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TEMPERAMENT AND ALCOHOL USE: THE RELATIONSHIP
TO PSYCHOLOGICAL REACTANCE

by

Pearle Elizabeth Bobbitt, B. S., M. S.

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

COLLEGE OF EDUCATION
LOUISIANA TECH UNIVERSITY

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ABSTRACT

The purpose of the present study was to examine personality traits in college students that may predispose them to alcohol-related problems or the development of alcohol abuse or dependence. The personality traits of interest were temperaments and psychological reactance. The participant’s personality temperaments were assessed through the utilization of the Tridimensional Personality Questionnaire (TPQ), and psychological reactance was measured with the Therapeutic Reactance Scale (TRS). The drinking patterns of the students were determined through the use of the Alcohol Use Disorders Identification Test (AUDIT) and a three-item binge drinking questionnaire.

Results revealed that the personality temperament of Novelty-Seeking was clearly associated with an increase in alcohol consumption and the endorsement of binge drinking. Males were more likely than females to endorse binge drinking and to score higher on the AUDIT. Additionally, there was a positive relationship between two factors that contribute to overall psychological reactance and higher scores on the AUDIT. It was discovered that participants who avoid conflict with others and resist being controlled by authority figures, were more likely to abuse alcohol. One final interesting finding was that a participant’s total psychological reactance score was not associated with any of the other variables utilized in the hypothesis testing.
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# TABLE OF CONTENTS

LIST OF TABLES ........................................................................................................ viii

CHAPTER 1 INTRODUCTION .................................................................................. 1
  Statement of the Problem ....................................................................................... 6
  Justification of the Study ...................................................................................... 10

SURVEY OF THE LITERATURE ........................................................................... 13
  Alcohol Use, Abuse, and Dependence ................................................................. 13
    Definitions ........................................................................................................ 13
    Etiology of Alcohol Dependence ....................................................................... 20
    Comorbidity of Psychiatric Disorders ............................................................... 25
    Identifying Alcohol Use Disorders .................................................................. 36
    Binge Drinking ................................................................................................. 44
    Alcohol Use Among College Students ............................................................ 47
  Personality .......................................................................................................... 62
    Theories of Personality ...................................................................................... 63
    Assessing Personality ....................................................................................... 70
    Assessing Alcohol Disorders with Personality Instruments .......................... 75
    The Alcoholic Personality .................................................................................. 87
  Psychological Reactance ...................................................................................... 93
    Measuring Psychological Reactance ................................................................ 95
    Demographic Variables and Psychological Reactance .................................... 99
    Personality Characteristics and Psychological Reactance ............................ 100
    Psychological Reactance and Treatment Processes ......................................... 103
    College Drinkers and Psychological Reactance .............................................. 106
  Hypotheses ......................................................................................................... 107
    Introduction to Hypothesis 1 ........................................................................... 109
    Hypothesis 1 .................................................................................................... 109
    Introduction to Hypothesis 2 ........................................................................... 110
    Hypothesis 2 .................................................................................................... 110
    Introduction to Hypothesis 3 ........................................................................... 110
    Hypothesis 3 .................................................................................................... 111
    Introduction to Hypothesis 4 ........................................................................... 111
    Hypothesis 4 .................................................................................................... 111
    Introduction to Hypothesis 5 ........................................................................... 112
    Hypothesis 5A ................................................................................................ 112
    Hypothesis 5B ................................................................................................ 112
  Data Analysis ..................................................................................................... 112
  Summary ............................................................................................................ 114
Drinking Questionnaire Instrument .................................................. 198
D. Therapeutic Reactance Scale ....................................................... 201
   Therapeutic Reactance Scale Instrument ...................................... 202
E. Tridimensional Personality Questionnaire .................................... 205
   Tridimensional Personality Questionnaire ................................... 206
LIST OF TABLES

Table 1 – Scale Means, Standard Deviations, and Reliabilities ......................... 125
Table 2 – Correlation Matrix of Variables Utilized in Hypothesis Testing ............. 127
Table 3 – Results of Multiple Regression for AUDIT and Temperaments .......... 129
Table 4 – Results of Multiple Regression for Temperaments and Reactance ...... 131
Table 5 – Summary of Chi-Square of Gender and Binge Drinking ..................... 132
Table 6 – Summary of Multiple Regression for TRS Factors and AUDIT Scores .... 134
CHAPTER 1

Introduction

The detrimental effects of alcohol abuse and dependence have been substantially documented over the past several decades. According to Bergin and Garfield (1994), "alcoholism" costs the United States an estimated $135 billion annually, primarily from lost wages and medical treatment. Alcohol abuse and dependence also plays a major role in mortality rates. Alcohol was involved in 42% of automobile accidents in this country (Cohen, Mason, & Scribner, 2002; Sommers et al., 2000), 45% of fire deaths, 38% of drowning deaths, and 46% of homicides (Stinson & DeBakey, 1992; Stinson, DuFour, Steffens, & DeBakey, 1993).

In regards to the college population, it was estimated that in 1998, more than 1400 college students died from alcohol-related injuries and in 1999, one-half million college students were injured while under the influence of alcohol. Further, 600,000 college students were assaulted or physically attacked by another student who had been drinking (Hingson, Heenan, Zakocs, Kopstein, & Wechsler, 2002). Vik, Carrello, Tate, and Field (2000) found that in a sample of 406 college undergraduates, 92.7% of the students had engaged in a careless behavior, and 60.2% reported engaging in reckless or risky behaviors due to drinking.

There are numerous prevalence rates cited for alcohol abuse and dependence. Prescott and Kendler (1999) found, using Diagnostic and Statistical Manual of Mental
Third Edition, Revised (DSM-III R; American Psychiatric Association, 1987) criteria, a lifetime prevalence rate of 7.6% for alcohol abuse and 27.4% for alcohol dependence was determined. Utilizing criteria from the Diagnostic and Statistical Manual of Mental Disorders-IV (DSM-IV; APA, 1994), the figures were slightly different: 12% for alcohol abuse and 24% for dependence. Most recently, Enoch and Goldman (2002) cited prevalence rates between 8 and 14%.

These estimates were followed by Grant and Dawson (1998) who determined that 10% of the participants in their study who began drinking between ages 21 and 22, subsequently became alcohol dependent. This pattern was consistent regardless of race, gender, and familial history of alcohol dependence. Davies et al. (2000) assessed seven focus groups on a university campus to ascertain college men’s health concerns. Of the problems identified, substance and alcohol abuse were determined to be the most important. Yet in recent years, there appears to be only a few groups of researchers interested in college drinking.

Binge drinking, as seen on college campuses, has received the greatest attention in the literature. Wechsler, Molnar, Davenport, and Baer (1999) reported that nationwide, one in five college students was found to be frequent binge drinkers. Vik, Tate, and Carrello (2000) estimated that 44% of college students nationally engage in binge drinking. Similar results have been identified elsewhere. Results of the Harvard School of Public Health College Alcohol Study, shows that two in five (44.5%) of the college students on 119 campuses reported binge drinking. This percentage was the same in the previous studies conducted by this group in 1993, 1997, and 1999 (Wechsler et al., 2002). Bennett, Miller, and Woodall (1999) conducted a three-year longitudinal study of 2,710
three-year longitudinal study of 2,710 college students and arrived at slightly different figures. These researchers discovered that at any given year, more than one-third of the students reported binge drinking.

Vik, Carrello, Tate, and Field (2000) assessed college students' drinking patterns. These researchers determined that 84.2% of the 180 male and 226 female undergraduates in their study had engaged in a heavy drinking episode in the previous 90 days. Finally, Goodwin (1992) assessed drinking patterns among fraternity and sorority members and concluded that 90% of the participants consumed alcohol at least once a week.

In the area of alcohol research, it is clear that personality traits and disorders play a major role in substance abuse and many researchers have attempted to identify the elusive "alcoholic personality." One of the first attempts to define the alcoholic personality was based on the psychoanalytic view approximately 40 years ago. It was believed that the alcohol abuser or alcohol dependent individual suffered from a dependent personality disorder, due to his or her extreme dependency on the primary caregiver in childhood (Vaillant, 1983). Also at the core of the early psychoanalytic theories was the concept of orality: the belief that the alcohol dependent individual was preoccupied with oral consumption (Ward, 1990). Today, few researchers adhere to the concept of the dependent or oral personality as a contributing factor in alcohol use disorders (Peele, 1990).

The idea of a broad personality theory to define the alcohol dependent individual has since been rejected. This rejection is primarily because the literature does not consistently support these theories, and there are often contradictions concerning these findings (Miller, 1976). Yet the biggest argument against the concept of the alcoholic
personality, was the belief that the personality traits observed in the alcohol dependent individual was the result of his or her years of drinking and not original traits that predisposed him or her to drink excessively (Peele, 1990). For these reasons, some researchers are now focusing on personality traits or characteristics that are present prior to a diagnosis of an alcohol disorder which appears to predispose an individual to alcohol problems.

Researchers have been successful in detecting clusters of personality characteristics often seen in individuals with alcohol problems (Choca, Shanley, & van Denburg, 1992). After a review of the literature, Mulder (2002) surmised that most cross-sectional studies have identified two broadband personality characteristics often associated with alcoholism: impulsivity/novelty-seeking and neuroticism/negative emotionality. He also ascertained that individuals more at risk for developing alcoholism were those who scored high on all four of these personality dimensions.

Longitudinal designs have provided information concerning personality characteristics present in childhood that may predict alcohol abuse/dependence in adulthood. Some of the personality characteristics which have been identified are higher levels of extraversion (Hill, Schen, Lowers, & Locke, 2000; Kubicka, Matejcek, Dytrych, & Roth, 2001; Wennberg & Bohman, 2002); higher externalizing tendencies (Steele, Forehand, Amistead, & Brody, 1995); a difficult temperament (Blackson, Tarter, & Mezzich, 1996; Jansen, Fitzgerald, Ham, & Zucker, 1995); low conscientiousness (Kubicka, Matejcek, Dytrych, & Roth, 2001); and high novelty-seeking and low harm avoidance (Cloninger, Sigvardsson, & Bohman, 1988).
Numerous investigators have identified various personality characteristics in adulthood which are strongly associated with an increased risk for the development of alcohol abuse/dependence. Some of these are high impulsivity (Conrod, Pihl, Stewart, & Dongier, 2000; Haw, Houston, Townsend, & Hawton, 2001; Liraud, & Verdoux, 2000); low persistence (Townshend & Duka, 2001); high novelty-seeking (Conrod, Pihl, Stewart, & Dongier, 2000; Haw, Houston, Townsend, & Hawton, 2001; Heath et al., 1994; Lynskey, Fergusson, & Horwood, 1998; Justus, Finn, & Steinmetz, 2000); social deviance proneness (Justus, Finn, & Steinmetz, 2000); high neuroticism and extraversion (Cooper, Agocha, & Sheldon, 2000; Prescott, Neale, Corey, & Kendler, 1997); negative affect (Blanchard et al., 1999); high aggression (Haw, Houston, Townsend, & Hawton, 2001); antisocial traits (Mazas, Finn, & Steinmetz, 2000); low self-directedness (Townshend & Duka, 2001); disinhibition (Blanchard et al., 1999); and anxiety (Kushner, Abrams, Thuras, Thuras, & Hanson, 2000; Windle, Windle, Scheidt, & Miller, 1995).

Few studies, however, have been conducted to determine personality characteristics of college students who are likely to be at risk for abusing or becoming dependent on alcohol. Some factors, even so, have been frequently noted to be associated with heavy drinking in college students. These include impulsivity (Camatta & Nogoshi, 1995); depression (Camatta & Nogoshi, 1995; Deykin, Levy, & Wells, 1987); anxiety (Kushner & Sher, 1993); and early-onset deviant behaviors (Harford, Haack, & Spiegler, 1987).

One set of investigators suggested that the personality trait of psychological reactance might account for alcohol abuse in college students. Allen, Spenkel, and Vitale (1996) assessed the drinking patterns of underage college students with the intent of
ascertaining if drinking in this population had increased following North Carolina voters' passage of a law that increased the legal drinking age from 18 to 21. The researchers questioned college students 13 months after the legal drinking age was increased. They ascertained that alcohol consumption had increased and suggested that the primary reason for this increase was that psychological reactance had been created by the students' loss of freedom to legally consume alcoholic beverages.

The purpose of the current study was to assess college students to determine personality temperaments that may predispose them to subsequent alcohol problems or the development of alcohol abuse/dependence. It appeared that current research concerning the identification of such personality traits had failed to extensively study this population. Furthermore, as research currently favors a genetic basis for alcohol abuse/dependence, this study focused specifically on personality temperaments believed to be neurobiologically based traits. Identifying personality temperaments may assist in substantiating that the alcohol dependent individual's personality traits may have predisposed him or her to consume alcohol excessively. It was hoped that such research would encourage other researchers to resume efforts in defining the alcoholic personality.

Statement of the Problem

The focus of the current study was to expand research in the area of personality temperaments related to an individual with alcohol use disorders. Although the literature was rich with studies assessing the prevalence of personality disorders and various personality characteristics associated with alcohol use disorders (e.g., Ball, Tennen, Poling, Kranzler, & Rounsaville, 1997; Blashfield, 1985; Caspi, Herrington, Moffitt, Begg, Dickson, & Langley, 1997; Havey & Dodd, 1993; Prendergast, 1994), few
researchers have addressed the personality dimensions of temperament and psychological reactance, as applied to the college student experiencing alcohol-related problems or symptoms of alcohol abuse or dependence. Most studies have focused primarily on personality characteristics influenced by the ever-changing environment throughout the life span. Such strategies make it difficult to ascertain if these characteristics were present at the onset of symptoms and thereby led to the development of an alcohol disorder.

Most of the research pertaining to personality characteristics that predispose an individual to subsequent alcohol-related disorders have primarily utilized two types of experimental designs. The first type is a longitudinal study. Researchers using this design have examined participants in childhood in order to assess personality traits. Participants were then examined again in adulthood to determine the presence of an alcohol use disorder. If a disorder is detected, researchers assume that its development was the result of personality characteristics that were present in childhood (Caspi et al., 1997).

The second design most often implemented is based on the assumption that personality characteristics remain relatively fixed and constant throughout the life span. In these studies, researchers examined individuals who were experiencing alcohol-related problems or had been diagnosed with an alcohol use disorder. Personality traits were assessed in participants after the onset of the disorder and then presumed to have preceded the disorder (Caspi et al., 1997).

The personality dimension of psychological reactance has been examined in a variety of settings and in regard to numerous phenomena (Baum, Fleming, & Reddy, 1986; Brehm, 1999; Bushman, 1998; Dowd et al., 1988; Fogarty, 1997; Goldman, Pulcher, & Mendex, 1983; Graybar, Antonucci, Boutilier, & Varbel, 1989; Heilman,
1976; Hong, 1990; Moore, Sellman, & Stirling, 2000; Morgan, 1986; Shaw & Skolick, 1995; Tracey, Ellison, & Sherry, 1989), but few studies have addressed the relationship between this construct and the drinking habits of college students. The few studies addressing this relationship have focused on the passage of legislature that raised the legal drinking age from 18 to 21. The researchers hypothesized that college students below the age of 21 had increased their level of alcohol consumption because of a perceived lack of freedom in consuming alcohol. No other studies were discovered that attempted to establish an empirical link between a student’s level of psychological reactance and alcohol use problems.

Another limitation in previous research was the dismissal of the concept of the “alcoholic personality.” Past researchers (e.g., Vaillant, 1983) have attempted to define the alcoholic personality, yet this endeavor has been abandoned primarily for two reasons. First, there was little empirical support for such a personality profile. Research that was conducted either failed to establish a configuration for this personality type or similar studies reached significantly different conclusions. However, only a minor proportion of these studies addressed the personality dimensions proposed in the current study (Miller, 1976).

A second reason the search for the alcoholic personality was abandoned was because of anachronistic difficulties. Abundant studies established a link between personality disorders and characteristics and alcohol disorders (e.g., Abrams et al., 1991; Brandstrom et al., 1998; Johnson, Waid, & Anton, 1997; Rosenhow & Bachorowski, 1984). Research has consistently demonstrated that Antisocial and Borderline Personality Disorders often appear comorbidly with alcohol disorders (e.g., Carroll, Ball, &
Rounsaville, 1993; DeJong, van den Brink, Hartevedt, & van der Wielen, 1993; Gertsley, Alterman, McLellan, & Woody, 1990; Hesselbrock et al., 1984;). Yet the area of research addressing specific personality characteristics associated with alcohol disorders is not as well established. Although numerous studies report similar personality characteristics frequently observed in individuals with alcohol disorders (e.g., Barnes, 1979; Brennen, Walfish, & AuBuchon, 1986; Hewitt, 1943; Miller, 1976), researchers have been unable to compile a distinct personality profile definitive of the alcohol dependent individual. Longitudinal studies cannot be relied upon to answer this question since many theorists believe that personality is fluid more than likely changing dramatically from childhood to adulthood.

Another shortcoming in previous research is the populations studied. As noted above, most studies have assessed personality characteristics in childhood or adulthood (e.g., Blackman, Tarter, & Mezzich, 1996; Deykin, Levy, & Wells, 1978; Martin & Sher, 1994). However, the college years are the time of greatest alcohol consumption, especially binge drinking, while alcohol use disorders have not been fully established. This occurrence would seem to be a prime occasion to assess personality traits that precede alcohol dependence.

Research has consistently shown that binge drinking is almost at an epidemic proportion among college students (e.g., Wechsler et al., 2002; Wechsler, Davenport, Dowdall, Moeykens, & Castillo, 1994; Wechsler, Kuo, & Davenport, 1996), and such drinking habits lead to adverse, even deadly, consequences for both the drinker and other students. This proposed study addressed each of the above-mentioned limitations of
previous research studies so as to add to the already established research leading to the elimination of adverse alcohol misuse consequences.

Justification of the Study

Although early research (Barnes, 1979; Jones, 1971) attempting to identify personality characteristics of the alcohol dependent individual met with some success, subsequent research has failed to establish a strong, consistent link between personality traits and alcohol disorders, and many researchers have abandoned this line of inquiry altogether. The current study responded to the cited weaknesses of previous research in the area of identifying personality traits that may predispose an individual to the development of an alcohol use disorder. According to Cox (1979), simply because such traits have yet to be identified, this does not imply their nonexistence.

There are many benefits to be gained by identifying personality characteristics that might predispose an individual to the risk of developing an alcohol use disorder, the foremost being the amelioration of the financial and psychological costs of these disorders. The financial costs of these disorders have been estimated at $135 million annually (Bergin & Garfield, 1994). These costs were attributed primarily to medical treatment of the disorders themselves, as well as their consequences (i.e., injuries that were alcohol-related and lost worker productivity).

Besides the detrimental psychological and social effects of alcohol abuse and dependence to the individual suffering from the alcohol use disorder, there are also substantial costs to those individuals associated with the alcohol dependent individual, such as family, friends, and coworkers. Research continues to describe the effects of alcohol misuse on the children of the individual suffering from the disorders (Lewis,
Dana, & Blevins, 2002). Recent research in the college population, in fact, noted that non-drinking students were just as likely to suffer from the untoward effects of alcohol misuse as those who were drinking (Wechsler, Davneport, Dowdall, Moeykens, & Castillo, 1994; Wechsler, Dowdall, Maenner, Gledhill-Hoyt, & Lee, 1998). Likewise, individuals in society not even associated with the drinker, suffer from the consequences such as being killed in an automobile accident by a drunk driver (Sommers et al., 2000).

Identifying personality temperaments that may precede the development of an alcohol use disorder will, therefore, allow investigators to clarify the etiology of these disorders. Since the identification of these disorders, investigators have sought to determine whether the disorders were due to genetic or environmental factors. Most recent views have held that both factors influence an individual’s susceptibility to alcohol use disorders, however, the amount of variance attributed by each factor is not yet clear (Gordis, 1996; Madrid, MacMurray, Anderson, & Comings, 2001; Sigvardsson, Bohman, & Cloninger, 1996). The current study examined personality temperaments that were posited to be heritable in order to determine the contribution of each to the development of alcohol use disorders. By adding to the established literature concerning the etiology of these disorders, prevention of their development will be advanced.

Finally, determining personality antecedents of alcohol use disorders will assist investigators in creating appropriate screening instruments for the disorders which, according to Cox (1979), will enable clinicians to develop more effective primary prevention techniques. Identifying individuals at risk for these disorders will allow clinicians to intervene earlier in the course of these disorders and, perhaps, prevent the progression of these disorders. The current study utilized a population of college students
because this population consists of individuals who engage in binge drinking, yet more than likely will not meet the full diagnostic criteria for alcohol dependence. Intervention at this level may prove to be more effective than later interventions where alcohol-related problems have become more pronounced. The consequences of this type of study might serve to reduce or eliminate some of the devastating human and financial costs of alcohol use disorders.
SURVEY OF THE LITERATURE
Alcohol Use, Abuse, and Dependence

Definitions

Magnun Huss originally coined the term “alcoholism,” (Blume, 1983) referring to it as a “diseased condition” caused by excessive alcohol consumption (Flavin & Morse, 1991). Alcoholism has been recognized as a disorder since 1875, at which time Benjamin Rush viewed alcoholism as a disease and an addiction (Rinaldi, Steindler, Wilford, & Goodwin, 1988). As early as 1882, numerous investigators debated whether alcoholism was a disease or a behavioral problem (Keller & Doria, 1991).

There have since been numerous definitions of alcoholism. Before Huss’ definition, other terms denoted the disorder, such as intemperance, inebriety, and habitual drunkenness. Other definitions included “any use of alcoholic beverages that causes any damage to the individual, society, or both” (Jellinek, 1960). According to the Diagnostic and Statistical Manual of Mental Disorders, First Edition (DSM-I; American Psychiatric Association, 1952), alcoholism is an addiction to alcohol, and the World Health Organization (WHO, 1994) includes “problem drinking” into the definition of alcoholism and concluded that alcoholism is a “primary chronic disease” influenced by genetic, psychosocial, and environmental factors, often progressive and fatal. It is characterized by continued episodic lack of control over drinking, a preoccupation with alcohol, use of alcohol despite adverse consequences, and disturbances in thinking, as evidenced primarily by the use of the defense mechanism of denial (American Society of Addiction
Medicine, 1990). A doctoral candidate, Babriel, was the first to make use of the term alcoholism as it is currently used (World Health Organization, 1994).

Why should one be so concerned about giving the disorder a name? Flavin and Morse (1991) commented that many varied definitions confuse and deter communication between researchers and clinicians. The term "alcoholism" has survived numerous suggested changes and is the most commonly used term for the disorder known as "alcohol dependence." Alcoholism is sometimes used synonymously with "alcohol addiction." Regardless of the numerous definitions, each definition tends to include the following criteria: major symptoms associated with heavy alcohol use, such as preoccupation with alcohol, loss of control when drinking, alcohol craving, tolerance, and withdrawal symptoms; consequences associated with heavy use; and evidence of biological, social, or psychological factors.

Many approaches to the diagnosis of alcohol problems have focused on a hypothetical construct referred to as the "alcohol dependence syndrome" (Edwards & Gross 1976). The alcohol dependence syndrome is a group of behavior patterns and problems resulting from drinking. The diagnosis of alcohol problems in the Diagnostic and Statistical Manual of Mental Disorders-Fourth Edition (DSM-IV; APA, 1994) is based on the idea of an alcohol dependence syndrome. Two primary alcohol diagnoses are included in the DSM-IV: alcohol dependence and alcohol abuse. To meet the criteria for alcohol dependence, the individual must meet three of the following seven criteria: tolerance, withdrawal, using the substance in larger amounts or over a longer period of time than the individual expected, a constant desire for alcohol, unsuccessful attempts at quitting drinking, spending an excessive amount of time obtaining the substance,
relinquishing or limiting social, occupational, or recreational activities because of use, and subsequent use of the substance knowing it can be harmful to the individual’s health. Alcohol dependence may or may not involve physiological dependence (APA, 1994).

In contrast to alcohol dependence, a diagnosis of alcohol abuse is based on problematic use. This disorder can be diagnosed if the individual exhibits even one of the following criteria: use of the substance interferes with role fulfillment at work, school, or other important settings; using the substance in dangerous situations; use that has led to legal difficulties; and recurrent use, even though it caused interpersonal or social problems (APA, 1994). Some researchers and clinicians have suggested that alcohol problems are part of a continuum of drinking. This continuum spans from abstinence to problematic use (Jacobson & Gurman, 1995).

There are numerous prevalence rates cited for alcohol abuse and dependence. Using DSM-III-R criteria, Prescott and Kendler (1999) determined a lifetime prevalence rate of 7.6% for alcohol abuse and 27.4% for alcohol dependence. Using DSM-IV criteria, the figures were slightly different: 12% for alcohol abuse and 24% for alcohol dependence. Kessler et al. (1997) reported significantly different lifetime prevalence rates. They determined that the rate of alcohol abuse was 9.4% for alcohol abuse and 14.1% for alcohol dependence. Bergin and Garfield (1994) discovered that 14% of the population, at some point in their lives, would meet the criteria for alcohol abuse.

Other researchers have quoted higher prevalence rates. One study (Regier et al., 1990) estimated that approximately 30% of Americans had diagnosable addictive disorders. Grant (1994) reported that 52% of the adults in his study were alcohol users and 9% met the DSM-IV criteria for alcohol abuse or dependence.
Many researchers examining prevalence rates gather data in medical settings. Canning, Kennell-Webb, Marshall, Wessely, and Peters (1999) examined “substance misuse” prevalence in acute general medical admissions. These investigators implemented the Health Style Questionnaire with an embedded AUDIT and ascertained that 20% of the acute admissions were identified as “misusing” alcohol or other substances. Similarly, Cerise et al. (1998) investigated the prevalence of alcohol abuse and dependence among indigent inpatients using the Diagnostic Interview Schedule alcohol abuse and dependence sections. These researchers obtained a prevalence rate of 17% for alcohol dependence.

Jarque-Lopez et al. (2001) reviewed the prevalence and mortality rates attributed to alcoholism in hospital admissions during a two-year period. It was determined that 278 of the 2,913 admissions experienced “chronic alcohol consumption,” which was defined as a daily alcohol intake of more than 80 grams for men and 40 grams for women. Heavy drinkers were more often males (90.69%) and were significantly younger than non-alcohol-related admissions, yet the mortality rates were similar. The average age of death for chronic consumers of alcohol was 19.5 years for males and 22 years of age for women.

Grant and Dawson (1998) discovered that the older an individual’s first age of use, the more likely he or she will not become dependent on alcohol. They discovered that approximately 40% of the participants who began drinking prior to age 15 were more likely to become alcohol dependent; whereas, only 25% of those who began drinking at age 17 were likely to become alcohol dependent. Only 10% of the individuals who began
drinking at ages 21 and 22 became alcohol dependent. This pattern was consistent, regardless of race, gender, and familial history of alcohol dependence.

Research on alcoholism has resulted in the knowledge that not all alcohol dependent individuals fall into one, neat category. Therefore, numerous researchers have developed typologies for the different types of alcoholism. Between 1700 and 1998, approximately 50 typologies and sub-groupings for alcohol and drug problems were proposed (Schuckit et al., 1998). A few of the earliest typologies were reactive alcoholics (Knight, 1938); Stammtisch drinkers (Bowman & Jellinek, 1941); delta and gamma types (Jellinek, 1960); continuous drinkers (Tomovic, 1974); primary alcoholics (Schuckit, 1985); and non-familial alcoholics (Goodwin, 1979). Some typologies developed within the past two decades included Type I and Type II alcoholics (Wallace, 1989); vulnerable, hazardous, and harmful drinkers (Babor, Kranzler, & Lauerman, 1989); antisocial, developmentally-cumulative alcoholism, negative-effect alcoholism, and developmentally-limited alcoholism (Zucker, 1989); early-stage, affiliative, and schizoid drinkers (Morey & Skinner, 1986); and the sociopathic alcoholic (Doren, 1987).

One of the older, yet still currently employed typologies, is that of Cloninger, Bohman, and Sigvardsson (1981). Using the three temperaments of novelty-seeking, harm avoidance, and reward dependence, these researchers developed a system for subtyping alcohol dependent individuals, each with specific clinical features and modes of inheritance (Johnson, Waid, & Anton, 1997). These were referred to as Type I and Type II.

