A CORRELATION STUDY BETWEEN THE EXTENT OF CIGARETTE AND ALCOHOL USE AMONG FRATERNITY AND SORORITY MEMBERS AND POTENTIAL RELATIONSHIP TO AGE, GENDER, GPA, NUMBER OF COLLEGE CREDITS AND PARTICIPATION IN COLLEGE ATHLETICS

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ABSTRACT

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A Correlation Study Between the Extent of Cigarette and Alcohol Use Among Fraternity and Sorority Members and Potential Relationship to Age, Gender, GPA, Number of College Credits and Participation in College Athletics
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During the past decade many lines of converging data have suggested that alcohol and tobacco consumption are positively correlated. This paper will examine the degree of relationship between alcohol and tobacco use and potential relationship to age, gender, GPA, number of college credits and participation in college athletics among fraternity and sorority members. It was from the November 2000 survey administered to fraternity and sorority members of a mid-western public university that information was gathered for this research.

There were two significant variables to be measured: The extent of both alcohol and tobacco usage. The subjects completed the Alcohol Use Disorders Identification Test (AUDIT) used to measure alcohol consumption, dependence

symptoms, and personal and social harm related to alcohol use. The subjects also completed the modified Fagerstrom Tolerance Questionnaire (FTQ) to investigate nicotine dependence. Seven self-report questions to ascertain demographic data on age, gender, cumulative GPA, number of college credits and participation in college athletics were also asked.

The Pearson Product-Moment Correlation Coefficient was utilized to analyze data for the study. The .05 level of significance was the standard to accept or reject the hypotheses.

The data showed that there was a positive correlation between the fraternity and sorority members' consumption of alcohol and cigarettes smoked. The AUDIT score suggests an alcohol use problem for the majority of the subjects, and also indicates that fiften per cent of the fraternity and sorority members have a severe alcohol use problem. The data results also indicate a significant inverse relationship between the fraternity and sorority members reported alcohol consumption and cumulative GPA. There was no significant correlation between the fraternity and sorority members reported alcohol consumption and credits completed. There was also no significant correlation between the subjects' age and the number of drinks they reported consuming in a week or between age of the fraternity and sorority students and amount of tobacco use. In addition, the data showed no correlation between number of alcoholic drinks consumed and athlete status for either fraternity or sorority members. However, the low number of athlete respondents would suggest extremely cautious and tentative interpretation of the results.

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CHAPTER I

Introduction

During the past decade many lines of converging data have established a high correlation between the number of cigarettes smoked and the number of alcoholic drinks an individual consumes. The close association of cigarette smoking and alcohol consumption has been well documented (DiFranza and Guerrera, 1990; Gulliver et al., 1995; Hughes, 1996; Marks et al., 1997), but the cause remains uncertain. Studies (The sober alcoholic's and addict's stop-smoking support page) have indicated smoking is a behavioral and chemical trigger for drinking, and getting clean from cigarettes is a major step toward reducing craving for alcohol. In a recent study (Gulliver et al., 1995), a team of researchers from Brookhaven National Laboratory found that cigarettes are a "gateway drug" to other addictive substances. Epidemiological studies of Hayslett and Tizabi (1999) have suggested that there is a strong positive association between the consumption of alcohol and cigarette smoking (nicotine intake). The research of Bien and Barge (1990) supported the view that smoking and drinking are correlated behaviors; the number of cigarettes a person consumes rises in tandem with the number of drinks consumed.

For example, smokers consume two times as much alcohol per capita as do non-smokers and their risk of excessive drinking is also twice that of non-smokers (Role of tobacco dependence in alcoholism treatment, 1995). Most alcoholics are smokers. Alcoholism itself is estimated 10 times more common among smokers than among nonsmokers (DiFranza and Guerrera, 1990). In addition, heavy drinking tends to be associated with heavy smoking, with 80 percent of currently drinking alcoholics smoking daily and many appearing nicotine dependent (Hughes, 1996). Among those addicted to alcohol, 50 percent said the urge to smoke is at least as strong as the urge to drink (Study compares nicotine to other drugs, 1994). Smoking is generally viewed as a contributing factor in alcohol and drug relapses. Almost every smoker who smokes more than two packs a day is also an alcoholic (Bien and Barge, 1990).

This suggests one drug may become a conditioned stimulus for use of another drug (Gulliver et

al., 1995). Acetaldehyde is the pyrolysis product of tobacco and has been suggested to play a role in the reinforcing effects of alcohol (Role of tobacco dependence in alcoholism treatment, 1995). The rapid transport of acetaldehyde in an unmetabolized and undiluted form from the lungs through the heart to the brain may enhance the reinforcing properties of smoking (Role of tobacco dependence in alcoholism treatment, 1995). A study of Hayslett and Tizabi (1999) found that applying microdialysis technique and HPLC-EC and using adult male Wistar rats, that nicotine and ethanol dose-dependently increased the release of dopamine (DA) in the shell region of the nucleus accumbens (NACC). Nicotine and ethanol administered independently produced approximately 12 and 15 per cent increase respectively, in DA release of approximately 42 per cent (Haylett and Tizabi, 1999). This data implies a possible synergistic relationship between ethanol and nicotine on DA release in the shell region of NACC (Taylett and Tizabi, 1999). This relationship could have a vital role in the noted correlation between heavy smoking and drinking (Taylett and Tizabi, 1999).

A review of some of the surveys indicates an increased prevalence of smoking among all college students. Alcohol and tobacco are the most frequently used drugs among college students and have been linked to an array of negative consequences that hurt our nation's students and jeopardize their futures. The heaviest, most frequent, and most problematic drinking in college is done by fraternity/sorority members (Cashin, Presley, and Meilman, 1998; Goodwin, 1992; Kuh and Arnold, 1993; O'Connor, Cooper and Thiel, 1996). It is not possible to ignore the shadow side of fraternity/sorority life, particularly the hazardous use of alcohol.

In a qualitative study of the pledgeship experience, Kuh and Arnold (1993) found alcohol consumption and the regulation of alcohol use to be major parts of the socialization process into fraternity life. Organized social events rarely occurred without the presence and consumption of alcohol (Alva, 1998). Active fraternity members were also found to monitor and regulate the alcohol usage of pledges (Alva, 1998). Pledge educators provided, or withheld, alcohol at various times to teach newcomers how to behave in social settings or to underscore the differences in membership status between actives and pledges (Kuh and Arnold, 1993). Prohibiting alcohol during pledgeship made the forbidden fruit (alcohol) seem even sweeter when it was withheld (Kuh and Arnold, 1993). According to Kuh and Arnold (1993), by

regulating alcohol use, the national fraternity officers inadvertently inflate the influence of alcohol in the socialization of newcomers.

The subgroups in the college population who showed the highest rates of substance use were males who had higher use rates than females (Alcohol and other drug use among college students in New York state, 1996). Moreover, students involved in fraternities or sororities, and students involved in college athletics, also had higher usage rates than those not involved in such activities (Alcohol and other drug use among college students in New York state, 1996). The study of Cashin, Presley, and Meilman (1998) found the leaders of these social fraternities and sororities were consuming alcohol, engaging in heavy drinking and experiencing negative consequences at high levels, at least as high and in some cases higher than others who attended functions or were actively involved in Greek life. In other words, the leaders lack sensitivity to risk management and liability issues by virtue of their positions of responsibility. Instead, these role models are participating in setting norms of heavy drinking and behavioral loss of control.

There's also a correlation between drinking and grades. In the Core Alcohol and Drug Survey, the number of alcoholic drinks per week clearly related to lower GPAs.
However, problems with grades aren't the only ones plaguing drinkers. Students also experience problems as a result of other students drinking. A study by the Addiction Research Foundation found drinking students reported being insulted or humiliated, had been physical assaulted, and had more arguments than non drinkers (University student drug use and lifestyle behaviours, 1995).

Colleges and universities will never rid themselves of alcohol abuse completely, Dr. Henry Wechsler, principal investigator in the Harvard study of college drinking says; instead, the goal is to change the norm (Thompson, 1998). There are examples of subcommunities organized around sobriety, care, and concern (e.g., SADD), but the cultures of far too many colleges do not value these qualities. These values must be reflected in an institution's philosophy and exhibited by faculty, staff, and student leaders. Such people must work together to create a sense of urgency on their campuses so that attention and resources are continuously focused on promoting responsible, health-enhancing behavior.

By utilizing this survey's data, campus students, faculty, and staff can make decisions with the

potential to directly impact the university campus community in a positive way. Working together, these groups can jointly take responsibility for changing the campus environment, setting expectations for responsible alcohol use, and overcoming negative life style behaviors such as tobacco use.

Statement of Problem

The purpose of the present study is to examine the degree of correlation between cigarette smoking and alcohol use as measured by the number of cigarettes smoked and number of alcoholic drinks consumed per week by individual fraternity and sorority members of a mid-western public university. The surveys were distributed to the mail boxes of the fraternity and sorority presidents. The presidents then handed the surveys out to their members during the November 2000 house meeting; collected the surveys and put them in a sealed envelope and returned the surveys to the researches mail box before the December 8, 2000, deadline. Of the seven Greek organizations asked to participate in the survey only one fraternity and one sorority returned the surveys on time. One fraternity returned the surveys after the December 8, 2000, deadline. The results of the late returns were not entered in this study.

Hypothesis

It is hypothesized that students who smoke heavily will more likely misuse/ abuse alcohol and will experience a higher array of negative consequences than those students who are casual smokers or participate less in cigarette smoking than those who don't smoke.

Definition of Terms

The alcohol consumption measure is derived from two separate items. One item asks respondents to list the number of drinks consumed on a typical day. The other item asks how often six or more drinks are consumed on one occasion. In each case alcohol abuse and the standard drink is defined as thus:

Alcohol Abuse - Has been variously defined in terms of the following: excessive consumption, frequent intoxication, self-identification as a problem drinker, frequent expressions of concern from other, negative or escapist motivations for drinking, and negative consequence resulting from use (Berkowitz & Perkins, 1986).

