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Reducing Alcohol-Related Harm Through Utilizing a Harm Prevention Curriculum
at the University of Central Oklahoma

A THESIS

SUBMITTED TO THE GRADUATE FACULTY

In partial fulfillment of the requirements

for the degree of

MASTER OF SCIENCE IN WELLNESS MANAGEMENT

By

Julie Dearing

Edmond, Oklahoma

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By

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Reducing Alcohol-Related Harm Through Utilizing a Harm Prevention Curriculum
at the University of Central Oklahoma

A THESIS

APPROVED FOR THE DEPARTMENT OF KINESIOLOGY AND HEALTH
STUDIES

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ABSTRACT

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CENTRAL OKLAHOMA

Candidate for the Degree of Masters of Science in Wellness Management, Option in
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Scope and Method of Study: "Alcohol use and abuse among college students pose an enormous and unique public health problem that is associated with significant harm to students" (Riley, Durbin, & D'Ariano, 2005, p.202). A single session alcohol harm prevention curriculum modeled after Graham, Tatterson, Roberts, & Johnston's (2004) research can correct misperceptions college students have regarding levels of peer alcohol use. The curriculum also makes an effort to give students the necessary perceptions, motivation and skills to intervene within their peer group and to make proactive harm-avoidance plans with friends prior to social occasions that involve the use of alcohol. The program utilizes interactive discussions with students. The participants consisted of students from six sections of the Healthy Life Skills course, HLTH 1112, offered at the University of Central Oklahoma. Three sections (n=112) received the alcohol harm prevention curriculum and three sections (n=89) served as the control group. Data was obtained pre- and post- curriculum through a survey questionnaire during the Fall 2007 semester.

Findings and Conclusions: A statistical analysis of the data revealed there was not a significant relationship (p-values less than 0.05) between the skills relating to alcohol harm-prevention planning and intervention and the incidence of alcohol related harm. However there was a significant relationship (p-values less than 0.05) in the peer perception of alcohol consumption and some significance in the amount of alcohol consumed for the curriculum group.

Advisor's Approval: _____

Kim Auzley, PhD, RA

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CHAPTER I

INTRODUCTION

Overview

In the state of Oklahoma the expense of alcohol related crashes are immense. According to the National Highway Traffic Safety Administration, the price to Oklahomans for alcohol related crashes in 1999 was estimated at \$1.4 billion, including \$0.8 billion in quality of life losses and \$0.6 billion in monetary costs. An estimated 26,756 people died in alcohol related car crashes in 2004, with the highest percent of drivers involved being under the age of 30 (Mauck & Zagumny, 2000). While the percentage of alcohol related automobile deaths have dropped dramatically from 37 percent to 24 percent since 1982 the number of people who die every year is still unacceptable. Population based education and interventions, such as the zero tolerance and lower blood alcohol concentration (BACs) laws, have been implemented nationwide to help reduce this number, but people are still driving while intoxicated. This research focuses on a preventative approach, utilizing a social norming curriculum and teaching harm prevention behaviors to students at the University of Central Oklahoma.

The problem of alcohol consumption is not limited to any age, race, ethnicity or geographic area. However there is one large population that struggles with this issue, college students. Wechsler, Kuo, Seibring, Nelson, & Lee conducted a survey in 1993 of 140 higher learning institutions nationwide called the Harvard School of Public Health College Alcohol Study (CAS). The results from this study increased national recognition of heavy episodic alcohol use, or binge drinking and the resulting problems as the number one public health problem affecting college students (Wechsler et al, 2002).

Longitudinal studies conducted at the same institutions in 1997, 1999 and 2001 evaluated interventions, policy change, increased education and trends in alcohol consumption.

The results from the final follow-up survey in 2001 at the 119 CAS schools revealed that the rates of binge drinking have remained constant since 1993. Nationally, 2 of 5 undergraduate college students were found to be binge drinkers (Wechsler et al, 2002).

Another survey conducted by Hingson, Heeren, Winter, & Wechsler (2005) “compared the number of alcohol-related traffic and other unintentional injury deaths in 1998 and 2001 among 18-24 year olds in the United States who are full or part-time college students attending either 2 or 4-year colleges” (Hingson et al, 2005, p.260). The results found a significant increase in the percentage of college students who drove under the influence between those years (Hingson et al, 2005). Not only are students who are driving under the influence increasing their risk of having a fatal car accident, they are also putting others, such as their passengers or others driving on the same roads, at risk as well. According to Hingson et al (2005), the number of non-drinking drivers killed in 2001 who were involved in crashes that comprised 18-24 year old drinking drivers was 46%. The number of deaths has increased by 33% between 1998 and 2001. The findings from Hingson et al’s (2005) research suggest that anti-drinking and driving campaigns should also inform passengers who choose to ride with drunk drivers the dangers of getting into a car with someone who is driving while intoxicated. However, “most anti-drinking and driving campaigns target the behavior of the drinking driver rather than the passenger’s behavior” (Wechsler et al, 2003, p. 214). Not only could the cost of drinking and driving be deadly, the economic consequences can be severe.

Until technology is developed that is able to prevent people from driving after drinking, alternative solutions to deter drunk driving must be sought. Because the consumption of alcohol is legal and the promotion of abstinence does not appear to be effective, the concept of harm reduction, reducing the harmfulness of the behavior (MacCoun, 1998), seems to be a logical idea to research. One notion that fits into the harm reduction notion would be to encourage students to use a designated driver. “A designated driver is an individual within a group of people drinking alcoholic beverages at an event/establishment who promises to remain sober to drive the others home afterwards” (“Driving Under the Influence”, 2006). While this idea is theoretically recognized throughout the country, nationwide surveys show that for many college students, the person who becomes the designated driver is the person who is the “least drunk” at the end of the night (Ross, 1992). According to Gotthoffer (1999) in order for students to change their behavior on this issue, researchers will need to show college students their current behavior involves risk that can potentially negatively affect them. The Health Belief Model states that, “in order for a person to change a health-related behavior, that person must believe the problem is serious and that he is personally susceptible, that changing the behavior will reduce the risks involved, and that the benefits of behavior change will outweigh the costs” (Gotthoffer, 1999, p. 23). For the concept of harm reduction to succeed, it is important to educate the University of Central Oklahoma’s student population to have the necessary perceptions, motivation and abilities to make proactive harm avoidance plans and to intervene within their peer group before leaving for social occasions that involve using alcohol (Graham et al, 2004).

The college student population, ages 18-24, represent a population at high risk for alcohol related harm. Although numerous methods to prevent this population from using alcohol have been investigated, there is a gap in the literature that has examined alcohol related harm prevention. This study will add exploration of this approach.

Problem Statement

Concerns about the high prevalence of alcohol related harm in the United States has spurred many prevention efforts. Much research has been conducted on intervention techniques to deter people from drinking alcohol by using the logic that if people did not drink, there would be no alcohol related harm. However the results from Wechsler et al's (2002) Harvard School of Public Health College Alcohol Study (CAS) demonstrate that the rates of binge drinking have remained constant even after these intervention techniques, policy change and increased education were implemented (Wechsler et al, 2002). Alcohol harm reduction is a strategy that instead of promoting abstinence from alcohol use, promotes responsible drinking. The statistics presented thus far explore the incidence of binge drinking and alcohol related harm, there is evidence for the need to examine this method further.

Sub-problems

The college student population, ages 18-24, represent a population at high risk for alcohol related harm. Although there has been a lot of investigation of methods to prevent this population from using alcohol, there is a gap in the literature that has examined alcohol related harm prevention. This study aims to add additional exploration of this approach.

Hypotheses

- 1) There will be no difference in skills relating to alcohol harm-prevention planning and intervention between the treatment and control group.
- 2) There will be no difference in the incidence of alcohol related harm between the control and treatment groups.
- 3) There will be no difference in the perception of general peer use of alcohol for the control group and treatment group.
- 4) There will be no difference in the amount of alcohol consumed between the control and treatment groups.

Limitations

- 1) Results are reliant on self-reported data to survey questions. Some students may find items on the questionnaire about alcohol use to be sensitive in nature and regardless of being assured that their answers would be anonymous, and thus may provide socially desired answers.
- 2) Participants consist of students taking courses at a state regional university in the south mid-western United States. Therefore the results of the study might not generalize to other college populations.
- 3) The curriculum consists mainly of class lead discussion, students in one treatment group or the other may hear diverse experiences or alcohol harm related examples that may impact them differently. Because of this reason there is the possible limitation of differential treatment of groups.

Delimitations

- 1) As the population size at the University of Central Oklahoma for the 2007-2008 school year is 14,403 students, the researcher limited the participants to six sections of the Healthy Life Skills course. This course is a freshman level health course in the College of Education and Professional Studies. The sections that were used for the three treatment sections and three control sections were selected from the twenty-eight sections that were offered in the Fall 2007 semester as a sample of convenience.
- 2) The instrument to measure the effectiveness of alcohol harm reduction curriculum was the use of a self-reported survey.
- 3) The timeframe for the pre-test to be given was the fourth week of the Fall 2007 semester. The curriculum infusion was presented to the treatment population in the seventh week of the semester and the post-test was administered the twelfth week of the same semester.
- 4) The students who did not participate in the pre-test survey, also did not take the post-test survey to ensure the post-test results were accurate in measuring the same participants.

