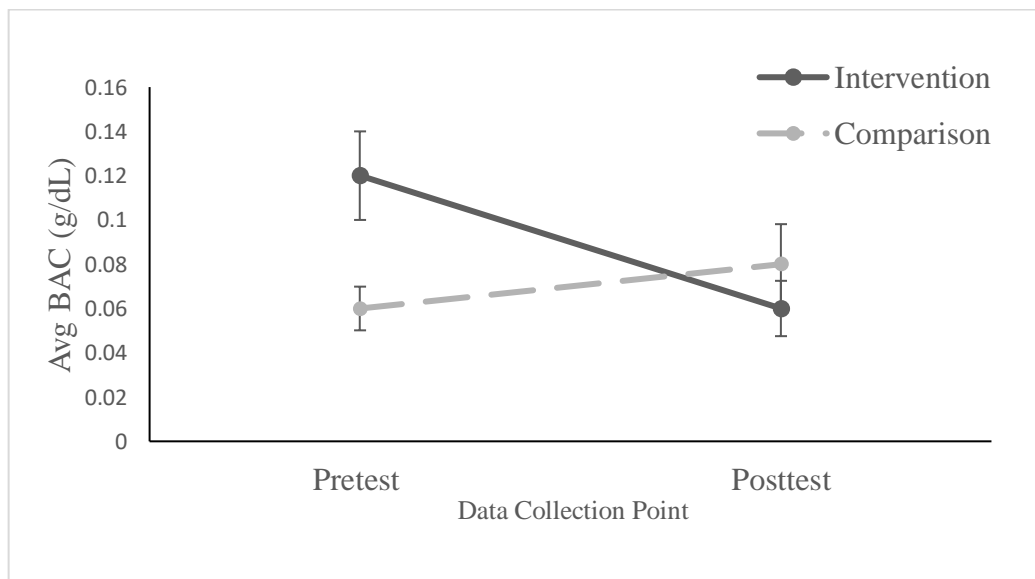

Figure 3. Change in Average BAC from pretest to posttest for the Males in Intervention and Comparison Groups. *Error bars represent SEM.*

The BAC of female participants was not reduced following the BASICS intervention. Females in the intervention group had a mean BAC of .09 g/dL (SD =.08) prior to the BASICS program and .08 g/dL (SD =.06) during the posttest. Comparison group females had an average

BAC of .08 g/dL (*SD* = .07) and .07 g/dL (*SD* =.06), at pretest and posttest, respectively. For female participants, a two-way ANOVA indicated no significant main effects of Time $F(1,81) =$ 3.36, *p* = .070 or Group , $F(1, 81) = .34$, *p* =. 531 on average BAC. The Time x Group interaction was also not significant, $F(1, 81) = .18$, *p* = .670.

Peak BAC Quantity/Frequency

Participation in the BASICS program did not reduce the highest blood alcohol content as calculated using the data from the quantity/frequency questions. Participants in the BASICS group reported a mean Peak BAC of .11 g/dL (*SD* =.11) prior to the intervention and a mean peak BAC of .10 g/dL (*SD* = .11) at the completion of the intervention. Comparison participants reported a mean peak BAC of .09 g/dL (*SD* = .11) and .09 g/dL (*SD* = .12) at the beginning and end of the two-week study, respectively. The results of a two-way ANOVA indicated that there was not a significant main effect of Group, $F(1, 128) = .39$, *p* = .539 or Time, $F(1,128) = .41$, *p* =.524, on Peak BAC. The Group x Time interaction was also not significant, $F(1 , 128)= .38$, *p* = .539.

The results obtained when the data from male participants were analyzed separately did not differ from those obtained for all participants combined. Males in the intervention group reported a mean peak BAC of .11 g/dL (*SD* = .12) prior to the study and a mean peak BAC of .11 g/dL (*SD* = .12) at the completion of the intervention. Males in the comparison group reported mean peak BACs of .09 g/dL (*SD* = .09) and .10 g/dL (*SD* = .14) at the beginning and end of the two-week study, respectively. The results of a two-way ANOVA indicated that there was not a significant main effect of Time, $F(1, 47)=.24$, *p* = .629, or Group , $F(1,47) = .09$, *p* = .765, on Peak BAC. The Group x Time interaction effect on Peak BAC was also not significant, $F(1, 47) = 2.785$, *p* =.102.

The peak BAC of female participants was also not reduced by the BASICS intervention. Females in the intervention group had a mean Peak BAC of .10 g/dL (SD = .10) prior to the BASICS program and a mean peak BAC of .10 g/dL (SD = .10) at the posttest. Comparison group females had a mean peak BAC .09 g/dL (SD =.12) and .08 g/dL (SD =.11) at the beginning and completion of the study, respectively. For female participants, the main effects of Time, $F(1,79)$ = .30 , p =.588 and Group , $F(1, 79)$ = .24, p =. 629 on Peak BAC were not statistically significant. The Time x Group interaction also failed to achieve significance, $F(1, 83)$ = .30, p = .584.

Peak BAC from the DDQ

Participation in the BASICS program did not reduce the Peak BAC calculated from the number of alcoholic drinks consumed and hours spent drinking reported onf the DDQ. Participants in the BASICS group reported a Peak BAC calculated from the DDQ mean of .08 g/dL (SD =.10) prior to the intervention and a mean peak BAC of .07 g/dL (SD = .06) at the completion of the intervention. Comparison participants reported mean Peak BAC values of .08 g/dL (SD = .10) and .08 g/dL (SD = .12) at the beginning and end of the two-week study, respectively. The results of a two-way ANOVA indicated that there was not a significant main effect of Group, $F(1,134)$ = .007, p =.932, or Time, $F(1,134)$= .58, p =.446 on Peak BAC calculated from the DDQ. The Group x Time interaction effect was also not significant, $F(1,134)$= .07, p =.786.

The results obtained when the data from male participants were analyzed separately did not differ from those obtained for all participants combined. Males in the intervention group had a Peak BAC from the DDQ similar at pretest (M = .08 g/dL, SD = .11) and the posttest (M = .07 g/dL, SD = .06). Males in the comparison group reported a mean Peak BAC calculated from the

DDQ of .08 g/dL (*SD* = .07) and .10 g/dL (*SD* = .13) at the beginning and end of the two-week study, respectively. The results of a two-way ANOVA indicated that there was not a significant main effect of Time, $F(1,51) = .04$, $p = .845$, or Group , $F(1,51) = .34$, $p = .560$, on peak BAC. The Group x Time interaction was also not significant, $F(1, 51)= 1.01$, $p = .321$.

The peak BAC of female participants was also not reduced following the BASICS intervention. Females in the intervention group had a mean Peak BAC calculated from the DDQ of .09 g/dL (SD = .09) prior to the BASICS program and .08 g/dL (*SD* = .06) at the posttest. Comparison group females had mean Peak BAC from the DDQ values of .08 g/dL (*SD* = .11) and .07 g/dL (*SD* = .11) at pretest and posttest, respectively. For female participants, the main effects of Time, $F(1,81) = 1.28$, $p=.261$ and Group , $F(1, 81) = .12$, $p=. 728$ on Peak BAC were not statistically significant. The Time x Group interaction also failed to reach significance, $F(1, 81) = .20$, $p= .653$.

Average Dinks Per Week

Participation in the BASICS program did not reduce the average number of drinks participants consumed per week. Participants in the BASICS group reported consuming a mean of 6.84 (*SD* = 7.68) standard drinks per week prior to the intervention and a mean of 6.16 (*SD* = 6.34) standard drink per week at the completion of the intervention. Comparison participants reported consuming a mean of 5.70 (*SD* = 8.36) and 5.77 (*SD* = 9.21) standard drinks per week, at the beginning and end of the two-week study, respectively. The results of a two-way ANOVA indicated that there was not a significant main effect of Group, $F(1, 138) = .34$, $p = .561$ or Time, $F(1,138) = .19$, $p = .665$, on the average number of drinks participants reported consuming per week. The Group x Time interaction was also not significant, $F(1, 138) = .33$, $p = .568$.

The results obtained when the data from male participants were analyzed separately did not differ from those obtained for all participants combined. Males in the intervention group reported consuming a similar number of drinks per week prior to BASICS ($M = 9.11$, $SD = 9.83$) and at the completion ($M = 8.03$, $SD = 8.21$) of the intervention. Males in the comparison group reported consuming a mean of 6.91 ($SD = 8.14$) and 8.03 ($SD = 11.51$) standard drinks per week at the beginning and end of the two-week study, respectively. The results of a two-way ANOVA indicated that there was not a significant main effect of Time, $F(1, 53) = .0004$, $p = .984$, or Group, $F(1, 53) = .18$, $p = .670$, on average number of drinks consumed by males per week. The Group x Time interaction was also not significant, $F(1, 53) = 1.04$, $p = .313$.

The mean alcoholic drink consumption of female participants was also not reduced by the BASICS intervention. Females in the intervention reported consuming a mean of 5.20 ($SD = 5.31$) standard drinks per week prior to the BASICS program and 4.87 ($SD = 4.36$) standard drinks weekly, during the posttest. Comparison group females consumed a mean of 4.95 ($SD = 8.47$) and 4.38 ($SD = 7.21$) standard drinks per week at the beginning and end of the study, respectively. ANOVA indicated that there was no main effect of Time, $F(1,83) = .45$, $p = .503$ or Group, $F(1, 83) = .08$, $p = .778$ on the average number of drinks females consumed per week. The Time x Group interaction, $F(1, 83) = .14$, $p = .705$, was also not significant.

