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## Binge Drinking and Salutogenesis: Sense of Coherence, Stress, Religiousness and Spirituality

Jeanne C . DeBruyn

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BINGE DRINKING AND SALUTOGENESIS: SENSE OF COHERENCE,  
STRESS, RELIGIOUSNESS AND SPIRITUALITY

by

Jeanne C. DeBruyn

A Dissertation  
Submitted to the  
Faculty of The Graduate College  
in partial fulfillment of the  
requirements for the  
Degree of Doctor of Philosophy  
Department of Sociology

Western Michigan University  
Kalamazoo, Michigan  
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## TABLE OF CONTENTS

ACKNOWLEDGMENTS.....	ii
LIST OF TABLES.....	v
CHAPTER	
I. INTRODUCTION.....	1
Statement of Purpose.....	1
II. LITERATURE REVIEW.....	8
Perspectives on College Drinking.....	8
Stress and Salutogenesis.....	20
Meaningfulness, Religiousness, Spirituality, and Stress.....	32
III. METHODS AND RESEARCH DESIGN.....	43
The Nature of the Study.....	43
Hypotheses.....	44
Methods.....	44
IV. FINDINGS AND INTERPRETATIONS.....	59
Characteristics of the Sample.....	59
Demographics.....	59
Religiousness and Spirituality.....	61
Perceived Stress.....	63
Sense of Coherence.....	67
Alcohol Policies and Practices on Campus.....	70
Perceptions of Campus Alcohol Use.....	71
Attitudes About Drinking.....	73



## Table of Contents--Continued

CHAPTER		
	Consequences of Alcohol Use.....	85
	Effects of Alcohol Use.....	87
	Campus Atmosphere.....	88
	Perception of Risk Associated with Alcohol Use.....	89
	Attitudes About the University.....	90
	Binge Drinking Relationships.....	92
	Chi-Square Analysis.....	94
	Perceived Stress.....	103
	Perceived Stress and Perception of Campus Environment.....	111
	Hypotheses Testing.....	119
	Regression Analysis.....	124
V.	SUMMARY OF FINDINGS.....	129
	Limitations, Discussions, and Conclusion.....	129
	Introduction.....	129
	Limitations of Research.....	130
	Summary of Findings.....	134
	Discussion.....	139
	Recommendations for Future Research.....	159
	Conclusions.....	161
APPENDICES		
A.	Questionnaire.....	163
B.	HSIRB Letter of Approval.....	181
	BIBLIOGRAPHY.....	183

## LIST OF TABLES

1. Distribution of Population and Sample by College Year....	59
2. Distribution of Sample and Population.....	60
3. Perceived Stress Levels of Sample.....	63
4. Distribution of SOC in Sample.....	69
5. Survey Participants' Estimates of Abstainers on Campus...	72
6. Percentage of Student Respondents Estimating Binge Drinking Episodes of Others.....	73
7. Drinking Attitudes of Self and Others.....	75
8. Self and Other Estimates of Typical Alcoholic Consumption by Location.....	81
9. Respondent Report of Own and Other Alcohol Use.....	84
10. GPA and Binge Drinking.....	85
11. Perception of Risk Associated with Alcohol Use.....	89
12. Binge Drinking Episodes by Age by Percent.....	93
13. Binge Drinking and GPA.....	97
14. Binge Drinkers' Attitudes About Drinking Self Versus Beliefs of Other's Attitudes.....	100
15. Non-Binge Drinkers' Attitudes About Drinking Self Versus Beliefs of Other's Attitudes.....	100
16. Bingers vs. Non-Bingers Age of First Alcohol Use.....	101
17. Bingers and Non-Bingers' Participation in Athletics and Greek Organizations.....	102
18. Perception of Risks Associated with Number of Drinks Per Day.....	103
19. Levels of Perceived Stress by Gender.....	104
20. Distribution of Perceived Stress by Age.....	105

# List of Tables--Continued

21.	Distribution of Perceived Stress by Grade Classification.....	105
22.	Perceived Stress Levels by GPA.....	106
23.	Percentage of Students Using Alcohol to Deal with Stress by Perceived Stress Levels.....	107
24.	Levels of Perceived Stress by Religious Preference.....	108
25.	Comparison of Stress Levels and Degree of Spirituality...	110
26.	Sense of Coherence and Belief in God.....	114
27.	Sense of Coherence and Clear Sense of Meaning.....	114
28.	Sense of Coherence and Religious Preference.....	115
29.	Sense of Coherence and Belief in God.....	116
30.	Sense of Coherence and Perceived Stress.....	117
31.	Sense of Coherence and Binge Drinking.....	118
32.	Pearson Product Moment Correlation Matrix of SOC, Perceived Stress and Selected Variables.....	122
33.	Pearson Product Moment Correlation Matrix for SOC, Perceived Stress and Selected Variables.....	122
34.	Pearson Product Moment Correlation Matrix for SOC, Perceived Stress and Selected Variables.....	123
35.	Pearson Product Moment Correlation Matrix for SOC, Perceived Stress and Selected Variables.....	123
36.	Regression of the Effects of SOC, Perceived Stress (PSS), Church Membership, Belief in God, Level of Spirituality, and Having a Clear Sense of Meaning on Binge Drinking....	124
37.	Model Summary of the Effects of SOC, Perceived Stress, Church Membership, Belief in God, Level of Spirituality, and Having a Clear Sense of Meaning on Binge Drinking.....	125
38.	Regressing of the Effects SOC and Level of Spirituality on Binge Drinking.....	125

List of Tables--Continued

39.	Model Summary of the Effects of SOC and Level of Spirituality on Binge Drinking.....	126
40.	Effects of Spirituality on Binge Drinking.....	126
41.	Model Summary of the Effects of Spirituality on Binge Drinking.....	127

## CHAPTER I

### INTRODUCTION

#### Statement of Purpose

Despite highly publicized tragedies and continuing examinations and refinements of alcohol practices and policies on college campuses, data from highly respected national studies into the extent and nature of binge drinking on college campuses indicate that current levels of binge or heavy episodic drinking remain high and unchanged (Wechsler, Dowdall, Davenport, & DeJong, 2000; Johnston, O'Malley, & Backman, 1997; Meilman, Presley & Cashin, 1997; Wechsler, Davenport, Dowdall, Grossman, & Zanakos, 1997). As in the past, alcohol remains the drug of choice among college students and binge drinking is considered to be one of the most serious public health problems confronting American colleges and universities (Wechsler, et al., 1997; Wechsler, et al., 2000).

Existing literature on the drinking behavior of college students suggests that 80% to 90% of all college students have used alcohol at least once within the year preceding questionnaire completion. Forty to 45% of these students reported having engaged in binge drinking, that is, they have reported at least one occasion of drinking five or more drinks in a row at a single sitting within the two weeks prior to questionnaire administration. According to Wechsler (2000), 73% of men and 68% of women who reported binge drinking in a survey of 140 colleges cited drinking to get drunk as an important reason for drinking. Other

reasons reported for binge drinking were the culture of alcohol consumption on campus, peer pressure, and stress. Findings such as these are compared with the findings in this research.

Over time, a profile of binge drinkers has emerged to predict which students are most likely to be binge drinkers. One of the most important factors was whether students were binge drinkers in high school. These students were three times more likely to be binge drinkers in college. Other predictors were race and ethnicity, religion, athletics, and fraternity/sorority residence. These factors will be discussed in a later chapter.

Among the negative consequences of binge drinking, Wechsler et. al. (1998) found that frequent binge drinkers were 22 times more likely than non-binge drinkers to have missed class, fallen behind in school work, engaged in unplanned sexual activity, not used protection when having sex, damaged property and been hurt or injured.

Clearly, binge drinking is a serious problem. While it is important to understand the extent of binge drinking and its attendant consequences, it is equally as important to understand why some students resist binge drinking. Understanding the factors that protect some students from binge drinking extends our knowledge into this seemingly normative behavior and points the way for more successful interventions. Such is the nature of this research.

This research adds to the existing literature on binge drinking but looks at binge drinking from an exciting, new perspective--salutogenesis, a term coined by Antonovsky in 1979 in his discussion of

the Sense of Coherence. Looking at a situation, such as binge drinking, salutogenically represents a paradigm shift from the traditional pathogenic paradigm that examines why students binge drink. A salutogenic perspective seeks to examine the origins of health or in this case examines not only why students binge drink but why some students do not binge drink. That is, instead of seeking to understand why so many college students binge drink, this research seeks to understand the factors that keep some college students from binge drinking.

Because of the nearly consistent findings linking stress and alcohol use, this research examines the stress and alcohol linkage as well. The concept of stress has been extensively explored with some researchers advocating that major life events are the best indicators of stressful situations while others claim that daily hassles explain the majority of stress. Regardless of the perspective taken, it is the perception of stress that plays a leading role in the stress experience. Whether it is a life event or a simple hassle, if the event is perceived as stressful, it demands an amelioration of that stress. Thus, in this research, rather than adopting the objective measure of either major life events or daily hassles, this research relies on a subjective measure of perceived stress.

Unlike most stress and coping research, and in keeping with the salutogenic perspective, this research examines the stress alcohol linkage by asking why, given the ubiquitous stressors of college life, some students are able to perceive their lives as less stressful and/or

are able to manage their stressors without resorting to alcohol use? Could part of the answer lie in their orientation to life? their personal resilience in the face of stressors?

In the stress and coping literature, the concept of resilience has emerged as an important concept in re-examining our notions about stress. Previously the focus was on the human stress response and its associated ills. Again, while important to understand this relationship, such a narrowly focused approach ignores much of what we know about people and their reactions to stressors. A stress/illness or stress/distress approach assumes that all persons are vulnerable and passive in the face of stressors. Yet, many persons come through periods of stress with more physical and mental vigor than they had before. Previous stress/resilience research, which will be discussed in the next chapter, suggests that resilient persons are better able to perceive situations as less stressful and/or are more adept at coping with stress.

As a theory of resilience, the Sense of Coherence (SOC) construct and measurement tool developed by Antonovsky (1987) is, in this researcher's estimation, the exemplar of the salutogenic/resilience perspective. Its origins are in the stress and coping literature; however, SOC assesses one's overall disposition to life rather than assessing simply coping behavior. Central to the SOC are its three components: comprehensibility, manageability, and meaningfulness, of which meaningfulness is the most important component. While meaningfulness is the most important component of the SOC,



Antonovsky warns that the SOC must be viewed as a whole; that the components are intertwined. According to Antonovsky, meaningfulness is the most important component and without meaningfulness, the components of comprehensibility and manageability may be ineffective in resolving the perceived stress of student life. Closely linked to the concept of meaningfulness are the concepts of religiousness and spirituality.

As the research cited in the following chapter suggests, many persons report that strong religious or spiritual beliefs help them cope with stressful situations. Other research suggests that religious and/or spiritual beliefs may provide protection from engaging in potentially destructive behaviors such as binge drinking. Is it a belief in a higher being that protects these persons? Is it that religious and/or spiritual beliefs provide a sense of meaning that protects them? Based on the commonality of meaningfulness to spirituality, religiousness and SOC, can these variables be predictors for binge drinking?

In seeking answers these questions, this research explores the strength of students' sense of coherence, level of stress, and degree of religiousness and/or spirituality in relation to their self-reported binge drinking.

Finally, alcohol use among college students has long been considered a rite of passage. Since the early 1950s, alcohol use among college students has been extensively examined and prevention theories have been proposed and implemented, with limited success, in an attempt to control this potentially dangerous rite of passage. Within the past

decade, this rite of passage, which has now assumed the label of binge drinking or heavy episodic drinking, has been deemed a normative experience for college students. That is, rather than being seen by students as the aberrant behavior it was in the 1950s, binge drinking is now seen as the norm by many college students. Recent research confirms this assertion and interventions are being initiated on campuses across the nation to dispel the myth of binge drinking as normative.

Thus, in addition to examining the SOC, stress, religiousness/spirituality, and binge drinking linkages and relationships, this research examines perceptions of campus drinking norms and asks students about their perception of the risk factors associated with binge drinking.

In conclusion, this research seeks answers to the question of what protects some students from experiencing excessive levels of stress? What factors allow students to perceive their lives as less stressful? What protects some students from engaging in potentially destructive binge drinking?

The following hypotheses were tested:

1. Students with a strong sense of coherence will perceive their lives as less stressful than students with a weak sense of coherence.
2. Students with a strong sense of coherence will report less binge drinking than students with a weak sense of coherence.
3. Students with strong religious and/or spiritual convictions will have a stronger sense of coherence than students without strong religious and/or spiritual convictions.

A review of the literature, a discussion and analysis of the findings of this research, and recommendations for interventions follow in subsequent chapters.

## CHAPTER II

### LITERATURE REVIEW

#### Perspectives on College Drinking

Drinking patterns among college students have attracted attention for the past several decades (Straus & Bacon, 1953; Maddox & Williams, 1968; Jessor, Carman & Grossman, 1968). Early studies were limited primarily to determining the prevalence of alcohol use; however, in the five decades since 1953, studies of alcohol use among college students have produced massive amounts of research and myriad theories focusing on factors that extend analysis beyond prevalence toward an understanding of why college students drink the way they do. These theories range from notions of sensation-seeking to the more recent idea that postulates drinking as a normative behavior among college students.

While there is little agreement among researchers as to the definitive factors involved in explaining alcohol use, within the field of alcohol studies there is nearly unanimous agreement that alcohol is the drug of choice among college students. As far back as 1974, researchers Corder, Dezelsky, Toohey, and Tow (1974) and Strimbu and Sims (1974) showed that alcohol is the drug of choice among college students, despite the fact that most students are typically under the legal drinking age of 21. More recent studies (Wechsler, Dowdall, Davenport, & DeJong, 2000; Engs & Hanson, 1988; Johnston, O'Malley, & Bachman, 1991, 1995 and 1997; Meilman, Presley, & Cashin, 1997;

Wechsler, Davenport, Dowdall, Grossman, & Zanakos, 1997) support this finding. Additionally, Johnston, et al. (1991, 1997) report that college students have slightly higher annual prevalence rates of usage compared to their age peers not in college (89% vs 86%), a higher monthly prevalence (75% vs 66%), but a slightly lower daily prevalence (3.8% vs 4.9%). The most important statistically significant difference lies in the prevalence of occasions of heavy drinking (five or more drinks in a row) which, according to Johnston, et al. (1997) is 41% among college students versus 33% among their age peers. The existing literature examining alcohol use among college students indicates that nearly all (80% to 90%) college students drink alcohol. Forty to forty-five percent of these students engage in binge drinking, that is, they drink five or more drinks in a single drinking episode (Wechsler, et al, 2000; Wechsler, et.al., 1997; Meilman, et al, 1997; Engs & Hanson, 1988; Rapaport, Cooper, & Leemaster, 1984; and Hughes & Dodder, 1983).

Delineating the etiology of alcohol use among college students is a complex issue. Previous research has revealed a number of variables related to student alcohol use including alcohol use by friends (Babst, Miran, & Koval, 1976; Ford, 1983), sensation seeking, (Schwartz et al, 1978); psychological discomfort, (Caswell & Hood, 1977), degree of social support (Roshenow, 1982); membership in a fraternity or sorority, (Larimer, Irvine, Kilmer, Marlatt, 1997; Montgomery & Hammerlie, 1993); stress reduction, (Shiffman & Wills, 1985) involvement in athletics and Greek organizations, (Wechsler et al., 1997; Overman & Terry, 1991), perceptions of the norm, (Haines and Spear, 1996, 1998); and

environmental factors (Wechsler, et al., 2000).

In 1976, Pearlin and Radebuagh presented data suggesting that alcohol use among adults may constitute a resource for coping while Bell, Keefley, and Buhl (1977) suggested that alcohol consumption may provide a buffer against the effects of stress. Cooper, Russell and George (1988) found positive relationships between maladaptive coping style and increased alcohol use (1988) as did Fromme and Rivet (1993) in their study of young adults. Other studies found relationships between stressful events, job-related stress, and drinking problems (Husaini, Neff & Stone, 1979; Hoffmann and Su, 1998); between first-time drunken driving offenses, stressful events, and the continuation of problem drinking and lower levels of social support (Wells-Parker, Miles & Spencer, 1983; Sadava & Pak, 1993). Schwartz, Burkhardt and Green's (1978) study of young adults concluded that drinking frequently serves as a coping mechanism for feelings of anxiety and stress. Because of the myriad stressors inherent in college life, the college campus represents a particularly vulnerable environment for this pattern to materialize.

To expand on the stress/alcohol use linkage, recent interest in human competence and coping has sparked in-depth studies of adaptation to life crises, stressors, and transitions. The extensive research in this area has examined such events as divorce or bereavement, forced migration, internment in a prisoner of war or concentration camp, victimization by rape, transition from high school to college, and job-related stresses. The common theme in all of this research is the

emphasis on the adaptive aspects of individual coping by highlighting the fact that many persons cope effectively with crises, transitions, and stressors, in keeping with the salutogenic orientation..

The extension of the research into college students' drinking behaviors beyond prevalence and into specific psychosocial variables represents a step in the right direction if we are to fully understand this continuing phenomenon. While these studies have been informative, an obvious void lies in the lack of methodologies designed to investigate a variety of psychosocial factors in concert with one another. For example, the notion of the importance of set and setting in alcohol (and other drug) usage is fairly well accepted by most researchers examining use and abuse as a necessary but not sufficient condition for use/abuse. However, again, in most cases, the analysis is not extended to include individual characteristics of the person. While set and setting may be an important variable, it cannot offer a viable explanation for why all of the persons in a given set and setting do not engage in alcohol use at the same rates. Much of the current literature examining alcohol use on college campuses has adopted a variation of the set and setting hypotheses that frames alcohol usage as a college norm (Meilman, Presley, & Cashin, 1997).

Various strategies have been used to prevent or reduce binge drinking including teaching students refusal skills, clarifying values, rewriting policies, increasing knowledge, and using peer education and scare tactics. Nevertheless, assessments of these approaches have provided little evidence that they are successful in preventing or

decreasing students' binge drinking experiences (Perkins & Berkowitz, 1986; Kraft, 1988; Magner, 1988; and Bangert-Drowns, 1988). Despite many innovative efforts on the part of university substance abuse administrators and other university health officials, trends related to excessive levels of binge drinking remain essentially unchanged.

Researchers Perkins and Berkowitz (1986) and Haines and Spear (1996) have extensively explored the notion of norms in relation to drinking on college campuses and found significant discrepancies between the actual levels of alcohol consumption among college students and the students' perceptions of their peers usual drinking levels. They found that students consistently overestimated both the amount of alcohol other students routinely consumed and the proportion of their fellow students who were heavy drinkers. Their findings suggested that students saw the higher levels of alcohol consumption as the norm. These researchers posit that perceiving heavy episodic drinking or binge drinking as the "usual" behavior of their peers, students may be more likely to engage in this "typical" behavior. The link between adolescents' perceptions of the norm and their actual behavior is also suggested by the findings of a number of other studies (Sherman, Presson, Chassin, & Olshavsky 1983; Ellickson & Hays, 1990-1991). The data from a 1995 study by Evans et al. and the previously mentioned national studies indicated a positive relationship between adolescents' perceptions of the norm of peers' health-related behavior and the individual's own behavior.

In response to these data and in an attempt to develop strategies



that lead to a reduction in binge drinking, the research examining binge drinking in the context of normative behavior has dominated the literature since the late 1980s. In fact, a central component of The Core Alcohol and Drug Survey is the examination of perceptions of college drinking norms. The Core was developed in 1989 by a committee of grantees from the Drug Prevention Program in Higher Education of the US Department of Education (Presley, Meilman & Lyster, 1993) and is one of the most widely used instruments examining binge drinking and drinking norms on college campuses. Its use and reported findings have contributed significantly to our understanding of students' perceptions of their environments.

Continued research by Perkins (1995) and others (Perkins & Berkowitz, 1986; Haines, 1996; Fabiano, McKinney, Hyun, Mertz & Rhoads, 1999) suggests that most students regularly overestimated the extent to which their peers were supportive of permissive drinking behaviors, and found that this overestimation predicted how much individuals drank. In keeping with social norms theory, such overestimations result in increased problem behavior while underestimations of healthy behaviors serve to discourage individuals from engaging in them. Social norms interventions focus on peer influences which have been found to be influential in shaping individual behaviors. These peer influences are based more on what we think our peers do (the perceived norm) than on their real beliefs or actions (the actual norm).

As noted, the normative approach proposed by Berkowitz in the 1980s, and tested by Haines and Spear (1996) suggests a promising

approach toward reducing binge drinking which focuses on changing student's perception of the norms surrounding alcohol use and determining if changed perceptions would be accompanied by a change in behavior. They conducted a 5-year study of 23,000 students at a public university where traditional interventions proved unsuccessful. A media campaign designed to change student perceptions of the amount of binge drinking resulted in an 18.5% drop (from 69.7% to 51.2%) in the number of students who perceived binge drinking to be the norm. They also reported a corresponding reduction of 8.8% in self-reported binge drinking (decreasing from 43% to 34.2%). These preliminary findings are rife with the usual limitations relating to the self-reported data and the heightened awareness associated with longitudinal studies; however, the results are encouraging. Outcome data from more traditional strategies indicated no significant change in drinking behavior for the same time period. That is, between 1988 and 1992, no significant changes took place in the proportion of participants in the national sample who reported engaging in heavy episodic or binge drinking. To lend further support to their changing the perception of the norm approach, Haines and Spear (1996) noted the absence of change in self-reported binge drinking in the longitudinal Monitoring the Future samples lends additional support to [our] results that imply that the self-reported decrease in their student sample may be attributable to the intervention rather than to a national trend of decreased binge drinking.

Since Haines and Spear's (1996) preliminary work focusing on

misperceptions of norms, other researchers (Johannesen, Collins, Mills-Nova, & Glider 1999; Fabiano, McKinney, Hyun, Mertz, & Rhoads, 1999) have also reported reductions in binge drinking associated with the promotion of accurate norms about drinking behavior.

Although the results of this preliminary work are encouraging, they are, as yet, far from definitive. While these studies suggest a significant validity to the notion of altering the perception of what is normative drinking behavior and provide a more positive direction for intervention than the ones previously implemented, for some, the findings raise cautions for health promotion interventions. That is, some researchers (find reference) believe that taking a normative approach may contribute to the perception that binge drinking among high percentages of college students is normal. The results of Haines and Spears study provides support for Perkins' (1986) suggestion that such interventions may be self-defeating.

As promising as changing students' perception of norms may be, it remains a one-dimensional approach to the problem of binge drinking. As epidemiologists have long known, rarely is there a single cause for disease or other health-related situations, in this case binge drinking. Rather, epidemiologists ascribe to a web of causation approach wherein biological, social, cultural, psychological, and environmental factors are considered and explored. When investigating patterns of alcohol use, it is important to consider, as social epidemiologists do, the complexity of human behavior. Like the majority of the research associated with college drinking behaviors, the normative approach to

alcohol studies is one-dimensional and does not take into account, why, if binge drinking is the norm, don't more students engage in binge drinking? As promising as a normative approach may be for intervention, it inadequately explains why the majority of students do not binge drink.

The multi-dimensional approach to the problem of binge drinking taken in this research is expected to advance our knowledge beyond norms toward the examination of the notion of meaningfulness, as exemplified by the Sense of Coherence, in the context of binge drinking and the attendant stressors of college life. And while this research reports the prevalence of binge drinking and its association with stressors, it also examines the concept of resiliency. That is, it examines if and how having a strong sense of coherence protects students from participating in the risky behavior of and associated with binge drinking.

To provide a theoretical framework for pursuing an investigation of the stress/alcohol use linkage, this researcher relies heavily on the work of Shiffman and Wills (1985) who have constructed a theoretical model of substance use at the psychological level of analysis. In most of the studies examining the connection between alcohol and stress, individuals report that they do, in fact, drink in response to stress and do so for a variety of reasons. Studies indicate that people drink as a means of coping with economic stress, job stress, marital stresses, and in the absence of social support (National Institute on Alcohol Abuse and Alcoholism, 1996). Additionally, typically it is found that the more severe and chronic the stressor, the greater the alcohol

consumption (Pohorecky, 1991). However, it must be noted that whether an individual will drink in response to stress appears to depend on many factors, including possible genetic determinants, usual drinking behavior, one's expectations regarding the effect of alcohol on stress, the intensity and type of stressor, the individual's sense of control over the stressor, the range of one's responses to cope with the perceived stress, and the availability of social support to buffer the effects of stress (Savada & Park, 1993; Volpicelli, 1987; Pohorecky, 1991; and Jennison, 1992).

Shiffman and Wills (1985) base their conceptual framework on two central postulates. The first is that mood-altering substances may be used as a coping mechanism for two independent reasons: they can reduce negative affect or can increase positive affect. Although these dual functions may appear paradoxical, there is reason to posit that substance use can accomplish both functions for a person. The second postulate, increasing positive affect, makes a distinction between stress-coping skills and temptation-coping skills: stress coping skills are conceptualized as cognitive or behavioral responses relevant for dealing with stress evoked by negative life events or enduring strains, and temptation coping skills are conceptualized as responses used to cope with temptation for substance use that occurs in particular situations. In this sense, they distinguish between skills relevant for coping with stress and skills relevant to coping with temptation. The use of temptation coping skills apply for situations in which the individual is attempting to control their drinking, thus, for our

purposes, the focus will be on stress coping skills.

Like Antonovsky, Shiffman and Wills (1985) define coping as activities or behaviors a persons uses in an attempt to maintain a balance between demands from the environment and resources available to meet these demands. In theory, the goal of such coping is to maintain an appropriate balance of positive and negative affect, or emotional equilibrium. From this perspective, substance use or binge drinking is one coping response (albeit a dangerous one) that people could use to achieve affect management in the reduction of stress.

According the Shiffman and Wills (1985) the development of a theoretical basis of substance use as a mechanism for coping with life stress/hassles/stressors must consider a basic proposition about the structure of psychological well-being: "Overall well-being is determined by independent dimensions of positive affect and negative affect. This proposition is supported by research in a variety of settings" (p. 13). (For a review, see Diener, 1984.) It is important to note the implication that a positive mood is not simply the absence of negative mood, or vice versa; rather, each appears to derive from different types of variables and occurrences and may mirror Antonovsky's beliefs about the contributing effects of comprehensibility, manageability, and meaningfulness in viewing a particular situation.

It has been noted that the selection of a particular coping mechanism has been hypothesized to depend on several factors (see Coyne & Lazarus, 1980). Perceived stress is hypothesized to be based on an extensive appraisal process in which individuals compare the current

environmental demands with the coping skills and background resources available to meet those demands. Given that significant stress is perceived, one determinant of coping behavior is the perceived severity of the stressor, with stressors that are more severe or more directly relevant to an individual's personal goals predicted to evoke a greater variety of coping responses. This notion is supported in the work of Gallagher et. al. (1994) who identified a threshold effect in the sense of coherence.

Another factor is the perceived changeability of the stressor; situations regarded as relatively changeable should evoke, in the strong SOC person, coping responses oriented toward problem solving and direct resolution of the situation, whereas problem situations that are perceived as relatively unchangeable should evoke, in the strong SOC person, coping strategies oriented toward cognitively reinterpreting the situation thereby minimizing the negative affect evoked by the stressor. This latter factor is especially applicable for college students--the bureaucracy associated with college life, peer pressure, for many their first experience away from home, unfamiliar social situations, financial stressors--may create a situation that is perceived as very stressful and unchangeable. Because it is perceived as unchangeable, the situation may also be perceived as uncomprehensible, unmanageable, and perhaps less meaningful in which case the student with a weak SOC may resort to alcohol use in an attempt to diminish the tension inherent in these situations, whereas the strong SOC person adopts appropriate and healthier coping strategies.

This brief review of the stressor/stress/alcohol linkage lends support to the hypotheses this research explores. The person with an orientation to life encompassing a strong SOC that sees situations as comprehensible, manageable, and meaningful need not resort to artificial means to manage affect. Because the strong SOC student will perceive stressors as less stressful and less threatening and more meaningful, they will engage in less binge drinking.

### Stress and Salutogenesis

The phenomenon of stress and its impact on human health has been the focus of a significant amount of research in the four decades since the publication of Selye's (1956) classic The Stress of Life, which examined the physiology of stress. Selye defined stress as the generalized result, whether mental or physical, of any demand on the body. An important breakthrough in the investigation of psychological effects of such demands was the development of a scale that attempts to measure their severity (Holmes & Rahe, 1967). Holmes and Rahe moved the study of stress from a focus on negative events to include positive events as well positing that both negative and positive events can cause stress since they both present demands to which one must adapt. Both of these stress studies focus on a departure from homeostasis.

In the study of the stress/illness connection, social epidemiology has emerged in recent years as a major bridge between the health sciences and the behavioral sciences. Where epidemiology has been traditionally concerned with the distribution of disease by time, place,



and person, the focus of social epidemiology has been on the sociocultural and psychosocial world and its relationship to morbidity and mortality. A particular emphasis has been on stress and morbidity and mortality: e.g., how do stressors or stressful life events (e.g., divorce, death of spouse or parent or child, unemployment, marriage, etc.) predispose persons to disease or negative health change (Gallagher, Wagenfeld, Baro, & Haepers, 1994; Cohen & Syme, 1985; Dohrenwend & Dohrenwend, 1974, 1984)?

Empirical evidence demonstrating a positive correlation between stress and illness invites the conclusion that healthy individuals are those who are subject to relatively few stressors. This is an untenable conclusion in that as Antonovsky and others have stated, stressors are ubiquitous in everyday life: they may be manageable but they are unavoidable. However, the stress-illness relationship, although statistically significant is consistently low. The relationship of stress to illness is further complicated by findings which suggest that the variability of the distribution of illness cannot be accounted for by differential exposure to stressful events (Kessler, 1979; Werner & Smith, 1982).