Assumptions

- 1) The participant responses to their self-report surveys were truthful and accurate. In order for this to be achieved the facilitator had to effectively assure the participants that their answers were completely anonymous.

- 2) The curriculum was taught with consistency and without bias for the three treatment sections. The importance of the participants to not feel they were being preached at was vital to the effectiveness of the curriculum content.
- 3) The facilitator guided the class lead discussions to cover all the pertinent topics the treatment participants needed to cover for the curriculum to be fully effective.

Definitions

Alcohol Misuse, Alcohol Abuse, Problem Drinking, High-Risk Drinking, Binge Drinking:

These terms are used interchangeably throughout literature. The Harvard School of Public Health College Alcohol Study utilizes a standard “five/four” measure of heavy drinking. That is, alcohol use can be measured by the frequency of consuming five or more drinks on at least one occasion during the previous 2 weeks, or for women, four or more drinks on at least one occasion in the same time frame. (Wechsler et al, 2002).

Blood Alcohol Concentration (BAC):

A measurement of intoxication, expressed in grams of alcohol per 100 ml of blood (Ray & Ksir, 1999).

Designated Driver:

An individual within a group of people drinking alcoholic beverages at an event/establishment who promises to abstain from drinking in order drive the others home safely after the event. (Gotthoffer, 1999)

Drunk driving:

The act of operating a motor vehicle under the influence of alcohol and/or drugs to the degree that mental and motor skills are impaired. It is illegal in all

jurisdictions within the United States. In the majority of states in the United States the legal Blood Alcohol Concentration limit for people age 21 and older is .08. The specific criminal offense is usually called driving under the influence [of alcohol and/or other drugs] (DUI), and in some states driving while intoxicated (DWI), operating while impaired (OWI), or operating a vehicle under the influence (OVI) (“Driving Under the Influence”, 2006)

Alcohol Harm-Prevention Programs:

“Programs that transcend judgments about drinking behavior, and focus on promotion of realistic intervention and avoidance strategies” (Graham et al, 2004).

Risk:

n. 1. the chance of injury, damage, or loss; dangerous chance; hazard. 2. in insurance, a) the chance of loss. B) the degree of probability of loss. V.t. 1. to expose to risk; hazard: as to risk one’s life. 2. to incur the risk of: as, to risk a war. –run (or take) a risk, to expose oneself to a risk; take a chance. (Webster, 2003)

Harm:

n. 1. hurt; injury; damage. 2. moral wrong; evil. V.t. to do harm to; hurt; injure; damage. (Webster, 2003)

CHAPTER II

LITERATURE REVIEW

Alcohol use, while legal, can be dangerous to consume if one has no knowledge of the risks involved and how to manage those risks. Leigh (1999) examined the link between alcohol use and risk taking behavior. In her research, Leigh (1999) found that alcohol can play a number of different roles in risky behavior.

Alcohol may increase the probability of doing something potentially harmful; for example, drinking leading to violent or careless behavior; alcohol use in conjunction with an activity may increase the probability that that activity will lead to harm; for example, driving a car while drunk increases the probability of injury; and alcohol use in itself may increase the probability of harm; for example, excessive drinking may lead to illness and mortality (Leigh, 1999, p. 376).

The college student population is unique in the fact that “drinking by college students [is] embedded in the popular culture...it is a rite of passage, part of the ‘coming of age’ that young Americans experience at college as they make the transition from adolescence to adulthood” (Riley et al, 2005, p. 204). Participants in a qualitative study conducted by Gotthoffer (1999) found that college students drink because it makes it easier to be social, but they also because they are free to do so. This point is important to the uniqueness of the college student culture because traditionally when students go to college for the first time it is also their first time being away from their parents and their parents’ rules. Because of this reason, interventions that promote abstaining from using alcohol that

work on the general population, may not necessarily work on the college student population (Gotthoffer, 1999). Presented below is a review of different interventions, programs and policies that has been examined for their effectiveness to decrease the risk and harm of drinking then driving and other alcohol related harmful behaviors.

In a study conducted to test the efficacy of policy on the rate of alcohol related accidents, (Carpenter, 2003) focused his research on the effectiveness of a population based intervention that was implemented in 1995 when Congress passed the National Highway Systems Designation Act. This act pressured states to adopt the Zero Tolerance Law by means of threats to cut funding by Congress. The Zero Tolerance Law that was passed nationwide and varies from state to state, make it illegal for anyone driving who is under the age of twenty-one to have any measurable amount of alcohol in their blood (Carpenter, 2003). These laws have successfully lowered drunken driving rates nationwide. However even though the policy has “worked” effectively that is to say the laws are “associated with systematic reductions in alcohol-related highway fatalities for the targeted age groups” (Carpenter, 2003, p.78), a national survey conducted by Wechsler et al (2003) indicated that college students are still driving or riding with someone under the influence. Wechsler et al’s (2003) survey revealed that 23% of U.S. college students reported riding with a driver who was high or drunk, and 36% of students who drive drunk regularly.

The Zero Tolerance Laws only effect underage drinkers. Although states across the nation have lowered their legal blood alcohol concentrations (BAC) levels for legal age drinkers, the results from Wechsler et al’s (2003) study show that once college students reach the legal drinking age they feel less perceived threats of penalties for

driving after consuming alcohol. Carpenter (2004) recognized in his research a trend in the past ten years to set stricter legal limits for adult drivers over the age of 21. A majority of states have changed the legal limit from a 0.10 BAC standard to a 0.08 BAC limit. However Mann (2002) remarked that as researchers have become increasingly sophisticated in measuring the actual effects of alcohol on our impairment, it has become clear that such a BAC threshold is deceptive. “Instead, it now appears that the effects of alcohol on performance can begin with the first drink and are measurable at BACs of 20mg% [0.02] and lower” (Mann, 2002, p 1237). The 1995 population based intervention, the National Highway Systems Designation Act, implemented to lower the incidence of drinking and driving, has been extremely successful, but it is not enough. Clearly we need to explore community-based and individual-based interventions and programs as well to see where we stand in our society’s effort to decrease alcohol related harm.

Treno & Lee (2002) conducted a comparison of community-based environmental prevention programs in Massachusetts that focused on modifying the *environment* that people consume alcohol in, instead of trying to change their *behavior*. Many diverse environmental prevention methods such as: media campaigns, business information programs, speed-watch telephone hotlines, police training, Students Against Drunk Driving chapters and speeding and drunk driving awareness days, have been tested in Massachusetts communities through their Saving Lives Project. Results indicated that these programs were proven successful in that area (Treno & Lee, 2002). However these community-based environmental prevention methods remained untested on the college student aggregate until Clapp, Johnson, Voas, Lange, Shillington, & Russell (2005)

conducted a study that involved two large Universities. Clapp et al (2005) based their study on a successful environmental DUI prevention campaign conducted by Voas (1997) in the community setting. Voas (1997) investigated the effects of increased enforcement of DUI laws that were supported by media advocacy to reduce alcohol-related accidents. Voas utilized the deterrence model to pattern his study after.

According to Ross (1982) the major premise of the deterrence model is if the threat of punishment is put upon an entire population, then everyone including the potential law breakers will refrain from violating the law because of the desire to avoid the legal consequences. Voas (1997) applied the deterrence model by using the combination of DUI checkpoints and media coverage/campaigns to highlight these checkpoints. Doing this “increased perceptions of the risk of arrest for DUI in the general population which, in turn, lead to reduced DUI and accident rates” (Voas, 1997, p. S209). In Clapp et al’s (2005) study, checkpoints were set up on three main streets surrounding the campus with each one on average stopping 730 cars. They all received local news coverage during the intervention period and the campus newspaper ran six DUI related stories. Also advertisements in the school newspaper and on campus as well as magnets and promotion cards were disseminated throughout the treatment university (Clapp et al, 2005).

Approximately 400 telephone interviews were conducted at both the treatment and control universities each semester the study was conducted. The results of the study were hopeful. They “reveal a considerable drop in self-reported driving after drinking following the DUI prevention campaign tested at the intervention campus” (Clapp et al, 2005, p332). However the costs of running this program were considerable and may not be within the financial means of many universities and colleges. The main cost was the

expense of paying for up to 10 police officers overtime to run check points (Clapp et al, 2005), a major component of the intervention. The results are similar to those that occurred for Voas' (1997) study. In the last 18 months of Voas' study and six months after the conclusion of the study, the weekend night-time crash rate evened out to about 10% below the pre-program period. That is until the perceived threat to the motoring public disappeared and they became aware that enforcement patrols were gone, then crash rate increased to pre-program trends (Voas, 1997). In these studies when follow-ups were conducted, research indicated that many of the effects that the intervention produced decreased considerably once the perceived threat was gone.