Peak Drinks

Participation in the BASICS program did not reduce the peak number of drinks consumed in a two-week period. Participants in the BASICS group reported consuming a mean peak of 3.74 ($SD = 3.35$) standard drinks during the two weeks prior to the intervention and a mean peak of 3.80 ($SD = 2.95$) standard drinks during the two weeks prior to the completion of the intervention. Comparison participants reported consuming at peak a mean of 3.75 ($SD =$

3.76) and 3.98 (SD = 5.00) standard drinks during two week, at the beginning and end of the study, respectively. The results of a two-way ANOVA indicated that there was not a significant main effect of Group, $F(1,138)$ = .009, p = .924 or Time, $F(1,138)$ = .28, p = .598 on peak number of drinks consumed during two weeks . The Group x Time interaction was also not significant, $F(1,138)$ = .03, p = .857.

The results for male participants did not differ from those obtained for all participants combined. Males in intervention group reported consuming at peak a mean of 4.39 (SD = 4.19) standard drinks during the two weeks prior to the intervention and a mean of 4.44 (SD = 3.55) standard drinks during a peak drinking occasion in the two weeks prior to the completion of the program. Males in the comparison group reported consuming a mean of 4.46 (SD = 3.93) standard drinks during the peak drinking occasion during the two weeks prior to the study. Two weeks later, at the completion of the study, comparison males reported consuming a mean peak consumption of 5.70 (SD = 6.11) standard drinks during their peak drinking occasion. A two-way ANOVA indicated no significant main effects of Time, $F(1,53)$ = 1.13, p = .292, or Group, $F(1,53)$ = .29, p = .591 on the peak drinking of males. The Time x Group interaction was also not significant, $F(1,53)$ = .95, p = .335.

The BASICS intervention also failed to reduce the peak number of drinks consumed by females. Females in the intervention group reported consuming a mean of 3.28 (SD = 2.57) standard drinks during peak consumption prior to the BASICS program and 3.35 (SD = 2.43) standard drinks during peak consumption at the posttest. Comparison group females reported consuming a mean of 3.31(SD = 3.61) standard drinks and 2.93 (SD = 3.86) standard drinks during peak consumption, at pretest and posttest, respectively. There was not a significant main

effect of Time $F(1,83) = .09$, $p = .767$ or Group , $F(1, 83) = .11$, $p =. 738$ on female peak drinking. The Time x Group interaction was also not significant, $F(1, 83) = .53$, $p = .471$.

Binge Drinking

The BASICS intervention did not affect binge drinking behaviors. Participants in the BASICS group reported a mean of .12 ($SD =.33$) binge drinking episodes (BDE) prior to the intervention and a mean of .05 ($SD = .21$) BDE at the completion of the intervention. The intervention group showed a range of 0 to 1 episodes, with 37 students reporting no episodes of binge drinking in the 2 weeks prior participation in the BASICS program. This pattern persisted to the final data collection point, with the intervention group having a range of 0 to 1 episodes and 42 participants reporting no binge drinking. Comparison participants reported a mean of .27 ($SD = .67$) BDE and .19 ($SD = .58$) BDE at the beginning and end of the two-week study, respectively. During the first data collection points, the comparison group had a range of 0 to 3 episodes with 78 participants reporting no episodes. At posttest, the comparison group had a range of 0 to 3 episodes and 86 students reporting no episodes. The results of a two-way ANOVA indicated that there was not a significant main effect of Group, $F(1,134) = 3.61$, $p = .060$, or Time, $F(1,134) = 1.16$, $p = .238$, on BDE. The Group x Time interaction, $F(1,134) =.001$, $p = .982$ was also not significant.

The results obtained when the data from male participants were analyzed separately did not differ from those obtained for all participants combined. Males in intervention group had a mean of .12 ($SD = .33$) BDE at pretest and no BDE reported at the completion of the intervention. Males in the comparison group reported a mean of .22 ($SD = .53$) BDE and .30 ($SD = .78$) BDE at the beginning and end of the two-week study, respectively. The results of a two-way ANOVA indicated that there was not a significant main effect of Time, $F(1,52) = .03$, $p =$

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.862, or Group, $F(1,52) = 2.3$, $p = .134$, on BDE. The Group x Time interaction was also not significant, $F(1, 52) = .90$, $p = .347$.

The number of BDE reported by female participants was also not reduced by the BASICS intervention. Females in the intervention group had a mean of .12 ($SD = .33$) BDE prior to the BASICS program and a mean of .08 ($SD = .27$) BDE at the posttest. Comparison group females had a mean of .30 ($SD = .76$) BDE and .12 ($SD =.42$) BDE, at pretest and posttest, respectively. For female participants, there was no main effect of Time $F(1,80) = 1.49$, $p = .225$ or Group, $F(1, 80) = 1.36$, $p =. 247$ on BDE. The Time x Group interaction was also not statistically significant, $F(1, 80) = .59$, $p = .445$, on BDE.

RAPI Scores

Participation in the BASICS program did not reduce the number of alcohol-related problems experienced by the participants in a two-week period. Participants in the BASICS group reported a mean RAPI score of 3.52 ($SD = 3.48$) prior to the intervention and a mean score of 2.91 ($SD = 4.11$) at the completion of the intervention. Comparison participants had mean RAPI scores of 2.77 ($SD = 4.93$) and 2.13 ($SD = 4.60$), at the beginning and end of the two-week study, respectively. The results of a two-way ANOVA indicated that there was not a significant main effect of Group, $F(1,138) = 1.19$, $p = .276$ or Time, $F(1,138) = 2.01$, $p = .159$, on RAPI scores . The Group x Time interaction was also not statistically significant, $F(1,138) = .000$, $p = .990$.

The results obtained when the data from male participants were analyzed separately did not differ from those obtained for all participants combined. Males in intervention group had a mean RAPI score of 3.78 ($SD = 3.95$) prior to the intervention and a mean score of 2.94 ($SD = 3.40$) after the BASICS program. Males in the comparison group reported similar RAPI scores at

pretest ($M = 2.53$, $SD = 3.69$) and posttest ($M = 2.32$, $SD = 3.81$). The two-way ANOVA showed no main effect of Time, $F(1,52) = 2.33$, $p = .133$, or Group, $F(1,52) = .79$, $p = .378$, on male's RAPI scores. The Time x Group interaction, $F(1,52) = 1.04$, $p = .313$, was also not statistically significant.

The alcohol-related problems experienced by female participants were also not reduced by the BASICS intervention. Females in the intervention group had mean RAPI scores of 3.35 ($SD = 3.19$) prior to the BASICS program and 2.89 ($SD = 4.60$) at the posttest. Comparison group females had mean RAPI scores of 2.92($SD = 5.57$) and 2.02 ($SD = 5.06$), at during the pretest and posttest, respectively. For female participants, the main effects of Time, $F(1,84) = .974$, $p = .327$ and Group, $F(1, 84) = .480$, $p = . 491$ on RAPI scores were not statistically significant. The Time x Group interaction, $F(1, 84) = .10$, $p = .751$, was also not significant.

AUDIT Scores

Participation in the BASICS program did not reduced the alcohol risk factors endorsed by participants. Participants in the BASICS group reported a mean AUDIT score of 7.52 ($SD = 5.43$) prior to the intervention and a mean AUDIT Score of 5.66 ($SD = 4.70$) at the completion of the intervention. Comparison participants reported a mean AUDIT score at of 5.66 ($SD = 4.82$) at pretest and a mean AUDIT score of 4.98 ($SD = 4.91$) at posttest. Table 8 shows the distribution of AUDIT scores across risk levels for the two groups. The results of a two-way ANOVA indicated that there was no significant main effect of Group, $F(1,137) = 2.28$, $p = .134$, on AUDIT scores. There was a significant main effect of Time, $F(1,137) = 16.62$, $p < .001$, on AUDIT scores, with scores in both groups decreasing in the two week period. The Group x Time interaction also failed to achieve statistical significance, $F(1,137) = 3.42$, $p = .067$.

Table 8

Distribution of AUDIT Scores by Risk Level for the Intervention and Comparison Groups

| | Comparison Group | | Intervention Group | |
| | n= 97 | | n= 44 | |
Audit Level	Pretest	Posttest	Pretest	Posttest
Not reported	1.0%	0.0%	0.0%	0.0%
Minimal risk	72.0%	75.3%	52.0%	72.7%
Low risk	19.6%	19.6%	29.5%	25.0%
Moderate risk	3.1%	4.1%	13.6%	2.3%
High risk	2.1%	1.0%	0.0%	1.0%

The results obtained when the data from male participants were analyzed separately did not differ from those obtained for all participants combined. Males in intervention group obtained a mean AUDIT score of 9.50 (SD = 5.50) prior to the intervention and a mean score of 6.83 (SD = 5.76) after the BASICS program. Males in the comparison group reported similar AUDIT scores at pretest (M = 6.43, SD = 4.39) and posttest (M = 5.62, SD = 4.74). The two-way ANOVA showed a similar, significant main effect of Time, $F(1,51) = 8.14$, $p = .006$, but no main effect of Group, $F(1,51) = .79$, $p = .378$, on male's RAPI scores. The Group x Time interaction also failed to reach statistical significance, $F(1,51) = 2.65$, $p = .110$.

The risk of an alcohol use disorder was not reduced by the BASICS program for female participants. Females in the intervention group had a mean AUDIT score of 6.31 (SD = 5.12) prior to the BASICS program and a mean AUDIT score of 4.85 (SD = 3.71) at the posttest. Comparison group females had mean AUDIT scores of 5.18 (SD = 5.05) and 4.58 (SD = 5.01), at pretest and posttest, respectively. For female participants, the main effect of Time on AUDIT scores was significant, $F(1,84) = 7.76$, $p = .007$. The main effect of Group, $F(1, 84) = .41$, $p = .524$, and the Time x Group interaction, $F(1, 84) = 1.356$, $p = .247$, however, were not statistically significant.