The empirical findings of early stress research have resulted in the refinement of theories of stress (Pearlin & Schooler, 1978), in the incorporation of the concept of differential vulnerability (Kessler, 1979; Werner & Smith, 1982, and Clarke & Driever, 1983); in coping, (Lazarus & Folkman, 1984) and in the role of various resistance resources as stress buffers (Kaplan, Cassell, & Gore, 1977; Johnson &

Sarason, 1979).

While these researchers explored the stress-disease linkage, termed by Antonovsky (1979) as the pathogenic orientation, other researchers began exploring concepts that may moderate the stress-illness relationship by exploring the concept termed by Antonovsky as salutogenesis. In the years since Selye, a number of salutogenic perspectives have emerged. Among them is Kobasa's (1982) personality hardiness; Rutter's locus of control (1966); Seligman's learned helplessness (1975); Ben-Sira's (1985) potency; Thomas's (1981) and Colerick's (1985) stamina; Frankl's (1963) will to meaning; Rosenbaum's (1988) learned resourcefulness, and Strumpfer's fortigenesis (1995). To use Antonovsky's phrase, these constructs all deal with how people manage stress and stay well (1987). The clearest and most explicit salutogenic construct is Antonovsky's Sense of Coherence (SOC).

As conceptualized within the salutogenic model, health is measured along a continuum, between a salutary end and a point of breakdown (Antonovsky, 1972), or disease at the opposite end. The interplay of opposing forces of internal and external environmental threat (stressors) and individual resistance determine one's position and direction of movement on the continuum. Thus, rather than explaining negative health outcomes, salutogenic studies are designed to test hypotheses that explain successful outcomes, to give attention to the deviant case in both data analysis and conclusions and accept the possibility that stressors may have salutary consequences (Antonovsky, 1987).

The sense of coherence was first identified and described in Antonovsky's (1987) principal text and is defined as

a global orientation that expresses the extent to which one has a pervasive, enduring though dynamic feeling of confidence that (1) the stimuli deriving from one's internal and external environments in the course of living are structured, predictable, and explicable; (2) the resources are available to one to meet the demands posed by these stimuli; and (3) these demands are seen as challenges, worthy of investment and engagement. (p. 19)

Central to the SOC are three elements defined, respectively as: comprehensibility, manageability, and meaningfulness. According to Antonovsky (1987),

Comprehensibility refers to the extent to which one perceives the stimuli that confront one, deriving from the internal and external environments, as making cognitive sense, as information that is ordered, consistent, structured, and clear. The person high on a sense of comprehensibility expects that the stimuli he or she will encounter in the future will be predictable or, at the very least, when they do come as surprises that they will be orderable and explicable. (p. 17)

According to Antonovsky, comprehensibility is the cognitive component of the SOC.

Manageability is defined (Antonovsky, 1987) as

the extent to which one perceives that resources are at one's disposal which are adequate to meet the demands posed by the stimuli that bombard one. The phrase at one's disposal may refer to resources under one's control or to resources controlled by legitimate others - one's spouse, friends, colleagues, God, ...etc., [that is] someone whom one feels that one can count on, whom one trusts. To the extent that one has a high sense of manageability, one will not feel victimized by events or feel that life treats one unfairly. Untoward things do happen in life but when they do occur, one will be able to cope... (p. 17).

Thus, manageability is the instrumental component of the SOC.

Finally, meaningfulness (Antonovsky, 1987) is the motivational element of the SOC. Formally,

meaningfulness refers to the extent to which one feels that life makes sense emotionally, that at least some of the problems and demands posed by living are worth investing energy in, are worthy of commitment and engagement, are challenges that are welcome rather than burdens that one would rather do without. (p. 18)

This does not mean that people welcome illness, death, or difficulty in their lives, rather, it means that if and when such things happen, a person scoring high on meaningfulness will take up the challenge and find meaning in it. They will see elements of life that are important to them in an emotional and cognitive sense as challenges (rather than burdens) worthy of emotional investment and commitment. (Antonovsky, 1987).

While all three components of the SOC are necessary and the concept must be considered as a whole since they act synergistically with one another, Antonovsky (1987) does not see these elements as being equally central. Meaningfulness is seen as the crucial component: "Without it being high on comprehensibility or manageability is likely to be temporary" (p. 22). Comprehensibility is next in importance, followed by manageability.

Like all aspects of the personality, the SOC has its genesis in both patterned sociocultural and psychological factors, as well as idiosyncratic events occurring throughout childhood, adolescence, and early adulthood. The SOC is developed through the process of coming to understand one's life experiences, and thus is rooted in the particular historical and sociocultural context of the individual's lifespan. In Sullivan's (1993) words,

the [strong] sense of coherence is internalized when life experiences are characterized by consistency, participation in

shaping outcomes, and a balance between punishment and reward, success and failure. It is developed as a dimension of the individual personality. (p. 1774)

Coe, Romeis, Tang, and Wolinsky (1990) have noted that the SOC falls within the interactional or transactional tradition. That is, the model describes the interactional relationships among factors such as stressors, states of tension, reaction of the organism (coping ability) and outcomes in terms of tension management and health status. Antonovsky agrees that tension management is crucial to successful health outcomes, but he emphasizes that the SOC is more than a simple coping strategy or response: it is a dispositional orientation that can help prevent breakdown in a stressful situation. As Coe (1990) and colleagues conceptualize it, the SOC is a perception of the ability to cope which incorporates dimensions of comprehensibility, manageability, and meaningfulness as part of the process of appraisal of stimuli, recognition of tension, and appropriate choice of resources to meet life's challenges.

To clarify how the SOC works, Antonovsky (1987) proposes that confronting a stressor results in a state of tension with which one must deal. Whether the outcome will be pathological, neutral, or salutary depends on the adequacy of tension management. According to Antonovsky (1990), the SOC directly influences health "in that it leads one to engage in behaviors...which promote health" (p. 79). Thus, someone with a strong SOC is more likely to: (a) adapt their responses to the demands of the specific situation rather than routinely responding in a rigid manner to all situations; and (b), to select from the available coping

responses those which are either neutral or health promoting (e.g., choosing to exercise to reduce tension rather than drinking alcohol). This situationally appropriate response is more likely to lead to a neutralization or diminution of the tension that predisposes one to negative health outcomes (Gallagher et al., 1994).

Tension management is accomplished through what Antonovsky terms "Generalized Resistance Resources" (GRRs). Briefly, these are characteristics of our biological, psychological, and social worlds that intersect to effectively aid in avoiding or combating stressors and in preventing tension from being transformed into stress and subsequently into disease (Antonovsky, 1979). Examples of these GRRs include material resources, intelligence, ego identity, coping strategies which are flexible, rational, and far-sighted, values, social support, religion, philosophy, a stable set of answers to life conundrums, and biologically, competent neurological and immune systems. Thus, the adequacy of available resources is an important factor in determining whether a stressful situation will lead to pathogenic stress or salutogenic tension management.

The primary functions of GRRs is that they enable one to make sense of the myriad stimuli which constantly assail us. In the context of tension management, we may view stressors as tending to increase disorder within the living system, while GRRs tend to increase orderliness in the system (Sullivan, 1993). A GRR then, by definition, creates life experiences characterized by consistency, participation in shaping outcomes, and an underload-overload balance and thus gives rise

to or reinforces a strong SOC.

Conversely, when similar reasoning is applied, Antonovsky conceptualizes the antithesis of GRRs as generalized resistance resources-resistance deficits (GRDs) or stressors. In the context of GRDs, Antonovsky defines a stressor as a "characteristic that introduces entropy into the system, that is, a life experience characterized by inconsistency, under-or overload, and exclusion from participation in decision making" (p. 28). According to Antonovsky, subsuming stressors under the overarching concept of GRDs provides a theoretical basis for the construction of the SOC measurement tool that links the resources and stressors through the SOC to health outcomes. Thus both resources (GRRs) and stressors (GRDs) have a direct (positive and negative, respectively) effect on personal functioning. Additionally, according to Antonovsky, from a theoretical perspective the integration of stressor and resource concepts results in a conceptual enrichment of the stress and coping literature. Through an examination of one's GRRs or GRDs (resources and stressors), a person can be ranked on a continuum. "The higher one is on the continuum, the more likely it is that one will have the kind of life experiences that are conducive to a strong SOC; the lower one is, the more likely it is that the life experiences one undergoes will be conducive to a weak SOC" (Antonovsky, 1987, 28). In summary then, what is common to all GRRs is that they facilitate making sense out of the countless stressors (GRDs) that face individuals.

The sense of coherence is not to be confused with either a coping mechanism or the concept of individual control. The sense of coherence

is a dispositional orientation, not a state or a trait. It is a way of looking at one's world rather than a response to a specific situation. It reflects one's conception of reality that is a decisive factor in coping and successful outcomes. It embraces components of perception, memory, information processing, and affect into habitual but not fixed patterns of appraisal, based on repeated experience of sense-making that have been facilitated by GRRs (Strumpfer, 1990).

A person with a strong sense of self and a firm identity would likely have a strong SOC. He or she is committed to and guided by fundamental principles and fixed rules, yet with considerable autonomy with regard to the application of the rules and the strategies to be used in a given situation. The strong SOC person, then, seeks a balance between rules and strategies, between stored and potential information, and has confidence that sense can be made out of new information.

It must be noted that while the pathogenic and salutogenic orientations are conceptually counterposed, in practice they are not mutually exclusive (DeBruyn & Wagenfeld, 1994). As Strumpfer (1990) notes, "the pathogenic and salutogenic paradigms do different things and in many respects complement each other....the salutogenic paradigm is vitally important to new insights and new growth in the social sciences" (p. 268).

The quest to determine what role stress plays in individual lives, how its presence or absence determines well-being or illness has led to investigations in a number of diverse areas. Since the seminal work of Selye it has been known that life stresses play a role in illness.



Selye's General Adaptation Syndrome (GAS) established the stress/illness link which posited that over time, in the face of continued stressors, the body reaches a point at which it can no longer adapt. A continued need for adaptation results in breakdown and the body enters a state of illness. Objective life circumstances have been found, with few exceptions, to be inconsequential predictors of well-being (Diener, 1984; Kammann, 1983). Kammann (1983) has argued for the need to understand the processes that bridge the gap between objective life circumstances and adaptation or maladaptation. Concerns of this nature have led researchers to consider the role of a range of variables such as personality factors and social support in influencing diverse adaptational outcomes. These outcome measures vary, but they commonly focus on psychological symptoms and pathogenic outcomes.

In one of the earliest traditions of stress and coping according to Lazarus and Folkman (1984), the dominant view had been quite simplistic: "stress or anxiety resulted in the impairment of skilled performance either by excessively heightening drive tension or by creating interference or distraction" (p. 7).

It became increasingly apparent, however, that there exist important individual differences in response to stress: individual performance was neither uniformly impaired nor facilitated. Therefore, predicting performance outcomes requires that attention be paid to the individual psychological processes that create the individual differences in reaction (Lazarus & Folkman, 1984). Increasingly it is believed that understanding these individual differences can aid in

bridging the gap mentioned by Kammann and others.

While stress is believed to be ubiquitous and an inevitable aspect of the human condition, it is coping that makes the difference in adaptational outcomes. Lazarus and Folkman (1984) trace the beginning of this shift from stress per se to coping to Lazarus' 1966 report Psychological Stress and the Coping Process. The early work on coping and stress (Krantz, 1983) suggests that the

problem directed coping behavior in stressful situations depends in part on the individual's appraisals of the resources for ameliorating the situation. When the person recognizes resources for improving the situation, active, problem-directed coping behavior and information seeking are likely. Conversely, when it appears that the person's coping resources are minimal, the person will attempt to regulate the distress but will do little to change the situation. (p. 538)

Lazarus and colleagues view the stress and coping model in transactional terms and focus on the mediating processes of cognitive appraisal and coping (Lazarus & Cohen, 1977). While coping has been variously described by theorists as attempts to enhance the fit between person and environment or as attempts to meet environmental demands to prevent negative consequences, perhaps most useful is the definition offered by Lazarus and Folkman (1984) who write that coping refers to "constantly changing cognitive and behavioral efforts to manage specific internal and external demands that are appraised as taxing or exceeding the resources of the person" (p. 141). This definition implies that coping may consist of a number of adjustments made either simultaneously or sequentially; it is restricted to instances of perceived stress and it excludes habitual or automatic adjustments to the requirements of daily life. In short, it is in keeping with Antonovsky's view of

situationally appropriate coping.

Coping theorists typically identify two major ways of coping with stressors: problem focused and emotion focused. Problem-focused coping consists of direct actions on the environment or on the self to remove or alter circumstances appraised as threatening. Emotion focused coping consists of actions or thoughts to control the undesirable feelings that result from stressful circumstances. Pearlin and Schooler (1978) have added a third broad category of coping responses: what can be called perception-focused coping consisting of cognitive attempts to alter the meaning of situational difficulties so they are perceived as less threatening.

What these coping approaches have in common is the resolution of tension. Coping theorists tend to focus on one of the above mentioned coping techniques. However, Antonovsky (1987) posits and his theory exemplifies that, depending on the stressor which one is facing, the strong SOC person chooses from a repertoire of coping styles. The hallmark of a person with a strong sense of coherence is the ability to choose what seems to be the most appropriate coping strategy. As Antonovsky (1987) states:

the stressors life poses are many and varied: positive or negative; brief, continuing, intermittent, or enduring; more or less objectively controllable; from within or from without; idiosyncratic, related to social roles or situations, or universal; chosen or imposed; and so on. To consistently adopt one pattern of coping--to fight, to flee, or to freeze; to depend on others or on oneself; to use denial or rationalization or sublimation; to depend on social supports or money or intelligence; and so on - is precisely to fail to respond to the nature of the stressor and hence to decrease the chances of successful coping. (p. 138)

Thus, rather than limiting oneself to one pattern of coping, be it problem focused, emotion focused or perception focused, the strong SOC person selects the particular coping strategy that seems most appropriate to deal with the stressor being confronted. That is, he or she chooses from the repertoire of generalized or specific resistance resources at his or her disposal those resources or strategies for coping that seem to be the most appropriate combination.

Here it is important to consider the notion of choice which will be revisited when discussing sense of coherence in relationship to binge drinking. For now, a distinction must be made between a resistance resource as a potential asset for coping and the actual mobilization and utilization of a resource. A person may have a variety of potential resistance resources at one's disposal which is in itself an asset; however, it is the actual mobilization of the most appropriate resource or combination of resources that gives the strong SOC person a true advantage. Simply having a variety of resources (GRRs) offers little protection from stressors unless they are mobilized in mitigating the effects of the stressor. Antonovsky (1987) notes, "the crucial factor involved in the process of mobilizing resources is the strong sense of meaningfulness" (p. 139). Having a sense of meaningfulness allows the person confronted with a stressor to be more likely to feel a sense of engagement, of commitment, of willingness to cope with the stressor.

#### Meaningfulness, Religiousness, Spirituality, and Stress

Studies are scarce on the religiousness-stress connection,

especially among college students; however, a host of studies provide strong evidence that religious belief and practice contribute to positive physical health. For example, Levin and Vanderpool (1991) reviewed over 300 articles supporting this association. Paloutzian and Kirkpatrick (1995) edited an entire issue of a major social science journal on Religious Influences on Personal and Societal Well-being. These review articles cited studies on the religiosity-stress linkage from adolescents (Donahue & Benson, 1995) to older adults (McFadden, 1995) and reported a wide variation in the of strength of the findings; yet the majority of the reviewed studies showed an inverse relationship between religiousness/spirituality and distress.

While the findings to date are far from univocal, mounting evidence indicates that various dimensions of religiousness and spirituality may enhance subjective states of well-being (Ellison, 1991), lower levels of depression and psychological distress (Idler, 1987, Williams, Larson, Buckler, Heckmann, and Pyle, 1991), and reduce morbidity and mortality (Levin, 1996). In relation to alcohol use, Miller (1998) found that spiritual/religious involvement was a protective factor against alcohol and drug abuse and that persons experiencing these problems have low levels of religious involvement. Similarly, in a college student sample, researchers found that students with no religious affiliation reported significantly higher levels of drinking frequency and quantity. They also reported getting drunk more frequently, drinking for celebratory reasons and higher levels of perceived drinking norms (Miller, 1998). These data have elicited

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considerable attention from researchers in medicine, epidemiology, psychology, sociology, gerontology and other fields.

From whatever field, researchers who seek to include religious or spiritual domains in their studies typically confront various problems. Foremost among them is the long history associated with attempts to conceptualize and measure dimensions of religiousness or spirituality and the lack of consensus on the definition of religiousness and spirituality primarily because of the complexity and existential nature of these concepts.

For this research, religiousness refers to the reporting of any religious belief, practice or both and spirituality refers to meaning, purpose, or direction (Schafer, 1996). Such simplistic definitions are fraught with problems. However, at the time of this research few viable alternatives were available. Perhaps the most salient problem associated with these definitions is the assumption that a self-reported religious or spiritual sensibility represents an internalized sense of meaningfulness. Despite this limitation and the necessity for adopting such a broad assumption, this researcher believes that an exploration of these concepts in the context of sense of coherence, stress, and binge drinking provides additional support to the relationship between stress, meaningfulness, and positive health outcomes.

While some researchers may regard spirituality and religiousness as indistinguishable as this researcher does for the purposes of this research; others believe religiousness has specific behavioral, social, doctrinal, and denominational characteristics not found in spirituality

because it involves a system of worship and doctrine that is shared within a group. Spirituality typically is less concerned with doctrine or behavioral aspects and is more concerned with the transcendent, addressing ultimate questions about life's meaning, with the assumption that there is more to life than what we can see or fully understand.

One of the purposes of most religions is to foster and nourish the spiritual life--and spirituality is often the most salient aspect of religious participation--however, it must be noted that it is possible to adopt the outward forms of religious worship and doctrine without having a strong relationship to the transcendent or a strong sense of meaning. As with other self-reported data, some assumptions must be made concerning the truthfulness of the respondent in this regard. Despite these limitations, there exists a large body of work addressing the salutary effects of religious involvement on health outcomes as noted above.

Attempts to measure the construct of meaningfulness grow largely out of the theoretical work of Frankl (1963) who asserted that the will to meaning is an essential human characteristic, one that can lead to physical and mental symptomology if blocked or unfulfilled. Others, like Antonovsky, speak of the importance of meaning or purpose in life as part of one's sense of coherence, a crucial component for successful coping.

The search for meaning has also been defined as one of the critical functions of religion. For instance, Frankl viewed meaning in religious terms. Meaning as he saw it was something to be discovered

rather than created, that is, every individual was said to have a unique, externally given purpose in life (Frankl, 1963). Other theorists have also defined religion as that individual and social force concerned with existential questions and their solutions (Batson, Schoenrade, and Ventis, 1993; Geertz, 1966). In support of the religion-meaning connection, several studies have demonstrated significant relationships between measures of religiousness (particularly conservative religiousness) and a sense of purpose in life (Dutton & Perlman, 1986; Paloutzian, 1981).

In a recent publication, Pargament (1999) discusses several scales that have been developed to measure aspects of meaning or purpose in life. He rightly suggests that it would be useful to distinguish the search for meaning (a process) from the success or failure of the search (the outcome). This suggestion results from factor analysis data that indicates that most scales do a better job of measuring the outcome than the process (Dutton & Perlman, 1986). Stated another way, more measures of meaning evaluate whether the individual has found meaning than whether the individual is searching for meaning. In light of this distinction, this research assumes the outcome orientation. That is, it assumes that if one has a strong sense of coherence, one has already found at least some meaningful aspects to their life.

Pargament also poses the question of whether meaning is inherently religious or spiritual; he believes "this question cuts to the heart of what it means to be religious. From the functional tradition of religious definition, the search for meaning could be (and has been)



defined as inherently religious" (Pargament, 1997). Stated another way this view asserts that anyone who searches for answers to question of meaning from this point of view would be defined as religious. Thus, the person who seeks meaning through science, drugs, alcohol, power, etc. would be considered as religious as the person who seeks meaning through transcendental or sacred means. Many would argue that this is a valid point of view because of the subjective nature of religion. However, this research adopts a perspective more in keeping with the traditional definition of religion that posits that the search for meaning becomes religious only when it involves some connection with the sacred.

Recent studies have shown a clear connection between stressful life events and various forms of religious/spiritual involvement (Bearon & Koenig, 1990; Bjorck and Cohen, 1993; and Ellison & Taylor, 1996). These studies suggest that despite the fact that life events can threaten or harm many objects of significance or arenas of personal importance--sense of meaning, intimacy with others, personal control, physical health, etc.--religion (defined broadly as the search for significance in ways related to the sacred) offers a variety of coping methods for conserving these objects of significance in times of stress, or if that is no longer possible, transforming the meaning of these objects of significance (Pargament, 1997).

While beyond the scope of this research, it is interesting to note the similarities in the aforementioned studies to Antonvosky's (1987) largely undeveloped work on boundaries. He posits that we all set

boundaries around what is meaningful to us and that one of the most effective ways a person with a strong SOC maintains his or her view of the world as coherent is to be flexible about the life areas included within his or her boundaries. The strong SOC person, then, sensing that the demands in a given area are becoming less comprehensible, manageable, or meaningful, can temporarily or permanently contract or expand the scope of the boundary to include additional resources or exclude the stressor or stressors. In this way, coping is accomplished by conserving or transforming what is meaningful to the individual. It can also be said that this approach is similar to Pearlin's previously discussed concept of perception-focused coping. What is central to all these theories is the importance of the concept of personal decision making as to subjective meaningfulness.

Pargament (1999) suggests that religion offers a variety of methods for coping with life's problems (e.g., confession, seeking spiritual support, prayer, rites of passage, conversion) and it is through these methods that the stress process is interrupted. . In the studies investigating religious or spiritual methods of coping, it is interesting to note that methods of religious/spiritual coping do not duplicate those of nonreligious coping (Pargament, 1999). Pargament states that religious/spiritual coping measures continue to predict significant portions of variance in outcomes to life stressors after removing the effects of nonreligious coping (Pargament & Koenig, 1997).

When considering religiousness and spirituality in the context of college students, a Gallup Poll conducted in 1989 reported that a

relatively high percentage of students reported maintaining some degree of faith and participation in religious or spiritual activities during the college years. Yet, surprisingly few studies have been conducted on the religiousness/spiritual/stress connection among students and those that been undertaken have yielded mixed results. For example, Schafer and King (1990) found no association between four religiosity measures (religious preference, born-again versus non-born-again, religious importance, and attendance at religious services) and perceived stress. The same findings held for students and non-students in a community-wide random sample survey (King & Shafer, 1992). However, Frankel and Hewitt (1994) found a positive relationship between faith group involvement and various aspects of health, including stress.

In a community survey of all age adults (Ross, 1990) found that the stronger the religious beliefs, the lower the level of psychological distress. However, in this same survey, Ross found that persons with no religion also had low levels of personal distress. This study did not consider spirituality which may have accounted for the inverse relationship between distress and no religion. Another community survey, Williams, Larson, and Buckler, (1991) found that although religious attendance did not directly reduce psychological distress, it did seem to lessen the harmful impact of stressful life events and physical health problems on psychological well being probably through the mechanism of social support.

There are several different theories from social psychology, health psychology, and stress that predict that religious belief and

practice and spirituality can contribute to lower stress. Spilka, Shaver, and Kirkpatrick (1985) drew on attribution theory which deals with how individuals attribute causes of events to explain how the religious experience might provide a cognitive framework for better comprehending and accepting stressful life events. Similarly, Rutter's (1966) social learning theory shed light on the potential impact of religiousness and spirituality on stress. To the degree that religious beliefs and practice, spirituality, or both provide a sense of meaning and purpose, they might empower the person with an enhanced sense of internal control for coping with adversity.

Social support theory holds that the greater the number and quality of social connections, the greater the stress resistance and the better the health (Kessler, House, Anspach, & Williams, 1995). Several others (Ferraro & Koch, 1994; Idler, 1987; Levin & Vanderpool, 1984; Pargament, 1986; and Schwab & Peterson, 1990) have noted that religious involvement is likely to bring with it strong social linkages, resulting in helpful social support in dealing with major life stressors and common daily hassles. This is consistent with Durkheim's (1915) classic view that religion is more a social than a psychological matter.

Coping theory (Lazarus & Folkman, 1984) has also been applied to the link between religiousness or spirituality and stress. Park, Cohen, and Herb (1990) have suggested that religious beliefs or spirituality might influence primary appraisal, which refers to initial interpretations of stressful events. Religious persons, for example, might see adversity as God's or some other higher beings attempt to

strengthen their faith or to communicate some important message. They might also have faith that they would not be led to harm or allowed to bear events that might be overwhelming. In the coping literature, religious or spiritual beliefs might impact secondary appraisals as well, which is the person's perceptions and assessments of coping options in response to stressors. For example, he or she might reject an angry or escapist response and pray for guidance or perseverance instead. While not stated explicitly, Antonovsky's sense of coherence theory encompasses aspects of both primary and secondary appraisal. That is, persons with a strong SOC in a primary appraisal will perceive stimuli as less stressful and in their secondary appraisal will assess and mobilize available resources to mitigate the stress.

Finally, Dull and Skokan (1995) suggest that religious individuals are more likely to maintain positive health habits, which in turn offer stress resistance. Researchers can reasonably predict that the greater a person's religiousness or spirituality or sense of meaning, the less likely the individual's lifestyle would include alcohol or other health-compromising coping strategies.

Religiousness and spirituality, like personality and health, are complex, multi-dimensional constructs. A working group of researchers at the Fetzer Institute in conjunction with the National Institute on Aging identified different domains of religiousness and spirituality that may be relevant for studies involving health and health outcomes. The domains identified include: meaning, values, beliefs, religious practices, coping, and daily spiritual practices with meaning occupying

a preeminent position. As discussed in this overview, the approach used in this research attempts to identify the salience of the domain of meaning in relation to sense of coherence, stress, and binge drinking.

Unlike pathogenic research, which is most comfortable with the magic bullet, single causation approach, the salutogenic approach used in this research compels us to examine the web of causation involved in students' binge drinking behaviors. While there is little consensus among researchers as to the most viable approach to studying stress reactions, i.e, life events versus daily hassles, Antonovsky (1987) notes that there is an emerging consensus among stress theorists that contend that regardless of the measure used to evaluate stress, what matters most is the individual's perception of the stressor.

Based on this review of the literature, this research examined binge drinking and perceived stress salutogenically in that it explored relationships between binge drinking, perceived stress, and sense of coherence. Additionally, because of the priority given by Antonovsky to the component of meaningfulness in the development and stability of the SOC, the concept of religiousness/spirituality were examined in relation to the SOC and binge drinking. Finally, this research examined the campus environment relative to binge drinking norms.

## CHAPTER III

### METHODS AND RESEARCH DESIGN

#### The Nature of the Study

One of the purposes of this research was to understand the scope of binge drinking on this Midwestern campus and the factors involved in students' binge drinking but more importantly, it was intended to examine and understand the factors associated with some students' resilience to engagement in binge drinking. In the context of a hypothesized relationship between perceived stress and binge drinking, special interest was taken in the role the student's orientation to life (their SOC) played not only in diminishing the perception of stressors but also in the role the SOC played in coping with and ameliorating stressors. Thus, the SOC in this instance, is used as a measure of resilience. Alcohol use (binge drinking), was used as a measurement of maladaptive coping to the perceived stresses of the sample.

This analytical study sought not only to determine the strength of the students' sense of coherence, their subjective degrees of stress, and self-reported levels of binge drinking, but also to examine problems associated with binge drinking, family alcohol history, degree of religiousness/spirituality, familiarity with campus alcohol policies and practices, and the students' assessment of campus norms around alcohol use. As the questionnaire developed for this research demonstrates (Appendix A), the study covers various psychosocial dimensions related

to alcohol use and misuse which henceforth will be referred to as binge drinking.

The students participating in this research attend a Midwestern university of approximately 30,000 students. This was a cross-sectional study and was conducted at a time in the semester which was relatively free of outside stimuli that might affect the findings. That is, care was taken to administer the questionnaire at times that would avoid midterm and final exams, spring break, and homecoming.

### Hypotheses

The following three hypotheses were tested:

1. Students with a strong sense of coherence will perceive their lives as less stressful than students with a weak sense of coherence.
2. Students with a strong sense of coherence will report less binge drinking than students with a weak sense of coherence.
3. Students with strong religious and/or spiritual convictions will have a stronger sense of coherence than students without strong religious and/or spiritual convictions.

### Methods

This study centered on college students because they represent the age group with the highest alcohol use. Alcohol was selected as the substance for investigation because it represents the drug of choice for most college students. The Orientation to Life questionnaire (Antonovsky, 1987) has proven to be robust and demonstrates a high



degree of internal consistency and reliability ( $\alpha=.82-.92$ ) in myriad studies, thus this researcher elected it for use in this research. The 29-item Orientation to Life Questionnaire is a systematic closed questionnaire that is usable for both interview and self-completion. It consists of 29 five-facet items; respondents are asked to select a response on a seven-point semantic differential scale with two anchoring phrases. A review of the literature using the SOC (Antonovsky, 1993) indicated that it has consistently high internal consistency in a considerable variety of populations, in different languages and cultures. In the author's opinion, it represents the clearest salutogenic approach holding promise for fascinating new findings about resilience, alcohol use and subsequent intervention programs. By taking a salutogenic approach one is freed from dichotomous thinking toward looking at alcohol use, coping, and stressors on a continuum. It moves us beyond the limitations of the dominant pathological paradigm of singular causation to a model that embraces multicausal factors.

As noted earlier, the Orientation to Life instrument encompasses measures of comprehensibility, manageability, and meaningfulness - the components of one's SOC. The 29-item scale contains 11 phrases dealing with comprehensibility, 10 items related to manageability, and eight items measuring meaningfulness.