Type I was characterized by adult onset and a rapid progressive course, without personal features of criminality (Sigvardsson, Bohman, & Cloninger, 1996), criminal
behaviors in biological fathers (Cloninger, Bohman, & Sigvardsson, 1981), passive-dependent characteristics and anxiety (Cloninger, Reich, & Guze, 1975), loss of control over drinking, difficulties terminating a drinking episode, guilt, socially encouraged drinking, and rapid progression to the development of tolerance and dependence (Cloninger et al., 1988). Lastly, Type 1 was defined as low novelty-seeking, high harm avoidance, and high reward dependence. This type was applicable to both males and females.

Type 2 generally had an onset during adolescence and a pattern of recurrent social and legal difficulties (Sigvardsson, Bohman, & Cloninger, 1996). Other characteristics included a genetic etiology, a severe course, criminality involving physical aggression, antisocial personality characteristics, inability to abstain from drinking, seeking alcohol for the euphoric effects (Cloninger et al., 1988), seeking treatment prior to the age of 30, impulsive and attention-seeking behaviors (Cloninger, 1987a), and a comorbid psychiatric disorder (Buydens-Branchez, Branchezy, & Noumair, 1989). This type was originally believed to define only males. Finally, Cloninger proposed that the Type 2 form of alcoholism was defined by high novelty-seeking, low harm avoidance, and low reward dependence (Pomerleau, Pomerleau, Flessland, & Basson, 1992).

One of the more recent typologies was proposed by Babor et al. (1992). Implementing an empirical clustering technique, these researchers identified two subtypes of alcoholism. The first, Type A, was characterized by a late age of onset, fewer risks in childhood, less severe dependence on alcohol, less alcohol-related problems, sporadic binge drinking, less psychopathology, and a good three-year outcome. Type B was characterized by more childhood risk factors, a family history of alcoholism, early
age of onset of drinking, a more severe dependence on alcohol, violent behaviors when intoxicated, impulsive behaviors, depressed mood, polysubstance use, more life stress, an extensive history of treatment, and greater psychopathology.

The most recent typology this researcher discovered in the literature was that of Johnson and Pickens (2001). This classification was based on the premise that alcoholism has a genetic basis; thus, the researchers addressed the familial liability for alcoholism. The researchers purposed that mild, severe, and dyssocial subtypes of alcoholism differentiated between families with a high liability for alcoholism from families with a low liability. Implementing data from the National Longitudinal Alcohol Epidemiological Survey consisting of 13,825 males and 18,622 females, 13% of the males and 18% of the females were classified as mild alcohol dependent, 25% of the males and 33% of the females were classified as severe, and 19% of the males and 24% of the females were classified as dyssocial. The overall results of the study supported the construct validity for this typology.

Finally, Zucker (1989) proposed that alcoholism developed throughout the stages of the lifetime. According to this model, there are four types of alcoholism: antisocial, developmentally-cumulative, negative-affect, and developmentally-limited. Antisocial alcoholism begins early in life, has a poor prognosis, and is believed to have a genetic basis. The most prominent characteristics of the antisocial alcoholic were, of course, antisocial behaviors and poor social skills. The developmentally-cumulative type of alcoholism was believed to develop prior to any other psychiatric disorders that may exist comorbidly. Over the lifespan, the individual’s drinking became cumulative to the point of being diagnosed as alcohol dependence. Negative-affect alcoholism occurs most
frequently in women. In this form of alcoholism, alcohol is used to regulate one’s mood and to enhance social interactions. In the developmentally-limited type of alcoholism, the individual drinks heavily but begins to limit his or her drinking once he or she has successfully adapted to a career and family roles, and their use of alcohol decreased.

Mezzich et al. (1993) further investigated the antisocial alcoholic. These authors conducted a study to determine additional characteristics of adolescents exhibiting antisocial alcoholism traits. They differentiated between two types of antisocial alcoholics. Cluster I consisted of individuals whose primary symptoms were anxiety and negative affect. Cluster II antisocial alcoholics were predominantly characterized by poor impulse control, externalizing behaviors, and use of illegal drugs.

*Etiology of Alcohol Dependence*

For years researchers have debated the etiology of alcoholism. Research supported the premise that alcoholism has both genetic and environmental components. For example, Sigvardsson, Bohman, and Cloninger (1996) ascertained that neither genetic nor environmental risk factors by themselves were sufficient to account entirely for the etiology of alcoholism. Studies have generally identified a 40 to 60% heritability estimate of alcoholism among men.

Bierut et al. (1998) stated that first-degree relatives of an alcoholic were more likely to develop alcoholism than first-degree relatives of a nonalcoholic. The prevalence of alcoholism in siblings of an alcohol dependent individual was significantly higher than for control siblings. Bierut et al. report “[a] lifetime diagnosis of alcohol dependence was present in half of the brothers and one-quarter of the sisters of alcohol dependent subjects” (1998, p. 987). Similarly, Kendler, Prescott, Neale, and Pedersen (1997)
determined that genetics accounted for nearly four times as much variance in liability, as compared to 14% of the variance accounted for by familial-environmental factors.

Nestler and Landsman (2001) believed that one's genetic makeup contributed greatly to his or her risk of developing any type of addiction. They estimated that 40% to 60% of the risk was accounted for by genetics, supported by studies indicating that a familial history of alcohol dependence increased the risk of an individual developing alcohol dependence. Other researchers (Johnson & Pickens, 2001) have ascertained than an individual with a familial history of alcohol dependence, but reared in a household where there was no alcohol abuse, were still five times more likely to develop alcohol dependence.

Gianoulakis and de Waele (1994) agreed that genetic factors play a role in the development of alcoholism, but were not a sole cause. These researchers determined that genetic factors indicated whether an individual had a "high or low vulnerability" to develop the disorder. They posited that alcohol dependence does not result from a single gene allele, but rather a combination of multiple genes and environmental factors. Other researchers have attempted to identify the genes that lead to a predisposition for alcohol dependence. To date, this identification has not been accomplished. Researchers have determined, though, that the alcohol dependent individual has a different distribution of certain alleles of genes (Froehlich, Zink, Li, & Christian, 2000; Nurnberg et al., 2001; Pastor, Laso, Avila, Rodriguez, & Gonzalez-Sarmiento, 2000) than nonalcohol dependent individuals, thus leading researchers to believe that the heritability component of alcohol dependence was polygenetic (Comings, 1998).
The notion that genetic factors play a significant role in the development of alcohol-related problems is contradicted by Gordis (1996) who suggested that genes do not dictate alcoholism, but merely indicate risk. Prescott and Kendler (1999) noted little evidence to support the notion that alcohol abuse and dependence have a strong genetic component, while Bierut et al. (1988) suggested that the familial transmission of substance dependence may be done through environmental factors: siblings of substance dependent individuals may have greater access to the substances simply because it is in the home. Other researchers have indicated that certain environmental factors must be present in order for genes to increase the likelihood of the individual developing alcohol dependence. For example, Madrid, MacMurray, Anderson, and Comings (2001) identified one supposed genetic risk factor, the Taq1 polymorphism of the D2 dopamine receptor, that is not a risk factor for most individuals, unless he or she was experiencing stress.

In the first population-based study of twins in this country, Prescott and Kendler (1999) assessed the relative contributions of genetic and environmental factors in the development of alcohol abuse and dependence. Structured interviews were utilized to assess for DSM-III-R and DSM-IV alcohol abuse and dependence in 302 male twins between the years of 1940 and 1974. The mean age of the participants was 35.1 years. The results confirmed that 7.6% met the DSM-III-R diagnostic criteria for alcohol abuse and 27.4% met the diagnostic criteria for alcohol dependence. Using the DSM-IV diagnostic criteria, 12% were diagnosed with alcohol abuse, while 24% were diagnosed with alcohol dependence. These researchers estimated that 48 to 58% of the variation was
attributed to genetic factors and the residual variance was explained by environmental factors not shared by other family members.

Other possible etiologies of alcohol use disorders have been proposed. Alcoholism has also been conceptualized as a moral failure. According to Kosten (1998), the moral failure view of alcoholism is seen recently by society’s “investment in criminal justice rather than treatment” (p. 711) and in the military’s view that alcoholism was “willful misconduct,” not a disease. The fundamental premise of the moral view was the notion of free will, which posited that an individual is free to choose how he or she behaves in a given situation. According to this view, individuals who abuse alcohol or other drugs are viewed as “weak,” and their maladaptive behaviors considered merely bad habits. Kosten suggested that this moral view of alcoholism prevailed. As evidence for this idea, he brought attention to the fact that many insurance companies no longer reimburse for substance use disorders treatment. However, the earlier moral failure view was somewhat replaced by Jellinek (1960) and his view of alcoholism as a medical problem.

Jellinek (1960) provided the scholarly basis for the disease model of alcohol dependence. He maintained that the core trait of the disease theory is the alcohol dependent individual’s loss of control over his or her drinking. He identified the “gamma” type of alcohol dependence as the essential disease type. The defining characteristics of the gamma type are loss of control over drinking and physical dependence on alcohol. According to Room (1983), research has failed to support Jellinek’s proposed subtypes and stages of alcohol dependence. Furthermore, subsequent studies did not support Jellinek’s proposition that alcohol dependence was characterized
by a loss of control over drinking (Keller, 1972; Mello & Mendelson, 1972; Nathan & O’Brien, 1971; Paredes, Hood, Seymour, & Gollob, 1973).

Researchers attempting to find a pharmacological treatment for alcoholism suggested that the concept of positive and negative reinforcement played a role in the development of alcohol dependence, as well as maintained the associated drinking behaviors (Gardner & Lowinson, 1993; Koob, 1992; Koob & Bloom, 1988; Koob, Markou, Weiss, & Schultheis, 1993). Although positive reinforcement is most often associated with activities that are essential to the individual or species, these researchers posited that drinking was pleasurable and rewarding, therefore, the drinking behavior became repetitive. Di Chiara, Acquas, and Tanda (1996) concurred with this notion and suggested that alcohol eventually became a surrogate for natural reinforcers because its effects were more powerful and persistent than food or reproductive needs. Hyman and Nestler (1996) suggested that certain areas of the brain soon become accustomed to alcohol and abnormalities occur in the brain when alcohol is removed. Removal of the alcohol causes “discomfort” and cravings that motivate the individual to continue consuming alcohol. This motivation is based on avoidance of painful stimuli, not reward; thus indicating negative reinforcement was at play as well.

Another proposed etiology on alcohol dependence is referred to as the Tension Reduction Theory. This theory posited that ethanol had a pharmacological effect on anxiety. Mello and Mendelson (1972) investigated the theory. Research participants were videotaped during a drinking episode and the results of the study indicated that the participant’s anxiety, tension, and restlessness had actually increased during the drinking episode. Other researchers (Cappell & Herman, 1972; Dengerink & Fagan, 1978, Keane
& Lisman, 1982; Pihl & Smith, 1983) supported these findings. On the other hand, other studies have shown that alcohol had no effect on the drinker’s anxiety (Abrams & Wilson, 1979; Thyer & Curtis, 1984; Wilson & Abrams, 1977). Overall, relatively few studies have supported the Tension Reduction Theory (e.g., Polivy, Schuenemann, & Carlson, 1976; Wilson, Abrams, & Lipscomb, 1980).

Probably the most comprehensive conceptualization on the etiology of alcoholism came from McLellan, Arndt, Metzger, Woody, and O’Brien (1993) who view alcoholism, and other addictions, as biobehavioral disorders. These researchers stated “it comes about because of the effects of prolonged drug use on the brain structure and function, but addiction also involves truly imbedded, critical behavioral and social context components” (p. 154).

**Comorbidity of Psychiatric Disorders**

There is a vast amount of literature supporting the notion that the alcohol use disorders are often accompanied by at least one other psychiatric condition. It is rare to find an individual who has purely one condition, either psychiatric or chemical dependence. Many psychiatric patients are affected by alcohol, and many patients with alcohol problems exhibit psychiatric symptoms (Fields, 1998). This interrelatedness is referred to as “comorbidity.”

There are five proposed possibilities by which comorbidity occurs. One possibility is that alcohol dependence occurs sequentially or simultaneously with another disorder. Another suggests that alcohol dependence causes or increases the severity of the comorbid disorder, or, perhaps that, the comorbid disorder causes or increases the severity of alcohol use disorders. It may be that both alcohol use disorders and the
comorbid disorder may be caused by a third condition. Finally, alcohol use or withdrawal symptoms often mimic symptoms of an independent psychiatric disorder (Meyer, 1989; Schuckit, 1986).

Some of the reported estimates of alcohol use disorders and comorbid psychiatric disorders may be actually inflated due to the fact that an individual with multiple conditions are more likely to seek treatment. This phenomenon is referred to as Berkson’s Fallacy (Berkson, 1946). However, this fallacy may be compensated for by the fact that many alcohol treatment facilities are less likely to admit patients who exhibit serious psychiatric symptoms (Meyer, 1989). For these reasons, most comorbidity prevalence rates must be viewed with some caution.

There are also clinical and prognostic difficulties associated with comorbidity. Alcohol dependent individuals who carry a comorbid diagnosis of another psychiatric diagnosis often experience considerable psychosocial and interpersonal difficulties, are noncompliance with the treatment process, experience an exacerbation in drinking, and are more likely to attempt or complete suicide (Kranzler, Mason, & Modesto-Lowe, 1998).

There are vast differences in the cited rates of comorbidity in the substance use disorders. It is not unusual to see prevalence rates of substance abuse ranging between 40 and 60% of any psychiatric population. A report of a commission of mental health providers in New York State estimated that of the 75,000 individuals hospitalized in New York each year for psychiatric illnesses, close to 40,000 admissions involved persons with a serious substance use disorder (Bauer, 1984). A more recent community-based survey of 20,291 individuals reported that 39% of alcohol abusers had at least one mental
illness, and 29% of the mentally ill in the survey had abused either drugs or alcohol (Fields, 1998).

One group of researchers noted that the psychiatric disorders most often cited as being associated with alcohol use disorders were mood disorders, anxiety disorders, and Antisocial Personality Disorder (Modesto-Lowe & Kranzler, 1999). Other researchers had reached these findings. For example, Kessler et al. (1997) conducted a National Comorbidity Survey (NCS) and assessed the comorbidity of alcohol use disorders and other psychiatric disorders. The results of the survey indicated that female “alcoholics” were more likely to suffer from mood and anxiety disorders; in contrast, male “alcoholics” were more likely to meet the diagnostic criteria for Antisocial Personality Disorder. Another, more recent study (Fields, 1998) noted that Schizophrenia and Attention-Deficit/Hyperactivity Disorder, as well as those disorders listed above, were most common in the substance abuse population.

Helzer and Przybeck (1988) indicated that alcohol dependent individuals were 21 times more likely to carry a comorbid diagnosis of Antisocial Personality Disorder, 3.9 times more likely to abuse another drug, 6.2 times more likely to carry a diagnosis of mania, and 4 times more likely to carry a diagnosis of Schizophrenia. Furthermore, these investigators identified only a slight increase in the rate of depressive symptoms and relatively no increase in anxious symptoms among alcohol dependent individuals. These findings ran contrary to those reported above (Kessler et al., 1997).

Kinney and Leaton (1991) further reported that individuals suffering from schizophrenia were 10 times more likely to abuse alcohol. Other studies have suggested that up to 63% of schizophrenics would encounter, as a part of that illness, difficulties
with alcohol. The combination of schizophrenia and alcohol abuse often resulted in a difficult clinical course, poorer adjustment, and a poorer prognosis for recovery (Drake et al., 1990). These individuals had difficulty complying with any treatment regime. They were frequently noncompliant with medications as prescribed by psychiatrists and were unable or unwilling to follow recommendations for abstinence from alcohol. Individuals suffering from schizophrenia frequently cited that they used alcohol primarily to alleviate delusions of reference and hallucinations (Freed, 1975).

Mood disorders were another group of psychiatric conditions often seen in individuals who misuse alcohol. Mood disorders commonly seen in individuals who were alcohol dependent were Major Depression, Dysthymic Disorder, Cyclothymia, and Bipolar Disorder (Fields, 1998). Alcohol abuse and dependence are associated with the mood disorders in a number of ways. Alcohol use may lead to depressive symptoms in anyone, regardless of his or her history of depression. Research conducted in this area has shown that heavy alcohol consumption produced depressive symptoms in the alcohol dependent and non-alcohol dependent individual alike. A temporary depression also appeared to be a symptom of alcohol abuse and dependence. This type of depression is referred to as a “toxic depression.” The symptoms include anorexia, insomnia, somatic complaints, suicidal thoughts, and despair. Individuals who chronically abuse alcohol, furthermore, often experienced impairments in social relations and health complications, factors associated with depression (Kinney & Leaton, 1991).

Approximately 10% to 15% of females and 5% of males who carry a diagnosis of alcohol abuse or dependence suffered from a pre-existing affective disorder. Thus, it is highly unlikely that the depressive symptoms would be alleviated by the cessation of
alcohol use (Kinney & Leaton, 1991). RachBeisel and McDuff (1995) reported that depressives were more likely to abuse alcohol, cocaine, and opiates. Even though these individuals realized that drinking exacerbated depressive symptoms, many state that they drank primarily to improve their mood (Weiss, Griffin, & Mirin, 1992).

Dixit and Crum (2000) assessed whether depression was associated with an increased risk of heavy drinking in women. These researchers determined that women with a history of depression were 2.6 times more at risk for heavy alcohol consumption. The results of the study also indicated that individuals who drank heavily were more likely than control participants to experience depressive symptoms. In a similar fashion, Weissman, Myers, and Harding (1980) maintained that 70% of the alcohol dependent individuals in their study met the diagnostic criteria required to obtain a diagnosis of Major Depression or Bipolar Disorder.

Some researchers suggested that individuals tended to increase their alcohol consumption during a mood disturbance. Kinney and Leaton (1991) ascertained that 20% to 60% of the individuals diagnosed with Bipolar Disorder reported increased alcohol consumption during the manic phase of the disorder. These researchers also found that 20% to 30% of the individuals suffering from primary depression increased their alcohol consumption during depressive episodes. Gawin and Kleber (1986) discovered that individuals who suffer from Bipolar Disorder often cited the reasons for alcohol use as a method of alleviating the symptoms of agitation, irritability, and insomnia.

The combination of depression and alcohol usually places patients at an even higher risk for suicide. It is estimated that 7% to 21% of the alcohol dependent individuals in the United States commit suicide. Alcohol consumption increases the
frequency of suicidal thoughts in general. Alcohol-dependent individuals who are drinking are more likely to commit suicide than non-alcohol dependent individuals consuming alcohol. Those who are intoxicated and disinhibited frequently act self-destructive acts that might otherwise be contemplated and dismissed on impulsively. Disaster might also occur when a depressed, forgetful individual is drinking and inadvertently takes an overdose of antidepressants. These can prove lethal when mixed with alcohol (Fields, 1998). Concurrent depression significantly increases the morbidity and mortality associated with alcohol dependence, particularly in terms of suicide (Bergin & Garfield, 1994).

Sixty-five percent of suicide attempts are related to alcohol. Several reasons may explain this finding. Alcohol releases certain brain areas from control. For example, those areas of the brain associated with defense mechanisms are lowered and hidden impulses and thoughts are released into conscious memory. It was hypothesized that alcohol disrupts the integrative capacity of the brain, resulting in a disintegration of memory and concentration. In individuals who are using alcohol to self-medicate, the alcohol-induced euphoric mood may convince the individual that suicide is a rational solution to all their problems. Some researchers (Fields, 1998) believe that alcohol releases “psychological weaknesses” in the individual, suggesting that individuals with a proclivity towards mental illness may be pushed over the edge by the use of alcohol. These individuals may begin to experience loosening of associations and other psychotic symptoms in the form of auditory hallucinations with voice commands that instruct them to harm themselves.

Kinney and Leaton (1991) presented several other factors that contributed to the high rate of suicide among alcohol dependent individuals: alcohol-related problems may
indicate that the individual was prone to suicide; individuals with alcohol use disorders often experienced cognitive impairments that decreased their performance on certain tasks, creating a gap between their personal expectations and their actual performance, which, in turn, led to depression; the losses of meeting personal expectations and performances can lead to a sense of hopelessness. Additionally, other factors that should be considered when assessing the suicide risk of these individuals are the recent loss of valuable interpersonal relationships and the presence of hopelessness.

The relationship of anxiety disorders to alcoholism, in fact, remains controversial. As with mood disorders, anxiety experienced by the alcohol dependent individual may be primary or secondary to alcoholism. Many times alcohol dependent individuals drink to control symptoms of panic and phobic disorders. This self-medication may well proceed alcohol use and dependence. Several studies have reported the rate of alcohol dependence with anxiety disorders to be between 22% and 44%. Abstinence alone may cure the anxious symptoms, if the symptoms are the result of alcohol use. On the other hand, severe anxiety may increase the vulnerability of the dually-diagnosed client to relapse (Kinney & Leaton, 1991).

Cox, Norton, Swinson, and Endler (1990) determined that about 10% to 30% of alcohol dependent individuals in their study also met the diagnostic criteria for Panic Disorder, and 20% of the participants carrying a diagnosis of an anxious disorder abused alcohol. Likewise, Ross, Glaser, and Germanson (1988) ascertained that two-thirds of the patients entering treatment for alcohol dependence manifested symptoms that resembled an anxiety disorder. Schuckit and Hesselbrock (1994) reviewed the literature investigating a link between lifelong anxiety disorders and alcohol dependence. These
authors concluded that alcohol dependent individuals often experienced a significant amount of anxiety while abstaining from alcohol, but could not ascertain whether the anxiety was a result of a psychiatric disorder or simply a temporary condition that would abate on its own. They concluded that the rate of anxious disorders in alcohol dependent individuals was the same or slightly higher than the rate of these disorders identified in the general population.

Another anxiety disorder sometimes seen with alcohol use disorders is Posttraumatic Stress Disorder (PTSD). Hyer, McCranie, and Peralme (1993) reported a comorbidity rate of 68% and 82% for these disorders, and the Centers for Disease Control (1988) reported that 39% of the Vietnam veterans carrying a diagnosis of PTSD also exhibited characteristics of alcohol abuse or dependence. Seventy-five percent of the participants in this study had profiles indicative of alcoholism when administered the Millon Clinical Multiaxial Inventory (MCMI; Millon, 1994) and 46% had profiles indicative of alcohol problems.

Other researchers (Penik et al., 1987; Walker, Howard, Lambert, & Suchinsky, 1994) have also established a strong correlation between depressive and anxiety disorders and alcohol use disorders. The symptoms associated with these disorders were often exacerbated by heavy alcohol consumption (Modesto-Lowe & Kranzler, 1999).

The final class of psychiatric disorders often associated with alcohol abuse and dependence is the personality disorders. Personality-disordered individuals may be attracted to alcohol and other drugs in order to self-medicate feelings of discomfort, anxiety, depression, anger, grief, and shyness associated with the personality disorder. Studying personality characteristics in inpatient and outpatient individuals with a
substance abuse disorder, Ball, Tennen, Poling, Kranzler, and Rounsaville (1997) reported a significant number of personality disorders within this population. Personality disorders were detected through the use of the Temperament and Character Inventory (TCI) and the NEO-PI. Of the 370 patients, the following personality disorders were detected: Paranoid, Schizoid, Schizotypal, Antisocial, Borderline, Histrionic, Narcissistic, Avoidant, Dependent, and Obsessive-Compulsive. The prevalence rates were 11%, 4%, 4%, 32%, 21%, 4%, 8%, 14%, 2%, and 8%, respectively.

The two most noted personality disorders that appear comorbidly with alcohol use disorders were Antisocial Personality Disorder and Borderline Personality Disorder. Of all the personality disorders, the strongest relationship with alcohol use disorders is Antisocial Personality Disorder (Hesselbrock, et al., 1984). Estimated rates of the comorbidity rate of this disorder and alcohol use disorders vary in the literature. Comorbidity rates as high as 28% (Jonsdottir-Baldursson, & Horvath, 1987) have been reported in the literature. Individuals suffering from both disorders have been discovered to be younger, exhibit more pronounced psychological disturbances, and were more at risk for abusing or becoming dependent on other substances (Bunt, Galanter, Lifshutz, & Castraneda, 1990; Jonsdottir-Baldursson, & Horvath, 1987; Skinstad, 1994).

Antisocial Personality Disorder has been consistently linked with alcohol use disorders in the literature (e.g., Brooner, King, Kidorf, Schmidt, & Bigelow, 1997; Carroll & Rounsaville, 1992; De Jong, van den Brink, Hartevedt, & van der Wielen, 1993; Ross, Glaser, & Germanson, 1988; Rounsaville, Weissman, Kleber, & Wilber, 1982; Schuckit, 1985). Studies indicate that the comorbidity rates of these disorders ranged from 15% to 50% (De Jong, van den Brink, Hartevedt, & van der Wielen, 1993;
Malow, West, Williams, & Sutker, 1989). Research in this area also indicated that alcohol dependent individuals with a comorbid diagnosis of Antisocial Personality Disorder often present with an early-age onset of drinking difficulties, a more chronic course of drinking, and a greater number of other alcohol-induced disorders (Cook, Winokur, Fowler, & Liskow, 1994; Hesselbrock, Hesselbrock, & Stabenau, 1985). Furthermore, individuals with an alcohol use disorder and a diagnosis of Antisocial Personality Disorder experienced higher levels of substance abuse and had poorer treatment outcomes (Arndt, McLellan, Dorozynsky, Woody, & O’Brien, 1994; Cacciola, Rutherford, Alterman, McKay, & Snider, 1996; Carroll, Ball, & Rounsaville, 1993; Kranzler, del Boca, & Rounsaville, 1996; Rounsaville, Kosten, Weissman, & Kleber, 1986; Woody, McLellan, Luborsky, & O’Brien, 1985).

Although these two disorders have not been shown to be genetically linked, individuals with a diagnosis of Antisocial Personality Disorder are at high risk for developing alcohol-related problems. In addition, chronic alcohol consumption can lead to personality changes that closely resemble Antisocial Personality Disorder features. However, these behaviors may well disappear following abstinence. Studies have ascertained that 10% to 20% of men and 5% to 10% of females who entered alcohol treatment facilities met the criteria for Antisocial Personality Disorder, which appeared to predate their alcohol dependence. For this group, prognosis was poor. Their social problems were not likely to disappear with abstinence (Kinney & Leaton, 1991).

Gerstley, Alterman, McLellan, and Woody (1990) suggested that there might be two subgroups of individuals who abuse alcohol and exhibit antisocial characteristics. These authors described these two types as the “true psychopathic personality” and the
individual who abuses alcohol and subsequently exhibits antisocial behaviors that are related to the alcohol use.

Meyer (1989) and Bukstein, Brent, and Kaminer (1989) proposed that there was controversy surrounding the prevalence rates reported on the comorbidity of alcohol dependence and Antisocial Personality Disorder. These difficulties arise from researchers not knowing the correct chronological relationship between the two disorders. The issue was further complicated by four factors:

1. Reporting by participants must be retrospective because both disorders occur early in life.
2. The symptoms of the two disorders overlap.
3. One of the diagnostic criteria for Antisocial Personality Disorder is abuse of alcohol or another drug.

Another personality disorder frequently diagnosed in individuals with an alcohol use disorder is Borderline Personality Disorder. Thirteen to 18% of alcohol dependent individuals seeking treatment for alcohol use disorders are given the diagnosis of Borderline Personality Disorder (Kinney & Leaton, 1991). Mirin and Weiss (1986), in their study of an upper middle class addict population, determined that Borderline and Narcissistic Personality Disorders was the most common among this population. Johnson and Connley (in Fields, 1998) similarly reported a comorbidity rate of 28% for alcohol dependence and Borderline Personality Disorder. Not surprisingly, Borderline Personality
Disorder patients have a high incidence of chemical dependency as they attempt to blunt the intensity of their emotions by using alcohol and other drugs (Fields, 1998).