Readiness to Change

The BASICS intervention did not affect participants' readiness to change. The frequency in which each stage was endorse during pretest and posttest for both groups can be found in Table 9. Due to the ordinal nature of this data, the Wilcoxon Signed-Rank Test, a non-parametric analysis was used to test for changes in the data. In the intervention group, six participants experienced a positive change in the Readiness to change, representing a movement to a higher Stage of Change. Most participants, 28, did not experience of shift in readiness to change. Of the 39 participants, five experienced a decreased in the readiness to change, representing a movement to a lower Stage of Change. The Wilcoxon Signed- Rank Test showed there was no significant change in the median RTCQ scores between pretest and posttest, $z = -.190$, $p = .850$. In the comparison group, of the 97 participants, eight students experienced an increase in their readiness to change, 14 students decreased in their readiness to change, and 75 students showed no change. The Wilcoxon Signed- Rank test showed there was no significant change in the median RTCQ scores between pretest and posttest, $z = -.878$, $p = .380$

Table 9
Stage of Change Endorsed by Participants in the Intervention and Comparison Groups

Stage	Comparison Group n= 97		Intervention Group n= 44	
	Pretest	Posttest	Pretest	Posttest
Precontemplation	75%	80%	43%	52%
Contemplation	5%	4%	7%	2%
Action	20%	16%	43%	41%
No response	0%	0%	7%	5%

Male participants in the intervention group had a similar pattern of nonsignificant change in their Stage of Change. The frequency with which male participants endorsed the various Stages of Change can be seen in Table 10. Of the 16 participants including in this exploratory

analysis, 3 students increased in their readiness to change representing an increase in the current Stage of Change. Decreases in readiness to change, representing a decrease in their current Stage of Change was found in one student. The other 12 students saw no change. The results of a Wilcoxon Signed- Rank test showed that there was no significant change in the median RTCQ scores between pretest and posttest, $z = -.76$, $p = .450$.   Males in the comparison group, also did not experience a change in their median RTCQ scores. Of the 37 participants, two students experienced an increase in their readiness to change, two students decreased in their readiness to change, and 33 students showed no change. The results of the Wilcoxon Signed- Rank test showed no significant change in the median RTCQ scores between pretest and posttest, $z = .38$ and $p = .705$.

Table 10
Stage of Change Endorsed by Male Participants in the Intervention and Comparison Groups

	Comparison Group n= 37		Intervention Group n= 18	
Stage	Pretest	Posttest	Pretest	Posttest
Precontemplation	86%	84%	56%	50%
Contemplation	3%	5%	6%	0%
Action	11%	11%	39%	39%
No response	0%	0%	0%	11%

In female participants in the intervention group, a similar pattern of limited change was found. The frequency of each Stage of Change endorsed, can be seen in Table 11. Of the 23 participants including in this exploratory analysis, three students increased in their readiness to change representing an increase in the current Stage of Change. Decreases in readiness to change, representing a decrease in their current Stage of Change was found in four students. The other 16 students saw no change. Of the 60 participants, six students experienced an increase in their readiness to change, 12 students decreased in their readiness to change, and 42 students

showed no change. According to the Wilcoxon Signed- Rank test, there was no significant change in the median RTCQ scores between pretest and posttest, $z = -.72$, $p = .470$. Females in the comparison group did not experience a change in their median RTCQ scores according to the Wilcoxon Signed- Rank test, $z = -1.178$ $p = .239$.

Table 11
Stage of Change Endorsed for Female Participants in Intervention and Comparison Groups

Stage	Comparison Group n= 60		Intervention Group n= 26	
	Pretest	Posttest	Prettest	Posttest
Precontemplation	68%	78%	35%	54%
Contemplation	7%	3%	8%	4%
Action	25%	18%	46%	42%
No response	0%	0%	12%	0%

CHAPTER FIVE

DISCUSSION

The purpose of this study was to determine if a group version of the BASICS intervention was effective at reducing drinking levels and alcohol-related problems for mandated college students. This study, also, tried to examine the mechanism of change by assessing whether the intervention caused a shift in the Stage of Change. This was accomplished by analyzing average drinks consumed per week, peak number of drinks consumed in one day, binge drinking, average BAC, peak BAC, alcohol-related consequences, abuse/dependence risk, and Readiness to Change. The group BASICS intervention was, for the most part, ineffective at advancing students' readiness to change and at reducing alcohol consumption, the risk factors for an Alcohol Use Disorder and drinking-related problems. Possibilities for future changes to the program, alternative programs, and recommendations for future research will be discussed in light of these outcomes.

The one variable related to alcohol consumption that was significantly reduced following the group BASICS intervention was average BAC. The average BAC reported by BASICS participants after completing the intervention was significantly lower than that reported prior to the initiation of BASICS. The same reduction in average BAC did not occur in comparison participants. This suggests that students were engaging in safer drinking behaviors that did not lead to higher blood alcohol content. The reduction from .11 g/dL to .07 g/ dL, is the difference between being impaired and unable to drive (BAC greater than .08 g/ dL) and being below the legal limit to drive. This is consistent with the low levels of binge drinking found in the sample. Binge drinking leads to a BAC greater than .08 g/ dL (NIAAA, n.d)

While the Group x Time interaction for AUDIT scores failed to reach the conventional probability value (p<.05) used as the threshold for statistical significance, the probability value obtained for the interaction was .067. This suggests that the BASICS intervention may have had a somewhat beneficial effect on alcohol risk factors for the participants in the group BASICS intervention. The mean AUDIT scores for participants in the BASICS group decreased from 7.52 to 5.66, yielding a decrease of 1.86 points. A paired samples t-test comparing the pretest AUDIT scores of the BASICS intervention group and the posttest scores showed a significant change, $t(41) = 3.177$, $p = .003$. In comparison, the AUDIT scores for participants in the comparison group decreased from 5.66 to 4.98, yielding a smaller decrease of .68 points. The result of a paired samples t-test of the comparison group AUDIT scores was also significant, $t(96) = 2.143$, $p = .035$. The mean AUDIT scores of participants in both groups, at pretest and posttest, put them in the low-risk category (values < 8). These results indicate that while the AUDIT scores of BASICS participants declined over the course of the intervention, a similar, but smaller, reduction in the AUDIT scores of the comparison participants prevented the Group x Time interaction from achieving significance. Perhaps this indicates an effect of repeated testing such that initial exposure to the data collection instrument caused the behavior (or responses) of participants in both groups to change in a similar fashion.

There was no change in the remaining variables examined in this study. The variables related to drinking behaviors and outcome that were not affected by the BASICS intervention included average drinks per week, peak BAC, and number of binge drinking episodes. There was also no change in alcohol-related problems (RAPI scores) or motivation to change (RTCQ stage). Taken together these findings, and those discussed above, suggest that group BASICS is generally ineffective at addressing much of the problem drinking students are engaging in. The

findings also suggest that the level of risk experienced by students, the problems they have related to their drinking, and their readiness to change were not impacted by the intervention.

Impact of the Results

The findings of this study, indicate that the group BASICS program examined here was largely ineffective when carried out in a naturalistic setting. This was similar to the results of Hill (2013). Hill (2013) examined the efficacy of implementing BASICS in a small group format for mandated students. In the study, the BASICS intervention included a self-report questionnaire, an individualized feedback report, and a debriefing session to explore the results of the report in a group setting. In the current study, the group BASICS included a self-report questionnaire which was completed in the two-week lapse and individualized feedback provided at the second session, which was one-on-one. A total of 52 students were recruited from the Office of Conduct and Community Standards for violating the university's alcohol policies and completed the study. Approximately half of the participants (n = 25) were randomly assigned to receive the group BASICS intervention while the remaining students (n = 27) were placed in a waitlist control group. The variables examined included hazardous drinking as measured by the AUDIT, readiness to change measured via the University of Rhode Island Change Assessment Scale (URICA), harm reduction as measured by the Harm Reduction Behavior Scale (HRBS), risky sexual behavior as measured by the Risky Sex Scale (RSS), student engagement assessed by the Student Engagement Instrument, depression and anxiety assessed with the Patient Health Questionnaire- 4 (PHQ-4), coping measured with the Brief COPE, alcohol and marijuana use via the DDQ, and typical BAC.

Hill (2013) found that the group format of BASICS was not effective at reducing drinking levels or harm, and did not increase readiness to change when compared to the control group.

The small group BASICS and the waitlist control groups both experienced a significant decrease in the mean number of drinks consumed. However, the group BASICS intervention did not have a higher rate of reduction and appeared to do no better than the waitlist. This parallels the finding in the current study as group BASICS was no better than the non-intervention comparison group at reducing average drinks per week. In the current study, there was no reduction in either group over time. There was no change in average drinks consumed per week. In the Hill (2013) study, in both groups a significant decrease in alcohol use and risk factors was found over time, but there was no significant difference between the two groups. This suggests again that the group intervention is no more effective at reducing these variables than being on a waitlist. This is consistent with the current study's finding, which showed no significant change in risk factors, as measured by the both peak BAC variables and alcohol-related problems via the RAPI. However, the current study did find changes in average BAC in the BASICS group. Hazardous drinking behaviors as measured by the AUDIT increased over time for both groups in the 2013 study. Those in the BASICS group had a .92 point increase in their AUDIT scores and the comparison group showed a .78 point increase. While the change was significant, there were no significant group differences in score changes over time. In the current study, AUDIT scores in the BASICS intervention group approached a significant level of reduction from pretest to posttest. The reduction in AUDIT scores over time was not significantly different between the intervention and comparison groups. The current study can serve as an extension to the Hill (2013) study as the same ineffectiveness of group BASICS was found with this population and implementation. The lack of change in drinking, related risk, and problems persisted in the current study, despite changing both sessions from group format as it was in the Hill study, to having second intervention to be an individual session, in this study.