Jewell & Hupp (2005) investigated an individual based intervention to deter drunk driving. They researched the effectiveness of Fatal Vision goggles. Fatal Vision goggles are special "beer goggles" designed to make a sober person feel drunk ("Drink drivers given 'beer goggles'", 2003). They tested these goggles on 251 participants attending a four-year university in the Midwest, afterwards they measured the attitudes of the treatment and control group's acceptance levels of other students driving while intoxicated. This study was set up using four groups. The first group was the Regular Control Group, who after signing a consent form and gave information on their demographics as well as their level of drinking, watched a five minute videotape from a biology course. The second group was the Video Control group whose procedures were exactly the same as the Regular Control group except instead of a biology video, a five-minute video that is typically used during drinking and driving prevention programs was shown (Jewell & Hupp, 2005). The two experimental groups' procedures were the same as the control groups accept after watching the alcohol prevention video, one group,

called Goggles, participated in a series of drills that resembled a sobriety test, once without the Fatal Vision Goggles and then again with the them. The other experimental group, named the Audience, did all of the same things as the Goggles group except instead of doing the sobriety test exercises, they observed the Goggles group performing them. Data was collected from all four groups to measure their attitudes and behaviors towards drunk driving immediately after their treatments and then again four weeks later (Jewell & Hupp, 2005). The results indicated that immediately following the exercise the Goggles group “reported a significantly greater decrease in favorable attitudes toward drinking and driving, compared to the control group watching an unrelated video” (Jewell & Hupp, 2005, p. 261). However the attitudes and behaviors of the participants from the four week follow-up were compared and showed that “there was no significant main effect or interaction effect between the two” (Jewell & Hupp, 2005, p. 261). Therefore, the significant effects the Goggles group demonstrated after wearing the Fatal Vision goggles disappeared within four weeks and their attitudes towards drinking and driving were the same as the other groups (Jewell & Hupp, 2005).

Research on the effectiveness of self-regulatory techniques used to avoid drunk driving was investigated by Brown (1996). Three broad strategies were found that individuals use to self-regulate; choosing to make alternative plans to driving after drinking (avoid driving), restricting alcohol consumption to stay under the legal limit (control drinking), or choosing to either delay or avoid driving after they have already consumed alcohol (spontaneously delay/avoid driving) (Brown, 1996). Brown’s study found that those participants who elected to use control drinking or spontaneously delay/avoid driving strategies were more likely to report driving drunk than those who

used the avoid driving approach. This analysis shows the need for the development of planning skills for those who choose to engage in activities that involve the consumption of alcohol.

Shore & Compton (2000) and Mauck & Zagumny (2000) did separate, similar studies researching the effectiveness of individual interventions to prevent drunk driving. One hundred college students provided information about their interactions with other students when they had either tried to stop someone, or someone tried to stop them from driving drunk. The specific details that Shore & Compton requested from the participants were the location of the interaction, what was said to stop the person i.e. statements for deterrence, and its forcefulness. The reasons given to the potential driver to attempt to stop them were found to fall into six different categories: state of intoxication, diminished abilities, worry or concern, statement about potential DUI's, statement that the person may harm him/herself or others and distraction statements, which avoided mentioning any reference to drinking and driving. Mauck & Zagumny surveyed 200 college students to explore different variables that interveners used for a successful intervention to stop someone from driving under the influence. The variables that were examined included, level of comparative impairment between the intervener and the drunk driver, the number of people consulted about the intervention, the sense of moral/social motivation to intervene and the social situation the successful interventions were conducted in (Mauck & Zagumny, 2000).

The results for Shore & Compton's (2000) study showed that statements that mentioned the risk of DUI or the police were the least effective in preventing someone from driving drunk. People who tried to use reasoning to distract the impaired person

from driving, instead of mentioning their drunkenness, were found to be the most successful. Also the amount of forcefulness used in the statement was found to be an important criterion. “Concrete and emphatic statements produced less noncompliance than did weaker ones” (Shore & Compton, 2000, p. 287). The reason Shore & Compton gave for the success of distraction statements was that it side stepped the potential danger of loss of face. Also, concrete and empathetic statements were more effective than asking a question such as, “Are you ok to drive?”. Because the person could avoid affirming his/her incompetence by not having to reply, thus again saving face (Shore & Compton, 2000, p. 287).

Mauck & Zagumny (2000), found statistical significance between the comparative impairment of the potential drunk driver and the intervener, the sense of moral/social obligation to intervene, the number of people consulted about possible intervention and the effort put into the intervention. “The most surprising finding was that the number of people the intervener consulted about the intervention, regardless of others’ support, significantly predicted the amount of effort expended in the drunk-driving intervention” (Mauch & Zagumny, 2000, p. 31). This finding suggests that just talking about possibly intervening with other people in the situation would make public one’s concern about the other person drunk driving, thus requiring action to be taken by highlighting the potential danger (Mauch & Zagumny, 2000).

Both of these studies show that with the right motivation to intervene and the manner in which the intervention is done, individual interventions to prevent drunk driving can be extremely effective. “Reinforcing social norms that intervening in a

potential drunk-driving episode is ‘the right thing to do’ may lead to even more dramatic reductions in drunk-driving episodes and deaths” (Mauch & Zagumny, 2000, p. 31).

Up until this point the literature that has been reviewed show that interventions such as the deterrence model and other environmental based prevention measures have worked to some extent to reduce the occurrence of alcohol related harm. Studies presented thus far have also shown the educational need and potential effectiveness of alcohol harm reduction prevention education. If the college student is going to choose to participate in activities that involve alcohol, it is important to be proactive and teach them about the harmful, preventable, consequences that could occur if one is not responsible in alcohol use. An alcohol related harm prevention education program would teach the college student the reality of the dangers of drinking and driving and help dismantle misperceptions. One benefit to a harm reduction approach is that “the assumption of deviance is not necessary... thus, the identification of individuals to be at risk for alcohol problems is not a necessary component of the harm-reduction model” (Cronin, 1996, p.2031). A program that targets all students could be effectively utilized. Graham, Tatterson, Roberts, & Johnston (2004) tested an Alcohol-related Harm Prevention program at Pennsylvania State University.

The Alcohol-related Harm Prevention (AHP) program is a normative education and skill-acquisition program designed to reduce serious, long-term alcohol-related harm in college students. Without admonishing students not to drink, which is likely to fail in many student populations, the AHP program attempts to give students the necessary perceptions, motivation and skills to

intervene within their peer group, and to make proactive harm-avoidance plans with friends prior to social occasions that involve using alcohol (Graham et al, 2004, p. 71).

This program was executed in two sessions during a chosen regularly scheduled class. Specific details will be discussed more in depth in the methods part of this paper. The results of the program were successful. Graham et al (2004) found that the program bodes well for longer-term health benefits of interventions. The deterrence model and other environmental based prevention intervention research had very effective short term effects, but did not hold a lot of stamina. Participants in Graham et al's study reported an increased awareness in four different areas: 1) that it is OK for students to care about one another 2) that risk-taking is in general not acceptable 3) that students do not drink as much as previously perceived and 4) that the prevalence of non-use for students in general was more than previously thought. In addition, the program had a direct effect on students' intentions to prevent harm from coming to their friends by intervening in situations that may cause harm and to make vehicle-related plans before participating in alcohol related activities. Finally, there was some evidence that the program increased students' skills in making plans related to preventing alcohol-related harm (Graham et al, 2004).

Cronin (1996) conducted a study along the same guidelines as Graham et al's (2004) research, but on a smaller scale. Because studies show that university students typically consume an excessive amount of alcohol during spring break, Cronin (1996) executed his harm reduction intervention the week prior to the hazardous time period in attempt to lower alcohol related harm. His tactic was to identify high-risk periods of

alcohol consumption and implement a harm-reduction approach that targeted all students during these specific times (Cronin, 1996). Cronin's intervention was "designed to prime students' memories regarding potential alcohol-use-associated problems" (Cronin, 1996, p. 2032). The week before Spring Break, students were asked to complete a Use and Consequences Diary which indicated how much alcohol they *intended* to consume during Spring Break and what potential negative consequences they thought they *might experience* as a result of drinking (Cronin, 1996). Then the week following spring break, those same students completed another Use and Consequences Diary indicating their actual consumption rates and experiences. Also students from a different lecture completed a Use and Consequences Diary post spring break only, to represent the control group. When the two groups were compared, it was found that there was no difference in the amount of alcohol consumption, however there was a significant difference in the frequency of alcohol-use-related problems (Cronin, 1996). This study shows the importance of students' awareness of potential alcohol related harm before engaging in alcohol related activities to help prevent harm from occurring. More research should be conducted to determine the longevity of the outcomes.

CHAPTER III

METHODS

As examined in the previous chapter, alcohol harm prevention is a concept viable of further research. This study utilized education to change students' perception of alcohol use and build skills to prevent alcohol related harm. With the permission of Dr. James Graham, from University of Pennsylvania, and approval from the Institutional Review Board, this researcher replicated the AHP program at the University of Central Oklahoma .