Identifying Alcohol Use Disorders

The task of identifying individuals who are experiencing alcohol-related problems is as difficult as defining the disorder. Screening instruments help identify individuals who are developing or are at risk for developing an alcohol use disorder. One of the major problems associated with the development of these instruments is obtaining adequate validity and reliability. In the literature, these two terms are referred to as "sensitivity" and "specificity," respectively. Sensitivity refers to the instrument's ability to correctly identify the presence of the construct being researched; whereas, specificity refers to the instrument's ability to identify individuals who do not possess the construct in question (Drake et al., 1990). Rice (1987) stated that it is not possible to obtain both optimal sensitivity and specificity in a single screening instrument. He indicated that when the researcher increased specificity, he or she was less likely to identify individuals with an alcohol problem, while increasing sensitivity led to the problem of over-identifying an alcohol problem in individuals. Beresford, Blow, Brower, and Singer (1998) addressed this lack of validation. These researchers ascertained that self-report screening instruments were less likely to identify alcohol problems in females, the elderly, and non-Caucasians.

Another inherent difficulty in screening instruments is their vulnerability to manipulation by the respondent. Staley and El Guebaly (1990) address the issue of manipulation by the respondent. These authors assessed the Michigan Alcoholism Screening Test (MAST) and CAGE, which is a mnemonic for the following four
questions: “Have you ever felt you should Cut down on your drinking? Have people
Annoyed you by criticizing your drinking? Have you ever felt's bad or Guilty about your
drinking? Have you ever had a drink in the morning as an Eye-opener to get rid of a
hangover?” (Kulka et al., 1990, p. 3). They found that these instruments were “somewhat
vulnerable” to manipulation by individuals who wish to conceal their alcohol problems.
However, these drawbacks did not overshadow the need for such an instrument.
Numerous screening devices have been devised, but only a few of the better-known
instruments will be discussed in the current paper.

Lentz (1943) developed one of the earliest instruments created to indirectly
differentiate drinkers from nondrinkers. Items for his questionnaire were obtained from
the Lentz Youth Expressionnaire that contained over 3,000 items. Because of the inability
of researchers to cross-validate Lentz’s findings, the issue of lack of generalizability of
the findings caused the instrument to become obsolete. Other indirect measures of
alcohol use disorders will be discussed in the personality section of this paper.

The first published “alcoholism” scale was the Manson Evaluation (Manson,
1948). The 72-item questionnaire was produced from a pool of 470 general personality
items administered to alcoholics and non-alcoholics to determine items that best
discriminated between the two groups. In cross-validation studies, the instrument was
successful in identifying alcohol use disorders in 80% of the respondents. Although
Manson conducted several studies and confirmed the validity of the instrument, the
findings could not be replicated by other researchers (Miller, 1976).

Manson (1949) also developed one of the first direct measures of alcohol use
disorders known as the Alcadd Test, which was empirically constructed and evaluated.
The instrument consisted of 60 items and there were separate cut-off scores for males and females. Miller (1976) reviewed the history of these instruments and was able to find only two studies that assessed the validity of the Alcadd Test, both of which were favorable. The test is still sometimes used in clinical practice, but seldom in experimental studies.

The CAGE is one of the more recently developed alcohol screening instruments. The instrument was designed specifically for use in medical settings (Steinbauer, Cantor, Holzer, & Volk, 1998). It consists of four questions, and positively endorsing two or more of these items is indicative of a drinking problem. One advantage of this instrument is that it addresses the lifetime drinking habits of the individual. The disadvantages are that it is viewed as an "indirect" measure of alcohol dependence because it focuses on the consequences of drinking and does not inquire as to the individual's alcohol consumption (Ewing, 1984). It does not assess the frequency of consumption, amount consumed, or binge drinking (Fleming, 1993). Bush, Shaw, Cleary, Delbance and Aronson (1987) screened 518 hospitalized patients using the CAGE Questionnaire. At a cutoff score of 2, the instrument correctly identified 75% of the alcohol dependent individuals and 96% of the non-alcohol-dependent individuals in the study. Other researchers (Fleming, 1993) reported that the specificity and sensitivity generally range from 60% to 95%, respectively.

The CAGE is seldom used in experimental research for a number of reasons. While reviewing the literature, no studies were located that supported the use of the instrument in a population of college students. O'Hare and Tran (1997) assessed the utility of the instrument in detecting substance abuse in adolescents and young adults.
The researchers concluded that the instrument performed poorly for this purpose and especially lacked predictive power when assessing these problems in young women. Likewise, Heck and Williams (1995) utilized the instrument to detect alcohol problems in a college population in two separate studies in 1988 and 1992, and to test previous reports that the instrument was not applicable to this population. The investigators used the recommended cut-off score of two and determined that the instrument was only able to detect 46% of the students experiencing alcohol problems in 1988 and 49% in the 1992 study. They also determined that the instrument was even less accurate when assessing females.

The Michigan Alcoholism Screening Test (MAST) is another widely used screening device for alcohol use disorders. It contains 22 statements and the respondent is to indicate whether a given statement is true or false. It requires approximately 20 minutes to complete. Test items focus primarily on the consequences of the individual’s drinking and his or her perceptions of alcohol problems (Selzer, 1971). It also assesses vocational, social, and familial difficulties that are generally secondary to alcohol misuse. One disadvantage of the instrument is that, due to the wording of the items, individuals often refer to lifetime alcohol use history, and not current use (Magruder-Habib, Durand, & Frey, 1991).

There are two shortened versions of the MAST. The first is a 13-item questionnaire, referred to as the S-MAST (Selzer, Vinokur, & van Rooijen, 1975). The other form is a 10-item brief MAST (b-MAST) (Pokorny, Miller, & Kaplan, 1972). These tests were created using items from the original test that were shown to be highly valid for detecting alcohol abuse and/or dependence. Specificity rates for the instrument
usually ranged from 81 to 95%, while the sensitivities generally fell between 86% and 98% (Magruder-Habib, Durand, & Frey, 1991).

The Self-Administered Alcohol Screening Test (SAAST) is another frequently used screening instrument (Swenson & Morse, 1975). The SAAST is a 35-item questionnaire that requires the individual to answer “yes” or “no” to items. This instrument is actually a self-administered version of the MAST. There is also a nine-item version available that has been established as useful in medical settings for screening patients for alcohol-related problems (Davis, Hurt, Morse, & O’Brien, 1987). Hurt, Morse, and Swenson (1980) conducted research to reevaluate the effectiveness of the SAAST. These researchers suggested that the instrument be used as an adjunct to the physician’s interview and examination.

The Alcohol Dependence Scale (ADS; Moore et al., 1989) is 25-item questionnaire designed to detect alcohol abuse or dependence. It was created through the factor analysis of the Alcohol Use Inventory, the original 147-item questionnaire. This scale addresses core features of alcohol dependence and yields an index of the severity of that dependence (Moore et al., 1989). However, Skinner and Horn (1984) suggested that its utility be limited to screening for alcohol abuse problems.

The Alcohol Use Disorder and Associated Disabilities Interview Schedule (AUDADIS) was created by the National Institute on Alcohol Abuse and Alcoholism in order to be utilized in the 1992 National Longitudinal Alcohol Epidemiological Study. It is a structured diagnostic schedule that has shown some reliability in detecting alcohol problems in general population studies, as well as in clinical settings. It has also been shown to be applicable in cross-cultural studies and has shown adequate concordance.
rates with other alcohol screening instruments (Steinbauer, Cantor, Holzer, & Volk, 1998).

The Addiction Severity Index (ASI; McLellan et al., 1992) is another useful screening instrument. It was created through the National Institute on Drug Abuse and is a public domain instrument. It was designed for screening, assessing, and developing treatment planning for alcohol use disorders. It assesses seven areas of functioning that are often affected by substance abuse. These are drug/alcohol use, family/societal relationships, employment/support status, and mental health status (McLellan, Luborsky, Woody, & O’Brien, 1980).

Last of all, the Alcohol Use Disorders Identification Test (AUDIT) is a widely used screening instrument for detecting alcohol problems. The AUDIT was developed by the World Health Organization (Babor, DeLa Fuente, Saunders, & Grant, 1989) and is a 10-item questionnaire with a recommended cut-off score of 8 (Barry & Fleming, 1993; Fleming, Barry, & MacDonald, 1991; Saunders, Aasland, Babor, De La Fuente, & Grant, 1993). The instrument assesses three principal domains: amount and frequency of alcohol consumption, alcohol abuse and dependence (Claussen & Aasland, 1993; Fleming, Barry, & MacDonald, 1991), and alcohol-induced problems. However, it was originally developed in order to detect alcohol use “problems” in individuals who do not necessarily meet the criteria for alcohol dependence. It was designed specifically to avoid ethnic and cultural biases that were present in the earlier instruments (Saunders, Aasland, Babor, de la Fuente, & Grant, 1993) and is considered reliable in this respect (Volk & Steinbauer, 1997). With a cut-off score of 8, the overall specificity and sensitivity are 92% and 93%, respectively (Babor & Grant, 1989).
Several studies have been conducted to compare the validity, reliability, and proposed biases of the various alcohol screening instruments and most have reported the AUDIT to be the superior instrument. Ross, Gavin, and Skinner (1990) compared the validity and reliability of the MAST and the ADS. These researchers surmised that the tests were approximately equal in terms of specificity and sensitivity.

Steinbauer, Cantor, Holzer, and Volk (1998) conducted research to determine if there were ethnic or sex biases in the alcohol screening instruments. They compared the CAGE, the SAAST, and the AUDIT and determined that ethnicity did not affect scores on the AUDIT. These researchers also determined that the CAGE was better for identifying alcohol problems in African-American females than African-American males, and that the SAAST was more accurate in detecting alcohol problems in Caucasian males than females. Finally, the AUDIT was more consistent in detecting alcohol problems in both males and females.

Clements (1998) evaluated the utility of the MAST, CAGE, AUDIT, and Svanum’s Scale (Svanum, McGrew, & Ehrmann, 1994). The criterion measure implemented was the alcohol section of the Composite International Diagnostic Interview-SAM (DSM-IV version). All instruments were administered to 306 college undergraduates that either currently, or in the past, met the diagnostic criteria for alcohol dependence. The results indicated that the AUDIT was superior to identifying students who currently met the diagnostic criteria for alcohol dependence.

Chung et al. (2000) assessed the effectiveness of the TWEAK, CAGE, and AUDIT against DSM-IV diagnostic criteria for the alcohol use disorders in a sample of 415 adolescents who presented for treatment in an emergency department of a hospital.
After administering the Diagnostic Interview Schedule for children, the researchers ascertained that 18% of the adolescents met the diagnostic criteria for an alcohol use disorder. Furthermore, the AUDIT “demonstrated the best performance,” with a cut-off score of 4, at detecting these disorders. It was ascertained that the CAGE detected alcohol use disorders best with a cut-off score of 1 and the TWEAK did so with a cut-off score of 2.

After administering the AUDIT, the Composite International Diagnostic Interview (ICD-10), and the DSM-III-R diagnostic criteria for the alcohol use disorders to 489 adults, Piccinelli and Tessari (1997) reported that the AUDIT was superior to other alcohol screening instruments because of two advantages. These were the ability to detect both harmful use and hazardous intake of alcohol, as well as formal alcohol disorders. By detecting hazardous intake, the AUDIT may be able to detect mild alcohol-related problems or identify individuals before the symptoms of an alcohol use disorder appear. Schmidt and Barry (1995) listed four other advantages of the AUDIT over the other screening instruments. The MAST and the CAGE did not provide the opportunity to assess current usage, as did the AUDIT. Also, the other instruments did not assess binge drinking, which is defined as six or more drinks per occasion when utilizing the AUDIT. The CAGE and MAST allowed for only dichotomous responses, and the AUDIT allowed respondents to provide information across a range of responses, and detected early symptoms of alcohol-related problems in individuals who had not begun to experience some of the subsequent problems associated with alcohol misuse. The MAST and CAGE did not assess these early symptoms. These researchers concluded that the AUDIT was superior to existing alcohol screening tests because of the many diverse
cultures in the United States and the associated differences in drinking patterns, which do not affect the results of the AUDIT.

The AUDIT has also shown to be a reliable instrument when utilized in a population of college students. O’Hare and Sherrer (1999) assessed the validity of the instrument in this population by administering the instrument to 312 college students. The researchers concluded that the instrument was reliable in detecting hazardous drinking in this population.

_Binge Drinking_

Few formal definitions of binge drinking exist in the literature. Binge drinking has historically been measured by utilizing the operational definition of binge drinking, the consumption of five or more drinks on one occasion in a two-week period. The use of the criterion of five or more drinks on one occasion dates back to the 1960s with the work of Cahalan and colleagues (Cahalan & Room, 1974). This misuse of alcohol was referred to as “heavy intake,” instead of binge drinking. The current definition has been modified to include a gender specification. Female binge drinking is defined as four or more drinks per occasion.

Most of the Harvard School of Public Health College Alcohol Studies (i.e., Wechsler, Davenport, Dowdall, Moeykens, & Castillo, 1994) have utilized the operational definition of binge drinking to assess the occurrence of the phenomenon on college campuses. However, other groups of researchers have argued the need to redefine binge drinking (DeJong, 1998). It is argued that the current definition of binge drinking does not take into consideration several important variables, such as the body weight of the drinker, the size of the drink consumed, and the length of time during which the   

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were consumed. Only a few researchers have implemented a definition that takes these variables into account. For example, the World Health Organization (WHO, 1994) defines binge drinking as “a pattern of heavy drinking that occurs in an extended period set aside for the purpose...the period is usually defined as more than one day of drinking at a time” (p. 32). Schuckit (1998) expanded the definition of binge drinking as “an extended period of time (typically at least two days) during which time a person repeatedly becomes intoxicated and gives up her or his usual activities and obligations in order to become intoxicated” (p. 123). He argued that the core clinical definition of binge drinking is the combination of prolonged use and the neglect of usual activities.

Other researchers have questioned the use of the term “binge drinking” (DeJong, 1998; Dimeff, Kilmer, Baer, & Marlatt, 1998). DeJong argued that binge drinking is often considered by others outside the field to mean “a drunken spree or unrestrained indulgence over a period of time” (p. 5) when, in fact, researchers were assessing behavior that occurred over the course of a single day. Dimeff, Kilmer, Baer, and Marlatt (1998) concurred with these sentiments by arguing that five drinks over the course of an evening of socializing and eating should not be considered pathological. These researchers advocated the use of other terms, such as “heavy alcohol use” or “high risk drinking,” instead of the term “binge drinking.”

This argument is further substantiated when one considers the less stringent definitions of binge drinking presented by other countries. While studying the correlation between alcohol consumption and stroke mortality in a Swedish population, Hansagi, Romelsjo, Gerhardsson, Verdier, and Leifman (1995) defined binge drinking as the consumption of two bottles of wine or a half a bottle of “spirits” on one occasion. The
consumption of eight drinks a day was considered "normal" alcohol consumption in an Italian population (Farchi, Fidanza, Mariotti, & Menotti, 1995). Even more lenient is the definition of binge drinking in the United Kingdom. The consumption of 11 or more drinks on one occasion is considered binge drinking (United Kingdom Department of Health, 1995).

In response to the cultural perspective arguments presented above, Weingardt et al. (1998) offered an alternative method to assessing binge drinking. These authors suggested that measures of peak consumption, typical weekend, and typical daily quantities should be assessed, and this criterion would be more descriptive of the phenomenon of binge drinking. Peak consumption was measured by the following question: "Think of the occasion you drank the most this past month. How much did you drink?" (p. 5). Typical weekend consumption was assessed by asking the student "On a given weekend evening, how much alcohol do you typically drink? Estimate over the past month" (p. 5). Typical daily consumption was measured by asking "For the past month, please fill in a number for each day of the week indicating the typical number of drinks you usually consume on that day" (p. 5).

Shakeshaft, Bowman, and Sanson-Fisher (1998) have also presented alternative methods of assessing binge drinking. These researchers utilized three different measures of binge drinking: the AUDIT, a one-week retrospective diary of drinking, and a quantity/frequency measure. The researchers concluded that the AUDIT was able to detect the highest proportion of binge drinkers, followed by the quantity/frequency method. Also, there was high agreement between these two measures of binge drinking.
Alcohol Use Among College Students

Alcohol appears to be the drug of choice on most college campuses (Prendergast, 1994). Christie et al. (2001) ascertained that excessive alcohol consumption was the most pressing problem on college campuses, according to university presidents. College students also seemed to be aware of the problem. Davies et al. (2000) assessed seven focus groups on a university campus to ascertain college men’s health concerns. These investigators established that college men were cognizant of these health problems but failed to address them. Of the problems identified, substance and alcohol abuse were determined to be the most important.

After reviewing the literature on college students and alcohol use in the United States, it appeared that the phenomenon of binge drinking had received the greatest attention. Binge drinking is generally defined as the consumption of five or more drinks per occasion for males and four or more drinks per occasion for females (Wechsler, Molnar, Davenport, & Baer, 1999). In 1993, the findings of the Harvard School of Public Health College Alcohol Study (CAS), which surveyed over 25,000 students on 140 campuses, noted that 44.1% of the students surveyed were engaging in binge drinking, and a large proportion of the binge drinking was associated with membership in a fraternity or sorority house. In 1997, another CAS survey was completed which included 130 of the original 140 college campuses. Results of that study indicated that the rate of binge drinking (42.7%) was very similar to that discovered in 1993, indicating little change in binge drinking over the four year period of 1993 to 1997 (Wechsler & Dowdall, 1998). Wechsler et al. (2002) reported similar results from the most recent CAS survey in 1999.
Bennett, Miller, and Woodall (1999) conducted a three-year longitudinal study of 2,710 college students. They observed that in any given year, more than one-third of the students reported binge drinking. Other researchers (Wechsler, Dowdall, Maenner, Gledhill-Hoyt, & Lee, 1998) estimated that one in five college students were binge drinkers. In 1995, 50% of the students from 140 college campuses endorsed being binge drinkers (Wechsler, Moeykens, Davenport, Castillo, & Hansen, 1994). Prior to that study, Johnston, Bachman, and O’Malley (1991) conducted a national survey and found that 41% of the nation’s college students had engaged in binge drinking in the past two weeks, while only 34% of their same-age peers had done so. These results suggested that there has been little change in the rates of binge drinking among college students during the 1990s.

Annual prevalence rates appear to have remained consistent over the past decade. Between 1990 and 1992, Presley, Meilman, and Lyerla (1995) collected data from 108 universities and colleges, utilizing 4,500 students. The investigators ascertained that 83.5% of the students reported drinking at least once in the previous year. The annual prevalence rates of alcohol use on college campuses usually fall between 82 and 85% (Engs & Hansen, 1985; Johnston, O’Malley, & Bachman, 1991; Presley, Meilman, Cashin, & Lyerla, 1996; Presley, Meilman, & Lyerla, 1993; Wechsler, Davenport, Dowdall, Moeykens, & Castillo, 1994).

The high rates of binge drinking on college campuses has led to numerous physical, psychological, and educational problems. Drinking by college students has been implicated in poor classroom performance (Presley, Meilman, & Cashin, 1996; Wechsler, Dowdall, Davenport, & Castillo, 1995); less participation in university activities (Hanson
& Enghs, 1992; Presley, Meilman, & Cashin, 1996); destruction of property and absences from classes (Presley, Meilman, & Cashin, 1996; Wechsler, Davenport, Dowdall, Moeykens, & Castillo, 1994); risky and unplanned sexual encounters (Wechsler, Davenport, & Castillo, 1995; Wechsler, Davenport, Dowdall, Moeykens, & Castillo); sex with multiple partners (Graves & Leigh, 1995; Wechsler, Dowdall, Davenport, & Castillo, 1995); drinking and driving (Everett, Lowry, Cohen, & Dellinger, 1999; Wechsler, Davenport, Dowdall, Moeykens, & Castillo, 1994); and less use of automobile safety belts (Everett, Lowry, Cohen, & Dellinger, 1999). Furthermore, Christie et al. (2001) noted that alcohol was implicated in two-thirds of suicides, 95% of all violent crimes, and 98% of rapes that occurred on college campuses.

Heavy drinking in college students has also been found to be associated with nonconformity (Havey & Dodd, 1993), depression (Brennan, Walfish, & AuBuchon, 1986), and geographical distance from parents (Gfroerer, Grenblatt, & Wright, 1997). Saltz and Elandt (1986) examined college drinking on several universities between 1976 and 1985 and identified a negative correlation between grades and alcohol consumption. Additionally, college students who frequently binge drink were more likely to experience serious health problems. Wechsler, Davenport, Dowdall, Moeykens, and Castillo (1994) determined that 47% of the college students on 140 campuses experienced five or more alcohol-related problems, including physical injuries.

Research has identified a demographic variable that appeared to be a risk factor that increased the likelihood that college students would abuse alcohol. Wechsler, Dowdall, Davenport, and Rimm (1995) identified gender as a risk factor, with males being more likely to abuse alcohol than females. Goodwin (1992) determined that males
are heavier drinkers that females, particularly males who are involved in varsity sports. Similarly, Lo (1995) identified sex as a determining factor in binge drinking. She presented three hypotheses to account for the gender difference: (1) males were more likely to be affiliated with individuals who endorse drinking and these individuals provided a model for such behaviors, (2) it is likely that females are more affected by their parents' opinions and adheres to their parents' more restrictive norms, (3) males were more likely to cede to peer drinking norms than were females.

Research has identified some family and individual factors that place a student at risk for abusing alcohol. Sher, Walter, Wood, and Brent (1991) and Sher (1994) discovered that college students with a family history of alcohol problems were more likely to abuse alcohol than students without such a family history. Schuckit and Smith (1996) indicate that college students with a decreased perceived sensitivity to the intoxicating effects of alcohol were more likely to abuse alcohol. A student with a history of conduct disorder or delinquent behaviors was more likely to abuse alcohol (Jessar, Donovan, & Costa, 1991).

Another major problem associated with alcohol consumption on college campuses is that such use has been demonstrated to lead to involvement with other substances. Prendergast (1994) reported that college students who endorsed binge drinking were more likely to use illegal substances, especially marijuana and cocaine. This finding was supported by subsequent research (Bell, Wechsler, & Johnston, 1997; Wechsler, Dowdall, Davenport, & Castillo, 1994), which indicated that college students who engaged in binge drinking were more likely to use cannabis than students who did not binge drink. Similarly, Schorling, Gutgesell, Klas, Smith, and Keller (1994) ascertained
that binge drinking was strongly associated with cigarette smoking and the use of cannabis, cocaine, and LSD.

Kandel and Andrews (1987) suggested that drug usage in adolescents follows a particular line of progression. These investigators found that adolescents who were abusing cocaine had initially experimented with alcohol, then marijuana, and finally cocaine. Chambers (1985), who reviewed 12 studies that had examined individuals who were abusing opiates and alcohol, supported these conclusions. In each study, a significant number of participants had initially used alcohol prior to the use of other substances. Goodwin (1992) subsequently determined that drinking was the strongest predictor of subsequent substance use, further substantiating these findings.

Not only does alcohol abuse result in adverse effects for the student who drinks, numerous studies have indicated that students who do not drink were often affected by the behaviors of students who drank, and the odds of a non-drinking student being adversely affected by a binge drinker as 3.6 to 1. Wechsler, Moeykens, Davenport, Castillo, and Hansen (1995) estimated that three out of four (78%) college students suffered some form of secondhand effect of another’s alcohol use. Examples of these secondhand effects include having one’s property damaged, receiving unwanted sexual advances, and suffering physical assault (Wechsler, Moeykens, Davenport, Castillo, & Hansen, 1995). These results were subsequently supported by Wechsler, Kuo, and Davenport (1996) who determined that students who did not drink may suffer the adverse consequences of another student drinking alcohol, such as disruption in sleep and study habits and physical confrontations with the drinking student.
Another factor associated with binge drinking is living arrangements. Alva (1998) concluded that living in a fraternity or sorority increased the likelihood of a student binge drinking. Wechsler, Dowdall, Maenner, Gledhill-Hoyt, and Lee (1998) noted that four of five members of fraternities and sororities were binge drinkers. Goodwin (1992) assessed the drinking patterns of 2,000 fraternity and sorority members at a large western public university and determined that the drug of choice was alcohol. Ninety-eight percent of the students indicated drinking on a weekly basis.

Some authors have attempted to explain the reasons for this phenomenon. Faulkner, Alcorn, and Garvin (1989) proposed that drinking was more prominent in the fraternities and sororities because it was a major factor in adjusting to life at the university. Borsari and Carey (1999) presented five reasons why drinking is more predominate in the Greek fraternities. The abuse of alcohol generally commenced prior to membership in the fraternity. This hypothesis had already been tested by earlier researchers (Wechsler & McFadden, 1979) who ascertained that drinking patterns were established before the individual entered the college setting. It was proposed that a self-selection process was occurring in this situation. Individuals, who shared similar views and values, including the permissive use of alcohol, were often the same individuals who joined fraternities. It was considered likely that alcohol was important in college socialization. Social Norms Theory could be involved in the process, being that many of the fraternity members felt that their level of drinking was similar to that of other fraternity members. Because of the insulated environment of the fraternity house, this environment maintained the high levels of alcohol abuse.
Some researchers suggest that it is not only the sorority or fraternity environment that is conducive to alcohol misuse, but campus life in general. Rabow and Duncan-Schill (1995) proposed that the cultural climate of college campuses promoted the consumption of alcohol as a “rite of passage,” and that, as the student becomes socialized in that culture, he or she will be directly and indirectly influenced by alcohol. Wechsler (2000) subsequently supported the idea that alcohol was used as a rite of passage.

Another area of focus in the field of alcohol use by college students has been the area of expectancies. In the broad sense of the theory, Expectancy Outcome Theory can be conceptualized as an individual engaging in a particular behavior because he or she expects reinforcing effects to be the outcome. In terms of alcohol expectancies, Brown, Goldman, Inn, and Anderson (1980) suggested that outcome expectancies could be defined as the effects of alcohol an individual anticipates as a result of consuming alcohol. Thus, an individual’s belief about how alcohol will affect him or her, often determines whether or not he or she will abuse alcohol. Because the expectancies act as cognitive mediators on how alcohol will affect the individual. Individuals consume alcohol in a manner that produces the desired effects expected, but, expectations need not be valid in order to effect behaviors. The individual only has to perceive the expectations in order for them to be valid (Jones, 2001). In a rather simplistic view of this theory, it has been suggested that positive alcohol expectancies resulted in a motivation to consume alcohol, while negative expectancies motivated one to abstain from alcohol (Cox & Klinger, 1988; Jones & McMahon, 1998; Lang & Michalec, 1990).

There are several studies in the literature that examined the development of alcohol expectancies development throughout childhood and adolescence. Some
researchers (Kraus, Smith, & Rather, 1994; Miller, Smith, & Goldman, 1990; Query, Rosenberg, & Tisak, 1998) have demonstrated that outcome expectancies had been established prior to the onset of drinking. Willner (2001) discovered that by the age of 11, participants in his study had already developed negative expectancies associated with alcohol use, regardless of his or her own experiences with alcohol. Christiansen, Goldman, and Inn (1982) discovered that alcohol expectancies in adolescence often predict the individual’s subsequent pattern of alcohol use. Also, Brown, Creamer, and Stetson (1987) suggested that alcohol expectancies might predict the development of alcohol abuse.

Similar findings have been reported elsewhere. While examining the possibility that an individual’s expectancies associated with alcohol may lead the individual to use other drugs, especially cannabis, Willner (2001) found similar results to those reported studies. He identified a strong relationship between positive alcohol expectancies and the frequency of alcohol consumption and subsequent abuse. He also discovered that there was a significant increase in positive alcohol expectancies between the ages of 12 and 16.

Earlier researchers (Brown, Christiansen, & Goldman, 1987) had hypothesized that alcohol expectancies affected the behavioral effects the individual anticipated following the consumption of alcohol. In a meta-analysis of studies examining the effects of alcohol consumption and expectancies, Hull and Bond (1986) attempted to identify gender differences in physiological responses to alcohol in regard to expectancies. These investigators discovered that males who expected to consume alcohol exhibited a decrease in physiological arousal as measured by heart rate. Females, on the other hand, exhibited an increase in physiological responses. These finding supported previous
findings by Abrams and Wilson (1979) who ascertained that females who believed that they had consumed alcohol had an increase in physiological arousal, and Rosenhow and Bachorowski (1984) who identified increases in physiological responses in male participants.