Standard Drink - Because there are so many different beverages that contain varying amounts of

pure alcohol (ethanol), the following list contains examples of the standard drinks. The standard drinks have about one half ounce of pure ethanol (Ebel, 1993).

Standard Drink

10 to 12 ounces of beer at 4% to 5% alcohol

8 to 12 ounces of wine cooler- 4% to 6% alcohol

4 to 5 ounces of table wine- 9% to 12% alcohol

2 1/2 ounces of fortified wine at 20% alcohol

1 1/4 ounces of distilled spirits at 40% alcohol

1 ounce of distilled spirits at 50% alcohol (p.28)

Drinks with two shots of distilled spirits would be considered two standard drinks, while an 8 ounce beer would be about two thirds of a standard drink (Ebel, 1993).

Assumptions and Limitations

Information was sought in such a manner that no identifiers were needed in an attempt to maximize the honesty of the responses to the survey. Each student surveyed received written assurance that their participation was strictly voluntary. The anonymity of the survey was stressed. Students who are under the age of 18 years were instructed "not" to complete a survey.

Problem drinking is not an unidimensional phenomenon that can be assessed with a single measure or composite scale. The study relied on students' self-reports of high-risk behavior and is therefore subject to both under reporting and over reporting, faulty recall, and outright denial and exaggeration. However, the assumption is the students were honest on the survey.

CHAPTER II

Review Of The Literature

Introduction

After having done a review of the literature, many lines of converging data have established a high correlation between the number of cigarettes smoked and the number of alcoholic drinks consumed. There is general uniformity among the researchers who direct attention to smoking as a contributing factor in excessive alcohol and drug use among students involved in campus fraternity and sorority life. The review of the literature is divided into five distinct categories, (1) correlation between cigarette smoking and alcohol use, (2) nicotine dependence, (3) alcohol and tobacco use among college students, (4) alcohol use in the Greek system, and (5) changing the norm.

Correlation Between Cigarette Smoking and Alcohol Use

The observed correlation between cigarette smoking and alcohol use has been established by laboratory studies demonstrating direct, dose-dependent relationships between these variables. In both laboratory and clinic settings, the administration of ethanol results in substantial dose-related changes in rates of cigarette smoking (Lowinson et al., 1997). In a study of the interrelationships of smoking and alcohol dependence, Gulliver and colleagues (1995) analyses demonstrate that (1) pretreatment tobacco dependence and pretreatment alcohol dependence are related, (2) alcohol dependence predicts urges to smoke during alcohol treatment, (3) exposure to alcohol cues results in increased urge to smoke, (4) smoking when ill predicts urge to drink during alcohol cue exposure and (5) urge to smoke is positively correlated with urge to drink.

Before the 1930s, treatment of alcoholism and drug addiction commonly also included treatment of nicotine addiction (The sober alcoholic's and addict's stop-smoking support page). Smoking was

generally viewed as a contributing factor in alcohol and drug relapses (The sober alcoholic's and addict's stop-smoking support page). But with the rise of Alcoholics Anonymous (AA), concern with smoking as a recovery issue faded into the background (The sober alcoholic's and addict's stop-smoking support page). However, once again there is a growing interest in treating smoking among alcoholics due to several events: (a) the Joint Commission on Accreditation of Healthcare Organization (JCAHO) mandate that alcohol treatment centers be smoke free, (b) the recent consensus that smoking is a form of drug dependence, (c) the development of effective behavioral and pharmacological therapies for smoking cessation, (d) the interest of many alcoholics in recovery in smoking cessation therapy, and (e) the experiences of chemical dependency counselors seeing those successfully treated for alcoholism die of smoking-related disorders soon after recovery (Hughes, 1996). Arguments can be made for stopping smoking while stopping alcohol consumption; for example, the absence of smoking cues could decrease the urge to use alcohol (Hughes, 1996). It appears that most recovering alcoholics can stop smoking without any threat to their sobriety, but there may be a small minority of such smokers who need to be followed closely to prevent relapse to alcohol use (Hughes, 1996).

One of the first studies to establish and quantify the degree of association between drinking and smoking was reported in 1972 (Napier, 1990). The investigation compared 130 alcoholic men hospitalized for alcohol withdrawal to 100 non-alcoholic psychiatric outpatients (Napier, 1990). Ninety-four percent of the alcoholic men smoked one or more packs of cigarettes per day, as compared to only 46 percent of the non-alcoholics, who smoked one or more packs per day (Napier, 1990). Another study, which compared male and female alcoholics enrolled in an army drug and alcohol rehabilitation program to non-alcoholic army personnel and their relatives, affirmed the smoking-drinking association (Napier, 1990). The report found that individuals who were alcoholics smoked an average of 49 cigarettes per day, but that the non-alcoholic subjects smoked only 13 cigarettes per day (Napier, 1990). Smokers consume two times as much alcohol per capita as do non-smokers and their risk of excessive drinking is also twice that of non-smokers (Role of tobacco dependence in alcoholism treatment, 1995). Almost every

smoker who smokes more than two packs a day is also an alcoholic (Bien & Barge, 1990). Alcoholism itself is estimated as 10 to 14 times more prevalent among those who smoke than those who do not (Role of tobacco dependence in alcoholism treatment, 1995). In addition, heavy drinking tends to be associated with heavy smoking, with 85 percent of currently drinking alcoholics smoking daily (Role of tobacco dependence in alcoholism treatment, 1995).

Today, the treatment industry and the recovery community are returning to the original positions (The sober alcoholic's and addict's stop-smoking support page). One drug may potentiate the use of another. The sight and smell of alcohol and the sight and smell of a cigarette have been demonstrated to elicit urges to drink and urges to smoke, respectively (Gulliver et al., 1995).

Nicotine Dependence

Among those addicted to alcohol, 50 percent said the urge to smoke is at least as strong as the urge to drink (Study compares nicotine to other drugs, 1994). Smoking is generally viewed as a contributing factor in alcohol and drug relapses. Because of the
400,000 deaths produced each year by smoking, including 50,000 in non-smokers due to passive inhalation of second-hand smoke, it can reasonably be argued that nicotine is the most important drug of abuse (Nicotine dependence, 1995). University of Vermont professor John Hughes, an expert on nicotine dependence, says the scientific consensus is
that "the core of the issue (over dependence) is the loss of control over use. The drug controls you--you don't control the drug" (Nicotine--Addictive drug or harmless "flavorant"? p. 2). Still, Hughes acknowledges that nicotine differs from such drugs of abuse as alcohol because it doesn't cause intoxication, so you can't tell whether someone is on it (Nicotine--Addictive drug or harmless "flavorant"?).

Alcohol apparently causes blood levels of nicotine to fall more rapidly in smokers by activating enzymes in tissues which metabolize drugs (Napier, 1990). As the nicotine blood levels decrease to critically low levels, a person may experience increased heart rate, mental stimulation, and tremors or shakiness (Napier, 1990). The smoker will crave
another cigarette as blood levels reach this threshold to avoid these uncomfortable symptoms (Napier,

1990). Drinkers must smoke more in order to maintain the blood nicotine levels upon which they have become dependent (Napier, 1990).

Tobacco smoke is a highly addictive mixture of many different chemical compounds, including tar, nicotine, and gasses such as carbon monoxide (Tobacco: The biggest killer drug). There are more than 400 chemicals found in cigarette smoke, of which 40 are carcinogens, a primary cause of cancer (Tobacco: The biggest killer drug). Despite its notable absence from the "drug war," tobacco use produces a powerful addiction and nicotine is the active phamacologic agent that acts in the brain and throughout the body (The sober alcoholic's and addict's stop-smoking support page). It is a medical fact that tobacco use affects every organ in your body in a harmful way (Tips for gaining freedom from nicotine, 1999). Nicotine is highly addictive. According to the U.S. Surgeon General's 1988 report, nicotine is more addictive than any other drug, including cocaine, heroin, opium, and marijuana (A teen perspective on quitting smoking). It is both a stimulant and a sedative to the central nervous system (Cigarettes and other nicotine products).

The chemical and behavioral processes that determine nicotine/tobacco addiction are similar to those which determine addiction to alcohol (Role of tobacco dependence in alcoholism treatment, 1995). Several pharmacologic and behavioral mechanisms have been proposed to explain the association between smoking and drinking (Role of tobacco dependence in alcoholism treatment, 1995). It is believed that the mesolimbic dopaminergic pathway mediates the reinforcing effects of alcohol and nicotine (Hayslett & Tizabi, 1999). In a recently reported study, a team of researchers from Brookhaven National Laboratory, in Upton, NY, found that the brains of living smokers have markedly less of the enzyme monoamine oxidase B (MAO B) compared with the brains of nonsmokers or former smokers (The sober alcoholic's and addict's stop-smoking support page). MAO B (1 of 2 isozyme forms of the enzyme) is involved in breaking down dopamine, a neurotransmitter that plays a role in movement as well as in feelings of pleasure, including those associated with most substances of abuse, including cocaine, amphetamines, heroin, alcohol, and nicotine (The sober alcoholic's and addict's stop-smoking support page). At a pharmacologic level, some degree of cross-tolerance seems

to occur between nicotine and alcohol as sympathetic nervous system agents, each of which has both depressant and stimulant effects (Role of tobacco dependence in alcoholism treatment, 1995). Second, conjoint use of the two substances may also be due to accelerated metabolism of one substance following ingestion on the other (Role of tobacco dependence in alcoholism treatment, 1995). Third, nicotine and alcohol may somewhat counteract the aversive effects of each other (Role of tobacco dependence in alcoholism treatment, 1995).

