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# The effectiveness of a substance abuse treatment group for at risk college students

Melissa D. Simundson  
*Louisiana Tech University*

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**THE EFFECTIVENESS OF A SUBSTANCE  
ABUSE TREATMENT GROUP FOR  
AT RISK COLLEGE  
STUDENTS**

by

Melissa D. Simundson, M.A.

A Dissertation Presented in Partial Fulfillment  
of the Requirements for the Degree  
Doctor of Philosophy

COLLEGE OF EDUCATION  
LOUISIANA TECH UNIVERSITY

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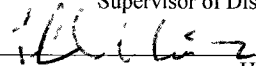
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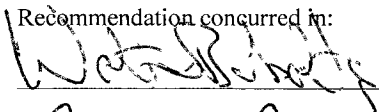
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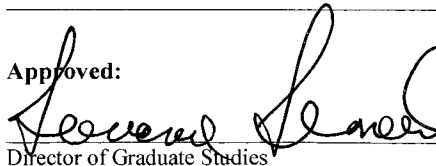
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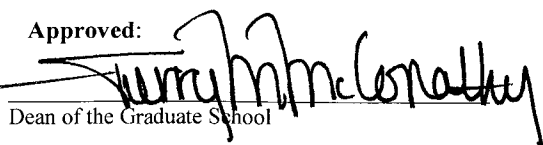
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## **ABSTRACT**

There has been limited research in the area of treatment effectiveness for college students who abuse substances (e.g., alcohol, marijuana). There is no published research to date that addresses the effectiveness of college students' substance abuse counseling groups utilizing therapeutic reactance as a covariate. The purpose of this study was to examine the effectiveness of motivational interviewing and cognitive therapy techniques with a university counseling center substance abuse group and the extent to which group members' levels of reactance influence the treatment outcome. There were 35 college students approximately 18-25 years of age in six groups with an average of approximately six members. Outcome scores were measured by the Substance Abuse Subtle Screening Inventory-3 (SASSI-3) Face-Valid Alcohol (FVA) and Symptoms (SYM) subscales. Therapeutic Reactance Scale (TRS) scores were entered as a covariate. It was hypothesized that the motivational interviewing group would lead to a reduction in substance misuse as evidenced by significant differences between pre- and post-test scores on the FVA and SYM subscales on the SASSI-3. The motivational interviewing group was expected to have a significant reduction in the FVA and SYM scores on the SASSI-3 as compared to the post-test cognitive therapy group FVA and SYM scores, respectively. When controlling for reactance, individuals were expected to have a significant reduction in pre- and post-test SASSI-3 FVA and SYM subscale scores. Results indicated a nonsignificant multivariate effect for the motivational interviewing

and cognitive therapy groups. Contrary to expectation, substance abuse scores increased in five of the six intervention groups. Implications for substance abuse intervention and measurement of substance abuse symptoms are discussed.

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Author Melissa S. S. S.

Date 7-18-11

## TABLE OF CONTENTS

ABSTRACT.....	iii
LIST OF TABLES .....	viii
LIST OF FIGURES .....	ix
CHAPTER ONE: INTRODUCTION.....	1
Statement of the Problem.....	4
Justification .....	5
Literature Review.....	6
Substance Abuse .....	6
Persuasion .....	15
Reactance .....	22
Substance Abuse Programs .....	28
Efficacy of Substance Abuse Treatments.....	30
Hypotheses.....	34
Hypothesis 1.....	34
Justification for Hypothesis 1 .....	34
Hypothesis 2.....	34
Justification for Hypothesis 2 .....	35
Hypothesis 3.....	35
Justification for Hypothesis 3 .....	35



Hypothesis 4.....	36
Justification for Hypothesis 4 .....	36
Hypothesis 5.....	36
Justification for Hypothesis 5 .....	36
Hypothesis 6.....	37
Justification for Hypothesis 6 .....	37
CHAPTER TWO: METHOD .....	38
Participants.....	38
Instruments.....	40
Substance Abuse Subtle Screening Inventory-3 (SASSI-3) .....	40
The Therapeutic Reactance Scale (TRS) .....	44
Procedure .....	44
Data Analysis .....	46
CHAPTER THREE: RESULTS .....	48
Hypothesis 1.....	56
Hypothesis 2.....	56
Hypothesis 3.....	56
Hypothesis 4.....	57
Hypothesis 5.....	57
Hypothesis 6.....	57
Exploratory Analysis.....	57
CHAPTER FOUR: DISCUSSION .....	60
REFERENCES .....	67
APPENDIX A HUMAN SUBJECTS CONSENT FORM .....	80

APPENDIX B HUMAN USE APPROVAL FORM..... 82

APPENDIX C DEMOGRAPHICS..... 85

## **LIST OF TABLES**

Table 1. Descriptive Statistics for Treatment Groups 1 and 2.....	50
Table 2. Descriptive Statistics for Original Groups 1-6.....	52

## **LIST OF FIGURES**

Figure 1. Pre- and Post-Test FVA Mean Scores for the Treatment Groups.....	54
Figure 2. Pre- and Post-Test SYM Mean Scores for the Treatment Groups.....	55

## **CHAPTER ONE**

### **INTRODUCTION**

Alcohol and drug use are widespread problems on college campuses in the United States. College campuses offer intervention programs, drug/alcohol groups, and psychoeducational classes to students, but many of these programs have little or no effect on short-term or long-term behavior (Barnett & Read, 2005; Hingson, Berson, & Dowley, 1997; Wechsler, Lee, Nelson, & Kuo, 2001). By researching effectiveness of alcohol/drug intervention programs and exploring various factors related to success, it may be possible to tailor interventions to better serve individuals or groups.

Alcohol and drug abuse not only affects the individual, but also society. According to the Office of National Drug Control Policy (ONDCP), drug use costs the United States \$143.3 billion dollars in 1998. Drug misuse costs society money because of healthcare costs, productivity losses, and other costs (ONDCP, 2001). It is estimated by the Centers for Disease Control and Prevention that in the year 2006, approximately 61% of adults consumed alcohol at least one time (2009). Additionally, it is estimated that another \$1 - 1.5 billion per year has been spent since 1996 on drug abuse programs aimed at reducing drug use (Hansen, 2006). Problems that occur as a result of alcohol or drug misuse include car accidents, physical or sexual assaults, physical injuries, and fatalities (Mundt, 2007). In 2006, there were 22,073 alcohol-induced deaths and 13,050 deaths as a result of alcohol-related liver disease (Centers for Disease Control and Prevention, 2009).

With regard to drug abuse, approximately 20% of adults reported having five or more drinks within a 24-hour period at least one time in 2006 (Centers for Disease Control and Prevention, 2009). Consuming five or more drinks in a short period of time is also known as binge drinking (Wechsler & Nelson, 2008). For each year from 2001-2005, binge drinking accounted for 43,731 of the estimated 79,646 alcohol-related deaths (Cremeens et al., 2009). According to the National Institute on Alcohol Abuse and Alcoholism (NIAAA), in 2008, 83% of college students (aged 18-24) reported drinking at least once. Another 41% of students reported binge drinking at least once within the past two weeks. Wechsler and Nelson found that 44% of college students admit to having engaged in binge drinking and that number has been reliably found with four administrations of a survey from 1993-2001. Wechsler et al. (2001) also found that underage college students (under age 21) drink less frequently than their older peers, but when they do drink, they are more likely to binge drink. The implications for early drug and alcohol abuse are numerous; individuals who continue this behavior may see devastating long-term effects such as violence, accidents, alcoholism, and other damaging effects (Wechsler et al.).

The prevalence of sporadic high-risk drinking is greatest for young adults aged 18-24, regardless of if they are in college, the military, or the workforce (NIAAA, 2008). It appears that many individuals in the age group 18-24 engage in high-risk drinking in any setting. Cremeens et al. (2009) found that binge drinking was most common among men aged 18-24. Also, the highest prevalence of alcohol dependence occurs in this age group (NIAAA).

Dangerous drinking behavior and drug use on college campuses are enduring problems for universities. Drinking plays a large role in the college culture, and many

attempts to control students' drinking have failed (NIAAA, 2008). According to the NIAAA, "The negative consequences of alcohol consumption by our Nation's college students are wide-ranging; they include academic problems, date rapes and assaults, and deaths from unintentional injuries and alcohol poisonings. Clearly, these consequences affect both drinkers and those around them" (p. 1). The problem extends from college campuses to other areas of the community and may affect not only college students, but also residents of the area.

There is substantial research on treatment efficacy for alcohol dependence. Current research compares several types of treatments for alcohol dependence/abuse (Adamson & Sellman, 2008; Bewick, Trusler, Mulhern, Barkham, & Hill, 2008; Hansson, Rundberg, Zetterlind, Johnsson, & Berglund, 2007; Rohsenow et al., 2001), examines dozens of different modalities of treatment effectiveness for alcohol dependence (Miller & Wilbourne, 2002), examines long-term effects of treatment (Miller, Walters, & Bennett, 2001), and matches up clients with treatment modalities based on certain characteristics (Project MATCH Research Group, 1997).

Miller and Wilbourne (2002) found that different treatment modalities have varying levels of effectiveness, while Project MATCH found that it is not necessary to match clients with different modalities since there are no significant differences in treatment effectiveness for alcohol abuse (Project MATCH Research Group, 1997). Some treatment modalities help clients make gains sooner or appear to be more effective than other treatment modalities at short-term follow-up. However, all treatment modalities were found to be equal in effectiveness at long-term follow-up (Adamson & Sellman, 2008; Miller et al., 2001). These specific treatment modalities are discussed in further detail in the literature review.

There is minimal research on programs, treatment modalities, and levels of treatment effectiveness specifically on college campuses (e.g., Barnett et al., 2008; Linowski, 2004; Miller & Sanchez, 1994). Miller and Sanchez discussed a model developed for a university that increased awareness of risks and provided a variety of alternatives for change. Miller and Sanchez also found decreased frequency and quantity of drinking, decreased drunk driving, and decreased use of drugs (e.g., marijuana). The present study seeks to extend research in the area of college student substance abuse program effectiveness.

#### Statement of the Problem

Very few people seek treatment on their own when dealing with substance abuse. They are usually pressured by others, such as significant people in their lives or judicial institutions (Grant, 1997; Milgram & Rubin, 1992). When individuals do seek treatment, the programs that are available may have varying levels of treatment efficacy. The main problem is that professionals are uncertain of program efficacy until empirical research examines which interventions are effective and which characteristics may influence treatment outcomes.

There have been numerous studies on the general effectiveness of alcohol interventions (e.g., Roudsari, Field, Frankowski, & Caetano, 2008), specific types of interventions (e.g., Adamson & Sellman, 2008), specific types of clients (e.g., Barnett et al., 2008), and matching clients with interventions (e.g., Pagano, Zemore, Onder, & Stout, 2009, Project MATCH Research Group, 1997). Despite all of the research, Barnett and Read (2005) reviewed studies on college campus treatment effectiveness and found that quality research in the area of college students is lacking. They suggest that more research be done in the area of college student treatment effectiveness. As stated earlier,



the majority of alcohol problems occur in young adults (NIAAA, 2008), and research is needed to assess treatment efficacy in order to effectively treat a widespread problem.

Another problematic factor that may occur in therapy and lead to low treatment effectiveness is reactance. Reactance is described as doing the opposite of what is expected because a threat to freedom is perceived (Brehm, 1966). With regard to treatment efficacy, reactance may be a factor involved in therapy that could hinder the therapeutic process and lead to low treatment effectiveness. For example, an individual who scores high in reactance and feels pressured to abstain from using substances in mandatory treatment may increase usage behaviors. There is minimal research regarding reactance in substance abuse treatment (e.g., Bensley & Wu, 2006). Because reactance often occurs in all types of treatment (e.g., individual therapy, group therapy), it may be useful to examine the role of reactance in the effectiveness of a substance abuse treatment group.

### Justification

A substance abuse intervention attempts to help the college student recognize unhealthy behaviors, substitute healthy behaviors for unhealthy behaviors, and disrupt a pattern of harmful drinking behaviors before the behaviors become ingrained and lead to alcohol dependence (Borsari, Murphy, & Barnett, 2007). It is hypothesized that harmful drinking behaviors begin early (Miller & Sanchez, 1994), and intervention is key to deterring, eliminating, or preventing current and future problematic behaviors (Hansen, 2006). Therefore, because of implications for the present and the future, it is important to investigate the effectiveness of substance abuse interventions on a college campus.

Psychological reactance is known to play a role in mediating the outcome of therapy (Dowd & Walbrown, 1993). Therefore, it may be possible to create a treatment

plan based on an individual's level of reactance in order to maximize treatment effectiveness (Rohrbaugh, Tennen, Press, & White, 1981). It would be valuable to examine the role of reactance in substance abuse treatment.

Many interventions have the short-term goal of reducing problematic behaviors and a long-term goal of preventing heavy abuse later in life (Hansson et al., 2007; Miller & Sanchez, 1994). By focusing on short-term goals, the college campus substance abuse interventions may be helpful in reducing the current number of college students misusing alcohol. By focusing on long-term goals of prevention, the number of alcohol dependent adults may be reduced, which reduces the amount of money that individuals' substance abuse problems may cost society in the future.