To examine other gender differences, Rosenhow (1983) administered the Alcohol Expectancy Questionnaire (Brown, Christiansen, & Goldman, 1987) to college students. This questionnaire allowed the participant to indicate whether he or she agreed or disagreed with statements concerning personal effects of alcohol. It was determined that females expected alcohol to produce less pleasure and relaxation, and for it to increase cognitive and motor impairments. Using the same instrument, Rosenhow and Bachorowski (1984) discovered that males who believed that they had consumed alcohol showed fewer signs of aggression than did males in the control group, while females exhibited no changes in aggression associated with alcohol use.

O’Hare (1998) found that students who expected alcohol to result in a reduction of tension, tended to drink more, as did students who believed that alcohol would increase their social assertiveness. Along the same lines of inquiry, Thombs, Beck, and Pleace (1993) noted that college students drank more to have fun or to aid in the process of social facilitation.

Additionally, Carruthers (1993) proposed that another variable that may influence alcohol expectancy is the context in which the drinking was expected to occur. This theory was examined by Thombs, Beck, and Mahoney (1993), who discovered that men expected to drink in situations that facilitate socialization; whereas, young women expected to drink more when dealing with emotional difficulties.
Few sociological theories have been applied to the deviant behavior of binge
drinking by college students. One that has been investigated is Social Bond Theory set
forth by Hirschi (1969). Shoemaker (1996) later defined a social bond as "the connection
between the individual and society" (p. 164). Hirschi (1969) suggested that social bond
was composed of four elements: attachment, commitment, involvement, and beliefs.
When the social bond is weak, deviant behavior occurs. Throughout the years, the theory
of social bond has been one of the dominant views on the etiology of deviant behaviors
(Akers, 1997).

The social bond element of attachment refers to the emotional and affective ties
an individual has with significant others, how the individual identifies with significant
others, and the individual's concern about the significant other's expectations. The
stronger the attachment to significant others, the less likely the individual will be to
engage in deviant behaviors (Leonard & Decker, 1994). Commitment refers to the
accumulated efforts, such as time, energy, and resources the individual places on
conventional activities (e.g., maintaining a good job, obtaining an education). The greater
the investment in these activities, the less likely the individual will be to engage in
deviant behavior (Shoemaker, 1996).

Involvement, the third element of social bond, refers to the amount of time the
individual spends in conventional activities. Theoretically, the more time an individual
spends in these conventional activities, the less time he or she will have available to
engage in deviant behaviors. Beliefs are considered evidence that the individual has
accepted the conventional value systems of his or her significant others. When any of
these beliefs are weakened, the individual will be more likely to engage in deviant behaviors (Shoemaker, 1996).

Cherry (1987) examined the effects of social bond elements on drinking patterns of college students in Maryland. He focused primarily on the first three elements of the social bond, attachment, commitment, and involvement. He concluded that students with strong ties to the community, religious institutions, and their families were less likely to drink than students with weakened bonds to these situations.

Igra and Moos (1979) examined the effects of two social bond elements, commitment and involvement, on the drinking patterns of first year dormitory students at two Western universities. The results of the study supported portions of the social bond theory. They found that students who were committed to religious and academic values were less likely to use alcohol. However, the researchers determined that students who were more involved in conventional activities drank more often, which was contradictory to the Social Bond Theory.

Another variable identified as associated with college students’ use of alcohol is the context in which the drinking occurs. Drinking contexts have been defined as where one drinks, with whom one drinks, and when one drinks (Cahalan, Cisin, & Crossley, 1996). Underlying this conceptualization of drinking contexts, is the hypothesis that individuals interact with their environment, and those interactions influence the individual’s drinking behaviors. Harford (1979) commented, “the antecedents of alcohol consumption are to be found in the interactions between the individual and his environment...the consumption of alcoholic beverages is situation-specific, rather than trans-situation property of specific individuals” (pp. 289). Utilizing this
conceptualization, Jessor (1982) proposed that there are five measurable aspects of a drinking context: (a) the geographical location of the drinking event, (b) demographic and descriptive features of the event and others involved in it, (c) any meanings associated with the drinking context, (d) abstract dimensions of the event (e.g., social controls or social norms), and (e) personal perceptions related to the context.

Few studies have examined the contexts in which college students drink. Kraft (1982) conducted one of the few earlier studies on this topic. He surmised that college students were more likely to drink with friends, on the weekend, and at parties, while the heaviest drinking often occurred in bars. He further ascertained that college students who frequently attended bars or parties were more likely to report negative consequences associated with their drinking, such as academic and job-related problems, vandalism, and “trouble” with authorities.

Clapp, Shillington, and Segars (2000) examined the contexts in which binge drinking occurred in 110 college drinkers. They determined that binge drinking was fairly evenly split between private (43.1% in the home) and public (42.2% in bars and restaurants) contexts. They also noted that almost half of all binge drinking resulted in some type of negative consequence and that the binge-drinking episode usually lasted more than five hours. The episodes generally occurred on the weekend, at a party, on a date, or some other form of socialization. Similarly, Hunter (1990) examined the context in which female college students drank. Results of the study indicated that female college students were more likely to drink in the context of bars and parties.

Social influence has also been viewed as a determining factor in whether college students consume alcohol. Three forms of social influence that have been linked to
alcohol abuse are conformity, compliance, and obedience. Conformity is the act of changing one’s attitudes or behaviors in order to adhere to social norms. Griffin and Buehler (1993) suggested that college students were expected to drink excessively and students complied with these social norms primarily because he or she wanted to be accepted and liked by peers.

Compliance may be defined as the attempt of one or more individuals to change the behaviors of others. Cialdini (1994) proposed that because individuals are more likely to comply with the wishes of friends or a person whom he or she likes, college students may drink excessively in order to comply with other students’ requests, and because the individual’s friends reinforce these drinking behaviors.

Compliance has also been used to explain the high rates of binge drinking in fraternity and sorority houses. Jones (1964) and Linden and Mitchell (1988) asserted that fraternity and sorority members often used ingratiations to entice other students into binge drinking. In this context, ingratiations refer to the fraternity or sorority member attempting to force other students to “like” him or her so that the student will be more willing to comply with requests.

Finally, obedience is the act of submitting to direct orders from another individual. It has been discovered that individuals often obey the demands of upper-classmen and authority figures, though these individuals have no authority to enforce the demands (Milgram, 1965). In order to be part of the group, college students consume alcohol in order to please these perceived authority figures.

Earlier authors suggested that alcohol abuse among college students might be attributed to peer influence (Gusfield, 1961). In the field of social psychology, classic
theories held that the process of affiliation needs and Social Comparison (Festinger, 1954), pressures to conform to the norms of one’s peer group (Asch, 1952), and the creation and acquisition of peer group norms (Sherif, 1936, 1972) combine to create the desire within the individual to act in accordance with his or her peer expectations. This influence tends to remain true, even when the behavior is viewed as deviant by the rest of society. The individual’s peers provide models and the individual is rewarded by the peer group for engaging in the behaviors (Akers, Krohn, Lanza-Kaduce, & Radosevich, 1979). Thus, college students who perceive their peers to support and expect alcohol abuse, may feel pressured to adhere to these norms. Similarly, Abrams et al. (1991) suggested that the drinking behaviors of college students might be best described in terms of social learning theory. The authors posited that college students determined appropriate drinking behaviors by observing the drinking behaviors of their peers.

Social Norms Theory was more recently tested by Perkins and Wechsler (1996) who surveyed 140 colleges and universities in the United States. Respondents were questioned concerning their perception of appropriate drinking contexts, alcohol consumption norms, and any negative consequences experienced as a result of drinking. The investigators determined that the students’ drinking patterns were significantly affected by his or her perceived norms of alcohol consumption. To be more specific, students who perceived drinking norms to be more permissive were more likely to abuse alcohol. Other studies have substantiated the theory (Goodwin, 1992; Haines, 1997; Haines & Spear, 1996; Marlatt, Baer, & Larimer, 1995; Perkins & Berkowitz, 1986; Perkins, Meilman, Leichliter, Cashin, & Presley, 1999; Wechsler, Kuo, & Davenport, 1996; Wechsler, Molnar, Davenport, & Baer, 1999).
Though some studies have suggested that a student's alcohol use is determined by his or her peers' use of alcohol, other studies (Thombs, Wolcott, & Farkash, 1997) indicate that a student's drinking is more influenced by his or her perception of how much his or her close friends drink (Wechsler, Kuo, & Davenport, 1996). Furthermore, several studies (Perkins, Meilman, Leichliter, Cashin, & Presley, 1999; Thombs, Wolcott, & Farkash, 1997) have concluded that students tend to overestimate the amount of alcohol consumed by friends. This overestimation of their peers' drinking habits resulted in the student drinking more excessively. However, these studies have been contradicted by a more recent study, wherein Wechsler, Kuo, and Lee (1996) examined a college sample and discovered that the students were more likely to underestimate their peer's alcohol consumption. Only 29% of this sample overestimated their peers' alcohol consumption; while 47% underestimated their peer's level of alcohol consumption.

Surprisingly, most of the studies examining alcohol use on college campuses have not included a diagnostic measure of alcohol abuse or dependence by utilizing DSM criteria. One of the few studies cited in the literature was that of Clements' (1998). He conducted structured diagnostic interviews with 306 college students implementing the DSM-IV Substance Abuse Module, as well as the CAGE, AUDIT, MAST, and Svanum's Scale to assess drinking patterns. Results of his study indicated that about a fourth (24.5%) of the students met the diagnostic criteria for abuse (36.4% of males, 20.5% of females) or dependence (18.2% of males, 9.2% of females) with significant sex and ethnic differences. Males endorsed significantly more diagnostic criteria than females for both abuse and dependence, and Caucasians endorsed significantly more criteria than African Americans or Hispanics for both alcohol abuse and dependence. Furthermore,
Clements (1998) reported a lifetime prevalence rate for abuse of 39.8% for Caucasians, 31.8% for Hispanics and 13.3% for African Americans. The lifetime prevalence rates for dependence were 19.4%, 13.6%, and 9.3% respectively.

The lifetime prevalence rates cited by Clements (1998) are slightly higher than those reported in earlier similar studies. Fleming, Barry, and MacDonald (1991) examined a population of undergraduates on a residential campus and reported a lifetime prevalence rate of 29% for "alcohol misuse." In a similar fashion, Ross and Tisdall (1994) investigated students who entered treatment at the university psychiatric center. These researchers cited a lifetime prevalence rate for alcohol abuse or dependence at 26%.

**Personality**

The term "personality" comes from the Latin word, "persona," which means mask. Theorists defining personality as a mask, view personality as one's public self, that aspect of the individual that he or she selects to display to the world. This definition of personality implies that the important aspects of a person remain concealed for some reason. Other definitions of personality range from the popular notion that personality allows a person to be socially effective, to more highly technical definitions involving mathematical formulations. Thus, several definitions of personality exit (Hergenhahn, 1990).

A generation ago, most psychologists assumed that genes and early experiences formed our personality, and these traits remained set for life. During the 1960s and 1970s, new findings suggested that throughout much of life, personality evolves. More recent research reveals a "consistency" to personality. Fields (1998) concluded that there
is an underlying stability to our basic social and emotional style. The troubled adolescent often turned out better than what was expected, but on the whole, it was the cheerful teen that became the most cheerful 40 year-old. Similarly, Caspi, et al. (1997) discovered that compared to milder-mannered boys, 9 year-old boys with explosive temper tantrums are more likely as adults to have trouble keeping good jobs and are twice as likely to have divorced by age 40. Eron (in Fields, 1998) ascertained that most physically aggressive 8 year-olds often became the most aggressive (and potentially violent) 30-year-olds.

Some researchers (Kubicka, Matejcek, Dytrych, & Roth, 2001) suggested that conscientiousness, extraversion, and neuroticism, three of the Big Five personality dimensions, are relatively stable throughout adulthood. These researchers ascertained that these personality dimensions were stable in a group of children assessed in childhood and exhibiting the same personality dimensions 24 years later.

Last of all, once people reached adulthood, their dispositions become more stable. Costa and McCrae (1988) concluded that for the great majority of people, the self-concept at age 30 is a good guide to personality at the age of 80. During the adult years, an individual's outgoingness, emotional stability, openness, agreeableness, and conscientiousness are persistent (Costa & McCrae, 1988; Finn, 1986).

Theories of Personality

Personality theorists have yet to agree upon the number and nature of the domains of personality. Sher, Bartholow, and Wood (2000) proposed that of the domains developed over the past 50 years, there were three dominant models: the Big Five factor model (Costa & McCrae, 1992), the Alternative Five factor model (Zuckerman, Kuhlman, Joireman, Teta, & Kraft, 1993), and the Big Three factor models (e.g., Buss &
Plomin, 1984; Cloninger, 1987a; Eysenck & Eysenck, 1975; and Tellegen, 1985). These models have been empirically supported.

There are numerous theories concerning the development of personality. Theories that emphasize unconscious mechanisms are the opposite of existential-humanistic theories. The primary concern of these so-called depth theories is to discover the underlying causes of behavior. According to this viewpoint, because the ultimate causes of behavior are unconscious and typically have their origins in childhood, the search for them is extremely complicated. Complex tools are needed in the search, tools such as dream and symbol analysis, free association, hypnosis, and the analysis of lapses of memory. According to this viewpoint, because what characterizes the unconscious mind can manifest itself in consciousness in a number of ways, one cannot really understand much about a person by studying his or her conscious experience. To understand personality, one must somehow get beneath arbitrary manifestations of the conscious mind to the unconscious mind itself. In other words, one must get beneath a person’s mask. The theories of Freud, Jung, and Horney stressed unconscious mechanisms in their analysis of personality (Hergenhahn, 1990).

A group of theorists who splintered away Freud’s original ideas and emphasized the importance of the child’s relationships with significant others, known as objects, are collectively known as object-relations or self-theorists. These individuals proposed that psychological disturbances might be caused by “abnormalities” in object relations. Some of the most notable members of this group are Klein, Fairbairn, Winnicott, Mahler, Kernberg, and Kohut (Fadiman & Frager, 1994).
One of the best-known humanistic theories of personality is that of Rogers (1959) who viewed humans as rational, positive, and trustworthy organisms. These views were reflected in his personality theory. The primary concepts associated with his theory of personality are actualizing tendencies, self, self-actualizing tendencies, conditions of worth, and the fully functioning person. The fully functioning person avoided conditions of worth and had positive self-regard. These actualizing tendencies resulted in congruence between the self and the individual's experiences, and Rogers referred to this congruence as the ideal human condition (Rogers, 1961). The maladjusted person, however, is defensive, "maintains" life, lives in a rigid routine fashion, feels manipulated by others, and conforms (Maddi, 1996).

Another group of personality theorists posited that genetics play a large factor in an individual's personality composition. Newman, Freeman, and Holzinger (1937) first studied the genetics of personality, though these authors attributed little variance to genetic factors in this particular study. Eysenck (1947) enumerated several weaknesses in the study and suggested that genetics account for approximately half of the variance observed in personality. Two of the dominant theories from this field will be presented here.

Eysenck viewed personality as innate and genetically determined. He attempted to conceptualize personality into a major system, comprised of a few general factors. He originally proposed two dominant general factors: neuroticism-stability and extraversion-introversion (Eysenck, 1947). He later added another factor (Eysenck & Eysenck, 1975), psychoticism-superego control. He maintained that personality was structured in a hierarchical fashion and that these three factors were "simply the top levels of personality
description, with lower levels including many group and specific traits and factors (Eysenck, 1990, p. 252).

According to Eysenck (1975), the sympathetic nervous system tended to react too quickly in individuals high in neuroticism. Introverts were characterized by their ability to easily learn social prohibitions, quick arousal to events, more inhibitions, and more influenced by rewards, while extroverts might be considered polar opposites. Individuals high in psychoticism tended to be insensitive, care little about others, enjoy solitary activities, are nonconforming to society’s mores (Pervin, 1990), aggressive, emotionally cool, impulsive, antisocial, creative, and tough-minded (Sher, Bartholow, & Wood, 2000). Eysenck’s theory of personality has been one of the prevailing theories for the past half century and extensive experimental and correlational research has substantiated the theory.

More recently, another personality conceptualization that supports a genetic basis for personality was developed by Cloninger (1987b) who termed his theory the Unified Biosocial Theory of personality. Mulder (1992) described Cloninger’s theory of personality as a link that connects theoretical temperaments, functioning of the neurotransmitters in the central nervous system, and clinical psychiatry. Cloninger (1987b) originally proposed that there were three personality dimensions of temperament (novelty-seeking, reward dependence, and harm avoidance) and suggested that each of these temperaments had a genetic basis. He proposed that novelty-seeking implemented dopamine pathways, harm avoidance implemented serotonin pathways, and reward dependence utilized norepinephrine pathways. He further postulated that certain personality traits were associated with particular genes (Comings et al., 2000). The theory
accounted for variations in both normal and abnormal personalities (Brandstrom, et al., 1998).

The primary point that differentiated this theory of personality from others was the supposition that personality does not develop and then remain stable. Cloninger purposed that personality changes according to learning. The individual will behave differently in the future in similar situations because of learning from previous experience in that situation (Svrakic & Przybeck, 1991).

Novelty-seeking was defined as a “behavioral activation” in response to novel stimuli, potential reward, or avoidance of punishment. Harm avoidance was viewed as the inhibition of behaviors in response to signals that warn of punishment, novelty, or frustration of not being rewarded. Reward dependence was associated with the individual attempting to maintain behaviors that have led to rewards in the past. It was believed that the stimulus-response features of novelty-seeking, harm avoidance, and reward dependence formed personality. The interactions of these three temperaments led to established patterns of responding to novelty, reward, and punishment (Cloninger, 1987a).

Cloninger and Gilligan (1987) proposed that many psychiatric disorders were the result of maladaptive responses to environmental stimuli, and that response tendencies were inherited. These authors suggested that adaptive responses to the environment were multidimensional. The process involved classical conditioning to aversive and rewarding stimuli, then exploratory learning of new habitats, proceeded to behavioral responses through operant conditioning, and lastly involved conceptual learning abilities.
Cloninger subsequently added another temperament dimension, persistence, to the personality theory, as well as three character dimensions of personality (Comings et al., 2000). Character dimensions, herein, developed during childhood and adolescence in reaction to environmental stimuli and other conditions in the individual’s environment (Grabe, Spitzer, & Juergen-Freyberger, 1999). It is posited that temperament was an automatic emotional response to stimuli in the environment. Temperament traits were inherited and not influenced by sociocultural factors. However, character may be influenced to some extent by family environment (Raeymaekers & Van Brockhoven, 1998). The notion that Cloninger’s temperament dimensions of personality were genetically determined and inheritable has received much support in the literature (Benjamin et al., 2000; Comings et al., 2000; Garvey, Noyes, Cook, & Blum, 1996; Hansenne & Ansseau, 1999; Noble et al., 1998; Ruegg et al., 1997; Sander et al., 1998).

Cloninger and Svrakic (1997) proposed that the four dimensions of temperament, which are genetically determined, were not stable over the lifetime. The character dimensions developed in a stepwise progression from infancy throughout adulthood, through the process of social learning. Cloninger, Svrakic, and Svrakic (1997) postulated that each character dimension of personality was composed of five components that correspond to steps in personality development. Temperament dimensions, previous character development, and life experiences influenced each step of development. These researchers further proposed that the development of character differentiated between individuals with a risk of developing psychopathology and those who would become healthy adults.
The traits of being quick-tempered, excitable, exploratory, enthusiastic, disorderly, and impulsive are associated with individuals who are high in novelty-seeking. Individuals who are cautious, impulsive, apprehensive, nervous, insecure, discouraged, pessimistic, and negativistic tend to be high in the temperament of harm avoidance. Individuals with high scores on the reward dependence scales tend to be open to communication, tender-hearted, dedicated, sensitive, and sociable. High persistence is associated with hard-working, industriousness, persistence, and stability, regardless of fatigue or frustration (Raeymaekers & Van Brockhoven, 1998).

Cloninger (1994) also purported that temperament and character were associated with major brain systems. Temperament was associated with procedural memory and learning. The amygdala, hypothalamus, striatum, and other areas of the limbic system regulate these abilities. Characters were associated with prepositional learning and memory (concept-based goals and values). The hippocampal formation and the cerebral neocortex regulate these functions.

Lastly, Tupes and Christal (1961) and Norman (1963) proposed the original Five-Factor model of personality. The five factors proposed by these researchers were emotional stability versus neuroticism, surgency or extraversion, culture, agreeableness, and dependability or conscientiousness. More recently, Costa and McCrae (1992) suggested that personality was comprised of five different factors: agreeableness, conscientiousness, openness to experience, extraversion, and neuroticism. Alternatively, Zuckerman, Kuhlman, Thornquist, and Kiers (1991) proposed an alternative five-factor model, which was derived from factor analytic studies of personality and temperament (Zuckerman, Kuhlman, & Camac, 1988; Zuckerman, Kuhlman, Thornquist, & Kiers,
1991). These researchers suggested that personality was comprised of the following factors: impulsive unsocialized sensation seeking, aggression-hostility, activity, sociability, and neuroticism-anxiety. Eysenck (1992) argued against the addition of the two factors in the five-factor models. He stated that each of these factors were actually components of extraversion, neuroticism, or psychoticism, or combinations of two of them.

Assessing Personality

For decades researchers have attempted to assess personality and numerous instruments have been devised for this purpose. This discussion will focus only on objective measures of personality and only the most popular instruments will be briefly addressed. The reliability and validity, as well as the criticisms of these instruments will not be discussed because such an endeavor would be outside the scope of this paper.

Probably the most well known instrument for assessing personality is the Minnesota Multiphasic Personality Inventory-2 (MMPI-2). Graham (1990) reported that over 10,000 studies have been published that implemented the instrument. Hathaway and McKinley created the original test at the University of Minnesota during the 1930s. Its purpose was to assist the clinician in the diagnoses of ten psychiatric disorders. The test consisted of 576 items to which the respondent is to endorse as “true,” “false,” or “cannot say” (Zimbardo & Weber, 1997).

The instrument has been revised to include numerous supplementary and content scales. The emphasis of the new scales was to provide a more sophisticated profile analysis of scores in order to determine personality traits, where the original version was designed to diagnosis specific disorders based on scale elevations (Phares, 1992).
However, the validity and reliability of the instrument continues to be an area of controversy.

The Sixteen Personality Factor Questionnaire (16PF) is an objective personality assessment that was based upon Cattell’s theory of personality (Cattell, Cattell, & Cattell, 1993). Cattell proposed that personality was comprised of 16 different factors. The test consists of 16 non-cognitive scales, each scale measuring a unidimensional personality trait. There are also eight second-order factors that measure more general personality traits. The five global factors being assessed are extraversion, anxiety, tough-mindedness, independence, and self-control. All scales and factors were arrived at through factor analyses and clustering of numerous self-reports.

Since its publication in 1949, the 16-PF has been utilized for a variety of clinical and theoretical reasons. The test was most recently revised in 1993 (16PF-Fifth Edition; Conn & Rieke, 1994). There are five different forms, each having a different number of items. The factors represented by this instrument are the result of over fifty years of research and with each revision; the factors appear to continue to approach agreement with the Big Five factors presented by Costa and McCrae (1992).

The California Psychological Inventory (CPI) was developed by Gough (1957) to measure personality traits in individuals considered to be well-adjusted. The most recent version assesses “folk concepts” which are traits that are easily understood by the layperson, such as dominance, self-control, tolerance, and intellectual efficiency. Gough (1957) described these folk concepts as “the kinds of everyday variables that ordinary people use in their daily lives to understand, classify, and predict their own behaviors and that of others” (p. 1). The most recent version of the instrument (Gough & Cook, 1996)
consists of 434 items and measures personality traits on 18 scales. Respondents are to rate themselves as possessing high or low levels of a particular attribute. The instrument measures the respondent’s overall interpersonal style, adherence to society’s rules and norms, and psychological adjustment (Zimbardo & Weber, 1997).

The Eysenck Personality Questionnaire (EPQ) is based on Eysenck’s theory of personality that suggested that personality could be decomposed to three factors (psychoticism, neuroticism, and extraversion). It was assumed that these factors were biologically based and interacted with socialization experiences and general intelligence in order to create an individual’s personality. The instrument was primarily developed to assess variations in normal personality (Kemp & Center, 2000).

The most recent version of the instrument was published in 1993 (EPQ-R; Eysenck & Eysenck, 1993). The scales have evolved over the past 40 years and are composed of 90 items, with 21 to 25 items that assess each of the personality dimensions (Jang, Vernon, & Livesley, 2001). The later versions of the instrument added another factor, Lie (L), to indicate when a respondent is not answering questions in an honest or consistent manner.

Cloninger (1987a) created the Tridimensional Personality Questionnaire based on the Unified Biosocial Theory of Personality to measure the proposed three dimensions of personality. The three temperaments are reward dependence, harm avoidance, and novelty-seeking. The instrument consists of 100 items to which the respondent is to rate as true or false. The instrument has also proven to be useful in the diagnosis of personality disorders (Cloninger, Przybeck, Svrakic, & Wetzel, 1994).
The domain of novelty-seeking measures exploratory excitability versus stoic rigidity, impulsiveness versus reflection, extravagance versus reserve, and disorderliness versus regimentation. The domain of harm avoidance measures anticipatory worry versus uninhibited optimism, fear of uncertainty versus confidence, shyness with strangers versus gregariousness, and fatigability and asthenia versus rigor. Lastly, the domain of reward dependence measures sentimentality versus insensitiveness, persistence versus irresoluteness, attachment versus detachment, and dependence versus independence.

Costa and McCrae (1985) developed the NEO-Personality Inventory (NEO-PI), through rational and factor analytic methods based on their five-factor model of personality: neuroticism, extraversion, openness, agreeableness, and conscientiousness. The neuroticism scale measures emotional stability, the extraversion scale measures sociability, the openness scale measures the extent to which the individual is open to novel experiences, the agreeableness scales indicates the extent to which the individual is motivated by altruistic or self-serving motives, and the conscientiousness scale measures the degree to which the individual utilizes organization skills and self-control and engages in goal-directed behaviors, instead of acting impulsively.

The most recent version of the instrument, NEO-PI-R, (Costa & McCrae, 1992) consists of 240 items measuring five personality dimensions of normal personality. Respondents answer items on a five-point Likert scale that range from "strongly agree" to "strongly disagree." The instrument breaks down each of the five factors into six facets and the results of the test reports scores for each of the five factors and the six facets. The primary use of the instrument is to assess normal personality (Costa & McCrae, 1995; Morris & Maisto, 2002).
Millon (1981) created the Millon Clinical Multiaxial Inventory to measure the personality traits he proposed. He conceptualized personality types along three dimensions: self-other, passive-active, and pleasure-pain (Strack, 1994). The self-other dimension assessed whether one seeks gratification from within oneself or depended on external resources to bring gratification. The passive-active dimension indicated whether the individual had a tendency to be active in shaping life events or whether he or she simply reacted to events. The pleasure-pain dimension detected one's orientation toward events that were positively reinforcing or orientation toward negatively reinforcing events (Gunshalus & Kelly, 2001).

The most current version of the instrument, the MCM-I-III, consists of 175 items. There are 24 clinical scales that include seven clinical syndrome scales and three severe syndrome scales. The clinical syndrome scales measure disorders considered to be of moderate severity, such as anxiety or alcohol abuse, and the severe syndrome scales measure disorders thought to be of severe dysfunction such as major depression or thought disturbances (Millon, 1994). Millon (1992) suggested that the MCMI scales were different from most other diagnostic instruments in that each of the clinical scales were created specifically to operationally measure a syndrome derived from a theory of personality and psychopathology.