To better understand the implications of alcohol and tobacco co-dependence, it is necessary to determine the mechanism of interaction of these to agents and how the actions are modified when both drugs are co-administered (Role of tobacco dependence in alcoholism treatment, 1995). Several lines of evidence suggest that although alcohol and nicotine have different molecular structures, they have actions in common (Role of tobacco dependence in alcoholism treatment, 1995). For example, both substances stimulate the release of dopamine in the nucleus accumbens, an area of the brain involved with the reinforcing properties of drugs (Role of tobacco dependence in alcoholic treatment, 1995). A role for dopamine receptors increases both alcohol and nicotine intake (Role of tobacco dependence in alcoholic treatment, 1995).

Alcohol and Tobacco Use Among College Students

Henry Wechsler, Ph.D., of the Harvard School of Public Health, Boston, and colleagues found that between 1993 and 1997, the prevalence of cigarette smoking among college students increased 28 percent (Smoking among college students seen increasing, 1998). A nationwide survey (Cashin et al., 1998) has found an increased prevalence of smoking among all college students. They also discovered that more than a quarter of the smokers in the 1997 survey began smoking regularly while they were in college (Smoking among college students seen increasing, 1998). Dr. Donald Sharp of the Centers of Disease Control and Prevention said the study shows the need for health officials to target college students, as well as adolescents, to persuade them to quit (Miller, 1998).

Alcohol and tobacco are the most frequently used drugs among college students. A major survey

(Alcohol and other drug use among college students in New York state, 1996) of alcohol and other drugs use among full- and part-time undergraduate students found 81 per cent of students used alcohol and 46 percent used tobacco. Over 90 per cent

of college students reported regular alcohol consumption, averaging two to four drinks per occasion a few times weekly, and most studies suggest that approximately 20-25 per cent of students have drinking problems (Berkowitz & Perkins, 1986). Alcohol and tobacco have been linked to an array of negative consequences that hurt our nation's students and jeopardize their futures. About 159,000 freshman will drop out of college

next year due to alcohol- and other drug-related causes (Alcohol, tobacco and other drugs & the college experience, 1995). Approximately 300,000 of today's students will eventually die of these causes (Alcohol, tobacco, and other drugs and the college experience, 1995). Alcohol and other drugs also will be factors in thousands of incidents of unplanned pregnancies, sexually transmitted disease (including HIV/AIDS), and other consequences (Alcohol, tobacco, and other drugs and the college experience, 1995).

There's also a correlation between drinking and grades. In the Core Alcohol and Drug Survey, the number of alcoholic drinks per week clearly related to lower GPAs.

The 1991 study of alcohol and drugs on American college campuses by Core Institute, found that while "A" students averaged 3.6 drinks per week and "B" students 5.5 drinks, "C" students averaged 7.6 drinks per week, while "D" or "F" students averaged 10.6

(Alcohol, tobacco and other drugs & the college experience, 1995). According to the 1991 national survey of college students, the following consequences resulted from drinking or drug use experience at least once in the past year: 63 per cent had a hangover,

49.9 per cent became nauseated or vomited, 39.3 per cent regretted their actions, 36 per cent drove while intoxicated, 33.2 per cent got into an argument or fight, and 28

per cent experienced memory loss (Alcohol, tobacco, and other drugs and the college experience, 1995).

The subgroups in the college population who showed the highest rates of substance use were males who had higher use rates than females (Alcohol and other drug

use among college students in New York state, 1996). Students living on-campus had higher use rates than those living off-campus (Alcohol and other drug use among college students in New York state, 1996). Fifty-one per cent of college students residing on campus engaged in binge drinking, as compared to 36 per cent residing off-campus (Alcohol and other drug use among college students in New York state, 1996).

Alcohol Use in the Greek System

Students involved in fraternities or sororities and students involved in college athletics also had higher usage rates than those not involved in such activities (Alcohol and other drug use among college students in New York state, 1996). In a study designed to identify drinking patterns, consequences of use, and belief systems about alcohol among college students according to their level of involvement in campus fraternity and sorority life, Cashin et al. (1998), indicated that students in the Greek system averaged significantly more drinks per week, engaged in heavy drinking more often and, with minor exceptions, suffered more negative consequences than non-Greeks. The leaders of fraternities and sororities consumed alcohol, engaged in heavy drinking, and experienced negative consequences at levels at least as high and in some cases higher than that of other Greek members (Cashin et al., 1998). This pattern was particularly evident among male fraternity members. Fraternity and sorority members who also play intercollegiate sports drink three times more alcohol on a weekly basis than students who don't participate in these activities, according to the Core Institute (Study: Fraternity, sorority athletes are at more risk for alcohol abuse, 1999).

The mere presence of fraternities and sororities on campus is associated with higher campus-wide levels of alcohol consumption. The institute found that, in all cases, Greek house residents drank more, engaged in heavy drinking more often, and experienced more negative consequences than the general student population (Cashin et al., 1998). Figures reveal fraternity house residents averaged 20.3 drinks per week compared with 7.5 drinks for all male students, while sorority house residents averaged 6.2 drinks per week compared with 3.2 drinks for all female students (Cashin et al., 1998). Defined as the consumption of five or more drinks in one sitting, heavy-drinking episodes in the previous 2 weeks were reported by 74 per

cent of Greek house residents and 42 per cent of students in general (Cashin et al., 1998).

The differences are particularly striking with regard to binge drinking. Nearly twice as many Greek, athletic college men (78 per cent) admitted they binge drink (consume five or more drinks in one sitting) compared with 40 per cent of non-Greek, non-athletic college men who binge drink in a two-week period (Study: Fraternity, sorority athletes are at more risk for alcohol abuse, 1999). The "work hard-play hard" trends are also true for collegiate women who join both sororities and intercollegiate sports teams. Sorority athletes consume seven drinks a week, while women who don't pledge and play sports drink only two (Study: Fraternity, sorority athletes are at more risk for alcohol abuse, 1999). Sixty-two per cent of the dually affiliated college women said they binge drink in a two-week period, compared with 25% of females who are unaffiliated (Study: Fraternity, sorority athletes are at more risk for alcohol abuse, 1999). A recent study reported by the Harvard School of Public Health (Opalka & Spektor, 1999) suggested that 86% of fraternity residents and 80% of sorority residents were binge drinkers. Students in settings where alcohol is present, such as fraternities or sororities, felt an obligation to drink (The influence of college environments on student drinking). The amount of time spent in such settings and the number of people in a group who are drinking together were positively related to the amount consumed (Cutler & Storm , 1975). Fast drinkers in the group often force slow drinkers to consume more by using toasting rituals, drinking games, and ordering drinks in complete rounds; these are behaviors that challenge slow drinkers to finish their drinks so that another round can be ordered (The influence of college environments on student drinking).

Problems with grades aren't the only ones plaguing binge drinkers. Almost one out of two students (43%) reported that they experienced various forms of violence in the previous year, including threats of violence, actual physical violence, theft involving force or threat of force, forced sexual touching, unwanted intercourse, and ethnic or racial harassment (Grace-Kobas, 1998). A high percentage of students were under the influence of alcohol or other drugs during these episodes, especially in incidents of unwanted sexual intercourse (79%), forced sexual touching (71%), actual physical violence (64%), and threats of physical violence (51%) (Grace-Kobas, 1998). Students who engage in binge drinking were 3.5

times more likely than their non-bingeing counterparts to be victims of physical violence (Grace-Kobas, 1998). Also, binge drinkers were nearly three times more likely to endure unwanted sexual intercourse than non-bingers and more than twice as likely to have experienced forced sexual touching (Grace-Kobas, 1998).

Greek athletes are more likely to engage in high-risk behaviors. Approximately half of the Greek athletes surveyed said they'd driven while under the influence of alcohol or other drugs, compared to 28 per cent of students not involved in Greek life or intercollegiate sports (Davis, 1999). What is clear is that drinking and drug use are causing athletes all sorts of problems. Twenty-four per cent of male and 14 per cent of female athletes reported having trouble with the law (Davis, 1998).

And some die. Anne Baltz was a 21-year-old honor student at the University of Virginia until November, 1997, when she drank too much at a pre-game party, was left
alone by friends to sleep it off, somehow tumbled down a flight of stairs, hit her head, and died (Thompson, 1998). Scott Krueger, 18, a MIT fraternity member of five weeks wound up on a binge and paid with his life (McCormick & Kalb, 1998). Alcohol poisoning or alcohol-related accidents kill. Dr. David Anderson of George Mason University in Fairfax, VA. estimates that at least 50 students die each year of alcohol related deaths (Thompson, 1998).

Other research findings underscore the importance of alcohol prevention in reducing suicides. The statistics cited in the Seventh Special Report of the U.S. Congress on Alcohol and Health, January 1990, stated between 20 and 35 per cent of suicide victims had a history of alcohol abuse or were drinking shortly before their suicides (Alcohol and other drugs & suicide, 1995). In one study of youthful suicide reported by Alcohol and other drugs & suicide, (1995), drug and alcohol abuse was the most common characteristic of those who attempted suicide; fully 70 per cent of these young people frequently used alcohol and/or other drugs. Nearly 24 per cent of suicide victims cited in the Eighth Special Report to the U.S. Congress on Alcohol and Health, September 1993, had blood alcohol concentrations (BACs) of .10 or greater (the legal level for intoxication in many jurisdictions)(Alcohol and other drugs & suicide, 1995).

When students drink, they overwhelmingly choose beer. College students spend approximately

$4.2 billion annually to purchase 430 million gallons of alcoholic beverages, including over 4 billion cans of beer (Alcohol and other drugs & suicide, 1995). For families, who already pay 41per cent of their median income for tuition, room and board at a private institution, the cost of education increases as students invest heavily in the consumption of alcohol (Advertising and marketing to the college student). The National Clearinghouse of Alcohol and Drug Information indicated that each year members of sororities and fraternities spend roughly $200 million more on alcohol than all other students combined (Alcohol and other drugs & the college experience,1995). Many students spend more money in a semester on alcohol-- over $300-- than they do on books (Thompson, 1998).