If an intervention succeeds in its goals, substance abuse treatment may be found to be very useful for the present and the future. If an intervention does not succeed in meeting its goals, changes need to be made to the program in order to increase its effectiveness to achieve the stated goals. A study conducted by Barnett and Read (2005) reviewed other research in the area of substance abuse treatment on college campuses. They found that more research is needed on the efficacy of college campus alcohol/drug interventions.

## Literature Review

### *Substance Abuse*

Substance abuse is a maladaptive pattern of substance use that leads to significant impairment or distress occurring over the course of a year (American Psychiatric Association, 2000). The term "substance" can include any substance ingested in order to produce a high (American Psychiatric Association), and the present paper refers to the term within the context of drugs and/or alcohol. Substance abuse is different from

substance dependence. Substance dependence is defined as “addiction” and is characterized by tolerance, withdrawal, using to excess, desire to give up using but inability to do so, and reduced functioning in areas of an individual’s life, such as social, recreational, and occupational areas (American Psychiatric Association). In order to be diagnosed with substance abuse or substance dependence in a clinical setting, an individual must meet minimum criteria as specified by the *Diagnostic and Statistical Manual of Mental Disorders, 4<sup>th</sup> ed., text revision* (DSM-IV-TR). The present paper explores issues related to substance use, misuse, abuse; college students’ drinking, binge drinking, and other drug use; and college students’ frequent, excessive, and problematic substance use. The term substance abuse will be used to describe the aforementioned topics and does not necessarily indicate a DSM-IV-TR clinical diagnosis of substance abuse or substance dependence. In this study, substance abuse is operationally defined as any level of impairment or distress that is present in these college students’ lives due to misuse of alcohol or drugs.

If alcohol and drugs are problematic, then why do individuals use them? Labouvie and Bates (2001) discuss how drinking helps to emotionally blunt an otherwise emotionally distressing situation. Not only does it help as a coping mechanism, but also it helps an individual cope when a situation could be possibly stressful. When alcohol is used as a means of affect regulation in order to suppress or blunt negative affect, usage problems are more likely to occur. The individual may develop a pattern of drinking to self-soothe. When alcohol is used for social reasons not related to suppressing affect, usage problems are less likely to occur.

Not only can alcohol be used as a means to regulate affect, but also it can be used in a social context. Social norms and social influences may lead to unsafe drinking

behaviors in that many college students overestimate other college students' drinking behaviors, which in turn increases their drinking behavior (Baer, 1994; Larimer, Turner, Mallett, & Geisner, 2004). Several studies have examined how correcting students' misperceptions of other students' drinking behaviors use may lead to a decrease in alcohol use among college-aged students, but no significant effects were found (DATA: The Brown University Digest of Addiction Theory & Application, 2006; LaBrie, Hummer, Neighbors, & Pedersen, 2008). However, another study examined effects of misperceptions on drug use and found the perceptions of use by friends and peers accounted for variance in drug use and drug-related experiences (Kilmer et al., 2006). In other words, college students' perceptions of drug/alcohol are a factor involved in college student alcohol misuse. These perceptions of others' drug use could be explored in group therapy interventions.

The first step to influencing behavior is influencing attitudes. Motivational enhancement therapy is an intervention often used with substance abusers. Motivational interviewing is a clinical technique used in motivational enhancement therapy and has been gaining popularity in the area of substance abuse treatment for the past decade (Patterson & Wolf, 2008). The goal of motivational enhancement therapy is to evoke change within that individual by utilizing brief intervention and motivational techniques, and the client learns how to change behaviors by activating his or her own resources (Miller, 1995). This evocation of change is a useful tool for the future because it teaches the individual how to bring about change on his or her own, which in turn, increases self-efficacy. Individuals receiving motivational enhancement therapy have been shown to make gains in their treatments sooner than utilizing an alternative treatment or no treatment at all (Adamson & Sellman, 2008). Personalized feedback is an integral part of

motivational enhancement therapy and is found to be one of the components required for therapeutic gain (Miller).

Brief alcohol intervention is another form of therapy used in various settings. Brief alcohol intervention is used as a general term throughout the literature and usually consists of brief feedback and/or a psychoeducational session. Brief alcohol intervention generally incorporates a motivational interviewing style and techniques for use in time-limited settings (Noonan & Moyers, 1997). Brief alcohol intervention has been operationally defined in several different ways throughout the alcohol intervention research literature, and there is potential error in comparing across studies when researchers incorrectly replicate studies (e.g., using different techniques, unclear whether the brief feedback is individualized or generalized). The present paper discusses individual studies, but will not compare one to another.

Miller and Sanchez (1994) identify six common factors (FRAMES) that have been found to be involved with the success of a brief alcohol intervention: (a) Feedback, (b) Responsibility, (c) Advice, (d) Menu, (e) Empathy, and (f) Self-efficacy. Feedback refers to personalized feedback of that individual's possible risks and/or problems associated with drinking. Responsibility refers to placing personal responsibility on the client for his or her behavior. Advice refers to presenting clear information on how to change behaviors. Menu refers to a list of possible choices for changing behaviors. Empathy refers to therapist empathizing with the client, and increasing the client's self-efficacy through offering hope, support, and optimism.

Gaume, Gmel, and Daepfen (2008) also found the following factors to be important in a successful brief alcohol intervention: (a) nonconfrontational stance, (b) asking open questions, (c) asking for permission, (d) affirming, and (e) encouraging

choices. Gaume et al. also found that certain groups are found to benefit from interventions more than others. It is not clear, however, which characteristics make up these groups.

Brief alcohol interventions for injury patients are important interventions because alcohol contributes to 40% to 50% of injuries in the United States (Nilsen et al., 2008). Daepfen (2008) found that in an emergency room setting, there was no significant effect on patients who were administered a brief alcohol intervention. However, when brief motivational interviewing with personalized feedback was included, the intervention did have an effect. It appears that feedback is crucial in motivating change. Those presenting to an emergency room may be more easily persuaded because they are already contemplating changing their behaviors due to their injuries, a negative consequence that they may have difficulty denying (Walton et al., 2008).

Injury patients receiving a brief alcohol intervention had more reductions in their drinking than control patients. However, it has been found that many injury patients stop or decrease their drinking regardless of whether they receive an intervention (Nilsen et al., 2008). In other words, it seems as if the natural consequences of a substance abuse-related injury cause many individuals to reduce or cease the behavior that preceded it (i.e., drinking, doing drugs, other harmful behaviors). Another study found no significant decrease in injury recidivism for emergency room patients who were administered a brief alcohol intervention (Roudsari et al., 2008). In other words, individuals who presented to the emergency room and received an intervention had the same amount of injuries as individuals who did not receive one. It appears as if administering a brief alcohol intervention in an emergency room setting produces mixed results. Again, the term “brief alcohol intervention” may not refer to the exact same intervention in every case.

Walton et al. (2008) studied moderators of effectiveness of brief alcohol intervention and found the following factors to be important in the administration of an intervention: (a) stage of change, (b) self-efficacy, (c) acute alcohol use, and (d) attribution of injury to alcohol. It was found that higher self-efficacy was correlated with lowered alcohol usage. It appears that an individual's perceived level of control is positively correlated with his or her motivation to change drinking behaviors. Emphasizing the injury and alcohol connection (i.e., the drinking or drug usage caused the injury and may have been avoided) also may lead to more effective change. Another study that examined the effectiveness of a brief alcohol intervention in a primary care setting found that drinking amounts had been significantly reduced after one year (Kaner et al., 2007).

Another factor that may be useful in bringing about change is self-monitoring. Self-monitoring is described as any way in which an individual regulates his or her own behavior (Snyder, 1974). One study done by Guth et al. (2007) examined the effects of self-monitoring after a brief alcohol intervention. They found that there was no difference between the alcohol dependent and nondependent users. Both groups decreased their amounts and frequencies of drinks. Self-monitoring is used by some therapists to maintain treatment gains over a long period of time. Interactive voice response is another form of self-monitoring used by Guth et al. in which alcohol users call an automated hotline on a regular basis to report their numbers and frequencies of drinks.

Bewick et al. (2008) examined the effectiveness of electronic interventions on the web. It was found that students who received electronic personalized feedback (a form of self-monitoring) via the web had significant reductions in their alcohol use. Another form of self-monitoring would be writing in a journal or a diary. However, the therapeutic

results of different forms of self-monitoring are mixed (Helzer et al., 2008). In a study involving postpartum women, Fleming, Lund, Wilton, Landry, and Scheets (2008) found that there was a significant reduction in alcohol, drug, and tobacco use after six months. It is unclear whether the intervention, a change in hormones, a change in lifestyle, or all of the above were responsible for the decrease in alcohol use. Willingness to change drinking behaviors has been studied within the context of a therapeutic intervention. Gaume et al. (2008) studied factors involved in the therapeutic relationship that may predict change during a brief alcohol intervention. They found that the more a patient expresses the ability to change, the more alcohol use decreased. This is in line with the positive relationship that is found between stage of change and alcohol use. Paradoxically, the higher the stage and the more alcohol consumed, the closer an individual is to changing his or her behavior (Walton et al., 2008). There is little known about what works with regard to triggering behavior changes.

In substance abuse literature, Prochaska and DiClemente (1986) proposed a transtheoretical model of change. There are six stages of change in the model: (a) precontemplation, (b) contemplation, (c) determination (preparation), (d) action, (e) maintenance, and (f) relapse. Precontemplation is the stage in which there is lack of awareness of a problem and no intention of change. Contemplation is the next stage in which the individual is considering changing and may feel ambivalence about the change. Determination is the stage in which the individual states there is a problem, the individual desires change, and he or she may talk about or seek out options. Action is the stage in which change is implemented. Maintenance is the stage in which the change is continued over a period of time, and relapse is the stage at which an individual's behavior reverts to old patterns (e.g., beginning to drink again after abstaining for a long period of time).



Prochaska and DiClemente recognize that individuals move through stages of change in a predictable manner, and this predictability can be utilized in substance abuse treatment (Miller & Sanchez, 1994).

Mallett, Bachrach, and Turrisi (2008) explored to what extent negative consequences are related to alcohol use; factors included vomiting from drinking, waking up in another's bed, hangovers, and getting a bad grade on a test (as a result of not having enough time/energy to study because of drinking). Students rated several factors associated with drinking as either positive or negative. It was found that the majority of students did not rate the above factors as negative. In fact, some students even rated getting a bad grade as a positive consequence. It is unclear whether the student is rating the actual event itself (e.g., getting a bad grade) or rating the enthralling events that occurred prior to the consequence (e.g., attending a party). Mallett et al. suggested that individual motivational interviewing including personalized feedback is an effective means to reduce alcohol use.

Social influences (e.g., peer group, media) and alcohol beliefs (e.g., drinking alcohol is an adult behavior) predicted heavy drinking two years later (Tucker, Ellickson, & Klein, 2008). It was also found that monitoring is correlated with less engagement in risky behavior. Similarly, self-monitoring is usually correlated with a decrease in drinking behavior, although mixed results have been found in some studies (Helzer et al., 2008).

Eliminating drinking behavior as the goal in an intervention may not be the most effective way to curtail dangerous drinking habits. Wechsler and Nelson (2008) focused on the alcohol and the environment, and they proposed interventions that would focus on lowering the amount and frequency of drinking and not asking students to stop drinking altogether. Many college students are not aware of secondhand effects of drinking, such

as sleep disruption, grade decreases, poor work habits, and mood changes. Other interventions suggest that it may be possible to prevent alcohol use or alcohol abuse from occurring before the behavior begins. Early alcohol interventions educate the client on future alcohol use in what is termed “secondary prevention” (Holmqvist, Hermansson, & Nilsen, 2008). The effectiveness of secondary prevention programs is unknown.

Barnett et al. (2008) attempted to profile college students who were mandated (e.g., received a citation on campus) for an alcohol intervention. Freshmen tend to be overrepresented among these studies because older students tend to drink off campus. The students' patterns of drinking, the incidents that occurred, and the degree to which they took responsibility for their actions were studied using factor analysis, and the researchers found three clusters: (a) Why Me?, (b) So What?, and (c) Bad Incident. The Why Me? cluster had light drinking patterns, low incidence drinking, and low responsibility. The So What? cluster was characterized by heavy drinking patterns, moderate incidence drinking, and moderate responsibility. The Bad Incident cluster had light drinking patterns, low incident drinking, and high responsibility. Students with specific attitudes and/or characteristics may benefit more from one type of intervention.

One study showed that the combination of an alcohol intervention program and coping intervention program was more successful after 24 months than the administration of each program individually. However, some treatment was found to be better than none (Hansson et al., 2007). Cooper (2008) reviewed the effectiveness of cognitive-behavioral therapy and found it to be successful with moderate to large effect sizes. Karno (2007) found that session attendance is a partial mediator for the effect of confrontation on future alcohol use in clients receiving cognitive-behavioral therapy. If a client is confronted too early during the process, the number of sessions attended decreases.

Studies have found that certain individuals are more likely to benefit from interventions than others, most likely due to individual differences (Barnett et al., 2008; Gaume et al., 2008). However, results from the Project MATCH study show that matching patients to alcohol treatments is unnecessary because all modalities have equal effectiveness (NIAAA, 2007). However, the current research shows that personalized and individualized treatment and feedback are effective in promoting change (Daeppen, 2008; Mallett et al., 2008; Miller, 1995; Miller & Sanchez, 1994). It appears as if the literature on the factors that may maximize treatment effectiveness is mixed.