Participants

Six sections from a class, HLTH 1112 Healthy Life Skills, offered at the University of Central Oklahoma (UCO) were selected by convenience from twenty-eight sections offered in the Fall 2007 semester. In this study three sections (n=112) received the alcohol harm prevention curriculum, and three sections (n=89) served as the control group. The Healthy Life Skills course is a required course for undergraduate students at UCO. Healthy Life Skills provides a comprehensive investigation into the current methods of health promotion and disease prevention. Knowledge and practical application in the areas of fitness, nutrition, substance abuse prevention, and other positive life skills are emphasized (UCO UG Catalog). The time of day for both the control and treatment sections ranged as follows; one early section/group, one midday section/group and one afternoon section/group. This way a representative sample will be obtained. As the participants were not graded for course credit on the treatment curriculum and there was not any outside assignments for them to complete, student performance in the Health Life Skills course did not affect study results.

Procedures and Protocol

The single session alcohol related harm prevention curriculum infusion, modeled after Graham et al's Alcohol-related Harm Prevention (AHP) program at the University of Pennsylvania, was implemented in one 50 minute class period.

The researcher followed a carefully constructed presentation script and a Microsoft Office PowerPoint slide. The first objective of the facilitator was to establish credibility with the students. "Any statement from an authority figure that sounded like an exhortation not to consume alcohol [was] likely to be received poorly by students" (Graham et al, 2004, p. 76). The facilitator at the beginning of the presentation started off the session by making mild fun of him/herself as an insistent authority figure and then state the goals of the project.

- 1) The goal is NOT to tell students not to drink.
- 2) The goal is NOT to keep students from having fun. The facilitator then promotes the idea that the social aspects of the college experience are important.
- 3) The goal IS to prevent long-term, serious harm from happening to undergraduate students. This is a goal that administrators, faculty and students can all agree on (Graham et al, 2004).

The facilitator then presented various attention getting facts regarding the negative consequences of alcohol use. Next the facilitator communicated the results of the University of Central Oklahoma State of the Campus Health Report 2007 survey to demonstrate to the students the following three things: 1) students at University of Central Oklahoma's (UCO) estimated perceptions of the levels of alcohol use by male

and female students; 2) students at UCO's estimation of the level of non-use; and 3) students at UCO's incidence of alcohol related harm.

After the survey results were presented, the session became interactive. The facilitator presented three scenarios involving college students in risky situations stemming from alcohol use. Solicitation and praise of student comments was an important component to this approach. The facilitator's primary role at this point was to listen. The students, where possible, should learn from other students. All comments were welcomed and the facilitator had a set of suggestions as well to be expressed. The facilitator then presented example scenarios. The following model scenario's and goals were taken from Graham et al's (2004) AHP program:

Scenario 1: Your friend drove you to the party...got drunk...Time to go home...Now what? How could you intervene to prevent harm? How could you PLAN to prevent harm?

Scenario 2: Your friend is about to leave the party in a car with a driver who is drunk. How could you intervene to prevent harm? How could you plan to prevent harm? How could you start the conversation?

Scenario 3: Your friend is drunk...decides to climb up on some new construction. How could you intervene? How could you plan? How could you start the conversation?

There are eight goals the facilitator had to achieve when presenting the scenarios:

Goal 1: Ask the students for ways to intervene to prevent harm in this situation. Get students to come up with as many good solutions as

possible for what you should do if your ride (and you) are drunk, e.g. call a taxi, walk, sleep over, call a non-drinking person to give you a ride, etc. Reiterate good ideas students came up with and those they did not come up with, before moving on.

Goal 2: Determine ways to PLAN in this situation. The main plan was to use a designated driver. But there may be other ideas. The person may PLAN to take a taxi home, or PLAN to walk home, or pre-arrange sleeping over (assuming that is a safe idea).

Goal 3: Ask students for ways to intervene to prevent harm in this situation. Ideally, there is a pause with no suggestions. Point out that this is the problem with trying to intervene on the spot. About the only suggestions that come up usually involve giving unsolicited advice, and they don't work that well.

Goal 4: Ask students for ways to PLAN in this situation. The main plan here was to use the 'buddy system'. Go together and leave together. Watch each other's back. Talk about various groups that require this strategy of their members (e.g. sororities; the Navy for sailors on shore leave).

Goal 5: How does one start the conversation to make a plan to prevent harm in the above situation? One approach: Ask how many people have used a designated driver. Choose a student who has used the designated driver, and ask how he or she started the conversation to make the agreement. Ask if the same method might be used in this scenario. One

suggestion students have come up with is: the student asks, ‘What time are you going to be leaving?’ and then ‘How about if we leave the party together?’.

Goal 6: Ask students for ways to intervene in this situation. This is just one example of the stupid things people might do after drinking. One strategy for intervening to prevent harm in the situation relates to the fact that drunks are highly distractible. Try to emphasize that you can often get the person to focus on something other than the risky behavior.

Goal 7: How could you make plans to help avoid this situation? For this goal, we were looking for the sentence ‘Stop me if I do something stupid’. One approach here is to give them most of the sentence. For example, you could say, ‘How could you and a friend make plans to keep each other from doing something stupid?’ The closer we stay to this phrase, the more likely it was that the students would give us the target sentence in response.

Goal 8: Once the person had made the statement ‘Please stop me if I do something stupid, ask ‘What is the likely response’? In fact, the likely response is for the friend to say something like, ‘yeah, stop me too’. The important thing here was that this is an proactive agreement. Any time you have a proactive agreement, people are more likely to accept what you say later on. They will be less likely to see it as unsolicited advice. ONE IMPORTANT reason for taking this approach is that YOU are starting the conversation. You are not giving advice, and you are not requiring your

friend to do anything. However, the reason this might work in most cases is because the natural response to this (reasonable) suggestion is ‘yeah, stop me too’. (Graham et al, 2004)

The facilitator then covered a fourth scenario in which a student was already drunk and announced that he or she was going to take part in a drinking game. The facilitator next apologized, saying that he/she had promised not to preach, but had to say something about this. “Any time a person consumes large quantities of alcohol in a short period of time, the person is at serious risk for coma and death. I won’t say any more about that” (Graham et al, 2004, p. 80). The script was delivered as close to verbatim as possible because of the sensitive nature of the comment.

At the end of the 50 minute session the fact that virtually all students do care about their friends and are willing to take action to prevent harm from coming to their friends was reiterated by the facilitator. Then, the facilitator asked the students to make a conscious decision to take action, or not to take action, to prevent harm within their peer group (Graham et al, 2004).

Data Collection

A pre-survey was administered in the fifth week of the Fall 2007 semester. The participants were instructed not to discuss the contents of the survey with other classes or class members and confidentiality and anonymity of the results was emphasized to ensure pre-test values are valid. The program was implemented during the sixth week of the semester and a post-test survey was given during the eleventh week of the same semester. The instructors participating with this project were asked to not cover any alcohol related

material until after the post-test had been administered to ensure the post-test results were not be skewed by other curriculum.

The 10-question evaluation anonymous survey was handed out at the end of the 50 minute session and scored to determine the quality of the session.

Instruments

A 10-question, anonymous survey was given to evaluate the quality of the session. This instrument was worded to establish validity to the alcohol harm curriculum. “High-quality implementation does not guarantee program effects, but implementation of sufficient quality is a necessary condition for program effects” (Hansen et al., 1991, p. 442). In other words, this instrument determined the participants’ attitude towards the overall presentation. Questions about the degree to which the two main goals were achieved, the degree to which the facilitator appeared to believe in the harm-prevention message, and the facilitator’s expertise and enthusiasm were asked in this survey. This survey also indicated the degree to which the students thought the facilitator preached, how receptive the students’ were to the subject matter in general and how this presentation compared to others they have seen on the subject (Graham et al, 2004).

Both the pre/post test surveys were conducted voluntarily and measured the participants’ perceptions of norms for peer alcohol use and non-use, skills to make harm-prevention plans, incidence of alcohol related harm and alcohol use. This instrument was a subset of a survey prepared by Graham, J.W., Tatterson, J.W., Roberts, M.M. and Johnston, S.E who have published articles on the issue of validity in health behavior research.

Statistical Measures

The Perception of Norms Survey (Pre/Post test survey) had five questions which involved categorical responses, such as the frequency of alcohol usage, experience of negative consequences from alcohol use and peer perception of alcohol usage. These questions were analyzed using a chi-square test to determine if there was a significant difference in proportions between pre-and post-times for the control group and the treatment group. Six questions involved continuous responses, such as the number of drinks or harm prevention skills used. Those questions were analyzed using a two-tailed t-test to determine if there was a significant difference in means between pre- and post-times for the control group and the treatment group. In addition, comparison of pre-results between the control and treatment groups was used to determine if the two groups were initially comparable. The dependent variables being tested were skills relating to alcohol harm-prevention planning and intervention, incidence of alcohol related harm, perception of general peer use of alcohol and the amount of alcohol consumed. These variables were dependent on the curriculum, the independent variable, which was taught to three of the six sections between the pre and the post tests.

The Session Quality Survey involved all categorical responses, such as yes/no/no opinion, for which proportions were reported.