Changing the Norm

Lowering alcohol consumption on the college campus is not an easy task because drinking is deeply imbedded in the college culture (Goodwin, 1989). Beliefs of students regarding alcohol appear to support its use by creating positive norms and expectations, some of which can result in difficulties (Grace-Kobas, 1998). For example, roughly two-thirds of the students believe alcohol breaks the ice, enhances social activity, and gives people something to do (Grace-Kobas, 1998). Half believe alcohol contributes toward having fun, facilitates male bonding, and enhances connections with peers (Grace-Kobas, 1998). And half the students (including 57% of males and 41% of females) believe that drinking facilitates sexual opportunities, which can be a setup for serious personal difficulties including sexual assault, unwanted pregnancies, and sexually transmitted diseases such as HIV infection (Grace-Kobas, 1998).

The college environment has the greatest influence on students who are open to change, concerned about social acceptance, and responsive to peer pressure (The influence of college environments on student drinking). Colleges and universities will never rid themselves of alcohol abuse completely, Dr. Henry Wechsler, principal investigator in the Harvard study of college says; instead, the goal is to change the norm (Thompson, 1998). Efforts have been made to "educate" students about the dangers of alcohol and drug abuse (Goodwin, 1989). Campus wide efforts, such as Alcohol
Awareness Week and specific programs targeted to at-risk groups are often effective (The influence of college environments on student drinking). Look at what happened with

smoking. "No Smoking" signs are obeyed with few complaints (Thompson, 1998). The designated driver, an idea unheard of 15 year ago, is now a common practice, even for partying college students (Thompson, 1998). Alcohol education did reach some of the more moderate drinkers (Thompson, 1998). Now it's time to target heavy drinkers. The obvious question is: Can education change the norm of off campus fraternity and sorority drinkers?

CHAPTER III

Methodology

This study will explore the degree of relationship between alcohol and tobacco use and potential relationship to age, gender, GPA, number of college credits and participation in college athletics. Many lines of converging data in the past decade have suggested that individual's alcohol and tobacco consumption are positively correlated. It is from the Fall 2000 survey of fraternity and sorority students drawn from a mid-western public university that information was gathered for this research. Included in

this section is a description of the population of the study, the instruments used to collect the data, the procedures followed to execute the study, and a description of the statistics used to analyze the data.

Design of the Study

This study utilized a correlation design. Explicit in the hypotheses of this study is a design to examine the degree of correlation between cigarette smoking and alcohol use/abuse as measured by the number of cigarettes smoked and the number of alcoholic drinks consumed per week by individual fraternity and sorority members of a mid-western public university. The design examines the following seven hypotheses:

1. The number of cigarettes a person smokes rises in tandem with the number of alcoholic drinks consumed or visa-versa.

2 Younger fraternity and sorority students will have higher tobacco use rates than older students.

3. Younger fraternity and sorority students will have higher alcohol use scores than older students.

4. Fraternity and sorority students with higher alcohol use rates will obtain lower cumulative grade points.

5. Fraternity and sorority students with higher alcohol use rates will have acquired fewer college credits.

6. Fraternity and sorority students involved in college athletics will have higher alcohol and tobacco usage rates than those not involved in such activities.

7. Fraternity students will have higher alcohol and tobacco use rates than sorority students.

Subjects

The sample was composed of fraternity and sorority students eighteen and over from a mid-western public university. The surveys were distributed to the mail boxes of the sorority and fraternity presidents. The presidents then handed the surveys out to the members during the November 2000, house meeting. The surveys were answered and collected during those meetings, with only 28 per cent of the Greek organizations providing responses. Nearly equal numbers of male (n = 25) and female (n =27) fraternity and sorority members completed the survey. The data collection process was purely voluntary with no identifiers. The anonymity of the survey was stressed.

Instrumentation

Seven self-report questions to ascertain demographic information were part of the survey instrument. These questions asked for gender, age, number of college credits completed, approximate cumulative grade point average, and whether the subject was involved in college athletics.

Alcohol Use Disorder Identification Test. The Alcohol Use Disorders Identification Test (AUDIT) Core Survey was used to measure alcohol consumption, dependence symptoms, and personal and social harm related to drinking. The AUDIT was developed by a research group at the World Health Organization (WHO) for the 10 country AMETHYST project (Babor et al., 1987) to address a number of deficiencies with instruments available at that time. The WHO group found the AUDIT to be a brief, culturally sensitive, screening tool for the early identification of problem drinking rather than the identification of persons who meet criteria for alcohol dependence (Schmidt & Barry, 1995).

All items in the AUDIT Core refer *directly* to drinking and its effect, especially in the past year (Bohn et al., 1995). The questionnaire portion of the AUDIT contains a series of 10 items that include three questions on use, four on dependence, and three on consequences of use (Schmidt & Barry, 1995). The AUDIT 10-item questionnaire has each item assigned a weighted score of 0 to 5 (Fleming et al., 1991). The highest possible score for all 10 items is 41 (Fleming et al., 1991) Figure 1 (P. 46) presents the categorization schema utilized in this analysis. Questions 1 and 3-8 are scored 0, 1, 2, 3 or 4. Question 2 is scored 0, 1, 2, 3, 4 or 5. Questions 9 and 10 are scored 0, 2 or 4 only. The WHO recommends a total score of 11 or more as suggestive of a drinking problem (Fleming et al., 1991). The AUDIT clinical procedure is reflective of alcohol-related physical effects, yet none of these items refers directly to drinking and were not included in this study.

Alcohol consumption. Alcohol use was measured according to the suggestive cut-off score recommended by the World Health Organization (WHO). The study relied on students' self-reports and is therefore subject to both under-reporting and over-reporting, faulty recall, and outright denial and exaggeration. However, the assumption is the students were honest on the survey.

Fagerstrom Tolerance Questionnaire. A modified Fagerstrom Tolerance Questionnaire (FTQ) was

utilized to investigate nicotine dependence. The modified FTQ was chosen to measure the degree of nicotine dependence because it is the most common instrument used for the this purpose worldwide. The modified FTQ was developed by Fagerstrom and Schneider on the assumption that nicotine dependence is related to number of cigarettes per day, nicotine yield of the brand, inhalation, behavioral self-observation, perceptual self-observation, and internal stimulus control versus external control (Albrecht et al., 1999). The modified FTQ for fraternity and sorority students is a self-report tool based on a version of the FTQ designed by Prokhorov and Associates (1996) to measure nicotine dependence.

The modified FTQ is a 7-item questionnaire using a 5-point Likert-type scale. The nicotine rating item in the original FTQ was eliminated in the fraternity and sorority version of the FTQ for two reasons: (a) a pilot study had shown considerable difficulty in obtaining consistent and reliable cigarette brand data from adolescents, and (b) previous studies have emphasized the psychometric deficiency of the nicotine scoring item (Heatherton, Kozlowski, Frecker, & Fagerstrom, (1991). A principal component analysis of the FTQ yielded a one-component solution, suggesting unidimensionality (Prokhorov et al., 1996; Tate & Schmitz, 1993). Approximately 41 per cent of the variance was explained by the one-component solution (Tate & Schmitz, 1993). Component loadings for the FTQ ranged from 0.454 to 0.745 (Tate & Schmitz, 1993). A Cronbach's coefficient alpha of .75 was reported by Prokhorov et al. (1996).

A coding schema similar to the method employed by Albrecht et al., (1999) was utilized to evaluate nicotine dependence in the fraternity and sorority members sample. Figure 2 presents the categorization schema utilized in this analysis. These categorizations are based on the frequency distribution for number of cigarettes per day reported by the fraternity and sorority members. Item 1 of the modified FTQ was trichotimized to yield the following codes: 0-9 cigarettes = 0, 10-11 cigarettes = 1, and 12 or more cigarettes = 2. Item 2 was coded as inhalation deeply into chest = 2, and partially into the chest = 1. All other responses to Item 2 were coded 0. Item 3 was coded as 0 to 30 minutes = 1 and more than 30 minutes = 0. Item 7 was derived from a combination of two scores: smoking less or more in the morning, and time after waking to smoke. A response of smoking about even or less in the morning was coded as 0; a bit more or much more was coded

as 1. If the response to the question of time from waking to first smoke was more than 31 minutes, item 7 was then recoded as 0.

Smoking dependence. Time to the first cigarette of the day (TTF) is theoretically important to the prediction of nicotine dependence (Heatherton et al., 1991). Due to the relatively short half-life of nicotine, dependent smokers have depleted plasma levels of nicotine upon arising (Heatherton et al., 1991). These smokers are likely to experience discomfort unless they quickly have their first cigarette (Heatherton et al., 1991). TTF has been found to be an excellent predictor of biochemical measures and also predictive of successful smoking cessation (Heatherton et al., 1991). The number of cigarettes smoked per day is a face valid measure of dependence on nicotine, and early studies assumed that dependence was a direct function of smoking rate (Heatherton et al., 1991).

The original FTQ operationally defined nicotine dependence as FTQ scores ranging from a score of 0 (minimal dependence) to maximum dependence at a score of 11 (Fagerstrom & Schneider, 1989). The operational definition of nicotine dependence in this investigation is the score within the range of 5-7 points, with a standard deviation of about 2. Quantity of smoking is defined as the self-reported current average number of cigarettes smoked per day.