Subjective levels of stress were measured using Cohen's Perceived Stress Scale ( $\alpha=.80$ ) (Cohen, Kamarck, & Mermelstein, 1983). The PSS was designed for use with persons with at least a junior high school education. The items are easy to understand and the response

alternatives are simple to grasp. The questions are quite general in nature, hence, it is relatively free of content specific to any sub population group. In light of the generality of the scale content, simplicity of language, and response alternatives, the scale is appropriate for measuring the perceived stress levels of the majority of college age students. The PSS has been widely used and has shown significant correlations in studies examining perceived stress and biological or verified disease outcomes (Cohen, Doyle, & Skoner, 1999; Glaser, Kiecolt-Glaser, Marucha, MacCallum, Laskowski, & Marlarkey, 1999; Malarkey, Pearl, Demers, Kiecolt-Glaser, & Glaser, 1995); stress and social support (Feldman & Cohen, 2000; Cohen, Gottlieb & Underwood, 2000); Cohen, Underwood, & Gottlieb, 2000; and Cohen, Kessler & Underwood, 1995). Additional research using the PSS has been conducted correlating perceived stress and social status, symptom expression, coronary heart disease, smoking, environmental stress, and prejudice. For a comprehensive review of the research on perceived stress see Cohen et.al. (2000).

The Core Alcohol and Drug Survey, on which a portion of this research's questionnaire is based, is comprehensive, yet relatively short and easy to administer. (The Core Survey, [http://www.siu.edu/departments/coreinst/public\\_html/](http://www.siu.edu/departments/coreinst/public_html/)) The Core was designed to assist post-secondary institutions in assessing the nature and extent of drug and alcohol use on their campuses. It came to be known as the Core Alcohol and Drug Survey because it was designed to be the centerpiece or "core" of potentially lengthier studies that institutions might conduct

on their campuses. It was specifically designed to be inexpensive, easily administered, of high quality, statistically reliable and valid, and comparable to other surveys in the field. The content areas were developed on the basis of both theoretical assumptions regarding alcohol and drug use in the higher education setting and on previous research reported in the literature.

A discussion of the validity and reliability of the Core indicates that the Core was developed using APA standards (1994). To establish content-related validity for this instrument, existing instruments and literature were reviewed to ensure that major aspects, consequences, and types of alcohol and drug use were adequately covered by items on the Core. A panel then reviewed each item to ensure construction of an instrument that sampled domains of interest. The inter-rater agreement threshold for item inclusion was .90. For test-retest reliability, the measures that were employed in looking at the Core included the Spearman rank correlation coefficient and the phi correlation coefficient of the relationship between variables. The data indicate that, overall, the Core survey is a stable, reliable instrument.

The nature of the Core allows for selective use of its questions, thus questions regarding alcohol use and campus norms were taken from the long form of the Core to allow for comparisons with other campus surveys. Nearly one million questionnaires have been completed at more than 1,000 colleges and universities. By using the Core wording on questions related to alcohol use and campus norms, national trends, aggregate national data reports, and specialized aggregate reports can

be referenced to allow individual campuses to compare themselves with national and regional norms and with other institutions having a similar demographic makeup.

While there are no widely used and adequately validated set of standard measures for religiousness/spirituality, there is mounting evidence that dimensions of religiousness and/or spirituality may enhance subjective states of well-being (Ellison, 1991; Greenberg, 1996, Schafer, 1996) and that religious individuals are more likely to maintain positive health habits (Dull & Skokan, 1995, Paloutzian and Kirkpatrick, 1995, Levin & Vanderpool, 1991, Donohue & Benson, McFadden, 1995). For this research, no previously prepared and tested instrument measuring religiousness/spirituality was used. Rather, as has been done in previous research, questions were constructed from variables identified from the literature which reflect several aspects of the religious or spiritual experience. With each variable an inverse relationship was expected between that variable and personal distress and binge drinking and a positive relationship was expected between each religiousness/spirituality variable and SOC. Thus, to identify alliance with a religious entity, respondents were asked, "are you a member of a church, mosque, or synagogue" with yes or no response possibilities. Belief in God might provide solace, comfort, guidance, optimism, self-empowerment or all of these which may act as benefits in the face of stressors. Thus, respondents were asked, "do you believe in the existence of God?" Response alternatives were yes, no, or uncertain. The greater the importance of religion, the greater might be the

salience and potency of the benefits just mentioned. Importance of religious was measured with this commonly used survey question: "For many people, religion plays an important role in their lives. How important would you say religion is in your life?" Response alternatives were very important, somewhat important, not very important. The greater the dependence on a larger power (whether a Judeo-Christian God or some other higher power) for strength and direction, the greater the potential sense of confidence that adverse events will turn out well; therefore, dependence upon a power larger than themselves was measured by the statement: "I depend upon a power larger than myself for strength and direction." Response alternatives to this statement were: agree, uncertain, disagree. Persons who see themselves as spiritual, whatever their organized religious involvements, might receive inner strength from their sense of being tuned into spiritual dimensions or forces beyond the mundane or from focusing on issues of meaning and purpose. In this vein, spirituality was measured by asking "How spiritual a person do you consider yourself to be? By spiritual, I mean, having a sense of meaning, purpose, and direction." Response possibilities were: very spiritual, somewhat spiritual, or not very spiritual. Having a clear sense of meaning and direction, whatever the source, might be expected to provide a sense of inner stability, confidence, and personal progress that in turn would add to distress resistance and effective coping. For determining meaning and direction, the statement "I have a pretty clear sense of meaning and direction in my life was used." Responses were agree, uncertain, or

disagree. Since frequent attenders of religious services, compared with infrequent attenders or nonattenders, might be expected to draw inner strength and distress resistance from their greater exposure to both the religious beliefs and the social support associated with religious services, the question "how often do you attend religious services?" was asked. Seven response alternatives ranged from never to more than once a week. Common to religious faiths is the belief that prayer offers such benefits as inner power, divine guidance, divine protection from harm, meaning, solution to life's problems, and a sense of comprehensibility. Thus, to determine the frequency of prayer, the question "how often do you usually pray or connect in your own personal way with the larger being you believe in?" Five response categories ranged from once a day or more to never. Finally, respondents were asked to identify their religious preference.

Antonovsky's (1987) Orientation to Life scale was included in its entirety. The complete perceived stress scale (PSS) was used in its entirety. Permission for use was granted by the authors of the respective scales. A selection of questions relating to alcohol use and college norms, as noted previously, were adapted from the Core Alcohol and Drug Survey. The questionnaire used in this study was designed to obtain as much information as practical on several variables in a brief amount of time. To allow for myriad possibilities, several questions provided opportunities for open-ended responses. This research does not include open-ended responses in this analysis. For most questions, use of pre-established categories resulted in less specific information, but

the respondent's task was made easier and more understandable by their use.

The final questionnaire used in this research consisted of 87 questions resulting in 187 variables. The questionnaire was 22 single-sided pages and took approximately 30 minutes to complete. The questions were grouped into five sections. Demographic questions such as age, college classification, racial/ethnic origin, gender, marital status, grade point average, and living arrangements, were asked first. These were followed by questions relating to religiousness and spirituality. Section three consisted of the Perceived Stress Scale followed by questions concerning alcohol use and college norms. The questionnaire concluded with the Orientation to Life Scale.

The survey instrument went through many stages of development and was pre-tested in an undergraduate sociology class of 30 persons. After completion of the pre-test, respondents were asked to anonymously make comments about the questionnaire regarding its clarity. Students were encouraged to comment on ambiguous and/or hard to understand questions. Additionally, they were asked to note any questions that seemed irrelevant. Analysis of the pre-test indicated that it was clearly understood and there were no reports of irrelevant questions. A subsequent discussion with those who participated in the pre-test revealed that most felt the questionnaire was relevant to their lives and more than adequately covered all possible drinking situations. Several students commented that they enjoyed the questionnaire. Approval from the university Human Subjects Institutional Review Board

was received before administration of the questionnaire (see Appendix B).

The questionnaire was administered during the winter term shortly after the term began. This time was chosen because it represented a good amount of time before spring break and midterm exams thus eliminating the possibility of skewed answers due to the stresses associated with midterm exams and the partying associated with spring break.

All questionnaires were administered by the primary researcher. At the outset of the questionnaire administration, the anonymous and confidential nature of the questionnaire was stated by the administrator of the questionnaire and was printed on the first page of the questionnaire as was the emphasis on the voluntary nature of the questionnaire. Student respondents were assured that refusal to participate in responding to the questionnaire would in no way affect their grade in the class. In the discussion of the questionnaire that follows, reference can be made to the questionnaire in its entirety in Appendix A.

Questions on personal characteristics of the student were asked in order to make statements about the sample and to allow comparisons of selected personal characteristics with the person's sense of coherence, perceptions of stress, religious or spiritual beliefs, and use of alcohol. The demographic questions selected were considered important characteristics because of the role they play in much of the literature on the epidemiology of alcohol use.



The next series of questions inquired into the religious and spiritual dimensions of the respondents' lives. The rationale for selecting the questions that were used to measure religiousness and/ or spirituality and examples of questions were discussed in an earlier section.

Perceived stress questions comprised section three and were included to measure respondents' global levels of perceived stress. Measuring levels of perceived stress are typically a better reflection of the stressors with which college students deal than are measurements of objective levels of stress or life events. Since different people find different experiences stressful and react to them in different ways, the 10-item perceived stress scale measures more global stressors such as being upset because of something that happened unexpectedly or feeling confidence in one's ability to handle personal problems. The perceived stress scale involves areas of life that are central to a person's identity and a person's ability to cope and control irritations.

Whether an individual will drink in response to a stressor appears to depend on many factors, including one's expectations regarding the effect of alcohol on stress, the individual's sense of control over the stressor, the range of one's responses to cope with the perceived stress, and the availability of social support (or GRRs) to buffer or ameliorate the effects of stress. Perceived stress scores are obtained by reversing the scores on the four positive items and then summing across all 10 items. Response categories range from never=0 to very

often =4. Thus, scores on the PSS can range from 0 to 40. The PSS was validated on two groups of college students (n=332, n=114) and one group of individuals enrolled in a smoking cessation program (n=64). The coefficient alpha reliabilities were .84, .85., and .86 respectively for the aforementioned groups.

Section four of the questionnaire asked students about their alcohol use. Examples of questions were: how many alcoholic drinks, on average, do you consume at the following places? Respondents were asked to provide a number for each of the following categories: bars, athletic events, fraternity and sorority social functions, residence hall informal get togethers, school dances, and off-campus parties. To measure binge drinking, respondents were asked how many times in the past two weeks have you had five or more drinks at a sitting. Response alternatives included: never, once, twice, 3 to 5 times, 6 to 9 times, 10 or more times. Students were asked about the average number of drinks they consume in a week. This was an open-ended question and for purposes of analysis numbers were grouped as follows: none, one to five, six to ten, ten to fifteen, 16 to 20, and more than 20.

To measure perceptions of college norms around drinking, respondents were asked to estimate the percentage of students they believed consumed no alcoholic beverages and to estimate the percentage of students who they believed consumed five or more drinks in a row on at least one occasion in the last two weeks. Responses to these questions were open-ended.

To allow for investigation into the supposition that age of first

alcohol has an effect on subsequent drinking problems, respondents were asked to report their age of first use. Respondents were also asked to identify, from a list of alcohol-related problems, all those that they have experienced due to their drinking in the last year. Examples of alcohol-related problems were: had a hangover, performed poorly on a test or important project, missed a class, damaged property, got nauseated or vomited, had a memory loss (blackout), took sexual advantage of someone or was sexually taken advantage of.

For examination of the correlation between a family history of alcohol problems and respondents' current use of alcohol, they were asked to identify using yes or no responses which persons from a list a family members have had alcohol problems.

Because membership in Greek societies and athletics has been correlated with increased alcohol use, questions regarding membership in Greek societies and participation in organized athletics were asked. Finally, to assess the respondents' attitudes about the risk factors associated with alcohol use, respondents were asked to assess the risks of drinking one or two alcoholic beverages each day, four or five drinks each day, five or more drinks in one sitting, and the risk of consuming alcohol prior to being sexually active. Four response alternatives ranged from no risk to great risk. A fifth alternative provided the option of don't know.

Finally, section five contained the Orientation to Life Questionnaire. Respondents were instructed to circle the number best expressing their feelings with numbers 1 and 7 representing extreme

answers. Of the 29 items on this questionnaire, eleven were an index of comprehensibility, ten an index of manageability, and eight served as a measure of meaningfulness. An example of one question to determine comprehensibility is "When you face a difficult problem, the choice of a solution is...." Responses are anchored with "always confusing and hard to find" or "always completely clear." Manageability is determined, for example, by "What best describes how you see life?" Extreme responses are: "one can always find a solution to painful things in life" or "there is no solution to painful things in life." Finally, the dimension of meaningfulness is reflected in the question, "Doing things you do everyday is...." "A sources of deep pleasure and satisfaction" or "a source of pain and boredom." While these questions explore the components of comprehensibility, manageability, and meaningfulness, the scale is summated and used as a whole (theoretical range 29-203); thirteen of the items are reversed when scoring. A summation of responses was calculated to determine the strength of the respondents' sense of coherence for use in the analysis of its correlation to perceived stress, binge drinking, and religiousness and/or spirituality.

The following method was used to obtain respondents. The primary researcher surveyed a cross-section of students without using random sampling methods due to the cost. An attempt was made to oversample African American and Asian students by gaining permission to administer the questionnaire in classes that typically appeal to large numbers of Asians and African Americans. However, due to the difficulty associated with this method, an adequate number of respondents for statistical

analysis was not achieved.

Classes required as core for completion of general education requirements were selected for survey administration since a good demographic cross-section of students typically fill these classes. Only one person was known to refuse participating in the survey. Professors and teaching assistants aided in the collection of data by releasing about 30 minutes of class time for the survey and by introducing the author. The author began administration of the survey by reading a standardized script emphasizing issues of confidentiality and the voluntary nature of the survey.

Upon completion of survey administration, all responses and missing responses were coded. Missing responses were coded as 9 and were listed as missing values in the data set. As required by Cohen and Antonovsky, items 23, 24, 26, and 27 of the perceived stress scale and items 59, 62, 63, 64, 65, 69, 71, 72, 74, 78, 81, 83, and 85 were reversed. After coding, the data set was entered into the computer for analysis using the Statistical Package for the Social Sciences (SPSS). After creation of the data set, an SPSS program was designed to run frequency distributions on all data while looking for errors in data entry. All data irregularities and outliers were checked against the questionnaires for accuracy. The frequency distributions provided a first look at the distributions of cases by variable category. Cross tabulations were run to measure the relationship of the SOC, perceived stress, religiousness and/or spirituality, and various binge drinking variables. Pearson's Correlation Coefficient was used to demonstrate

the strength of significant relationships. T-tests of means were used to determine significance of inter-group variation. Multiple regression analysis was conducted to determine the viability of the model created by this research and to determine which independent variables, SOC, perceived stress, religiousness and/or spirituality, and college norms were predictors of binge drinking.

## CHAPTER IV

### FINDINGS AND INTERPRETATIONS

#### Characteristics of the Sample

##### Demographics

When the survey was completed, the sample size was 471. Due to the way the sample was selected, the sample's ratio of students by college years was skewed in comparison to the ratio of the overall student the population. Freshmen and sophomores who were under-represented by 10.2% and 7.7% respectively (Table 1). Because binge drinking is typically associated with undergraduates, graduate student respondents were dropped from the sample resulting in a sample size for analysis of 463.

Table 1  
Distribution of Population and Sample by College Year

College Year	Population	Sample
Freshmen (n=73)	26%	15.8%
Sophomore (n=142)	23%	30.7%
Junior (n=104)	23%	22.5%
Senior (n=103)	28%	28.1%
Graduate (n=8)	Not Applicable	1.7%
Unclassified (n=3)	Not Applicable	.6%
Missing (n=3)		.6%
Total (n=463)	100.0%	100.0%

Students in the sample ranged in age from 18 to 68. As expected, the majority of students (89.2%) were between the ages of 18 and 23. The mean age in this sample was 21. Forty-one percent were male and 58% female.

Table 2 represents the ethnic/racial origin of the sample compared with the population of the university.

Table 2  
Distribution of Sample and Population

Race/Ethnicity	Population	Sample
American Indian (n=2)	0.4%	0.4%
Asian (n=13)	1.3%	2.8%
Hispanic (n=11)	1.8%	2.4%
Caucasian (n=388)	87.1%	83.8%
African American (n=15)	5.5%	3.2%
International (n=14)	3.9%	3.0%
Multiracial (n=9)	Not Applicable	1.9%
Other (n=4)	Included with Caucasian	.9%
Missing (n=7)	.	1.5%
Total (n=463)	100.0%	100.0%

When asked marital status, as expected, 94% reported being single, 5% were married, slightly over 1% were divorced, and less than 1% were widowed. Thirty seven percent of those surveyed live on campus. Of those living off campus, 61.5% live in an apartment or house and 5.8% live in a fraternity or sorority house. Most (76.6%) live with a roommate, 6.2% live alone, 5.2% live with their parents, 6.7% live with a spouse or significant other, and 1.3% live with children.

Thirty-two percent of students are unemployed, 57.4% work part-



time, and 10.4% work full time. Ninety-four percent of respondents were classified as full-time students. When reporting grade point average (GPA), .2% of students reported a GPA of 1.5 on a 4-point scale. Nearly 4% reported a GPA of 2.0, almost 20% had a GPA of 2.5, 37.8% reported 3.0, 30.8% reported 3.5, and 8.1% reported a GPA of 4.0.

Respondents reported participation in the following extracurricular activities. Fifteen percent participated in intercollegiate athletics, 31.5% in intramural or club sports, 22.2% belonged to a sorority or fraternity, 22.9% belonged to religious or interfaith groups, 6.0% were members of international or language groups, 2.6% participated in minority or ethnic organizations, 10.4% were aligned with political or social action groups, 89.8% participated in music and/or other performing arts groups, and 6.3% were associated with media organizations (student newspaper, radio, TV, magazines, etc.

#### Religiousness and Spirituality

In response to the question about church membership, 62.2% reported belonging to a church, synagogue, mosque, or other formal denomination with 35.9% reporting that religion is very important to them and 43.9% reporting that religion is somewhat important to them. Twenty percent said religion was not very important. When asked if they believed in the existence of God, nearly 90% responded affirmatively. Sixty-six percent of the respondents reported depending on a power larger than themselves for strength and direction. Thirty-four percent disagreed with that statement indicating non-dependence on a higher

being for guidance.

In response to the question, "how spiritual a person do you consider yourself to be? By spiritual, I mean, having a sense of meaning, purpose, and direction," 40.6% considered themselves to be very spiritual, 50.2% responded with somewhat spiritual, and 9.2% said they were not very spiritual. However, when asked to agree or disagree with the statement, "I have a pretty clear sense of meaning and direction in my life," nearly 87% agreed with the statement while 13.1% disagreed. It is interesting to note that 66% reported dependence on a higher power for strength and direction yet only 40.6% considered themselves "very spiritual" and 90% believed in the existence of God. From this one can suppose that these students may be viewing religion and spirituality as distinct entities.

Ten percent of respondents reported never attending church/religious services, 17% attend less than once each year, 30.7% attend several times each year, 13.6% attend at least once a month, 13.4% attend two to three times each month, and 11.8% attend religious services once a week. Four percent of respondents reported attending services more than once a week.

When asked how often the respondents prayed or connected in their own personal way with the larger being they believe in, 31.4% reported everyday, 22.9% reported every few days, 12% said once each week, 22.9% reported less than weekly contact, and 10.7% reported never praying or connecting with the higher being they believe in.

Nearly 11% (10.6%) of the respondents reported having no religious

preference. Twenty-three percent were Protestant, 38.5% Catholic, 1.9% Jewish, 1.3 Muslim, and 24% responded to Other without identifying a denomination.

### Perceived Stress

Perceived stress (Table 3) scores ranged from 0 to 36 (theoretical range 0 to 40). Alpha for the perceived stress scale in this sample was .8703. Response alternatives ranged from never feeling stressed, almost never, sometimes, fairly often, and very often. Nearly five percent (4.8%) reported never feeling stressed, 32.8% reported feeling stress almost never, 46.4% reported feeling stressed sometimes, 15.1% reported feeling stressed fairly often, and .9% reported feeling stressed very often. . For analytical purposes, scores were arranged to correspond with the normal curve; resulting in three categories of low, moderate, and high perceived stress. Low perceived stress was reported by 21.7% of the sample; 65.4% reported moderate perceived stress, and 12.2% reported high perceived stress.

Table 3  
Perceived Stress Levels of Sample

Perceived Stress	Frequency	Percent	Valid Percent
Low	100	21.7	21.9
Moderate	301	65.4	65.9
High	56	12.2	12.3
Missing	3	.7	
Total	460	100.0	100.0

These data indicate that 77.6% of students surveyed reported experiencing moderate to high levels of perceived stress. With a theoretical range of 0 to 40, the mean for perceived stress was 17.76, the median was 18, and the mode was 21 with a standard deviation of 6.17.

T-tests of means revealed significant differences in perceived stress scores by age ( $F=2.304$ ,  $df\ 4$ ,  $p<.05$ ). By age, 18 year old students had the highest mean perceived stress score (19.09, S.D. = 6.44) and 20 year old students reported the lowest mean score of 17.09, S.D.= 5.68. Similarly, there were significant differences in perceived stress scores ( $F=3.174$ ,  $df\ 5$ ,  $p<.05$ ) by grade classification with freshmen reporting a mean perceived stress score of 19.42, S.D. 6.40 and Juniors reporting a mean perceived stress score of 17.75, S.D. 5.84. Mean perceived stress scores were significantly different for males and females ( $F=9.870$ ,  $p<.05$ ). Females reported a mean perceived score of 18.54, S.D.6.08 while males reported a mean perceived stress score of 16.68, S.D.6.18. Students living on campus had a mean perceived stress score of 18.46, S.D. 6.41 and students living off campus reported a mean perceived stress score of 17.72, S.D. 5.96. T-test revealed that these differences were significant ( $F=3.834$ ,  $df\ 1$ ,  $p<.05$ ). Other significant differences in mean perceived stress scores ( $F=3.154$ ,  $df\ 4$ ,  $p<.05$ ) were found in relation to grade point average with 2.0 GPA students reporting the highest mean perceived stress score of 21.00, S.D. 4.39 and 4.0 GPA students reporting the lowest at 15.65, S.D.7.91.

Students who reported that they believed in God reported a mean

perceived stress score of 18.10, S.D. 5.86 while students who reported that they did not believe in God reported a mean perceived stress score of 12.89, S.D. 9.95 ( $F=7.273$ ,  $df\ 2$ ,  $p<.01$ ). Those students who felt religion was very important reported a mean perceived stress score of 18.65, S.D. 5.87 while those who reported that religion was not very important to them reported a mean perceived stress score of 16.03, S.D. 7.08 ( $F=5.280$ ,  $df\ 2$ ,  $p<.05$ ). When asked how spiritual they believed themselves to be, those students who reported that they were very spiritual had a mean perceived stress score of 17.42, S.D. 6.07 and those who reported being not very spiritual had a mean perceived stress score of 14.68, S.D. 7.07. The highest mean perceived stress score among this group was reported by those who believed they were somewhat spiritual. Their mean perceived stress score was 18.54, S.D. 5.92 ( $F=7.226$ ,  $df\ 2$ ,  $p<.05$ ). Students who responded affirmatively to having a clear sense of meaning in their lives reported a mean perceived stress score of 17.28, S.D. 6.08 while students who responded negatively reported a mean perceived stress score of 20.93, S.D. 5.78 ( $F=18.925$ ,  $df\ 1$ ,  $p<.01$ ). When asked how frequently they prayed, students who reported never praying had the lowest mean perceived stress score at 14.16, S.D. 5.94 while students who reported praying once a day had the highest mean perceived stress score at 18.38, S.D. 5.56 ( $F=4.651$ ,  $df\ 4$ ,  $p<.01$ ). Perhaps they are praying to have their stress relieved. Mean perceived stress score by religious preference revealed that Catholics reported the highest mean perceived stress score (18.77, S.D. 5.38) while those students who reported no religious preference reported the

lowest mean perceived stress score at 16.85, S.D. 7.47 ( $F=3.127$ ,  $df\ 3$ ,  $p<.05$ ).

Students who reported using alcohol to deal with stress reported a significantly higher mean perceived stress score (19.67, S.D. 5.59) than did students who reported that they did not use alcohol to deal with stress (16.65, S.D. 6.22) ( $F=26.196$ ,  $df\ 1$ ,  $p<.01$ ).

When asked if they feel safe at this university, students who responded affirmatively had a significantly lower ( $F=12.361$ ,  $df\ 1$ ,  $p<.01$ ) mean perceived stress score (17.55, S.D. 6.04) than students who reported they did not feel safe at this university (22.29, S.D. 5.62). Significant differences were found among those students who did and did not feel valued at this university ( $F=4.727$ ,  $df\ 4$ ,  $p<.01$ ). Those students who strongly agreed or agreed with the statement about feeling valued reported a mean perceived stress score of 15.00, S.D. 6.02 and 17.07, S.D. 5.50, respectively while students who disagreed or strongly disagreed reported a mean perceived stress score of 19.50, S.D. 6.17 and 20.00, S.D. 8.58, respectively. Finally, t-tests revealed significant differences among students who strongly agreed and agreed with the statement that faculty and staff care about them and those who disagreed or strongly disagreed with the statement ( $F=6.275$ ,  $df\ 4$ ,  $p<.001$ ). Students who strongly agreed that faculty and staff cared about them reported a mean perceived stress score of 15.52, S.D. 5.57 and those who agreed reported a mean perceived stress score of 16.60, S.D. 6.10. Conversely, students who disagreed and felt that faculty and staff did not care about them reported a mean perceived stress score of 20.21,

S.D. 6.49 and those who strongly disagreed reported a mean perceived stress score of 20.91, S.D. 7.75.

### Sense of Coherence

The theoretical range for the Sense of Coherence is 29-203. Alpha level for the SOC scale in this sample was .9025. In this sample of college students, scores ranged from 60 to 188. Mean score was 137.60, median, 138, and mode 127. Previous research conducted with a similar sample found SOC scores of 133.7 with a 21.16 standard deviation (DeBruyn, 1991). The mean reported for this sample (137.60) compared to other SOC-29 studies with a college population, was about in the middle of the reported distribution. Other studies using a college age sample reported means as follows: a 1988 study of 488 U. S. undergraduates, mean=135.7; a 1989 study, U.S. undergraduates (n=95) reported a mean score of 141.90, S.D.=26.22; Radmacher's 1988 test re-test study of U. S. college students (n=307) reported a mean of 129.53 at time 1; two weeks later the reported mean was 130.65, S.D.=24.94 and 25.67, respectively. Finally a 1989 study (n=163) revealed mean scores of 123.6, S.D. = 17.4 for women and 125.0, S.D. = 15.1 for men (Antonovsky, 1992). Mean values on SOC-29 reported by Antonovsky ranged from 123.6 to 159 (Antonovsky, 1992).

Cutting points for the Sense of Coherence Questionnaire have not been established, thus, for this research, cutting points were established to correspond with the normal curve resulting in three levels: weak, moderate, and strong. In the majority of SOC research,

scores are dichotomized at the mean thereby categorizing respondents as having either a weak or a strong sense of coherence. However, this researcher believes that a simple dichotomization of scores skews and minimizes the findings in that a single number can differentiate between a weak and strong sense of coherence. Moreover, as Antonovsky (1987) notes in his discussion of health, pathogenic research views people dichotomously, that is, either they are healthy or they are sick. However, salutogenic research places persons on what he calls a health ease/dis-ease continuum. He also speaks of movement on the SOC continuum, toward health ease or dis-ease, depending on one's life experience. Thus, it makes conceptual sense to examine the SOC using more than a simple dichotomization. Furthermore, in measuring the SOC in the pilot study of the construct, Antonovsky classified respondents on a ten-point scale of strong to weak SOC but these categories were subsequently collapsed into strong, moderate, and weak (Antonovsky, 1987). Additionally, in Antonovsky's Israeli national sample study (1983), responses were collapsed into five categories. Elsewhere in *Unraveling the Mystery of Health* (1987), Antonovsky refers to "a given location on the SOC continuum" (p.119) and in speaking of the dynamics of the SOC, he refers to persons whose "SOC is moderate." Finally, in his discussion of the pathways leading to successful coping and health, Antonovsky (1987) states "although throughout I have referred to persons with a strong or with a weak SOC, I trust it has been obvious that this was simply a parsimonious way of saying 'the higher one is on the SOC continuum, the more likely....' (p. 147). These examples, taken from



Antonovsky (1987), provide support for the maverick cutting points established in this research. Table 4 reports the distribution of the Sense of Coherence for the total sample.

Table 4  
Distribution of SOC in Sample

Sense of Coherence	Frequency	Percent	Valid Percent
Weak	64	13.9	15.1
Moderate	287	62.4	67.5
Strong	74	16.1	17.4
Missing	35	7.6	
Total	460	100.0	100.0

T-tests of SOC means revealed significant differences by marital status ( $F=10.384$ ,  $df\ 3$ ,  $p<.001$ ). Single students reported a mean SOC of 137.71, S.D. 20.29, married students a mean SOC of 150.00, S.D. 16.30, divorced students a mean SOC of 97.25, S.D. 32.63, and widowed students a mean SOC of 77.00, S.D. 00.0.

When asked if they believe in God, students responding affirmatively reported a mean SOC of 137.84, S.D. 19.95 while students responding negatively reported a mean SOC of 144.89, S.D. 32.64 ( $F=3.025$ ,  $df\ 2$ ,  $p<.05$ ). When asked how spiritual they considered themselves to be, students who reported being very spiritual had the highest mean SOC at 142.24, S.D. 20.14 while students who reported being somewhat spiritual or not very spiritual reported a mean SOC score of 134.21, S.D. 20.22 and 135.46, S.D. 25.59, respectively ( $F=7.187$ ,  $df\ 2$ ,

$p < .01$ ). In response to the statement about having a clear sense of meaning and purpose, those who agreed with the statement reported a mean SOC score of 140.15, S.D. 19.81 while those who disagreed with the statement reported a mean SOC score of 120.79, S.D. 20.91 ( $F = 46.404$ ,  $df = 1$ ,  $p < .001$ ).