The Myers-Briggs Type Indicator (MBTI) assesses personality based on the Jungian theory of personality types (Jung, 1926). The theory underlying the instrument asserted that individuals were born with a predisposition to prefer certain activities that lead to characteristic personality traits, behaviors, and skills. These can be classified into 16 different types. Respondents are classified according to four independent dimensions:
extraversion/introversion, sensation/intuition, thinking/feeling, and judgment/perception (Roediger, Capaldi, Paris, Polivy, & Herman, 1996).

Myers (1962) originally developed the test and the most current version consists of 166 questions with a forced-choice response set. The instrument is widely used in business and college settings to assist in matching individuals to particular tasks or to other individuals. It has also been used extensively as a framework for leadership and interpersonal relations training and in personnel assessment (Roediger, Capaldi, Paris, Polivy, & Herman, 1996).

*Assessing Alcohol Disorders with Personality Instruments*

Some authors have attempted to implement previously published personality assessment instruments to screen for alcohol use disorders. Gossop and Eysenck developed the Addiction Scale as a subscale of the Eysenck Personality Questionnaire. This subscale was reported to be able to differentiate between substance dependence in individuals in treatment and those with no substance abuse problems (Patton, Barnes, & Murray, 1994).

In the 1950s, three separate indirect scales to measure alcohol problems were developed from existing items of the MMPI. Hampton (1953) developed the Alcoholism Scale (Al) from the following criterion groups: membership in AA, imprisonment, hospitalization, or a diagnosis of “alcoholic.” Button (1956) introduced the Am Alcoholism Scale that had been created earlier by Holmes. Finally, Hoyt and Seldacek (1958) developed the Ah Alcoholism Scale from the MMPI. All three scales were developed by contrasting “alcoholics” from individuals in the general population and were allegedly able to differentiate between these populations. Some authors
(MacAndrew & Geertsma, 1964) have questioned the ability of the instruments to detect alcohol disorders in the general population. It has been suggested that these scales are not measuring alcoholism, but rather a general adjustment factor.

Probably the best-known measure of alcohol use disorders derived from the MMPI was the MacAndrew’s Alcoholism Scale (MAC; MacAndrew, 1965). He devised the scale based on the manner in which alcohol dependent individuals tended to describe themselves on the MMPI. Throughout the years since its development, results of the test’s reliability and validity have been mixed (Miller, 1976). The MAC scale of the MMPI was developed as a method of detecting “alcoholism.” Based on scores on this scale, 75% to 85% of alcohol dependent individuals had been accurately diagnosed. Persons who score high on this scale tend to be socially outgoing, bold, uninhibited, and self-confident, but generally tend to act out. MacAndrew referred to these individuals as “primary alcoholics.” The 15% that were not accurately identified as alcohol dependent individuals were referred to as “secondary alcoholics,” which is synonymous with previous classifications of the “reactive” alcoholic. These individuals drink primarily to alleviate depression and anxiety (MacAndrew, 1986).

Personality tests have also been implemented to determine unique personality characteristics of individuals who experience alcohol-related problems or disorders. Miller (1976) reviewed the studies that have utilized the MMPI to ascertain these personality characteristics that are unique to individuals who abuse or are dependent on alcohol. He concluded that a profile with an elevated psychopathic deviance scale “is almost universally agreed to be characteristic of the alcoholic” (p. 656). Other researchers (Dahlstrom, Welsh, & Dahlstrom, 1972; Goss & Morosko, 1969; Hewitt, 1943; Hill,
(Dahlstrom, Welsh, & Dahlstrom, 1972; Goss & Morosko, 1969; Hewitt, 1943; Hill, 1962; Rohan, 1972) have also identified elevations on the depression, hysteria, paranoia, psychasthenia, schizophrenia, and mania clinical scales to be elevated in these individuals as well. Numerous other profiles have been provided by other researchers and are too numerous to mention within the scope of this paper.

Based on the results of the amount of literature in this area, Miller (1976) concluded that the research was inconclusive because the data did not indicate a single code type for this population, and declared “it seems clear that there is no single characteristic MMPI profile for the alcoholic” (p. 657). Blashfield (1985) disagreed with this conclusion. After conducting a meta-analysis review of the literature, he found two subtypes that frequently emerged from MMPI profiles of alcohol dependent individuals. These were a psychopathy profile and a profile indicating elevations on the depression, psychasthenia, and schizophrenia scales, respectively.

Other researchers have also questioned the utility of implementing the MMPI-2 in identifying substance abuse. Svanum, McGrew, and Ehrmann (1994) assessed the validity of three proposed scales imbedded in the MMPI-2 for detecting alcohol abuse: the MacAndrew Alcoholism Scale (MAC) and two scales developed in 1992 by Weed, Butcher, McKenna, and Ben-Porath from the MMPI, the Addiction Acknowledgement Scale (AA) and the Addiction Potential Scale (APS). The MMPI-2 and modules of the Diagnostic Interview Schedule were administered to 308 female college students. Concerning the MAC and the APS, results indicated a weak relationship with substance dependence, according to DSM-III-R criteria. Furthermore, the AAS had a “moderate” ability to detect substance dependence.
The Tridimensional Personality Questionnaire (Cloninger, 1987a) has been frequently implemented to assess personality characteristics in individuals with alcohol use disorders. Cloninger proposed that the TPQ could distinguish between his proposed typologies of alcohol. He discovered that his Type I alcoholism was characterized by low novelty-seeking, high harm avoidance, and high reward dependence. High novelty-seeking, low harm avoidance, and low reward dependence distinguished his Type 2 form of alcoholism (Cloninger, 1987a).

Johnson, Waid, and Anton (1997) examined the relationship between temperament, alcohol dependence, and childhood hyperactivity by implementing the TPQ. These investigators discovered that alcohol dependent participants with a childhood history of hyperactivity tended to score significantly higher on the temperament dimension of novelty-seeking. Alcohol dependent female participants scored significantly higher than males on the temperament dimension of reward dependence.

Cloninger, Sigvardsson, and Bohman (1988) conducted a longitudinal study of 431 children born in Stockholm, Sweden. The children were assessed at age 11 and again at age 27. The researchers concluded that individuals with a childhood profile high in novelty-seeking and low in harm avoidance were more likely to have abused alcohol in adulthood.

Van Ammers, Sellman, and Mulder (1997) utilized the TPQ to measure temperament in schizophrenics who abused substances. The results of the study indicated that there was a significant correlation between the temperament of novelty-seeking and past and current substance abuse. Similar results were obtained in an earlier study by Mulder, Joyce, and Cloninger (1994), who determined that novelty-seeking was the most
prominent personality dimension assessed in a group of alcohol-dependent individuals. Likewise, in a review of the recent literature, Howard, Kivlahan, and Walker (1997) examined published studies between 1986 and 1995 that had utilized the TPQ in assessing alcohol abuse. The results of the review indicated that novelty-seeking traits frequently differentiated alcohol dependent individuals from those with no symptoms of an alcohol use disorder.

Sher, Bartholow, and Wood (2000) examined the predictive utility of the TPQ and the EPQ for detecting substance use disorders. The investigators discovered that those dimensions from both the EPQ and TPQ that measure "impulsive sensation-seeking or behavioral disinhibition traits" (p. 818) were the best predictors of subsequent substance use problems.

The TCI has been used extensively to examine personality characteristics of individuals who are alcohol dependent. Cloninger, Sigvardsson, Przybeck, and Svrakic (1995) examined the postulated heritable personality traits that initiate, maintain, and predict the severity of alcoholism in a population of 1,019 adults. The researchers ascertained that the personality dimension of novelty-seeking appeared to be related to the increase in the probability of the initiation of drinking and frequent problem drinking. The personality dimension of harm avoidance was associated with a disinhibition in the initiation of drinking, yet once drinking had began, the individual was at increased risk for alcohol-related problems.

In a recent study, Basiaux et al. (2001) compared alcohol dependent individuals to those of the general population in terms of personality characteristics utilizing the TCI. The researchers discovered that alcohol dependent participants scored higher on the
personality dimension of novelty-seeking and lower on the personality dimension of self-directedness. Townshend, and Duka (2001), comparing attentional biases of heavy and occasional social drinkers, found the former to score lower on personality traits of self-directedness and persistence and higher on the expectancy factors of sociability and sexuality. Numerous studies, in fact, have consistently shown that the personality dimension of novelty-seeking "predicts" alcohol use problems (Battaglia, Przybeck, Bellodi, & Cloninger, 1996; Cloninger, Sigvardsson, Przybeck, & Svrakic, 1995; Galen, Henderson, & Whitman, 1997; Heath et al., 1997; Howard, Kivlahan, & Walker, 1997; Sher, Wood, Crews, & Vandiver, 1995; Wills, Vaccaro, & McNamara, 1994).

Although not implementing the TCI, Kushner, Abrams, Thuras, Thuras, and Hanson (2000) also discovered that high scores on harm avoidance were associated with alcohol use disorders. The researchers attempted to identify individuals likely to self-medicate anxious symptoms with alcohol and concluded that individuals scoring high on the personality temperament of harm avoidance were more likely to use alcohol in order to cope with anxious symptoms.

One study (Gerdner, Nolander, & Pedersen, 2002) recently assessed the personality characteristics associated with females who abuse substances. Implementing the TCI and interviewing participants with the Structured Clinical Interview of the DSM-III-R, the researchers discovered that "less mature" females scored higher on the personality dimensions of novelty-seeking and harm avoidance.

Few recent studies implementing the Eysenck Personality Questionnaire (EPQ; Eysenck & Eysenck, 1993) have addressed personality characteristics associated specifically with alcohol use disorders, though there is an imbedded Addiction Scale
within the instrument. More recent studies indicated that the reliability of the scale was .64, not considered favorable (Patton, Barnes, & Murray, 1994). Most of these studies have examined the personality characteristics of individuals who abuse substances in general.

Conrod, Petersen, and Pihl (1997) conducted one of the few studies that assessed the population of interest. These investigators concluded that the personality dimension of psychoticism, which measures antisocial behaviors, was most frequently associated with individuals with an alcohol use disorder. A few researchers have proposed that components of Eysenck's model of personality are associated with substance abuse. Elevations on the personality dimensions of neuroticism and psychoticism have been consistently linked with alcohol abuse (e.g., Eysenck & Eysenck, 1977; Heath et al., 1997; Kilbey, Downey, & Breslau, 1998).

The adolescent version of the EPQ, the Junior Eysenck Personality Questionnaire (Eysenck & Eysenck, 1975), has also been utilized to assess personality characteristics of youths with alcohol-related problems. Hill, Shen, Lowers, and Locke (2000) conducted a study with 125 children and adolescents over a span of seven consecutive years. They determined that children who scored higher on the extraversion scale of the Junior Eysenck Personality Inventory were more likely to begin drinking at an earlier age. Sigurdsson and Gudjonsson (1996) discovered that adolescents who frequently used alcohol scored high on the Lie scale of the Junior Eysenck Personality Inventory.

Additionally, other personality characteristics have been determined to be strongly associated with the alcohol use-disordered individual. Sher, Bartholow, and Wood (2000) reviewed the literature and discovered that personality traits related to
impulsivity-behavioral disinhibition and behavioral undercontrol were most commonly found to be associated with substance abuse problems. These researchers additionally determined that traits associated with negative emotionality were correlated with substance use disorder diagnoses.

The personality dimension of neuroticism is often cited in the literature as being strongly associated with the alcohol use disorders. Prescott, Neale, Corey, and Kendler (1997) attempted to identify personality characteristics related to alcohol abuse and dependence in females. These investigators conducted clinical interviews and administered a questionnaire to 2,163 Caucasian females between the ages of 17 and 55. They discovered that higher scores on the personality dimensions of neuroticism, interpersonal dependency, and extraversion, as well as individuals with a history of social phobia and depressive disorders were good predictors of alcohol abuse. High scores on neuroticism and mastery and low scores on measures of optimism were predictors of alcohol dependence. Similarly, Cooper, Agocha, and Sheldon (2000) determined that the broad traits of neuroticism and extraversion were associated with alcohol use. It was demonstrated that individuals possessing high levels of these personality traits were more likely to abuse alcohol, but the reasons for doing so were different. Individuals high in neuroticism used alcohol in order to cope with aversive mood states, while extraverts used alcohol as a way of enhancing positive affective experiences. In another similar study, Kubicka, Matejcek, Dytrych, and Roth (2001) assessed children for drinking and smoking behaviors and discovered that 24 years later, participants’ adult drinking behaviors were predicted by low conscientiousness and high extraversion. To be more
specific, low conscientiousness predicted binge drinking and high extraversion successfully predicted average daily alcohol use.

The personality trait of disinhibition has been frequently cited in the literature as having a strong correlation with alcohol use disorders. McGue, Iacono, Legrand, Malone, and Elkins (2001) attempted to identify personality traits associated with an early age of first time drinking. These investigators determined that disinhibition and lack of constraint were associated with early-age onset drinking. Mazas, Finn, and Steinmetz (2000) also surmised that individuals with disinhibited traits were more likely to binge drink at an earlier age. They supported prior research concluding that antisocial traits are associated with early-onset alcoholism. Blanchard et al. (1999), examining patients with schizophrenia and schizoaffective disorder, asserted that the personality traits of negative affect and disinhibition would be more dominant in these patients who abused alcohol. This hypothesis was supported by the data.

Several studies were found in the literature that implemented the Sensation Seeking Scale (Zuckerman, Eysenck, & Eysenck, 1978) to assess personality dimensions associated with alcohol use disorders. The personality dimensions of temperament and character were assessed by Liraud and Verdoux (2000), who utilized the Sensation Seeking Scale, the Barratt Impulsivity Scale, and the Physical Anhedonia Scale. These authors investigated individuals with non-affective psychotic disorders and mood disorders and ascertained that individuals with a lifetime history of alcohol abuse scored higher on the Sensation Seeking Scale dimension of “experience seeking,” disinhibition, and impulsivity. Similarly, Beck, Thombs, Mahoney, and Fingar (1995) assessed the social context of drinking and sensation seeking in college students. The investigators
discovered that high intensity drinkers tended to score higher on the subscale of
attempted to create a temperament/personality typology for alcohol dependent
individuals. They identified two distinct typologies: Cluster 1 and Cluster 2. The
distinguishing features of the former were low levels of sensation seeking and self-esteem
and high levels of pessimism and harm avoidance, as well as features of a “difficult”
temperament. This group achieved higher scores on the MAST and consumed more
alcohol. The obverse of these characteristics characterized the latter typology.

Varma, Basu, Malhotra, Sharma, and Mattoo (1994) examined personality
characteristics associated with early- and late-onset alcohol dependence. The Sensation
Seeking Scale, Multiphasic Personality Questionnaire, and the Checklist of Behavioral
Tendencies when drinking were administered to 51 males in an inpatient treatment
facility. The personality characteristics strongly correlated with early-age onset (less than
25 years of age) were higher levels of sensation seeking, higher scores on MPQ subscale
of psychopathic deviate, and higher levels of disinhibition. Those personality
characteristics most often associated with late-age onset of alcohol dependence were
anxiety, guilt, and fewer alcohol-related problems.

Other authors have also confirmed that the personality dimension of sensation
seeking to be associated with alcohol dependence. For example, Conrod, Pihl, Stewart,
and Dongier (2000) proposed four personal motivation factors associated with substance
abuse in women. These risk factors are anxiety-sensitivity, introversion-hopelessness,
sensation-seeking, and impulsivity. Examining these four factors, it was discovered that
alcohol dependence was associated with sensation seeking and impulsivity. Similarly,
Justus, Finn, and Steinmetz (2000) examined 410 college students to determine an association between personality traits, alcohol use, and risky sexual behaviors. While assessing these factors, the researchers also discovered a significant correlation between excitement seeking and social deviance proneness and alcohol abuse.

Conrod, Pihl, Stewart, and Dongier (2000) assessed personality traits associated with a risk for substance. These researchers discovered that sensation seeking and impulsivity were strongly correlated with alcohol dependence. The notion that the personality characteristic of impulsivity is associated with alcohol disorders has been substantially supported by research (e.g., Haw, Houston, Townsend, & Hawton, 2001).

A few studies were located in the literature that addressed the application of the NEO-PI in identifying personality characteristics of individuals who abuse or are dependent on alcohol. Martin and Sher (1994) determined that the broadband personality trait of agreeableness was negatively associated with alcohol use disorders and that the personality trait of neuroticism was significantly associated with such disorders.

McCormick, Dowd, Quirk, and Zegarra (1998) utilized the NEO-PI in a clinical sample to determine coping styles associated with different patterns of substance use. The researchers determined that individuals who abuse substances scored higher on the scale of neuroticism and lower on the scales of agreeableness and conscientiousness, than did individuals from a non-clinical normative population.

There are numerous studies in the literature that has assessed personality characteristics of alcohol use-disordered individuals utilizing the Millon scales. Peniston and Kulkosky (1990) attempted to determine personality differences in chronic alcohol-dependent individuals and non-alcohol-dependent individuals prior to either a traditional
medical treatment or alpha-theta brainwave treatments. Prior to the treatment being initiated, both groups were administered the Millon Clinical Multiaxial Inventory (MCMI) and the 16 Personality Factor (16 PF). Participants classified as chronic alcohol-dependent individuals scored significantly higher on the MCMI factors of schizoid, avoidant, passive-aggression, drug and alcohol abuse, anxiety, dysthymia, psychotic thinking, psychotic depression, and psychotic delusions. On the 16 PF, the chronic alcoholics tended to be more affected by feelings, tense, shy, submissive, and apprehensive.

Matano, Locke, and Schwartz (1994) implemented the MCMI to differentiate between subtypes of individuals who abuse alcohol. The researchers identified three subtypes, each presenting with a distinct personality profile. One type, more prevalent in inpatient settings, was discriminated by exhibiting high scores on negativity and avoidant/schizoid scales. The second type, more commonly seen in outpatient individuals, consisted of individuals who scored higher on the scales of compulsive or histrionic/narcissistic. The third type, comprised primarily of males from all treatment modalities, scored highest on the scales of narcissism and antisocial, as well as being candid concerning substance use and being controlling and distant in interpersonal relationships.

While assessing the relationship between personalities and drinking styles utilizing the MCMI, Corbisiero and Reznikoff (1991) discovered personality characteristics often associated with individuals who abuse alcohol. The researchers identified three clusters of drinkers. The group with the lowest level of alcohol consumption showed no elevations of any significance on the clinical scales of the
instrument. The group with the next to the highest level of alcohol consumption showed elevations on the following scales: antisocial, narcissistic, paranoid, drug abuse, and alcohol abuse. The group with the highest level of alcohol consumption exhibited elevations on the following scales: avoidant, schizoid, dependence, passive-aggressive, anxiety, dysthymia, and alcohol abuse.

*The Alcoholic Personality*

There appears to be a strong correlation between personality disorders and substance abuse and dependence, which has led some researchers to propose an "alcoholic personality." Menninger (1938) proposed one of the earliest theories of the alcoholic personality. He noted that the primary "dynamic mechanism" in the alcohol-dependent individual is self-destructiveness that stemmed from the individual perceiving that he or she was betrayed in childhood by the primary caregiver. These feelings of betrayal led to oral frustrations that could not be acted upon during childhood, thus they were directed inward. As an adult, the individual consumed alcohol, which served a self-destructive function, as well as a manner of oral gratification. Similarly, Fenichel (1945) presented another theory on the alcoholic personality. He hypothesized that the alcohol-dependent individual exhibited an "oral and narcissistic premorbid personality" (p. 379) as a result of oral frustrations in childhood. He described these individuals as depressed, passive, and dependent, who fulfill oral cravings by consuming alcohol. He further proposed that in males, the oral frustrations led to "homoerotic tendencies" (p. 379).

Another early attempt to define the alcoholic personality was based on the psychoanalytic view. It was believed that the alcohol abuser or alcohol dependent individual suffered from a dependent personality disorder, due to his or her extreme
dependency on the primary caregiver in childhood (Vaillant, 1983). At the core of the early psychoanalytic theories was the concept of orality: the belief that the alcohol dependent individual was preoccupied with oral consumption (Ward, 1990).

Another psychoanalytic view was presented by Adler, who posited that alcohol abuse and dependence stemmed from "feelings of dependency" (p. 8). He believed that the "roots" of these disorders were formed prior to the age of five. He posited that first-born children were more likely to become alcohol dependent or suicidal because they are uprooted from the privileged position once new siblings arrived. He further suggested that alcohol alleviated the feelings of inferiority associated with the perceived feelings of no longer being the only child. This view has not been supported by subsequent research (Kinney & Leaton, 1991).

Several years later, McCord and McCord (1960) presented their dependency theory of the alcoholic personality. This theory applied only to males and maintained that the alcohol dependent individual experienced dependency needs in childhood that were not met, and as an adult, was expected to be independent in the American society. Because of this conflict, the male was forced to suppress his dependent needs and overtly behave in an independent fashion. Furthermore, excessive drinking removed this conflict temporarily.

In the 1970s, McClelland, Davis, Kalin, and Wanner (1972), after ten years of studying motivations associated with drinking behaviors, concluded, "men drink primarily to feel stronger" (p. 334). These researchers hypothesized that drinking excessively was indicative of a "personalized power drive" (p. 333). Men drank in order to gratify this drive for power. A decade later, Skinner (1982) devised an alcoholic
personality typology. He distinguishes between a "sociopathic" and a "distressed and neurotic" alcoholic personality. The sociopathic alcohol dependent individual was impulsive and acted out because he or she had little regard for the standards of society, while the distressed and neurotic alcoholic drank excessively because of significant emotional distress.

Nace, Saxon, and Shore (1983) delineated regressive behaviors often seen in the alcohol dependent person. These included the following: impulsivity, self-centeredness, passivity, and affective intolerance. Impulsivity does not allow the individual to delay gratification. He or she may have decreased frustration tolerance, may overreact to situations, and behave inconsistently in similar situations. The individual was self-centered, as well as stubborn, defiant, lacking in empathy, and grandiose. He or she either over-valued or under-valued self; viewed things in either/or terms, rather than shades of gray; could not compromise; sought perfectionism; or viewed self as unique. Withdrawal, isolation, feelings of hopelessness, and mental vegetation characterized the passivity seen in these individuals. Affective intolerance was evidenced by difficulty in recognizing feelings, fear of feelings, and a decreased ability to endure or regulate painful emotional states. Kaufman (1994) also enumerated characteristics inherent in substance abusers. He asserted that unstable and intense interpersonal relationships, inappropriate, intense, and out of control anger, affective instability, and physically self-damaging acts were defining characteristics of the alcoholic personality.

Jennings (1991) reported that individuals who abused substances had difficulties coping with painful affective situations, indicating that personality may be another factor that predisposes an individual to abuse substances. It is clear from the research that
personality traits and personality disorders play a major role in substance abuse. The extent and depth of the role personality plays in substance abuse is confounded by the old “chicken or egg” question. Did the personality disorder cause substance abuse or did substance abuse lead to behaviors that resemble criteria for a diagnosis of a personality disorder (Fields, 1998)?

After a review of the literature, Mulder (2002) discovered that most cross-sectional studies have found two broadbands of personality that were often associated with alcoholism: impulsivity/novelty-seeking and neuroticism/negative emotionality. He determined that individuals more at risk for developing alcoholism were those who scored high on all four of these personality dimensions.

Today, few researchers adhere to the concept of the dependent or oral personality and many have begun to question whether personality is an important factor in alcohol abuse and dependence (Peele, 1990). In the field of alcohol research, the idea of a broad personality theory to define the alcoholic has been rejected. This rejection is primarily because the literature does not consistently support these theories and there are often contradictions concerning these findings (Miller, 1976). Yet the biggest argument against the concept of the alcoholic personality is the belief that the personality traits observed in the alcoholic is the result of his or her years of drinking and not original traits that predisposed him or her to drink excessively (Peele, 1990). Hoffman, Loper, and Kammeier (1974) and Loper, Kammeier, and Hoffman (1973) implemented another method of determining whether personality traits actually precede alcoholism. These researchers have repeatedly demonstrated that elevated MAC scores indicated higher levels of sociopathy, defiance to authority, and impulsiveness that were exhibited by the
individual both before and after receiving a diagnosis of an alcohol-related disorder. This was demonstrated by comparing MMPI scores from those administered during the participant’s college years to those given following the diagnosis of substance abuse. Hoffman, Loper, and Kammeier (1974) also attempted to identify the alcoholic personality utilizing the MMPI. These authors discovered a tendency of alcohol dependent individuals to be impulsive, yet there was no indication of a uniform personality profile or severe psychopathology.

Few theories have been presented that describe the evolution of the alcoholic personality. Johnson (1980) advocated such a model. He proposed that the changes in personality occur gradually, making these changes less discernible to the alcohol-dependent individual or his family. Johnson developed a four-step process that accurately captured the personality changes occurring in the alcohol-dependent individual. The first step in the progression was quite simple. The individual destined for later alcohol use problems was not different from anyone else in the early stages of the disorder. For anyone who uses alcohol, the first important experience is to “learn the mood swing.” This learning process is physiological in nature. Alcohol produces acute effects. It elevates one’s mood. Yet when the effects of the alcohol erode, the individual returns to his or her premorbid mood. Individuals who drink quickly learn the pharmacological effects of alcohol and, more importantly, the individual learns that it happens consistently. Alcohol can be depended upon (Johnson, 1980).

The second stage in the development of the alcoholic personality is “seeking the mood swing.” This stage occurs after the individual learns that alcohol can be counted on to enhance or improve the mood. The individual’s drinking has a specific purpose
because the individual learns that by altering the dose of alcohol, he or she can control the mood swing. At this point in development, alcohol use is still considered to be pleasant. Eventually, however, the individual will experience a negative drinking episode such as a hangover, physiological discomfort, or some maladaptive behavior the individual engaged in while intoxicated. At this point, the individual will generally conclude that he or she will never drink that excessively again and will follow through with the promise (Johnson, 1980).

A small percentage of drinkers will, nonetheless, continue to drink excessively. These individuals are more likely to begin to experience problems with their drinking. They have moved into the third phase of development, the “harmful dependence stage.” In this stage, the individual achieves the elevated mood, yet when the effects of the alcohol wear off, the individual is in a much more dysphoric mood than before he or she began the drinking episode. The individual refuses to abandon alcohol because of its mood altering effects and is willing to suffer the psychological costs of continued drinking. At this point, the individual’s drinking patterns are dissonant with his or her fundamental values and self-image. At this point, drinking begins to significantly alter the individual’s personality. He or she will begin to implement defense mechanisms that will allow distortion of reality in order to deal with this contradiction in values and self-image and the maladaptive drinking pattern. The individual begins to justify and rationalize his or her reasons for drinking, and the individual actually believes these excuses. In this stage, interpersonal relationships begin to deteriorate, the individual’s self-esteem decreases, and negative feelings begin to amass. Drinking has now become an integral part of the individual’s life (Johnson, 1980).
As drinking progresses, the individual reaches the final phase of development of the alcoholic personality. This phase is referred to as the “drinking to feel normal” stage. The individual not only drinks to elevate his mood but primarily to “feel normal.” Blackouts and repression now interfere with the individual’s memories of events and serve to distort reality even further. According to Johnson, the individual either seeks treatment or dies as this stage progresses.

Peele (1990) offers a similar explanation of how the alcoholic personality evolves. He agreed with Johnson in that drinking was initially an enjoyable activity that seemed beneficial to the drinker. The use of alcohol empowered the individual, making him or her feel at ease in social settings and alleviated anxiety. He hypothesized that the drinker may belong to a group that encouraged excessive drinking and acting out and, if the person does not find more adaptive forms of expression, problematic drinking would develop and become pervasive in his or her life, eventually becoming the core of the person’s lifestyle. He posited that these individuals then began to think that they were unable to perform effectively without the assistance of alcohol. It is at that point that alcohol is affecting the individual’s personality. Drinking had become so enmeshed with the individual’s identity that it was difficult to differentiate between the two.

Psychological Reactance

Reactance theory posits that individuals believe they possess certain behavioral freedoms. In this case, freedom refers to the control one possesses over an activity or object. When a freedom is threatened, the individual will attempt to regain that freedom. The motivational drive to regain that freedom is referred to as psychological reactance. Furthermore, Brehm and Brehm (1981) maintained that there were two types of threats to
the individual's freedoms: internal and external. Internal threats are those imposed on freedoms by the individuals; external forces create external threats. The two primary effects of psychological reactance are (1) the individual will be more likely to exercise that threatened or eliminated freedom and (2) there is an increased attractiveness to that freedom (Brehm & Brehm, 1981).