Procedures

The surveys were distributed to the mail boxes of seven Greek fraternity and sorority presidents from a mid-western public university on November 13, 2000. The presidents agreed to distribute the surveys to members at their next house meeting. The surveys were answered and collected during those meetings, with 28 per cent of all Greek organizations providing responses. A cover sheet accompanied the survey for each student (Appendix, C). The names of respondents were not asked. Information was sought in an anonymous manner in an attempt to maximize the honesty of the responses to the survey.

Data Analysis

This study involved the following variables; alcohol consumption, cigarettes smoked, gender, age, athlete or non-athlete, credits completed and cumulative grade point average. The Alcohol Use Disorders

Identification Test (AUDIT) Core Survey was used to measure alcohol consumption, dependence symptoms, and personal and social harm related to drinking. The questionnaire portion of the AUDIT (Figure 1, P. 46) contains a series of 10 items that include three questions on use, four on dependence, and three on consequences of use (Schmidt & Barry, 1995). Alcohol use was measured according to the suggestive cut-off score of eleven recommended by the World Health Organization (WHO). Cigarettes smoked was assessed according to the average daily quantity of cigarettes smoked. See question number one (Figure 2, P. 48) on the coding schema for the Fagerstrom Tolerance Questionnaire.

Each variable was statistically analyzed for correlation significance with every other variable to account for all possible combinations. The hypotheses were analyzed for relatedness using the Pearson-Moment Correlation Coefficient alpha, represented by the symbol *r*.

A probability level of .05 significance was selected as the criteria to determine whether to retain or reject each of the hypotheses. If a correlation is found significant at the .05 level, the researcher can be 95 per cent confident that the variables being tested are reliably correlated. The higher the confidence level, the less probability of error. Thus, setting a .05 level of significance will increase the confidence level in accepting the hypotheses.

Summary

Twenty-five fraternity and 27 sorority students volunteered to respond to self-report questionnaires assessing alcohol consumption and cigarettes smoked. This section described the procedures followed for administration of the surveys. Data was analyzed using the Pearson Product-Moment Correlation Coefficient alpha. A significance level of .05 was used to determine acceptance or rejection of the hypotheses.

CHAPTER IV

Presentation and Analysis of the Data

This chapter presents the results of the data analysis for the variables of alcohol consumed, cigarettes smoked, gender, age, athlete or non-athlete, credits completed, and cumulative grade point. The procedures for testing the hypotheses are explained, along with the rationale for accepting or rejecting the hypotheses presented. Tables are provided to visually summarize the findings.

Organization of the Study

This was a correlational study. The purpose was to examine the relationship between cigarette smoking and alcohol consumption among fraternity and sorority students.

Data for the research was derived from the Alcohol Use Disorders Identification Test , which are self reports of problems related to drinking alcohol and the Fagerstrom Tolerance Questionnaire, which are self reports of nicotine dependence. The findings were derived from interval data analyzed by the Pearson Product-Moment Coefficient alpha. The .05 level of significance was used as the standard to accept or reject each of the hypotheses.

The sample was drawn from members of either a fraternity or sorority from a mid-western public university. The sample consisted of 27 women and 25 men between the ages of 18 and 26 who volunteered to participate. The average age of participants was 20 (SD = 1.66) years. The sample included 3 women and 3 men involved in college athletics. The approximate cumulative grade point average was divided into twelve categories: A's: 1.9%, A-'s: 9.6%, B+'s: 17.3%, B's: 25.0%, B-'s: 15.4%, C+'s: 23.1%, C's: 5.8%, C-'s: 0%, D+'s: 1.9%, D's: 0%, D-'s: 0%, F's: 0%. The college credits completed to date by the fraternity/sorority students were separated into four subgroups: (0-29): 15.2%, (30-59): 30.5%, (60-89): 17.1%, (90-120): 19.1%. Demographic characteristics of this sample are presented in Table 1.

Table 1

Results of Demographic Characteristics of Fraternity and Sorority Students

	Fraternity Members				Sorority Members			
	Athlete (n=03)	%	Non-Athlete (n=22)	%	Athlete (n=03)	%	Non-Athlete (n=24)	%
Age								
18-19 years	1	33	06	25	2	67	10	42
20-22 years	2	67	12	54	1	33	13	54
>23 years	0	00	4	17	0	00	1	4
Grade Point								
A's	0	0	1	4	1	33	4	17
B's	2	67	12	54	1	33	15	63
C's	1	33	09	42	1	33	4	17
D's	0	0	0	0	0	00	1	4
F's	0	0	0	0	0	00	0	0
Completed Credits								
0-29	0	0	3	13	1	33	10	42
30-59	1	33	7	29	33	7	29	
60-89	2	67	2	17	1	33	4	17
90-120>	0	0	7	29	0	00	3	13

1

Study Overview

There is a strong positive association between the consumption of alcohol as measured by the

scores on the Alcohol Use Disorders Identification Test; and cigarette smoking as measured by the Fagerstrom Tolerance Questionnaire.

Fifty-two subjects completed the Alcohol Use Disorders Identification Test (AUDIT). The AUDIT was developed to screen for alcohol misuse and early drinking problems rather than alcohol dependence. The World Health Organization (WHO) recommends a total score of 11 or more as suggestive of a drinking problem (Fleming et al., 1991). The higher the score, the stronger the indication of a drinking problem. The mean score for the fraternity and sorority students in this sample was 12.1 out of a possible 41 points. At a recommended cut-off score of 11 or greater (Fleming et al., 1991), 62% (n=32) of the subjects screened positive; at 13, 48% (n=25); and at 15, 29% (n=15) of the subjects obtained a positive score. One of the sorority athletes screened positive at the cut-off score of 11 and two of the fraternity athletes screened positive at the cut-off score of 11. The number of athletes was too small to give reliable indication of a drinking problem with this subgroup. See Table 2.

Table 2
Results of Alcohol Use Among Fraternity and Sorority Students

A score of 11 or more suggestive of a drinking problem.

Cut-off	Fraternity Members				Sorority Members				Score
Athlete (AUDIT)	%	Non-Athlete (n=03)	%	Athlete (n=22)	%	Non-Athlete (n=03)	%	(n=24)	
>=15	02	67	06	27.2	00	00	07	29.1	
>=14	00	00	05	22.7	00	00	02	8.3	
>=13	00	00	01	4.5	00	00	02	8.3	
>=12	00	00	03	13.6	00	00	00	0	
>=11	00	00	00	00	01	33	03	12.5	
>=10	00	00	02	9	01	33	01	4.1	
>=9	00	00	00	00	00	00	02	8.3	>=8
00	00	02	9	01	33	02	8.3		
>=7	01	33	01	4.5	00	00	01	4.1	

The tobacco-use behaviors of this sample are presented in Table 3. Only the tobacco users (twenty-nine subjects) completed the Fagerstrom Tolerance Questionnaire (FTQ). The original FTQ operationally defined nicotine dependence as FTQ scores ranging from a score of 0 (minimal dependence) to maximum dependence at a score of 11 (Fagerstrom & Schneider, 1989). The mean score for the fraternity and sorority students in this sample was 2.11 out of a possible 11 points. The majority (72%) of the fraternity and sorority participants smoked less than 0-9 cigarettes per day. Of the twenty-seven

sorority members (67%) smoked 0-9 cigarettes. Of the 14 fraternity members who smoked, 11 members smoked 0-9 cigarettes, 3 members (21.4%) smoked 10 or more cigarettes per day. Thirty-three per cent (n=4) of the sorority members who smoke screened the highest with smoking 10 cigarettes per day.

The overall mean FTQ score among the fraternity and sorority students who smoked was 2.11 cigarettes per day compared to the mean overall FTQ score among vocational-technical students of 4.27 (*SD*=2.2) (Prokhorov et al., 1996). A score of 6 or higher was found for only 10% of this sample.

Table 3
Results of Tobacco Use Among Fraternity and Sorority Smokers

Average daily quantity of cigarettes/day	Fraternity Members								Sorority Members
	Athlete (n=02)	%	Non-Athlete (n=12)	%	Athlete (n=02)	%	Non-Athlete (n=13)	%	
<9	01	50	10	83	01	50	09	69	
10-11	01	50	01	8	01	50	02	15	
12>	00	00	01	8	00	00	02	15	

Hypotheses

HO 1: This hypothesis states that there is a significant positive correlation between fraternity and sorority members reported alcohol consumption and tobacco use. The study results of the AUDIT instrument indicated a mean score of 12.08 for the male subjects and a standard deviation of 6.03. The AUDIT instrument results scored the female subjects with a mean of 12.11 and a standard deviation of 5.97. See Table 4.

Table 4
Alcohol Results

Number of male subjects		25	
Number of female subjects		27	
Mean score of male subjects		12.08	Mean score of
female subjects	12.11		
Standard deviation of male subjects		6.03	
Standard deviation of female subjects		5.97	

Given the size of the standard deviation, the alcohol scores indicated a large variance among the fraternity and sorority population. To examine the possible effect of the fraternity and sorority outliers, the top three alcohol scores of the members were dropped to evaluate whether the outliers skewed the mean data. Once the top three scores were dropped from the fraternity and sorority members, the mean score of the fraternity members dropped from 12.08 to 11.19. The sorority members mean score dropped from 12.11 to 10.67. This would indicate the outliers did pull up the mean score of the overall consumption of alcohol. However, mean scores still remained very close to the cut-off score of 11, suggesting alcohol misuse for a majority of the subjects.

Fourteen (56%) of the twenty-five male subjects reported their tobacco use. Fifteen (55%) of the 27 female subjects reported their tobacco use. The majority (72%) of the fraternity and sorority participants smoked less than 0-9 cigarettes per day. Of the sorority members who smoked, sixty-seven per cent smoked 0-9 cigarettes. Of the fourteen fraternity members who smoked, eleven members (78%) smoked 0-9 cigarettes. Two fraternity members (14%) smoked 10 or more cigarettes per day. Five (33%) of the sorority members screened, reported smoking more than 10 cigarettes per day. The number of cigarettes smoked per day on average ranged from zero to more than twelve, with a mean of 1.71 for male subjects. Female subjects scored a mean of 2.2. See Table 5.