Students who reported never bingeing within the past two weeks reported a mean SOC score of 138.58, S.D. 21.52 while those who reported bingeing 10 or more times within the past two weeks reported a mean SOC score of 96.50, S.D. 27. The mean SOC score for those reporting bingeing once within the past two weeks was 137.87, S.D. 21.25, bingeing three to five times, 136.27, S.D. 20.10, and bingeing six to nine times, 128.43, S.D. 26.15 58 ( $F = 2.340$ ,  $df = 5$ ,  $p < .05$ ).

An inordinate number of missing cases was reported for the SOC-29. Typically, respondents find this scale interesting as reported by Antonovsky (1967); however, the scale was placed at the end of a 22 page double-sided questionnaire and it is possible that respondents were feeling pressed for time or becoming tired when they reached the end of the questionnaire. Furthermore, the final scale item was the only item on the last page of the questionnaire, which required turning the page over. This final item was left blank by a number of respondents causing the entire scale for those respondents to be invalid.

#### Alcohol Policies and Practices on Campus

In response to the question regarding the availability of alcohol on this campus, 68.7% indicated they would rather have alcohol available

with 26% indicating they would prefer not to have alcohol available on campus. When asked if they were aware of a university policy on alcohol, 64% responded affirmatively, 1.5% said they were unaware of university alcohol policies, and 34.1% responded don't know. Less than 50% (40.1%) reported they thought the alcohol policies were enforced; 14% said they weren't enforced and 45.8% said they didn't know if they were enforced. Most students (63.7%) indicated they did not know if this university had an alcohol prevention program, 2.4% believed the university did not have an alcohol prevention program. Yet, 63.3% believed this university was concerned with prevention and 23.8% indicated they didn't know if this university was concerned with prevention.

#### Perceptions of Campus Alcohol Use

Regarding campus norms around alcohol use, students participating in the survey were asked to estimate the percentage of students on campus who consume no alcoholic beverages at all. Thirty-seven percent of the sample thought that 10% or less students abstained from alcohol use, 28.9% of the sample thought approximately 29% of students used no alcohol, 17.3% of the sample thought 30% or less used no alcohol, 8% of the sample thought 40% of the student population used no alcohol, and 8.6% of the students sampled thought the percentage of students who used no alcohol ranged between 50% and 100%. It is clear from these responses that a significant portion (66%) of the student body at this university believe that the majority of students use alcohol,

see Table 5.

Table 5  
Survey Participants' Estimates of Abstainers on Campus

Percent Abstainers	Percent Estimating Abstinence
10% or less	37.2
20% or less	28.9
30% or less	17.3
40% or less	8.0
50% or less	1.5
More than 50%	7.1
Total	100.0

When asked to estimate the percentage of students the respondents believed consumed 5 or more drinks in a row on at least one occasion in the past two weeks (binge drinking), only .9% estimated that less than 10% binge drank. Nearly 9% believed that 30% of the students on campus binge drink, 22.5% believed that 31% to 50% of the students drank 5 or more drinks in one sitting within the past two weeks, and 49.9% believed that 51% to 80% of the students had at least one binge drinking episode in the past two weeks. Almost 17% of the student estimators believed that 82% to 100% of students had a binge drinking episode within the past two weeks. It would appear from these data that binge drinking is perceived as a widespread campus activity with over two-thirds of the sample estimating that 51% to 100% of students have engaged in at least one binge drinking episode within the past two weeks, see Table 6.

Table 6  
Percentage of Student Respondents Estimating  
Binge Drinking Episodes of Others

Percent of Binge Drinkers on Campus	Percent of Student's Estimating Others Binge Drinking
Up to 10%	0.9
15% to 30%	8.8
31% to 40%	8.0
41% to 50%	14.5
51% to 60%	14.2
61% to 70%	13.9
71% to 80%	21.8
81% to 90%	11.7
91% to 100%	5.1

#### Attitudes About Drinking

It is with dismay that this researcher reports that while 45.1% of the respondents to this questionnaire reported never having had five or more drinks at a sitting within the past two weeks, the majority of students (54.9%) reported having engaged in at least one binge drinking episode within the past two weeks. This percentage is higher than the average (44%) reported in the majority of the literature on binge drinking on campuses.

Respondents were asked how many times in the past two weeks they had consumed five or more drinks at a single sitting. Forty-five percent reported never having had five or more drinks at a single sitting within the past two weeks, 17.9% reported once, 11% reported twice, 20.3% reported consuming five or more drinks three to five times within the past two weeks, 3.2% reported having five or more drinks six

to nine times within the past two weeks, and .4% reported drinking five or more drinks ten or more times within the past two weeks.

Respondents were asked about their own attitudes regarding alcohol use and then were asked to identify a statement that best represents the most common attitude among students, in general, at this university. When asked about their own attitude, 10.5% thought using alcohol was never a good thing to do, 19% thought it was okay as long as they didn't get drunk. The majority of respondents (63.6%) felt that it was okay to get drunk occasionally as long as their drinking didn't interfere with academics or other responsibilities. Three percent felt that it was okay to get drunk occasionally even if it did interfere with academics and other responsibilities and another 3.9% responded that it was okay to frequently get drunk if that is what they want to do.

Regarding what they believed the most common attitude of others to be about drinking alcoholic beverages, respondents estimated that 1.3% of the student body thought drinking was never a good thing to do. Three percent believed the general attitude of others was that it was okay to drink as long as they didn't get drunk. Again, the majority of respondents (54.2%) believed the general attitude among others on this campus was that it was okay to get drunk occasionally if it didn't interfere with academics or other responsibilities. Another 19% felt that others thought it was okay to occasionally get drunk even if it interfered with academics or other responsibilities. Finally, 21.6% believed that others thought it would be okay to get drunk if that is what the individual wants to do. These data are disturbing in that such

large percentages of students believe that getting drunk is okay and believe that getting drunk is the norm on campus. These data also lend support to the literature citing that many college students have skewed notions about the prevalence of drinking on campus and see drinking and getting drunk as the norm (Haines & Spear, 1996; Perkins, 1997; Presley, Meilman, & Cashin, 1996), see Table 7.

Table 7  
Drinking Attitudes of Self and Others

Attitude	Self	Others
Drinking never good to do	10.5%	1.3%
Drinking OK but not drunk	19.0%	3.0%
OK to get drunk/not interfere with responsibilities	63.6%	54.2%
OK to get drunk/even if interferes	3.0%	19.0%
OK to get drunk if it's what they want to do	3.9%	21.6%

Respondents were next asked about how many drinks they consumed in various locales. Eighteen percent reported they never drink in bars or at parties, 12.9% indicated they drink one or two drinks when they frequent bars and parties, and 23.6% reported that they typically had three or four drinks at each bar or party they attended. Nearly one-half (45.5%) of the respondents reported that at bars and parties, they typically drink 5 or more drinks. It is interesting to note that while

45.5% report having five or more drinks while at a bar or party, nearly two-thirds (63.4%) of students indicated they believed 51% to 100% of students drink at least that much. Again, these data suggest how normalized binge drinking is for college students.

When asked about their friends drinking habits at bars and parties, 6.5% (compared to 18% for self) reported that their friends did not drink at all, 9.8% reported their friends had one or two drinks (compared to 12.9% for self), and 19.9% reported their friends had three or four drinks while at bars or parties (compared to 23.6% for self). Nearly two-thirds (63.8% compared to 45.5% for self) reported that their friends drank five or more drinks at parties and bars. Clearly these students are grossly overestimating how much their friends binge drink.

Respondents were asked to estimate the number of drinks students in general drank at parties and bars. Less than 1% estimated that students in general had no drinks while at parties and bars (compared to 18% reported for self), 3.1% estimated that students in general drank one or two drinks while at parties and bars (compared to 12.9% reported for self), and 22.8% believed that students in general drank three or four drinks while at parties and bars (compared to 23.6% reported for self). An astounding 73.2% believed that students in general drank five or more drinks while at bars and parties compared to 45.5% they reported for self. Again, these percentages represent gross overestimations. Participants in the questionnaire estimated that males and females exhibited different drinking habits at bars and parties. They believed



that less than .2% of males and less than .4% of females drank nothing while at bars and parties. Respondents believed that 2% of males and 7.5% of females typically had one or two drinks while at bars and parties, while they believed that 8.4% of males and 36.5% of females had three or four drinks at bars and parties. Respondents estimated that a disturbingly high 91.6% of males and 55.6% of females had five or more drinks at parties.

When comparing perceptions of on-campus to off-campus drinking, respondents indicated that they believed 1.3% of students drank zero drinks on-campus and 1.3% had zero drinks off-campus. Respondents estimated that 6% and 12% had one or two drinks, on-campus and off-campus respectively. Interestingly, they indicated that 28.3% drank at bars and parties on-campus while 14.5% drank at bars and parties off campus. When estimating the percentage of students who drank five or more drinks at on-campus bars and parties, they indicated 71.7% while they estimated 85.5% drank five or more drinks at off-campus bars and parties. It should be noted here that there are no on-campus bars at this university.

Much of the literature on college drinking indicates that members of Greek societies drink more than the general student body. Estimates given by the respondents in this sample indicate a similar perception. When comparing estimates of typical alcohol consumption at fraternity and sorority parties, this sample reported that they believed that 95.1% drank five or more drinks at fraternity parties and 77.3% drank five or more drinks at sorority parties. Other estimates were 4.9% of students

drank three or four drinks at fraternity parties and 18% of students drank three or four drinks at sorority parties; 1.7% drank one or two drinks at fraternity parties and 3.3% drank one or two drinks at sorority parties. Finally, the respondents in this sample estimated that 1.7% of students drank no drinks at fraternity parties and 1.4% drank no drinks at sorority parties.

Like members of Greek societies, athletes are also considered a high risk group when it comes to alcohol consumption; however, while estimates are still very high, in this sample, students estimated lower percentages for this segment of the student body than for the general student body. Percentages were: 4.8% of athletes drink nothing at all at bars and parties; 9.1% have one or two drinks; 21.2% have three or four drinks; and 64.9% of athletes have five or more drinks at bars and parties.

When asked to indicate how many alcoholic drinks the respondent typically consumed when at bars, athletic events, sorority or fraternity social functions, residence hall informal get togethers, or off-campus parties, they indicated the following amounts. Nearly 45% indicated they didn't drink at all in bars, 11.4% reported they typically had one or two drinks in bars, 19.2% indicated they typically consumed three or four drinks in bars, and 24.5% said they typically had five or more drinks in bars. These figures loosely correspond with the age of the respondents of whom 55.6% are under age 21, the legal drinking age in this state. Surprisingly low percentages of students reported drinking at athletic events. Seventy-six reported drinking no alcoholic

beverages at athletic events, 7.6% reported having one or two drinks, 5.7% reported three or four drinks, and 10.5% reported having five or more drinks at athletic events. Fifty-three percent of respondents reported that they never drink at fraternity parties, 6.3% reported drinking one or two drinks at fraternity parties, 11.2% reported having three or four at fraternity parties, and 29.4% indicated they drank five or more drinks at fraternity parties.

The percentages for drinking at sorority parties fall even lower with 69.5% of respondents reporting that they never drink at sorority parties. Nearly 8% reported drinking one or two drinks at sorority parties, 6.5% reported drinking three or four, and 16.2% reported having five or more drinks at sorority parties.

As expected, respondents reported more drinking at off-campus parties with 50.3% reporting they typically consume five or more drinks at off-campus parties. Nineteen percent reported typically consuming three or four drinks, 9.3% reported typically drinking one or two drinks, and 21.2% reported drinking nothing at off-campus parties. From these data it becomes evident from what students report that they believe others drink more than they do. These data lend support to those researchers who posit that students typically overestimate the number of students on their campus who drink.

When asked to estimate how many alcoholic drinks were consumed by others at the same events and/or locations, percentages were greatly inflated over what they reported for themselves. Respondents reported they believed 1.1% did not drink at all at bars (compared to 45% they

reported for self), 4.4% drank one or two drinks at bars (compared to 11.4% reported for self), 27.3% consumed three or four drinks at bars (compared to 19.2% reported for self), and 67.2% consumed five or more drinks at bars (compared to 24.5% reported for self). The percentages reported for consumption of alcoholic beverages at athletic events revealed even greater disparity between self and other. Respondents estimated that 13.6% drank no alcoholic beverages at athletic events (compared to 76% reported for self), 26.4% consumed one or two drinks at athletic events (compared to 7.6% reported for self), 25.7% drank three or four drinks (compared to 10.5% reported for self), and 34.3% had five or more drinks at athletic events (compared to 10.5% reported for self).

Estimating how many drinks others consumed and reporting how much they consumed at fraternity parties, students reported the following: 2.8% of others drank no alcoholic beverages compared to 53% reported for self, 3% of others had one or two drinks compared to 6.3% reported for self, 11.6% of others had three or four drinks, compared to 11.2% reported for self, and 82.6% of others had five or more drinks at fraternity parties compared to 29.4% reported for self. Self and other comparisons for drinking at sorority parties revealed similar disparities. Students reported that they believed 14.5% drank nothing at all at sorority parties compared to 69.5% reported for self, they estimated that 4.5% had one or two drinks compared to 8.0% reported for self, estimates for others stood at 17.9% having three or four drinks compared to 6.5% reported for self, and they estimated that 63.1% consumed five or more alcoholic beverages at sorority parties compared

to 16.2% reported for self.

Table 8 shows a comparison between self and others by location.

Table 8  
Self and Other Estimates of Typical Alcoholic Consumption  
by Location

Location	Number of of Drinks	Self	Other
Bars	0	44.9	1.1
Athletic Events	0	76.2	13.6
Fraternity Parties	0	53.1	2.8
Sorority Parties	0	75.4	14.5
Residence Hall	0	69.5	21.0
Off-Campus Parties	0	21.2	1.1
Bars	1-2	11.4	4.4
Athletic Events	1-2	7.6	26.4
Fraternity Parties	1-2	6.3	3.0
Sorority Parties	1-2	3.0	4.5
Residence Hall	1-2	7.8	16.2
Off-Campus Parties	1-2	9.3	2.2
Bars	3-4	19.2	27.3
Athletic Events	3-4	5.7	25.7
Fraternity Parties	3-4	11.2	11.6
Sorority Parties	3-4	4.7	17.9
Residence Hall	3-4	6.5	16.8
Off-Campus Parties	3-4	19.2	11.0
Bars	5 or more	24.5	67.2
Athletic Events	5 or more	10.5	34.3
Fraternity Parties	5 or more	29.4	82.6
Sorority Parties	5 or more	16.9	63.1
Residence Hall	5 or more	16.2	46.0
Off-Campus Parties	5 or more	50.3	85.7

Respondents believed that 21% drank nothing at all in residence halls, 16.2% drank one or two drinks, 16.8% drank three or four drinks, and 46% drank five or more drinks in residence halls. Again, as

expected, perceptions of off-campus parties revealed the highest percentages. Respondents revealed they believed that 1.1% of other students drank nothing at all at off-campus parties, 2.2% drank one or two drinks, 11% consumed three or four drinks and 85.7% typically consumed five or more drinks at off-campus parties.

When respondents were asked to report the average number of drinks they consume in an average week, 24.4% reported never consuming any alcoholic beverages during an average week. Nearly 19% reported drinking one or two drinks each week, 9.7% drink three or four drinks a week, 25.1% drink five to ten drinks each week, 8.9% drink eleven to fifteen drinks each week, 5.6% drink sixteen to twenty drinks in an average week and 7.8% drink more than twenty drinks each week. These percentages indicate that 47.4% of the respondents drink five or more drinks in an average week.

To examine statistically (to be discussed later) if a correlation exists between age of first alcohol use and amount of alcohol consumes, respondents were asked to indicate at what age they first used alcohol. Eight percent indicated that they have never used alcohol, 1.9% reported first use under the age of ten; 9.7% reported first having alcohol when they were aged ten to thirteen; 20.3% had their first drink between the ages of 14 and 15; 28.9% first used alcohol between the ages of 16 and 17, and 26.6% between the ages of 18 and 20. Only 1.7% reported having their first drink between the ages of 21 and 25. These data indicate that 98.1% of respondents reported having their first drink before the age of 21 which is the legal drinking age in the state where the

university under study is located.

When asked to report how often in the past year the respondent used alcohol, 11.6% reported never using in the past year, 5.9% reported using only once, 10.4% reported using six times within the past year, and 5.8% reported using alcohol at least once a month. Thirty percent reported using at least once a week within the past year, 13.6% reported using three times a week, 1.2% reported using five times a week, and .6% reported using every day. Respondents were then asked to indicate on how many days within the past 30 days they used alcohol. Nearly 20% indicated they had not used alcohol at all within the past 30 days, 18.1% reported using one or two days, 24.8% reported using three to five days, and 19% reported using six to nine days within the past 30 days. Another 13.4% indicated they have used alcohol ten to 19 times within the past 30 days, 2.6% used on 20 to 29 days, and .9% reported using every day within the past 30 days.

When asked how often they thought the average student on campus uses alcohol, .4% believed that other students never use. Less than 1% thought other students used once a year, 2.2% thought others used six times a year, 2.8% thought others used once a month, and 8.4% thought other students used twice a month. Nearly one-half of students (43.8%) thought that other students used alcohol at least once a week, 36.3% thought others used three times a week, 1.5% thought others used five times a week, and 1.1% thought other students used alcohol everyday. Comparisons follow in Table 9.

Table 9  
Respondent Report of Own and Other Alcohol Use

Frequency of Use	Self	Other
Never Used	11.4%	0.4%
Once/Year	5.8%	0.9%
Six Times/Year	10.4%	2.2%
Once/Month	5.8%	2.8%
Twice/Month	19.4%	8.4%
Once/Week	30.0%	43.8%
3 Times/Week	13.6%	36.3%
5 Times/Week	1.3%	1.6%
Everyday	0.6%	1.1%

The disparities found in these data between self and other use of alcohol indicate that either students are grossly underestimating their own use or are overestimating the use of alcohol by other students. It is likely that both underestimating and overestimating are occurring in these data since it is generally known that when reporting alcohol use, subjects often underestimate their own use and believe that the norm for others' use is higher than it actually may be.

When asked where they use alcohol, 21.2% reported using no alcohol, 52.1% report using in residence halls, 46% report using in a fraternity or sorority house, 59.6% report using alcohol in bars and restaurants, 72.8% report home use, an alarming 21% report using alcohol in cars, and nearly 80% report using alcohol at private parties. When examining grade point average (GPA) and binge drinking episodes in this population, it appears from this analysis that of the .2% of students receiving a GPA of 1.5 none are binge drinkers. Clearly,



though, the higher the GPA, the more students report never engaging in binge drinking. Reported in Table 10 are the percentages of binge drinking by grade point average.

Table 10  
GPA and Binge Drinking

Binge	1.5	2.0	2.5	3.0	3.5	4.0
Never						
Count	0	6	32	70	69	26
Percent	0	37.5	37.2	42.4	50.7	74.3
Once/2 Weeks						
Count	0	0	15	40	21	4
Percent	0	0	17.4	24.2	15.4	11.4
Twice/2 Weeks						
Count	1	5	111	16	18	0
Percent	100	31.3	12.8	9.7	13.2	0
3-5X/2 Weeks						
Count	0	3	25	33	24	3
Percent	0	18.8	29.1	20.0	17.6	8.6
6-10X or More Past 2 Weeks						
Count	0	2	3	6	4	2
Percent	0	12.6	3.5	3.5	2.9	5.8
Total	1	6	86	150	212	35
	100	100	100	100	100	100

#### Consequences of Alcohol Use

Nearly two-thirds (63.7%) of respondents reported having had a hangover as a result of their alcohol use within the past year but only 8.6% reported that they performed poorly on a test or important project

as a result of their alcohol use. Eleven percent reported having been in trouble with the police and 6% reported having damaged or defaced property while using alcohol. Over one-quarter (27.6%) of respondents reported having gotten into an argument or a fight while drinking and over half (51.2%) reported vomiting as a result of their drinking. Twenty-six percent of those responding indicated they had driven a car while under the influence of alcohol. Twenty-nine percent missed a class due to their alcohol use, and 21.4% have been criticized by another as a result of their alcohol use. Five percent reported that they thought they might have a drinking problem while 23.3% reported having blacked out at least once from alcohol ingestion. This is disturbing in that blacking out as a result of alcohol use is a widely accepted indicator of problem drinking.

Nearly one-third (31.9%) indicated they had done something while drinking which they later regretted. Less than 2% reported ever having been arrested for driving under the influence of alcohol. When asked if they had ever been taken advantage of sexually due to their drinking, 7.1% reported that they had been while 3.0% reported they had taken advantage of another sexually while drinking. Nearly 3% (2.8%) admitted having tried unsuccessfully to stop drinking, 1.3% considered suicide while drinking, 1.1% had actually tried to commit suicide as a result of their drinking, and 11.2% had been hurt or injured due to drinking within the last year. These data with high percentages of students reporting hangovers, vomiting, blackouts, regretting actions, and driving while drinking clearly suggest that this student population is

at high risk for serious alcohol-related problems.

To determine if a link exists between heavy alcohol use and family history of alcohol use, respondents were asked to indicate which family members had alcohol problems. Almost 5% (4.8%) indicated a mother and 14.7% indicated a father had a problem with alcohol. Seven percent reported a sibling with an alcohol problem. Thirteen percent reported that one of their maternal grandparents had a problem with alcohol, 12.3% reported that one of their paternal grandparents had a problem with alcohol, and 1.3% reported having a spouse with an alcohol problem.

#### Effects of Alcohol Use

To better understand respondents' attitudes toward alcohol use, they were asked to indicate which of several effects they believed alcohol has. Over 60% (60.5%) believed that alcohol was good for breaking the ice in social situations, 64.6% believed that it enhances social activity, and 36.7% reported that alcohol makes it easier to deal with stress. Almost 42% (41.5%) felt that alcohol facilitates a connection with peers, 35% felt it facilitated male bonding, and 27.9% felt it facilitated female bonding. Almost one-half of the respondents (45.6%) believed that alcohol gives people something to talk about, over one-half (51.6%) indicated that alcohol allows people to have more fun and 50.3% reported that drinking alcohol gives people something to do. Sixteen percent of the respondents indicated that alcohol makes women sexier and 8.4% thought it made men sexier. Nearly one-third (30.9%) believed that alcohol facilitates sexual opportunities. Clearly, these

students are overestimating the positive effects of alcohol use. With over one-half of the respondents reporting that alcohol increases fun and gives them something to do indicates that alcohol is used excessively as a recreational activity.

#### Campus Atmosphere

Respondents were asked to indicate whether they believe alcohol use was a central activity for various groups on campus. In response, respondents indicated that they believed that alcohol was a central activity for 84.7% of males and 72.6% of females on this campus. They believed it was a central activity for 17.6% of the faculty and staff and 28.9% of university alumni. For the following groups they responded as follows: athletes, 54.6%- fraternity members, 87.5%, and 81.9% sorority members. Again, these data suggest that the respondents believed that alcohol plays a dominant role in campus life.

Fifty-nine percent of the respondents felt that the social atmosphere on this campus promotes alcohol use. Unfortunately, the reasons for such a high percentage of respondents indicating the promotion of alcohol use on this campus were not explored in this research. One can speculate that perhaps simply the perception of high alcohol use on this campus is considered promotional in that it is perceived as the norm. Despite the perception of high alcohol use, nearly all persons (90.9%) felt safe on this campus. When asked to compare this campus' use of alcohol with other campuses with which they are familiar, 7.6% thought alcohol use on this campus was greater than

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on other campuses, 11.4% thought it was less, and over three-quarters of the respondents (76.9%) thought alcohol use was about the same as on other campuses.

#### Perception of Risk Associated with Alcohol Use

Respondents were asked to indicate if their alcohol use has changed within the past 12 months. Nearly 22% indicated an increase, 39.3% indicated it was about the same, and 25.7% indicated their alcohol use had decreased within the past year.

Despite what these respondents reported about their alcohol use, their responses to risks associated with alcohol use indicate that they are aware of the many risks involved with alcohol use. Table 11 reports their responses in regard to risks due due to alcohol use.

Table 11

#### Perception of Risk Associated with Alcohol Use

Number of Drinks	No Risk	Slight Risk	Moderate Risk	Great Risk	Can't Say
1-2 Daily	11.2	30.2	30.0	23.8	2.8
4-5 Daily	1.1	3.9	21.2	70.0	1.7
5+ Daily	4.8	14.5	24.8	49.5	3.9

These data indicate that 53.8% believe there is moderate or great risk in consuming one or two drinks daily. Another 91.2% believe that consuming four to five drinking daily poses a moderate to great risk, and 74.3% indicate that drinking five or more drinks daily carries with

it moderate to great risk. From these data it appears that these respondents are educated as to the risks associated with alcohol use but the data regarding their own use indicates perhaps a sense of invincibility.

When asked about the risks associated with consuming alcohol prior to being sexually active, 2.2% felt it posed no risk, 14.5% reported it posed slight risk, 24.8% indicated that there was moderate risk involved, and 49.5% believed that consuming alcohol prior to being sexually active placed them at great risk of harming themselves or being harmed by others. These data make one wonder why so many students report binge drinking if 74.3% believe that consuming alcohol before being sexually active places them at moderate or great risk.

Respondents were asked how the drinking of other students interfered with their life on and around campus. 23.8% reported that the drinking of others interfered with their studying, 13.8% reported it made them feel unsafe on and around campus (a contradiction to an earlier question about safety), 23.8% believed it "messed up" their physical space, 6.5% felt it adversely affected their involvement on an athletic team or other organized group, 14.5% indicated it interfered with their enjoyment of concerts, sporting events, and other social activities, and 46.9% reported it did not interfere with their life at all.

#### Attitudes About the University

In response to the statement "I feel valued as a person at this

university," 9.1% strongly agreed, 26.1% agreed, 43.6% were neutral, 13.4% disagreed and 5.2% strongly disagreed. Thus, 35.2% felt valued as a person at this university and 18.6% did not. When asked to respond to the statement "I feel that faculty and staff care about me as a person," 5.2% strongly agreed, 29.6% agreed, 43.4% were neutral, 14% disagreed and 5.2% strongly disagreed. Thus, 34.8% of the respondents felt cared about by faculty and staff. Less than 10% (9.7%) of respondents strongly agreed with the statement, "I have a responsibility to contribute to the well-being of other students." However, nearly one-half (44.7%) agreed with the statement. Thirty-five percent were neutral, 5% disagreed, and 2.6% strongly disagreed.

When asked if the university encourages them to help others in need, 4.1% strongly agreed and 25.9% agreed. Nearly 50% (47.3) were neutral to this statement, 16% disagreed, and 3.9% strongly disagreed.

Finally, respondents were asked to agree or disagree with the following statement, "I abide by the university's policy and regulations concerning alcohol use." Surprisingly, 14.5% strongly agreed and 21% agreed with this statement. Twenty-one percent were neutral, 16% disagreed and 8% strongly disagreed. From these data either respondents are not aware of or are misinformed about the university's policies and regulations around alcohol use or they are responding, contrary to what they reported earlier, in what they believe to be socially appropriate responses.

### Binge Drinking Relationships

By age, in response to the question asking them to report how many times in the past two weeks they had had five or more drinks at a sitting, 49% of 18 year olds reporting never bingeing in the past two weeks, 23% reported bingeing once, 9.9% reported bingeing twice, 15.4% reported bingeing three to five times, and 2.8% reported bingeing six to nine times in the past two weeks. Forty-two percent of 19 year olds reported no binge drinking within the past two weeks, 16.3% reported bingeing once, 9.8% binged twice, 28.3% reported three to five binge drinking episodes, and 3.3% reported bingeing six to nine times. Of 20 year old students, 37% reported no binge drinking episodes within the past two weeks, 18% reported bingeing once, 21.3% reported bingeing twice, 20.2% reported bingeing three to five times, and 2.2% reported six to 9 binge drinking episodes. Fifty percent of 21 year old students reported no binge drinking episodes, 15.9% reported one binge drinking episode, 9.8% reported two, 22% reported three to five and 2.4% reported bingeing six to nine times within the past two weeks. Because of the sharp decrease in binge drinking after age 21, students aged 22 to 25 were grouped together. Of this group, 40% reported no binge drinking, 23.3% reported one binge drinking episode, 9.3 reported two, 20.9% reported three to five, and 7% reported six to nine episodes of binge drinking. Over age 25, 83.4% reported never bingeing in the past two weeks, 6.9% binged once, 6.9% binged three to five times, and 3% reported bingeing 10 or more times in the past two weeks. Table 12 reports these findings.



Table 12  
Binge Drinking Episodes by Age by Percent

Age	Never	Once	Twice	3-5 Times	6-9 Times	10 or More
18	40	23	9.9	15.4	2.8	0
19	42	16.3	9.8	28.3	3.3	0
20	37	18	21.3	20.2	2.2	1
21	50	15.9	9.8	22	2.4	0
22-25	40	23.3	9.3	20.9	7.0	0
26-68	83.4	6.9	0.0	6.9	0.0	3.0
N=449	206	83	51	93	15	2
Total	45.9%	18.3%	11.4%	20.7%	3.3%	0.4%

The findings reported in Table 12 are interesting in that the number of persons who do not binge drink remain within the same range until age 26 when the number of non-bingers significantly increases. Twenty-year old students report both fewer non-binge drinkers and more consistent binge drinking episodes, overall, than other age categories. Although, 19 year old students reported the highest percentage of students (28.3%) that had engaged in binge drinking three to five times in the past two weeks. Surprisingly, 22-25 year old students reported high percentages of bingeing once (23.3%) and bingeing three to five times (20.9%). It is difficult to interpret the meaning of these data. Based on the literature reporting binge drinking among students, typically, 18 and 19 year old students are revealed as the representing the highest percentages of binge drinkers; however, in this sample, 18 year old students represent the third highest percentage of non-binge drinkers. It is possible that because they are not yet of legal

drinking age, 18 year old students underreport drinking in greater numbers than other students while students who are 20 years of age more accurately reported based on the fact that they are closer to legal drinking age and are more familiar with the campus norms which they believe are similar to or greater than their drinking behaviors. In keeping with the literature regarding the relationship between age and alcohol use, this sample reveals some "maturing out" after the age of 26. These data also reveal that approximately 3% of the sample, those who reported bingeing 10 or more times in the past two weeks, could be in serious trouble with their alcohol use. To this researcher's knowledge, no longitudinal data has reported what percentage of student binge drinkers may go on to develop chronic problems with alcohol. However, based on data reporting problems with alcohol for the general population, three percent represents a realistic percentage (Johnston, O'Malley, & Bachman, 1995).