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Problems with Group Interventions

The group formats of BASICS used in this study and that of Hill (2013) may not be as effective as the manualized, individual version of BASICS because of problems inherent to groups, such as social loafing, production blocking, and lack of deep thinking about the information provided. In group interventions, participants sometimes engage in social loafing whereby they exert less effort and are less involved than they would be if participating in an individual intervention. If this occurred, it could have reduced the amount of personal connection made with or attention given to the BASICS material. Due to production blocking, participants in group sessions may be less likely to generate ideas and creative solutions appropriately matched to their individual drinking behaviors. Finally, if participants think less deeply about the information presented in group sessions, they may have less retention of or connection with the psychoeducation provided.

Adolescents and group interventions. While participating in a group intervention rather than individualized sessions may influence the behavior/cognitions of people of any age, group-related factors such as those discussed above may pose particular problems with adolescent participants. Group problems such as social loafing, production blocking, and lack of deep thinking about the information provided interventions (Lateen, Williams, & Harkins, 1979; Petty & Cacioppo, 2012), may have unmeasured negative impacts on group interventions. These issues may be especially problematic in adolescent group interventions (i.e. Dishion et al., 1996; Dishion & Dodge, 2005; Dishion, McCord, & Poulin, 1999). The group BASICS in the current study could have as many as 16 adolescents and young adults in each session, while the individualized BASICS always met one-on-one. It was a unique group that is cut between adolescence and adulthood, which may be impacted by group effects found in each age group.

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Similarly, the Hill (2013) study utilized participant in late adolescences and young adulthood, with most participants aged 22 years old or younger.

Beyond the problems discussed above, Dishion, McCord, and Poulin (1999) found that interventions involving peer groups can lead to delinquency and increased substance use in adolescents. In their study, the authors examined previous studies involving adolescent development and controlled intervention studies that produced negative effects for high-risk adolescent. They found deviancy training, that is present in group formatted interventions, is associated with increase in delinquency, substance use, and adjustment difficulties in adulthood. "Deviancy training" is described as deviant behavior being reinforced when group members experienced positive affective reactions from other high-risk peers when engaging in rule breaking talk during group sessions (Dishion, Poulin, & Burraston, 2001). This led the authors to the conclusion that participation in group interventions can normalize and teach negative behaviors by actively reinforcing the behaviors through social attention and increasing motivation to commit deviant acts in high-risk youths.

One study included in the above analysis was carried out by Dishion and Andrews (1995) and found that putting high-risk youth or adolescents in groups was associated with increases in delinquent behavior. These researchers examined the effects of an adolescent group intervention designed to be a school-based intervention for high-risk participants, which focused on social interaction. Following the intervention, they found that participants smoked more than at baseline and teachers rated these students higher on delinquency using the Child Behavior Checklist-Teacher Rating. This phenomenon was described as deviancy training (Dishion, Poulin, & Burraston, 2001). These effects persisted and grew over the three years following the intervention when compared with control participants who had a non-treatment placebo group

intervention (Dishion, McCord, & Poulin, 1999). This outcome was inconsistent with the goals of the intervention which included increasing commitment to prosocial goals and behaviors (Dishion, Poulin, & Burraston, 2001). Findings such as these suggest that factors similar to deviancy training could have reduced participants' motivation to change their behavior in the current study. These factors may have also reduced engagement in reflections about offending behavior. These effects could negate the positive effects that have been seen previously with individualized BASICS programs (e.g. Amaro, 2010).

According to Dishion and Dodge (2005), the sample utilized in the present study may have been at higher risk of developing more problematic behaviors while participating in a group intervention. Those participating in group BASICS in the current study were engaging in deviant behavior, but would not be considered high-risk, as measured by the AUDIT and RAPI scores. Dishion and Dodge (2005) hypothesized from compiling the recent research that normalization of deviant behavior may be more likely to occur when the people are grouped together are still developing deviant behavior patterns. In the group-based BASICS program, participants may have normalized their negative drinking behaviors while engaging in the group. Students may have also learned new ways of obtaining or engaging in high-risk drinking. While conducting the present study, the power of group influence was discussed anecdotally by the research assistants collecting data. In groups where one person questioned the survey or their requirement to complete it, there was an increase in the likelihood that other members of the group would not complete the documents. Such incidents demonstrate how the behavior of participants can be impacted by others in the group in ways that could limit their full participation and commitment to the program.

Faris and Brown (2003) examined the effects of targeting negative group dynamics in a group BASICS program. They compared standard BASICS in a group intervention and an enhanced version of group BASICS which was designed to counteract negative group dynamics. They specifically targeted elaboration likelihood, production blocking, and social loafing. In the enhanced version of group BASICS, they acknowledge potential barriers to communication in groups. This was completed by asking the group members to recall when they observed each of the three negative group dynamics and had the group members discuss their unique experiences. This introduction was intended to facilitate active engagement. During the group BASICS, the group facilitators called on those who were not participating in the group discussion, which appeared to increase engagement without raising resistance. These targeted interventions were successful at reducing elaboration likelihood, social loafing and production blocking in the enhanced group BASICS meetings relative to the standard group BASICS format, as measured using the Disruptive Group Processes Questionnaire. Despite the lower rates of these disruptive group processes, there was no significant effect of the enhanced intervention on the estimated number of drinking days per month, amount of alcohol consumed on drinking days, or binge drinking days as compared to the standard BASICS in a group format. The results of this study suggest that even if these disruptive group dynamics are targeted and reduced, the group BASICS remains largely ineffective. Faris and Brown (2003) suggested multiple reasons why the enhanced BASICS may have failed. One key reason presented was that the intervention may have been strong enough to reduce the negative group processes as measured by the Disruptive Group Processes Questionnaire, but may not have been large enough to result in changes to the group's behavior. They made no suggestions on what a more effective intervention may be. Second, the authors suggest that MI-based interventions, such as BASICS, are not useful in

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group settings as evidenced by the lack of effect (Faris & Brown, 2003). This suggestion appears to align with the results of the current study and the related literature.

The CHOICES alcohol intervention was developed using the same theoretical basis as BASICS, but was created to be a group intervention. CHOICES is a program developed for college-age groups and allows for intervention with at-risk students who may not be showing signs or symptoms of an Alcohol Use Disorder. Similar to the BASICS program, CHOICES uses alcohol skills training program and MI. It can be delivered in one to two sessions ranging from 45 to 90 minutes. CHOICES has a structured manual and is considered an evidence based program, due to its strong theoretical foundation (Parks & Woodward, 2005). According to the CHOICES website, it is also recognized by NIAAA and SAMHSA (The Change Companies, 2017). Despite, the support and theoretical foundation, CHOICES was not effective. Alfonso, Hall and Dunn (2012), completed a randomized control trial to compare manualized BASICS, CHOICES, and an online intervention. The study found no change in average BAC, peak BAC, peak number of drinks consumed in one sitting, or negative alcohol-related consequences in the past 30 days or four weeks for those who received the CHOICES intervention. In contrast, participation in traditional individualized BASICS resulted in significant decreases in peak BAC, peak drinking, and negative alcohol-related consequences. The authors suggest that the intervention may have been ineffective due to the problematic nature of group behaviors and contagion effect often found in adolescent groups

Beyond the issues raised above regarding problematic group dynamics, the brevity of the individual (second) session in the group BASICS program used for the current study may have reduced the effectiveness of the intervention. In the traditional, individualized BASICS intervention, personal and environmental factors are discussed during 100 minutes of individual

counseling. The topics discussed include faulty beliefs, inaccurate norms, peer pressure, and culture of alcohol use (Dimeff, 1999). There is a similar individual session in the BASICS regimen used in this study, but this session has a duration of 15-30 minutes. This abbreviated individual session may be insufficient for participants to become focused on their unique faulty beliefs, cultural factors, or other issues experienced by the student, and this may reduce the effectiveness of the intervention.

Sex differences in group BASICS. Exploratory analyses were completed on the data from the current study to determine whether the effectiveness of the BASICS intervention might differ for males and females. For average BAC, the results of the exploratory analysis indicated a significant reduction for male participants. In contrast, the average BAC of female participants was unchanged following the BASICS intervention. The exploratory analyses also revealed an interesting characteristic of the binge drinking data. Binge drinking was not significantly reduced following the BASICS intervention when the data for males and females were analyzed separately. However, the binge drinking of male participants who participated in BASICS declined from a mean of 0.12 (*SD* = .33) BDE prior to the intervention to no BDE following the intervention. In contrast, females reported a mean of .12 (*SD* = .33) BDE prior to the intervention and .08 (*SD* = .27) BDE following the intervention. The elimination of BDE in male participants suggests that the BASICS program may have been somewhat beneficial for these participants.

The findings obtained from the exploratory (male/female) analyses performed on all of the remaining variables, however, yielded results similar to those obtained when the analyses were performed on the data from all participants combined. This general lack of sex differences is

consistent with findings indicating that the effectiveness of the traditional, individual BASICS intervention is independent of sex (Borsai & Carey, 2000).