CHAPTER IV

RESULTS

The Session Quality survey was handed out after the Alcohol Harm Reduction curriculum was presented to the treatment group. According to Hansen & Graham (1991), this piece “does not guarantee program effects, but... [is a] necessary condition for program effects” (p422). The results from that survey are as follows:

| Groups | N |
|----------------|-----|
| Post Treatment | 110 |

Did the facilitator tell students not to drink?

| Yes | No | No opinion |
|-------|-------|------------|
| 37.3% | 60.0% | 2.7% |

Did the facilitator not keep students from having fun?

| Yes | No | No opinion |
|-------|-------|------------|
| 72.7% | 18.2% | 9.1% |

Did the facilitator teach you how to prevent long-term, serious harm from happening?

| Yes | No | No opinion |
|-------|------|------------|
| 84.5% | 9.1% | 6.4% |

Did the facilitator appear to believe in the harm-prevention message?

| Yes | No | No opinion |
|-------|------|------------|
| 94.5% | 2.7% | 2.7% |

Did the facilitator have expertise?

| Yes | No | No opinion |
|-------|-------|------------|
| 62.7% | 18.2% | 19.1% |

Was the facilitator's presentation enthusiastic?

| Yes | No | No opinion |
|-------|-------|------------|
| 58.2% | 36.4% | 5.4% |

Did the facilitator preach?

| Yes | No | No opinion |
|-------|-------|------------|
| 11.8% | 81.8% | 6.4% |

Were you receptive to the subject matter?

| Yes | No | No opinion |
|-------|------|------------|
| 84.5% | 5.4% | 10.0% |

Did this presentation compare favorably to others on this subject?

| Yes | No | No opinion |
|-------|-------|------------|
| 55.4% | 20.0% | 24.5% |

Overall rating of this session?

| Ext Negative | Very Negative | Moderate | Very Positive | Ext Positive |
|--------------|---------------|----------|---------------|--------------|
| 0.9% | 1.8% | 40.0% | 43.6 | 13.6 |

The overall rating of the session indicated that more than half of the participants gave a rating of very positive or extremely positive. The majority of students thought that the facilitator sincerely believed in the concept of harm-prevention and was able to convey her expertise in the material with enthusiasm. In addition, 85% of students indicated that they were receptive to the subject matter and the majority thought the presentation compared favorably to others on this subject.

The session quality survey indicated a high quality implementation of the alcohol harm prevention curriculum for the treatment group, the pre-post test survey given to the both the control and treatment groups will reveal if the program had any effects. For the pre-post test survey, questions 3 and 9a-9j tested the hypothesis 1) there will be no difference in skills relating to alcohol harm-prevention planning and intervention between the treatment and control group. Questions 10a-10f tested the hypothesis 2) there will be no difference in the incidence of alcohol related harm between the control and treatment groups. Questions 2, 7 and 11 tested the hypothesis 3) there will be no difference in the

perception of general peer use of alcohol for the control group and treatment group and questions 1, 4, 5, 6 and 8 tested the hypothesis 4) there will be no difference in the amount of alcohol consumed between the control and treatment groups. For each question group comparisons were made between the pre-control vs. post-control, pre-treatment vs. post-treatment and the pre-control vs. the pre-treatment groups. The results from the pre-post test survey are below.

| Groups | N |
|----------------|-----|
| Pre Control | 89 |
| Post Control | 67 |
| Pre Treatment | 112 |
| Post Treatment | 91 |

Table 1
Within the last 30 days, on how many days did you use alcohol?

| Groups | Never | Used but | 1-2 | 3-5 | 6-9 | 10-19 | 20-29 | all 30 |
|---|-------|------------------------|-------|-------|-------|-------|-------|--------|
| | | not in last 30 days | | | | | | |
| Pre Cont | 21.3% | 21.3% | 19.1% | 14.6% | 10.1% | 11.2% | 2.2% | 0.0% |
| Post Cont | 31.3% | 16.4% | 17.9% | 16.4% | 6.0% | 9.0% | 3.0% | 0.0% |
| Pre Trt | 28.6% | 15.2% | 12.5% | 14.3% | 11.6% | 12.5% | 5.4% | 0.0% |
| Post Trt | 38.5% | 13.2% | 26.4% | 9.9% | 7.7% | 4.4% | 0.0% | 0.0% |
| Chi-square/Fisher's exact p-values | | | | | | | | |
| Pre Cont vs Post Cont | | p=.790 | | | | | | |
| Pre Trt vs Post Trt | | p=.010 | | | | | | |
| Pre Cont vs Pre Trt | | p=.563 | | | | | | |

In Table 1 there were significant differences ($p=0.010$) between proportions for the pre-treatment vs. post-treatment groups. In the pre-treatment group, 44% used alcohol 3-29 days of the last 30 as opposed to the post-treatment group which used alcohol 22% for that same interval. Also, the rate for the 1-2 day interval from the pre-treatment survey to the post treatment survey doubled from 13% to 26%.

Table 2
Within the last 30 days, how often does the typical student use alcohol?

| Groups | Never | 1+ | Daily |
|------------------------------------|-------|--------|-------|
| Pre Cont | 5.6% | 76.4% | 18.0% |
| Post Cont | 14.9% | 76.1% | 9.0% |
| Pre Trt | 2.7% | 87.5% | 9.8% |
| Post Trt | 12.1% | 81.3% | 6.6% |
| Chi-square/Fisher's exact p-values | | | |
| Pre Cont vs Post Cont | | p=.059 | |
| Pre Trt vs Post Trt | | p=.026 | |
| Pre Cont vs Pre Trt | | p=.109 | |

In Table 2 there were significant differences ($p=.026$) between the pre-treatment vs. post-treatment group. There was a perception in the pre-treatment survey that 3% of students never consumed alcohol whereas in the post-treatment survey the perception changed to 12%.

Table 3a
Within the last 30 days, did you drive after drinking any alcohol?

| Groups | Didn't drive | Didn't drink | Yes |
|------------------------------------|--------------|--------------|-------|
| Pre Cont | 48.3% | 33.7% | 18.0% |
| Post Cont | 34.3% | 41.8% | 23.9% |
| Pre Trt | 46.4% | 31.3% | 22.3% |
| Post Trt | 41.8% | 44.0% | 14.3% |
| Chi-square/Fisher's exact p-values | | | |
| Pre Cont vs Post Cont | | p=.214 | |
| Pre Trt vs Post Trt | | p=.124 | |
| Pre Cont vs Pre Trt | | p=.745 | |

In table 3a there were no significant differences between groups. However, between pre and post test the percentage of those responding “Yes” increased 6% in the control group and decreased 8% in the treatment group.

Table 3b
Within the last 30 days, did you drive after having 5+ drinks?

| Groups | Didn't drive | Didn't drink | Yes |
|------------------------------------|--------------|--------------|------|
| Pre Cont | 52.8% | 39.3% | 7.9% |
| Post Cont | 49.3% | 46.3% | 4.5% |
| Pre Trt | 57.1% | 37.5% | 5.4% |
| Post Trt | 42.9% | 52.7% | 4.4% |
| Chi-square/Fisher's exact p-values | | | |
| Pre Cont vs Post Cont | | p=.543 | |
| Pre Trt vs Post Trt | | p=.093 | |
| Pre Cont vs Pre Trt | | p=.707 | |

In table 3b there were no significant differences between groups. In both the post-control and the post-treatment groups, the percent that drove after having 5+ or more drinks was less than 5%.

Table 4
The last time you partied, how many hours did you drink alcohol?

| Groups | Mean | Std Dev |
|--------------------------|------|---------|
| Pre Cont | 2.54 | 2.47 |
| Post Cont | 2.31 | 2.52 |
| Pre Trt | 2.53 | 2.67 |
| Post Trt | 1.91 | 2.00 |
| 2-tailed t-test p-values | | |
| Pre Cont vs Post Cont | | p=.576 |
| Pre Trt vs Post Trt | | p=.062 |
| Pre Cont vs Pre Trt | | p=.973 |

In table 4 there were no significant differences between the groups. Although the pre-control and the pre-treatment groups were comparable with regard to the average number of hours that they drank alcohol at the last party (mean = 2.5 hours) the post-treatment group's average decreased by more than ½ hour whereas the post-control group's average decreased by less than half that time.

Table 5
The last time you partied, how many alcoholic drinks did you have?

| Groups | Mean | Std Dev |
|--------------------------|------|---------|
| Pre Cont | 4.55 | 4.81 |
| Post Cont | 3.06 | 3.55 |
| Pre Trt | 4.50 | 6.08 |
| Post Trt | 3.31 | 3.76 |
| 2-tailed t-test p-values | | |
| Pre Cont vs Post Cont | | p=.027 |
| Pre Trt vs Post Trt | | p=.089 |
| Pre Cont vs Pre Trt | | p=.948 |

In table 5 there was a significant difference ($p = .027$) between the pre-control and post-control group. In the pre-control group the mean of the number of alcoholic drinks consumed the last time partied was 5 in the pre-survey and 3 in the post-survey.

Table 6
In the last 2 weeks, on how many occasions did you drink the same or more alcohol as indicated in Table 5?

| Groups | Mean | Std Dev |
|--------------------------|------|---------|
| Pre Cont | 0.81 | 1.25 |
| Post Cont | 1.10 | 2.42 |
| Pre Trt | 1.04 | 1.47 |
| Post Trt | 0.78 | 1.23 |
| 2-tailed t-test p-values | | |
| Pre Cont vs Post Cont | | p=.364 |
| Pre Trt vs Post Trt | | p=.171 |
| Pre Cont vs Pre Trt | | p=.229 |

In table 6 there were no significant differences between groups. On average only 1 occasion in the last two weeks for all groups was reported.