Individuals who are not ready to change may display resistance to the idea of change. Resistance is characterized by ignoring new information and actively maintaining or strengthening an opinion despite evidence to the contrary (Beisecker & Parson, 1972). Therefore, it would be useful to explore the roles that persuasion and resistance/reactance may serve an individual or a group with regard to the effectiveness of a drug/alcohol group.

### *Persuasion*

The goal of many substance abuse groups is to evoke change within an individual by minimizing or ceasing alcohol/drug usage. Persuasion is often used by society (e.g., peer pressure), the media (e.g., commercials, shocking stories), psychoeducational groups (e.g., alcohol education classes), and other sources to alter substance use behavior (Simonson, 1984). It is important to be familiar with persuasion research because “persuasion is one process – and perhaps the primary process – by which attitudes are modified, but it is by no means the only process resulting in attitude change” (Beisecker & Parson, 1972, p. 4). Therefore, persuasion is a factor involved in bringing about attitude change, which in turn brings about behavior change.

Attitude change can be achieved by changing the believer's underlying motivational and individual needs because “attitude is the predisposition of the individual to evaluate some symbol or object of aspect of his world in a favorable or unfavorable manner” (Beisecker & Parson, 1972, p. 19). A motive to drink is not necessarily because of an attitude. In order to infer an attitude from a motive, the relationship must be examined on an individual basis because of the multifaceted complexities.

It is known that individuals seek congruency between their attitudes and behavior. “Cognitive dissonance” is the term to define the incongruence of thoughts and behavior (Festinger, 1957). Individuals are motivated to minimize cognitive dissonance because the dissonance produces an inner tension. If underlying attitudes are changed, the individual is more motivated to change overt behavior to be congruent with the altered attitudes (Beisecker & Parson, 1972). In other words, an individual may be able to meet his or her needs in other ways that do not include drinking. It is the responsibility of that individual to find alternative ways to meet those needs. These alternative behaviors are often explored in a group counseling setting and are often used as alternatives to drinking (Nowinski, 2009).

Alternative behaviors may be brought about by changing attitudes, which can be changed through learning. According to Beisecker and Parson (1972), “Modifying an old attitude and replacing it with a new one is a process of learning, and learning always starts with a problem, or being thwarted in coping with a situation” (p. 25). Being thwarted in coping with a situation is commonly referred to as hitting rock bottom. The substance abuser may seek out help or be mandated to learn new ways of coping.

It is hypothesized that attitudes are initially learned through association (Beisecker & Parson, 1972). When an attitude is expressed and reinforced, that association is

strengthened. For example, in college, many students drink and attend parties on the weekends. Many students gather together, meet new people, feel a sense of belongingness, and experience social rewards. These are highly reinforcing circumstances in which drugs and alcohol are used. Further, many students perceive their peers as using drugs and alcohol at a higher amount and more often than actually occurs (LaBrie et al., 2008; Kilmer et al., 2006). When this attitude is expressed and reinforced, the behavior of using alcohol and drugs is reinforced, and the association is strengthened. The highly rewarding social circumstances often become strongly linked to the drugs and alcohol.

Conversely, when an attitude is expressed and not reinforced, it is weakened (Beisecker & Parson, 1972). Thus, if an individual weakens his or her attitude about a subject (e.g., drinking), that behavior will not be repeated in the future because the attitude about the subject is not being reinforced. For example, after college, many students are not in an environment that is conducive to heavy drinking and drug use behaviors. When their attitude of drinking or using drugs is expressed, and others who are not interested in the behavior or cannot participate in the behavior express disinterest, the behaviors are not reinforced, and the association between their attitudes and behaviors are weakened. The behavior of drinking and drug usage may be reduced or cease altogether if the social reinforcement is no longer strengthening the association between the two variables.

Not only are social aspects important, but also context is an important factor in the process of persuasion (Beisecker & Parson, 1972). What is the nature of the events that have resulted in an individual attending a substance abuse group? Although the group individuals have similar issues regarding alcohol and drug use, every individual's experiences are different. Some individuals seek help on their own, and others are given

an ultimatum by a family member, employer, or significant other. It is important to be aware of each individual's circumstances and the factors surrounding his or her usage of drugs and alcohol.

In addition to different contextual factors, individuals perceive messages differently. Substantial individual variation exists among a group of people who are presented with a persuasive message. The variation is not randomly distributed, and responses tend to be consistent within an individual (Beisecker & Parson, 1972). Kempe, Maloney, and Dambrot (1978) found that there were no significant differences between male and females with regard to persuasion. In other words, one gender is not more easily persuaded than the other. This suggests that there are other factors involved with persuasion: (a) personality factors, (b) factors involved in the receptiveness to new information, (c) the preparation the individual is given before the message is sent, and (d) warning about the message (Beisecker & Parson). The relationship between an individual's personality characteristics and susceptibility to influence is complex.

Individuals can hold specific attitudes and not act on them because the attitude may not have been properly aroused. With regard to alcohol, individuals may hold certain beliefs about alcohol and drinking but may not act in accordance with those beliefs. In addition, individuals may learn new, contradictory information corresponding to an attitude. The result is either a modification of beliefs or a modification of cognitive structure and formulas presented by others in order to fit in the new information (Beisecker & Parson, 1972). In other words, many individuals are aware of the effects of alcohol but may drink regardless of these effects.

In addition, attitudes have several dimensions that serve the following four functions: (a) ego-defensive, (b) value-expressive, (c) adjustment, and (d) knowledge

(Beisecker & Parson, 1972). The ego-defensive function protects the individual from facing his or her inner reality. The value-expressive function allows the individual to express values and identity. The adjustment function attempts to maximize rewards and minimize pain. The knowledge function allows individuals to see meaning in a chaotic world. “Unless we know the psychological need which is met by the holding of an attitude we are in poor position to predict when and how it will change” (Beisecker & Parson, pp. 21-22). By isolating the need(s), alternative ways to fill those needs can be found.

Besides fulfilling needs, maintaining control over one’s environment may be a factor in substance abuse. Control motivation is the reward for interaction with the environment and is the feeling of competence one gains from exerting control over one's world (Burger & Cooper, 1979). According to Burger and Cooper, “The desire to control one's life therefore also seems to be closely tied to the concept of intrinsic motivation” (p. 382). If one feels as if he or she has no control, performance level decreases and frustration increases. Also, if an individual experiences loss of control, a feeling of helplessness and depression might occur, and an individual may use substances to cope with loss of control or as a way of regaining control (Abraham & Fava, 1999). In Seligman and Maier’s (1967) study, depression has been found to be linked with uncontrollable aversive stimuli, resulting in learned helplessness. “Learned helplessness” is the term to describe an animal (or human) that has learned it has no control over the outcome of a situation and stops trying to exert control, even when it does have control again (Seligman, 1975). Male college students tend to report greater motivation for control than females. This may be due to socialization which indicates that dominance is valued in boys and compliance is valued in girls (Burger & Cooper).

Throughout the research on persuasion, there is probably not one factor underlying persuasibility (Beisecker & Parson, 1972). It is a complex and multifaceted concept. According to Beisecker and Parson, “There is abundant evidence that persuasibility on one issue is positively related to persuasibility by other messages on other issues” (p. 125). In other words, if an individual tends to be easily persuaded on one subject, he or she will be easily persuaded in other areas as well. With regard to alcohol use, it is possible that someone who is persuasive could be more easily persuaded to drink, but also could be more easily persuaded to quit.

Beisecker and Parson (1972) discuss five main processes leading to opinion change: (a) attention to the message, (b) comprehension of the content of the message, (c) acceptance of what is comprehended, (d) retaining the position, and (e) acting in line with the agreement. Persuasibility can be disrupted at any of the five points on the chain. Also, personality factors can influence any of the points on the chain; some individuals may be persuaded and others may not.

Beisecker and Parson (1972) discuss how personality and persuasibility interact in the following six principles: (a) mediational, (b) combinatory, (c) situational-weighting, (d) confounded-variable, (e) interaction, and (f) compensation principles. The mediational principle states that there are two aspects of opinion change, “receptivity to content” and “tendency to follow through with what is received.” The combinatory principle states that just because a person achieves one aspect of persuasion does not necessarily mean the second one will be achieved. It is necessary to achieve both of these aspects in order to achieve influenceability. Situational-weighting refers to the fact that receptivity and acceptance of the message will be different in different situations (Beisecker & Parson).



The confounded-variable principle states that in order to fully understand how personality affects persuasibility, a particular personality factor's influence on other personality factors must be taken into account. Also, all personality factors and their interactions and how they relate to the two mediators of influenceability must be taken into account. The interaction principle states that it is likely that personality variables will interact with each other producing complex interactional effects instead of single main effects. Lastly, the compensation principle states that there will be compensatory mechanisms which for some individuals allow them to be open, but for others, have the opposite effect. The result is an active balance of all the degrees of persuasibility (Beisecker & Parson, 1972). According to Beisecker and Parson, "The principles themselves and particularly their implications have often been overlooked, with the result that the various experimental results regarding influenceability relationships often seem implausible or mutually contradictory" (p. 128). It is clear from the above principles, that persuasion is a complex, multifaceted process.

With regard to alcohol, "receptivity to content" and "the tendency to follow through" are important factors involved in a drug/alcohol group. Members must be receptive to the content/process/information of the group as well as follow through with planned behavior changes in order to see progress. Many individuals are receptive to information but do not follow through with their plans. In contrast, many individuals may not be receptive to information but follow through with their plans. Also, the situational variable is important with regard to alcohol/drugs. When members attend a group, they have certain expectations and this may influence their persuasibility. For example, an easily persuaded person may be resistant because of expectations, but in a different setting, this same person may be easily persuaded in other situations.

The relationship between an individual's personality and his or her level of persuasibility will vary depending on the situation. However, the varying levels tend to occur in a predictable manner (Beisecker & Parson, 1972). According to Beisecker and Parson, “Even when we consider the single personality variable’s relation to influenceability in all the complexities introduced by the multiple mediators, we are still dangerously oversimplifying the situation” (p. 138). It is important to realize that other personality variables may play a role in the factors of this study but will not be explored.

Reactance occurs when an individual perceives an attempt to take away that individual's personal control (Burger & Cooper, 1979). It is often referred to as “resistance” (Milgram & Rubin, 1992) and often occurs in individual and group counseling, especially with substance abusers. It can occur when individuals are mandated for counseling and feel as if they do not have a problem or need help (the precontemplation stage of change). Mandated group members may feel as if they are being forced to comply with a persuasive message or alter their behavior unwillingly (Milgram & Rubin). Reactance is discussed more in depth in the next section.

### *Reactance*

Resistance to persuasibility often occurs in response to a persuasive message. According to Brehm and Brehm (1981), “People frequently act counter to restrictions or pressure that is put on them” (p. 2). Often, individuals will do the opposite of what is expected of them. When this occurs, this is termed “reactance,” and “reactance theory. . . suggests that individuals will sometimes be motivated to resist or act counter to attempted social influence, such as in mass persuasion or in psychotherapy” (Brehm & Brehm, p. 4). For example, reactance may occur within the context of psychotherapy when attending individual counseling or group counseling (e.g., substance abuse

process/psychoeducational groups), and an individual may feel pressured to quit using alcohol/drugs and react in such a manner by continuing to use or increasing usage.

Warning someone that he or she may be exposed to a potential persuasive message may provoke resistance to the message (Beisecker & Parson, 1972). This is an important concept to consider when facilitating a group in which the members expect to be persuaded (i.e., a substance abuse group). Most of the individuals entering a substance abuse group are aware that they are going to receive the message that drugs and alcohol are harmful, or that they should stop or change their harmful behaviors associated with substance abuse.

Brehm (1966) describes reactance in the following way, “Most of the time people feel that they are relatively free to engage in a variety of different behaviors and that they can select among these as they please” (p. 1). An individual has a choice between various actions and depending on that individual’s needs, he or she will choose the action that will meet a need (e.g., eating because of hunger). Whether or not freedom really exists is irrelevant; it only matters that the individual believes he or she has freedom. If an individual feels that any of his or her choices to behave have been lost or threatened, he or she will become motivated to stop this loss of freedom or re-establish what has been lost. This is referred to as “psychological reactance” (p. 2).

There are two parts to reactance theory: freedom and threat. The first part of reactance theory states that reactance will occur when an individual believes that he or she has lost the freedom to control a particular outcome. According to Brehm and Brehm (1981), “It [reactance] is the motivational state that is hypothesized to occur when a freedom is eliminated or threatened with elimination” (p. 37). It is an attempt to restore the threatened or eliminated freedom. The amount of reactance is in direct proportion to

the level of importance of the threatened freedom. Also, the amount of reactance will depend on the number of freedoms threatened (Brehm & Brehm).