Clinical Considerations

The limited effectiveness of the group BASICS intervention found in this study and the results of the studies discussed above indicate that the group model may not be an acceptable substitution for the standard, individual BASICS intervention. Although average BAC declined, all of the other variables examined were not significantly affected by the group BASICS intervention. In contrast, the standard BASICS intervention has been shown to decrease alcohol usage, negative consequences of alcohol use, and symptoms of alcohol dependence (Terlecki et al., 2010). Amaro and colleagues (2010) found that the standard implementation of BASICS in a naturalistic setting yielded several significant reductions in drinking behaviors including a 2.6 drink reduction in weekly consumption, a 2.4 drink reduction in drinks consumed over a weekend, and a 1.2 drink reduction in peak drinks consumed in on drinking occasion. The rate of binge drinking decreased by 17% and abstinence increased by 5%. Students also increased their protective factors such as setting healthy limits or using a designated driver. Increased protective factors may have served as a possible mechanism for decreasing drinking behaviors. The authors also found a reduction in alcohol-related problems as measured by the RAPI. These effects were mediated by readiness to change, where higher stages were related to increases in protective factors and larger drops in alcohol use (as high as 10%) (Amaro, 2010). DiFulvio and colleagues (2012), found similar results for reducing high-risk drinking behaviors in both men and women who were mandated to the BASICS program. These changes were not seen in the current study looking at group BASICS. The sample included in the current study was generally low-risk drinkers with AUDIT scores less than 8 and low rates of binge drinking. With low-risk

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drinking as a factor included in analysis, DiFulvio and Colleagues (2012) found that individual BASICS did not affect typical estimated BAC, peak estimated BAC, typical number of drinks consumed, or peak number of drinks consumed. Frequent binge drinking significantly increased in low-risk students ($p < .03$).

Many of the students mandated to BASICS were not high-risk drinkers, in the current study. All students who violate the alcohol policy at the university are referred to the BASICS program, creating a very low threshold for inclusion in the program. Students could have been mandated to BASICS for many different types of alcohol-related infractions. Alcohol use is not required as students can receive a citation for having alcohol paraphernalia, such as an alcohol-related poster or wine bottle in their dorm room. Students could also have been mandated to BASICS for low-level drinking offenses, such as a group of people being caught with one beer. While students may have been mandated to BASICS for more substantial offenses such as underage drinking offenses or driving under the influence, many students were likely mandated for lower level offenses and may not have been high-risk drinkers. The BASICS program was created to work with high-risk drinkers (Dimeff et al., 1999) and those included in the group BASICS program may have never reached this threshold. This was a requirement of the university's policies and could not be controlled in this study, but could have influenced the effectiveness of the program or created a floor effect due to low baseline numbers. For example, at baseline 23.3% of intervention participants endorsed no alcohol consumption in the past two weeks. Similarly, at baseline, only 2.1% of those in the comparison group and no one in the intervention group was considered high-risk, as assessed by the AUDIT. After the intervention, 1% of each group was considered high-risk. Similarly, according to AUDIT scores, during the pretest, 52% of the intervention group and 72% of the comparison group were engaging in low-

risk drinking behaviors. Receiving an alcohol violation many not be a valid indicator of high-risk for an Alcohol Use Disorder at the university where the research sample was obtained. Therefore, the sample used for the current study may differ from the target population for the BASICS intervention. This may also be similar to other colleges, which have policies requiring intervention when a violation occurs. The common clinical population may different significantly from the intended target.

This low-risk level was also reflected in low levels of drinking and higher rates of abstinence. This low level of drinking may have created a floor effect within the sample used during his study. At baseline, 23% of group BASICS participants reported they had not consumed alcohol in the previous two weeks. At posttest, 23% reported no alcohol consumption in the past two weeks. Similarly, these were very low rates of binge drinking in the intervention group. At baseline, 84% students reported no BDE at pretest and 95% reported no BDE at posttest. In the comparison group, 24% and 33% of participants, reported not drinking any alcohol in the past two weeks, at baseline and posttest, respectively. Binge drinking rates were low in the comparison group with 80% of participants at baseline and 89% participants at posttest reporting no episodes. The low drinking rates discussed above were found, despite ruling out abstainers from the comparison group and the intervention group utilizing students with alcohol-related violations. This suggests that most of the participants did not engage in significant levels of dangerous drinking at the start of this study, which could manifest as a possible floor effect. If other programs use any alcohol-related violation as the sole reason for a referral to group BASICS, a similar floor effect may be present.

Selecting Appropriate Treatment

It may be more clinically useful and cost effective to carry out the individual version of the BASICS program to reduce the negative outcomes associated with college drinking, including mental health problems, poor academic performance, injury, death and crime (Knight et al, 2002; National Center for Education Statistics, 2013; NIAAA, 2013; O'Malley & Johnston, 2002; Park, 2004; Perkins, 2002). One of the ways to increase the viability of the individual program on college campuses would be to identify and refer students to proper treatment based on the severity of their alcohol problems and reason for referral to treatment. One limitation faced in the current study was most students referred to the group BASICS program not the target population for the BASICS program. According to the AUDIT scores at baseline 89% of comparison group participants and 82% of the intervention groups were in the low-risk level or below. Most were not engaging in dangerous binge drinking and average drinks per week represented less than one drink per day. This low-risk behavior may have been related to low-level violations, due to the variability in the alcohol policy. During the current study, the severity of the infraction was not collected and thus it is unclear if the group BASICS program was effective for those who were cited for more dangerous infractions. The collection of these data is recommended for further research or program evaluations.

Triage and Treatment

Information on severity of the infraction or assessments of risk level could be used prior to directing students to a treatment program to select the appropriate intervention for individual students. This would reduce the number of students referred to the individual BASICS program, making it a more viable treatment option when compared to group which can accommodate more students. A program that may help in the process would be a brief assessment and intervention

model. An example of this would be the evidence based SBIRT program. SBIRT is Screening, Brief Intervention, and Referral to Treatment which is completed with the client in as a little as 1-3 minutes and up to 20 minutes. The first step in this program is the assessment of risky substance use behavior, such as alcohol use. Then the provider engages in brief interventions such as feedback or advice. Finally, the person is referred to a level of treatment (or no treatment) based on their needs (SAMHSA, 2011). For example, a low-risk and/or low infraction student may be put through the SBIRT program and require no further intervention. A high risk and/or high infraction student may go through the SBIRT program and be referred to individualized BASICS. An increase in efficacy would be expected for students being referred to the proper level of care.

Many colleges and universities have a zero-tolerance policy, which requires some intervention when a student violated the drug or alcohol use policy. By utilizing assessment and brief interventions to triage clients to the proper long-term interventions, program providers will remain compliant with these types of policies. It will also provide the type of services necessary for the student's current use, problems, and level of infraction.

Recommendations for Group Intervention

Although, it appears that carrying out BASICS and other MI with adolescent groups is ineffective, some changes to the group BASICS program could possibly increase effectiveness. Some potential changes that should be considered include:

1) **Limit group size.** The American Group Psychotherapy Association (AGPA, 2007) suggests that groups be 7-10 people in size. The group size in the BASICS program used was capped at 16 participants. This could allow participants to rely on others to move the

group forward while not participating themselves. Larger group also make it difficult for facilitators to notice problematic group behavior.

2) **Offer treatment alternatives.** Group therapy can be effective for many people, but not all people are good candidates for group. People who refuse to participate, cannot control impulses, or who are in a life crisis may not be good candidates for group (Center for Substance Abuse Treatment, 2015). A screener could be used to identify poor candidates for group interventions and should direct these individuals to other, more suitable, treatment options. This could possibly be accomplished during the screening portion of the SBIRT model.

3) **Engage in one-on-one sessions first.** It may be beneficial to engage the students in the individual session first and the group session after they have created their unique language of change. This increased connectedness may challenge the problematic group behaviors by increasing participant involvement. Being introduced to the program, receiving individualized feedback, and receiving MI interventions one-on-one may increase a client's readiness to change their behavior and increase their ability to relate to group material during the second session.

4) **Engage in on-going group supervision focusing on problematic behavior.** Alfonso and colleagues (2012), suggest that specifically targeting problematic group dynamics may reduce their effects on outcomes. Supervision can aid facilitators in identifying problem behaviors (e.g. social loafing, deviancy training) , practicing interventions targeted at problem behaviors, and measuring the effectiveness of interventions across different groups and leaders. Group supervision is recommended for those carrying out group therapies (Center for Substance Abuse Treatment, 2015)

5) **Aid clients in normalizing healthy behaviors.** One of the positive effects of substance use groups is that people learn to cope with their use and learn how others manage related issues. Since normalization of behaviors can be problematic in these groups (Dishion & Dodge, 2005), if a facilitator can reframe the normalization towards healthy patterns through redirection and prompting, this group effect could be used to support treatment goals.

6) **Focus on psychoeducation or CBT.** MI interventions may not be effective at reducing substance use in group interventions, but CBT and psychoeducation have both be found effective at reducing adolescent substance use in group formatted programs (Kaminer, Burleson, & Goldberger, 2002). By focusing on these two other components of BASICS during the group session and using MI during individual session, one may see an increase in treatment effectiveness.

Colleges and universities have multiple options on how to treat or intervene with students showing risky alcohol use or escalated alcohol relate problems. With the recommendations above, a program could implement a system for triaging students, adjust their group to counter negative behaviors related to adolescent groups, or choose to implement individualized BASICS. One of the main clinical implications from this study is the importance engaging in systematic program evaluation to understand how effective the chosen program or adapted program is with the unique population found at each campus. It is recommended by the author that whatever option is chosen, facilitators continue to carry out formal and informal evaluations to gauge the effectiveness of their intervention.