Table 5
Tobacco Results of Smokers

Number of male subjects who smoke		14	
Number of female subjects who smoke		15	
Mean FTQ score of male subjects who smoke		1.71	Mean FTQ score
of female subjects who smoke	2.2		

The Pearson-Moment Correlation Coefficient (Pearson *r*) was used to analyze hypothesis one. The findings did indicate a positive correlation at the .05 level of significance between alcohol

consumption and tobacco use of the 29 respondents (r= .423 (p= .002) who reported smoking. The analysis of the data resulted in the acceptance of the hypothesis. See Table 6.

Table 6

Correlation Between Alcohol Consumed and Cigarettes Smoked	Number of respondents 29
Pearson *r*	.423
Level of significance (*p*)	.002

HO 2: There is no statistically significant correlation between age of the fraternity and sorority students and tobacco use, as measured by scores on the Fagerstrom Tolerance Questionnaire (FTQ).

The purpose of this hypothesis was to determine if there was a relationship between age and the number of cigarettes smoked in a week. The hypothesis proposed there was no correlation between the subjects' age and tobacco usage in an average week.

Fourteen (56%) of the twenty-five male subjects reported using tobacco. Fifteen (55%) of the twenty-seven female subjects reported using tobacco. The number of cigarettes smoked per day on average ranged from zero to more than twelve, with a mean of 1.71 for male subjects. Female subjects scored a mean of 2.2. See Table 5.

Twenty-four (96%) of the male subjects and all twenty-seven (100%) of the female subjects reported their age group on the Fagerstrom Tolerance Questionnaire. Thirty subjects (57.7%) were under the age of 21 years, while twenty-one subjects (40.4%) were 21 years or older. Mean age for the fraternity subjects was 20.75 and a standard deviation of 1.87. Sorority subjects mean age was 19.96 and a standard deviation of 1.37. This suggests that in general subjects were traditional college aged students. See Table 7.

Table 7
Age Results of Respondent

Number of male subjects		24	
Number of female subjects		27	
Mean age of male subjects		20.75	Mean age of female subjects 19.96
Standard deviation of male subjects		1.87	
Standard deviation of female subjects		1.37	

The data for hypothesis two was analyzed using the Pearson *r* Correlation Coefficient. At the .05

level of significant, there was not a significant relationship between the 51 respondents' age and the number of cigarettes smoked in a week (r= .078) (p= .592). The hypothesis was accepted. See Table 8.Table 8

Correlation Between Cigarettes Smoked and Respondents Age

Number of respondents	51
Pearson *r*	.078
Level of significance (*p*)	.592

HO 3: There is no statistically significant correlation between fraternity and sorority alcohol consumption, as measured by scores on the Alcohol Use Disorder Identification Test (AUDIT), and the age of the respondent.

The purpose of this hypothesis was to determine if there was a relationship between the respondents' age and the scores on the AUDIT. Alcohol use was assessed according to the standard drink having about one half ounce of pure ethanol. The hypothesis proposed there was no correlation between the subjects' reported age and the number of drinks they reported consuming in a week.

All fifty-two subjects (100%) completed the Alcohol Use Disorders Identification Test (AUDIT). The AUDIT was developed to screen for alcohol misuse and early drinking problems rather than alcohol dependence. The World Health Organization (WHO) recommends a total score of 11 or more as suggestive of a drinking problem (Fleming et al., 1991). The higher the score, the stronger the indication of a drinking problem. The study results indicated a mean score of 12.08 for the male subjects and a standard deviation of 6.03. Female subjects scored a mean of 12.11 and a standard deviation of 5.97. See Table 4.

Twenty-four male subjects (96%) and all twenty-seven (100%) of the female subjects reported their age group on the Fagerstrom Tolerance Questionnaire. Thirty subjects (57.7%) were under the age of 21 years, while twenty-one subjects (40.4%) were 21 years or older. Mean age for the fraternity subjects was 20.75 and a standard deviation of 1.87. Sorority subjects mean age was 19.96 and a standard deviation of 1.37. See Table 7.

The Product-Moment Correlation Coefficient was used to analyze the data for hypothesis three. The degree of correlation was found not significant at the level of p= .05 between alcohol scores and respondents' age (r= -.141) (p= .324). Hypothesis three was accepted. See Table 9.

Table 9

Correlation Between Alcohol Consumed and Age of Respondent

Number of respondents	51
Pearson *r*	-.141
Level of significance (*p*)	.324

HO 4: The purpose of this hypothesis was to determine if there was a relationship between alcohol consumed and respondents' cumulative Grade Point Average (GPA). This hypothesis proposed that there was a significant negative correlation between the fraternity and sorority members reported alcohol consumption and cumulative GPA.

All fifty-two subjects (100%) completed the Alcohol Use Disorders Identification Test (AUDIT). The study results indicated a mean score of 12.08 for the male subjects and a standard deviation of 6.03. Female subjects scored a mean of 12.11 and a standard deviation of 5.97. See Table 4.

All of the subjects reported their cumulative GPA scores. The cumulative GPA scores ranged from A to D+, with a mean score of 7.24 (averaging between B and B-) for the male subjects and a standard deviation of 1.51. Female subjects scored a mean of 7.81 (averaging almost a B) and a standard deviation of 1.71. See Tables 10 and 11.

Table 10

Value Labels of Cumulative GPA

	Fraternity Members(n=25) %	Sorority Members (n=27) %
GPA		
00 'F'	0 0%	0 0%
01 'D-'	0 0%	0 0%
02 'D'	0 0%	0 0%
03 'D+'	0 0%	0 04%
04 'C-'	0 0%	0 0%
05 'C'	3 12%7 28%	0 0%
06 'C+'	4 16%	5 18%
07 'B-'	4 16%	4 15%
08 'B'	6 24%	9 33%
09 'B+'	1 04%	3 11%
10 'A-'	0 0%	4 15%
11 'A'	0 0%	1 04%
12 'A+'		0 0%

Table 11

GPA Results

Number of male subjects	25		
Number of female subjects	27		
Mean score of male subjects		7.24	Mean score of female subjects 7.81
Standard deviation of male subjects		1.51	
Standard deviation of female subjects		1.71	

The data for hypothesis four was analyzed using the Pearson *r* Correlation Coefficient. At the .05 level of significance, there was a significant negative relationship between the 52 respondents' cumulative GPA and the AUDIT score (r= -.369) (p= .007). This correlation indicates that as the scores on the AUDIT increased (indicating greater use/abuse of alcohol) the cumulative GPA tended to decrease. The analysis of the data resulted in the acceptance of the hypothesis. See Table 12.

Table 12

Correlation Between AUDIT Score and GPA of Respondent

Number of respondents	52
Pearson *r*	-.369
Level of significance (*p*)	.007

HO 5: The purpose of this hypothesis was to determine if there was a relationship between alcohol consumed and credits completed by the respondents. This hypothesis proposed that there was no significant correlation between the fraternity and sorority members reported alcohol consumption and credits completed.

All fifty-two subjects (100%) completed the Alcohol Use Disorders Identification Test (AUDIT). The study results indicated a mean score of 12.08 for the male subjects and a standard deviation of 6.03. Female subjects scored a mean of 12.11 and a standard deviation of 5.97. See Table 4.

Forty-three (82.7%) of the total sample reported credits completed. The completed credits ranged from 15 to 131, with a mean score of 64.864 for the male subjects and a standard deviation of 35.921. Female subjects scored a mean of 54.143 and a standard deviation of 28.431. See Table 13 Table 13

Credits Completed Results

Number of male subjects		22	
Number of female subjects		21	
Mean score of male subjects		64.864	Mean score of female subjects 54.143
Standard deviation of male subjects		35.921	
Standard deviation of female subjects		28.431	

The data for hypothesis five was analyzed using the Pearson *r* Correlation Coefficient. The findings did not indicate a correlation at the .05 level of significance between the 43 respondents' credits completed and the number of alcoholic drinks consumed in an average week (r= -.160) (p= .305). The analysis of the data supports the hypothesis. See Table 14.

Table 14

Correlation Between Alcohol Consumed and Credits Completed

Number of respondents	43
Pearson *r*	-.160
Level of significance (*p*)	.305

HO 6: An analysis of variance was conducted by an independent *t* test using "Athlete" as the independent variable to test the hypothesis that fraternity and sorority individuals involved in athletics would drink more than those who were not involved.

The purpose of this hypothesis was to determine if there was a relationship between alcohol

consumption and whether the respondent was an athlete. This hypothesis proposed that there was no correlation between scores on AUDIT and athlete status.

All fifty-two subjects (100%) completed the Alcohol Use Disorders Identification Test (AUDIT). Six subjects (11.5%) reported being an athlete. The study results indicated a mean score of 11.83 for the athlete that consumed alcohol with a standard deviation of 4.62. Non-athlete respondents (88.5%) scored a mean of 12.13 and a standard deviation of 6.13. The study results indicated there was not a significant difference in the AUDIT scores of athletes verses non-athletes. However, the low number of athlete respondents would suggest extremely cautious and tentative interpretation of the results. See Table 15.

Table 15
Is Respondent an Athlete Results

Number of athlete subjects		6	
Number of non-athlete subjects		46	
Mean score of athlete subjects		11.83	Mean score of non-athlete subjects
	12.13		
Standard deviation of athlete subject		4.62	
Standard deviation of non-athlete subjects		6.13	

HO: 7 An independent *t* test for variance was conducted to test the hypothesis that fraternity members would drink more than sorority members. Using "Gender" as the independent variable to test the hypothesis that fraternity students will have higher use rates than sorority students.