#### Chi-Square Analysis

For chi square analysis, examining age and binge drinking, age was reduced to the following five age categories, 18, 19, 20, 21, and 22 and over and binge drinking was collapsed into two categories, never bingeing and bingeing. The chi square data by age did not produce significant results but the data nevertheless are meaningful. Among 18 year olds, 49.3% reported never bingeing, 42.4% of 19 year olds never binged, 37.1% of 20 year olds never binged, 50% of 21 year olds never binged, and of those 22 and over, 50.4% reported never bingeing within

the past two weeks. From these data, students 22 years of age and older report the most infrequent binge drinking (49.6%) and students aged 19 and 20 report the most frequent binge drinking, 57.6% and 62.9% respectively.

Looking at bingeing within the past two weeks and race/ethnicity, of American Indians, 50% reported never bingeing, 72.7% of Asians reported never bingeing, 42.7% of Caucasians never binged, 80% of African Americans, 76.9% of International students never binged, and 37.5% of multiracial students never binged within the past two weeks. Chi-square analysis revealed significant difference in binge drinking by race/ethnicity (chi square value 17.38, df 7,  $p < .01$ ). Unfortunately, this analysis does not tell us where the significant differences are but one can assume from this data and the literature on binge drinking, that Caucasians account for the significant variation.

Significant differences in binge drinking by gender were also found. In this sample, 63.1% of the males reported bingeing at least once in the past two weeks versus 47.2% of the females (chi-square 11.19, df 1,  $p < .01$ ). These figures coincide with findings from the Core Alcohol and Drug survey which does not make the 5/4 distinction for males and females as Wechsler's (1997) Harvard study does. Given the high percentage of females who reported bingeing within the past two weeks, if the 5/4 distinction were made in this research, there is a high probability that the male/female differences would be insignificant.

As expected, significant differences were found among those

students who are married and unmarried. For this analysis, the category of marital status was collapsed to married/unmarried combining widowed and divorced students into unmarried. Of the unmarried students, 56% reported binge drinking within the past two weeks versus 9.5% of married students. (Chi-Square 17.37, df 1,  $p < .01$ ) Clearly, marriage has a positive effect on binge drinking probably through the maturing process of increased responsibility.

When examining binge drinking by residence, 45% of those living on campus reported bingeing within the past two weeks while 59.1% of students living off campus reported bingeing. (Chi-Square 8.50, df 1,  $p < .05$ ) When asked what their living arrangements were, of those living in a house or apartment, 56.4% reported bingeing, 45.6% of those living in dormitories reported binge drinking, and 73.1% of those living in a fraternity or sorority house reported bingeing within the past two weeks. This finding is in keeping with that reported in the binge drinking literature which consistently finds that members of fraternities and sororities drink more than their age peers. (Chi-Square 8.63, df. 2,  $p < .01$ ).

Chi-square analysis revealed significant differences in grade point average among binge drinkers (16.78, df 4,  $p < .05$ ). Among students with a GPA of 2.0 or less, 64.7% reported binge drinking, 62.8% of those with a 2.5 GPA reported binge drinking, 57.6% of those with a GPA of 3.0 reported bingeing, 49.3% of students with a 3.5 GPA reported bingeing and only 25.7% of those with a 4.0 GPA reported bingeing. The contrast in GPA between bingers and non-bingers is rather startling

although not unexpected. Table 13 shows this finding.

Table 13  
Binge Drinking and GPA

Binge	2.0 less	2.5	3.0	3.5	4.0	Total
Never Binge	35.3%	37.2%	42.4%	50.7%	74.3%	46.2%
Binge	64.7%	62.8%	57.6%	49.3%	25.7%	53.8%

An examination of the importance of religion for students revealed significant differences between bingers and non-bingers (Chi-square 21.56, df 2,  $p < .01$ ). Fifty-eight percent of students who reported that religion was very important for them reported never bingeing. Of those who reported that religion was somewhat important, 34% never binged, and of those to whom religion was not very important, 50.5% never binged. When asked about spirituality, chi-square analysis revealed more disparity between bingers and non-bingers (Chi-square 7.43, df 2,  $p < .01$ ). Fifty four percent of those who considered themselves very spiritual reported never bingeing. Of those who felt they were somewhat spiritual, 41.6% never binged, and of those who were not very spiritual, 36.6% never binged. The 63.4% of students who reported being not very spiritual and who also reported binge drinking is well in excess of the nearly 55 percent of this student population as a whole who reported binge drinking within the past two weeks. These data strongly suggest that being very spiritual has some effect on the binge drinking rates of students.

Significant differences in binge drinking within the past two weeks were also reported by religious preference (Chi-square 13.39, df 5,  $p < .05$ ). Of those reporting no religious affiliation, 49% reported bingeing within the past two weeks, 49.5% of Protestants reported bingeing, 64% of Catholics reported bingeing, 44.4% of Jews reported binge drinking, 16.7% of Muslims reported binge drinking, and 48.2% of those with other religious affiliations reported binge drinking within the past two weeks. The 64% of Catholics who reported binge drinking represent a much larger percentage of binge drinkers than persons affiliated with other religions. This finding suggests possibilities for future research which seeks to discover why the significant differences in binge drinking by religious affiliation exist.

Significant differences were found when students were asked which statement about drinking alcoholic beverages best represents their own attitude, 95.7% of the non-bingers thought it was never a good thing to do. Eighty percent of the non-bingers agreed that drinking is all right but a person should not get drunk. Thirty-one percent of the non-bingers felt that occasionally getting drunk is okay as long as it doesn't interfere with academics or other responsibilities, and 28.6% of the non-bingers believed that frequently getting drunk is okay even if it does interfere with academics and other responsibilities and 5.9% of the non-bingers thought it was okay to get drunk if that is what the individual wants to do (Chi-square 127.04, df 4,  $p < .01$ ).

One of the questions in the questionnaire to determine drinking norms on the campus asked students to report what they thought the

drinking attitudes of others were in response to the same statements as reported above. Of the non-bingers, 66.7% thought others believed that drinking was never a good thing to do. Seventy-nine percent reported that they believed others thought that it was okay to drink as long as the person didn't get drunk. Thirty-six percent believed that the other students thought it was okay to get drunk occasionally as long it didn't interfere with other responsibilities, 52.9% believed that other students on campus thought it was okay to get drunk even if it interfered with a person's responsibilities, and 59.2% of the non-bingers believed that other students thought it was okay to get drunk if that is what the person wants to do. Chi-square analysis revealed that the differences between bingers and non-bingers were significant (Chi-square 26.07, df 4,  $p < .01$ ). Tables 14 and 15 show comparisons between bingers' and non-bingers' attitudes and what they believe the attitudes of other students on campus to be.

From these two tables, it is clear that there are significant attitude differences about drinking alcoholic beverages between bingers and non-bingers. It appears that binge drinkers who believe that getting drunk is okay even if it interferes with one's responsibilities or if one wants to get drunk frequently are at significant odds with what they perceive the attitudes of other students to be. The large difference between the attitudes of bingers and non-bingers (4.3% vs 95.7%) indicate extreme positions on the use of alcoholic beverages.

Table 14

Binge Drinkers' Attitudes About Drinking  
Self Versus Beliefs of Other's Attitudes

Binge Drinkers' Attitude of	Never Good	OK But Not Drunk	Drunk But Not Interfere	Drunk Even if Interfere	Frequently Drunk OK
Self	4.3%	19.8%	69.2%	71.4%	94.1%
Others	33.3%	21.4%	64.3%	47.1%	40.8%

Table 15

Non-Binge Drinkers' Attitudes About Drinking  
Self Versus Beliefs of Other's Attitudes

Non-Binge Drinkers' Attitude of	Never Good	OK But Not Drunk	Drunk But Not Interfere	Drunk Even if Interfere	Frequently Drunk OK
Self	95.7%	80.2%	30.8%	28.6%	5.9%
Others	66.7%	78.6%	35.7%	52.9%	59.2%

Table 16 compares age of first alcohol use between students who never binge and those who report binge drinking.

Chi-square analysis revealed that the differences in age of first alcohol use between bingers and non-bingers were significant (Chi-square 73.10, df 8,  $p < .01$ ). Interestingly, the differences are most apparent in the 14-17 age brackets. This may indicate that the high school years are pivotal years in influencing college drinking behavior.



Table 16  
Bingers vs. Non-Bingers Age of First Alcohol Use

Age	Never Binge	Binge
Under 10	44.4%	53.8%
10-11	53.8%	46.2%
12-13	43.8%	53.3%
14-15	28.7%	71.3%
16-17	32.8%	67.2%
18-20	55.3%	44.7%
21-25	62.5%	37.5%

When asked if any family members had a problem with alcohol use, the only significance achieved was with those reporting that their mother had an alcohol problem. Thirty percent of non-bingers and 70% of binge drinkers revealed that their mother had a problem with alcohol use. (Chi-square 5.95, df 1,  $p < .05$ ).

Two of the key predictors of binge drinking are students participating in athletics and those who are members of fraternities or sororities. The findings in this sample are congruent with the findings of other research investigating drinking on campuses and indicate a that disturbingly high percentage of athletes and a high percentage of fraternity and sorority members engage in binge drinking. Table 17 reveals these findings.

When asked if their alcohol use has changed within the past 12 months, there were significant differences between bingers and non-bingers. Of those reporting that they binge drink, 76.8% indicated that their alcohol use has increased, 61.9% indicated their alcohol use

stayed about the same, and 44.9% of binge drinkers indicated their alcohol use had decreased. The differences between bingers and non-bingers were significant, chi-square 82.3, df.3,  $p < .01$ .

Table 17

Bingers and Non-Bingers' Participation in  
Athletics and Greek Organizations

	Athletics	Fraternity or Sorority
Non-Bingers	26.0%	29.1%
Bingers	74.0%	70.9%
Chi-square Athletics 34.31, df 1, $p < .01$		
Chi-square Greek 15.13, df 1, $p < .01$		

To assess how much students knew about the risks of alcohol use, students were asked to report how much risk they believed there was in having one to two drinks per day, four to five drinks per day, or more than five drinks at a sitting (the definition of binge drinking). Table 18 reports these findings and the differences between binge drinkers and non-binge drinkers. Over one-third of binge drinkers (36.4%) reported believing that there is great risk involved in consuming 5 or more drinks at a sitting yet 54.9% continue to binge drink. That 71.3% believe there is moderate risk is equally as disturbing. It is curious that non-bingers report lesser risk than binge drinkers. Perhaps they report lesser risk because they have not experienced any of the negative consequences associated with binge drinking whereas binge drinkers report more frequent problems associated with their binge drinking. This is an interesting finding and would be worth further exploration.

Table 18

## Perception of Risks Associated with Number of Drinks Per Day

Drinks/Day	No Risk	Slight Risk	Moderate Risk	Great Risk	Don't Know
1-2					
Non-Bingers	16%	37.9%	50.7%	49.6%	76.9%
Bingers	84%	62.1%	49.3%	40.4%	23.2%
4-5					
Non-Bingers	0.0%	23.5%	31.6%	50.8%	87.5%
Bingers	100%	76.5%	68.4%	49.2%	12.5%
6-More					
Non-Bingers	5.3%	23.9%	28.7%	63.6%	50.0%
Bingers	94.7%	76.1%	71.3%	36.4%	50.0%
1-2 Drinks Per Day Chi-Square 36.27, df 4, p=<.01					
4-5 Drinks Per Day Chi-Square 24.26, df 4, p=<.01					
6-More Drinks Per Day Chi-Square 68.35, df 4, p=<.01					

Perceived Stress

In examining perceived stress among the students in this sample, chi-square analysis revealed that females report significantly higher levels of perceived stress. The perceived stress scale was collapsed into three categories: low perceived stress, moderate perceived stress, and high perceived stress. Table 19 reports the finding of levels of perceived stress by gender. Nearly two-thirds of all students report moderate levels of perceived stress, but twice as many females as males report high levels of perceived stress. One can only speculate as to what accounts for these high levels of perceived stress among females. Previous research (Naquin and Gilbert, 1996; DeBruyn, 1991) found that females report greater concern regarding their physical attractiveness,

and greater concern with academics and interpersonal relationships. These factors could account for their higher perceived stress levels.

Table 19  
Levels of Perceived Stress by Gender

Perceived Stress	Low	Moderate	High
Male	26.3%	65.8%	7.9%
Female	18.9%	65.7%	15.5%

Chi-square 7.95, df2,  $p < .05$

Looking at perceived stress by age, crosstabulation revealed significant differences by age. Nearly twenty percent (19.7%) of eighteen-year-old students and over one-fifth (20.7%) of nineteen-year-old students reported high levels of stress. For 20-year-old students, only 6.8% reported high perceived stress levels. Moderate levels of perceived stress were reported by the majority of all students, with 57.6% to 70.2% of students reporting moderate levels of perceived stress. Given the time that the questionnaire was administered, a time of relative calm in the course of the semester, one can speculate that for many students, their stress levels would rise as the pressure associated with midterms and finals increases. As Antonvosky (1987) predicts, a portion of the students with moderate levels of perceived stress, depending on their SOC, will move toward either the health-ease or dis-ease end of the continuum. This will be discussed in greater detail in the final chapter. See Table 20 for the distribution of PSS by age.

Table 20

## Distribution of Perceived Stress by Age

Age	Low	Moderate	High
18	15.5%	64.8%	19.7%
19	21.7%	57.6%	20.7%
20	28.4%	64.8%	6.8%
21	22.6%	70.2%	7.1%
22+	20.5%	70.1%	9.4%

Chi-square 17.76, df8,  $p < .05$

When examining levels of perceived stress by grade classification, not surprisingly, similar patterns were found, see Table 21.

Table 21

## Distribution of Perceived Stress by Grade Classification

Grade Classification	Low	Moderate	High
Freshman	12.3%	67.1%	20.5%
Sophomore	23.4%	60.3%	16.3%
Junior	27.5%	68.9%	3.9%
Senior	20.8%	68.5%	10.8%

Chi-square 19.32, df10,  $p < .05$

When comparing perceived stress levels with grade point averages, it is interesting to not that students with lower GPAs reported higher levels of stress. Table 22 reports the differences in perceived stress levels by GPA. It is impossible to suggest any causation from these findings, that is, we cannot say that high stress levels cause lower GPAs, nor can we suggest that lower GPAs cause higher stress levels. However, when

viewed salutogenically, it is reasonable to suggest that because students with higher SOC's perceive fewer stressors in their environment (to be discussed in the next section), they are able to concentrate more fully on their academic studies which results in higher GPAs.

Table 22  
Perceived Stress Levels by GPA

GPA	Low	Moderate	High
2.0 or less	6.3%	75.0%	18.8%
2.5	15.1%	73.3%	11.6%
3.0	18.0%	70.7%	11.4%
3.5	29.2%	59.1%	11.7%
4.0	36.1%	50.0%	13.9%

Chi-square 16.00, df8,  $p < .05$

When students in this sample were asked if they used alcohol to relieve stress, 18.8% of those with high levels of perceived stress responded affirmatively compared to 67.1% of those with moderate levels of perceived stress and 14.1% of those with low levels of perceived stress. This finding, of well over three-quarters (85.9%) of students with either moderate or high levels of perceived stress, believing that alcohol is used to relieve stress is disturbingly high. Based on the theory of salutogenesis, this finding indicates that many students are using alcohol as a maladaptive coping mechanism. This will be discussed in greater detail in the final chapter. See Table 23 for findings.

Table 23  
Percentage of Students Using Alcohol to Deal with Stress  
by Perceived Stress Levels

Use	Low	Moderate	High
Yes	14.1%	67.1%	18.8%
No	26.8%	65.0%	8.2%

Chi-square 12.15, df2,  $p < .01$

To determine if there was a difference in stress levels between students living on campus and those living off campus, chi-square analysis revealed significant differences with nearly twice as many (17.4%) students living on campus reporting high levels of perceived stress compared to 9.2% of those living off campus (chi-square 8.36, df 2,  $p < .05$ ). This is contrary to what common sense tells us. One would expect students living off campus to have higher levels of perceived stress due to greater responsibilities.

Although, because the majority of those living on campus in dormitories are freshmen and sophomores, this finding is congruent with the relationship found between age and perceived stress levels.

An examination of perceived stress by religious preference revealed significant differences with 87.9% of Catholics reporting either moderate or high levels of perceived stress compared to 68.5% of Protestants reporting moderate or high levels of perceived stress. Because five of the cells in the crosstabulation had counts of less than five, categories of religious preference were collapsed into none, Protestant, Catholic, and Other. Table 24 reports the findings.

Table 24  
Levels of Perceived Stress by Religious Preference

Religious Preference	Low	Moderate	High
None	30.6%	59.2%	10.2%
Protestant	31.4%	55.2%	13.3%
Catholic	12.1%	74.6%	13.3%
Other	24.0%	65.6%	10.4%

Chi-square 18.72, df6,  $p < .05$

Although it is only speculation, perhaps it is meaningful that Catholics also represented the religious group with the highest levels of binge drinking. Further research would be useful to explore these differences.

Crosstabulation revealed significant differences in stress levels between those students who believe in the existence of God and those who do not, however, the findings are not what one would expect (chi-square 11.38, df 4,  $p < .05$ ). Nearly twice as many (79.5%) students with moderate to high levels of perceived stress reported believing in the existence of God compared to 47.3% of those who reported that they did not believe in the existence of God. And of those who reported low levels of perceived stress, 20.5% reported believing in the existence of God compared to 52.6% of those who reported not believing in the existence of God. Clearly, from these data, believing in the existence of God is not protective for levels of perceived stress. As noted in some of the literature (National Clearinghouse for Alcohol and Drug Information, 1998) exploring the relationships between stress, alcohol



use, and conservative religions, positive relationships have been found linking conservation religion with higher levels of stress perhaps due to threat of hellfire and damnation.

When asked to agree or disagree with the statement, "I depend upon a power larger than myself for strength and direction," strangely 83.5% of students with moderate to high levels of perceived stress agreed compared to 68.2% of those who disagreed with the statement. Similarly, only 16.5% of those who agreed with the statement reported low levels of perceived stress compared to 31.8% of those who disagreed with the statement. Chi-square analysis revealed that these differences were significant (14.02, df 2,  $p < .01$ ). Again further research to determine how respondents are defining a power larger than themselves may reveal why these unexpected differences exist.

Significant differences were found when students were then asked to respond to a question to determine their level of spirituality. Nearly one-quarter (24.3%) of those with low levels of perceived stress reported being very spiritual compared to 13.0% of those students with high levels of perceived stress. Of those reporting being somewhat spiritual, 16.6% reported low levels of perceived stress compared to 11.8% of those with high levels of perceived stress. Of those who reported not being very spiritual, 41.5% of students reported low levels of perceived stress compared to 9.8% of those with high levels of perceived stress. Table 25 reports these findings.

Table 25  
Comparison of Stress Levels and Degree of Spirituality

Degree of Spirituality	Low	Moderate	High
Very	24.3%	62.7%	13.0%
Somewhat	16.6%	71.6%	11.8%
Not Very	41.5%	48.8%	9.8%

Chi-square 14.13, df 4,  $p < .05$

When comparing the three measures of religious/spiritual involvement, more students (40.9%) who reported being either very or somewhat spiritual reported low levels of perceived stress than did those students (16.5%) who agreed that they depend on a power larger than themselves. Of those who reported that they believe in God, only 20.5% reported low levels of perceived stress compared to 40.9% of those who reported being very or somewhat spiritual. While beyond the scope of this research to interpret these findings, one can conclude that there are meaningful differences between definitions of spiritual, God, and power larger than one's self. Of those who consider themselves to be spiritual, meaningful differences in levels of perceived stress are also found. These data suggest that having a high degree of spirituality appears to offer some protection from interpreting events as stressful. These findings merit further research.

A significant relationship existed between sense of meaning and levels of perceived stress (Chi-square 22.27, df 2,  $p < .01$ ). When asked to agree or disagree with the statement, "I have a pretty clear sense of

meaning and direction in my life," 23.6% of students with low levels of perceived stress agreed compared to 9.6% of students with high levels of perceived stress. This question reveals the greatest difference in stress level of the questions relating to religiousness/spirituality. It also is the most unambiguous of the questions when one considers the myriad definitions people hold about religion and spirituality.

Students next were asked how often they prayed. Only among students who reported praying once every few days, were there significant differences. Of students reporting low levels of perceived stress, 27.5% of them reported praying once every few days. Conversely, of students who reported high levels of perceived stress, only 10.8% of them reported praying once every few days.

#### Perceived Stress and Perception of Campus Environment

Feeling unsafe can contribute to increased stressors. When students were asked if they feel safe on this campus, there were significant differences between students reporting high levels of perceived stress and those reporting low levels of perceived stress (Chi-square 13.15, df 2,  $p < .05$ ). Nearly 23% (22.7%) of students with low levels of perceived stress reported feeling safe compared to only 11.0% of those with high levels of perceived stress. Of those reporting high levels of perceived stress, 36.4% of them did not feel safe compared to 9.1% of students with low levels of perceived stress. It is impossible to suggest causation but the differences in perceived stress levels and feelings of safety are worth further exploration.

When students were asked if they feel valued as a person at this university, only 7.1% of those reporting high levels of perceived stress strongly agreed with the statement as compared to 31.0% of those with low levels of perceived stress who strongly agreed. Of those who disagreed with the statement, 24.8% reported low levels of perceived stress compared to 5.8% of those with high levels of perceived stress. Crosstabulation revealed that these differences were significant (18.22, df 8,  $p < .05$ ). These data clearly suggest that either feeling valued affects stress levels or stress levels affect feeling valued.

Finally, similar significant findings were revealed when students were asked if faculty and staff care about them (Chi-square 20.34, df 8,  $p < .05$ ). Less than 5% (4.3%) of those with high levels of perceived stress felt that faculty and staff cared about them whereas 26.1% of those with low levels of perceived stress felt that faculty and staff cared about them. Thus, over half (54.8%) of those with low levels of perceived stress agreed or strongly agreed with the statement about faculty and staff caring, compared to 13.1% of those reporting high levels of perceived stress.

The findings of stress levels in relation to the sense of coherence will be discussed further in a following section of this dissertation.

Crosstabulation revealed no significant differences in sense of coherence with respect to gender, age, or racial/ethnic origin. Crosstabulation also revealed no significant differences in SOC with GPA or age of first alcohol use.

Significant differences in SOC level were found between married and non-married students. One hundred percent of widowed students (n=1) and 50% of divorced (n=2) students reported a weak SOC compared to 15.1% of single students (n=60) reporting a weak SOC. Very little difference between married and single students were reported for those students with a moderate SOC. However, only 17.1% (68) of single students reported a strong SOC compared to 29.4% (n=5) of married students (Chi-square 13.82, df 6,  $p < .05$ ). While the number of respondents in these categories are low and challenge the assumptions of chi-square analysis in that several cells has counts lower than expected, the findings are consistent with other SOC research with respect to marital status.

Significant differences were found in some of the measures of religiousness/spirituality used in this research and SOC, although not all of these differences were as expected. There was no significant relationship between being a member of a church, mosque, or synagogue and strength of SOC nor was there a significant relationship between the importance of religion in the students' life and strength of SOC. In response to the question, "Do you believe in the existence of God?", 44.4% of those reporting a strong SOC responded negatively compared to 16.7% of those with a weak SOC. These findings suggest that those with strong SOC are finding meaning in their lives in ways other than through membership in faith-based organizations and belief in God. Table 26 reveals these findings.

Table 26

## Sense of Coherence and Belief in God

SOC	Yes	No	Uncertain
Weak	13.7%	16.7%	33.3%
Moderate	69.7%	38.9%	55.6%
Strong	16.6%	44.4%	11.1%
Total	100%	100%	100%

Chi-square 17.57, df 4,  $p < .01$

When asked to rate how spiritual they considered themselves to be, only 9.9% of students with a weak SOC reported being very spiritual compared to 22.7% of those with a strong SOC (Chi-square 11.25, df 4,  $p < .05$ ). Similarly, significant differences were found between those students with a weak SOC and a strong SOC when asked if they had a clear sense of meaning in their life. Nearly twice as many students (18.8%) with a strong SOC agreed that they had a clear sense of meaning in their life compared to 9.8% of students with a weak SOC, see Table 27.

Table 27

## Sense of Coherence and Clear Sense of Meaning

SOC	Agree	Disagree
Weak	9.8%	49.1%
Moderate	71.4%	43.9%
Strong	18.8%	7.0%
Total	100%	100%

Chi-square 60.02, df 2,  $p < .01$

Conversely, 49.1% of students with a weak SOC disagreed with the statement compared to 7.0% of those with a strong SOC. This finding lends strong support to Antonovsky's (1987) belief that the most important component of the SOC is meaningfulness.

Interesting and significant differences were found in strength of SOC and religious preference, although again, not as expected. Of those students reporting a strong SOC, 22.7% of those reporting no religious preference reported a strong SOC compared to 19.0% of Protestants, 14.1% of Catholics, 12.5% of Jews, 20.0% of Muslims, and 18.6% of Other. It would appear from these findings that among students with strong SOC's the significant difference appears to be between students with no religious preference and those who align with Judaism. See Table 28 for complete findings.

Table 28

## Sense of Coherence and Religious Preference

Religious Preference	Weak SOC	Moderate SOC	Strong SOC	Total SOC
None	15.9%	61.4%	22.7%	100%
Protestant	21.0%	60.0%	19.0%	100%
Catholic	9.8%	76.1%	14.1%	100%
Jewish	62.5%	25.0%	12.5%	100%
Muslim	40.0%	40.0%	20.0%	100%
Other	12.7%	68.6%	18.6%	100%

Chi-square 27.26, df 10,  $p < .05$

An examination of the relationship between SOC and membership in Greek organizations revealed significant differences between those who

were and those who were not members (Chi-square 6.80, df 2,  $p < .05$ ). Fewer students with strong SOC's (12.4%) were members of Greek organizations compared to 18.9% of students with strong SOC's who were not. More students (78.4%) with moderate SOC's were members of Greek organizations compared to 64.3% of students with moderate SOC's. Reverse findings were found for students reporting weak SOC scores with 9.3% of Greek society members compared to 16.8% of non-Greek society members reporting weak SOC scores. These findings suggest that the SOC is playing some role in Greek membership. One can only speculate as to what this role may be. These findings will be discussed in a later section. Table 29 shows these findings.

Table 29

## Sense of Coherence and Belief in God

SOC	Yes	No	Uncertain
Weak	9.3%	16.8%	33.3%
Moderate	78.4%	64.3%	55.6%
Strong	12.4%	18.9%	11.1%
Total	100%	100%	100%

Chi-square 17.57, df 4,  $p < .01$

As hypothesized there were significant differences in SOC and perceived stress levels. Table 30 reports these findings. Over half (54.1%) of students with strong SOC scores and 18.7% of students with moderate SOC's reported low levels of perceived stress compared to 0% of students with weak SOC's. High perceived stress levels were reported by 45.3% of students with weak SOC's compared to no students with strong



SOCs and 9.2% of students with moderate reporting high levels of perceived stress. As hypothesized, students with strong SOC appear to be perceiving the stressors in their lives differently than students with weak SOC.

Table 30

## Sense of Coherence and Perceived Stress

Perceived Stress	Weak SOC	Moderate SOC	Strong SOC
Low	0.0%	18.7%	54.1%
Moderate	54.7%	72.2%	45.9%
High	45.3%	9.2%	0.0%
Total	100%	100%	100%

Chi-square 121.52, df 4,  $p < .01$

Significant differences were found between students with strong SOC and students with weak SOC in regard to binge drinking. Slightly over one-half (52.1%) of students with strong SOC reported never bingeing compared to 43.8% of students with weak SOC who reported never bingeing within the past two weeks. Of students with weak SOC, 20.3% reported binge drinking three to five times within the two weeks prior to questionnaire administration, compared to 13.7% of those with strong SOC.

Interestingly, more students (23.3%) with strong SOC reported having binged once within the past two weeks compared to 20.3% of those with weak SOC. Similar findings were reported for those who binged twice within the past two weeks. Nearly 10% (9.6%) of students with

strong SOC's reported having binged twice in the past two weeks compared to 6.3% of students with weak SOC's. These data suggest that the protective properties of the SOC are most apparent among those who never binge drink and those who binge three to five times in a two-week period. Table 31 reports these findings.