Limitations

One factor in the present study which may have reduced the likelihood of finding significant improvement following the group BASICS intervention is that participants in the BASICS group may have changed their behavior prior to entering the BASICS program and enrolling in this study. Receiving an alcohol-related violation and being mandated to treatment, may have served as a strong external motivator to change previous behaviors.   One of the main hypotheses of this study was that the BASICS group program would increase students' motivation to change, which should be reflected in a change in their RTCQ score and Stage of Change. Changes of this type may not have occurred, in part, because 43% of participants in the intervention group were in the highest measured Stage of Change (the Action Stage) at the beginning of the study. This may have created a ceiling effect.   Many participants' motivation to change may have peaked at a level that would be difficult or impossible to exceed. Furthermore, even if motivation to change increased, it would often have been undetectable with this assessment instrument used in this study because the Action Stage is the highest stage of motivation measured by the RTCQ. In contrast to the intervention group, only 20% of the participants in the comparison group were in the Action Stage at baseline. In the Stages of Change model, there is one stage higher than the Action Stage, Maintenance, however, this stage is not assessed by the RTCQ. Being in the Action Stage indicates that a participant has begun to take action and is engaging in steps towards changing their drinking (Miller & Rollnick, 1991). Therefore, it is possible that many of the participants in the BASICS intervention group had also begun to change some of the behaviors assessed in the present study during the period of time between being mandated to treatment and actually receiving treatment and beginning the study. The Office of Alcohol, Tobacco, and Other Drugs estimated that time between the infraction and the intervention is

about 20 days. This limitation could be challenged in future research by collecting drinking behaviors and related problems/risk at the time of being mandated for the program. If being mandated leads to behavior change and not BASICS, there should be a change noted between being mandated and receiving treatment.

The baseline data supports the hypothesis that change may have occurred prior to receiving a BASICS intervention. Due to the students being mandated to treatment, baseline differences between the comparison and the intervention group were to be expected. However, in all variables, except the AUDIT scores and average BAC, there was no significant difference between the two groups. While the baseline AUDIT scores of participants in the BASICS group were higher than those of the comparison participants, they were still in the minimal risk range and BASICS participants did not experience a higher rate of alcohol-related problems. These findings, combined with the high number of BASICS participants endorsing the Action Stage at baseline, suggesting that a large number of mandated students may have already started to change their drinking before attending the group BASICS intervention.

Another factor that may have reduced the likelihood of detecting an effect of the BASICS treatment in the current study was a difference in the delivery method of the measures for those in the intervention and comparison groups. The intervention group received the first set of measures in person with a research assistant present and the second set of measures via Qualtrics either in a private computer room or on their personal electronic device. The comparison group completed both sets of measures via Qualtrics on their personal electronic devices. The presence of the research assistant during the first collection for the intervention group may have led to a decrease in the participants' sense of anonymity. These participants may have intentionally or unintentionally underreported behaviors that are not seen as being socially desirable, such as

high rates of dangerous alcohol consumption or underage drinking (Leong & Austin, 2006, pg 110). This could lead to a decrease in the number of high-risk behaviors that would have been reported in the first data collection point for the intervention group. Specifically, the intervention group may have reported lower levels of drinking, risky behaviors, problems related to drinking, and body weight. This could have affected all the variables measured. Increased anonymity may have promoted more accurate responding. Anonymity was most assured in the comparison group where the measures were always administered via Qualtrics. Anonymity was also higher during the second data collection for the intervention group when Qualtrics was used.

A small sample size, particularly for the BASICS intervention group may have also limited the likelihood of obtaining a treatment effect in this study. It should be noted the analysis that looked at outcomes by sex are exploratory in nature due to the small sample size in the intervention group. The choice was made to limit the sample size for the intervention group to control for variation that may have been found across semesters and academic years. All data for this study were collected in one semester which imposed limits on the size of the samples obtained. Experimenter and participant error also further reduced the sample size. For example, participants occasionally made errors entering their unique code when completing one or both data collection surveys. This could make it impossible to match a participant's baseline data with the data obtained at the end of the study. A larger study with more participants across multiple semesters, years, and/or colleges may provide a more in-depth understanding of the effectiveness of group BASICS and be more sensitive to treatment effects.

The non-equivalent group pretest and posttest design also poses potential limitations for this study. Although this is a strong non-experimental design, and participation in both the experimental and comparison groups was voluntary, the design does not include random

selection or random assignment. The lack of random assignment could have created groups that were different in terms of their drinking behaviors, attitudes towards drinking, problems related to drinking, and other underlying factors that could have influenced the effectiveness of the intervention. Baseline comparisons were completed to determine the equivalency between the groups in key areas to assess such differences. The groups were not significantly different in their demographics, however, BASICS participants had a higher baseline average BAC and AUDIT scores than comparison participants. There were also more BASICS participants in the Action Stage of Change at the beginning of the study and fewer represented in the lowest Stage of Change, precontemplation. There was also a difference in the time between BASICS sessions, where those in the intervention group had 2.57 more days between each data collection point than those in the comparison group/. The facilitators preferred to allow a minimum of two weeks to elapse between the BASICS sessions. This minimum and possible scheduling conflicts typically led to an increase in the time elapsed between the administration of the pretest and posttest. The comparison group was able to complete the survey within their own schedule, allowing for more adherence to the two week timeline. Pre-existing differences and confounds that were not measured may also have existed that could have influenced study outcome. Given the similarity of the BASICS and comparison groups on the majority of variables at baseline, the non-equivalent comparison group was likely an adequate to measure the effects of the intervention.

It is important to acknowledge that while parametric statistics were used for the majority of the analyses for this study, there were often outliers in the dataset that caused violations of the assumption of normality. There was at least one outlier for eight of the variables that were analyzed and the highest number of outliers was 22. The outliers tended to have higher values

such as higher average drinks per week or higher scores on the RAPI. The presence of such outliers may be indicative of a finding reported by Wechsler and colleagues (2012), that more students were reporting drinking levels at the extremes than in the past. More students are currently reporting abstaining or binge drinking and fewer are reporting mid-range drinking (Wechsler et al., 2012). The sample in this study contained many abstainers and high drinking levels, but they were to be expected. Due to this expectation, these outliers were included in the analyses. Importantly, the mixed model ANOVA used for the majority of the analyses in this study should be robust to violations of the normality assumption because the sample size per group exceeds 30.

Conclusions

Overall, based on the results of this study and previous studies, it appears that group BASICS is an ineffective alcohol treatment approach when administered to mandated college students in a naturalistic setting. Students see a significant reduction only in their average BAC. Comparatively, if BASICS is used as it is manualized, students see the same changes in addition to lowered dangerous drinking, decreased peak BAC, fewer drinks per occasion, and larger drops in alcohol use (Difulvio, et al., 2007). Moreover, there is a change in participant's Stage of Change that mediates these effects, suggesting the individualized format is acting on the motivational interviewing principles the intervention is based on (Dimeff et al., 1999; Amaro, 2010). Furthermore, even if procedures are added to the BASICS program to counter negative group processes, the group intervention continues to be ineffective at reducing alcohol-related problems and drinking rates in college students (Faris & Brown, 2003). Group ASTP and MI based programs appear ineffective overall, even when the group intervention is the intention of the manual, as is the case with the CHOICES program (Alfonso et al., 2012). Overall, based on

the results of the current study and review of the literature, group BASICS intervention is not

recommended for populations similar to the one used in this study.

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m&TN=EBP&SN=AUTO26268&SE=288&RN=0&MR=0&TR=0&TX=1000&ES=1&

CS=0&XP=&RF=Brief+Display&EF=&DF=Full+Display&RL=1&EL=0&DL=0&NP=

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Substance Use Disorders Guidelines and Stages