The repeated engagement in a behavior can itself create an important freedom (Brehm & Brehm, 1981). Engaging in substance abuse behaviors every weekend increases the likelihood that those behaviors will continue, and individuals may assign increasing importance to those behaviors as they continue, which would lead to a cycle of repeatedly engaging in the behavior. The second part of reactance theory is the concept of threats to freedom. These threats do not have to be actual threats. The level of reactance increases when threats are implied. Regardless of whether or not the freedom is actually threatened, when an individual believes that the threat is going to occur or may occur, reactance may increase. According to Brehm and Brehm (1981), “An attempt to persuade can be a threat to freedom, and thus create reactance, only when it is directed toward a previously established attitudinal freedom” (p. 13). With regard to alcohol and drug groups, an attempt to persuade the members to abstain from alcohol may be viewed as threats to various freedoms (i.e., the freedoms may be of high importance and number). Social gatherings involving drugs and alcohol may be an important part of their lives. They may feel the need to guard against having this freedom taken away.

Individuals are motivated to protect the freedoms which they already possess. If an individual perceives that an action might threaten a perceived freedom, that individual may avoid that action (Brehm & Brehm, 1981). Based on this assumption, one reason why many individuals drop out of alcohol/drug group therapy may be due to the fact they feel as if attending group therapy may threaten important freedoms.

When opinions are being forced upon an individual, something that could occur is termed “the boomerang attitude change” (Brehm & Brehm, 1981, p. 41). If an

individual feels forced by a persuader to hold a particular opinion (e.g., drugs should never be used), that individual will believe strongly in the opposite of what the persuader had intended (e.g., drugs should be used all the time). Most likely, the individuals feel as if their freedoms to disagree are reduced and reactance occurs. In order to decrease reactance, the number of freedoms threatened must also be decreased. Wellins and McGinnies (1977) conducted a study in which subjects were told that they were going to hear one side of an argument, but afterwards, they would have a chance to argue the other side. Reactance was reduced because the subjects had the freedom to disagree. Another study (Zemack-Rugar, Fitzsimons, & Lehmann, 2007) examined persuasion in the marketplace and found that individuals are more likely to be reactant toward a direct recommendation. Individuals that were recommended to not engage in a behavior were the individuals who were most likely to engage in that behavior. With regard to alcohol/drug abuse, many underage college students may be abusing drugs and alcohol because they are not supposed to engage in that behavior:

It may be possible to decrease reactance arousal by creating future freedoms:

It is critical to attend to the timing of the introduction. The proportion of freedoms hypothesis assumes that people first perceive what freedoms are available, then receive a threat to freedom, and that the reactance aroused by this threat is a function of the proportion of freedoms threatened.

(Brehm & Brehm, p. 53)

Reactance can also occur in a situation that may threaten future freedoms. The more the threat implies that future freedoms will be threatened or eliminated, the higher the magnitude of reactance. Also, if an individual loses a moderately attractive choice, the fact that he or she still has a highly attractive choice reduces the importance of the

moderately attractive choice. The reactance is reduced more than if all the choices were moderately attractive (Brehm & Brehm). In a substance abuse intervention, members may feel as if they are having irreplaceable freedoms taken away which may increase their levels of reactance.

Persuasive messages that pressure an individual to comply with or agree with the message have been found to produce shifts in attitude opposite of what the persuasive message attempts to convey (Brehm & Brehm, 1981). With regard to substance abuse interventions, this could be the reason why a two-hour psychoeducational class does not produce behavior change. Also, an authority figure produces more reactance in attitude than a non-authority figure (e.g., a peer, or someone seen as having an equal social standing) (Brehm & Brehm). Therefore, an alcohol/drug group may be useful because of the influence of other group members.

A more accurate prediction of a person's behavior produces less behavioral conformity than a less accurate behavioral prediction (Brehm & Brehm, 1981). If an individual perceives another as trying to influence his or her behavior, that individual feels pressured to comply. This pressure may be perceived as a threat to freedom and may result in a high level of reactance. However, if an individual perceives freedom of choice (e.g., not being pressured to comply), there will be a low level of reactance. This can be related to substance abuse counseling. Motivational interviewing is a popular intervention in which the therapist is nonconfrontational and accepts the client's resistance (Patterson & Wolf, 2008).

The situation is an important factor with regard to reactance. If the source is an expert, the argument is reasonable, and the message receiver has no opinion on the matter, then that individual is more likely to shift his or her opinion. However, if the

source is an amateur who argues passionately about a subject which the individual has a strong opinion, the individual is less likely to shift his or her opinion. Personality factors play less of a role in these instances because most of the differences in persuasibility are due to situational factors (Beisecker & Parson, 1972).

Gardner (2004) found that when an individual changes his or her mind, it most often results from an unidentifiable shift of viewpoint rather than the product of any single argument. Thus, college students are more likely to change their minds when a group meets over an extended period of time. This is in contrast to a popular way of administering alcohol intervention classes which target reductions in use or total abstinence. Those who are contemplating change will most likely be easier to persuade. Those who are not contemplating change may have a reactant response to the arguments and messages from an alcohol intervention class (Miller & Sanchez, 1994).

Decisions that appear to come out of nowhere may be a product of long-term, unconscious thought processes (Gardner, 2004). Therefore, it is possible that individuals may not be aware that they are contemplating change and may benefit from individual/group therapy even if they think they may not. Several studies have examined the effects of awareness of freedom and message structure (Jones & Brehm, 1970; Hass & Linder, 1972). It was found that one must acknowledge the existence of the other side of an argument, which leads the individual to believe he or she has the freedom to believe in the other side, which in turn, may reduce reactance. Reactance may occur if another side of the message is presented later in the argument (Brehm & Brehm, 1981). This reactance may occur because the individual feels pressured to agree with one viewpoint. Essentially, the process of persuading is reducing an individual's freedom of choice (Brehm & Brehm).

If an individual does not believe that he or she is competent enough to exercise a freedom, there will be minimal or no reactance (Brehm & Brehm, 1981). The individual will not react to a loss because there is nothing to lose if that individual felt that he or she never possessed that particular freedom. With regard to alcohol and drug groups, individuals who do not feel competent enough to use alcohol and drugs will be the least reactant members. However, they are less likely to be involved in an alcohol/drug group because they will be the least likely to use in the first place.

Reactance does not only apply to positive outcomes but also to negative outcomes. Reactance may occur if an avoidance freedom, an individual's freedom to avoid a negative consequence, is threatened (Brehm & Brehm, 1981). Psychological reactance is different across individuals but tends to be stable and consistent, "It should be noted, however, that the amount of variance accounted for by the Therapeutic Reactance Scale (TRS) is only about 22%; thus, it seems that reactance is only partly a trait-like variable. Situational variables likely account for much reactance" (Dowd, Milne, & Wise, 1991, p. 544). Dowd et al. (1991) also explore reactance as a mediator in the therapy process, and reactance will be utilized as a control variable in the present study.

### *Substance Abuse Programs*

The message of a program and targeted behavior(s) of change are the most important aspects of a substance abuse program. There are three types of substance abuse programs as described by Hansen (2006): (a) theory-driven, (b) intuition-driven, and (c) data-driven programs. Theory-driven programs are programs that have theories as their bases for evoking change. Intuition-driven programs are programs that present common sense information and are usually individuals with little education in the area of



substance abuse treatment. Lastly, data-driven programs are programs that have empirical support and implement only methods (e.g., motivational interviewing, cognitive-behavioral therapy) in which statistical support for change has been found (Hansen).

Data-driven programs attempt to isolate mediating variables of substance use/abuse and to focus on changing those variables (Hansen, 2006). In an alcohol intervention program, these mediating variables will be the framework for the program. If these mediating variables account for a statistically significant portion of substance abuse variance, addressing aspects and attempting to change these variables will most likely lead to some type of change in the substance use/abuse. The challenge is to choose the correct mix of variables in order to bring about the most effective, least expensive, and most timely change.

A meta-analysis of 242 studies revealed that 11 major types of variables have been examined in etiologic studies (Hansen, Rose, & Dryfoos, 1993): (a) previous drug use, (b) intentions to use drugs, (c) cognitive factors, (d) competency factors, (e) personality factors, (f) institutional influences, (g) drug use by others, (h) pressures to use drugs, (i) peer group characteristics, (j) home factors, and (k) demographics such as age, gender, and ethnicity. In other words, a large number of factors have been found to play a role in substance abuse:

Two problems may be at the root of the lack of success to date of applied prevention activities. First, few programs target the right sets of mediating variables. Second, even among those programs that do address variables that have a strong potential to mediate drug use, there is little demonstrated evidence that such programs have a strong impact on these variables. One program that was recently developed to specifically

respond to these findings has been All Stars (as cited by Hansen 1996).

This program addresses four mediators – building incongruence between desired lifestyles and high-risk behaviors, establishing conventional norms and correcting erroneous normative beliefs, building strong personal commitments to avoid high-risk behavior, and developing prosocial bonds.

(Hansen, 2006, p.1)

It is likely that two ways for programs to bring about changes are to allow for individual self-reflection and observation of that individual's behaviors and attitudes within the peer group. Noninteractive techniques provide little motivation or opportunity for either of these to occur. When engaging in interactions with others, individuals' beliefs about drinking may emerge. This allows for closer inspection of these beliefs by comparing them to their peers' beliefs. To be successful, a program must demonstrate lower alcohol use among students receiving the intervention than students not receiving the intervention (Hansen).

#### *Efficacy of Substance Abuse Treatments*

In order to be aware of the level of success of substance abuse programs, researchers have examined, compared, and measured various treatment modalities' effectiveness. Cooper (2008) examines the effectiveness of Project MATCH (Matching Alcoholism Treatments to Client Heterogeneity), which was a large study that attempted to match client characteristics with treatment types. The study examined cognitive-behavioral therapy, motivational enhancement therapy, and twelve-step facilitation with substance abuse. It was found that any type of treatment is superior to no treatment but no specific treatment is more effective than any other specific treatment (Project MATCH Research Group, 1997).

One study examined the extent to which demographic, clinical, belief and Alcoholics Anonymous factors predicted initial Alcoholics Anonymous-related helping. It was found that increased self-efficacy, faith-based practices, meeting attendance, number of steps worked through, having a sponsor, and length of sobriety predicted initial Alcoholics Anonymous-related helping. It may be useful to raise self-efficacy (Pagano et al., 2009).

Twelve-step facilitation refers to “a brief, structured approach to facilitating recovery from substance use problems based on the principles of twelve-step programmes” (Cooper, 2008, p. 189). Alcoholics Anonymous is a specific type of twelve-step facilitation. The benefits of twelve-step attendance are not different for clients with psychiatric diagnoses than clients without diagnoses (Bogenschutz, 2007). Change mechanisms (e.g., self-efficacy) in those with more than one diagnoses are similar to those found in the general Alcoholics Anonymous literature. Based on existing data, the change mechanisms are broadly similar to those found in the general twelve-step literature, but additional factors related to mental illness may also play a significant role (Bogenschutz).

Although the present paper does not focus on alcohol dependence, it has been found that communication skills training was more effective than a psychoeducational control group (Cooper, 2008; Rohsenow et al., 2001). Coping skills training is a type of training in which clients are introduced to various ways of coping with stress. For example, instead of drinking or using drugs every time the substance abuser experiences stress, he or she could choose from a list of other coping strategies, such as exercising, engaging in relaxation techniques, meditating, going for a walk, and talking with a friend. This type of training has been effective with substance abusers (Cooper).

According to a study done by Miller et al. (2001), during the year after treatment, one out of four clients were abstinent (i.e., absolutely no alcohol/drug consumption), and 1 out of 10 clients used alcohol moderately without problems. They also found that as a group, the clients receiving treatment abstained three days out of four, had an average of 87% decrease in alcohol consumption, a decrease of 60% in alcohol-related problems. About one third of clients had no symptoms during the year following a single treatment. The remaining two thirds show a large decrease in drinking problems. Miller and Wilbourne (2002) further suggest that if success is dichotomized as strictly failure or success, substantial decreases are overlooked and even viewed as failure.

According to a study done by Miller and Wilbourne (2002) in which clinical trials for alcohol use disorders were extensively reviewed, there was strong evidence of efficacy for brief interventions, social skills training, community reinforcement approach, behavior contracting, behavioral marital therapy, and case management. Efficacy was the lowest for treatments that educated, confronted, or shocked individuals. There was moderate support for efficacy of pharmacological interventions of opiate antagonists and acamprosate, twelve-step facilitation, and cognitive therapy.

Motivational enhancement therapy utilizes techniques that help clients to become aware of and to build on personal strengths that can help improve readiness to quit (Miller, 1995). In other words, the goal of this therapy is to enhance the client's motivation to change, and this works especially well for those who are not yet ready to change. In one study, motivational enhancement therapy was found to be as effective as cognitive-behavioral therapy and twelve-step facilitation even though motivational enhancement therapy is briefer (Patterson & Wolf, 2008). Miller and Wilbourne (2002) recognized that different treatment modalities have varying levels of effectiveness.

Rational-emotive behavioral therapy was developed by Albert Ellis and is a therapy that focuses on changing irrational beliefs, emotions, and behaviors. It has been found to be successful in treating substance abuse (Schmidt, 1996). Rational-emotive behavioral therapy is thought to be successful with substance users because it addresses the irrational beliefs the user holds of substances and of self (Ellis, McInerney, DiGuiseppe, & Yeager, 1988). However, as previously mentioned, techniques that confront clients have been found to be of low efficacy (Miller & Wilbourne, 2002).