Table 31  
Sense of Coherence and Binge Drinking

Binge	Weak	Moderate	Strong	Total
Never	43.8% n=28	43.0% n=123	52.1% n=38	44.7% n=189
Once	20.3% n=13	17.1% n=49	23.3% n=17	18.7% n=79
Twice	6.3% n=4	12.9% n=37	9.6% n=7	11.3% n=48
3 to 5x	20.3% n=13	23.8% n=68	13.7% n=10	21.5% n=14
6 to 9x	6.3% n=4	3.1% n=9	1.4% n=1	3.3% n=14
10 or More	3.1% n=2	00.0% n=0	00.0% n=0	.5% n=2
Count	64 100%	286 100%	73 100%	423 100%

Chi-square 21.21, df 10,  $p < .05$

Significant differences between students with strong SOC's and those with weak SOC's were also found when asking about the campus environment (Chi-square 41.04, df 8,  $p < .01$ ). When asked to agree or disagree with the statement, "I feel valued as a person at this

university," 41.0% of students with strong SOC strongly agreed and 18.6% agreed. Conversely, 5.1% of those with weak SOC strongly agreed and 5.3% agreed. Of those who disagreed or strongly disagreed with the statement, 55.4% of students with weak SOC compared to 34.6% of students with strong SOC disagreed or strongly disagreed. These data suggest that students with strong SOC possess a world-view that is significantly different from students with weak SOC. Perhaps they see the campus environment as more manageable, more meaningful, and are able to make better sense of their life in relation to the challenges they face on campus.

Similarly, more students with strong SOC reported that faculty and staff care about them. Of students with strong SOC, 38.1% strongly agreed and 18.9% agreed that they felt valued as a person at this university. On the other hand, only 4.8% of students with weak SOC strongly agreed and 8.7% agreed with the statement. Again, students with strong SOC appear to be seeing their world differently than students with weak SOC.

#### Hypotheses Testing

To determine direction and strength of relationships for hypotheses testing, Pearson's Correlation Coefficients were established between Sense of Coherence and other relevant variables using SPSS.

When examining strength and direction of the relationship between SOC and binge drinking, a weak inverse relationship ( $r = -.088$ ,  $p < .05$ ) was found providing minimal support for the hypothesis that students

with a strong SOC would report less binge drinking than students with a weak SOC. A weak inverse relationship was found between SOC and number of alcoholic beverages consumed in a week ( $r = -.137$ ,  $p < .05$ ), thus, students with strong SOC's consume less alcohol each week than do students with a weak SOC. While this correlation is weak, it is stronger than the correlation between SOC and binge drinking. This finding may suggest a threshold effect of the SOC, that is, the protective qualities of a strong SOC may not manifest themselves strongly until higher levels of alcohol use are reported. Lending additional but weak support to the binge drinking hypothesis, a significant positive relationship ( $r = .177$ ,  $p < .01$ ) was found between students with strong SOC's and those with weak SOC's in the way in which they responded to the questions asking them if using alcohol made it easier to deal with stress. Students with weak SOC's were more likely to respond that alcohol made it easier to deal with stress than did students with strong SOC's suggesting that students with strong SOC's are using other methods to deal with stressors or are resolving the tension associated with stimuli before it turns into stress.

Weak positive (due to the way the variables were coded 1=yes; 2=no) relationships were also found between SOC and several negative consequences of drinking. Positive weak relationships were found between students with weak SOC's who have been criticized about their drinking ( $r = .119$ ,  $p < .01$ ), students who have been told they have a drinking problem ( $r = .131$ ,  $p < .01$ ), students who have tried unsuccessfully to stop drinking ( $r = .198$ ,  $p < .01$ ), students who have

thought about suicide ( $r=.148$ ,  $p<.01$ ), students who have tried suicide ( $r=.123$ ,  $p<.01$ ), students who have regretted what they have done while drinking ( $r=.115$ ,  $p<.01$ ), students who have gotten into an argument or fight as a result of their drinking ( $r=.087$ ,  $p<.05$ ), students who have damaged property while drinking ( $r=.113$ ,  $p<.05$ ), and students who have been taken advantage of sexually while drinking ( $r=.092$ ,  $p<.05$ ). These relationships provide weak support for the role the Sense of Coherence plays in binge drinking and in the negative consequences associated with binge drinking.

A moderate inverse relationship was found to exist between perceived stress and Sense of Coherence ( $r= -.638$ ,  $p<.01$ ) supporting the hypothesis that students with a strong SOC will perceive their lives as less stressful than students with a weak SOC.

A weak inverse relationship was found between SOC and degree of spirituality ( $r= -.156$ ,  $p<.05$ ). Degree of spirituality was coded as 1 being very spiritual and 3 being not very spiritual. Thus, this finding supports the hypothesis that students with strong religious and/or spiritual convictions will have stronger SOC's than students without strong religious and/or spiritual convictions. A moderate inverse relationship ( $r= -.315$ ,  $p<.05$ ) was found between SOC and students who agreed with the statement, "I have a pretty clear sense of meaning and direction in my life." This finding lends support to the meaningfulness component of the SOC. Tables 32, 33, 34 and 35 report these correlations.

Table 32

Pearson Product Moment Correlation Matrix of SOC,  
Perceived Stress and Selected Variables

	SOC	PS	BD	AC	ADS	CD
SOC	1.00					
PS	-.638**	1.00				
BD	-.088*	-.117	1.00			
AC	-.137*	.009	.673**	1.00		
ADS	.177**	-.239**	-.217**	-1.56**	1.00	
CD	.119**	-.176**	-.230**	-.196**	.169**	1.00

PS=Perceived Stress; BD=Binge Drink; AC=Amount Consumed; ADS=Alcohol to deal with Stress; CD=Been Criticized for Drinking.

\*p<.05 \*\*p<.01

Table 33

Pearson Product Moment Correlation Matrix for SOC,  
Perceived Stress and Selected Variables

	SOC	PS	DP	TS	ThS	TrS
SOC	1.00					
PS	-.638**	1.00				
DP	.131**	-.080**	1.00			
TS	.198**	-.143**	.382**	1.00		
ThS	.148**	-.096*	.237**	-.096**	1.00	
TrS	.123**	-.052	.168**	.362**	.542**	1.00

PS=Perceived Stress; DP=Thought Drinking Problem; TS=Tried to Stop; ThS=Thought about Suicide; TrS=Tried Suicide

\*p<.05 \*\*p<.01

Table 34

Pearson Product Moment Correlation Matrix for SOC,  
Perceived Stress and Selected Variables

	SOC	PS	RA	AF	DP	SA
SOC	1.00					
PS	-.638**	1.00				
RA	.115**	-.107*	1.00			
AF	.087*	-.125**	.419**	1.00		
DP	.113*	-.113**	.221**	.308**	1.00	
SA	.092*	-.113**	.105*	.259**	.105*	1.00

PS=Perceived Stress RA=Regretted Actions; AF=Argument/Fight; DP=Damaged Property; SA=Been Sexually Assaulted  
\*p<.05 \*\*p<.01

Table 35

Pearson Product Moment Correlation Matrix for SOC,  
Perceived Stress and Selected Variables

	SOC	PS	DS	SM
SOC	1.00			
PS	-.638**	1.00		
DS	.156*	-.039	1.00	
SM	-.315*	.204**	.192**	1.00

PS=Perceived Stress; DS=Degree of Spirituality; SM=Sense of Meaning  
\*p<.05 \*\*p<.01

### Regression Analysis

Bivariate and correlational analysis coupled with theory and findings from previous research in addition to this research's hypotheses about binge drinking relationships provided guidance for which variables to include in the multiple regression model used in this study. The resulting model examined the relationship and predictive power of SOC, perception of stress, having a clear sense of meaning, being a church member, having a belief in God, and level of spirituality to binge drinking.

Table 36 revealed the following findings.

Table 36

Regression of the Effects of SOC, Perceived Stress (PSS), Church Membership, Belief in God, Level of Spirituality, and Having a Clear Sense of Meaning on Binge Drinking

	Standardized Coefficients Beta	t	Sig.
Constant		2.810	.005
PSS	-.119	-1.800	.073
SOC	-.136	-2.016	.044
Ch.Mem.	-.085	-1.580	.115
Believe God	-.001	-.011	.991
Spirituality	.129	2.403	.017
CLR Meaning	.041	.770	.442
R2 = .038			

The resulting model is expressed as  $Y = a + b_1(\text{SOC}) + b_2(\text{perceived stress}) + b_3(\text{church membership}) + b_4(\text{belief in God}) + b_5(\text{level of spirituality}) + b_6(\text{having a clear sense of meaning})$ . Using SPSS for



multiple regression analysis all variables were entered; however only the variables of SOC and level of spirituality achieved significance. Together these variables explained 3.8% of the variation in binge drinking in this sample. Table 36 revealed these findings.

Table 37 illustrates the model's summary statistics.

Table 37

Model Summary of the Effects of SOC, Perceived Stress, Church Membership, Belief in God, Level of Spirituality, and Having a Clear Sense of Meaning on Binge Drinking

R	R Square	Adjusted R Square	STD Error of the Estimate
.196	.038	.024	1.32

A second regression was performed with the variables of SOC and level of spirituality, the two variables which achieved significance in the first regression (Table 38).

Table 38

Regressing of the Effects SOC and Level of Spirituality on Binge Drinking

	Standardized Coefficients		Sig.
	Beta	t	
Constant		2.827	.005
SOC	-.069	-1.419	.157
Spirituality	.125	2.556	.011
R2 = .023			

This regression analysis explained 2.3% of the variation in binge drinking in this sample with SOC dropping out and only level of spirituality achieving significance.

Table 39 reveals the model's summary statistics.

Table 39

Model Summary of the Effects of SOC and Level of Spirituality on Binge Drinking

R	R Square	Adjusted R Square	Std. Error of the Estimate
.152	.023	.018	1.31

A final regression examining the affects of level of spirituality on binge drinking revealed that spirituality explained 2.1% of the variation in binge drinking. Table 40 reveals these findings.

Table 40

Effects of Spirituality on Binge Drinking

	Standardized Coefficients		Sig.
	Beta	t	
Constant		3.855	.000
Spirituality	.146	3.120	.002

R2 = .021

Table 41 reveals the model's summary statistics.

Table 41

## Model Summary of the Effects of Spirituality on Binge Drinking

R	R Square	Adjusted R Square	Std. Error of the Estimate
.146	.021	.019	1.31

This regression analysis revealed that the variables chosen for the overall model explain very little (3.8%) of the variation in binge drinking. Additional regression analysis with the variables SOC and level of spirituality accounted for 2.3% of this variability. The final regression revealed that spirituality explains 2.1% of the variation in binge drinking. From the variables used in this model, spirituality appears to be the best predictor for binge drinking.

These data suggest that other variables not entered into the equation may have been better predictors for binge drinking in this sample. There are unlimited possibilities suggested in the vast literature examining binge drinking that one could use to create a model to explain the variation in binge drinking. Some of the most obvious variables are membership in Greek organizations, age of first drink, participation in athletics, gender and race; however, because of this research's hypotheses, variables entered into the equation were limited to those of the research hypotheses. Another factor to consider when examining the variation in binge drinking is the normative nature of binge drinking on college campuses. Because binge drinking is perceived as the norm, it not considered by students to be a problem.

Furthermore, given the presumed threshold effect of the sense of coherence, using an index that measures problems associated with drinking may produce a better model for examining the role the sense of coherence plays in the drinking behavior of college students.

## CHAPTER V

### SUMMARY OF FINDINGS

#### Limitations, Discussions, and Conclusion

##### Introduction

The primary intent of this study was to address the role the Sense of Coherence plays in (1) perception of stress, (2) binge drinking, and (3) religious/spiritual convictions, and to determine students' (4) perception of norms about binge drinking on campus.

The sample (n=463) in this study did not achieve the strict ideal of a random sample in which every individual and combination of individual have an equal chance of being chosen to participate. However, there was no known bias in respondent selection. Frequency distributions by gender, race, and grade level reveal adequate representation in the sample relative to the student population of the university.

Full cooperation was granted by faculty members and teaching assistants in allowing questionnaire administration in their classes. All students invited to participate in the survey (except one) willingly did so with no indication of feeling coerced. No unusual circumstances (i.e., exams, midterms, spring break, etc.) were known to have existed during the period in which the questionnaire was administered.

### Limitations of the Research

The study was subject to various limitations such as a non-random sample, possible self-selection bias, and the known problems that exist in a survey of this nature measuring drinking habits and social psychological dimensions of the individual. Underreporting and overreporting are frequent problems in research looking at drinking behaviors (Embree & Whitehead, 1991) however, the results of many studies investigating the reliability of self-report data conclude that self-reported data on alcohol consumption are reliable (Cooper, Sobell, Sobell, & Maisto, 1981). Underreporting often results because of the perceived stigma attached to heavy drinking or an individual's discomfort with the amount of alcohol he or she consumes. Overreporting may result among those students who wish to bolster their ego image by overstating their accomplishments in the art of drinking. It is impossible to know how much these dynamics affected this survey, but based on comparisons to other research of college student drinking, the findings in this research are consistent with the findings of other researchers.

On measures such as perceived stress and the orientation to life questionnaire--those instruments measuring social psychological dimensions--respondents may have chosen responses considered by them to be socially desirable rather than what was actually true for them. However, again, based on comparisons with other research, the findings in this sample are congruent with previous findings.

Sample distribution by race/ethnicity presented additional

limitations. Regrettably, the sample's number of African American and Asian students was too small to statistically analyze racial/ethnic differences in Sense of Coherence or binge drinking. Thus, categories of race/ethnicity were collapsed into categories of white and non-white.

Substantive coping information was also missing in this research; for example, there was no attempt made to determine whether students who were coping adequately were using emotion-, problem-, or perception-focused coping skills. In this vein, assumptions are made, based on Antonovsky's (1987) assertions, that all three types of coping are used by persons with a strong SOC. As Antonovsky notes, the situation with which one is faced determines the type of coping used.

Another methodological limitation related to coping lies in the failure to determine what coping skills students employ to deal with their perceived stressors. That is, it would have been useful to know what means (exercise, social support, meditation) were employed by students to diminish their stress and/or to prevent the tension associated with the stimuli in their environment from turning into stress. Additionally, no measure was included to indicate objective levels of stress. This may have been helpful for comparison to subjective levels of perceived stress. However, because it is the perception of subjective stress that matters most for coping and for resolving tension and because of the length of the questionnaire, we determined adequate findings would be revealed using only the subjective perception of stress.

As noted in the discussion of religiousness/spirituality, there is

no "gold standard" to measure this concept, nor is there any literature with which to compare the findings of this research. Its inclusion in the questionnaire was twofold: to explore conceptual links to the SOC and to explore the relationship of the concepts to binge drinking. The measure of religiousness/spirituality has not been adequately tested nor has its validity or reliability been established, thus, the findings reported here must be viewed as preliminary. Additionally, because this was a non-random, cross-sectional study at a single university reflective of Midwestern values, the findings can be generalized only with caution. The findings should be interpreted as a guide to further research rather than as a source of definitive answers to the questions posed. The measures of religious belief and practice as well as spirituality might have taken more account of the individual complexities of religious orientation and experience. Finally, it would have been useful to determine the personal and social roots of religiousness, spirituality, and having a clear sense of meaning and direction.

Further limitations result from the definitional and conceptual problems associated with alcohol use. A major limitation was lessened by adopting the definition and questions concerning binge drinking from The Core Alcohol and Drug Survey, an instrument used in myriad studies of binge drinking on campuses. However, there is no consensus on what constitutes binge drinking. For instance, in the Harvard studies on binge drinking conducted by Wechsler and colleagues, they make a gender specific distinction in what constitutes binge drinking. In their



research, binge drinking means drinking five or more drinks in a sitting for males but for females, four or more drinks in a sitting constitutes binge drinking. Such a distinction makes an allowance for physiological differences in weight between males and females as well as the body's ability to metabolize alcohol. On the other hand, The Core Instrument developed by Presley, Meilman, and Lyster at Southern Illinois University at Carbondale and used in this research, makes no such gender distinction.

As in the past, there is considerable variation as to what constitutes problem drinking. In fact, there is increasing consensus that low to moderate levels of drinking carry with them negligible risks and may even contribute to health benefits. Yet, individuals who consume high levels of alcohol more frequently experience increased risk of a range of health and social problems. The current trend is to consider binge drinking among college students problematic and, as discussed earlier, binge drinking is assumed to characterize the consumption of alcohol to intoxication within a short period of time.

This assumption may be contentious in that while questions concerning intoxication are asked in the leading questionnaires about binge drinking, in none of them do the researchers ask if and how frequently consuming five drinks in a row leads to intoxication nor is there any attempt to discern the time period meant by "in a sitting." The effects of consuming five drinks over the course of a three-hour dinner are likely to manifest themselves very differently from the effects of consuming five drinks in rapid succession over half an hour.

Thus, the five drink definition of binge drinking is somewhat arbitrary.

The traditional concept of binge drinking conjures up images of self-destructive and unbridled drinking that lasts for days and is typically done in isolation. The newly adopted definition of binge drinking is much more narrowly focused and moves away from the binge as a solitary activity and focuses on its social components. The social connotations of bingeing are sometimes associated with traditional festivities such as Mardi Gras or in hazing and initiation rituals which have received particular notoriety on university campuses across the United States because of their often tragic consequences. With a focus on its social connotations, binge drinking within these contexts is regarded by some as a functional and beneficial pattern of behavior which can contribute to social cohesiveness and bonding. Even within these ritualized contexts, however, a correlation has been drawn between binge drinking, as noted above, and an elevated risk of harm. Thus, despite the limitations of the "five drinks in a sitting" definition, this definition is the most widely used and despite a variety of critics, is the most widely accepted definition.

#### Summary of Findings

This research found that all hypotheses were supported. As hypothesized, strength of sense of coherence played a significant role in perceived stress levels, binge drinking, and was positively associated with some of the measures of religiousness/spirituality. Consistent with other research investigating binge drinking on college

campuses, students in this sample perceived binge drinking as the norm, however, the percentage of students who reported binge drinking episodes is well above the average percentages found in other research. Binge drinking was positively correlated with perceived stress and inversely correlated with SOC. An inverse relationship was found between SOC and the number of drinks consumed by students in a week. Significant differences were revealed between students with strong SOC's and those with weak SOC's in their use of alcohol to deal with stress. Other significant relationships and correlations were found between SOC and several negative consequences of alcohol use.

The majority of students reported belonging to some form of organized religion and nearly all (90%) believed in the existence of God. Over half of the students reported depending on a power larger than themselves for strength and direction. Nearly all students (90.8%) reported that they considered themselves very spiritual or somewhat spiritual. A large proportion of students (87%) felt that they had a pretty clear sense of meaning and direction in their life.

Perceived stress levels reported by students were high. Over half (65.4%) reported moderate levels of stress and 12.2% reported high levels of stress. Not surprisingly, females, younger students, and students in lower grade classifications reported significantly higher levels of perceived stress. Significant differences were found in stress levels by grade point averages. Students with the lowest grade point averages reported the highest levels of perceived stress. Students living on campus reported significantly higher stress levels

than did students who lived off campus. And, more students with moderate or high levels of perceived stress used alcohol to deal with the stress in their lives than did students reporting low levels of perceived stress. Overwhelmingly, Catholics reported the highest proportions of moderate and high perceived stress, followed by students who were either Jewish, Muslim, or some other religion. Protestants reported the lowest proportions of moderate or high perceived stress levels.

Students who considered themselves not very spiritual reported lowest levels of perceived stress while those who considered themselves to be very spiritual reported highest levels of perceived stress. A belief in God was an indicator for moderate or high levels of perceived stress as was agreement with the statement that students depend on a power larger than themselves for strength and direction. Of all the measures relating to religion or spirituality, having a clear sense of meaning was most predictive of low perceived stress levels.

The campus environment proved to be a significant predictor of perceived stress levels. Students reporting low levels of perceived stress also reported feeling safer on campus than did students with high levels of perceived stress. Without further research it is impossible to speculate if feelings of safety cause lower levels of perceived stress or if higher levels of perceived stress cause one to feel less safe in their environment. Students who felt valued at this university and students who felt that faculty and staff cared about them as a person reported lower levels of perceived stress.

Unlike what has been found in other research, sense of coherence

scores for females were higher than sense of coherence scores for males. However, consistent with other research, significant differences in SOC were found between married and unmarried students with married students reporting higher SOC scores. Sense of coherence was positively correlated with grade point average. An inverse relationship was found among students who believed in God and the strength of their SOC and a positive relationship was found in strength of SOC and a high degree of spirituality. A significant relationship was also found in strength of SOC and having a clear sense of meaning. When examining religious preference in relation to one's SOC, more students with strong SOC's reported no religious preference than did students who identified with an organized religion. These findings are interesting in that it appears students hold very different definitions of religion and spirituality and it appears that neither spirituality nor religion is related to having a clear sense of meaning in one's life. These differences may be partially accounted for because spirituality is often a more personal, private experience than the rites and rituals of organized religion, thus, a high degree of spirituality may be more firmly internalized and be considered more a value that one has taken as one's own.

Fewer students with strong or moderate SOC's are members of Greek organizations. Nearly twice as many students with low SOC's report being members of either a fraternity or sorority than students with strong SOC's.

Significant differences were found in perceived stress levels and the strength of one's SOC. No students with a strong SOC reported high

levels of perceived stress. Less than half of students with strong SOC<sub>s</sub> reported moderate levels of stress and over half of students with strong SOC<sub>s</sub> reported low levels of stress. Clearly, one's SOC is making a significant difference in stress levels among these students.

The sense of coherence appears to be making a difference in reports of binge drinking, as well. Over one-fifth of students with strong SOC<sub>s</sub> reported never bingeing within the past two weeks and only 15% of students with weak SOC<sub>s</sub> reported never bingeing. At the other extreme, of students who reported bingeing six or more times within the past two weeks, less than 10% of students with strong SOC<sub>s</sub> reported extreme amounts of binge drinking compared to 28.6% of students with weak SOC<sub>s</sub>. Among students with strong SOC<sub>s</sub>, the highest percentage of students (21.5%) fell into the category of bingeing once within the past two weeks. Conversely, among students with weak SOC<sub>s</sub>, the highest percentage of students (28.6%) fell into the category of bingeing six or more times within the past two weeks. This rather startling comparison speaks to the protective qualities of one's SOC.

Of interest in regard to the SOC and binge drinking are the large percentages of students with moderate SOC<sub>s</sub> who reported bingeing and never bingeing. Among those with moderate SOC<sub>s</sub>, the smallest majority of students (62.0%) reported bingeing once within the past two weeks. The largest majority of students (77.1%) reported bingeing twice within the past two weeks and the second highest majority (74.7%) reported bingeing three to five times within the past two weeks. Of those with moderate SOC<sub>s</sub>, 65.1% reported never bingeing. The implications of these

findings will be discussed later in this chapter.

Students with strong SOC's viewed the campus environment more positively than did students with weak SOC's. Over half of the students with strong SOC's felt valued as a person on this campus and felt that faculty and staff cared about them as a person. A significantly larger proportion of students (66.7%) with strong SOC's than those with weak SOC's reported feeling a responsibility to contribute to the well being of other students. This finding suggests that because students with strong SOC's see their worlds as more predictable, more comprehensible and more meaningful, they may be expending less energy in managing the stressors they face. Thus, they are more able to contribute, or at least consider contributing, to the world beyond themselves.

### Discussion

The results of this research confirms that binge drinking is a widespread problem on this campus and that significant numbers of students are experiencing negative effects as a result of their drinking. Similar to the findings of other research with college student populations, 82% of the students on this campus use alcohol (Presley, Meilman, & Lyerla, 1995). However, the 54.9% of students who reported binge drinking significantly exceeds the 44% to 45% found in most major studies (Wechsler, et al., 1997; Larimer, Irvine, Kilmer, & Marlatt, 1997; Presley, Meilman, & Lyerla, 1995; Meilman, Cashin, McKillip, & Presley, 1998). Because the SOC's of students in this sample are similar to that of students in other college samples, other

factors are playing a role in the extreme levels of binge drinking found on this campus. Some of this difference may be explained by geography, elevated perception of campus norms, and decreased perceptions of campus policies about alcohol.

To examine regional differences in binge drinking, researchers at the Core Institute divided the country into four regions, Northeast, North Central, South, and West, the same divisions of the country that are used by the United States Census Bureau. The findings of the Core Alcohol and Drug Survey revealed noteworthy regional contrasts with students in the North Central region (where this university is located) having the second highest consumption level. No explanation was given for these regional differences however, some of the differences may be related to perceptions of social norms around alcohol use and the campus climate regarding campus policies with respect to alcohol use.

It is striking that in every instance students perceived more alcohol usage by others compared to their own usage. For example, 21.2% of students reported drinking no alcohol at off-campus parties but they estimated that only 1.1% of other students drank no alcohol at off-campus parties. Findings from other research indicates that typically only 2% of students perceived the average student as abstaining from alcohol, while, in actuality, 16.4% report abstaining. Thus, perceptions of drinking norms on this campus appear to be inflated. As Perkins and Berkowitz (1986) have suggested, students' perceptions of other students' alcohol use influences behavior in that the observing student will adjust their behavior toward the "perceived" norms. Similarly, as



the work of W. I. Thomas illustrates, situations perceived as real become real in their consequences.

With regard to the role alcohol policies and practices on campus play in contributing to the higher rates of binge drinking found in this sample, fewer students in this sample were aware of the existence of campus alcohol and drug policies than were aware at other campuses. Average percentages reported by the Core Alcohol and Drug Survey indicated that three-fourths (76.6%) of the students on other campuses were aware of the existence of campus alcohol and drug policies whereas only 64% of the students in this sample were aware of campus alcohol and drug policies. Moreover, most students in this sample (63.7%) indicated that they did not know if the university had an alcohol prevention program. This percentage exceeds the 51.6% of students at other 4-year institutions who did not know of the existence of prevention programs. Finally, higher levels of binge drinking may be explained simply by the overwhelming number of students who indicated they prefer to have alcohol available on this campus.

Wechsler et al (1995) has mentioned other correlates of binge drinking that were predictive in a model he developed. Being male, white, and single elevated the risk of bingeing. As this research found, single white males reported the most frequent binge drinking. Another extremely strong predictor of binge drinking identified by Wechsler and colleagues (1995) and verified in this research was being a member of fraternity or sorority. Perkins and Berkowitz (1986) have suggested that the heaviest drinking occurs among students who perceive

a very heavy drinking norm, which may be applicable in the heavier drinking Greek organizations. Larimer et al. (1995) suggest that the extent to which heavy drinking is perceived as a positive factor in the reputation of one's organization within the larger Greek system may also be related to heavier drinking by members. Larimer et al. (1995) found that houses within the Greek system judged by fraternity and sorority member to have reputations for heavy alcohol consumption were also generally judged to have favorable social reputations, whereas those judged to have the lightest drinking reputations were judged to be at the bottom of the Greek system's social hierarchy. Unfortunately, alcohol abuse prevention programs in Greek organizations have met with only limited success (Dielman, 1990; Marlatt, Baer, Larimer, 1995). Members of Greek organizations report very little concern about their drinking and very low motivation to change drinking behavior (Tampke, 1990). Moreover, Wechsler (1996) found little evidence that campus officials hold fraternity members accountable for their irresponsible and often illegal behavior. Without further research we can only speculate as to why more students on this campus binge drink but as will be discussed later, perhaps knowing why is less important than doing something to impact the high levels of binge drinking on this campus.

A significant proportion of students on this campus indicated high levels of perceived stress and as this research has shown, students reporting higher levels of perceived stress engage in binge drinking more frequently than students with lower levels of perceived stress. As expected, freshmen and sophomores reported higher levels of perceived

stress. Other researchers (Wolfle, MacKinnon-Slaney & Yung, 1995) suggest that the explanation for the differences between grade classifications may be found in three areas: internal and personal factors, learning and educational factors, and college environment factors impinging upon the student. Personal factors probably include such issues as personal awareness in the area of identity formation, the ability to cope with transitions, the selection of a career, as well as the ability to delay gratification. And, as this research has shown, a significant difference is the strength of the student's sense of coherence.

Many young college students are in the process of developing formal thinking in the area of identity development and being younger, they have fewer life experiences. Additionally, students in the lower grade classifications are still in the process of finding out who they are and what it is they are interested in pursuing for a career. One other factor contributing to high levels of perceived stress identified by Wolfle et al. (1995) is the sense that faculty and staff do not care about the student as a person. Wolfle et al (1995) found that concerned faculty created an environment in which students felt that they mattered and were not marginal which reduced their levels of perceived stress. As this research has shown, a large proportion of students on this campus do not feel valued as a person nor do they feel that faculty and staff care about them. As we search for answers to this potentially dangerous problem of binge drinking, perhaps part of the answer lies in changing the culture of the campus.

The Perceived Stress Scale which was used in this research measures the degree to which an individual finds life unpredictable, uncontrollable, and overloaded. Therefore, it not surprising that when correlated with sense of coherence, students reporting high perceived stress levels also reported a weak sense of coherence. As hypothesized, this research found significant and meaningful relationships among perceived stress, sense of coherence, and binge drinking. When coupled with the widely held perception that binge drinking is normative on this campus, assessing one's sense of coherence can be an extremely valuable predictive tool for college administrators who want to reduce the incidence of binge drinking. Students most vulnerable to high levels of binge drinking are those who report high levels of perceived stress, students who are members of Greek and religious organizations, and students with a weak sense of coherence.

These are interesting findings and will be considered individually in this section in the context of sense of coherence theory. As Antonovsky (1987) has stated, the crucial factors in shaping ones sense of coherence are consistency, emotional load balance, manageability, and participation in decision making which is analogous to a sense of belonging. Thus, it is highly likely that students in this sample with high levels of perceived stress may also engage in more binge drinking in order to "fit in" and thus create a sense of belonging with the amorphous "others" who they believe binge drink.

In the context of development, the central problem confronting adolescents in all cultures is to put one's act together, to develop a

defined personality within a social reality which one understands...to derive a vitalizing sense of reality from the awareness that his or her individual way of mastering experience is a successful variant of the way other people master experience and recognize such mastery (Erickson, 1959). Thus, in the context of the SOC, one can infer the three components of the SOC: "successful variant and sense of reality imply comprehensibility; recognize such mastery implies manageability; and "vitalizing...awareness...individual" (p. 89) implies meaningfulness. The crucial question then, according to Antonovsky (1987) is the extent to which the cultural context and the social-structural reality impedes or facilitates the life experiences needed for the development of a strong SOC or for movement toward the health ease end of the continuum. It should probably be noted here that some may not consider college students adolescents, however, given the fact that most have not yet sought employment in their chosen career, most are still accountable to their parents who may be paying for all or part of their education, and given that most have not yet reached the age of majority in this state, in the sense of their life responsibilities, most can be considered adolescents.