Chart 1

Substance Use DSM-IV to DSM- 5

A Comparison Between DSM–IV and DSM–5

DSM–IV		DSM–5	
Any 1 = ALCOHOL ABUSE	Recurrent alcohol use resulting in a failure to fulfill major role obligations at work, school, or home (e.g., repeated absences or poor work performance related to alcohol use; alcohol-related absences, suspensions, or expulsions from school; neglect of children or household.	**1** Alcohol is often taken in larger amounts or over a longer period than was intended. (See DSM-IV, criterion 7.)	
	Recurrent alcohol use in situations in which it is physically hazardous (e.g., driving an automobile or operating a machine when impaired by alcohol abuse).	**2** There is a persistent desire or unsuccessful efforts to cut down or control alcohol use. (See DSM-IV, criterion 8.)	
	Recurrent alcohol-related legal problems (e.g., arrests for alcohol-related disorderly conduct). **This is not included in DSM–5**	**3** A great deal of time is spent in activities necessary to obtain alcohol, use alcohol, or recover from its effects. (See DSM-IV, criterion 9.)	
	Continued alcohol use despite having persistent or recurrent social or interpersonal problems caused or exacerbated by the effects of the alcohol (e.g., arguments with spouse about the consequences of intoxication, physical fights).	**4** Craving, or a strong desire or urge to use alcohol. **This is new to DSM–5**	The presence of at least 2 of these symptoms indicates an **Alcohol Use Disorder (AUD).**
Any 3 = ALCOHOL DEPENDENCE	Tolerance, as defined by either of the following: a) A need for markedly increased amounts of alcohol to achieve intoxication or desired effect b) Markedly diminished effect with continued use of the same amount of alcohol	**5** Recurrent alcohol use resulting in a failure to fulfill major role obligations at work, school, or home. (See DSM-IV, criterion 1.)	The severity of the AUD is defined as: **Mild:**
	Withdrawal, as manifested by either of the following: a) The characteristic withdrawal syndrome for alcohol b) Alcohol is taken to relieve or avoid withdrawal symptoms	**6** Continued alcohol use despite having persistent or recurrent social or interpersonal problems caused or exacerbated by the effects of alcohol. (See DSM-IV, criterion 4.)	The presence of 2 to 3 symptoms
	Alcohol is often taken in larger amounts or over a longer period than was intended.	**7** Important social, occupational, or recreational activities are given up or reduced because of alcohol use. (See DSM-IV, criterion 10.)	
	There is a persistent desire or unsuccessful efforts to cut down or control alcohol use.	**8** Recurrent alcohol use in situations in which it is physically hazardous. (See DSM-IV, criterion 2.)	**Moderate:** The presence of 4 to 5 symptoms
	A great deal of time is spent in activities necessary to obtain alcohol (e.g., driving long distances), use alcohol, or recover from its effects.	**9** Alcohol use is continued despite knowledge of having a persistent or recurrent physical or psychological problem that is likely to have been caused or exacerbated by alcohol. (See DSM-IV, criterion 11.)	**Severe:** The presence of 6 or more symptoms
	Important social, occupational, or recreational activities are given up or reduced because of alcohol use.	**10** Tolerance, as defined by either of the following: a) A need for markedly increased amounts of alcohol to achieve intoxication or desired effect b) A markedly diminished effect with continued use of the same amount of alcohol (See DSM-IV, criterion 5.)	
	Alcohol use is continued despite knowledge of having a persistent or recurrent physical or psychological problem that is likely to have been caused or exacerbated by the substance (e.g., continued drinking despite recognition that an ulcer was made worse by alcohol consumption).	**11** Withdrawal, as manifested by either of the following: a) The characteristic withdrawal syndrome for alcohol (refer to criteria A and B of the criteria set for alcohol withdrawal) b) Alcohol (or a closely related substance, such as a benzodiazepine) is taken to relieve or avoid withdrawal symptoms. (See DSM-IV, criterion 6.)	

http://pubs.NIAAA.nih.gov/publications/dsmfactsheet/dsmfact.pdf

Chart 2
Stages of change

Client's Stage of Change	Therapist Motivational Tasks
Precontemplation	Raise Doubt Increase the client's perceptions of risks and problems with current behaviors
Contemplation	Tip the balance of ambivalence in the direction of change, elicit reasons to change and identify risks of not changing strengthen client's self-efficacy for changing current behavior
Preparation	Help client identify and select the best initial course of action to commence change, reinforce movement in this direction
Action	Continue to help client take step toward change, provide encouragement and positive reinforcement (e.g., praise) for action steps
Maintenance	teach the client relapse prevention skills

(Dimeff et al., 1999) Adapted from Miller and Rollnick(1991)

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Appendix B

Full Materials

Full Survey

PERSONAL PIN

Create a personal 5 letter PIN by following these directions:
The first letter of your **last name**
Last two digits of your **Banner ID Number**
The two-digit (day) **date of your birth**

For example: Jane Smith, born 09/09/91, has school identification number of @12345678. Her PIN would be S7809.
Only you will know this PIN and it will be used to match your data across all collection points

Your PIN_____

General Information

Your PIN:_____
Sex: _____ Age:_____ Race/Ethnicity:_____
Class:
___ Freshman   ___ Sophomore
___ Junior   ___ Senior
___ Graduate   ___ Other (Please Specify:_____)

Violations

Number of Alcohol-related violations while attending IUP:
    Student conduct:_____   Legal:_____
Current Violation **(Select one)** : ___Legal ___ Student Conduct ____ Both
Number of time in BASICS at IUP **(Mark 1 if this is your first time)** _____
Where did you receive your violation (i.e. my dorm, walking home) : _____

Other Information

On average, how many days out the week do you consume 1 or more drinks? ___ days
Where do you drink most often?

Where all do you drink? (Mark all that apply):
___ My Dorm   ___ My house
___ Friend's dorm   ___ Friend's house
___ Party (on campus)   ___Party (off Campus)
___ Bars
If you drink at bars, name the top 3 Bars you attend:
  1) _____   2) _____   3)_____

<div align="center">Survey:</div>

1) Number of standard drinks in the past 2 weeks:
   Remember: A standard drink is 1 shot (1.5 ounce) of liquor, 12 oz. of beer, or 5 oz. of wine

	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday	Total
Week 1								
Week 2								

2) Number of hours spent drinking per day in the last 2 weeks:

	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday	Total
Week 1								
Week 2								

3) **Weight** (lbs) _____ - if you are unsure of your current weight please estimate

4) On a Normal night out, how many standard drinks do you consume? _____

5) On a normal night out, how many hours do you spend drinking?_____

6) In the past 2 weeks, on one drinking occasion, what was the highest number of standard drinks you consumed?_____

   a. On this occasion, how many hours did you spend drinking?_____

Different things happen to people when they are drinking ALCOHOL, or as a result of their ALCOHOL use. Some of these things are listed below. Please indicate how many times each has happened to you during the last 2 weeks while you were drinking alcohol or as the result of your alcohol use

How many times did the following things happen to you while you were drinking alcohol or because of **your alcohol use during the last 2 weeks?**	Never	1-2 times	3-5 times	6-10 times	More than 10 times
1. Got into fights, acted bad, or did mean things.	☐0	☐1	☐2	☐3	☐4
2. Went to work or school high or drunk.	☐0	☐1	☐2	☐3	☐4
3. Caused shame or embarrassment to someone.	☐0	☐1	☐2	☐3	☐4
4. Neglected your responsibilities.	☐0	☐1	☐2	☐3	☐4
5. Relatives avoided you.	☐0	☐1	☐2	☐3	☐4
6. Felt that you needed more alcohol than you used to use in order to get the same effect.	☐0	☐1	☐2	☐3	☐4
7. Tried to control your drinking by trying to drink only at certain times of day or certain places.	☐0	☐1	☐2	☐3	☐4
8. Had withdrawal symptoms, that is, felt sick because you stopped or cut down on drinking.	☐0	☐1	☐2	☐3	☐4
9. Noticed a change in your personality.	☐0	☐1	☐2	☐3	☐4
10. Felt that you had a problem with school.	☐0	☐1	☐2	☐3	☐4
11. Tried to cut down on drinking.	☐0	☐1	☐2	☐3	☐4
12. Suddenly found yourself in a place that you could not remember getting to.	☐0	☐1	☐2	☐3	☐4
13. Passed out or fainted suddenly.	☐0	☐1	☐2	☐3	☐4
14. Had a fight, argument, or bad feelings with a friend.	☐0	☐1	☐2	☐3	☐4
15. Kept drinking when you promised yourself not to.	☐0	☐1	☐2	☐3	☐4
16. Felt you were going crazy.	☐0	☐1	☐2	☐3	☐4
17. Felt physically or physiologically dependent on alcohol.	☐0	☐1	☐2	☐3	☐4
18. Was told by a friend or neighbor to stop or cut down drinking.	☐0	☐1	☐2	☐3	☐4

Reference: White HR; Labouvie EW. Towards the assessment of adolescent problem drinking. J Stud Alcohol 50:30-37, 1989.

Please read each sentence below carefully. For each one please pick the answer that best describes how you feel for the past 2 weeks. Your answers will be private and confidential.

	Strongly Disagree	Disagree	Unsure	Agree	Strongly Agree
1. My drinking is okay as it is.	☐	☐	☐	☐	☐
2. I am trying to drink less than I used to	☐	☐	☐	☐	☐
3. I enjoy my drinking, but sometimes I drink too much	☐	☐	☐	☐	☐
4. I should cut down on my drinking					
5. It's a waste of time thinking about my drinking	☐	☐	☐	☐	☐
6. I have just recently changed my drinking habits	☐	☐	☐	☐	☐
7. Anyone can talk about wanting to do something about drinking, but I am actually doing something about it	☐	☐	☐	☐	☐
8. I am at the stage where I should think about drinking les alcohol	☐	☐	☐	☐	☐
9. My drinking is a problem	☐	☐	☐	☐	☐
10. It's alright for me to keep drinking as I do now					
11. I am changing my drinking habits right now	☐	☐	☐	☐	☐
12. My life would still be the same, even if I drank less	☐	☐	☐	☐	☐

(Rollnick, Heather, Gold, & Hall, 1992)

For each question in the chart below, place an X in one box that best describes your answer.