Cognitive therapy is also used for treatment of substance abuse. Cognitive therapy focuses on changing thoughts, cognitive-behavioral therapy focuses on changing thoughts and behaviors, and cognitive-behavioral coping skills training focuses on changing thoughts and behaviors as they relate to coping mechanisms (Beck, Wright, Liese, & Newman, 1993). Overall, cognitive therapy is found to be an efficacious treatment for substance abuse (Miller & Wilbourne, 2002; Waldon, Slesnick, Brody, Turner, & Peterson, 2001). Further, Patterson and Wolf (2008) compared the efficacy of motivational enhancement therapy, cognitive-behavioral therapy, and twelve-step facilitation and found them all to be equally effective in treating substance abuse.

Role playing, a technique in which two people prepare for possible scenarios, has also been utilized in substance abuse treatments (Bernstein, Bernstein, & Levenson, 1997). It may be used as a technique in the training of social skills, communication skills, assertiveness skills, or coping skills (Cooper, 2008). It is not a treatment by itself but a technique that aids in treatment. With regard to the other treatments (e.g., motivational enhancement therapy, rational-emotive behavioral therapy, twelve-step facilitation, and cognitive therapy), all were found to be superior to no treatment but none of them were superior to the other (Cooper; Patterson & Wolf, 2008).

The present study examined the effectiveness of a substance abuse (drug and alcohol) group. Sessions of the group, including activities, are outlined. The group will alternate utilizing motivational interviewing and cognitive therapy techniques.

### Hypotheses

#### *Hypothesis 1*

It was hypothesized that the motivational interviewing group would have a reduction in substance use as evidenced by significant differences between pre- and post-test scores on the Face-Valid Alcohol (FVA) subscale on the Substance Abuse Subtle Screening Inventory-3 (SASSI-3).

*Justification for Hypothesis 1.* The FVA subscale may be the best indicator of severity of substance misuse, patterns of consumption, use of alcohol as a coping mechanism, loss of control, physical addiction, negative consequences, and impact on relationships (Miller & Lazowski, 1999). In the past, students involved in mandatory substance abuse treatment have been found to be experiencing problems associated with substance misuse (Louisiana Tech University, 2009) and would be expected to have higher than average FVA pre-test scores (for a discussion on norms, see the Instruments section). In general, studies show that group treatment for alcohol abuse tends to be effective (Cooper, 2008). Because the present study utilized motivational interviewing techniques, there was expected to be significant differences in patterns of consumption as measured by pre- and post-test FVA SASSI-3 scores.

#### *Hypothesis 2*

The motivational interviewing group was expected to have a significant reduction in their post-test FVA subscale scores on the SASSI-3 as compared to the cognitive therapy group's post-test FVA scores.

*Justification for Hypothesis 2.* Miller and Lazowski (1999) found FVA to be the best indicator of substance abuse severity on the SASSI-3. If there is a reduction in severity, this indicates a reduction in patterns of consumption, physical addiction, negative consequences, emotional consequences, and regaining of personal control. The motivational interviewing group would be expected to have lower scores than the cognitive therapy group at short-term follow-up. Motivational interviewing is found to be more effective at short-term follow-up but equal to other treatment modalities at long-term follow-up (Adamson & Sellman, 2008). Some studies have found that treatment is not effective when its techniques confront, shock, or educate the client (Miller & Wilbourne, 2002) or when resistance and reactance occur (Milgram & Rubin, 1992).

### *Hypothesis 3*

The motivational interviewing group was expected to have a significant reduction in their symptom (SYM) subscale scores as compared to the cognitive therapy group's post-test SYM scores.

*Justification for Hypothesis 3.* The SYM subscale specifically measures problems or symptoms associated with substance abuse; however, clients may underreport on this scale if attempting to conceal usage (Miller & Lazowski, 1999). Both groups were reminded to be as accurate and as truthful as possible. Because the groups alternated receiving treatment of motivational interviewing and cognitive therapy, which have both been found to be effective in treating substance abuse (Cooper, 2008; Project MATCH Research Group, 1997), it was expected that there would be a reduction in symptoms associated with substance abuse as measured by a reduction in SYM scores.

Because of the population, both groups were expected to have scores that did not reflect alcohol abuse on the SYM scale when beginning the alcohol intervention. The

cognitive therapy groups' scores were expected to decrease from pre- to post-test, but the motivational interviewing groups were anticipated to have significant reductions from pre- to post-test SYM scores as compared to the reductions in the cognitive therapy groups. In other words, the motivational interviewing treatment would have a greater impact than the cognitive therapy treatment.

#### *Hypothesis 4*

The motivational interviewing group was expected to have a significant reduction in substance abuse symptoms as evidenced by significant differences between pre- and post-test SASSI-3 symptom subscale (SYM) scores.

*Justification for Hypothesis 4.* Because the SYM scale measures symptoms associated with substance misuse (Miller & Lazowski, 1999), group members attending mandatory group therapy were expected to have problems associated with substance misuse. Motivational enhancement therapy utilizes techniques found to be effective (Adamson & Sellman, 2008; Miller & Wilbourne, 2002) and would be expected to lead to a decrease in substance misuse problems or symptoms over the course of group therapy as evidenced by a change on the SYM subscale scores.

#### *Hypothesis 5*

When controlling for reactance, individuals in both treatment groups were expected to have a significant reduction from pre- to post-test on FVA subscale scores.

*Justification for Hypothesis 5.* Reactance is defined as an individual doing the opposite of what is expected of him or her and occurs when an individual feels as his or her freedom has been threatened (Brehm, 1966). There is little research in the area of reactance and substance abuse. Therapists in substance abuse counseling often encounter resistance from their clients (Milgram & Rubin, 1992), and reactance often occurs in



therapy when a loss of control or freedom is perceived (Brehm & Brehm, 1981).

Reactance is found to be fairly consistent across situations and has been explored as a mediator in the therapeutic process (Dowd et al., 1991).

Individuals with low levels of reactance (i.e., low scores) as measured by scores on the Therapeutic Reactance Scale were expected to perceive low levels of threat and no loss of control and may benefit from the therapy process because of higher receptiveness to therapeutic interventions. Individuals with high levels of reactance (i.e., high scores) as measured by scores on the Therapeutic Reactance Scale were expected to perceive high levels of threat and loss of control and may not benefit from therapy as much as individuals with low reactance scores. Therefore, when controlling for reactance, there was expected to be a difference in outcome scores on the FVA subscale scores.

#### *Hypothesis 6*

When controlling for reactance, individuals in both treatment groups were expected to have a significant reduction from pre- to post-test on SYM subscale scores.

*Justification for Hypothesis 6.* Therapeutic reactance tends to occur within all treatment modalities and is fairly consistent (Dowd et al., 1991). Psychological reactance is shown to be a factor in the outcome and success of therapy (Seeman, Buboltz, Jenkins, Soper, & Woller, 2004). Individuals with low levels of reactance (i.e., low scores on the Therapeutic Reactance Scale) may be more receptive to therapy, and individuals with high levels of reactance (i.e., high scores on the Therapeutic Reactance Scale) may be defensive during therapy. SYM scores are expected to be significantly different when controlling for reactance.

## CHAPTER TWO

### METHOD

#### *Participants*

A power analysis was conducted to determine the minimum number of participants needed. Other studies have used the SASSI-3 (or earlier versions) as a general outcome measure (Laux, Salyers & Kotova, 2005; Schmidt, Carns, & Chandler, 2001), subscales as pre- and/or post-test outcome measures (Ham & Hope, 2003; Smock et al., 2008), or used SASSI-3 subscales as a covariate (Ham & Hope). For the power analysis, it was difficult to acquire pre- and post-test means of the SASSI-3 with a college population because little research has been done in this area. Based on means from studies that utilized the SASSI-3 (or earlier versions) as an outcome measure with other populations (Ham & Hope; Schmidt et al., 2001; Withrow, 2003), a power analysis reveals a minimum of 16 subjects total for each group (Soper, 2009).

Participants were members of six groups run by a university counseling center on a southern university campus over the course of an academic school year (September 2009 to May 2010). Treatment group one (motivational interviewing) and treatment group two (cognitive therapy) met one time per academic quarter (September 10, 2009 to November 19, 2009; December 2, 2009 to March 2, 2010; March 10, 2010 to May 22, 2010). The facilitators alternated motivational interviewing and cognitive therapy techniques; groups one, three, and five (treatment group one) received motivational

interviewing, and groups two, four, and six (treatment group two) received cognitive therapy. There were approximately three to eight college students (approximately 18-25 years of age) in each group with an average of approximately six members.

Students were mandated by the university police department because of an alcohol- or drug-related offense that occurred on campus (e.g., minor in consumption, possession of drugs or alcohol, possession of drug paraphernalia). Two four-week group sessions were offered every quarter (10-week period) with the exception of the winter quarter in which three group sessions were held. A *t*-test analysis was conducted to check for group differences on the pre-test FVA and SYM scores for the experimental groups. A *t*-test was conducted to examine if pre-test score differences were more than one standard deviation above the norm (Heppner, Kivlighan, & Wampold, 1999). There were not any significant differences between the groups' pre-test scores; thus, the groups were pooled into one sample.

There were a total of 40 participants in six groups over the period of time from October 2009 to May 2010. Group one took place from October 2009 to November 2009. Group two took place from November 2009 to December 2009. Group three took place in January 2010. Group four took place in February 2010. Group five took place March 2010 to April 2010. Group six took place April 2010 to May 2010. Following the initial intake, there were nine participants in group one, five participants in group two, seven participants in group three, three participants in group four, nine participants in group five, and seven participants in group six for a total of 40 participants.

Due to extenuating circumstances, five participants did not complete the group and/or the post-test surveys: one participant completed the intake but dropped out of group one without attending any meetings, two participants dropped out of group five

(one partially completed and one never attended), and two participants dropped out of group six (one partially completed and one never attended). Data from 35 participants were used in this study. It could not be precisely predicted how many participants would be in each comparison group because participants signed up and attended throughout the school year. Because of the randomization, the motivational interviewing group ( $n = 22$ ) was larger than the cognitive therapy group ( $n = 13$ ).

The participants ranged in age from 18 to 24 years with a mean age of 19.44 years. There were 24 males and 11 females. Twenty-seven participants identified as white, six participants identified as black, one participant identified as Hispanic, and one participant identified as “other.” Fifteen students were freshmen, nine were sophomores, six were juniors, four were seniors, and one was a graduate student. All of the participants’ endorsed their marital statuses as single.

### *Instruments*

*Substance Abuse Subtle Screening Inventory-3 (SASSI-3).* The SASSI is a measure originally created by Miller (1985) and further developed into the current edition (SASSI-3) by Lazowski, Miller, Boye, and Miller (1998) to assess for the presence of substance abuse and/or substance dependence. The SASSI-3 also provides other information regarding patterns of substance use. Test-retest reliability was found to be approximately .92 to 1.00 over a period of two weeks. The internal consistency coefficient was found to be .93. The results provide evidence that the SASSI-3 is a reliable and valid clinical tool which may be used in a clinical setting to identify clients with substance abuse problems or dependence (Lazowski & Miller, 1997; Laux & Ahern, 2003). Participants can complete the questionnaire in five to fifteen minutes (Miller, Roberts, Brooks, & Lazowski, 1997).

The SASSI-3 includes the following scales: (a) Face Valid Alcohol (FVA) – 14 items,  $\alpha = .93$ ; (b) Face Valid Other Drug (FVOD) – 14 items,  $\alpha = .95$ ; (c) Symptoms (SYM) – 11 items,  $\alpha = .79$ ; (d) Defensiveness (DEF) – 11 items,  $\alpha = .63$ ; (e) Obvious Attributes (OAT) – 12 items,  $\alpha = .65$ ; (f) Subtle Attributes (SAT) – 8 items,  $\alpha = .27$ ; (g) Supplemental Addition Measure (SAM) – 14 items,  $\alpha = .37$ ; (h) Family versus Controls (FAM) – 14 items,  $\alpha = .33$ ; (i) Correctional (COR) – 15 items,  $\alpha = .71$ ; (j) Random Answering Pattern (RAP) – 6 items (Miller & Lazowski, 1999). The inventory is based on a 4-point Likert scale (i.e., rating how often an individual engages in a behavior as *never - 0, once or twice - 1, several times - 2, repeatedly - 3*). Further, there are 67 items on the inventory that are not related to drugs/alcohol. There are a total of eight empirically validated scales (Laux & Ahern, 2003; Miller & Lazowski).

All scale values are based on raw scores, which are converted to *t* scores ranging from 30 to 90. Elevated scores are scores greater than one standard deviation above the mean. On the FVA scale, an elevated score (raw score of 20 or above) indicates that the client acknowledges drug and/or alcohol usage or loss of control. Underreporting may also occur (e.g., low scores) in which the client may not be telling the entire truth about or attempting to conceal his or her drug and/or alcohol use (Miller & Lazowski, 1999).

Miller and Lazowski (1999) found that a high score on the SYM scale indicates the client is having problems because of substances. A low score indicates the client may not be experiencing problems or may not be acknowledging those problems. An elevated score on the OAT scale may point to client impulsiveness, impatience, resentment, and low frustration tolerance; high scorers may be more open to feedback and change. A low score on the OAT scale indicates clients that may have characteristics different from substance users or may be resistant to change (Miller & Lazowski).