Brehm (1966) proposed that there are several variables that determine the amount of reactance created by an individual. In order for psychological reactance to occur, the individual must place some importance on the lost freedom. The amount of importance attached to a freedom depends on, in part, whether that freedom is duplicated by other freedoms. The degree of psychological reactance created is a direct function of the importance of the lost freedom. The proportion of freedoms that are lost also affects the magnitude of psychological reactance.

This hypothesis was tested by Brehm, McQuown, and Shaban (in Brehm, 1966). The researchers instructed junior high students to rank order the attractiveness of six movies. Researchers told half of the students that they would be able to view the movie of their choice and the other half were informed that they would be assigned a movie from the list. Students were then instructed to rate and rank order all the movies again, and then students were informed that one of the movies was no longer available. Researchers went to each student and eliminated the second movie on each list. Reactance was found to be higher in students who had a choice of three movies than those with a choice of six movies, as well as being higher than those believing that they would be assigned one of three choices. Brehm also noted that the amount of reactance one experiences is related to the number of freedoms threatened. Therefore, the greater
the amount of reactance an individual possesses, the greater the likelihood that the threatened freedom will be exercised.

Brehm (1966) initially proposed that psychological reactance was situation-based and individual differences played no role in its development. However, more recent research indicates otherwise. While examining the reliability and validity of the Therapeutic Reactance Scale, Dowd, Milne, and Wise (1991) surmised that psychological reactance is an individual difference variable that is rather stable across situations and time. Other researchers have proposed that because there is a vast array of individual differences, individuals are likely to differ on their levels of psychological reactance (Buboltz, Woller, & Pepper, 1999; Dowd & Wallbrown, 1993).

Brehm (1966) further declared that the motivational state that produces the reactance might be behaviorally expressed in a number of ways. These included oppositional behaviors implemented in order to restore the freedom, indicating an increased preference for the lost or threatened freedom, responses of aggression to the entity responsible for the loss, or by engaging in a freedom similar to the one that was threatened or lost.

*Measuring Psychological Reactance*

Psychological reactance is a well-known phenomenon, and the layperson has referred to it as "reverse psychology" (Gergen, 1973), but researchers were unable to examine reactance until the early 1980s because there were no reliable and valid instruments available to measure the construct, that the motivational state produced by the loss of freedom will direct the individual to attempt to restore the lost freedom. This
motivational drive will result in behaviors referred to as "reactance effects" (Dowd, Milne, & Wise, 1991).

The first instrument designed to measure psychological reactance was developed by Merz (1983) and was called a Questionnaire to Measure Psychological Reactance (QMPR) (Hong & Ostini, 1989). Originally in German, Tucker and Byers (1987) determined reliability coefficients for the German version and discovered a .84 split-half coefficient, a .90 internal consistency reliability coefficient, and a .86 test-retest reliability coefficient.

Tucker and Byers (1987) examined the factorial validity of the English version of the QMPR, and produced two factors: Behavioral Freedom and Freedom of Choice. These two factors accounted for 21% of the common variance, which deemed the scale "not psychometrically acceptable" (Hong & Ostini, 1989, pp. 707). A few years later, assessing an Australian sample, Hong and Ostini (1989) attempted to establish factorial validity and reliability using 379 college students with a mean age of 19.8. Results of the study showed a wide range of means (1.43 to 3.11) and low standard deviations (all but one was less than 1.0), indicating that many items required refinement. After completing a confirmatory principal axis factor analysis, these researchers confirmed four factors that accounted for 44.1% of the common variance. The latter was more than twice the variance obtained by Tucker and Byers (1987), indicating that four factors are more representative of the construct. The four factors were Freedom in Decision and Behavior, Freedom of Choice, Skepticism Towards Others' Advice, and Conformity Reactance.

Hong and Ostini (1989) confirmed a split-half coefficient of .77 and a Cronbach alpha of .80 for the English version. Because Carmine and Zeller (1979) suggested that
any instrument to be used for research in the general public should have a reliability of at least .80, Hong and Ostini stated that the reliability of the QMPR is “not very satisfactory” (p.710) and determined the instrument to be psychometrically “unstable” overall. Similarly, Donnell, Thomas, and Buboltz (2001) assessed the factor structure and internal consistency of the instrument and describe it as “unsatisfactory.”

The second instrument developed to measure psychological reactance was created by Hong and Page (1989) and was called Hong’s Psychological Reactance Scale (HPRS). These authors proposed that psychological reactance was an enduring personality trait and developed the 14-item instrument to measure the trait. The instrument was first evaluated implementing a college sample to obtain normative data. Four factors were derived from the sample: Freedom of Choice, Conformity Reactance, Behavioral Freedom, and Reactance to Advice and Recommendations. The four factors combined accounted for 52.7% of the variance. The test-retest reliability coefficient was .89 and the alpha coefficient was .77.

To further examine the factor structure and reliability of the scale, 462 Australian adults (228 men and 234 women) between the ages of 19 and 40 were utilized to evaluate the scale. Following factor analysis, the same four factors emerged again. The Freedom of Choice factor accounted for 26.7% of the variance, Conformity Reactance accounted for 13% of the variance, Reactance to Advice and Recommendations accounted for 8% of the variance, and Behavioral Freedom accounted for 7.7% of the variance. The split-half reliability coefficient was .76 and the alpha coefficient was .81. The creators of the instrument described it as “factorially stable and showed satisfactory reliabilities” (pp. 514). However, Thomas, Donnell, and Buboltz (2001) have presented contradictory
findings. These researchers conducted a confirmatory factor analysis of the HPRS and noted the reliability of the total score of psychological reactance to be stable, but concluded that the scale is unidimensional and should be implemented with caution.

The most recent instrument devised to measure psychological reactance is the Therapeutic Reactance Scale (TRS; Dowd, Milne, & Wise, 1991). The instrument consists of 18 items that create a total score (TRS: T), and two subscales referred to as verbal (TRS: V) and behavioral (TRS: B) reactance. These factors were moderately correlated. According to Buboltz, Donnell, and Thomas (2002), verbal reactance tended to tap verbal manifestations of reactance; whereas, behavioral reactance tapped the behavioral manifestation of reactance. Although Dowd, Milne, and Wise (1991) identified two factors as being sufficient for measuring psychological reactance, Buboltz, Donnell, and Thomas (2002) evaluated the factor structure of the instrument and identified four factors which they labeled Resistance to Control by Authority Figures, Susceptibility to Influence, Avoidance of Conflict, and Preservation of Freedom.

There appeared to be low correlations between each of the factors, indicating that each factor was measuring a different construct. The Resistance to Control by Authority Figures factor measured the individual’s attempts to resist control by others. The individual’s willingness to be persuaded by others was assessed by the Susceptibility to Influence factor. Avoidance of Conflict assessed the individual’s ability to get along with and avoid difficulties with others. Finally, the Preservation of Freedom factor tended to assess the individual’s ability to exert his or her opinions and have things arranged according to his or her beliefs (Buboltz, Donnell, & Thomas, 2002).
Demographic Variables and Psychological Reactance

The demographic variables of age and gender have been assessed to determine their relationship to psychological reactance. Hong, Giannakopoulos, Laing, and Williams (1994) examined age and gender to determine if there was a relationship between the two demographic variables and psychological reactance. The researchers discovered no relationship between gender and psychological reactance. There was, however, a significant correlation between age and psychological reactance. The researchers discovered that as one's age increases, his or her level of psychological reactance decreases.

Hong and Giannakopoulos (1994) further concluded the same relationship between age and level of psychological reactance, and offered some explanations for this finding. They proposed that as an individual matured and established a more independent lifestyle, he or she perceived fewer situations to be threatening to his or her freedoms. Brehm and Brehm (1981) similarly purported that mature individuals are more able to deal effectively with reactance, such as being able to reestablish lost freedoms, prioritizing the significance of freedoms, and being more motivated to exert a freedom. Hong and Giannakopoulos (1994) also proposed that younger individuals possessed more psychological reactance because they had more parental and institutional restraints placed on them. These restraints may cause the younger person to feel that they have less control over their freedoms, thus causing an increase in his or her level of psychological reactance.

Hong and Giannakopoulos (1994) also concluded that as age increased, psychological reactance decreased more rapidly in females than in males. Throughout the
lifespan, men generally possessed higher levels of psychological reactance than females, except for the youngest age group (18 to 23 years of age), wherein females scored only slightly higher than males on measures of psychological reactance.

Brehm and Brehm (1981) held that there should be no differences in levels of psychological reactance and the gender of the individual. These sentiments have been supported by subsequent research (Hong, 1990; Hong & Page, 1989). However, Joubert (1990), implementing the HPRS, did find a gender difference in his study. He determined that the levels of psychological reactance were higher in the males in his sample of American college students than in female students.

*Personality Characteristics and Psychological Reactance*

Numerous studies have been conducted to determine the relationship between psychological reaction and personality characteristics. One personality variable that has been examined frequently in the literature is self-esteem. Results of studies assessing the relationship between self-esteem and psychological reactance have provided mixed results. Earlier authors (i.e., Brockner, 1983) affirmed that there was a strong correlation between the two. These studies indicated that lower levels of psychological reactance were correlated with lower levels of self-esteem, presumably because these individuals were more conforming to demands placed on them. Brehm and Brehm (1981) concurred with these researchers by stating, “If one does not see oneself as competent, reactance against a threat to that freedom will be minimal or nonexistent” (p. 20). This argument was consistent with previous theories (Whortman & Brehm, 1975) that posited that once the individual loses control of a freedom and has no hope of regaining it, the level of psychological reactance decreases and helplessness ensued.
More recent studies have not been able to identify a correlation between self-esteem and reactance. Hong and Giannakopoulos (1994) examined the relationship between psychological reactance, self-esteem, depression, focus of control, trait anger, religiosity, and age and life satisfaction. A questionnaire with an embedded HPRS was administered to 1,749 Australian adults between the ages of 17 and 40, with a mean age of 24.67. The authors hypothesized that low psychological reactance would be significantly correlated with high life satisfaction; however, the data did not support the hypothesis. Similarly, Hellman and McMillin (1997) examined the relationship between the two constructs. The researchers utilized only two factors of the HRPS (Freedom of Choice and Behavioral Freedom) to measure psychological reactance and Rosenberg's (1965) Self-Esteem Scale to measure self-esteem. The results of the study were consistent with those of Hong and Giannakopoulos (1994), concluding that there was not a strong relationship between these measures of psychological reactance and self-esteem. Last of all, Joubert (1990) assessed psychological reactance using the HPRS and self-esteem and discovered that psychological reactance in females was negatively correlated with self-esteem, but not for males.

The relationship between personality styles and psychological reactance has been assessed, as well. Huck (1998) investigated the relationship between personality styles, as measured by MCMI-III, and psychological reactance. He identified a negative correlation between psychological reactance and dependent, avoidant, and histrionic personality styles, and a positive correlation between psychological reactance and paranoid, borderline, and sadistic personality styles. In a similar study, Mallon (1992) identified psychological reactance as positively correlated with many antisocial behaviors. Another
study assessing the relationship between psychological reactance and personality variables was conducted by Buboltz, Woller, and Pepper (1999). These researchers utilized the TRS and the QMPR to assess a client's level of psychological reactance and the Self-Directed Search (SDS; Holland, 1987) to assess personality style. The results of the study indicated that there was a significant correlation between the personality types of Investigative, Social, and Enterprising and psychological reactance. The higher the score on these scales, the greater the individual's level of psychological reactance as measured by both the TRS and the QMPR.

Lastly, Siebel and Dowd (2001) assessed 90 adult psychotherapy patients who suffered from a personality disorder in order to determine if the levels of psychological reactance were different in each of the personality classifications. The personality groups were: passive-aggressive, dependent, personality disorder not otherwise specified, no personality disorder, obsessive-compulsive, and borderline. The researchers hypothesized that individuals with personality disorders that were associated with fear of separation would score low on measures of psychological reactance, and that individuals with a personality disorders associated with fear of engulfment would score higher on measures of psychological reactance. Their hypotheses were supported by the results of data.

Researchers have also examined the concept of motivation and its relationship to psychological reactance. Dowd and Wallbrown (1993) examined the pattern of motivation that accounts for the motivational drive behind psychological reactance. These researchers administered the TRS, the QMPR, and the Personality Research Form (PRF; Jackson, 1984) to 251 undergraduate students in an introductory psychology course. It was discovered that individuals who were "more psychologically reactant"
shared the following characteristics. They were all found to be aggressive, quarrelsome, hostile, irritable, less sympathetic and supportive of others, less warm, attention-seeking, low in humility and deference, less self-critical, and more approachable to novel situations. Furthermore, results of the study indicated that psychological reactance was related to defensiveness, controlling, forcefulness, domineering, self-determination, individualism, impulsiveness, and inability to accept criticism. These characteristics, according to the authors, were descriptive of the clients who possessed a high level of psychological reactance. Though in other circumstances these characteristics may be viewed positively, they are not viewed as positive in the counseling situation.

A few studies have determined life satisfaction to be associated with psychological reactance. For example, Crohan, Antonucci, Adelmann, and Coleman (1989) concluded that life satisfaction was positively correlated with perceived control. Similarly, Vermunt, Spaans, and Zorge (1989) determined that higher life satisfaction was associated with high freedom from social pressures. Joubert (1990) discovered an inverse relationship between happiness and psychological reactance, citing that the higher the level of psychological reactance, the less likely the individual was to be happy. Lastly, the construct of happiness, which has been considered an aspect of life satisfaction, has also been addressed. Diener (1984) discovered that happiness was consistently correlated with the degree of perceived freedom of choice or control. Happiness seemed to lead to satisfaction with life in general.

*Psychological Reactance and Treatment Processes*

Different aspects of the treatment process and outcome have been examined to determine the role of psychological reactance. Rohrbaugh, Tennen, Press, and White
(1981) suggested that knowing a client's level of psychological reactance was important in the counseling situation. The authors posited that therapeutic techniques should be selected for use according to the client's level of psychological reactance. The authors used the concept of psychological reactance to distinguish between compliance-based and defiance-based paradoxical interventions. Dowd et al. (1988) defined restraining strategies as defiance-based and advised that such strategies be implemented when the client has a high level of psychological reactance. Reframing strategies were considered compliance-based and were recommended for the client with low levels of psychological reactance.

In a similar fashion, Dowd and Trutt (1988) conducted a study designed to determine the effects of reactance on compliance-based and defiance-based paradoxical interventions. The researchers ascertained that participants with lower levels of reactance scored significantly higher on expectations for change and perceived control over procrastination. These participants also had less excuses for procrastination and were considerably less anxious than high reactance participants. High reactance participants were significantly less pleased with their efforts.

As the construct of reactance relates to the treatment of alcohol use disorders, psychological reactance has been theorized to be a hindrance in the treatment of alcohol problems. Some researchers (Bensley & Wu, 1991; Brehm & Brehm, 1981) have suggested that the persuasive ability of preventive efforts may be reduced because of psychological reactance. It is recommended that a more patient-centered approach be instituted, in that this approach may leave the patient with the expectancy of freedom and control, and thereby prevent the development of psychological reactance.
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105

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College Drinkers and Psychological Reactance

After a thorough investigation of the literature, only a scant few studies were identified that assessed the role of psychological reactance in college students who misuse alcohol. These studies focused primarily on the existence of psychological reactance due to an increase in the legal drinking age. For example, Allen, Spenkel, and Vitale (1996) assessed the drinking patterns of underage college students to ascertain if drinking in this population had increased following North Carolina’s passage of a law increasing the legal drinking age from 18 to 21. The researchers questioned college students 13 months after the legal drinking age was raised. They discovered that alcohol consumption was higher and that the primary reason for this increase in alcohol consumption was the presence of psychological reactance that was brought about by the student’s loss of freedom to legally consume alcoholic beverages.

Eng and Hanson (1989) also addressed the issue of psychological reactance in regards to college student’s drinking. The investigators examined 3,375 college students in the academic year of 1987 to 1988, immediately following legislative action that increased the legal drinking age to 21. They identified a significant increase in drinking in that population and the authors maintained that instructing college students that they could not consume alcohol until they reach the age of 21 only served to increase use of alcohol. This correlation was referred to as the “forbidden fruit” syndrome.

The purpose of the present study was to achieve a better understanding of the personality variables associated with alcohol misuse to be added to the literature assessing personality traits specific to individuals who misuse alcohol. An attempt was made to establish a link between the less-studied personality construct of psychological
reactance and alcohol abuse. While reviewing the literature, only a very few studies were available that assessed this relationship, and nearly all were applied to the excessive drinking habits of college students. It is believed that such information will improve the researcher and clinician’s ability to more easily detect early symptoms of alcohol use disorders and to intervene appropriately.

Hypotheses

The present study responded to the cited weaknesses of previous research in the area of personality traits that may predispose one to develop alcohol disorders. Since previous research has failed to establish a strong, consistent link between personality characteristics and alcohol use disorders, the current study viewed personality from the standpoint of the Unified Biosocial Theory of Personality posited by Cloninger (1987b). This study attempted to eliminate the problem of knowing if observed personality traits preceded the alcohol disorder by assessing personality dimensions of temperament that are considered to be heritable. The personality dimensions of temperament have been addressed in the literature, as they pertain to alcohol disorders, through the implementation of the Tridimensional Personality Questionnaire.

The current study assessed the personality dimensions of temperament in individuals who were experiencing early symptoms of alcohol abuse or dependence. Thus, it was highly likely that the personality temperaments observed in these individuals could not be considered the result of chronic alcohol use. Because the personality dimensions of temperament are neurobiologically based, thus heritable, they may be assumed to have preceded the alcohol disorder.
Another limitation of previous studies that was addressed by the current study involved the selection of participants. Rarely have researchers utilized the college population when examining personality characteristics that preceded the onset of an alcohol disorder. It was believed by the present researcher that such a population would be fertile ground for examining the personality dimensions of temperament because of the high levels of alcohol consumption in that population, especially alcohol misuse such as binge drinking. These populations are furthermore highly unlikely to have a significant number of participants who are exhibiting specific personality characteristics due to years of chronic alcohol consumption. The results of the study utilizing such a population would be less likely to experience the anachronistic difficulties apparent in other populations used in previous research studies.

The seldom-investigated personality dimension of psychological reactance, as it applies specifically to drinking habits, was assessed in the current study. Researchers have seldom assessed the college population while investigating this personality dimension. A psychometrically sound instrument that measures psychological reactance (the TRS) was administered to college students. It is highly likely that those who are experiencing alcohol-related problems and/or engaging in binge drinking are doing so because of a perceived lack of freedom in his or her consumption of alcoholic beverages.

Though few researchers are interested in pursuing establishing an alcoholic personality, there are several reasons why examining the concept of the alcoholic personality is still important. Perhaps of most importance is that by defining the alcoholic personality, researchers may be able to apply these findings to determining an etiology for alcohol use disorders. In fact such an investigation would allow both clinicians and
Researchers to observe the adverse effects of alcohol consumption on personality and allow for the detection of covert tendencies and behaviors of individuals who misuse alcohol. The identification of the alcoholic personality would allow clinicians to assign patients to optimal treatment modalities.

Introduction to Hypothesis 1

The TPQ has been frequently implemented to assess personality characteristics in individuals with alcohol use disorders. Cloninger (1987a) discovered that high novelty-seeking and low harm avoidance and reward dependence personality temperaments were characteristic of his Type II alcoholism. Johnson, Waid, and Anton (1997) and Cloninger, Sigvardsson, and Bohman (1988) conducted longitudinal studies and determined that novelty-seeking was high in childhood in those participants who later experienced alcohol use disorders. The former researchers also found a relationship between low harm avoidance and subsequent alcohol use disorders. Finally, Howard, Kivlahan, and Walker (1997) conducted a meta-analysis of published studies between 1986 and 1995 that had utilized the TPQ in assessing alcohol abuse. The results of the study indicated that novelty-seeking traits frequently differentiated alcohol dependent individuals from those with no symptoms of an alcohol use disorder.

Hypothesis 1

It was hypothesized that there would be a significant positive relationship between novelty-seeking and scores on the AUDIT and a significant negative relationship between harm avoidance and reward dependence and scores on the AUDIT.
Introduction to Hypothesis 2

Buboltz, Donnell, and Thomas (2002) evaluated the factor structure of the TRS and identified four factors, which they labeled Resistance to Control by Authority Figures, Susceptibility to Influence, Avoidance of Conflict, and Preservation of Freedom. All factors assess an individual’s resistance to being influenced by others. Hoffman, Loper, and Kammeier (1974) and Loper, Kammeier, and Hoffman (1973) have repeatedly demonstrated that elevated MAC scores on the MMPI indicated higher levels of defiance to authority figures.

Hypothesis 2

It was expected that there would be a significant positive relationship between scores on the AUDIT and scores on the TRS.

Introduction to Hypothesis 3

Cloninger (1987a) defined harm avoidance as the inhibition of behaviors in response to signals that warn of punishment, novelty, or frustration of not being rewarded. Reward dependence is associated with the individual attempting to maintain behaviors that have led to rewards in the past. Novelty-seeking is defined as the behavioral activation in response to novel stimuli, potential reward, or harm avoidance. It is theorized by the current author that individuals scoring high on harm avoidance would be less likely to have high levels of reactance, due to their tendency to avoid punishment and seek rewards. However, individuals scoring higher on the novelty-seeking personality temperament tend to be more exploratory and excitement seeking. Thus, it is anticipated that individuals scoring high on this personality temperament would be more likely to score higher on measures of psychological reactance. The only study found in
the literature that resembled the former part of this hypothesis was a study conducted by Dowd and Wallbrown (1993). These researchers assessed motivation personality characteristics that were associated with psychological reactance, measuring the latter with both the TRS and QMPR. They determined that harm avoidance, as a component of motivation, was negatively correlated with psychological reactance.

_Hypothesis 3_

It was hypothesized that there should be a significant positive relationship between the personality temperament of novelty-seeking and psychological reactance and a significant negative relationship between the personality temperament of harm avoidance and psychological reactance.

_Introduction to Hypothesis 4_

As noted above, the TPQ has often been utilized to assess personality characteristics of individuals with alcohol use disorders. Cloninger (1987a) discovered that low reward dependence and harm avoidance and high novelty-seeking were characteristic of his Type II alcoholism. Other researchers (Cloninger, Sigvardsson, & Bohman, 1988; Johnson, Waid, & Anton, 1997) conducting longitudinal studies have discovered that individuals with alcohol use disorders as adults often scored high on the personality temperament of novelty-seeking.

_Hypothesis 4_

It was hypothesized that there would be a significant positive relationship between binge drinking and the personality temperament of novelty-seeking.
Introduction to Hypothesis 5

Research in general has identified the demographic variable of sex as a risk factor that increases the likelihood that college students will abuse alcohol, with males being more likely than females to abuse alcohol. Similarly, Lo (1995) identified sex as a determining factor in binge drinking. She posited that males are more likely to binge drink than females and provided three hypotheses for this phenomenon. Males were more likely to be affiliated with individuals who binge drink and these individuals served as powerful role models. Females were more affected by their parents’ opinions and adhered to their parents’ more restrictive norms. Finally, males were more likely to cede to peer drinking norms than females.

Hypothesis 5A

It was expected that there would be a significant gender difference in regards to binge drinking, with males being more likely to binge drink than females.

Hypothesis 5B

It was hypothesized that there would be a significant gender difference in regards to scores on the AUDIT, with females scoring lower than males on that instrument.

Data Analysis

For each variable, the descriptive statistics of mean, range, and standard deviation were calculated. Data was inspected for skewedness, kurtosis, outliers, and other potential problems. For each of the instruments utilized (a drinking questionnaire with an embedded AUDIT, the TRS, and the TPQ), Cronbach alphas were calculated to ensure appropriateness for inclusion in data analyses.
Hypothesis 1 read that participants who score higher on the AUDIT would score
higher on the personality temperament of novelty-seeking and lower on the personality
temperaments of harm avoidance and reward dependence. A Multiple Regression
Analysis was utilized to test Hypothesis 1. This statistic is appropriate when the goal is to
use two or more predictors to predict the status on a criterion. The independent variable
was a participant's score on the AUDIT. The dependent variables were the personality
temperaments of harm avoidance, reward dependence, and novelty-seeking.

Hypothesis 2 stated that there would be a significant positive relationship between
scores on the AUDIT and TRS. A Pearson Product Moment Correlation Coefficient
(Pearson R) was implemented to test Hypothesis 2. This statistic assesses the relationship
between two variables. The two variables of interest were the scores on the AUDIT and
the TRS.

As an exploratory hypothesis, the current author attempted to gain a better
understanding of the relationship between psychological reactance and level of alcohol
consumption. This was achieved by utilizing a Multiple Regression Analysis to determine
which of the four individual factors contributed to overall reactance was positively
correlated with higher scores on the AUDIT.

Hypothesis 3 read that there would be a significant positive relationship between
the personality temperament of novelty-seeking and psychological reactance and a
significant negative relationship between the personality temperament of harm avoidance
and psychological reactance. A Multiple Regression Analysis was used to test Hypothesis
3. A Multiple Regression Analysis is implemented when two or more predictors are
utilized to predict status on a criterion. The independent variable was the participant's
score on the TRS and the dependent variables were the personality temperaments of novelty-seeking and harm avoidance.

Hypothesis 4 proposed that there would be a significant difference between group means in terms of binge drinking and the personality temperament of novelty-seeking. A Student’s T-Test for independent samples was implemented to test Hypothesis 4. This statistic is used to assess the differences between two population means as estimated by group means. The independent variable was binge drinking and the dependent variable was the personality temperament of novelty-seeking.

Hypothesis 5A indicated that there would be a significant gender difference in terms of binge drinking endorsement, with males being more likely to binge drink than females. This hypothesis was tested with a Multiple Sample Chi-Square. This statistic tests the null hypothesis that the distributions of frequencies in a two-factor classification are independent. The two variables being investigated were gender and the endorsement of binge drinking.

Hypothesis 5B proposed that there would be a significant gender difference in regards to scores on the AUDIT, with females scoring lower than males on that instrument. This hypothesis was tested using a Student’s T-Test for independent samples. This statistic was implemented to assess the differences between two population means as estimated by group means. The independent variable was gender and the dependent variable was the participant’s score on the AUDIT.

Summary

Past research has failed to establish a consistent link between personality characteristics and alcohol use disorders. Part of the problem was associated with the use
of screening instruments utilized to detect alcohol use disorders. The two most popular instruments that were often used to screen for these disorders have been shown to have severe psychometric difficulties, such as low sensitivity or specificity, or racial, ethnic, or gender biases. However, the instruments continue to be implemented due to the ease of administration and scoring procedures.

Another possibility for the failure to establish personality characteristics that are unique to alcohol use-disordered individuals may be that there were moderating variables not being addressed in the equation. More specifically, it was predicted that psychological reactance was such a variable that determines the individual’s misuse of alcohol. The current author theorized that participants who drink excessively would exhibit high levels of psychological reactance.

In line with Cloninger’s personality theory, it was predicted that participants who endorsed binge drinking and scored higher on the AUDIT would also score higher on the personality temperament of novelty-seeking. In addition, the current author proposed that there would be a correlation between the personality temperament of novelty-seeking and psychological reactance and scores on the AUDIT and psychological reactance. Last of all, it was hypothesized that there would be significant gender differences in terms of binge drinking and scores on the AUDIT. More specifically, females were not expected to endorse binge drinking or to score high on the AUDIT.
CHAPTER 2

Methods

Participants

To determine the relationship between personality temperaments and alcohol use and psychological reactance, 371 undergraduate volunteers from a Southern university were sampled. Participants were recruited from several classes from various disciplines (i.e., General Psychology, Abnormal Psychology, Developmental Psychology, Introduction to Speech, Marriage and the Family, Tests and Measurements, Algebra I, Crime and Society, Physiological Psychology, and Experimental Psychology).