The purpose of this hypothesis was to determine if there was a relationship between alcohol consumption and whether the respondent was a male or female. This hypothesis proposed that there was no correlation between the amount of alcohol consumed between fraternity and sorority members. See Table 16.

Table 16

Alcohol Results Using Gender

Number of male subjects		25	
Number of female subjects		27	
Mean score of male subjects		12.08	Mean score of female subjects
	12.11		
Standard deviation of male subject		6.03	
Standard deviation of female subjects		5.97	

Results of the *t* test indicated there was not a statistically significant difference between the AUDIT scores of males and females. At a recommended cut-off score of 11 or greater (Fleming et al., 1991), 68% (n=17) of the fraternity members and 55.5% (n=15) of the sorority members obtained a positive score. The high scores on the AUDIT reflects a high prevalence of alcohol misuse among the fraternity and sorority members.

Summary of the Findings

There is a strong positive association between the consumption of alcohol as measured by the scores on the Alcohol Use Disorders Identification Test (AUDIT) and cigarette smoking as measured by the Fagerstrom Tolerance Questionnaire(FTQ). This supports the literature review assertion that exposure to alcohol increased urge to smoke and urge to smoke is positively correlated with urge to drink.

The AUDIT score suggests an alcohol use problem for the majority (62%) of the subjects at the recommended cut-off score of 11 or greater. The score on the AUDIT indicates that a score of 20 or higher was reported by 15% (n=8) of the fraternity and sorority members indicating a severe alcohol use problem.

Hypothesis two found no significant correlation between age of the fraternity and sorority students and tobacco use.

Hypothesis three found no statistically significant correlation between the subjects' reported age and the AUDIT score or between age of the fraternity and sorority students and level of tobacco use.

Hypothesis four proposed that there was a significant negative relationship between the fraternity and sorority members' reported alcohol consumption and GPA. The AUDIT scores clearly related to lower GPA's. The study results found that while "A" students averaged 3.2 drinks on a typical day and "B" students 5.5 drinks, "C" students averaged 5.9 drinks on a typical day, while "D" students averaged 8.

Hypothesis five found that there was no significant correlation between the fraternity and sorority members reported alcohol consumption and credits completed.

Data related to hypotheses six and seven showed no significant correlation or no significant difference between AUDIT scores and fraternity and sorority members or between AUDIT scores and athlete status. However, the low number of athlete respondents would suggest extremely cautious and tentative interpretation of the results.

See Table 21 for the summary correlation of key variables.

Table 17

Correlation of Key Variables

		Credits Completed	GPA	Alcohol Score	Tobacco Score
Age of Respondent		***r*= .817** ***p*= .000** **n= 43**	*r*= -.123 *p*= .388 n= 51	*r*= -.141 *p*= .324 n= 51	*r*= .078 *p*= .592 n= 49
Credits Completed by Respondent			*r*= .122 *p*= .437 n= 43	*r*= -.160 *p*= .305 n= 43	*r*= .082 *p*= .611 n= 41
GPA Respondent				***r*= -.369** ***p*= .007** **n= 52**	*r*= -.165 *p*= .252 n= 50
Alcohol Score					***r*= .423** ***p*= .002** **n= 50**

r= Product-Moment Correlation Coefficient (Pearson *r*)

p= Exact probability or level of significance (for correlation to be significant, *p* must be less than .05)

n= Number of cases

CHAPTER V

Summary, Conclusions, Implications, and Recommendations

This chapter provides a summary of the study, draws conclusions based upon the research, discusses implications, and offers recommendations for further research.

Summary

The aim of the present study was to examine the degree of correlation between cigarette smoking and alcohol use as measured by the number of cigarettes smoked and the score on the Alcohol Use Disorders Identification Test (AUDIT) by fifty-two fraternity and sorority members. Data were gathered through voluntary participation using a questionnaire combining three separate instruments. The battery included a demographic questionnaire, a widely used, paper-and-pencil test of nicotine dependence--the Fagerstrom Tolerance Questionnaire (FTQ; Fagerstrom and Schneider, 1989) and a subset of items from the Alcohol Use Disorder Identification Test (AUDIT; Babor et al., 1987) used to measure alcohol consumption.

The Pearson Product-Moment Correlation Coefficient was utilized to analyze the data. At the .05 level of significance, only two significant correlations were found. Data analysis indicated there was a significant positive correlation between the fraternity and sorority members reported alcohol consumption and tobacco use. The AUDIT data also suggests an alcohol misuse/abuse problem for the majority (62%) of the subjects at a recommended cut-off score of 11 or greater. The AUDIT indicates that a score of 20 or higher was reported by 15% (n=8) of the fraternity and sorority members indicating a severe alcohol use problem. Data analysis indicated that there was significant negative correlation between the fraternity and sorority members reported alcohol consumption and GPA. The data made known that as alcohol consumption increased, GPA decreased. There was no statistically significant correlation between age of the fraternity and sorority students and there reported tobacco use and alcohol consumption. Data analysis indicated there was no significant correlation between the fraternity and sorority members reported alcohol consumption and credits completed. This data suggests that the level of alcohol use/misuse/abuse does not lessen as students get older and/or progress in their academic career programs. Data analysis showed that

there was no correlation between amount of alcohol consumed and athlete status. Data analysis also showed that there was no significant correlation between fraternity and sorority students and tobacco use.

Conclusions

There was significant positive correlation between the fraternity and sorority members reported alcohol consumption and tobacco use. Over 98% of the fraternity and sorority students reported alcohol consumption while 56% of the members reported smoking. This is significantly higher than a study reported by (Alcohol and other drug use among college students in New York state, 1996) of full- and part-time undergraduate students that drank alcohol and used tobacco. Eighty-one per cent of the New York state college students consumed alcohol and forty-six per cent used tobacco.

In this study 100% of the members that smoked also drank alcohol. Thirty-three per cent of the sorority members screened the highest with more than 10 cigarettes or more per day. The AUDIT results indicated that a large percentage (62%) of the fraternity and sorority members met criteria for alcohol misuse at the recommended cut-off score of 11 or greater.

There's also a statistically significant negative correlation between drinking and grades. As the AUDIT score increased, the subjects' average GPA decreased.

Implications

The results of this study indicated a sense of urgency on campuses so that attention and resources are continuously focused on promoting responsible, health-enhancing behavior. The review of literature clearly demonstrates that alcohol consumption and tobacco use are integral components of campus life. The findings suggest the importance of understanding the specific mechanisms underlying the inter-relatedness of these two habits. Thus, the use of one substance may have significant effects on the use of the other. The number of cigarettes a person consumes may rises in tandem with the number of drinks consumed or visa-versa. Although the findings of this study didn't support all of the relationships between the variables, the researcher believes that further study of the variables would be beneficial.

Recommendations

This study differs from others with respect to looking within fraternities and sororities to examine

the interrelationship of smoking and alcohol dependence. The relationship between tobacco dependence and alcohol dependence has received little preliminary examination among students at colleges and universities. The better understanding clinicians and educators have regarding alcohol and tobacco use/misuse, the better service they can provide.

The following are recommendations for further research:

1. Obtain demographic information that incorporates members of campus sub-populations and groups for whom current knowledge is lacking (ethic minorities, nontraditional students, abstainers, high-risk populations, and individuals who have reduced their use).
2. A study on campus "culture" and how it contributes to drinking and smoking patterns and when and where these behaviors occur.
3. A study on visual and auditory cues and symbols (e.g. music, drinking games, bottles, beer mugs) and how it relates to drinking and smoking patterns.
4. To obtain a larger sample of athlete /Greek population.
5. An outcome evaluation study of successful smoking cessation programs and if or how the program decreases alcohol consumption.
6. Need for designing alcohol/substance abuse interventions throughout the four undergraduate years since problem behaviors may not decrease for "upper level" students.
7. A significant number of fraternity and sorority students have serious misuse/abuse problems and processes are needed for identifying these students and designing interventions with that target group.
8. Studies that explore connection of alcohol/tobacco use/misuse with other problem behaviors such as legal issues, physical aggression, sexual assault, and other high risk destructive behaviors.

Figure 1.

Coding Schema for the
Alcohol Use Disorders Identification Test

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1. How often do you have a drink containing alcohol?
    a. Never(0)
    b. Monthly or less(1)
    c. 2 to 4 times a month(2)
    d. 2 to 3 times per week(3)
    e. 4 or more times a week(4)
2. How many drinks containing alcohol do you have on a typical day when you are drinking?
    a. 1 or 2(1)
    b. 3 or 4(2)
    c. 5 or 6(3)
    d. 7 to 9(4)
    e. 10 or more(5)
3. How often do you have six or more drinks on one occasion?
    a. Never(0)
    b. Less than monthly(1)
    c. Monthly(2)
    d. 2 to 3 times per week(3)
    e. 4 or more times a week(4)
4. How often during the last year have you found that you were not able to stop drinking

once you had started?

a. Never(0)
b. Less than monthly(1)
c. Monthly(2)
d. 2 to 3 times per week(3)
e. 4 or more times a week(4)

5. How often during the last year have you failed to do what was normally expected from you because of drinking?

a. Never(0)
b. Less than monthly(1)
c. Monthly(2)
d. 2 to 3 times per week(3)
e. 4 or more times a week(4)

Figure 1. continued

6. How often during the past year have you needed a first drink in the morning to get yourself going after a heavy drinking session?

a. Never(0)
b. Less than monthly(1)
c. Monthly(2)
d. 2 to 3 times per week(3)
e. 4 or more times a week(4)

7. How often during the last year have you had a feeling of guilt or remorse after drinking?

a. Never(0)
b. Less than Monthly(1)
c. Monthly(2)
d. 2 to 3 times per week(3)
e. 4 or more times a week(4)

8. How often during the last year have you been unable to remember what happened the night before because you had been drinking?