NOTE: In the U.S., a single drink serving contains about 14 grams of ethanol or "pure" alcohol. Although the drinks below are different sizes, each one contains the same amount of pure alcohol and counts as a single drink:

12 oz. of beer (about 5% alcohol) = **8-9 oz. of malt liquor** (about 7% alcohol) = **5 oz. of wine** (about 12% alcohol) = **1.5 oz. of hard liquor** (about 40% alcohol)

Questions	0	1	2	3	4	
1. How often do you have a drink containing alcohol?	Never	Monthly or less	2 to 4 times a month	2 to 3 times a week	4 or more times a week	
2. How many drinks containing alcohol do you have on a typical day when you are drinking?	1 or 2	3 or 4	5 or 6	7 to 9	10 or more	
3. How often do you have 5 or more drinks on one occasion?	Never	Less than monthly	Monthly	Weekly	Daily or almost daily	
4. How often during the last year have you found that you were not able to stop drinking once you had started?	Never	Less than monthly	Monthly	Weekly	Daily or almost daily	
5. How often during the last year have you failed to do what was normally expected of you because of drinking?	Never	Less than monthly	Monthly	Weekly	Daily or almost daily	
6. How often during the last year have you needed a first drink in the morning to get yourself going after a heavy drinking session?	Never	Less than monthly	Monthly	Weekly	Daily or almost daily	
7. How often during the last year have you had a feeling of guilt or remorse after drinking?	Never	Less than monthly	Monthly	Weekly	Daily or almost daily	
8. How often during the last year have you been unable to remember what happened the night before because of your drinking?	Never	Less than monthly	Monthly	Weekly	Daily or almost daily	
9. Have you or someone else been injured because of your drinking?	No		Yes, but not in the last year		Yes, during the last year	
10. Has a relative, friend, doctor, or other health care worker been concerned about your drinking or suggested you cut down?	No		Yes, but not in the last year		Yes, during the last year	
					Total	

Note: This questionnaire (the AUDIT) is reprinted with permission from the World Health Organization. To reflect drink serving sizes in the United States (14g of pure alcohol), the number of drinks in question 3 was changed from 6 to 5. A free AUDIT manual with guidelines for use in primary care settings is available online at *www.who.org.*

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Appendix C

Consent and Debriefing Forms

Intervention Group Consent Form
You are invited to participate in this research study. The following information is provided in order to help you to make an informed decision whether or not to participate. If you have any questions please do not hesitate to ask. You are eligible to participate because you are a student mandated to the BASICS program at Indiana University of Pennsylvania (IUP).

The purpose of this study is to compare the effectiveness of the BASICS program. The information gained from this study may help us to better understand if this program in its current format is effective at reducing drinking behaviors and helping students make better drinking choices.

Participation in this study will require approximately 45 minutes of your time across 3 data collection points corresponding with you scheduled participation in BASICS. Participation or non-participation will not affect your standing in the BASICS program, current sanctions, or legal charges. You will be asked to complete a total of 3 surveys ranging from 5 to 15 minutes in length before your first BASICS session, after the first session, and after the last session. The total time across the 3 collection points should be no longer than approximately 45 minutes. If you complete all 3 sessions you will be entered into a raffle to win an amazon gift card.

Your participation in this study is voluntary. You are free to decide not to participate in this study or to withdraw at any time without adversely affecting your relationship with the investigators, police, or IUP. Your decision will not result in any loss of benefits to which you are otherwise entitled. If you choose to participate, you may withdraw at any time by notifying the Project Director or informing the person administering the test. Upon your request to withdraw, all information pertaining to you will be destroyed. If you choose to participate, all information will be held in strict confidence and will have no bearing on your academic or legal standing or services you receive from the University. Aggregate data will be shared with the Office of Alcohol, Tobacco, ad Other Drugs. Your response will be considered only in combination with those from other participants and your identity will be kept confidential. The information obtained in the study may be published in scientific journals or presented at scientific meetings but your identity will be kept strictly confidential.

If you are willing to participate in this study, please sign the statement below and begin the first survey. If you would like a copy, please as the researcher for an extra unsigned copy with you. If you choose not to participate, do not sign the form and wait for the beginning of BASICS.
Project Director:
Dr. Laurie Roehrich
Associate Professor
Psychology
Uhler 203
1020 Oakland Ave.
Indiana, PA 15705
Phone: 724-357-3168
Roehrich @iup.edu
This project has been approved by the Indiana University of Pennsylvania Institutional Review Board for the Protection of Human Subjects (Phone: 724-357-7730).

VOLUNTARY CONSENT FORM:

I have read and understand the information on the form and I consent to volunteer to be a subject in this study. I understand that my responses are completely confidential and that I have the right to withdraw at any time. I have received an unsigned copy of this informed Consent Form to keep in my possession.

Name (PLEASE PRINT)

Signature

Date

Phone number or location where you can be reached

Best days and times to reach you
Comparison group Consent Form
You are invited to participate in this research study. The following information is provided in order to help you to make an informed decision whether or not to participate. If you have any questions please do not hesitate to ask. You are eligible to participate because you are a student at Indiana University of Pennsylvania (IUP).
The purpose of this study is to ascertain the effectiveness of an alcohol intervention program. You will be serving as a comparison group to help us better understand the effects of this program. Participation in this study will require an estimated 40 minutes of your time across 2 data collection points approximately 2 weeks apart.
Your participation in this study is voluntary. You will receive 2 credits (one for each data collection point) towards your research requirement for your Psychology course. You are free to decide not to participate in this study or to withdraw at any time without adversely affecting your relationship with the investigators, police, or   IUP. Your decision will not result in any loss of benefits to which you are otherwise entitled. If you choose to participate, you may withdraw at any time by notifying the Project Director or informing the person administering the test. Upon your request to withdraw, all information pertaining to you will be destroyed. If you choose to participate, all information will be held in strict confidence and will have no bearing on your academic or legal standing or services you receive from the University. Aggregate data will be shared with the Office of Alcohol, Tobacco, ad Other Drugs. Your response will be considered only in combination with those from other participants and your identity will be kept confidential. The information obtained in the study may be published in scientific journals or presented at scientific meetings but your identity will be kept strictly confidential.
If you are willing to participate in this study, please select the "Yes, I agree to Participate" options and procedure with the survey. If you choose not to participate, select "No, I do not agree to participate" option and do not complete the survey.
Project Director:
Dr. Laurie Roehrich
Associate Professor
Psychology
Uhler 203
1020 Oakland Ave.
Indiana, PA 15705
Phone: 724-357-3168
Roehrich @iup.edu

This project has been approved by the Indiana University of Pennsylvania Institutional Review Board for the Protection of Human Subjects (Phone: 724-357-7730).

VOLUNTARY CONSENT FORM:
I have read and understand the information on the form and I consent to volunteer to be a subject in this study. I understand that my responses are completely confidential and that I have the right to withdraw at any time. I have received an unsigned copy of this informed Consent Form to keep in my possession.

Name (PLEASE PRINT)

Signature

Date

Phone number or location where you can be reached

Best days and times to reach you
If at any point in this study you became concerned about you drinking patterns, related risks, or problems please reach out to this campus and local resources:
Alcohol, Tobacco, and Other Drugs Program
Center for Health and Well-Being
Suites on Maple East, Suite G59
901 Maple Street
Indiana, PA 15705
Phone: 724-357-1265
Fax: 724-357-4457
atod-oasis@iup.edu

The Counseling Center
Suites on Maple East, G31
901 Maple Street
Indiana, PA 15705
Phone: 724-357-2621
Fax: 724-357-7728

The Open Door
Drug Addiction Treatment Center
Address: 665 Philadelphia St, Indiana, PA 15701
Phone:(724) 465-2605

Debriefing:

Thank you for participating in this study. The purpose of this study is to measure the effectiveness of the BASICS program at Indiana University of Pennsylvania. This program as brief intervention intended to reduce dangerous drinking practices and related risks in a college population. The information gained from this study may help us to better understand if this program in its current format is effective at reducing drinking behaviors and helping students make better drinking choices.

As you know, your participation in this study is voluntary. You may withdraw your data after reading this form and all of your data will be destroyed. You will not be penalized for withdrawal.

This project will continue during this semester and future semester. We ask that you do not talk (write/email) about this project as it could influence the responses or expectations of others. Failure to do so could have harmful effects on the accuracy of the data collected. Please support our research by not sharing your information about this study with other students.

If you would like a copy of this debriefing form or consent form, please contact the Project Director, Dr. Roehrich at Roehrich @iup.edu.
If you have questions about the research, please ask Dr. Roehrich at Roehrich @iup.edu.   If If, as a result of your participation in this study, you experienced any adverse reaction, please contact Indiana University of Pennsylvania Institutional Review Board for the Protection of Human Subjects (Phone: 724-357-7730).

If at any point in this study you became concerned about you drinking patterns, related risks, or problems please reach out to this campus and local resources:

Alcohol, Tobacco, and Other Drugs Program
Center for Health and Well-Being
Suites on Maple East, Suite G59
901 Maple Street
Indiana, PA 15705
Phone: 724-357-1265
Fax: 724-357-4457
atod-oasis@iup.edu

The Counseling Center
Suites on Maple East, G31
901 Maple Street
Indiana, PA 15705
Phone: 724-357-2621
Fax: 724-357-7728

The Open Door
Drug Addiction Treatment Center
Address: 665 Philadelphia St, Indiana, PA 15701
Phone:(724) 465-2605

For more information about this research, please see:

Evidence Based Practices For Substance Use Disorder. (2013, March). Brief Alcohol Screening and Intervention for College Students (BASICS): a harm reduction approach. Retrieved from http://lib.adai.washington.edu/dbtw-wpd/exec/dbtwpub.dll?AC=GET_RECORD&XC=/dbtw-wpd/exec/dbtwpub.dll&BU=http%3A%2F%2Flib.adai.washington.edu%2Febpsearch.htm&TN=EBP&SN=AUTO26268&SE=288&RN=0&MR=0&TR=0&TX=1000&ES=1&CS=0&XP=&RF=Brief+Display&EF=&DF=Full+Display&RL=1&EL=0&DL=0&NP=3&ID=&MF=WPEngMsg.ini&MQ=&TI=0&DT=&ST=0&IR=47&NR=0&NB=1&SV=0&SS=0&BG=&FG=&QS=&OEX=ISO-8859-1&OEH=ISO-8859-1

Hill, L. (2013). Evaluating the Brief Alcohol Screening for College Students (BASICS) in Small Group Settings for Mandated College Students Engaged in High-Risk Drinking.