Miller and Lazowski (1999) found that on the SAT scale, high scorers tend to be detached from feelings/emotions. They may have little insight into their lives and may be able to function well as a substance user. On the DEF scale, a high score reflects a tendency to avoid acknowledgement of limitations and/or faults. High scorers tend to blame others for their problems and may not fully cooperate with the treatment process. Low scorers tend to be experiencing emotional pain, have low defensiveness, be overly self-critical, have low self-esteem, and may be depressed (and even suicidal). Low scorers tend to respond well to therapy that acknowledges the pain they are experiencing (Miller & Lazowski).

Miller and Lazowski (1999) state that scores on the SAM scale can be used to increase the accuracy of the SASSI-3. There is no interpretation for individuals. The FAM scale aids in treatment planning. High scorers tend to put others first, have problem setting boundaries, and establishing personal power. Low scorers tend to focus on boundaries and power. However, they may be receptive to treatment and have insight to make better decisions. The COR scale measures the presence of problems with the legal system. High scorers have a high risk of legal problems; low scorers tend to stay out of trouble (Miller & Lazowski).

The SASSI-3 manual also discusses scores that may fall in the medium range, which is defined as one standard deviation above the mean to one standard deviation below the mean. It may indicate aspects from interpretations of high and low scores depending on the individual (Miller & Lazowski, 1999). Further, Miller and Lazowski recognize that some clients underreport their symptoms or problems. Clients in all of the groups were reminded to be as accurate and truthful as possible when reporting their drinking problems and/or symptoms.

Many substance abuse measures exist, such as the CAGE and Alcohol Use Disorders Identification Test, which assess for the presence of substance abuse/dependence (Ewing, 1984; Saunders, Aasland, Babor, De La Fuente, & Grant, 1993). According to Laux et al. (2005), “The SASSI-3 offers counselors several features that can aid them in the development of a treatment plan, the delivery of counseling services, and the evaluation of both” (p. 48). Miller (1985) discusses how the SASSI has the potential to measure change. For example, the FVA subscale allows counselors to ascertain the level of substance abuse and the intervention that is needed. The different subscales allow the counselor to link together a big picture about the client’s symptoms, defensiveness, alcohol use, and attributions. Because the SASSI-3 allows the counselor to specify the period of time to which the questions on the measure refer (e.g., over a period of the last week, month, or year), the SASSI-3 can be used as a pre- and post-treatment effectiveness measure to determine the effectiveness of any given intervention (Laux et al.).

Laux et al. (2005) found that the SASSI-3 is at least as useful as the CAGE and the Michigan Alcohol Screening Tool, better than the MacAndrew Alcohol Scale Revised and has other features not found on those measures. They also found that the FVA subscale was more reliable than the CAGE, MacAndrew Alcohol Scale Revised, and Michigan Alcohol Screening Tool. Other studies have successfully used the SASSI (Laux & Ahern, 2003) or chosen specific SASSI subscales (Smock et al., 2008) to use as an outcome measure for various populations. Utilizing two different samples, Gray (2001) found that reliability coefficients were acceptable for the face-valid scales FVA,  $\alpha = .78 - .90$ ; and FVOD,  $\alpha = .88 - .94$ . The present study utilized the SASSI-3 SYM and FVA subscales. For the FVA scale, the normative sample ( $n = 852$ ) was measured with males

( $n = 353$ ,  $M = 4.7$ ,  $SD = 5.0$ ) and females ( $n = 472$ ,  $M = 4.1$ ,  $SD = 5.2$ ). For the SYM scale, the same normative sample had males ( $M = 2.9$ ,  $SD = 2.1$ ) and females ( $M = 2.3$ ,  $SD = 2.1$ ) (Miller & Lazowski, 1999).

*The Therapeutic Reactance Scale (TRS)*. The Therapeutic Reactance Scale was developed to gauge how reactance may impact the potential, process, and outcome of counseling (Dowd et al., 1991). The Therapeutic Reactance Scale contains 28 items using a 4-point Likert scale. Several items are reverse scored in order to assess for the presence of acquiescence bias. Behavioral reactance and verbal reactance are two factors that make up a total reactance score and have been shown to account for 26% of the total variance and have a correlation of .37 (Dowd et al.).

Test-retest reliability over the course of three weeks is .57 to .60. Over the same time period, the internal consistency ranged from .75 to .84 (Dowd et al., 1991). It is often used as a predictor measure to ascertain the client's degree of oppositional behavior which often hinders a successful therapeutic outcome (Dowd et al.). Several studies have found the Therapeutic Reactance Scale to have acceptable to high internal consistency, reliability, and convergent and divergent validity (Baker, Sullivan, & Marszalek, 2003; Dowd et al.). The Therapeutic Reactance Scale takes approximately five minutes to complete.

### *Procedure*

The study took place at a university counseling center. The study utilized a substance abuse group in which members have been mandated to seek counseling for drug and/or alcohol problems through the university or other programs in the community. The group facilitators used a mixture of psychoeducational and process group interventions. The researcher co-facilitated the groups. Students were administered the



SASSI-3, Therapeutic Reactance Scale, demographic questionnaire, drug use questionnaire, and Mini-International Personality Item Pool. Participants were reminded that their participation in the study was voluntary, and they were asked to give informed consent. The measures took approximately 10 to 20 minutes to complete.

All groups met for five sessions (one screening session, four group sessions) and participated in a psychoeducational/process group in which information was presented, discussed, and assignments were given relating to alcohol/drugs and the effects they had on the participants' lives. The substance abuse group was an already established group named Alcohol and other drug Individualized Management, or A.I.M. It was available up to three times every quarter of the school year depending upon the demand for services. The group had two goals: increasing awareness of early warning signs of substance abuse and increasing understanding of the short-term and long-term consequences and effects of alcohol and drugs on one's life.

The A.I.M. group utilized motivational interviewing or cognitive therapy. For the motivational interviewing group, techniques that were used included open-ended questions, reflective listening, reframing, shifting focus, rolling with resistance, and affirmations (Miller, Zweben, DiClemente, & Rychtarik, 1992). For the cognitive therapy group, techniques that were used included challenging irrational beliefs, questioning and examining other viewpoints, and examining their conclusions and presenting other possible ways to view the issue (Beck, 1995). The group members are asked to complete one outside assignment (an essay), visit web sites about alcohol and drug information, and take a screening interview. The assignment, screening, and web site were designed to help group members gain insight into their current pattern of substance use and their risk of possible future substance dependence.

The web site the students were encouraged to visit was called “Alcohol 101+” (<http://www.alcohol101plus.org>), an interactive program aimed at reducing misuse of alcohol and drugs on college campuses. It had a virtual campus that allowed the student to walk around a virtual neighborhood. It also allowed the student to monitor his or her blood alcohol concentration (BAC) at a virtual bar, as well as a drinking and driving segment that educates the student on long-term negative consequences of drunk driving.

### *Data Analysis*

The present study utilized a quasi-experimental design in which there was manipulation of an independent variable, the therapeutic intervention, but no random assignment (Heppner et al., 1999). The pretest-posttest design allowed investigation of posttreatment differences as well as comparison of groups. Factors such as history, maturation, or testing may threaten internal validity (Heppner et al.). Efforts were made to create equivalent groups and minimize extraneous factors from influencing the groups. However, substance abuse symptom reduction may occur naturally over time for controls without the aid of an intervention.

The dependent variables were the outcomes scores of the SASSI-3 (FVA subscale scores and SYM subscale scores). A score on the Therapeutic Reactance Scale was used as a covariate. The scores on the SASSI-3 were measured on a 4-point Likert scale, and the scores on the TRS were measured on a continuous scale. Demographic information was gathered separately (see Appendix B). Steps were taken to ensure confidentiality and clients were de-identified by assigning client numbers.

*Hypotheses 1-4.* A 2 (time) x 2 (group) repeated-measures MANOVA was conducted to measure the differences within and between groups. Follow-up analysis of variance (AVOVA) tests were performed to check where the multivariate effects existed.

Results, including the means and standard deviations, were reported in an ANOVA summary table. Descriptive statistics were examined. The means of the pre- and post-test scores of the experimental group and comparison group were compared to each other to check for a significant difference between groups and within groups (for experimental condition). Effect sizes (Cohen's  $f$ ) were measured. Eta squared estimates of effect size were obtained to determine the amount of variation in scores that is accounted for by mean differences.

*Hypotheses 5-6.* For both groups' scores on the TRS, reactance was entered as a continuous variable into a repeated measures MANOVA. ANOVAs were performed to assess between- and within-groups differences while controlling for reactance. Interaction effects were examined to check whether reactance interacts with intervention. It was expected that after controlling for reactance, there would be a significant difference in subscale scores. Results of the ANOVA, including means and standard deviations, were reported in an ANOVA summary table. Descriptive statistics were examined. The means of the pre- and post-test scores were compared to check for a significant difference.

## CHAPTER THREE

### RESULTS

#### *Descriptive Statistics*

Data were analyzed using a repeated measures multivariate design. The two levels of the independent variable were motivational interviewing and cognitive therapy. The dependent variables were two SASSI-3 subscales: one associated with problems of substance use, or the Face-Valid Alcohol (FVA) scale, and one measuring symptoms resulting from substance use, or the Symptoms (SYM) scale. Treatment group one (motivational interviewing) and treatment group two (cognitive therapy) consisted of 22 participants and 13 participants, respectively.

Each dependent variable (pre- and post-test FVA and SYM subscale scores for both treatment groups) was examined for normality separately. Scores on the post-test SYM scale were normally distributed; however, because the cell sizes were unequal and the sample sizes were small, scores on the following scales violated tests for normality: group one's pre-test FVA (kurtosis = 2.1), group two's pre-test FVA (kurtosis = 2.7), and group two's pre-test SYM (skewness = 2.0, kurtosis = 5.2). It is possible that this violation of normality may be due to small sample sizes. Also, for this study, the sample was not random; all of the participants had been mandated for group therapy through the university because of an alcohol- or drug-related indiscretion. The effects of mandated therapy on the SASSI-3 scores are discussed in further detail later.

Each scale was examined separately for homogeneity of variance. A Levene's test was conducted and the results were nonsignificant for the pre-test FVA scale,  $F(1, 33) = 2.36, p = .134$ , the post-test FVA scale,  $F(1, 33) = 1.72, p = .2$ , the pre-test SYM scale,  $F(1, 33) = 0.8, p = .38$ , and the post-test SYM scale,  $F(1, 33) = .65, p = .43$ . Homogeneity of covariance matrices were examined using Box's test. The tests were nonsignificant,  $F(10, 2949) = .798, p = .63$ , and the data met the criteria for homogeneity of covariance.

Further, homogeneity of error variances was examined, and Levene's test of equality of error variances was conducted for pre-test FVA scale,  $F(1, 33) = 1.97, p = .17$ , post-test FVA scale,  $F(1, 33) = 1.7, p = .2$ , pre-test SYM scale,  $F(1, 33) = .02, p = .9$ , and post-test SYM scale,  $F(1, 33) = .23, p = .63$ . The test yielded nonsignificant results, meaning the data met the criteria for homogeneity of variance.

For treatment group one (motivational interviewing) the highest mean was post-test FVA score of 5.50, and the lowest mean was the pre-test SYM score of 2.76. For treatment group two (cognitive therapy) the highest mean was post-test FVA score of 3.87 and the lowest was the pre-test SYM score of 2.64. The means and standard deviations are presented in Table 1.

Table 1

*Descriptive Statistics for Treatment Groups 1 and 2 (n = 35)*

Group	Motivational Interviewing		Cognitive Therapy	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
Pre-test SYM	2.76	1.73	2.64	1.55
Post-test SYM	3.50	2.25	2.85	1.91
Pre-test FVA	3.68	3.99	3.31	2.25
Post-test FVA	5.50	5.33	3.87	3.45
TRS	65.58	8.48	67.88	6.42

For the motivational interviewing groups, the highest mean score was the original group five's post-test FVA score of 7.71. The lowest mean score was original group one's pre-test FVA score of 1.38. For the original cognitive therapy groups, the lowest mean score was the original group four's post-test FVA score of 0.67. The highest mean score was original group six's post-test FVA of 5.60. Initially, all six groups report varying baseline symptoms. The lowest mean on the FVA scale was 0.67, and the highest was 7.71. The lowest mean on the SYM scale was 0.74, and the highest mean was 5.15. Means and standard deviations for all six groups are presented in Table 2.

Table 2

*Descriptive Statistics for Original Groups 1 -6 (n = 35)*

Group	1		2		3		4		5		6	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
Pre-test SYM	1.63	0.74	2.45	0.87	2.43	0.98	2	1	4.39	1.98	3.2	2.28
Post-test SYM	2	1.84	2.6	1.95	3.57	1.51	1.33	1.53	5.15	2.28	4	1.58
Pre-test FVA	1.38	1.06	2.6	1.14	4.29	3.5	1.67	2.08	5.71	5.47	5	2.35
Post-test FVA	2.38	1.92	2.38	1.92	6.86	4.63	0.67	1.15	7.71	7.27	5.6	2.19
TRS	64.6	10.3	69.5	4.61	62.71	6.73	63.33	5.86	69.6	7.24	69	8.06



*Multivariate Effects*

There was a nonsignificant multivariate effect between the motivational interviewing and cognitive therapy groups when controlling for reactance,  $F(2, 31) = .91$ ,  $p = 0.41$ , partial  $\eta^2 = .06$ . There was not a significant difference between the groups' outcome scores. Pre- and post-test FVA and SYM scores are presented in Figures 1 and 2 respectively.