Membership in Greek and religious organizations appear to offer life experiences of consistency, load balance, and participation in decision making and may be seen as a solution to problems. Moreover, membership in these organizations offers a promise of redemption and/or membership in a community often perceived to be superior. Antonovsky (1987) notes that such membership "has appeal to those who, for whatever

reason, are most direly in need of simplistic, clear-cut answers" (p. 106). Antonovsky believes this is particularly germane to adolescents. While students may not be framing their decision to join a Greek or religious organization in such terms, perhaps they are seeking the consistency that such membership affords at a time of difficult transition in their lives. However, given the characteristic high levels of binge drinking associated with Greek organizations and grounded in the sense of coherence theory, there is a greater likelihood that because of these high levels of binge drinking, membership in Greek organizations may impede movement toward a strong SOC.

As for students with higher levels of perceived stress and weaker SOCs who report alliance with religious organizations and a belief in God, we can only speculate as to what impact this may have on the strengthening or weakening of their sense of coherence. In searching for a plausible explanation for the positive association between the importance of religion, high perceived stress, weak SOCs, and binge drinking, it should be noted that because the data are from a cross sectional study, the direction of cause and effect cannot be known. Perhaps placing a high importance on religion results in internal guilt and anxiety about measuring up to divine expectations or in a sense of conflict with the surrounding secular world, both of which might in turn lead to heightened levels of perceived stress and increased drinking to assuage feelings of guilt and anxiety. As for why students in religious organizations have a weaker sense of coherence, the answer may lie simply in the fact that students with weak SOCs may be seeking meaning

in their lives, may be seeking answers that make the discontinuities in their lives more comprehensible, and may be putting their trust in a higher being to achieve a sense of manageability. Whatever the reasons may be, these students, like members of Greek organizations, are at higher risk of weakening their sense of coherence if they continue to seek relief from high levels of perceived stress by binge drinking.

It should be remembered that one's SOC is not fixed until approximately age 30 (however, this supposition has not been empirically tested). Therefore, the strength of students' SOC's, whether members of Greek or religious organizations, are subject to change depending on the life experiences they have in the coming years. Antonovsky (1987) characterizes adolescence as a time of constant turbulence, confusion, self-doubt, and marginality. He states "To the extent that it is an accurate reflection of reality...one would expect that whatever basis has been laid in childhood for a strong SOC will be upset in adolescence" (p. 101). Thus, for all students but especially for students with moderate SOC's, this time in their lives is crucial in the strengthening or weakening of their SOC. For instance, for the 36.7% of students who use alcohol to cope with stressful situations, unless they learn healthier coping techniques, their chances of developing a strong SOC are lessened. Perkins (1999), in a longitudinal study of college students examining stress-motivated drinking, found that students who engaged in stress-related drinking while in college were relatively more prone to problematic drinking in terms of consumption levels and negative consequences in the years after college. Moreover, the

prominence of stress-related drinking and its increased negative effects begin sooner for women than for men. Furthermore, as the literature on stress-related drinking among the general public reveals, persons who use alcohol to deal with stress find their lives becoming increasingly more unmanageable, less comprehensible, and things that previously held meaning for them become less meaningful.

Especially relevant to this population, using alcohol to deal with stress interferes with the transition to adulthood, a major task of adolescence. The work of Benedict (1938), as reviewed in Antonovsky (1987), contrasted the discontinuities between the life of the child and the adult in American with the continuities and consistencies of messages in other societies. She found that "in American culture, the child was expected to bear no responsibility, to be submissive, and to be asexual; yet as an adult, one bears full responsibility, is dominant, and plays a very clearly defined sex role. Adolescence is the battleground of such revolutionary transformations" (Antonovsky, 1987, p. 101). Although Benedict's work is over a half-century old, the expectations for today's adolescents are little changed from what they were in 1938. In fact, it can be argued that today's adolescents carry less responsibility than they did then and through college attendance, adolescence is prolonged.

As Benedict (1938) suggests, in American society there are not ritualized societal ceremonies facilitating the transition to adulthood. Unlike American society, societies with ritualized rites of passage have messages signaling the transition to adulthood that are clear,



unequivocal, and are conveyed unanimously. Perhaps that is what members of Greek and religious organizations are seeking...messages that are clear, unequivocal, and conveyed unanimously.

Nothing interrupts the growth and social development of college students more than the abuse of alcohol and other drugs. And even with all the media coverage about the dangers of binge drinking, excessive college drinking is still too often accepted as a rite of passage, thus nurturing a behavior that is destroying lives. Yet, the messages students get with respect to alcohol use in this country are anything but clear, unequivocal, and unanimous. Unlike the strong negative messages about illegal drugs, messages about alcohol use are subtle and subject to individual interpretation in that drinking is socially acceptable as long as it is not excessive. Thus, a message of moderation is conveyed even though nearly three out of four college students cannot drink legally because they are under 21 years of age. Even for legal drinkers, there is no consensus on what level appropriately defines moderation. In addition to changing the misperceptions students hold about the pervasiveness of binge drinking, it is crucial for colleges and universities to recognize that, in order to guide students through these critical years, they must create a culture that nurtures and supports all aspects of students' lives, both in and out of the classroom.

It is true that colleges and universities do not have control over what happens beyond the boundaries of their campuses and students have lives outside of school. Plus, the larger society inevitably influences

the way students think and behave. However, colleges do influence the culture that is developed and supported within their own community. The college years are a time of not only intellectual progress and achievement for young Americans, but also, as noted earlier, a time of personal, social, spiritual, and emotional development. Institutions must recognize that, while eliminating abusive and/or binge drinking is not solely their responsibility, they play a large role in influencing the behavior of their students and shoulder a major responsibility to do so.

In the context of one's sense of coherence and the importance of clear, consistent messages, the college years are critical years in shaping a strong sense of coherence. In fact, Antonovsky (1987) sees adolescence as the "second broad era that reverses, stabilizes, or strengthens the direction of one's sense of coherence" (p. 100). Thus, especially for the students in this sample who reported moderate SOC's, they are at a crossroads in terms of strengthening their SOC. Perhaps at no other time in their lives are they exposed to more complex and inconsistent messages. But as Antonovsky states, "complexity itself is not the issue, and it may even be advantageous, for it opens greater opportunities for balance-load challenges and for participatory, valued experiences" (p. 100). Rather, the problem increasingly complex messages pose is that of consistency.

Thus, even for those students reporting strong SOC's, Antonovsky believes that adolescents can only have gained a tentative strong sense of coherence which may be useful for short-range prediction about coping

with stressors and health status. It is during these years of transition from adolescence to early adulthood that one's location on the SOC continuum becomes more or less fixed. And it is for this reason that every action must be taken to provide clear, consistent messages in an environment that nurtures feelings of belonging, that includes participation in decision making, and that provides opportunities for developing a sense of meaning. As this discussion has illustrated, not only are students at risk for the negative consequences associated with binge drinking, the strength of their sense of coherence is also at risk.

The correlations revealed in this research between SOC, perceived stress, and binge drinking indicate that students with strong SOC's are more protected from negative consequences related to these variables than their counterparts with weak or moderate SOC's. The implications of these findings are important for this age population in that there is still time for strengthening their sense of coherence. If adaptive coping is indeed the secret of movement toward the healthy end of the health ease/dis-ease continuum, then primary attention must be paid to what Antonovsky called generalized resistance resources (GRRs) as discussed earlier.

One potential GRR for students would be campus programs emphasizing life skills which are designed to promote problem-focused, emotion-focused, and perception focused coping skills. Because these coping skills generate healthy GRRs, such a program may be useful for helping students generate life experiences and life choices that are

salutogenic rather than pathogenic. That is, instead of using alcohol to cope with stressors, students may be convinced to use, for example, social support or exercise or meditation. By employing salutogenic resources other than alcohol to cope with perceived and real stressors, over time, a stronger SOC is generated. The comprehensibility, manageability, and meaningfulness which comprise one's sense of coherence then allows one to create order out of what before was chaos; allows one to perceive stressors as challenges worthy of investment; allows one to believe they have the ability to cope with what comes their way.

It must be remembered that the SOC is more than just a way of coping. It is a dispositional orientation comprising beliefs about one's ability to cope, beliefs in one's ability to accurately appraise the situation, and beliefs that one has the resources or access to the resources necessary to meet these challenges. In sum, it is a way of seeing the world. The goal of programs targeted at improving one's sense of coherence must focus on success-generating activities, that over time, allows them to see the world as, while still difficult, at least, is fair most of the time. During these crucial developmental years, alcohol is what Antonovsky (1987) calls a generalized resistance deficit (GRD). Thus, it is critical to promote activities that may diminish binge drinking. Success-generating activities allow students to create meaning in their life and provide opportunities for them to view the stimuli (stressors) in their internal and external environments, as challenges rather than burdens.

What does a success-generating program look like? Antonovsky (1987) has stated that the components of the SOC instrument are inextricably intertwined and must not be considered individually. However, Fiorentino and Pomazal (1994) found in a study exploring the SOC and stress-illness relationship that the component of comprehensibility was better at predicting illness than either manageability or meaningfulness. Thus, a success-generating alcohol intervention program must be comprehensible. That is, it must make sense to students, it must be credible, it must clearly and non-judgmentally separate facts about binge drinking from the myths held by so many students. Furthermore, its focus should be salutogenic. That is, it should focus on the students who do not binge drink, it should focus on what other students do to cope with stress and/or prevent the tension associated with stressors from becoming stress. And, to be most effective, the information presented to students should be based on local data. Because students tend to misperceive the drinking norm, they may be skeptical of information that challenges their drinking beliefs. By conveying information specific to their university, students are less likely to deny that the validity of what is being presented is not representative of drinking norms on their campus. Students will be less skeptical of a norms intervention program if the message highlights moderation rather than abstinence. Success-generating alcohol intervention programs then may contribute to making a student's world more comprehensible.

Closely tied to comprehensibility for strengthening one's SOC is

manageability. By understanding what the actual norms around binge drinking are, students may feel a diminished need to drink excessively to "fit in" and may even feel relief that they don't have to keep up with their "imaginary peers." Through the elimination of excessive alcohol use and the addition of health promoting activities and the promotion of moderate drinking norms, students will naturally find their lives more manageable.

As for the meaningfulness component of the SOC, Ryland, Tegarden & King (1994) in examining the longitudinal salutogenic effect of a MBA program suggest that program of study has a developmental effect on students' SOC scores. However, more importantly for our purposes, the results of their study suggest that the SOC is indeed associated with maturation and that specific experiences can have an impact with the general development process. One experience this research found to be related to SOC and which is amenable to change was the student's sense of alienation from the university. Ryland et al's (1994) research made clear that experience has an influence on alienation from the university. A similar finding was revealed in this research which found significant relationships between SOC and feeling valued and cared about at this university, a dimension of alienation.

If the culture of the university can be changed to promote a sense of belonging, it is likely that whole college experience may be more meaningful. Like alcohol, the alienation student's feel acts as a GRD thereby creating a situation which diminishes rather than strengthens one's sense of coherence. By creating a more meaningful environment,

the stressors students face may be viewed as challenges rather than burdens. By perceiving their world as less alienating, it is likely that students will appraise the stressors they face as less threatening and more manageable. A series of these experiences in which students successfully deal with the situations they face will, over time, create a stronger sense of coherence.

Is such an intervention program doable? Based on a review of the literature, it would appear that the answer is, yes. In addition to what has been discussed and based on other programs who have successfully reduced the incidence of binge drinking, it must be realized that drinking alcohol is not typically a behavior learned in college and often is simply a continuation of patterns established earlier. Thus, interventions at the college level must be appropriate for this age group and ideally should begin much earlier. Additionally, while drinking on college campuses reflects alcohol's importance in the larger society, alcohol use has traditionally occupied a unique place in campus life. That is, drinking behavior that would elsewhere be classified as alcohol abuse may be socially acceptable as a rite of passage, or even socially attractive on many college campuses. As other research has shown (Larimer, 1995), Greek organizations known for their heavy drinking were generally judged to have more favorable social reputations, whereas those judged to have the lightest drinking reputations were judged to be at the bottom of the Greek system's hierarchy. This is a disturbing fact given that today's college students will be tomorrow's legislators, role models, controllers of the media,

and educators.

Overwhelmingly, the data in this and other research indicate that heavy alcohol use and alcohol-related problems remain at disturbingly high levels on campus. Many students ignore the dangers of frequent binge drinking and even more consider bingeing and heavy drinking normative. However, like that which has been found in other research, we found that students overestimate the number of students on campus who binge drink. For this reason, college administrators need to target alcohol-related attitudes and provide accurate data that reveals, in fact, that most students drink in moderation. That is, as discussed earlier, they must seek to change the norms around alcohol use.

After an extensive review of various alcohol prevention and intervention efforts, the effort eliciting the most successful outcomes is the social norms approach (Perkins & Berkowitz, 1986; Haines, 2001). It also is the approach most consistent with salutogenesis.

In 1986, Perkins and Berkowitz noticed that students often overestimated how much their peers were drinking. They also realized that the more students overestimated, the more likely they were to drink heavily. In the years since then most other studies have shown the same gap between perception and reality. This finding has given rise to what is called the social norms model of intervention.

Social norm theory provides a model for understanding human behavior that has important implications for health promotion and prevention. Social norm theory posits that much of our behavior is influenced by incorrect perceptions of how other members of our social



group(s) think and act. For example, if a student overestimates the number of students who binge drink and underestimates the extent to which peers engage in health enhancing or risk reducing behavior, the theory predicts these overestimations will result in increased binge drinking and underestimations of healthy behaviors will serve to discourage individuals from engaging in them. Thus, correcting misperceptions is likely to result in decreased drinking and/or increased prevalence of healthy, protective behaviors.

The social norms approach is like the sense of coherence theory in that it is a radical departure from traditional intervention strategies that focus on abuse and on identification, intervention, and treatment strategies for abusers. Focusing solely on alcohol and its negative consequences draws attention to extreme problem behavior and fosters the misperception that campus drinking is more excessive than is actually the case. In contrast, interventions based on social norms theory, like salutogenesis, focus on healthy behaviors and use information about healthy norms to guide interventions with abusers.

A social norms approach was first used in 1990 at Northern Illinois University and achieved great success in lowering the percentage of students who binge drank. Their campaign was an example of a social marketing intervention which focused on changing student perceptions of campus drinking norms with messages that highlight positive and moderate drinking norms, while ignoring nonnormative and negative data.

A particularly valuable social norms intervention involves an

intervention as part of a one-credit self-management life skills course in which the experimental group received a class module on drinking norms. At the end of the course, the students who received the peer norms challenging information showed significant changes in their perception of campus drinking and also reported consuming less alcohol per occasion than students in the standard class. A course such as this for first year students could significantly reduce the incidence of binge drinking and may teach students better coping skills.

Other prevention activities encompass individualized social norms interventions. Developed by Marlatt and colleagues it is an intervention aimed at high risk drinkers and is consistent with social norms theory. The approach is an eight session motivational interview to provide heavy drinkers with non-judgmental feedback about their drinking. Data collected prior to the interview is used to provide comparisons between the individual's drinking and actual rates of peers' drinking on campus. This information presents the heavy drinker with the fact that his or her drinking is much more extreme than that of peers on a variety of measures. This intervention has been successful in reducing drinking at follow-ups of 1-2 years (Dimeff, Baerk, Kvilahah, & Marlatt, 1999).

The social norms approach provides an excellent example of how theory and research driven interventions can be designed, implemented, and evaluated to address health problems. The model incorporates recent understandings about the important role of the environment in prevention, the nature and impact of peer influence, and the design of

comprehensive environments which can foster change.

Change is what must occur. Antonovsky (1987) rather adamantly states that

the person with a moderate SOC in early adulthood will tend to move to the lower end over time. Selection of SOC-reinforcing situations and avoidance of SOC-debilitating situations will be less successful. Encounters with stressors will tend to be entropic, not adequately balanced by the GRRs in one's life. (p. 122)

Antonovsky suggests that adulthood will show an increasing disparity in the strength of the SOC between those who begin this period of their lives with a strong SOC and those with a moderate SOC, and an even greater disparity between these and those with a weak SOC.

Changes in environment can lead to changes in one's life experiences. Life experiences that are meaningful, manageable, and comprehensive lead to a stronger SOC. In changing the perceived norms about binge drinking and allowing new patterns of campus life experience to emerge, it is just possible that in addition to the knowledge gained from the university experience, students can graduate with a stronger sense of coherence.

#### Recommendations for Future Research

Based on the findings in this research, campus-wide surveys aimed at determining the sense of coherence levels of students would be useful for creating intervention and prevention programs aimed at improving SOC scores thereby reducing the incidence of binge drinking and its associated problems. University-wide projects assessing students' SOC is likely to generate valuable information into the protective qualities

of the sense of coherence. Further research would be advised to ask specifically about the ways students with strong SOC's cope with the stressors of college life.

While alcohol is undoubtedly the drug of choice for college students, it may be useful to determine the level of other drug use on campus. Like alcohol, the use of other drugs to deal with stress would have a detrimental effect on one's sense of coherence.

Based on the many diverse studies that have employed the sense of coherence scale and that have found significant correlations, including this one, it is reasonable to say that one's SOC plays a role in predicting healthy outcomes and moving people toward the healthy end of the health-ease/dis-ease continuum.

More longitudinal studies examining changes in sense of coherence are needed to accurately assess this movement toward a strong sense of coherence. Researchers conducting longitudinal studies with populations under the age of 30 would be well advised to do more than dichotomize SOC scores. As this research shows, significant proportions of students have moderate SOC's and establishing cutting points beyond strong and weak would provide better data regarding movement one way or the other on the SOC continuum.

Since this research began, The Fetzer Institute has created a multidimensional measurement of religiousness/spirituality for use in health research. It examines the key dimensions of religiousness/spirituality as they relate to physical and mental health outcomes and has been validated as a reliable measurement of the domains associated

with religiousness/spirituality. Using it to assess the relationship between perceived stress, binge drinking, and sense of coherence would likely produce better and more reliable data.

### Conclusions

This study showed that sense of coherence indeed does have protective capabilities in mitigating perceptions of stress and binge drinking. It has shown that perceived stress levels are high among this population. It has shown, that the strength of one's sense of coherence, plays in role in perceptions of stress. Finally, this study has shown that the majority of students at this university binge drink and that the percentage of students at this university who binge drink exceeds national averages. Single white males, members of Greek organizations, and students affiliated with organized religion are overrepresented in the heaviest drinking categories and are at greatest risk for negative consequences of binge drinking. Additionally, unlike other research, this study found that sense of coherence scores for females exceeded sense of coherence scores reported for males. Of the measures of religiousness/spirituality, only having a clear sense of meaning was positively correlated with sense of coherence and negatively correlated with perceived stress.

As discussed earlier, there are not easy solutions to the excessive use of alcohol on campuses. The data in this study suggest that a significant proportion of these students are at high-risk for both the continuation and development of more problems with alcohol.

Because of the relationships found between sense of coherence, stress, and binge drinking, further exploration of the role students' sense of coherence plays offers a viable starting point for identifying and targeting high-risk students. Further exploration into how the strong sense of coherence works to protect students would lead to the development of intervention and prevention programs that capitalize on salutogenic dimensions.

Based on the findings in this research and the successes achieved with a social norms approach, salutogenically oriented intervention and prevention programs coupled with a change in the campus culture with respect to students' feelings of value as opposed to alienation, may provide students with life experiences that are more comprehensible, more manageable and more meaningful.

Appendix A  
Questionnaire

## QUESTIONNAIRE

This questionnaire is being used to study the needs and problems of college students. We are particularly interested in learning more about the stresses associated with college life and what students do to deal with these stresses.

We are asking for your help in this important endeavor. This class has been chosen randomly. Participation is voluntary. Participation or lack of participation will in no way affect your grade in this class. Your name is not known and we ask that you place no identifying marks on the questionnaire.

This NOT a test. There are no right or wrong answers. All responses are confidential and anonymous.

Please read and answer all questions carefully. Your honest and sincere effort is needed so that we can better understand student life. Thank you for your time and cooperation.

PLEASE CHECK OR FILL IN

Age \_\_\_\_\_

Classification

Freshman \_\_\_\_\_  
Sophomore \_\_\_\_\_  
Junior \_\_\_\_\_  
Senior \_\_\_\_\_  
Graduate \_\_\_\_\_  
Unclassified \_\_\_\_\_

Ethnic Origin

American Indian/Alaskan Native \_\_\_\_\_  
Asian American/Pacific Islander \_\_\_\_\_  
Hispanic \_\_\_\_\_  
Caucasian \_\_\_\_\_  
African American \_\_\_\_\_  
International/Non-US Resident \_\_\_\_\_  
Multiracial \_\_\_\_\_  
Other - Please specify \_\_\_\_\_

Gender

Male \_\_\_\_\_  
Female \_\_\_\_\_



## Marital Status

Single\_\_\_\_\_

Married\_\_\_\_\_

Separated\_\_\_\_\_

Divorced\_\_\_\_\_

Widowed\_\_\_\_\_

## Is your current residence as a student:

On-campus\_\_\_\_\_

Off-campus\_\_\_\_\_

## Are you working?

Yes, full-time\_\_\_\_\_

Yes, part-time\_\_\_\_\_

No\_\_\_\_\_

## Living Arrangements:

- A. Where? (indicate best answer)
- House/apartment/etc.\_\_\_\_\_
- Residence hall\_\_\_\_\_
- Fraternity/sorority house\_\_\_\_\_
- Other - please specify\_\_\_\_\_
- B. With whom: (mark all that apply)
- With roommate (s)\_\_\_\_\_
- Alone\_\_\_\_\_
- With parent(s)\_\_\_\_\_
- With spouse\_\_\_\_\_
- With significant other\_\_\_\_\_
- With children\_\_\_\_\_
- With other family\_\_\_\_\_
- Other - please specify\_\_\_\_\_

Approximate cumulative grade point average: Mark with a circle the number closest to your GPA on the following continuum:

0      0.5      1.0      1.5      2.0      2.5      3.0

3.5      4.0

## Student Status

Full time (12 credits or more)\_\_\_\_\_

Part time (1 - 11 credits)\_\_\_\_\_

The next series of questions ask about your religious/spiritual beliefs.

Are you a member of a church, mosque, or synagogue?

Yes\_\_\_\_\_

No\_\_\_\_\_

Do you believe in the existence of God?

Yes \_\_\_\_\_  
 No \_\_\_\_\_  
 Uncertain \_\_\_\_\_

For many people, religion plays an important role in their lives.

How important would you say religion is in your life?

Very important \_\_\_\_\_  
 Somewhat important \_\_\_\_\_  
 Not very important \_\_\_\_\_

Many people have stated that they depend upon a power larger than themselves. To what extent do you agree or disagree with the following statement:

I depend upon a power larger than myself for strength and direction.

Agree \_\_\_\_\_  
 Disagree \_\_\_\_\_

How spiritual a person do you consider yourself to be? By spiritual, I mean, having a sense of meaning, purpose, and direction?

Very spiritual \_\_\_\_\_  
 Somewhat spiritual \_\_\_\_\_  
 Not very spiritual \_\_\_\_\_

To what extent do you agree with the following statement:

I have a pretty clear sense of meaning and direction in my life.

Agree \_\_\_\_\_  
 Disagree \_\_\_\_\_

How often do you attend religious services?

Never \_\_\_\_\_  
 Less than once a year \_\_\_\_\_  
 Several times a year \_\_\_\_\_  
 About once a month \_\_\_\_\_  
 2-3 times a month \_\_\_\_\_  
 Once a week \_\_\_\_\_  
 More than once a week \_\_\_\_\_

How often do you pray or connect in your own personal way with the larger being you believe in?

Once a day or more \_\_\_\_\_  
 Once every few days \_\_\_\_\_  
 About once a week \_\_\_\_\_  
 Less than once a week \_\_\_\_\_  
 Never \_\_\_\_\_

What is your religious preference?

Protestant\_\_\_\_\_  
 Catholic\_\_\_\_\_  
 Jewish\_\_\_\_\_  
 Muslim\_\_\_\_\_  
 Other-please specify\_\_\_\_\_  
 None\_\_\_\_\_

The following questions ask you about your feelings and thoughts during the last month. In each case please indicate how often you felt or thought a certain way. Although some of the questions seem to be similar, each is unique and you should deal with each one as a separate question. The best approach is to answer fairly quickly-don't attempt to count the number of times you felt a particular way, but indicate instead the alternative that seems a reasonable estimate. Please encircle the correct response.

In the past month, how often have you been upset because of something that happened unexpectedly?

Never  
 Almost never  
 Sometimes  
 Fairly often  
 Very often

In the last month, how often have you felt that you were unable to control the important things in your life?

Never  
 Almost never  
 Sometimes  
 Fairly often  
 Very often

In the last month, how often have you felt nervous and "stressed"?

Never  
 Almost never  
 Sometimes  
 Fairly often  
 Very often

In the last month, how often have you felt confident about your ability to handle your personal problems?

Never  
 Almost never  
 Sometimes  
 Fairly often  
 Very often

In the last month, how often have you felt that things were going your way?

Never  
Almost never  
Sometimes  
Fairly often  
Very often

In the last month, how often have you found that you could not cope with all the things that you had to do?

Never  
Almost never  
Sometimes  
Fairly often  
Very often

In the last month, how often have you been able to control irritations in your life?

Never  
Almost never  
Sometimes  
Fairly often  
Very often

In the last month, how often have you felt that you were on top of things?

Never  
Almost never  
Sometimes  
Fairly often  
Very often

In the last month, how often have you been angered because of things that were outside of your control?

never  
Almost never  
Sometimes  
Fairly often  
Very often

In the last month, how often have you felt difficulties were piling up so high that you could not overcome them?

Never  
Almost never  
Sometimes  
Fairly often  
Very often

This next set of questions concerns alcohol use. The information you give will help the university plan and provide the best possible services for those college students who need help because of a problem with alcohol use.

All of your answers are very important to us, even if you never or hardly ever drink alcohol.

By alcohol, we mean beer, wine, wine coolers, whisky, vodka, or any other drink containing alcohol.

Please answer each questions after reading it carefully. If you do not find the exact answer you want, circle the answer that come closest to being accurate.

Some students have indicated that alcohol use at parties they attend is and around campus reduces their enjoyment, often leads to negative situations, and therefore, they would rather not have alcohol available and used. Other students have indicated that alcohol use at parties increases their enjoyment, often leads to positive situations, and therefore, they would rather have alcohol available and use. Which of these is closest to your own view?

- A. Would rather have alcohol available
- B. Would rather NOT have alcohol available

Campus situation on alcohol:

Does WMU have an alcohol policy?

Yes \_\_\_\_\_  
No \_\_\_\_\_  
Don't know \_\_\_\_\_

If so, are they enforced?

Yes \_\_\_\_\_  
No \_\_\_\_\_  
Don't know \_\_\_\_\_

Does WMU have an alcohol prevention program?

Yes \_\_\_\_\_  
No \_\_\_\_\_  
Don't know \_\_\_\_\_

Do you believe WMU is concerned about the prevention of alcohol use?

Yes \_\_\_\_\_  
No \_\_\_\_\_  
Don't know \_\_\_\_\_

Are you actively involved in efforts to prevent alcohol use problems at WMU?

Yes \_\_\_\_\_  
No \_\_\_\_\_

Are you actively involved in any on or off campus alcohol treatment activities for a personal problem with alcohol? By treatment activities, we mean participation in AA, NA, or any individual and/or group counseling for alcohol-related issues

Yes \_\_\_\_\_  
No \_\_\_\_\_

What brought you into an alcohol treatment program? Check all that apply.

Problems with family \_\_\_\_\_  
Problems with friends/peers \_\_\_\_\_  
Problems with boyfriend/girlfriend/significant other \_\_\_\_\_  
Legal problems \_\_\_\_\_  
Problems with academics \_\_\_\_\_  
Other - please specify \_\_\_\_\_  
Does not apply \_\_\_\_\_

Was your decision to seek help voluntary?

Yes \_\_\_\_\_  
No \_\_\_\_\_  
Does not apply \_\_\_\_\_

If no, please specify the reason you sought help \_\_\_\_\_

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

\_\_\_\_\_ %

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

\_\_\_\_\_ %

Which statement below about drinking alcoholic beverages do you feel best represents your own attitude? Circle only one response.

Drinking is never a good thing to do  
Drinking is all right but a person should not get drunk.  
Occasionally getting drunk is okay as long as it doesn't interfere with academics or other responsibilities  
Occasionally getting drunk is okay even if it does interfere with academics or other responsibilities.  
Frequently getting drunk is okay if that's what the individual wants to do.

Which statement below about drinking alcoholic beverages do you feel best represents the most common attitude among students in general at WMU? Circle only one response.

Drinking is never a good thing to do

Drinking is all right but the person should not get drunk

Occasionally getting drunk is okay as long as it doesn't interfere with academics or other responsibilities

Occasionally getting drunk is okay even if it does interfere with academics or other responsibilities.

Frequently getting drunk is okay if that's what the individual wants to do.

On any given occasion, how many alcoholic drinks are most typically consumed by you in each of the following places? Just give your best estimate.

Bar\_\_\_\_\_

Athletic events\_\_\_\_\_

Fraternity social functions\_\_\_\_\_

Sorority social functions\_\_\_\_\_

Residence hall informal get-togethers\_\_\_\_\_

School dances (or mixers)\_\_\_\_\_

Off campus parties\_\_\_\_\_

On any given occasion, how many alcoholic drinks are most typically consumed by others in each of the following places. Just give your best estimate.