a. Never(0)
b. Less than monthly(1)
c. Monthly(2)
d. 2 to 3 times per week(3)
e. 4 or more times a week(4)

9. Have you or someone else been injured as a result of you drinking?

a. No(0)
b. Yes, but not in the last year(2)
c. Yes during the last year(4)

10. Has a relative or friend, or a doctor or other health worker been concerned about your drinking or suggested you cut down?

a. No(0)
b. Yes, but not in the last year(2)
c. Yes, during the last year(4)

Figure 2.
Coding Schema for the Fagerstrom
Tolerance Questionnaire

---

1. How many cigarettes do you smoke per day, on average?
    a. 0-9 cigarettes (0)
    b. 10-11 cigarettes (1)
    c. 12> cigarettes (2)

2. Which of the following best describes how or whether you inhale?
    a. Inhale as deeply into my chest as possible (2)
    b. Inhale only partly into my chest (1)
    c. Inhale as far back as my throat (0)
    d. Inhale well back into my mouth (0)
    e. Just puff; don't really inhale (0)

3. How long after you wake up (in minutes) do you smoke your first cigarette?
    a. 0 through 30 minutes (1)
    b. 31 or more minutes (0)

4. Which cigarette would you most hate to give up?
    a. Last one of the day (0)
    b. First one in the morning (1)
    c. After meals (0)
    d. With coffee (0)
    e. With alcohol (0)
    f. When experiencing negative emotions (0)
    g. Other (0)

5. Do you find it difficult to refrain from smoking in places where it is forbidden?
    a. Never (0)
    b. Almost never (0)
    c. Sometimes (1)
    d. Fairly often (2)
    e. Very often (2)

Figure 2. continued

6. Do you smoke when you are so ill that you are in bed most of the day?
    a. Never (0)
    b. Almost never (0)
    c. Sometimes (1)
    d. Fairly often (2)
    e. Very often (2)

7. Do you smoke less or more in the morning than the rest of the day?

a. Much less (0)
b. A bit less (0)
c. About even (0)
d. A bit more (1)
e. Much more (1)

The FTQ version used in the fraternity/sorority sample (scoring is provided in parentheses).

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Appendix A

Research Subjects' Informed Consent Letter

Dear Student Participant:

I am a master level student in the Mental Health Guidance and Counseling program at UW-Stout. One of the requirements for obtaining my master's degree is to conduct a research study. You are being asked to help me complete this requirement.

My research study will examine the correlation between cigarette smoking and alcohol use as measured by the number of cigarettes smoked and the number of alcoholic drinks consumed per week. Results of the study will be based upon your self-reports on two assessment measures. Please be as accurate as possible with your responses.

The following statement is provided so that you understand that this data collection process is purely voluntary. If you choose to participate, your total commitment will be about ten minutes. Please read the statement carefully.

Research Subject's Informed Consent Statement:
I understand that by returning this questionnaire, I am giving my informed consent as a participating volunteer in the study. I understand the basic nature of the study and agree that any potential risks are exceedingly small. I am aware that the information is being sought in such a manner that no identifiers are needed so that confidentiality is guaranteed. I realize that I have the right to refuse to participate and that my right to withdraw from participation will be respected with no coercion or prejudice.

Note: Students under the age of 18 years are asked not to complete this survey.

Questions or Concerns:
If you have questions or concerns about participation in this study, please feel free to ask me or my research advisor, Dr. Donald Baughman.

Thank you for your participation!

Tanya Zaloudek
Mental Health
Guidance and Counseling
(715)235-8289

Faculty Advisor,

Dr. Donald Baughman, Professor
Psychology
(715) 232-2179

Appendix B

ALCOHOL and TOBACCO SCREENING SURVEY
The first set of questions provide demographic information.

1. *Gender: Male_____Female_____*

2. *Current Age_____*
3. *Number of college credits completed_____*
4. *Approximate cumulative grade point average: (circle one)*
A+ A A- B+ B B- C+ C C- D+ D D- F
5. *Are you involved in college athletics? Yes_____ No_____*
6. *Do you drink alcoholic beverages? Yes_____ No_____*
7. *Do you use tobacco (smoke, chew, snuff)? Yes_____ No_____*

If you answered yes to question 6 or 7 please continue the survey. If you answered no the survey is complete. Read the question and the possible answers, then print the letter of the correct answer on the line next to the question.

The following questions are about the past year. Questions 1-10 provide patterns of alcohol consumption. A drink is defined as a 12 oz bottle of beer, or 4 oz of wine, or 1.5 oz of hard liquor.

1.**_____***How often do you have a drink containing alcohol?***

a. Never
b. Monthly or less
c. 2 to 4 times a month
d. 2 to 3 times per week
e. 4 or more times a week

2._____*How many drinks containing alcohol do you have on a typical day when you are drinking?*

a. 1 or 2
b. 3 or 4
c. 5 or 6
d. 7 to 9
e. 10 or more

3._____*How often do you have six or more drinks on one occasion?*

a. Never
b. Less than monthly
c. Monthly
d. 2 to 3 times per week
e. 4 or more times a week

Appendix B continued

4._____*How often during the last year have you found that you were not able to stop drinking once you had started?*

a. Never
b. Less than monthly
c. Monthly
d. 2 to 3 times per week
e. 4 or more times a week

5._____*How often during the last year have you failed to do what was normally expected from you because of drinking?*

a. Never
b. Less than monthly
c. Monthly
d. 2 to 3 times per week
e. 4 or more times a week

6._____*How often during the last year have you needed a first drink in the morning to get yourself going after a heavy drinking session?*

a. Never
b. Less than monthly
c. Monthly
d. 2 to 3 times per week
e. 4 or more times a week

7._____*How often during the last year have you had a feeling of guilt or remorse after drinking?*

a. Never
b. Less than Monthly
c. Monthly
d. 2 to 3 times per week
e. 4 or more times a week

8._____*How often during the last year have you been unable to remember what happened the night before because you had been drinking?*

a. Never
b. Less than monthly
c. Monthly
d. 2 to 3 times per week
e. 4 or more times a week

Appendix B continued

9._____*Have you or someone else been injured as a result of you drinking?*

a. No
b. Yes, but not in the last year
c. Yes during the last year

10.____*Has a relative or friend, or a doctor or other health worker been concerned about your drinking or suggested you cut down?*

a. No
b. Yes, but not in the last year
c. Yes, during the last year

The following questions are about the past year. Questions 11-17 provide patterns of use by tobacco users.

11. _____***How many cigarettes do you smoke per day, on average?***

- **a.** 0-9 cigarettes
- **b.** 10-11 cigarettes
- **c.** 12> cigarettes

12. _____***Which of the following best describes how or whether you inhale?***

- **a.** Inhale as deeply into my chest as possible
- **b.** Inhale only partly into my chest
- **c.** Inhale as far back as my throat
- **d.** Inhale well back into my mouth

13._____ ***How long after you wake up (in minutes) do you smoke your first cigarette?***

- **a.** 0 through 30 minutes
- **b.** 31 or more minutes

14. _____***Which cigarette would you most hate to give up?***

- **a.** Last one of the day
- **b.** First one in the morning
- **c.** After meals
- **d.** With coffee
- **e.** With alcohol
- **f.** When experiencing negative emotions
- **g.** Other

Appendix B continued

15. _____***Do you find it difficult to refrain from smoking in places where it is forbidden?***

- **a.** Never
- **b.** Almost never
- **c.** Sometimes
- **d.** Fairly often
- **e.** Very often

16._____***Do you smoke when you are so ill that you are in bed most of the day?***

- **a.** Never
- **b.** Almost never
- **c**. Sometimes
- **d.** Fairly often
- **e.** Very often

17._____***Do you smoke less or more in the morning than the rest of the day?***

- **a.** Much less
- **b.** A bit less
- **c.** About even
- **d.** A bit more
- **e.** Much more

Thank you for completing the survey and helping better the survey data.

Appendix C

November 9, 2000

Dear Fraternity or Sorority President:

I am a master level student in the Mental Health Guidance and Counseling program at UW-Stout. One of the requirements for obtaining my master's degree is to conduct a research study. The sororities and fraternities at UW-Stout are being asked to help me complete this requirement. My study has been approved by the graduate college and the Office of Involvement and Leadership.

My rearch study will examine the correlation between cigarette smoking and alcohol use as measure by the number of cigarettes smoked and the number of alcoholic drinks consumed per week. Results of the study will be based upon self-reports on two assessment measures. The students will be asked to complete the Alcohol Use Disorders Identification Test (AUDIT) used to measure alcohol consumption and the Fagerstrom Tolerance Questionnaire (FTQ) to investigate nicotine dependence. Seven self-report questions to ascertain demographic data will also be administered. Total commitment will be about ten minutes.

It is important for you to know that the information is being sought in such a manner that no identifiers are needed so confidentiality is guaranteed. Your sorority or fraternity will *not* be identified or will the university you attend. The intent of the study is to examine the correlation between cigarette smoking and alcohol use and to enlighten the student that smoking maybe a chemical trigger for drinking.

I would like to hand out the questionnaire to all participating volunteers during one of your organization meetings. However, if you prefer, I can leave a number of surveys in your organization mailbox. You can seal the completed forms in an envelope with my name on it and leave it at the SOC desk for me to pick up by December 8th.

I have attached an informed consent letter and a sample of the survey for your reference. If you have questions or concerns about participation in this study, please feel free to ask me or my research advisor, Dr.

Donald Baughman (x-2179). If your members wish to participate in this study, please notify me at 235-8289 by 11/15/00 for an opportune time to conduct the study and/or drop off the amount of surveys you need. I will contact you between 11/16/00 and 11/21/00 if I do not hear from you.

Thank you for your time and consideration.

Sincerely Yours,

Tanya Zaloudek
Mental Health Guidance & Counseling