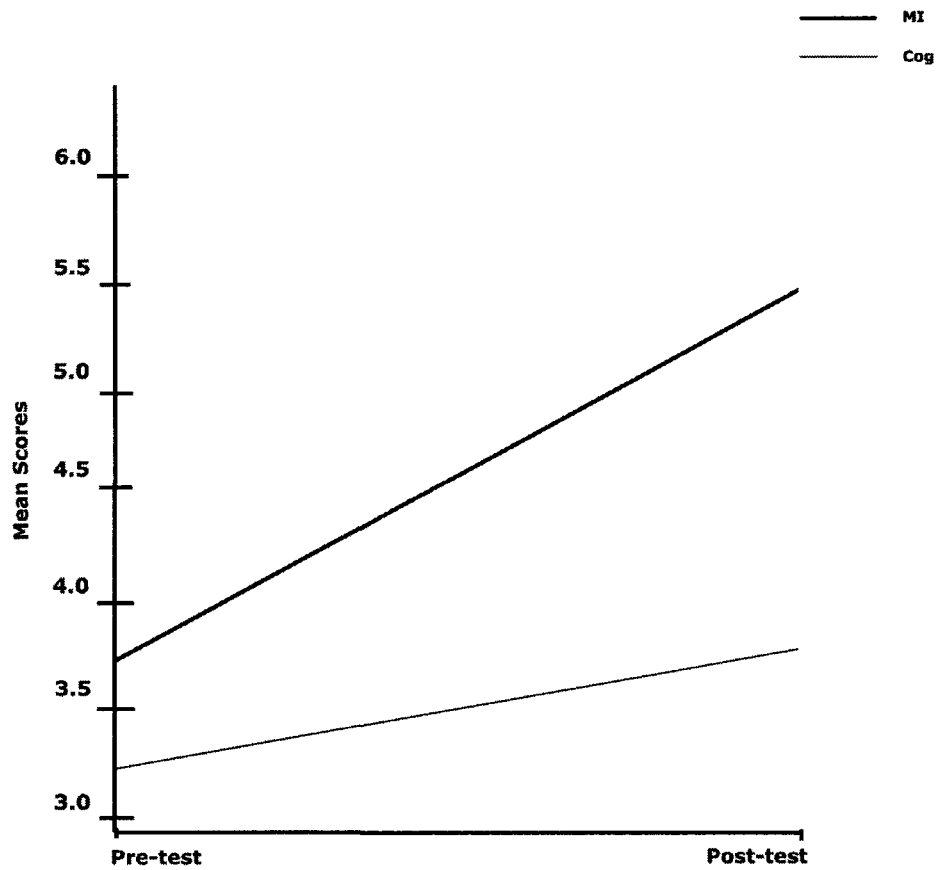


Figure 1. Pre- and Post-Test FVA Mean Scores for the Treatment Groups (MI = Motivational Interviewing, COG = Cognitive therapy).

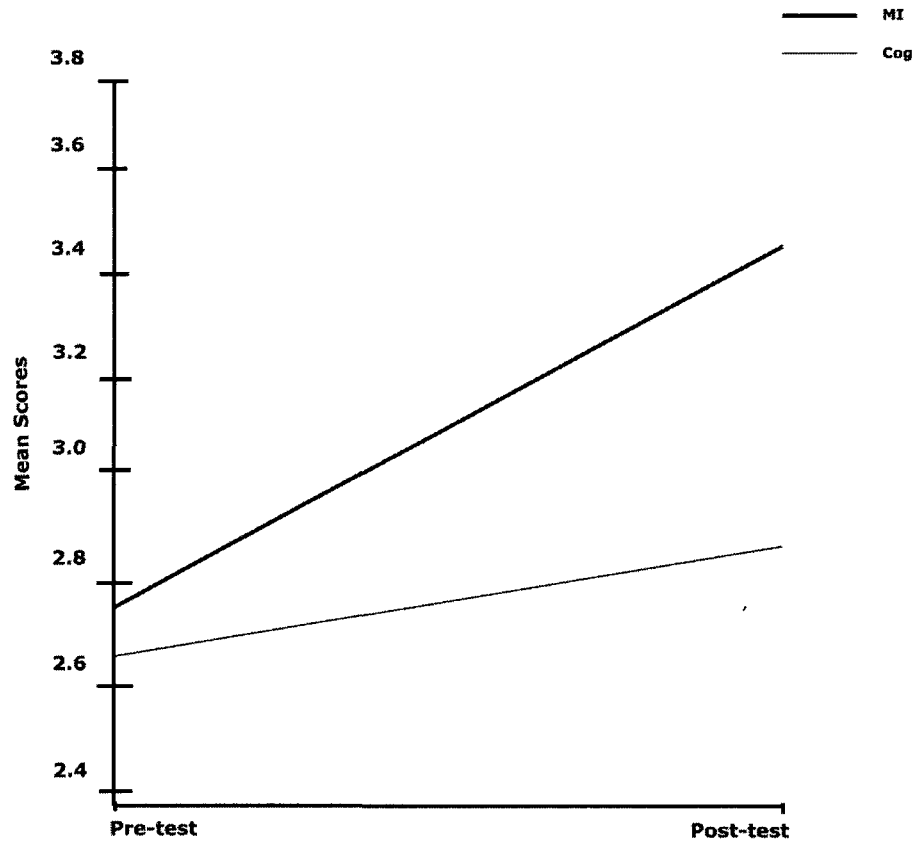


Figure 2. Pre- and Post-Test SYM Mean Scores for the Treatment Groups.

### *Hypothesis 1*

It was hypothesized that the motivational interviewing group would lead to a reduction in substance use as evidenced by significant differences between pre- and post-test scores on the Face-Valid Alcohol (FVA) subscale of the Substance Abuse Subtle Screening Inventory-3 (SASSI-3). There was not a significant difference between pre-test and post-test FVA subscales score on the SASSI-3 for the motivational interviewing group,  $F(1, 32) = .11, p = .74$ , partial  $\eta^2 = .003$ . Thus, hypothesis one was not supported; in other words, the motivational interviewing group did not have a significant reduction in substance misuse from pre- to post-test. Examination of the results shows there was an increase from pre- to post-test with this illustrated in Figure 1.

### *Hypothesis 2*

The motivational interviewing group was expected to have a significant reduction in the FVA score compared to the FVA scores for the post-test cognitive therapy group. The motivational interviewing group did not have a significant reduction in the FVA scores as compared to the post-test cognitive therapy group FVA scores,  $F(1, 32) = .34, p = .57$ , partial  $\eta^2 = .01$ . There was not a significant difference between the two groups at post test. Hypothesis two was not supported; in fact, as Figure 1 would indicate, it appears that both groups' scores increased from pre-test to post-test.

### *Hypothesis 3*

The motivational interviewing group was expected to have significantly lower SYM scores compared to the post-test cognitive therapy group SYM scores. There was no significant difference between motivational interviewing and cognitive therapy SYM scores at post test,  $F(1, 32) = 1.24, p = .27$ , partial  $\eta^2 = .04$ . Hypothesis three was not supported, and the motivational interviewing comparison group did not fare better than

the cognitive therapy group. In fact, both the motivational interviewing and cognitive therapy groups' scores increased (refer to Figure 2).

#### *Hypothesis 4*

It was hypothesized that the motivational interviewing group would have a reduction in substance abuse symptoms as evidenced by significant differences between pre- and post-test SYM scores. The motivational interviewing group did not have a significant reduction between the pre- and post-test SYM scale scores,  $F(1, 32) = .18, p = .67$ , partial  $\eta^2 = .006$ . Hypothesis four was not supported.

#### *Hypothesis 5*

When controlling for reactance, individuals in both treatment groups were expected to have a significant reduction from pre- to post-test on FVA subscale scores. There was not a significant difference in scores when controlling for reactance,  $F(1, 32) = .19, p = .67$ , partial  $\eta^2 = .006$ .

#### *Hypothesis 6*

When controlling for reactance, individuals in both treatment groups were expected to have a significant reduction from pre- to post-test on SYM subscale scores. There was not a significant difference in scores when controlling for reactance,  $F(1, 32) = 1.9, p = .18$ , partial  $\eta^2 = .006$ .

#### *Exploratory Analysis*

Despite the fact that no hypotheses were made for reactance, a between-groups' exploratory analysis of differences for reactance was performed. There was a significant between-subjects effect of reactance,  $F(2, 31) = 8.83, p = 0.001$ , partial  $\eta^2 = .363$ . In other words, individuals' levels of reactance were significantly different. Although not included in the hypothesis, the multivariate effect was explored post-hoc using univariate ANOVA

tests. When controlling for reactance, there was a significant difference between the post-test SYM mean scores,  $F(1, 32) = 5.17, p = .03, r^2 = .16$ , with the motivational interviewing group having a higher score on the symptomology scale than the cognitive therapy group at the end of therapy. The difference in scores for the pre-test SYM,  $F(1, 32) = 3.12, p = .09, r^2 = .09$ ; pre-test FVA,  $F(1, 32) = .71, p = .03$ ; and post-test FVA,  $F(1, 32) = .002, p = .97, r^2 = .03$  scales were nonsignificant.

To further investigate the differences of the significant  $F$ -value, an exploratory analysis of the six individual groups was conducted utilizing univariate ANOVA tests. The original six groups were entered as a fixed factor and reactance as a covariate. Analyses showed that there was a significant difference between the six groups' pre-test SYM scores,  $F(5, 28) = 2.64, p = .045, r^2 = .38$ , as well as post-test SYM scores,  $F(5, 28) = 2.81, p = .035, r^2 = .41$ . However, there was a nonsignificant difference between the six groups' pre-test FVA scores,  $F(5, 28) = 1.77, p = .15, r^2 = .26$ , and post-test FVA scores,  $F(5, 28) = 1.98, p = .11, r^2 = .26$ .

Because there was a significant difference in reactance and SYM scores,  $F(1, 32) = 8.5, p = .006$ , partial  $\eta^2 = .21$ , a median split was done with Therapeutic Reactance Scale scores in order to more closely examine the differences. Pre- and post-test SYM scores were examined using high and low level Therapeutic Reactance Scale scores (median = 67). Individuals with the lowest levels of reactance (TRS = 58) had a pre-test SYM mean score of 2.0. And individuals with low levels of reactance (TRS = 50) had a post-test SYM mean score of 1.5. It should be noted that both the outcome score and the level of reactance decreased from pre- to post-test.

Individuals in the high level of reactance group (TRS = 68) had a pre-test SYM mean score of 2.6, and the same group (TRS = 68) had a post-test SYM score of 4.0.

Individuals in the highest level of reactance group (TRS = 72) had a pre-test SYM mean score of 4.3, and the same group (TRS = 72) had a post-test SYM score of 4.0.

## **CHAPTER FOUR**

### **DISCUSSION**

The purpose of this study was to examine the effectiveness of two types of group therapy treatment, motivational interviewing and cognitive therapy, for substance abuse among college students. The study focused on a measure of substance use over the four-week course of group therapy while controlling for therapeutic reactance. Few studies have examined the effectiveness of substance abuse groups on college campuses (Barnett et al., 2008; Linowski, 2004; Miller & Sanchez, 1994), and there is minimal research to date comparing two treatment modalities while utilizing therapeutic reactance as a control. Demographics were also a measure of interest.

The first four hypotheses were derived from research (Adamson & Sellman, 2008; Miller & Wilbourne, 2002; Noonan & Moyers, 1997; Waldon et al., 2001) that found motivational interviewing and cognitive therapy to be effective at reducing substance abuse symptoms, but motivational interviewing had superior outcomes at short-term follow-up. Hypotheses two and three stated that the motivational interviewing group would have significant reductions in their FVA and SYM subscale scores compared to the cognitive therapy group. These hypotheses were not supported; this study's findings were inconsistent with previous research that motivational interviewing is associated with greater short-term symptom reduction. This finding exemplifies the general inconsistent nature of substance abuse literature to date.



Hypotheses one and four stated that there would be a decrease in substance use as evidenced by a reduction in FVA and SYM pre- and post-test SASSI scores. Not only were these hypotheses not supported, but all three of the motivational interviewing groups' scores increased. There are several explanations as to why treatment did not have the hypothesized effects. Many students were mandated for group therapy and displayed varying levels of motivation and readiness for change. In other words, many of the undergraduate students who attended the group expressed no motivation to change their drinking or drug behaviors.

Because most students had never attended counseling, they expressed being viewed as substance abusers but did not believe they fit the profile of a substance abuser. It is possible that many of the participants were in denial about their use and not contemplating change. These individuals would fit into the first stage, precontemplation, of Prochaska & DiClemente's (1982, 1986) proposed transtheoretical model for the stages of change. Prochaska and DiClemente identify common stages in which an individual progresses through the change process. In the first stage, precontemplation, the individual is in a state of denial or ignorance about the consequences of their behaviors. In the second stage, contemplation, the individual has become aware of a potential problem but experiences ambivalence about change. In the third stage, preparation, the individual starts making small changes and gaining more information as to how to go about making a change. In the fourth stage, action, the individual implements the behavioral changes. In the fifth stage, maintenance, the behavioral changes are consistently maintained. In the sixth stage, relapse, the individual may regress back to an old behavior and experience feelings of disappointment. If an individual is in the first stage, precontemplation, that individual is likely to display lower motivation than an

individual in one of the later stages. Examining individuals' various stages of readiness for change and how that interacts with their motivation should be an area for future research.