Bar\_\_\_\_\_

Athletic events\_\_\_\_\_

Fraternity social functions\_\_\_\_\_

Sorority social functions\_\_\_\_\_

Residence hall informal get-togethers\_\_\_\_\_

Off campus parties\_\_\_\_\_

Think back over the last two weeks. How many times have you had five or more drinks at a sitting?

Never\_\_\_\_\_

Once\_\_\_\_\_

Twice\_\_\_\_\_

3 to 5 times\_\_\_\_\_

6 to 9 times\_\_\_\_\_

10 or more times\_\_\_\_\_

What is the average number of drinks you consume in a week?

Indicate the average number \_\_\_\_\_

At what age did you first use alcohol?

- Never used
- Under age 10
- 10 to 11
- 12 - 13
- 14 - 15
- 16 - 17
- 18 - 20
- 21 - 25
- 26+

Within the last year, about how often have you used alcohol?

- a. Never used \_\_\_\_\_
- b. Once/year \_\_\_\_\_
- c. 6 times/year \_\_\_\_\_
- d. Once/month \_\_\_\_\_
- e. Twice/month \_\_\_\_\_
- f. Once/week \_\_\_\_\_
- g. 3 times/week \_\_\_\_\_
- h. 5 times/week \_\_\_\_\_
- i. Every day \_\_\_\_\_

During the past 30 days on how many days did you use alcohol?

- 0 days \_\_\_\_\_
- 1-2 days \_\_\_\_\_
- 3-5 days \_\_\_\_\_
- 6-9 days \_\_\_\_\_
- 10-19 days \_\_\_\_\_
- 20-29 days \_\_\_\_\_
- every day \_\_\_\_\_

Where have you used alcohol? Mark all that apply.

- Never used \_\_\_\_\_
- On campus events \_\_\_\_\_
- Residence hall \_\_\_\_\_
- Fraternity/sorority \_\_\_\_\_
- Bar/restaurant \_\_\_\_\_
- Where you live \_\_\_\_\_
- In a car \_\_\_\_\_
- Private parties \_\_\_\_\_
- Other-please specify \_\_\_\_\_



Please indicate which of the following you have experienced due to your drinking during the last year? Check all that apply.

Had a hangover\_\_\_\_\_

Performed poorly on a test or important project\_\_\_\_\_

Been in trouble with police, residence hall, or other college authorities\_\_\_\_\_

Damaged property, i.e., pulled fire alarm, defaced property, etc.\_\_\_\_\_

Got into an argument or fight\_\_\_\_\_

Got nauseated or vomited\_\_\_\_\_

Driven a car while under the influence\_\_\_\_\_

Missed a class\_\_\_\_\_

Been criticized by someone I know\_\_\_\_\_

Thought I might have a drinking problem\_\_\_\_\_

Had a memory loss (blackout)\_\_\_\_\_

Done something I later regretted\_\_\_\_\_

Been arrested for DWI/DUI\_\_\_\_\_

Have been taken advantage of sexually\_\_\_\_\_

Have taken advantage of another sexually \_\_\_\_\_

Tried unsuccessfully to stop drinking\_\_\_\_\_

Seriously thought about suicide\_\_\_\_\_

Seriously tried to commit suicide\_\_\_\_\_

Been hurt or injured\_\_\_\_\_

Have any of your family members had alcohol problems? Mark all that apply

Mother\_\_\_\_\_

Father\_\_\_\_\_

Stepmother\_\_\_\_\_

Stepfather\_\_\_\_\_

Brother(s)/sister(s)\_\_\_\_\_

Mother's parent(s)\_\_\_\_\_

Father's parent(s)\_\_\_\_\_

Aunt(s)/uncle(s)\_\_\_\_\_

Spouse\_\_\_\_\_

Children\_\_\_\_\_

None

Within the last year to what extent have you participated in any of the following activities? Mark all that apply.

Intercollegiate athletics \_\_\_\_\_

Intramural or club sports\_\_\_\_\_

Social fraternities/sororities\_\_\_\_\_

Religious or interfaith groups \_\_\_\_\_

International and/or language groups\_\_\_\_\_

Minority or ethnic organizations\_\_\_\_\_

Political and/or social action groups\_\_\_\_\_

Music and/or other performing arts groups\_\_\_\_\_

Student newspaper, radio, TV, magazine, etc.\_\_\_\_\_

Which of the following effects do you believe alcohol has? (Mark all that apply)

Breaks the ice\_\_\_\_\_

Enhances social activity\_\_\_\_\_

Makes it easier to deal with stress\_\_\_\_\_

Facilitates a connection with peers\_\_\_\_\_

Gives people something to talk about\_\_\_\_\_

Facilitates male bonding\_\_\_\_\_

Facilitates female bonding\_\_\_\_\_

Allows people to have more fun\_\_\_\_\_

Gives people something to do\_\_\_\_\_

Makes food taste better\_\_\_\_\_

Makes women sexier\_\_\_\_\_

Makes men sexier\_\_\_\_\_

Facilitates sexual opportunities\_\_\_\_\_

At Western, drinking is a central part in the social life of the following groups. (Mark all that apply)

Male students\_\_\_\_\_

Female students\_\_\_\_\_

Faculty/staff\_\_\_\_\_

Alumni\_\_\_\_\_

Athletes\_\_\_\_\_

Fraternities\_\_\_\_\_

Sororities\_\_\_\_\_

Campus environment:

Does the social atmosphere at WMU promote alcohol use?

Yes\_\_\_\_\_

No\_\_\_\_\_

Do you feel safe on Western's campus?

Yes\_\_\_\_\_

No\_\_\_\_\_

Compared to other campuses with which you are familiar, Western students' use of alcohol is: (Mark only one)

Greater than other campuses\_\_\_\_\_

Less than other campuses\_\_\_\_\_

About the same as other campuses\_\_\_\_\_

Housing Preferences:

If you live in university housing, do you live in an alcohol-free residence hall?

Yes\_\_\_\_\_

No\_\_\_\_\_

If no, would you like to live in such a residence hall if it were available?

Yes \_\_\_\_\_

No \_\_\_\_\_

To what extent has your alcohol use changed within the last 12 months?

Increased \_\_\_\_\_

About the same \_\_\_\_\_

Decreased \_\_\_\_\_

I haven't used alcohol \_\_\_\_\_

How much do you think people risk harming themselves (physically or in other ways) if they:

Take one or two drinks of an alcoholic beverage nearly every day

No risk \_\_\_\_\_

Slight risk \_\_\_\_\_

Moderate risk \_\_\_\_\_

Great risk \_\_\_\_\_

Can't say \_\_\_\_\_

Take four or five drinks nearly every day

No risk \_\_\_\_\_

Slight risk \_\_\_\_\_

Moderate risk \_\_\_\_\_

Great risk \_\_\_\_\_

Can't say \_\_\_\_\_

Have five or more drinks in one sitting

No risk \_\_\_\_\_

Slight risk \_\_\_\_\_

Moderate risk \_\_\_\_\_

Great risk \_\_\_\_\_

Can't say \_\_\_\_\_

Consume alcohol prior to being sexually active

No risk \_\_\_\_\_

Slight risk \_\_\_\_\_

Moderate risk \_\_\_\_\_

Great risk \_\_\_\_\_

Can't say \_\_\_\_\_

In which of the following ways does other students' drinking interfere with your life on and around campus? (Mark all that apply)

- Interrupts your studying\_\_\_\_\_
- Makes you feel unsafe\_\_\_\_\_
- Messes up your physical living space (cleanliness, neatness, organization, etc.)\_\_\_\_\_
- Adversely affects your involvement on an athletic team or in other organized groups\_\_\_\_\_
- Prevents you from enjoying events (concerts, sports, social activities, etc.)\_\_\_\_\_
- Interferes in other ways, please specify\_\_\_\_\_
- Doesn't interfere with my life\_\_\_\_\_

To what extent do you agree with the following statements?

I feel valued as a person at Western Michigan University

- Strongly agree\_\_\_\_\_
- Agree\_\_\_\_\_
- Neutral\_\_\_\_\_
- Disagree\_\_\_\_\_
- Strongly disagree\_\_\_\_\_

I feel that faculty and staff of WMU care about me as a student

- Strongly agree\_\_\_\_\_
- Agree\_\_\_\_\_
- Neutral\_\_\_\_\_
- Disagree\_\_\_\_\_
- Strongly disagree\_\_\_\_\_

I have a responsibility to contribute to the well-being of other students at WMU

- Strongly agree\_\_\_\_\_
- Agree\_\_\_\_\_
- Neutral\_\_\_\_\_
- Disagree\_\_\_\_\_
- Strongly disagree\_\_\_\_\_

Western encourages me to help others in need

- Strongly agree\_\_\_\_\_
- Agree\_\_\_\_\_
- Neutral\_\_\_\_\_
- Disagree\_\_\_\_\_
- Strongly disagree\_\_\_\_\_

I abide by Western's policy and regulations that concern alcohol use

Strongly agree \_\_\_\_\_  
 Agree \_\_\_\_\_  
 Neutral \_\_\_\_\_  
 Disagree \_\_\_\_\_  
 Strongly disagree \_\_\_\_\_  
 Don't know \_\_\_\_\_

Next are a series of questions relating to various aspects of our lives. Each question has seven possible answers. Please circle the number which best expresses your feelings, with numbers 1 and 7 being the extreme answers. If the words under 1 are right for you, circle 1; if the words under 7 are right for you, circle 7. If you feel differently, circle the number which best expresses your feelings. Please give only one answer to each question.

When you talk to people, do you have the feeling that they don't understand you?

1	2	3	4	5	6	7
Never have						Always have
this feeling						this feeling

In the past, when you had to do something which depended upon cooperation with others, did you have the feeling that it:

1	2	3	4	5	6	7
Surely would						Surely would
<u>not</u> get done						get done

Think of the people with whom you come into contact daily, aside from the ones to whom you feel closest. How well do you know most of them?

1	2	3	4	5	6	7
You feel that						You know them
they're strangers						very well

Do you have the feeling that you don't really care about what goes on around you?

1	2	3	4	5	6	7
Very seldom						Very often
or never						

Has it happened in the past that you were surprised by the behavior of people whom you thought you knew?

1	2	3	4	5	6	7
Never						Always
happened						happened

Has it happened that people whom you counted on disappointed you?

1	2	3	4	5	6	7
Never						Always
happened						happened

Life is:

1      2      3      4      5      6      7

Full of interest

Completely routine

Until now your life has had:

1      2      3      4      5      6      7

No clear goals or purpose at all

Very clear goals and purpose

Do you have the feeling that you're being treated unfairly?

1      2      3      4      5      6      7

Very often

Very seldom or never

In the past 10 years, your life has been

1      2      3      4      5      6      7

Full of changes

Completely consistent

without your

and clear

knowing what will

happen next

Most of the things you do in the future will probably be:

1      2      3      4      5      6      7

Completely fascinating

Deadly boring

Do you have the feeling that you are in an unfamiliar situation and don't know what to do?

1      2      3      4      5      6      7

Very often

Very seldom or never

What best describes how you see life?

1      2      3      4      5      6      7

One can always

There is no

find a solution

solution to

to painful things

painful things

in life

in life

When you think about your life, you very often:

1      2      3      4      5      6      7

Feel how good

Ask yourself

it is to be

why you exist

alive

at all

When you face a difficult problem, the choice of a solution is:

1      2      3      4      5      6      7

Always confusing

Always completely

and hard to find

clear

Doing the things you do every day is:

1      2      3      4      5      6      7

A source of deep  
pleasure and  
satisfaction

A source of pain  
and boredom

Your life in the future will probably be:

1      2      3      4      5      6      7

Full of changes  
without your  
knowing what  
will happen next

Completely consistent  
and clear

When something unpleasant happened in the past year your tendency was:

1      2      3      4      5      6      7

"To eat yourself  
up" about it

To say "ok,  
that's that, I  
have to live  
with it," and  
go on.

Do you have very mixed-up feelings and ideas?

1      2      3      4      5      6      7

Very often

Very seldom  
or never

When you do something that gives you a good feeling:

1      2      3      4      5      6      7

It's certain  
that you'll go  
on feeling good

It's certain  
that something  
will happen to  
spoil the feeling

Does it happen that you have feelings inside you would rather not feel?

1      2      3      4      5      6      7

Very often

Very seldom or never

You anticipate that your personal life in the future will be:

1      2      3      4      5      6      7

Totally without  
meaning or purpose

Full of meaning  
and purpose

Do you think that there will always be people whom you'll be able to  
count on in the future?

1      2      3      4      5      6      7

You're certain  
there will be

You doubt  
there will be

Does it happen that you have the feeling that you don't know exactly what's about to happen?

1      2      3      4      5      6      7

Very often

Very seldom or never

Many people, even those with a strong character, sometimes feel like losers in certain situations. How often have you felt this way in the past?

1      2      3      4      5      6      7

Never

Very often

When something happened, have you generally found that:

1      2      3      4      5      6      7

You overesti-  
mated or under-  
estimated its  
importance

You saw things  
in the right  
proportion

When you think of difficulties you are likely to face in important aspects of your life, do you have the feeling that:

1      2      3      4      5      6      7

You will always succeed in overcoming the difficulties.

You won't succeed in overcoming the difficulties.

How often do you have the feeling that there's little meaning in the things you do in your daily life?

1      2      3      4      5      6      7

Very often

Very seldom or never

How often do you have feelings that you're not sure you can keep under control?

1      2      3      4      5      6      7

Very often

Very seldom or never

This completes this questionnaire. Without you, this research would be impossible.

Thank you for your time and important input.



Appendix B

HSIRB Letter of Approval



## BIBLIOGRAPHY

- Alexander, F., Duff, R.W., (1992). Influence of religiousity and alcohol use on personal well-being. Journal of Religious Gerontology, 8(2), 11-25.
- American Psychological Association, American Educational Research Association, and National Council on Measurement in Education (1985). Standards for educational and psychological testing. Washington, DC: American Psychological Association.
- Antonovsky, A. (1979). Health, stress, and coping: New perspectives on mental and physical well-being. San Francisco, CA: Jossey-Bass.
- Antonovsky, A. (1987). Unraveling the mystery of health: How people manage stress and stay well. San Francisco, CA: Jossey-Bass.
- Antonovsky, A. (1993). The structure and properties of the sense of coherence scale. Social Science and Medicine, 36(6), 725-733.
- Baer, J. (1993). Etiology and secondary prevention of alcohol problems with young adults. In: Baer, J., Marlatt, G. and McMahon, R. (Eds.) Addictive behavior across the life span: Prevention, treatment, and policy issues (pp. 111-137). Newbury Park, CA: Sage.
- Benedict, R. (1938). Continuities and discontinuities in cultural conditioning. Psychiatry, 1, 167-177.
- Bland, H. (1979). Middle-aged alcoholics and young drinkers. In: Bland, H. and Chafetz, M. (Eds.), Youth, alcohol, and social policy (pp. 5-38). New York: Plenum.
- Christiansen, B., Goldman, M. and Inn, A. (1982). Development of alcohol-related expectancies in adolescents: Separating pharmacological from social-learning influences. Journal of Consulting and Clinical Psychology, 50, 336-344.
- Clark, W. and Hilton, M. (Eds.). (1991). Alcohol in America: Drinking practices and problems. Albany, NY: State University of New York Press.
- Coe, R., Romeis, J., Tang, B. and Wolinsky, F. (1990). Correlates of a measure of coping in older veterans: A preliminary report. Journal of Community Health, 15(5), 287-296.

- Cohen, S., Underwood, L. and Gottlieb, B (Eds.) (2000) Social support measurement and interventions: A guide for health and social scientists. New York: Oxford.
- Cohen, S., Doyle, W. and Skoner, D. (1999). Psychological Stress, cytokine production, and severity of upper respiratory illness. Psychosomatic Medicine, 61, 175-180.
- Cohen, S., Kessler, R., and Underwood, G. (Eds.). ( 1995) Measuring Stress: A guide for health and social scientists. New York: Oxford.
- Cohen, S. and Syme, S. (Eds.). (1992). Social support and health. Orlando, FL: Academic Press.
- Cooper, A.M., Sobell, M., Sobell, L, and Maisto, S. (1981). Validity of alcoholics' self-reports: Duration data. International Journal of the Addictions, 16(3), 401-407.
- Cooper, M.L., Russell, M., and George, M.H. (1988). Coping, expectancies, and alcohol abuse: A test of social learning formulations. Journal of Abnormal Psychology, 97, 218-230.
- Core Institute (1996). Campus survey of alcohol and other drug norms. Student Health Programs, Southern Illinois University, Carbondale, IL .
- Core Institute (1995). Core alcohol and drug survey, long form. Student Health Programs, Southern Illinois University, Carbondale, IL.
- DeBruyn, J. (1995). Sense of coherence, stressors, perception of stress and drinking patterns among college students. Unpublished Master's Thesis. Western Michigan University.
- Dielman, T.E. (1990). Prevention of substance abuse on the college campus: A summary of the literature. Report prepared for the University of Michigan Task Force on Substance Abuse Prevention.
- Dimeff, L., Baerk, J., Kvilahan, D. and Marlatt, A. (1999). Brief Alcohol Screening and Intervention for College Students: A Harm Reduction Approach (BASICS). NY: Guildford Press.
- Donahue, M. and Benson, P. (1995). Religion and the well-being of adolescents. Journal of Social Issues, 51(3), 145-160.
- Dull, V.T. and Skokan, L.A. (1995). A cognitive model of religion's influence on health. Journal of Social Issues, 51(2), 49-64

- Elder, G. (1986). Military times and turning points in men's lives. Developmental Psychology, 22, 233-245.
- Ellickson, P. and Hays, R. (1990-91). Beliefs about resistance, self-efficacy, and drug prevalence: Do they really affect drug use? International Journal of the Addictions, 25, 153-1378.
- Ellison, C.G. (1991). Religious involvement and subjective well-being. Journal of Health and Social Behavior, 32, 80-99.
- Embree, B.G. and Whitehead, P.C. (1993). Validity and reliability of self-reported drinking behavior: Dealing with the problem of response bias. Journal of Studies on Alcohol, 54, 334-344.
- Erikson, E.H. (1959). Growth and crises of the healthy personality. Psychological Issues, 1, 50-100.
- Evans, N., Gilpin, E., Farkas, A., Shenassa, E. and Pierce, J. (1995). Adolescents' perceptions of their peers' health norms. American Journal of Public Health, 85(8), 1064-1069.
- Fabiano, P.M., McKinney, G.R., Hyun, Y.R., Mertz, H.K., and Rhoads, K. (1999). LifeStyles, 1998: Patterns of alcohol and drug consumption and consequences among Western Washington University students - An extended executive summary. Focus: A Research Summary, Volume 4(3). The Office of Institutional Assessment and Testing. Bellingham: Western Washington University.
- Fiorentino, L, and Pomazal, R. (1994). Sense of coherence and the stress-illness relationship among employees: A prospective study. In H. McCubbin, E. Thompson, A. Thompson, and J. Fromer (Eds.). Sense of coherence and resiliency: Stress, coping, and health (pp. 91-106). Madison, WI: The University of Wisconsin System, Center for Excellence in Family Studies Publication.
- Fromme, K. and Rivet, K. (1993). Young adults' coping style as a predictor of their alcohol use and response to daily events. Journal of Youth and Adolescence, 20(1), 85-97.
- Glaser, R., Kiecolt-Glaser, J., Marucha, P., MacCallum, R., Laskowski, B. and Malarkey, W. Stress-related changes in proinflammatory cytokine production in wounds. (1999) Archives of General Psychiatry, 56, 450-456.
- Greenberg, J. (1996). Stress management (5th ed.) Dubuque, IA: Brown and Benchmark
- Haines, M. (2001). A social norms approach to preventing binge drinking at colleges and universities. U.S. Department of Education (Publication No. ED/OPE/96-18. [www.edc.org/hec/pubs/socnorms.html](http://www.edc.org/hec/pubs/socnorms.html)).

- Haines, M. and Spear, S. (1996). Changing the perception of the norm: A strategy to decrease binge drinking among college students. Journal of American College Health, 45, 134-140.
- Husiani, B., Neff, J.A., and Stone, R. (1979). Psychiatric impairment in rural communities. Journal of Community Psychology, 7, 137-146.
- Jessor, R. and Jessor, S. (1977). Problem behavior and psychosocial development: A longitudinal study of youth. New York: Academic Press.
- Johannessen, K.J., Collins, C., Mills-Novara, B.M. and Glider, P. (1999). A practical guide to alcohol abuse prevention: A campus case study in implementing social norms and environmental management approaches. Campus Health Services, Tucson: University of Arizona.
- Johnston, L, O'Malley, P. & Bachman, J. (1997). National survey results on drug use. Monitoring the Future Study, 1975-1995, Vol 2, College students and young adults. USDHHS, NIDA, NIH Pub. No. 98-4140.
- Johnston, L., O'Malley, P. and Bachman, J. (1995). National survey results on drug use. The Monitoring the Future Study, 1975-1994. Rockville, MD: National Institute on Drug Abuse.
- Johnston, L. and O'Malley, P. (1991). Drug use among American high school seniors, college students, and young adults, 1975-1990. Volume II: College students and young adults. DHHS Publication No. (ADM)91-1835. Rockville, MD: National Institute on Drug Abuse.
- Labouvie, E. (1990). Personality and alcohol and marijuana use: Patterns of convergence in young adulthood. International Journal of the Addictions, 25, 237-252.
- Larimer, M, Irvine, D., Kilmer, J. and Marlatt, G.A. (1997). College drinking and the Greek system: Examining the role of perceived norms for high-risk behavior. Journal of College Student Development, 38(6), 587-598.
- Levin, J. and Vanderpool, H. (1991). Religious factors in physical health and the prevention of illness. Prevention in Human Services, 9(2), 41-64.
- McFadden, S (1995). Religion and well-being in aging persons in an aging society. Journal of Social Issues, 51(2), 161-176.

- Malarkey, W., Pearl, D., Demers, Kiecolt-Glaser, J. and Glaser, R. (1995) Influence of academic stress and season on 24-hour mean concentrations of ACTH, cortisol, and beta-endorphin. Psychoneuroimmunology, 20(5), 499-508.
- Marini, M. (1987). Measuring the process of role change during the transition to adulthood. Social Science Research, 16, 1-38.
- Marlatt, B., Baer, J.S. and Larimer, M.E. (1995). Preventing alcohol abuse in college students: A harm reduction approach. In G. Boyd, J. Howard, and R. Zucker (Eds) Alcohol problems among adolescents (pp. 147-172). Northvale, NJ: Lawrence Earlbaum.
- Marlatt, G. (1987). Alcohol, the magic elixir: Stress, expectancy, and the transformation of emotional states. In: Gottheil, E., Drueley, K., Pashko, S., and Weinstein, S. (Eds.) Stress and addiction (pp. 302-321). New York: Brunner-Mazel.
- Martin, K. (1989). The stress-buffering role of spiritual support: Cross-sectional and prospective investigations. Journal for the Scientific Study of Religion, 28(3), 310-323.
- Meilman, P., Cashin, J., McKillip, J. and Presley, C. (1998). Understanding the three national databases on collegiate alcohol use. Journal of American College Health, 46, 3-8
- Naquin, M.R. and Gilbert, G.G. (1996). College students' smoking behavior, perceived stress, and coping styles. Journal of Drug Education, 26(4), 367-376.
- Paloutzian, R. and Kirkpatrick, L. (1995). Introduction: The scope of religious influences on personal and society well-being. Journal of Social Issues, 51(2), 1-12.
- Pearlin, L. and Radebaugh, C. (1976). Economic strains and the coping function of alcohol. American Journal of Sociology, 82, 652-663.
- Perkins, H.W. (1999). Stress-motivated drinking in collegiate and postcollegiate young adulthood: Life course and gender patterns. Journal of Studies on Alcohol, 60(2), 219-227.
- Perkins, H.W. (1997). College student misconceptions of alcohol and other drug norms among peers: Exploring causes, consequences, and implications for prevention programs. In: Designing alcohol and other drug prevention programs in higher education: Bringing theory into practice (pp. 177-206). Newton, MA: Higher Education Center for Alcohol and Other Drug Prevention.

- Perkins, H. and Berkowitz, A., (1986). Perceiving the community norms of alcohol use among students: Some research implications for campus alcohol education programming. International Journal of the Addictions, 21(9 & 10), 961-976.
- Prentice, D.A. and Miller, D.T. (1993). Pluralistic ignorance and alcohol use on campus: Some consequences of misperceiving the social norm. Journal of Personality and Social Psychology, 64(2), 243-256.
- Presley, C., Meilman, P, and Cashin, J. (1996). Alcohol and drugs on American college campuses: Use, consequences, and perceptions of the campus environment, 1992-1994. Carbondale, IL: The Core Institute.
- Preslely, C. Meilman, P, and Lyerla, R. (1995). Alcohol and drugs on America college campuses: Use, consequences, and perceptions of the campus environment, 1990-1992. Carbondale: Southern Illinois University
- Presley, C. and Meilman, P. (1992). Alcohol and drugs on American college campuses: A report to college presidents. Carbondale, IL: Southern Illinois University
- P.C. Rivers, P.C. and Shore, E. (Eds.) (1997). A handbook on substance abuse for college and university personnel. Westbrook, CT: Greenwood Press.
- Ross, E. (1990). Religion and psychological distress. Journal for the Scientific Study of Religion, 29(2), 236-245.
- Ryland, E., Tegarden, L, and King, J. (1994). The salutogenic effects of an MBA program: Sense of coherence and the academic experience of U.S. and foreign MBA students. In . H. McCubbin, E. Thompson, A. Thompson, and J. Fromer (Eds.) Sense of coherence and resiliency: Stress, coping, and health (125-144). Madison, WI: The University of Wisconsin System, A Center for Excellence in Family Studies Publication.
- Sampson, R. and Laub, J. (1990). Crime and deviance over the life course: The salience of adult social bonds. American Sociological Review, 55, 609-627.
- Schulenberg, J., O'Malley, P. Bachman, J., Wadsworth, K. and Johnston, L. (1996). Getting drunk and growing up: Trajectories of frequent binge drinking during the transition to adulthood. Journal of Studies on Alcohol, 57, 389-304.



- Schwartz, R., Burkhardt, B., and Green, S. (1978). Turning on or turning off: Sensation seeking or tension reduction as motivational determinants of alcohol use. Journal of Consulting and Clinical Psychology, 46(5), 1144-1145.
- Shafer, W. (1997). Religiosity, spirituality, and personal distress among college students. Journal of College Student Development, 38(6), 633-644.
- Shafer, W. (1996). Stress management for wellness (3rd ed.). Ft. Worth, TX: Harcourt Brace.
- Shafer, W. and King, M. (1990). Religiousness and stress among college students: A survey report. Journal of College Student Development, 31(4), 336-341.
- Sherman, S., Presson, C., Chassin, L., Corty, E. and Olshavsky, R. (1983). The false consensus effect in estimates of smoking prevalence: Underlying mechanisms. Personality and Society Psychological Bulletin, 9, 197-207.
- Sherrod, L., Haggerty, R., and Featherman, D. (1993). Introduction: Late adolescence and the transition to adulthood. Journal of Research in Adolescence, 3, 217-226.
- Silberson, R. and Noack, P. On the constructive role of problem behavior in adolescence. In Bolger, N., Caspi, A., Downey, G. and Moorehouse, M. (Eds.) Person in context: Developmental processes (pp. 152-180). Cambridge: Cambridge University Press.
- Southwick, L., Steele, C., Marlatt, A. and Lindell, M. (1981). Alcohol-related expectancies: Defined by phase of intoxication and drinking experience. Journal of Consulting and Clinical Psychology, 49, 713-721.
- Tampke, D. R. (1990). Residential differences in alcohol consumption, risk perception, and motivation. Journal of College and University Student Housing, 272(21), 25-29.
- Wechsler, H. (2000). Environmental correlates of underage alcohol use and related problems of college students. American Journal of Preventive Medicine, 19(1), 24-29.
- Wechsler, H. (2000). College students define binge drinking and estimate its prevalence: Results of a national survey. Journal of the American College Health Associations, 49(2), 57-65.
- Wechsler, H., Dowdall, G., Davenport, A., De Jong W. (2000). Binge drinking on campus: Results of a national study. [www.hsph.harvard.edu/cas/](http://www.hsph.harvard.edu/cas/).

- Wechsler, H., Dowdal, G., Maenner, G., Gledhill-Hoyt, J., and Lee, H. (1998). Changes in binge drinking and related problems among American college students between 1993 and 1997: Results of the Harvard School of Public Health College Alcohol Study. Journal of American College Health, 47, 57-68.
- Wechsler, H., Davenport, A., Dowdall, G., Grossman, S. and Zanakos, S. (1997). Binge drinking, tobacco, and illicit drug use and involvement in college athletics: A survey of students at 140 American colleges. Journal of American College Health, 45, 195-200.
- Wechsler, H. (1996). Fraternities, sororities and binge drinking: Results from a national study of American colleges. National Association of Student Personnel Administrators (NASPA) Journal, 33(4), 260-279.
- Wechsler, H., Davenport, A., Dowdall, G., Moeykens, B. and Castillo, S. (1994). Health and behavioral consequences of binge drinking in college: A national survey of students at 140 campuses. Journal of the American Medical Association, 272, 1672-1677.
- Wells-Parker, E., Miles, S., and Spencer, B. (1983). Stress experiences and drinking histories of elderly drunken-driving offenders. Journal of Studies on Alcohol, 44(3), 429-437.
- Williams, R., Larson, D. and Buckler, R. (1991). Religion and psychological distress in a community sample. Social Science and Medicine, 32(4), 1257-1262.
- Wolfe, J., MacKinnon-Slaney, F. and Yung, A. (1995). Comparison of undergraduate and graduate students' perception of stress in the college environment. <http://www.nu.edu/nuri/11conf/conf1995/wolfe.html>.
- Zucker, R. and Gomberg, E. (1986). Etiology of alcoholism reconsidered: The case for a biopsychosocial process. American Psychology, 41, 783-793.