Instruments

*Drinking Questionnaire*

The drinking questionnaire was composed of the AUDIT and a three-item survey composed by Weingardt et al. (1998) to assess binge drinking. This method was proposed as an alternative to the traditional definition of binge drinking, which some authors (i.e. DeJong, 1998) believed to be too restrictive. The items assess peak consumption (number of drinks consumed on one given occasion), typical daily consumption, and typical weekend consumption. For the purposes of the present study, binge drinking was defined using these three items. Individuals who endorse drinking five or more drinks per occasion (peak consumption), eight or more drinks over a weekend (typical weekend consumption), and drinking five or more drinks twice a week will be considered binge drinkers.
Alcohol Use Disorders Identification Test

The Alcohol Use Disorders Identification Test (AUDIT) is a screening instrument for detecting alcohol problems. The AUDIT was developed by the World Health Organization (Babor & Grant, 1989) and is a 10-item questionnaire with a recommended cut-off score of 8 (Barry & Fleming, 1993; Fleming, Barry, & MacDonald, 1991; Saunders, Aasland, Babor, De La Fuente, & Grant, 1993). The instrument assesses three principal domains: amount and frequency of alcohol consumption, alcohol abuse and dependence and alcohol-induced problems (Claussen & Aasland, 1993; Fleming, Barry, & MacDonald, 1991).

The original cut-off score for the instrument was set at 11 in order for the individual to be considered a positive case (Saunders & Aasland, 1987). However, with the introduction of new guidelines defining safe drinking, the cut-off score of 8 has been adopted (Babor, de la Fuente, Saunders, & Grant, 1989). Other authors (Sanders, Aasland, Babor, de la Fuente, & Grant, 1993) suggested that using a cut-off of 8 results in sensitivity and specificity rates of greater than 90% in detecting hazardous and harmful drinking.

The validity of the AUDIT to detect harmful use and hazardous intake of alcohol has been assessed by the implementation of a Receiver Operator Characteristics (ROC) curve analysis. ROC has been used to determine the optimal cut-off score of the AUDIT by graphing the true-positive rate (sensitivity) and the false-positive rate (specificity) of the instrument (Sackett, Haynes, & Guyatt, 1991; Hanley and McNeil, 1982). It has been determined that the AUDIT performed well in detecting these risky alcohol behaviors as
the area under the ROC was 0.91 overall, and 0.90 for harmful use and 0.92 for hazardous intake (Piccinelli and Tessari, 1997).

Volk and Steinbauer (1997) assessed alcohol dependence by applying this diagnosis to individuals who score greater than the recommended cut-off score of 8. These authors also discovered this cut-off score to be an "excellent" predictor of alcohol dependence. Babor and Grant (1989) had earlier reached the same conclusion. Implementing the cut-off score of 8, these researchers reported a sensitivity of 92% and a specificity of 93%. Likewise, Saunders, Aasland, Babor, de la Fuente, and Grant (1993) identified a specificity and sensitivity of greater than 90% in detecting hazardous and harmful drinking. However, some authors, (Schmidt & Barry, 1995), disagreed with the use of this cut-off score. These investigators tested the predictive validity of the AUDIT and determined the instrument to be useful in early detection of "problem drinking." It was determined that 5 should be the optimal cut-off score in this study that resulted in a sensitivity of 0.61 and a specificity of 0.84. Also, the internal reliability for the AUDIT was 0.77.

One group of researchers (Centre for Drug and Alcohol Studies, 1993) recommended that the choice of cut-off score be determined according to the experimental design. If the researcher wished to have high specificity, a higher cut-off score should be utilized. If the researcher was more concerned with sensitivity, a lower cut-off score should be chosen.

Saunders, Aasland, Babor, De La Fuente, and Grant (1993) recommended a cut-off score of ten. The researchers posited that this score would create a more rigorous criterion for the detection of positive cases. Implementing this score resulted in a
specificity rate of 98% and a sensitivity rate of 0.80. However, Babor and Grant (1989) reported a specificity rate of 93% and a sensitivity rate of 92% utilizing a cut-off score of 8.

Researchers examining the psychometric properties of the instrument have consistently cited adequate levels of internal reliability and high validity. Fleming, Barry, and McDonald (1991) used the SID DSM-III as a criterion and reported an internal reliability of 0.80 for the AUDIT. Fleming and Barry (1993) compared the AUDIT with the S-MAST and identified an internal validity of 0.86 for the AUDIT. Likewise, Schmidt and Barry (1995) cited an internal consistency reliability of 0.77.

The AUDIT has also been used to differentiate between three types of drinking patterns: hazardous, harmful, and dependent. Scoring four or more on the first three items on the instrument would indicate hazardous drinking, which has been operationally defined as a pattern of alcohol use that places the individual at greater risk for subsequent physical or mental deterioration, yet has not presently resulted in significant psychiatric or medical difficulties (Babor, De La Fuente, Saunders, & Grant, 1989). The concept is often measured by implementing quantity-frequency use, such as the number of grams of alcohol used per day (Babor, De La Fuente, Saunders, & Grant, 1989; Babor & Grant, 1989; Bohn, Babor, & Kranzler, 1995; Saunders, Aasland, Babor, De La Fuente, & Grant, 1993). Bohn, Babor, and Kranzler (1995) defined hazardous use as the consumption of 40 grams of alcohol per day for males and 20 grams for females or the consumption of five or more drinking on one occasion at least four times a month. Scoring four or more on items 4, 5, and 6 is indicative the emergence or existence of alcohol dependence. The participant will be experiencing early signs of alcohol
dependence or are engaging in an established pattern of drinking similar to those of an alcohol dependent individual. Lastly, scoring four or more on items 7, 8, 9, and 10 will be considered harmful drinking. Participants in this category are experiencing adverse effects from their drinking patterns (Saunders, Aasland, Babor, De La Fuente, & Grant, 1993). The current study did not utilize a cut-off score but viewed the score a participant receives on the AUDIT as a continuous variable.

*Tridimensional Personality Questionnaire*

The Tridimensional Personality Questionnaire (TPQ: Cloninger, Przybeck, & Svrakic, 1987) is a 100-item instrument based on Cloninger’s theory of personality, referred to as the Unified Biosocial Theory. The instrument was originally a paper-pencil test, but there is currently a computerized version of the instrument. The instrument measures three personality dimensions referred to as temperaments: Reward Dependence, Novelty-Seeking, and Harm Avoidance. There are four subscales designed to measure different facets of each of the major personality dimensions.

Cronbach alpha coefficients of the TPQ have shown internal consistencies across all groups. The alpha coefficients for Harm Avoidance fall in the range of 0.77 to 0.85. The alpha coefficients for Novelty-Seeking fell in the range of 0.68 to 0.75 and the domain of Reward Dependence produced alpha coefficients from 0.61 to 0.69. Also, there were no sex or racial/ethnic differences detected (Cloninger, Przybeck, & Svrakic, 1991).

A factor analysis revealed three factors: Harm Avoidance, Novelty-Seeking, and Reward Dependence. These three factors accounted for 48% to 53% of the total variance. Interfactor correlations have been shown to be low. No correlations between Harm
Avoidance, Novelty-Seeking, and Reward Dependence were ascertained to exceed an absolute value of 0.19 (Cloninger, Przybeck, & Svrakic, 1991).

Test-retest correlations tend to be moderately high after six months, with a coefficient of 0.70 for Reward Dependence, 0.76 for Novelty-Seeking, and 0.79 for Harm Avoidance (Cloninger, Przybeck, & Svrakic, 1991).

*Therapeutic Reactance Scale*

The validity and reliability of the TRS was assessed by its creators (Dowd, Milne, & Wise, 1984), who administered the instrument to 163 college students. Three weeks later, the instrument was readministered to 141 of these students. Respondents note their responses on a Likert scale from one to four, with one being that he or she strongly agrees with the statement and four indicating that he or she strongly disagrees with the item. The 28-item instrument was created from an original pool of 112 items developed for inclusion in the test. Eighty items were deleted due to correlated item-total test correlations of less than 0.30 and four other items were omitted due to low factor loadings. After factor analysis was completed, two factors emerged: behavioral reactance and verbal reactance. A correlation of 0.37 was discovered between the two factors and they accounted for 26% of the total variance (Dowd, Milne, & Wise, 1991). More recently, Buboltz, Donnell, and Thomas (2002) conducted an analysis of the factor structure of the instrument and produced four factors: Resistance to Control by Authority Figures, Susceptibility to Influence, Avoidance of Conflict, and Preservation of Freedom. These four factors were shown to have low correlations, generally ranging to 0.12 to 0.24.
Normative data were collected from 211 educational psychology students. The distribution of scores had a mean of 66.68, a median of 66.5, and a standard deviation of 6.59. A second distribution was created based on 150 introductory psychology students and the resulting distribution had a mean of 68.87, a median of 69.00, and a standard deviation of 7.19 (Dowd, Milne, & Wise, 1991).

Evidence of the instrument's divergent validity was determined by correlating the instrument with Spielberger's (Spielberger, Gorsuch, & Lushene, 1970) State-Trait Anxiety Inventory, the Counselor Rating Form-short total score (Corrigan & Schmidt, 1983), and the Beck Depression Inventory (Beck, 1967). Negligible correlations were discovered with a correlation of 0.11 between the TRS and state anxiety and 0.06 for the trait anxiety measures of the State-Trait Inventory. The correlation coefficient for the Beck Depression Inventory was 0.11 and -0.12 with the Counselor Rating Form (Dowd et al., 1988).

Evidence of the test's convergent validity was determined by comparing the TRS to the K scale of the MMPI and the Rotter Internal-External Locus of Control Scale. A correlation coefficient of 0.27 was identified between the Rotter scale of internality and the TRS total score and a coefficient of 0.35 with the Behavioral Reactance subscale. Also, there was a correlation of -0.43 between the Behavioral Reactance subscale and the K scale of the MMPI and a correlation of -0.48 between the K scale and the total score on the TRS (Morgan, 1986).

The test-retest reliability coefficients of 0.57 were determined for the verbal reactance factor, .60 for the behavioral reactance factor, and 0.59 for total reactance. The
internal consistency coefficients for the factors were 0.75, 0.81, and 0.84, respectively (Dowd, Milne, & Wise, 1991).

Procedures

During the Spring 2004 academic quarter, students were recruited by the current author when they presented for class on campus. They were asked to participate voluntarily in a study assessing the relationship between alcohol use and misuse, personality temperaments, and psychological reactance. No incentives of any type were given to students who agreed to participate in the study.

Prior to the study, participants were informed of the purpose of the study and given a consent form to read and sign (See Appendix A for Human Subjects Consent form). The consent form assured the participants of their rights to confidentially and anonymity, and of their right to refuse to participate in the study any time during the course of the study. Students consenting to participate in the study completed a protocol composed of a short demographics section (See Appendix B) and three other instruments: a drinking questionnaire (See Appendix C), the Therapeutic Reactance Scale (TRS; See Appendix D), and the Tridimensional Personality Questionnaire (TPQ; See Appendix E). The current author was present and administered all instruments to the students.
CHAPTER 3

Results

Descriptions of Sample and Variables

The following chapter presents the outcome of data analyses and hypothesis testing of the current study. Descriptive statistics of mean, median, mode, range, and standard deviation for each of the variables are presented first. This section is followed by a description of the preliminary data analyses conducted prior to hypothesis testing. These analyses included an examination of the correlation matrix of all variables to be used in hypothesis testing and examination of the obtained reliability of each scale to determine appropriateness for inclusion in analyses. The results of each of the research hypotheses are presented. At the conclusion of the chapter, a summary of the results of the research hypotheses is presented.

Descriptive Statistics of the Sample

Of the 371 participants completing the questionnaire, two did not provide an age. Participants reporting age included in the analyses ranged from 17 to 58 years old, with a mean age of 23.7 (SD = 7.8). One hundred and forty-five (39.1%) of the participants were male and 226 (60.9%) were females. Two hundred and fifty-three (68.2%) of the participants were Caucasian, 111 (29.9%) were African American, three (0.8%) were Asian, one (0.3%) was Hispanic, and three (0.8%) of the participants classified themselves as “Other” (i.e. American Indian, Israeli, and unspecified) concerning race.
Concerning marital status of the 371 participants, 49 (13.2%) were married, 293 (79.0%) were single, 22 (5.9%) were divorced, one (0.3%) was widowed, and five (1.3%) were separated from their spouses. Finally, 177 (47.7%) resided off-campus independently, 100 (27.0%) of the participants resided in the university dormitory, 65 (17.5%) resided with parents, 15 (4.0%) resided in a fraternity house, and 12 (3.2%) resided in a sorority house.

**Descriptive Data and Reliabilities**

Table 1 displays the means, standard deviations, and internal consistency reliabilities of the measures included in the hypothesis testing. The drinking questionnaire tended to have the highest reliabilities of the scales implemented in the study. The AUDIT scores resulted in moderately high reliability coefficient (α = .86). Reliability coefficients cited from other researchers (Fleming & Barry, 1993; Fleming, Barry, & MacDonald, 1991; Schmidt & Barry, 1995; Schmidt, Barry, & Fleming, 1995) ranged

**TABLE 1**

*Scale Means, Standard Deviations, and Reliabilities*

<table>
<thead>
<tr>
<th>Scale</th>
<th>$M$</th>
<th>$SD$</th>
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<td>Novelty-Seeking</td>
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from .77 to .86. These are comparable to the reliability coefficients calculated by the current researcher. The Binge Drinking score also resulted in a moderate reliability coefficient (α = .65).

Results of the scores on the TRS indicated a moderately high reliability coefficient (α = .88). Based on normative data collected by the authors of the TRS, internal reliability coefficients for the instrument ranged from .75 to .84 (Dowd, Milne, & Wise, 1991). The mean of the scores obtained in the normative data was 66.5. The mean of the scores of the current sample was 68.83.

The observed reliabilities for each of the temperaments of the TPQ were relatively high. The harm avoidance, novelty-seeking, and reward dependence scale scores obtained a reliability of α = .92, .89, and .85, respectively. These reliability coefficients were higher than those cited by the authors of the instrument. Cloninger, Przybeck, and Svarkic (1991) quoted reliability coefficients from .77 to .85 for harm avoidance, .68 to .75 for novelty-seeking, and .61 to .69 for reward dependence.

Correlation of Variables Used in Hypothesis Testing

Prior to hypothesis testing, a correlation matrix of all the variables used in the hypothesis testing was examined (see Table 2). There were numerous significant correlations between the drinking scales and the other scales. There was a significant positive correlation between total AUDIT scores and the three binge drinking items (r = .75, .70, and .76, respectively) and the personality temperament of novelty-seeking (r = .43). The third item of the binge drinking items ("Remembering back over the past month, indicate the number of drinkers you typically drink on each day of the week") assessed typical daily consumption. This item was more positively correlated with scores on the AUDIT.
Table 2

*Correlation Matrix of Variables Utilized in Hypothesis Testing*

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<td>.10</td>
<td>.07</td>
<td>.06</td>
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<td>.03</td>
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</table>

*Note.* *p < .05; **p < .01; ATOT = AUDIT Total; BK1 = Binge Drinking Item 1; BK2 = Binge Drinking Item 2; BK3 = Binge Drinking Item 3; TRST = TRS Total; HA = harm avoidance; NS = novelty-seeking; RD = reward dependence; RCE = Race.

Participants who scored higher on the AUDIT also tended to score higher on the personality temperament of novelty-seeking. There was a significant negative correlation between total scores on the AUDIT and the personality temperaments of harm avoidance ($r = -.14$) and reward dependence ($r = -.38$), as well as the age ($r = -11$) of the participant. These findings indicated that participants who scored higher on the AUDIT tended to
score lower on the personality temperaments of harm avoidance and reward dependence. Also, younger participants tended to score higher on the AUDIT.

Furthermore, there was a significant negative correlation between all three binge drinking items and the personality temperament of reward dependence \((r = -.36, -.47, \text{ and } -.39,\text{ respectively})\) and a significant positive correlation between each of the binge drinking items and the personality temperament of novelty-seeking \((r = .40, .42, \text{ and } .37,\text{ respectively})\). These findings suggested that participants who endorsed binge drinking items tended to score lower on the personality temperaments of reward dependence and higher on the personality temperament of novelty-seeking. There were also significant correlations between the personality temperaments and other variables in the study and there were significant positive correlations between the personality temperament of harm avoidance and age \((r = 15)\). This correlation indicated that participants who scored higher on harm avoidance tended to be older than the mean age of the sample.

Moreover, there was a significant negative correlation between novelty-seeking and age \((r = -.30)\) of the participant and the personality temperament of reward dependence and age \((r = -.12)\). Participants scoring higher on the personality temperament of novelty-seeking tended to be younger in age than the mean of the sample and participants who scored higher on the personality temperament of reward dependence tended to be older than the mean age of the sample. Of noteworthy interest was the fact that the TRS did not correlate significantly with any other of the variables included in the study.
Hypotheses

In the following section, the results of the six experimental hypotheses are presented. An exploratory hypothesis to gain a better understanding of the relationship between alcohol consumption and psychological reactance was examined.

Hypothesis 1

The first hypothesis tested in the current study was the relationship between alcohol consumption and personality temperaments. More specifically, it was hypothesized that there would be a significant positive relationship between the personality temperament of novelty-seeking and scores on the AUDIT and a significant negative relationship between the personality temperaments of harm avoidance and scores on the AUDIT. A Multiple Regression Analysis was used to test this hypothesis. Table 3 illustrates the unstandardized regression coefficients ($B$), standard error of the unstandardized regression coefficients, and the standardized regression coefficients ($\beta$). The results of the analysis partially supported this hypothesis.

Table 3

<table>
<thead>
<tr>
<th>Variable</th>
<th>$B$</th>
<th>$SE;B$</th>
<th>$\beta$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Harm Avoidance</td>
<td>.16</td>
<td>.04</td>
<td>.02</td>
</tr>
<tr>
<td>Novelty-Seeking</td>
<td>.25</td>
<td>.05</td>
<td>.32**</td>
</tr>
<tr>
<td>Reward Dependence</td>
<td>-.16</td>
<td>.05</td>
<td>-.19**</td>
</tr>
</tbody>
</table>

Note. $R^2 = .20$; Adjusted $R^2 = .19$; **$p < .01$. 

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For the AUDIT the $R^2$ was .20, $F(3, 366) = 31.30$, $p = .004$. Thus, 20% of the variance in the AUDIT was accounted for by the three personality temperaments. Two of the personality temperaments, novelty-seeking and reward dependence, had significant beta weights. For the personality temperament of novelty-seeking, a beta weight of .32 was obtained with an $r$ of .25, indicating that the higher the participant scored on the personality temperament of novelty-seeking, the higher the level of alcohol consumption. For the personality temperament of reward dependence, a beta weight of -.19 was obtained with an $r$ of -.16, meaning that as scores on this personality temperament decrease so does alcohol consumption. The beta weight for harm avoidance (.02) was not significant, indicating that there was no relationship between harm avoidance and alcohol consumption. Therefore, Hypothesis 1 was accepted.

**Hypothesis 2**

The second hypothesis examined the relationship between alcohol consumption and psychological reactance. It was hypothesized that there would be a significant positive relationship between scores on the AUDIT and TRS. This prediction was tested using a Pearson Product Moment Correlation Coefficient (Pearson R). The results of the analysis did not support the hypothesis. The results of the Pearson R indicate an $r$ of -.03 (NS), suggesting that there is a no relationship between alcohol consumption and the personality construct of psychological reactance. Hypothesis 2 was rejected.

**Hypothesis 3**

The third hypothesis assessed the relationship between psychological reactance and personality temperaments. Specifically, it was hypothesized that there would be a significant relationship between scores on the TRS and scores on the personality
temperaments. The hypothesis was tested using a Multiple Regression Analysis. Table 4 displays the standardized regression coefficients ($B$), standard error of the unstandardized regression coefficients ($SE$ $B$), and standardized regression coefficients ($\beta$). The results of the analysis did not support the hypothesis. For the TRS, the $R^2$ was .004 $F(2, 368) = .447, p = .720$. Thus, .4% of the variance in the TRS was accounted for by the three personality temperaments. None of the personality temperaments had significant beta weights with the TRS. The hypothesis was rejected.

Table 4

<table>
<thead>
<tr>
<th>Variable</th>
<th>$B$</th>
<th>SE $B$</th>
<th>$\beta$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reward Dependence</td>
<td>-.15</td>
<td>3.10</td>
<td>-.03</td>
</tr>
<tr>
<td>Novelty-Seeking</td>
<td>-.20</td>
<td>2.95</td>
<td>-.05</td>
</tr>
<tr>
<td>Harm Avoidance</td>
<td>-.23</td>
<td>2.06</td>
<td>-.07</td>
</tr>
</tbody>
</table>

*Note. $R^2 = .004$; Adjusted $R^2 = -.003$; * $p < .05$.

**Hypothesis 4**

Hypothesis 4 ascertained the relationship between binge drinking and the personality temperament of novelty-seeking. It was proposed that there would be a significant positive relationship between binge drinking and the personality temperament of novelty-seeking. A Student’s T-Test for Independent Samples was utilized to test this hypothesis, and this hypothesis was supported by the analysis. The results of the t-test [$t (368) = -9.12, p < .05$] suggested that there was a significant difference between group means in terms of binge drinkers and non-binge drinkers and personality temperament.
The results suggested that participants who scored high on the personality temperament of novelty-seeking were more likely to endorse binge drinking. Hypothesis 4 was accepted.

Hypothesis 5A

This hypothesis examined the relationship between binge drinking and gender. More specifically, it was hypothesized that there would be a significant positive relationship between the male gender and binge drinking. This hypothesis was tested through the use of a Multiple Chi-Square Test, with \( \chi^2 (1, N = 370) = .04, p = .04 \) (see Table 5). The results of the Fisher’s Exact T-Test indicated that there was a significant relationship.

<table>
<thead>
<tr>
<th>Summary of Chi-Square of Gender and Binge Drinking</th>
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<tr>
<td></td>
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<tr>
<td>Value</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>Pearson Chi Square</td>
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<tr>
<td>Continuity Correction</td>
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<tr>
<td>Likelihood Ratio</td>
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<tr>
<td>Fisher’s Exact Test</td>
</tr>
<tr>
<td>Linear-by-Linear Association</td>
</tr>
<tr>
<td>Number of Valid Cases</td>
</tr>
</tbody>
</table>

*Note.* Asymp. = Asymptotic distribution; * \( p < .05 \).
gender difference in terms of binge drinking. The asymptotic distribution value was < .05. It supported the hypothesis that males were more likely to binge drink than females. The hypothesis was accepted.

*Hypothesis 5B*

This hypothesis proposed that there would be a significant gender difference in regards to scores on the AUDIT. It was hypothesized that females would score lower on the AUDIT than males. A Student’s T-Test for Independent Samples was utilized to test this hypothesis. The results of the analysis supported the hypothesis, \( t(368) = 3.5, \ p > .01 \). As hypothesized, females scored significantly lower than males on the AUDIT. Hypothesis 5B was accepted.

*Exploratory Analysis*

An exploratory analysis was addressed in order to gain a better understanding of the relationship between alcohol consumption and psychological reactance. A Multiple Regression Analysis was conducted to determine which of the four individual factors that contribute to overall reactance were related to high scores on the AUDIT. Table 6 displays the unstandardized regression coefficients (\( B \)), standard error of the unstandardized regression coefficients (\( SE \ B \)), and standardized regression coefficients (\( \beta \)) for the individual factors that contribute to overall reactance.

The results indicated that two factors of the TRS predict high scores on the AUDIT. For the AUDIT, the \( R^2 \) was .30, \( F(4,359) = 38.66, \ p < .01 \). Thus, 30% of the variance in the AUDIT was accounted for by the four factors that contribute to overall reactance.
Table 6

Summary of Multiple Regression for TRS Factors and AUDIT Scores

<table>
<thead>
<tr>
<th>Variable</th>
<th>B</th>
<th>SE B</th>
<th>β</th>
</tr>
</thead>
<tbody>
<tr>
<td>Avoidance of Conflict</td>
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<td>.28</td>
<td>.23**</td>
</tr>
<tr>
<td>Preservation of Freedom</td>
<td>-.19</td>
<td>.15</td>
<td>-.07</td>
</tr>
<tr>
<td>Resistance to Control By Authority Figures</td>
<td>.53</td>
<td>.10</td>
<td>.37**</td>
</tr>
<tr>
<td>Susceptibility to Influence</td>
<td>.20</td>
<td>.13</td>
<td>.09</td>
</tr>
</tbody>
</table>

Note. ** p < .01.

Two factors of the TRS, Avoidance of Conflict and Resistance to Control by Authority Figures, had significant beta weights with the AUDIT. For Avoidance of Conflict, a beta weight of .23 was obtained with an r of .51, suggesting that the more likely an individual is to avoid conflict with others, the more likely they are to consume alcohol. For the Resistance to Control by Authority Figures factor, a beta weight of .34 was obtained with an r of .49, indicating that individuals who actively resist control by authority figures are more likely to consume alcohol.

Summary

This chapter presented results of the six hypotheses and an exploratory analysis to determine the relationship between an individual’s level of alcohol consumption and psychological reactance. The results revealed that alcohol consumption was a predictor of personality temperament. It was demonstrated that higher scores on the AUDIT predicted the personality temperament of novelty-seeking. There was also a similar relationship
between binge drinking and personality temperament. Participants who endorsed binge drinking items tended to score higher on the personality temperament of novelty-seeking.

The results also indicated that there was a significant gender difference in regards to alcohol consumption. It was determined that males tended to score higher on the AUDIT and endorsed binge drinking items more frequently than did females. Additionally, it was discovered that the personality construct of psychological reactance did not predict personality temperament. A participant’s level of psychological reactance did not predict a high score on the personality temperament of novelty-seeking, as was hypothesized. Furthermore, scores on the AUDIT did not predict a participant’s level of psychological reactance.

Last of all, as an exploratory analysis, the relationship between the personality construct of psychological reactance and alcohol consumption was more closely scrutinized. Results of the data analysis indicated that there was a significant positive relationship between these two variables. It was determined, in fact, that individuals who are more likely to avoid conflict with others and who resent being controlled by authority figures, are more likely to consume alcohol.
CHAPTER 4

Discussion

Findings of Hypotheses

The present study examined personality traits in college students that may predispose them to alcohol-related problems or the development of an alcohol use disorder. The personality traits of interest were those hypothesized to be neurobiologically based, according to Cloninger’s (1987a) typology, and the personality trait of psychological reactance (Brehm & Brehm, 1981), since research has suggested that the latter trait may induce increased alcohol consumption among college students and other underage drinkers (Allen, Spenkel, & Vitale, 1996).

The primary purpose of the study was to assess the relationship between personality traits and alcohol consumption. However, an exploratory idea was also addressed. Besides attempting to establish a superficial correlation between psychological reactance and alcohol consumption, the author attempted to determine which of the four factors that contribute to overall psychological reactance were more strongly correlated with high scores on the AUDIT.

The sample consisted of 371 male and female students from a Southern university. Each participant completed a questionnaire that included a demographics section, a drinking questionnaire, including the AUDIT and the three items assessing binge drinking, the Therapeutic Reactance Scale (TRS), and the Tridimensional Personality Questionnaire (TPQ).
Results of the study revealed several interesting findings. A significant relationship between an individual’s consumption of alcohol and his or her personality temperaments was discovered because participants who scored higher on the personality temperament of novelty-seeking tended to drink more. Males were more likely to endorse binge drinking and to abuse alcohol than were female participants.

One novel conclusion to the findings was that a relationship between personality temperaments and binge drinking exists. There were no previous studies cited in the literature that assessed this relationship. In the current sample, individuals who scored highest on the personality temperament of novelty-seeking tended to endorse binge drinking.

Another interesting finding was that there appeared to be no relationship between an individual’s use of alcohol and his or her total level of psychological reactance as once thought. Similarly, there was no relationship between psychological reactance and the individual’s dominant personality temperament.

Last, as an exploratory hypothesis, a relationship between alcohol consumption and factors that comprise overall psychological reactance was established. It was thereby determined that individuals who are more likely to avoid conflict with others and resist being controlled by authority figures are more likely to abuse alcohol. No other studies were found in the literature that addressed this relationship.