The group emphasized harm reduction and empowering students to make their own choices regarding drugs and alcohol. Cosden et al. (2006) found that motivation for treatment was directly correlated with severity of substance problems; motivation was positively correlated with treatment program completion and negatively correlated with problem severity. For this study, those who dropped out may have had differing degrees of motivation and problem severity. However, follow-up for individuals who dropped out was beyond the scope of this study.

The goal for many of the students in the group was completion of their required group meetings in order to satisfy judicial criteria. At the beginning of group therapy, the students were informally asked to identify goals that would be periodically discussed. Although the general assumption of attending a substance abuse group is to examine, reduce, or eliminate drinking behaviors, many students did not overtly identify reduction or abstinence of substance use as a personal goal. Research has found that motivational interviewing works well for those who have not identified a treatment goal (Lincourt et al., 2002). The group focused on reducing or eliminating drinking behaviors when, in fact, this may not have been matching with the actual goals of the individual participants; incongruency between individual and group goals could have been a factor in the outcome.

With the exclusion of group four, the groups' FVA and SYM scores could have increased due to an increased awareness of substance use behaviors and consequences. Behaviors may not have increased, but students became more aware of their drinking

behaviors and the consequences. In turn, they may have endorsed more alcohol-related symptoms and problems. Further research is needed to clarify the extent to which increasing awareness of behaviors leads to a higher frequency of endorsed symptoms. Future researchers could measure stages of change, and, if at the end of the study, participants progressed from precontemplation to contemplation, it could be inferred that their motivation increased even if their behaviors remained unchanged.

Lastly, the groups' FVA and SYM scores could have increased because drinking and drug behaviors increased. Depending upon the time of the school year in which the group took place, it is possible that the students' drinking behaviors increased due to an increase in the number of social situations involving alcohol (e.g., parties) or an increase in stress due to academic or personal stressors. During the group sessions, drinking and other drug use were discussed as coping mechanisms. Because of this discussion, students may have felt less defensive when filling out the post-test measure. After establishing a therapeutic bond with group leaders and members, group participants may have been more honest about their drinking behaviors at post-test as compared to pre-test. The SASSI may have been measuring openness about symptoms instead of the actual behaviors.

Therapeutic reactance has been theorized as a component involved in the process of therapy, but it has been scarcely addressed in substance abuse research. Hypotheses five and six stated that lower therapeutic reactance scores would be associated with significant reductions on FVA and SYM subscale scores as compared to higher therapeutic reactance scores. For the FVA scale, this hypothesis was not supported; however, for the SYM scale, the hypothesis was supported. Participants with lower therapeutic reactance scores had significant reductions in their SYM subscale scores from

pre- to post-test. The reduction in symptoms based on self-report is consistent with the previously stated expectation that those who score low on reactance perceive low levels of threat and may benefit from the therapeutic process due to increased receptiveness to therapeutic interventions. Thus, a reduction in symptoms would be expected when controlling for reactance.

According to Miller and Sanchez's findings (1994), those who are contemplating change will most likely be easier to persuade, and those who are not contemplating change may have a reactant response to the arguments and messages from an alcohol intervention class. Future research could apply this finding and examine more closely the process of persuasion as related to stages of change.

It should also be noted that, when controlling for reactance, neither the FVA scale nor the SYM were significantly lower. One reason that FVA did not decrease may have been the fact that many of the students were still in trouble and moving through the process of resolving their alcohol/drug violations or legal charges. One reason that the SYM did not decrease may have been the fact that many students did not alter their drinking or drug use behaviors and were still experiencing alcohol-related symptoms. Another reason may be because their scores may not have been high enough to produce a significant change even if small changes were made.

Based on research done on the Therapeutic Reactance Scale, reactance is most likely rooted in the situation rather than being a characterological trait (Dowd et al., 1991). Participants may have felt less defensive because of the open discussion, emphasis on self-efficacy, and dispelling their beliefs about the group being similar to Alcoholics Anonymous. They may have been less reactant at the end of therapy and answered the questions more openly, which may be reflected on their increased post-test SASSI scores.

### *Limitations*

There were several limitations to consider in the present study. First, the participants were either mandated or recommended for group therapy. In other words, most of the participants were told to attend the group or to face consequences with the university. They may not have fully engaged in the individual process of examining and changing behaviors.

A second limitation was the low number of participants. Initially, there were 40 participants, but only 35 completed the study. Of those participants who completed the study, the group sizes were uneven (22 and 13). Future research could look at the differences between the individuals who successfully complete a substance abuse group and those who do not.

Third, although the study utilized motivational interviewing and cognitive therapy techniques for the respective groups, a standard protocol was not followed. There may have been some variation in the way the therapy was implemented for each individual group. Additionally, individual and group variation could have affected the outcome of this study.

A fourth limitation is related to goals. Although the measures were of substance use, the goal of the group was not focused on the present drinking behaviors but on increasing awareness of consequences related to substance use and empowering students to make their own choices related to alcohol and drugs. A better measure of group effectiveness may have been a measure of self-efficacy, such as students' perceived abilities to cope without alcohol or resist peer pressure to engage in risky drinking behaviors. Additionally, the group did not track each individual's specific goals or goal progress which may be an area for future research.

### *Areas for Future Research*

Future research could include a measure that examines motivation as it relates to alcohol treatment outcomes. For example, the Motivation for Treatment scale measures recognition of general problems, recognition of specific problems, desire for help, and treatment readiness (De Weert-Van Oene, Schippers, De Jong, & Schriivers, 2002). The relationship between motivation and problem severity may also influence treatment outcomes. It may be useful to follow-up with the participants who dropped out in order to ascertain their levels of motivation and problem severity and compare those with the participants who completed the study.

Further, comparing motivational interviewing with those who have set specific goals and those without specific goals would be an area for future research. Because goals were not a focus of the present study, it is unclear to what degree this influenced treatment outcomes. An empirically validated measure for outcome research with alcohol would also be an area for future research. Because there are so many factors involved in studying treatment outcomes, it would be useful to have a widely used measure that would be appropriate for college populations.

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## **APPENDIX A**

### **HUMAN SUBJECTS CONSENT FORM**

## HUMAN SUBJECTS CONSENT FORM

**The following is a brief summary of the project in which you are asked to participate. Please read this information before signing the statement below.**

**TITLE OF PROJECT:** The Effectiveness of Substance Abuse Group Interventions for At Risk College Students

**PURPOSE OF STUDY/PROJECT:** To assess and compare the overall effectiveness of college student substance abuse groups which utilize motivational enhancement therapy and cognitive therapy.

**PROCEDURE:** Participants who are mandated to participate or who voluntarily participate in university counseling center groups will be asked to give informed consent, will be reminded that their participation is voluntary, and may choose to voluntarily complete the survey packet.

**INSTRUMENTS:** Substance Abuse Subtle Screening Inventory-3 (SASSI-3), Therapeutic Reactance Scale, mini-International Personality Item Pool, short substance abuse screening, and a demographic questionnaire.

**RISKS/ALTERNATIVE TREATMENTS:** The participant understands that Louisiana Tech is not able to offer financial compensation nor to absorb the costs of medical treatment should you be injured as a result of participating in this research.

**BENEFITS/COMPENSATION:** None.

I, \_\_\_\_\_, attest with my signature that I have read and understood the following description of the study, "The Effectiveness of Substance Abuse Group Interventions for At Risk College Students", and its purposes and methods. I understand that my participation in this research is strictly voluntary and my participation or refusal to participate in this study will not affect my relationship with Louisiana Tech University, my grades, or my completion of mandated or voluntary group therapy in any way. Further, I understand that I may withdraw at any time or refuse to answer any questions without penalty. Upon completion of the study, I understand that the results will be freely available to me upon request. I understand that the results of my survey will be confidential, accessible only to the principal investigators, myself, or a legally appointed representative. I have not been requested to waive nor do I waive any of my rights related to participating in this study.

\_\_\_\_\_  
Signature of Participant or Guardian

\_\_\_\_\_  
Date

**CONTACT INFORMATION:** The principal experimenters listed below may be reached to answer questions about the research, subjects' rights, or related matters.

Melissa Simundson (257-3413), mds049@latech.edu

Dr. Eric Deemer (257-3659), edeemer@latech.edu

Members of the Human Use Committee of Louisiana Tech University may also be contacted if a problem cannot be discussed with the experimenters:

Dr. Les Guice (257-3056)

Dr. Mary M. Livingston (257-2292 or 257-4315)

## **APPENDIX B**

### **HUMAN USE APPROVAL FORM**

## MEMORANDUM

TO: Ms. Melissa Simundson and Dr. Eric Deemer

FROM: Barbara Talbot, University Research

SUBJECT: HUMAN USE COMMITTEE REVIEW

DATE: September 21, 2009

In order to facilitate your project, an EXPEDITED REVIEW has been done for your proposed study entitled:

**The Effectiveness of Substance Abuse Group Interventions for At Risk College Students**

**# HUC-684**

The proposed study's revised procedures were found to provide reasonable and adequate safeguards against possible risks involving human subjects. The information to be collected may be personal in nature or implication. Therefore, diligent care needs to be taken to protect the privacy of the participants and to assure that the data are kept confidential. Informed consent is a critical part of the research process. The subjects must be informed that their participation is voluntary. It is important that consent materials be presented in a language understandable to every participant. If you have participants in your study whose first language is not English, be sure that informed consent materials are adequately explained or translated. Since your reviewed project appears to do no damage to the participants, the Human Use Committee grants approval of the involvement of human subjects as outlined.

Projects should be renewed annually. ***This approval was finalized on September 14, 2009 and this project will need to receive a continuation review by the IRB if the project, including data analysis, continues beyond September 14, 2010.*** Any discrepancies in procedure or changes that have been made including approved changes should be noted in the review application. Projects involving NIH funds require annual education training to be documented. For more information regarding this, contact the Office of University Research.

You are requested to maintain written records of your procedures, data collected, and subjects involved. These records will need to be available upon request during the conduct of the study and retained by the university for three years after the conclusion of the study. If changes occur in recruiting of subjects, informed consent process or in your research protocol, or if unanticipated problems should arise it is the Researchers responsibility to notify the Office of Research or IRB in writing. The project should be discontinued until modifications can be reviewed and approved.

***NOTE: Approval for this study was given by the IRB Board after the following addition to the Consent Form:***

Participants who are mandated to participate or who voluntarily participate in university counseling center groups will be asked to give informed consent, will be reminded that their participation is voluntary, and may choose to voluntarily complete the survey packet. At pre-test, participants will be asked to complete all five instruments. At post-test, participants will be asked to complete the SASSI-3 again. Data will be de-identified by counseling center staff. Subjects will be assigned a number before arriving to fill out the measures. Instead of listing their names on the measures, there will be a subject number. The researcher will have access to the ID numbers and the surveys only. A staff member of the

counseling center not involved with the group therapy will keep the name and identification information in a confidential file cabinet. That staff member that has the names will not have access to the surveys at any time and the researcher with the surveys will not have access to names until the completion of group therapy. It may be necessary to access the names for data analysis and demographic purposes. The information as to which number matches up with which subject will be kept on a piece of paper locked in a confidential file cabinet at the counseling center. The demographic information will be kept separate from the completed surveys and will also be locked in a confidential file cabinet at the counseling center. Data will be collected by a counseling center staff member (not the researcher and not the staff member that has access to the names), and the researcher will be given de-identified surveys. The completed surveys, the demographic information, and the identification information will be kept separate from each other at the university counseling center locked in separate confidential file cabinets. The researcher will have access to the de-identified surveys but will not access the identification or demographic information until the completion of group therapy. None of the surveys, demographic information, or identification information will leave the counseling center premises and the researchers and staff involved with the study will maintain the strictest confidentiality. The data will be input into a spreadsheet using subject numbers. There will be no identifiable information saved on any computers or computer storage systems. Any identifiable information (i.e., the piece of paper with the names) will be destroyed after data input and analysis when it is no longer needed.

If you have any questions, please contact Dr. Mary Livingston at 257-4315.



**APPENDIX C**

**DEMOGRAPHICS**

\_\_\_\_\_ **Participant Number**

**Age:** \_\_\_\_\_

**Gender:**

- \_\_\_\_ 1. Male  
\_\_\_\_ 2. Female

**Marital Status:**

- \_\_\_\_ 1. Single  
\_\_\_\_ 2. Married  
\_\_\_\_ 3. Divorced  
\_\_\_\_ 4. Widowed  
\_\_\_\_ 5. Separated

**Ethnicity:**

- \_\_\_\_ 1. Caucasian/White  
\_\_\_\_ 2. African- American/Black  
\_\_\_\_ 3. Native American  
\_\_\_\_ 4. Hispanic  
\_\_\_\_ 5. Asian  
\_\_\_\_ 6. Other (specify)  
\_\_\_\_\_

**Classification:**

- \_\_\_\_ 1. Freshman  
\_\_\_\_ 2. Sophomore  
\_\_\_\_ 3. Junior  
\_\_\_\_ 4. Senior  
\_\_\_\_ 5. Graduate Student