Table 7
How many alcoholic drinks did the typical student have the last time he/she partied?

| Groups | Mean | Std Dev |
|--------------------------|------|---------|
| Pre Cont | 6.52 | 2.93 |
| Post Cont | 5.24 | 2.45 |
| Pre Trt | 6.51 | 4.50 |
| Post Trt | 4.70 | 2.79 |
| 2-tailed t-test p-values | | |
| Pre Cont vs Post Cont | | p=.004 |
| Pre Trt vs Post Trt | | p=.001 |
| Pre Cont vs Pre Trt | | p=.988 |

In table 7 there were significant differences ($p=.004$) between the pre-control and post control group as well as the pre-treatment and post treatment group ($p=.001$). The pre-control group perceived that the typical student consumed a mean of 6.52 alcoholic drinks the last time they partied and the post-control group perceived the typical student consumed a mean of 5.24 alcoholic drinks. The pre-treatment group perceived that the typical student consumed a mean of 6.51 alcoholic drink the last time they partied and the post-treatment group perceived the typical student consumed 4.70 alcoholic drinks. Also note the significant difference for the pre-treatment vs. the post-treatment group ($p=.001$) is more significant than the significant difference for the pre-control vs. post-control group ($p=.004$).

Table 8

In the last 2 weeks, how many times did you have 5+ alcoholic drinks at a sitting?

| Groups | Mean | Std Dev |
|--------------------------|------|----------|
| Pre Cont | 0.70 | 1.30 |
| Post Cont | 0.63 | 1.35 |
| Pre Trt | 1.27 | 2.40 |
| Post Trt | 0.57 | 1.17 |
| 2-tailed t-test p-values | | |
| Pre Cont vs Post Cont | | $p=.744$ |
| Pre Trt vs Post Trt | | $p=.008$ |
| Pre Cont vs Pre Trt | | $p=.033$ |

In table 8 there was a significant difference ($p=.008$) between the pre-treatment group and the post-treatment group. In the pre-treatment group the mean number of times the individual consumed 5+ alcoholic drinks at a sitting in the past 2 weeks was more than one. The mean number of times for the post-treatment group was less than one. Also there was a significant difference ($p=.033$) between the pre-control group and the pre-treatment group. The mean number of times the participant in the pre-control group that consumed 5+ alcoholic drinks in one sitting in the last 2 weeks was less than 1 and the mean number for the pre-treatment group was more than 1.

Table 9a

Within the last 30 days, how often did you alternate non-alcoholic with alcoholic beverages?

| Groups | NA | Always | Usually | Sometimes | Rarely | Never |
|---|--------|--------|---------|-----------|--------|-------|
| Pre Cont | 34.8% | 6.7% | 5.6% | 16.9% | 19.1% | 16.9% |
| Post Cont | 46.3% | 4.5% | 11.9% | 14.9% | 13.4% | 9.0% |
| Pre Trt | 37.5% | 4.5% | 10.7% | 16.1% | 18.8% | 12.5% |
| Post Trt | 52.7% | 3.3% | 9.9% | 11.0% | 11.0% | 12.1% |
| Chi-square/Fisher's exact p-values | | | | | | |
| Pre Cont vs Post Cont | p=.304 | | | | | |
| Pre Trt vs Post Trt | p=.330 | | | | | |
| Pre Cont vs Pre Trt | p=.736 | | | | | |

In table 9a there were no significant differences between the groups. The control group remained relatively constant with regard to the percent (30%) which responded that at least sometimes they alternated non-alcoholic and alcoholic beverages whereas in the treatment group the percent decreased from 31% to 24%.

Table 9b

Within the last 30 days, how often did you determine, in advance, not to exceed a set number of drinks?

| Groups | NA | Always | Usually | Sometimes | Rarely | Never |
|---|--------|--------|---------|-----------|--------|-------|
| Pre Cont | 32.6% | 18.0% | 14.6% | 11.2% | 11.2% | 12.4% |
| Post Cont | 46.3% | 9.0% | 16.4% | 10.4% | 7.5% | 10.4% |
| Pre Trt | 38.4% | 12.5% | 11.6% | 8.9% | 9.8% | 18.8% |
| Post Trt | 50.5% | 9.9% | 5.5% | 14.3% | 8.8% | 11.0% |
| Chi-square/Fisher's exact p-values | | | | | | |
| Pre Cont vs Post Cont | p=.434 | | | | | |
| Pre Trt vs Post Trt | p=.191 | | | | | |
| Pre Cont vs Pre Trt | p=.632 | | | | | |

In table 9b there were no significant differences between the groups. Among those that were surveyed, 30% or more in both the control and treatment groups indicated that at least sometimes they determined, in advance, not to exceed a set number of drinks.

Table 9c**Within the last 30 days, how often did you choose not to drink alcohol?**

| Groups | NA | Always | Usually | Sometimes | Rarely | Never |
|------------------------------------|--------|--------|---------|-----------|--------|-------|
| Pre Cont | 20.2% | 13.5% | 20.2% | 33.7% | 7.9% | 4.5% |
| Post Cont | 32.8% | 16.4% | 7.5% | 28.4% | 10.4% | 4.5% |
| Pre Trt | 30.4% | 9.8% | 8.9% | 29.5% | 16.1% | 5.4% |
| Post Trt | 41.8% | 9.9% | 9.9% | 17.6% | 13.2% | 7.7% |
| Chi-square/Fisher's exact p-values | | | | | | |
| Pre Cont vs Post Cont | p=.189 | | | | | |
| Pre Trt vs Post Trt | p=.354 | | | | | |
| Pre Cont vs Pre Trt | p=.072 | | | | | |

In table 9c there were no significant differences between the groups. On the average, 51% at least sometimes choose not to drink alcohol.

Table 9d**Within the last 30 days, how often did use a designated driver?**

| Groups | NA | Always | Usually | Sometimes | Rarely | Never |
|------------------------------------|--------|--------|---------|-----------|--------|-------|
| Pre Cont | 33.7% | 40.4% | 14.6% | 4.5% | 3.4% | 3.4% |
| Post Cont | 43.3% | 32.8% | 10.4% | 7.5% | 1.5% | 4.5% |
| Pre Trt | 37.5% | 27.7% | 16.1% | 10.7% | 4.5% | 3.6% |
| Post Trt | 50.5% | 29.7% | 6.6% | 6.6% | 2.2% | 4.4% |
| Chi-square/Fisher's exact p-values | | | | | | |
| Pre Cont vs Post Cont | p=.673 | | | | | |
| Pre Trt vs Post Trt | p=.175 | | | | | |
| Pre Cont vs Pre Trt | p=.387 | | | | | |

In table 9d there were no significant differences between groups. On the average 52% at least sometimes used a designated driver.

Table 9e**Within the last 30 days, how often did you eat before and/or during drinking?**

| Groups | NA | Always | Usually | Sometimes | Rarely | Never |
|------------------------------------|--------|--------|---------|-----------|--------|-------|
| Pre Cont | 32.6% | 21.3% | 20.2% | 19.1% | 4.5% | 2.2% |
| Post Cont | 41.8% | 28.4% | 16.4% | 4.5% | 3.0% | 6.0% |
| Pre Trt | 36.6% | 21.4% | 20.5% | 12.5% | 3.6% | 5.4% |
| Post Trt | 49.5% | 16.5% | 18.7% | 8.8% | 5.5% | 1.1% |
| Chi-square/Fisher's exact p-values | | | | | | |
| Pre Cont vs Post Cont | p=.062 | | | | | |
| Pre Trt vs Post Trt | p=.285 | | | | | |
| Pre Cont vs Pre Trt | p=.721 | | | | | |

In table 9e there were no significant differences between the groups. There was a 10% decrease between pre and post times within both the control and treatment groups for at least sometimes eating before and/or during drinking.

Table 9f

Within the last 30 days, how often did you have a friend let you know when you had enough?

| Groups | NA | Always | Usually | Sometimes | Rarely | Never |
|------------------------------------|--------|--------|---------|-----------|--------|-------|
| Pre Cont | 32.6% | 21.3% | 7.9% | 12.4% | 16.9% | 9.0% |
| Post Cont | 47.8% | 13.4% | 11.9% | 9.0% | 4.5% | 13.4% |
| Pre Trt | 39.3% | 14.3% | 7.1% | 13.4% | 12.5% | 13.4% |
| Post Trt | 51.6% | 11.0% | 6.6% | 11.0% | 8.8% | 11.0% |
| Chi-square/Fisher's exact p-values | | | | | | |
| Pre Cont vs Post Cont | p=.064 | | | | | |
| Pre Trt vs Post Trt | p=.659 | | | | | |
| Pre Cont vs Pre Trt | p=.608 | | | | | |

In table 9f there were no significant differences between the groups. There was an approximately 7% decrease between pre and post times within both the control and treatment groups for at least sometimes having a friend let you know when you had enough.

Table 9g

Within the last 30 days, how often did you keep track of how many drinks you were having?

| Groups | NA | Always | Usually | Sometimes | Rarely | Never |
|------------------------------------|--------|--------|---------|-----------|--------|-------|
| Pre Cont | 32.6% | 29.2% | 6.7% | 20.2% | 7.9% | 3.4% |
| Post Cont | 46.3% | 22.4% | 9.0% | 10.4% | 10.4% | 1.5% |
| Pre Trt | 38.4% | 14.3% | 13.4% | 13.4% | 11.6% | 8.9% |
| Post Trt | 50.5% | 19.8% | 9.9% | 9.9% | 5.5% | 4.4% |
| Chi-square/Fisher's exact p-values | | | | | | |
| Pre Cont vs Post Cont | p=.319 | | | | | |
| Pre Trt vs Post Trt | p=.203 | | | | | |
| Pre Cont vs Pre Trt | p=.031 | | | | | |

In table 9g there is a significant difference (p=.031) between the pre-control group vs. the pre-treatment group. In the pre-control group 56% kept track of how many drinks they were having at least sometimes, whereas 41% of the participants in the pre-treatment group kept track.

Table 9h**Within the last 30 days, how often did you pace your drinks to 1 or fewer per hour?**

| Groups | NA | Always | Usually | Sometimes | Rarely | Never |
|------------------------------------|--------|--------|---------|-----------|--------|-------|
| Pre Cont | 32.6% | 6.7% | 11.2% | 15.7% | 13.5% | 20.2% |
| Post Cont | 43.3% | 6.0% | 11.9% | 19.4% | 7.5% | 11.9% |
| Pre Trt | 38.4% | 8.9% | 2.7% | 13.4% | 14.3% | 22.3% |
| Post Trt | 49.4% | 7.7% | 7.7% | 12.1% | 11.0% | 12.1% |
| Chi-square/Fisher's exact p-values | | | | | | |
| Pre Cont vs Post Cont | p=.497 | | | | | |
| Pre Trt vs Post Trt | p=.184 | | | | | |
| Pre Cont vs Pre Trt | p=.245 | | | | | |

In table 9h there were no significant differences between the groups. Among those in the post-treatment group who consumed alcohol, 28% paced themselves to consume 1 or fewer alcoholic drinks per hour at least sometimes, whereas 37% in the post-control group paced themselves.

Table 9i**Within the last 30 days, how often did you avoid drinking games?**

| Groups | NA | Always | Usually | Sometimes | Rarely | Never |
|------------------------------------|--------|--------|---------|-----------|--------|-------|
| Pre Cont | 29.2% | 18.0% | 9.0% | 16.9% | 10.1% | 16.9% |
| Post Cont | 38.8% | 13.4% | 6.0% | 16.4% | 9.0% | 16.4% |
| Pre Trt | 36.6% | 10.7% | 7.1% | 10.7% | 10.7% | 24.1% |
| Post Trt | 49.5% | 8.8% | 4.4% | 12.1% | 15.4% | 9.9% |
| Chi-square/Fisher's exact p-values | | | | | | |
| Pre Cont vs Post Cont | p=.840 | | | | | |
| Pre Trt vs Post Trt | p=.093 | | | | | |
| Pre Cont vs Pre Trt | p=.351 | | | | | |

In table 9i there were no significant differences between the groups. In the control group between the pre and post test time the number of people who choose never to avoid drinking games stayed approximately the same at 16%. In the treatment group the number of participants who choose never to avoid drinking games was reduced from 24% to 10%.

Table 9j**Within the last 30 days, how often did you drink an alcohol look-alike?**

| Groups | NA | Always | Usually | Sometimes | Rarely | Never |
|---|--------|--------|---------|-----------|--------|-------|
| Pre Cont | 31.5% | 3.4% | 6.7% | 7.9% | 11.2% | 39.3% |
| Post Cont | 38.8% | 3.0% | 4.5% | 10.4% | 13.4% | 29.9% |
| Pre Trt | 35.7% | 4.5% | 6.3% | 9.8% | 8.9% | 34.8% |
| Post Trt | 49.5% | 2.2% | 4.4% | 8.8% | 7.7% | 27.5% |
| Chi-square/Fisher's exact p-values | | | | | | |
| Pre Cont vs Post Cont | p=.793 | | | | | |
| Pre Trt vs Post Trt | p=.519 | | | | | |
| Pre Cont vs Pre Trt | p=.947 | | | | | |

In table 9j there were no significant differences between the groups. Among those who consume alcohol, the number of participants in both the pre and post control and treatment groups who at least sometimes consume an alcohol look-alike remained at around 18%.

Table 10a**Within the last 30 days, as a consequence of your drinking, have you physically injured yourself?**

| Groups | NA | No | Yes |
|---|--------|-------|------|
| Pre Cont | 32.6% | 64.0% | 3.4% |
| Post Cont | 41.8% | 53.7% | 4.5% |
| Pre Trt | 38.4% | 53.6% | 8.0% |
| Post Trt | 49.5% | 45.1% | 5.5% |
| Chi-square/Fisher's exact p-values | | | |
| Pre Cont vs Post Cont | p=.421 | | |
| Pre Trt vs Post Trt | p=.270 | | |
| Pre Cont vs Pre Trt | p=.201 | | |

In table 10a there were no significant differences between the groups. On the average, among those that consumed alcohol, 5% were physically injured as a result of their drinking.

Table 10b

Within the last 30 days, as a consequence of your drinking, have you physically injured another person?

| Groups | NA | No | Yes |
|------------------------------------|-------|--------|------|
| Pre Cont | 32.6% | 66.3% | 1.1% |
| Post Cont | 40.3% | 58.2% | 1.5% |
| Pre Trt | 37.5% | 60.7% | 1.8% |
| Post Trt | 49.5% | 48.4% | 2.2% |
| Chi-square/Fisher's exact p-values | | | |
| Pre Cont vs Post Cont | | p=.577 | |
| Pre Trt vs Post Trt | | p=.187 | |
| Pre Cont vs Pre Trt | | p=.699 | |

In table 10b there were no significant differences between the groups. On the average, almost 2% physically injured another person as a result of their drinking.

Table 10c

Within the last 30 days, as a consequence of your drinking, have you been involved in a fight?

| Groups | NA | No | Yes |
|------------------------------------|-------|--------|------|
| Pre Cont | 33.7% | 65.2% | 1.1% |
| Post Cont | 41.8% | 53.7% | 4.5% |
| Pre Trt | 37.5% | 57.1% | 5.4% |
| Post Trt | 48.4% | 47.3% | 4.4% |
| Chi-square/Fisher's exact p-values | | | |
| Pre Cont vs Post Cont | | p=.203 | |
| Pre Trt vs Post Trt | | p=.298 | |
| Pre Cont vs Pre Trt | | p=.210 | |

In table 10c there were no significant differences between the groups. On the average, 4% were involved in a fight as a result of their drinking.

Table 10d

Within the last 30 days, as a consequence of your drinking, have you done something you later regretted?

| Groups | NA | No | Yes |
|------------------------------------|-------|--------|-------|
| Pre Cont | 31.5% | 56.2% | 12.4% |
| Post Cont | 40.3% | 52.2% | 7.5% |
| Pre Trt | 36.6% | 47.3% | 16.1% |
| Post Trt | 49.5% | 42.9% | 7.7% |
| Chi-square/Fisher's exact p-values | | | |
| Pre Cont vs Post Cont | | p=.397 | |
| Pre Trt vs Post Trt | | p=.081 | |
| Pre Cont vs Pre Trt | | p=.446 | |

In table 10d there were no significant differences between the groups. On the average, 14% of pre-control and treatment groups did something they later regretted as a result of their drinking. However that rate decreased almost by half for the post-control and treatment groups.

Table 10e

Within the last 30 days, as a consequence of your drinking, have you forgot where you were or what you did?

| Groups | NA | No | Yes |
|------------------------------------|-------|--------|-------|
| Pre Cont | 32.6% | 51.7% | 15.7% |
| Post Cont | 40.3% | 53.7% | 6.0% |
| Pre Trt | 37.5% | 46.4% | 16.1% |
| Post Trt | 49.5% | 42.9% | 7.7% |
| Chi-square/Fisher's exact p-values | | | |
| Pre Cont vs Post Cont | | p=.148 | |
| Pre Trt vs Post Trt | | p=.096 | |
| Pre Cont vs Pre Trt | | p=.732 | |

In table 10e there were no significant differences between the groups. The intervention rate in a potentially harmful situation decreased from 12% for the pre-treatment group to 4% for the post-treatment group.

Table 10f

Within the last 30 days, as a consequence of your drinking, have you intervened in a potentially harmful situation?

| Groups | NA | No | Yes |
|------------------------------------|-------|--------|-------|
| Pre Cont | 31.5% | 62.9% | 5.6% |
| Post Cont | 41.8% | 50.7% | 7.5% |
| Pre Trt | 38.4% | 50.0% | 11.6% |
| Post Trt | 49.5% | 46.2% | 4.4% |
| Chi-square/Fisher's exact p-values | | | |
| Pre Cont vs Post Cont | | p=.313 | |
| Pre Trt vs Post Trt | | p=.096 | |
| Pre Cont vs Pre Trt | | p=.126 | |

In table 10f there were no significant differences between the groups. On the average, 5% have intervened in a potentially harmful situation.

Table 11
Within the last 30 days, what percent of students at your school used alcohol?

| Groups | Mean | Std Dev |
|--------------------------|-------|---------|
| Pre Cont | 67.85 | 16.14 |
| Post Cont | 60.19 | 21.87 |
| Pre Trt | 63.45 | 20.19 |
| Post Trt | 43.01 | 23.13 |
| 2-tailed t-test p-values | | |
| Pre Cont vs Post Cont | | p=.017 |
| Pre Trt vs Post Trt | | p<.0001 |
| Pre Cont vs Pre Trt | | p=.087 |

In table 11 there is a significant difference ($p=.017$) between the pre-control and the post control groups. The pre-control group perceived that 68% of students consumed alcohol in the last 30 days and the post-control group perceived a mean of 60% consumed alcohol during the same interval. There was also a significant difference ($p=.0001$) between the pre-treatment and post-treatment groups. The pre-treatment group perceived that 63% of students consumed alcohol in the last 30 days and the post-treatment group perceived 43% of students for that same interval. Also note that the significant difference for the pre-post treatment group (.0001) is a lot more significant than the significance for the pre-post control group (.017).

For hypothesis one, there was no significant differences between groups for any of the respective questions, therefore the researcher fails to reject the null. For hypothesis two, the researcher fails to reject the null. For hypothesis three the researcher rejects the null as all questions to test this hypothesis had significant differences within the treatment group. For hypothesis four two questions had significance and three questions did not, therefore the research fails to reject the null.

Discussion

The results from the Session Quality Survey suggest that the implementation of the alcohol harm curriculum by the facilitator was at sufficient quality necessary for the program to have the effects intended.

The results from the pre-post survey suggest that the alcohol harm prevention curriculum impacted the treatment group. There were significant differences (table 2, $p=.026$), (table 7, $p=.001$), and (table 11, $p=.0001$), between the treatment group and the control group in their peer perception of alcohol use. Mentioned earlier in Chapter II, Gotthoffer (1999) studied the college student population and the reasons why under aged students drink. One of the six reasons cited was a perceived pressure from peers. If college freshman perceive that 63% of their peers consume alcohol, which was the mean of the treatment group in the pre test survey (table 11), then they are more likely to be strongly influenced by that perception. The results of the pre-post test survey for the treatment group show the percentage of perceived peer alcohol used decreased by 20%. Also in table 1 the number of students who reported having never consumed alcohol between the pre and post test times increased by 10%. One explanation for this is that for the pre test, even though they were assured that their answers would be anonymous; they could have provided socially desired answers. Once the social norming portion of the harm prevention curriculum was presented it could be that participants for the post test survey felt less peer perceived pressure and answered more accurately. Another explanation is that the heavy drinkers who participated for the pre test could have dropped the course by the time the post test survey was given, changing the proportioned percentage of responses.

The change in perceived social norms from the curriculum may help to explain why there was some significance difference between the pre and post survey in the reduced amount of alcohol consumed for the treatment group (table 1, $p=.010$) and (table 8, $p=.008$). Even though not all the questions on the pre-post survey had significant differences for lowering the amount of alcohol consumed and the null hypothesis has been accepted, the number of days that alcohol was consumed (table 1, $p=.01$) and the number of times 5+ alcoholic drinks were consumed at a sitting (table 8, $p=.008$) were significantly lower between the pre and post survey times for the treatment group. For the other questions used to test this hypothesis there was some difference between the pre and post survey, the number of hours a participant partied decreased from 2.5 to 2 (table 4, $p=.062$) and the number of alcoholic drinks consumed in a sitting reduced from 4.5 to 3 (table 5, $p=.089$), however there was not a big enough difference to be considered significant. As cited in Chapter II Leigh (1999) indicated in her research that alcohol may increase the probability of doing something potentially harmful. Although the curriculum had little effect on the incidence of alcohol related harm, as discussed below, with the decrease of alcohol use reported for the post survey, this may lead in the future to a decrease in alcohol related harm.

The alcohol harm prevention curriculum had no impact on the skills relating to alcohol harm-prevention planning and intervention or on the incidence of alcohol related harm although their overall incidence of alcohol related harm was relatively low for both the pre and post survey results (table's 10a-10f and 9a-9j). This is the only portion of this study that is inconsistent with Graham et al's (2004) AHP program that the research was replicated after. There are a few possible explanations for this. 1) For both the control

and treatment groups between the pre and post survey time, the number of participants who responded NA for those survey questions increased by 15%. This could be because 30 days prior to the pre survey 15% more participants consumed alcohol and were able to respond to those criteria, but did not consume alcohol the 30 days prior to the post survey. Therefore those participants did not have the chance to utilize those skills the survey inquired about and had to answer NA for those post survey questions. 2) Graham et al's study utilized a homework piece that was not implemented into this research project. Graham et al assigned each participant to take the harm prevention curriculum back with them and introduce it to three friends. Using the scenario's presented during the curriculum session, each participant came up with harm prevention solutions. Participants then wrote a two page paper on what alcohol harm prevention solutions they came up with. The writing assignment further reinforced the skills taught in the curriculum for alcohol harm-prevention planning and intervention, which would help lead to the reduced incidence of alcohol related harm. The final possible reason for the curriculum to not impact alcohol harm prevention planning and intervention is 3) the number of participants dropped between the pre and post test survey's (pre treatment, n=112, post treatment n=91) and (pre control n=89, post control n=67). It could be that the heavy drinkers dropped the course between the pre and post test times.

CHAPTER V

CONCLUSIONS

The purpose of this chapter is to provide an overview and summary of the information and findings in the previous chapters; discuss the conclusions drawn from this study; and outline suggestions for future studies in the area of research pertaining to alcohol harm prevention. This population based study was replicated after Graham et al's (2004) AHP program which was designed to educate the college student population to; build skills relating to alcohol harm-prevention planning and intervention, lessen the incidence of alcohol related harm, help students have an accurate perception of general peer use of alcohol and impact the amount of alcohol consumed.

The participants consisted of students from six sections of the Healthy Life Skills course, HLTH 1112, offered at the University of Central Oklahoma. Three sections (n=112) received the alcohol harm prevention curriculum and three sections (n=89) served as the control group.

This study found there were no significant (p-values less than 0.05) differences between the pre and post survey time for the skills relating to alcohol harm-prevention planning and intervention and the incidence of alcohol related harm for the treatment group. However there was a significant difference (p-values less than 0.05) between the pre and post survey time in the peer perception of alcohol consumption and some significant differences in the amount of alcohol consumed for the treatment group.

The thirty day period after the alcohol harm prevention curriculum to test the effects of it utilizing the post survey may not have allowed enough time for the effects of the curriculum to take place, as there was a difference in the amount of alcohol consumed

for the treatment group. Perhaps if this study had given an additional post survey three months after the curriculum was given the effects of the harm prevention planning and intervention may have shown some change.

The results of this study indicate that the curriculum did significantly impact the treatment group in regards to perceived social norms. This is particularly important for incoming college freshman, as they are trying to fit into their new surroundings. If they perceive that it is “ok” to not consume alcohol and that not all their peers around them are, then they can be empowered to make decisions about consuming alcohol with the correct peer perceptions and less perceived peer pressure.

Future Directions

It seems the most effective alcohol harm prevention programs have a population based, educational program foundation. These programs are cost effective as compared to community-based environmental prevention program that was effective, but expensive to continue over the needed duration (Treno & Lee, 2002). As discussed earlier Brown (1996) found in his research that college students need to develop planning skills before engaging in alcohol related activities. The alcohol harm prevention curriculum educates college students to empower them to make more informed decisions before participating in alcohol related activities instead of using the treat of punishment like the deterrence model uses. The curriculum utilizes social norming and teaches the participants tools they can utilize to help deter alcohol related harm. It also targets the whole population, which has been found to be essential for the college student population. Individual interventions can be effective but would not reach the whole target audience that alcohol harm prevention for college students would need for it to be fully effective. Also the

population based prevention program is more operative than individual based programs because, “the assumption of deviance is not necessary...thus, the identification of individuals to be at risk for alcohol problems is not a necessary component” (Cronin, 1996, p.2031).

This alcohol harm prevention curriculum had shown to positively impact Graham et al’s (2004) participants at a University in the northeast as well as in this study. Reducing the incidence of alcohol related harm for the college student population is a public health priority and this curriculum has now been effective in two different regions of the country. Future studies should be done to examine the effects of alcohol harm prevention curriculums at other institutions on peer perceived norms, alcohol consumption, alcohol related harm prevention and intervention.

1. Replicating this study in other regions of the country would be beneficial to strengthen the curriculum to have a stronger impact of participants.
2. Tracking the participants for a longer duration to see if the effects of the curriculum have more long term results.
3. Putting the homework piece back into the study to reinforce the alcohol harm prevention planning and intervention is recommended.

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