Findings of Hypothesis 1

Hypothesis 1 stated that there would be a relationship between personality temperament and scores on the AUDIT. The results of the multiple regression analysis used to test this hypothesis partially supported this hypothesis. Participants who scored higher on the personality temperament of novelty-seeking tended to score higher on the AUDIT, while
participants who scored lower on the personality temperament of reward dependence tended to score lower on the AUDIT.

These findings supported the results of previous studies. Implementing the TPQ, Cloninger (1987a) discovered that high novelty-seeking and low harm avoidance and reward dependence were characteristic of one form of alcoholism (Type II). The current author found the same relationships. Consistent with findings from the current study, Johnson, Waid, and Anton (1997) and Cloninger, Sigvardsson, and Bohman (1988), conducting longitudinal studies, determined that the personality temperament of novelty-seeking was high in childhood in those participants who later experienced alcohol use disorders.

The findings of a meta-analysis of published studies between 1986 and 1995 conducted by Howard, Kivlahan, and Walker (1997) were replicated in the current study. The former researchers, utilizing the TPQ, found that the personality temperament of novelty-seeking frequently differentiated alcohol dependent individuals from those with no symptoms of an alcohol use disorder. Finally, the findings of the current study replicated those of Mulder, Joyce, and Cloninger (1994) who found that novelty-seeking was the most prominent personality dimension assessed in a group of alcohol dependent individuals.

The implications of this finding are that clinicians may be able to identify individuals who are susceptible to alcohol use disorders and intervene early in the course of the disorder. College students who initiate therapy because of alcohol-related problems or students who present alcohol-related problems during the course of therapy could undergo personality testing in order to ascertain his or her predominant personality temperament. Identifying students who abuse alcohol and score high on the personality temperament of novelty-
seeking would allow clinicians to begin intervening by focusing on resolving the underlying causes of alcohol abuse, consequently stopping the progression of the disorder.

This finding could also assist clinicians in the prevention of alcohol use disorders. Students and organizations whose members are intuitively thought to exhibit high novelty-seeking characteristics such as risk- and sensation-seeking could be targeted for preventive measures, such as educational programs concerning the dangers of binge drinking and other forms of alcohol abuse.

Lastly, since participants in the current study were younger than those in Mulder, Joyce, and Cloninger’s (1994) sample wherein participants were older and more than likely experiencing more difficulties related to alcohol use, preventative interventions, or interventions made at the college-age level, may prove more effective than interventions made much later in the progression of the disorder.

Findings of Hypothesis 2

Hypothesis 2 read that there would be a statistically significant positive relationship between scores on the AUDIT and the TRS. The statistical analysis (Pearson R) did not support this hypothesis. The relationship between psychological reactance and alcohol consumption may not have been established because of the availability of alcohol on college campuses. With this availability, students may not view alcohol as the “forbidden fruit.” In fact, in order for reactance to be present, the individual must perceive a threat to some type of freedom. Since alcohol is readily available on college campuses, most students may not perceive the establishment of a legal drinking age to be a threat to the freedom to consume alcohol, and, the mean age of the current sample was 23.7 or above 21 years required of legal drinking.
Findings of Hypothesis 3

Hypothesis 3 indicated that there would be significant relationships between the personality temperaments and psychological reactance. This hypothesis was not supported. There was no significant relationship between psychological reactance and any of the personality temperaments of the TPQ.

This hypothesis was formed on the basis of research conducted by Cloninger (1987a) and Dowd and Wallbrown (1993). Cloninger (1987a) defined “novelty-seeking” as a behavioral activation in response to novel stimuli, potential reward, or harm avoidance. Individuals scoring higher on the personality temperament of novelty-seeking tend to be more exploratory and excitement seeking. He defined “harm avoidance” as the inhibition of behaviors in response to signals that warn of punishment, novelty, or frustration of not being rewarded. Dowd and Wallbrown (1993) discovered a negative correlation between harm avoidance, as a component of motivation, and psychological reactance. Thus, it was hypothesized by the current author that individuals scoring high on harm avoidance would be less likely to have high levels of reactance, due to their tendency to avoid punishment and seek rewards. It was further surmised that individuals scoring high on the personality temperament of novelty-seeking would be more likely to score high on measure of psychological reactance because of their tendency to seek novel situations and excitement, than to adhere to the status quo. Yet, these findings were not established in the current study.

The relationship between psychological reactance and the personality temperaments of harm avoidance, novelty-seeking, and reward dependence has not been addressed in previous research. The implications of the current study are that there is no relationship between these personality temperaments and psychological reactance. It is theorized that a
relationship between temperaments and psychological reactance was not established because there is a biological difference between the two personality constructs. According to Cloninger, temperaments are neurobiologically based, meaning that they are somewhat fixed early in life; psychological reactance, on the other hand, may be a learned personality characteristic. Psychological reactance may develop over time and was not measurable or evident in the younger population that comprised the current sample.

Findings of Hypothesis 4

Hypothesis 4 read that there would be a significant positive relationship between binge drinking and the personality temperament of novelty-seeking. This hypothesis was supported by the data. This hypothesis was modeled after previous research conducted by Cloninger (1987a), who discovered that the personality temperament of novelty-seeking was often a defining characteristic of his Type II alcoholism. Cloninger, Sigvardsson, and Bohman (1988) and Johnson, Waid, and Anton (1997) conducted longitudinal studies and found that individuals with alcohol use disorders often scored higher on the personality temperament of novelty-seeking.

The novelty of this finding was that there were no previous studies assessing the relationship between binge drinking and the personality temperament of novelty-seeking. Because the personality temperament of novelty-seeking is clearly associated with alcohol abuse and dependence, the implications of this finding are promising. The findings open up a new area of investigation in the field of alcohol research. It is possible that because binge drinking appears to be less benign than alcohol abuse or dependence, it might be that binge drinking may be found to be a precursor to these alcohol use disorders. These implications
could lead to an expansion in the understanding of the personality characteristics of individuals who abuse alcohol.

The current findings are unique in that a newer form of alcohol abuse called binge drinking was assessed and results were similar to those of previous authors assessing traditional types of alcohol abuse. The current study established a clear relationship between the personality temperament of novelty-seeking and binge drinking.

This finding could have implications for the field of alcohol research and therapeutic interventions. There is a strong established relationship between alcohol abuse and the personality temperament of novelty-seeking, but no studies to date have assessed the phenomenon of binge drinking and the personality temperaments under investigation in the current study. Most established alcohol use disorders are usually more evident later in life. It could be that binge drinking is a precursor to the development of an alcohol use disorder. If this is indeed the case, clinicians would be wise to assess the presence of the novelty-seeking characteristics in students who binge drink. Preventative measures could then be taken to prevent further alcohol use and the risk of developing alcohol use disorders, rather than attempting interventions later in the progression of the disorder, where interventions have proven to be more difficult. This finding may also assist clinicians in selecting therapeutic techniques that have proven successful in the past with clients who exhibit sensation-seeking characteristics. These interventions may prove more beneficial in effecting change in this population.

*Findings of Hypothesis 5*

Hypothesis 5A stated that there would be significant gender difference in regards to binge drinking, with males being more likely to binge drink than females. This hypothesis
was based on the tendency of research in general to identify the demographic variable of
gender to be a risk factor that increases the likelihood that male college students would abuse
alcohol. The results of the multiple chi-square supported this hypothesis. In the given sample,
males endorsed more binge drinking items than did females.

Hypothesis 5B read that there would be a significant gender difference in regards to
scores on the AUDIT, with females scoring lower than males. The results of the Student’s T-
Test for Independent Samples supported the hypothesis. Females scored significantly lower
on the total score of the AUDIT than did males. Research has identified a demographic
variable that appears to be a risk factor that increases the likelihood that college students will
factor, with males being more likely to abuse alcohol than females. This hypothesis was also
based on research conducted by Lo (1995). She specifically addressed the form of alcohol
abuse known as binge drinking and found that males were more likely to engage in this form
of alcohol abuse and listed three reasons why. She reported that males are more likely to be
affiliated with individuals who binge drink and that these individuals serve as powerful role
models. Females are more affected by their parents’ opinions and adhere to their parents’
more restrictive norms. Finally, she found that males are more likely to cede to peer drinking
patterns than are females.

These findings imply that any college-based intervention should target the male
population as the gender more at risk for the development of alcohol use disorders.
Educational programs may prove more effective by targeting male drinkers and teaching
them more responsible drinking patterns. Males should also be provided more acceptable
social outlets that do not involve the use of alcohol may also be provided. Since alcohol
abuse and binge-drinking are well-documented occurrences in many college fraternity houses, educational programs and other interventions should target students who reside in fraternity houses.

**Findings of the Exploratory Analysis**

In an attempt to better understand the relationship between alcohol consumption and psychological reactance, a multiple regression analysis was implemented to determine which of the four individual factors that contribute to overall reactance were related to scores on the AUDIT. The results of the analysis show that certain factors contributing to reactance were associated with scores on the AUDIT.

This hypothesis was based on the findings of several others' research. Buboltz, Donnell, and Thomas (2002) conducted a factor analysis of the TRS and concluded that total reactance is comprised of four factors that they believed assessed an individual’s resistance to being influenced by others. These factors were called Resistance to Control by an Authority Figure, Avoidance of Conflict, Susceptibility to Influence, and Preservation of Freedom. It was theorized that participants who scored high on the AUDIT, would score higher on these factors. It was believed that participants who scored higher on the AUDIT, would endorse items of the TRS that loaded on the Resistance to Control by Authority Figures factor, based on the findings of Hoffman, Loper, and Kammeier (1974) and Loper, Kammeier, and Hoffman (1973). These researchers repeatedly demonstrated that elevated MAC scores of the MMPI indicated higher levels of defiance to authority figures. Also, Eng and Hanson (1989) addressed the issue of psychological reactance in regards to college student’s drinking. They examined college students immediately following legislative action that raised the legal drinking age to 21. They identified a significant increase in drinking in
that population and maintained that instructing college students that they could not consume alcohol until the age of 21 only served to increase their usage of alcohol. This was referred to as the "forbidden fruit" syndrome. The "forbidden fruit" syndrome was equated with psychological reactance, and it was hypothesized that psychological reactance was a form of rebellion, similar to the defiance of authority figures, a personality characteristic measure by the MAC scale of the MMPI.

Furthermore, in that Lo (1995) found that males are more likely to cede to peer drinking patterns and social norms theory would indicate that underage drinkers consume alcohol in order to fit in with others in the social setting, it was believed that college students who abuse alcohol do so because of peer pressure. This belief would suggest that high scores on the Susceptibility to Influence factor would be positively correlated with scores on the AUDIT.

The data analysis partially supported the hypothesis. There was a positive relationship between levels of alcohol consumption and the TRS factors of Avoidance of Conflict and Resistance to Control by Authority Figures. These findings suggest that individuals who avoid conflict with others and resist control by authority figures are more likely to abuse alcohol. These findings could have implications for prevention programs and therapy. In the therapeutic setting, clients who display avoidance of conflict and resistance to authority figures could be identified and taught more adaptive coping skills and esteem-building techniques in order to eliminate these maladaptive personality characteristics. These improvements may allow the client to decrease his or her consumption of alcohol, thereby decreasing the risk of developing alcohol-related problems and/or disorders.
There are also implications for future research in the field of alcohol research. This relationship between alcohol consumption and reactance has not been assessed in previous research. Therefore, there are no standards by which to compare the current findings. The findings open up another area of investigation in the field of alcohol research. It might prove interesting to assess psychological reactance by the use of another typology (e.g., Dowd, Milne, & Wise, 1991) or by the use of another instrument created to assess the presence of psychological reactance.

General Discussion

Probably the most significant finding of the present study was the relationship between binge drinking and novelty-seeking. Throughout the literature there has been a consistent link established between alcohol abuse and novelty-seeking, with individuals who abuse alcohol being more likely to score high on this personality dimension. However, no studies to date have examined the relationship between personality temperaments and binge drinking. Also, the binge drinking questionnaire implemented in this study was not found to have been used by any other researchers in the literature, other than the one study conducted by the authors of the instrument (Weingardt et al., 1998).

There are a few studies in the literature that assessed a gender difference in regards to binge drinking. These studies have been quite consistent in their conclusions that males endorsed binge drinking more frequently than females. The current study also supported these findings. However, these findings were considered even more significant in that the population was comprised of 60.9% females, compared to 39.1% males, yet a statistical difference was determined (Wechsler, Davenport, Dowdall, & Rimm, 1995).
Another very noteworthy conclusion in the present study is that there appeared to be no relationship between total psychological reactance, as measure by the TRS, and alcohol use or any of the personality temperaments measured by the TPQ. However, there was a relationship between factors that contribute to overall reactance and alcohol use. To date, there are no studies in the literature that specifically addressed the relationship between psychological reactance and alcohol abuse or psychological reactance and the personality temperaments of harm avoidance, novelty-seeking, and reward dependence.

Although there was no relationship established between total psychological reactance and alcohol use, a multiple regression analysis, comparing items of the TRS to total scores of the AUDIT, indicated that two factors of the TRS were related to scores on the AUDIT. According to Buboltz, Donnell, and Thomas (2002), items of the TRS load on four distinct factors: Resistance to Control by Authority Figures, Susceptibility to Influence, Avoidance of Conflict, and Preservation of Freedom. The two factors of the TRS that were related to scores on the AUDIT were Avoidance of Conflict and Resistance to Control by Authority Figures. This relationship between alcohol consumption and reactance would indicate that there is a relationship between certain aspects of psychological reactance and the propensity to abuse alcohol. Individuals who characteristically avoid conflict with others and resist control by authority figures are more likely to abuse alcohol.

The current study supported the theoretical connection between the personality temperament of novelty-seeking and alcohol abuse. Similar to numerous research studies and meta-analyses, the current study further found a strong, positive relationship between alcohol abuse and the personality temperament of novelty-seeking. Collectively, the results of this
study supported the proposed relationship between specific personality temperaments and alcohol abuse.

Implications

The primary purpose of the current study was to examine the personality traits in college students that may predispose them to alcohol-related problems or the development of an alcohol use disorder, as current research concerning the identification of such personality traits had failed extensively to study this population. Although the literature is rich with studies assessing the prevalence of various personality characteristics associated with alcohol use disorders, few researchers have addressed the personality dimensions of temperament and psychological reactance as applied to the college student experiencing alcohol-related problems or symptoms of an alcohol use disorder. Previous research had focused primarily on assessing personality characteristics evident in adulthood or childhood. However, the college years are the time of greatest alcohol consumption, especially binge drinking, while alcohol use disorders have not been fully established. Thus, this time would seem to be a prime occasion to assess personality traits that precede alcohol dependence. The present study established a relationship between the personality temperament of novelty-seeking and alcohol abuse and binge drinking. The former type of alcohol misuse is well documented and supported by literature. However, the latter has yet to be investigated. The current study established a relationship between novelty-seeking and both forms of alcohol misuse.

No previous research has assessed the relationship between psychological reactance and alcohol abuse. The current study was unable to establish a relationship between these two variables. Although the current findings did not support a significant, positive relationship between total psychological reactance and alcohol abuse, a relationship was
established between the factors that comprise total psychological reactance and alcohol consumption. While examining the exploratory hypothesis embedded in the present study, in which specific factors of the TRS were compared to the total scores on the AUDIT, there was an indication of a relationship between the scores. Two factors of the TRS were positively related to high scores on the AUDIT. This finding would imply that there was a significant positive relationship between psychological reactance and the amount of alcohol the individual consumes.

The findings of the present study have implications for mental health professionals treating alcohol use disorders, as well as others in society who are associated with the alcohol-abusing individual. Binge drinking is at an almost epidemic proportion among college students, and such drinking habits lead to adverse, even deadly consequences for both the drinker and other students. Non-drinking students are just as likely to suffer from the adverse effects of alcohol misuse as those who are drinking (Wechsler, Davenport, Dowdall, Moeykens, & Castillo, 1994; Wechsler, Dowdall, Maenner, Gledhill-Hoyt, & Lee, 1998). Identifying personality temperaments that precede the development of an alcohol use disorder will allow investigators to clarify the etiology of these disorders. By adding to the established literature concerning the etiology of these disorders, preventing their development may be advanced. The current study added to the already established literature, which may lead to the elimination of the adverse effects of alcohol misuse.

Identifying antecedents of alcohol use disorders will further assist researchers in creating appropriate screening instruments for the disorders. According to Cox (1979), more appropriate screening instruments will enable clinicians to develop more effective primary prevention techniques. Furthermore, identifying individuals at risk for these disorders will
allow clinicians to intervene earlier in the course of these disorders and, perhaps, prevent the progression of these disorders. Interventions at this level may prove to be more effective than later interventions where alcohol-related problems have become more pronounced and pervasive. The findings of the current study would indicate that both the AUDIT and the three-item binge drinking questionnaire adequately assessed alcohol misuse in the college population and could be implemented as appropriate screening instruments in this population. Use of these instruments will allow clinicians to identify alcohol-related problems and/or disorders early in the course of the disorder where early prevention may prove to be more beneficial.

Finally, in that research now favors a genetic basis for alcohol abuse and dependence, the current study focused specifically on personality temperaments that are believed to be neurobiologically based. Identifying such personality temperaments would assist in substantiating the notion that the alcohol dependent individual’s personality traits may have predisposed him or her to consume alcohol excessively. The current study replicated findings from previous studies that support a significant positive relationship between the personality temperament of novelty-seeking and alcohol abuse. These findings lend credence to alcohol abuse and/or dependence having a genetic basis.

Limitations

One limitation of the study was that self-report measures were implemented. Historically, researchers have relied on these instruments to collect data, however, there are numerous inherent difficulties associated with their use. When asked to report on controversial issues, such as alcohol abuse, some participants may want to create an unusually favorable presentation. The knowledge that one is being observed by others may
also distort his or her responses to items (Hawthorne Effect). Individual differences must be taken into account since items may be interpreted differently by different individuals. These disadvantages are not easy to overcome when conducting studies similar to the current one.

Another limitation of the present study was the gender and racial composition of the sample population. Two of the research hypotheses examined gender in terms of its relationship to alcohol use. The sample was somewhat skewed in terms of gender. Two hundred and twenty-six (60.9%) of the participants were female; whereas, only 111 (39.1%) of the participants were male. Though the two hypotheses were supported by the data analyses, results may have been different or more precise had there been a more proportionate number of participants in terms of gender.

Race was also disproportionately represented in the present sample. The majority of the sample was Caucasian (68.2%) and only 29.9% were African American. Furthermore, there were only three Asians and one Hispanic participant in the sample. The variable of race correlated with only one variable included in the study. This finding, therefore, should be viewed with caution because of the lack of representation of other races, other than that of Caucasian.

Finally, though the current sample was appropriate while assessing personality characteristics associated with college students who consume alcohol, this sample may not have been appropriate for ascertaining the relationship between psychological reactance and personality temperament. Because some posit that the college years are part of the formative years in development, it might be more appropriate to assess older participants when attempting to examine personality temperaments. These individuals may be more stable in terms of the establishment of personality temperaments. Similarly, the restriction of age
range may be viewed as a limitation. The mean age of the participants was 23.7. A more
diverse age range could possibly result in different findings.

*Suggestions For Future Research*

Besides adding to the literature base on the relationship between personality
temperaments and subsequent alcohol-related problems and disorders, the findings of the
present study may have value in guiding future research in this arena. The current findings
suggest that individuals who endorse binge drinking are more likely to score higher on the
personality temperament of novelty-seeking. This relationship has not been addressed in the
past and appears to be fertile ground that needs to be explored in order to add to the
established literature addressing personality characteristics of alcohol dependent individuals
and/or predicting personality characteristics that tend to precede an alcohol use disorder.

Another suggestion for future research is to change the instruments utilized in the
current study. The current author implemented the TRS and found no hypothesized
relationship between psychological reactance and an individual’s level of alcohol
consumption or personality temperament. Use of another instrument created to assess
psychological reactance could be implemented. Future research might implement another
personality questionnaire to assess the relationship.

As previously discussed, there were no significant positive relationship between total
scores on the AUDIT and TRS based on a multiple regression analysis. In terms of Buboltz,
Donnell, and Thomas’ (2002) factor analysis, two factors (Resistance to Control by Authority
Figures and Avoidance of Conflict) of the TRS were related to higher scores on the AUDIT.
Therefore, it was recommended that these factors be more closely scrutinized in order to
determine the depths of this relationship.
Future researchers wishing to study the relationship between alcohol use and reactance may want to restrict the age limits of the participants. Clearer relationships might be established between psychological reactance and alcohol use if the range of ages for the participants was 18 to 24, with the total number of participants being equal in each group. The current sample had a mean age of 23.7 Individuals 21 years of age or older more than likely do not possess reactance associated with alcohol use because they possess the legal right to consume alcohol.

Finally, future studies in this area should strive for more racially representative samples. It would be interesting and quite useful to obtain findings relevant to alcohol abuse and personality temperaments in other races. The current study, and most of the previous studies of this type, obtained samples consisting of predominantly Caucasian participants. These findings cannot be prudently applied across other races and/or cultures. Until then, most studies similar to the present study will not be applicable in counseling situations with clients who are not Caucasian.

Summary

The primary purpose of the present study was to identify personality characteristics in a sample of college students that may predispose them to subsequent alcohol-related problems and/or the development of an alcohol use disorder. The personality characteristics under investigation were harm avoidance, reward dependence, and novelty-seeking proposed by Cloninger (1987a) and psychological reactance (Brehm & Brehm, 1981). The former was measured by utilizing the TPQ and the latter by the TRS.

The findings indicated that certain personality temperaments were significantly related to alcohol misuse among college students. The personality temperament of novelty-
seeking was clearly associated with an increase in alcohol consumption, whereas the
personality temperaments of harm avoidance and reward dependence were associated with a
decrease in alcohol consumption.

The current findings added to the established literature indicating a gender difference
in regards to alcohol consumption. Research has consistently indicated that males were more
likely to abuse alcohol, according to ratings on traditional assessment instruments (e.g.,
MAST, AUDIT) and to endorse the engagement in binge drinking more frequently than
females. In the current study, it was hypothesized that males would be more likely than
females to endorse binge drinking and would score higher on the AUDIT. Analyses indicated
that males were more likely to score high on the AUDIT and more frequently endorse the
three-binge drinking items.

Finally, there was a positive relationship between two factors of the TRS and higher
scores on the AUDIT. This relationship between alcohol consumption and reactance would
imply that individuals who avoid conflict and resist control by authority figures are more
likely to abuse alcohol. The results of this study are important because they established a link
between personality characteristics and psychological reactance.
REFERENCES


APPENDIX A

HUMAN SUBJECTS CONSENT
APPENDIX A

Human Subjects Consent Form

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

TITLE: Temperament and Alcohol Use: Relationship with Psychological Reactance

PURPOSE: To assess the relationship between personality temperament and alcohol use and psychological reactance.

PROCEDURE: Participants will voluntarily complete a survey packet.

INSTRUMENTS: Demographics Questionnaire, Alcohol Use Disorders Identification Test, Therapeutic Reactance Scale, and Tridimensional Personality Questionnaire.

RISKS/ALTERNATIVE TREATMENTS: There are no risks associated with participating in this study.

BENEFITS/COMPENSATION: None

I, ______________________, indicate with my signature on this document that I have fully read and understand the description, purposes, and methods of this study, “Temperament and Alcohol Use: Relationship with Psychological Reactance.” I understand that refusing to participate in this study will not affect my grades or standing with Louisiana Tech in any way. Furthermore, I understand that I may refuse to answer any questions and that I may withdraw from the study at any time without penalty. I understand that following the study, I may request the results of the study and they will be freely available to me. I understand that all information obtained from me is confidential and anonymous, other than to the principal investigators, a legally appointed representative, or myself. I do not waive, nor have I been requested to waive, any of my rights associated with my participation in this study.

CONTACT INFORMATION: Below are the principal experimenters that I may contact to answer any questions I may have pertaining to the research, participants’ rights, or associated matters:

Dr. Walter C. Buboltz, Jr. 257-4039
Elizabeth Bollen (870)-226-6236

If the issue cannot be addressed with the principal experimenters, the Human Subjects Committee of Louisiana Tech University may be contacted to discuss the matter:

Dr. Mary Livingston 257-4315
Dr. Terry McConathy 257-2924
APPENDIX B

DEMOGRAPHICS INFORMATION
APPENDIX B

Demographics Information Instrument

1. Age: ______

2. Sex: Male__ Female__

3. Marital Status: Married__ Single__ Divorced__
   Widowed__ Separated__

4. Living Arrangement: Dorm __ Fraternity House __ Sorority House __
   Off-campus independently __ With parents __

5. Race: Caucasian__ African American__
   Asian__ Hispanic__ Other (specify): ___
APPENDIX C

DRINKING QUESTIONNAIRE
APPENDIX C

Drinking Questionnaire Instrument

Please circle the correct response.

1. How often do you have a drink containing alcohol?
   (0) never       (1) monthly or less       (2) two to four times a month
   (3) two or three times a week       (4) four or more times a week

2. How many drinks containing alcohol do you have on a typical day when you are drinking?
   (0) 1 or 2       (1) 3 or 4       (2) 5 or 6       (3) 7 to 9       (4) 10 or more

3. How often do you have six or more drinks on one occasion?
   (0) never       (1) less than monthly       (2) monthly
   (3) weekly       (4) daily or almost daily

4. How often during the last year have you found that you were not able to stop drinking once you had started?
   (0) never       (1) less than monthly       (2) monthly
   (3) weekly       (4) daily or almost daily

5. How often during the past year have you failed to do what was normally expected from you because of drinking?
   (0) never       (1) less than monthly       (2) monthly
   (3) weekly       (4) daily or almost daily
6. How often during the last year have you needed a first drink in the morning to get yourself going after a heavy drinking session?

   (0) never      (1) less than monthly      (2) monthly
   (3) weekly     (4) daily or almost daily

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

   (0) never      (1) less than monthly      (2) monthly
   (3) weekly     (4) daily or almost daily

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

   (0) never      (1) less than monthly      (2) monthly
   (3) weekly     (4) daily or almost daily

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

   (0) No      (2) yes, but not in the past year      (4) yes, during the past year

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

    (0) No      (2) yes, but not in the past year      (4) yes, during the past year

11. Thinking back over the past month when you drank the most on one given occasion, how much did you drink?

    (1) 1-2 drinks       (2) 3-4 drinks       (3) 5-6 drinks       (4) 7-8 drinks       (5) 8 or more drinks

12. How much alcohol do you usually drink on any given weekend evening?

    (1) 1-2 drinks       (2) 3-4 drinks       (3) 5-6 drinks       (4) 7-8 drinks       (5) 8 or more drinks
13. Remembering back over the past month, indicate the number of drinks you typically drink on each of the day of the week.

Monday ____  Tuesday ____  Wednesday ____  Thursday ____
Friday ____  Saturday ____  Sunday ____
APPENDIX D

THERAPEUTIC REACTANCE SCALE
APPENDIX D

Therapeutic Reactance Scale Instrument

Please circle the correct response, as it applies to you.

1. If I receive a lukewarm dish at a restaurant, I make an attempt to let it be known.
   
   1 = strongly disagree  2 = disagree  3 = agree  4 = strongly agree

2. I resent authority figures who try to tell me what to do.
   
   1 = strongly disagree  2 = disagree  3 = agree  4 = strongly agree

3. I find that I often have to question authority.
   
   1 = strongly disagree  2 = disagree  3 = agree  4 = strongly agree

4. I enjoy seeing someone else do something that neither of us is supposed to do.
   
   1 = strongly disagree  2 = disagree  3 = agree  4 = strongly agree

5. I have a strong desire to maintain my personal freedom.
   
   1 = strongly disagree  2 = disagree  3 = agree  4 = strongly agree

6. I enjoy playing the “devil’s advocate” whenever I can.
   
   1 = strongly disagree  2 = disagree  3 = agree  4 = strongly agree

7. In discussions, I am easily persuaded by others.
   
   1 = strongly disagree  2 = disagree  3 = agree  4 = strongly agree

8. Nothing turns me on as much as a good argument!
   
   1 = strongly disagree  2 = disagree  3 = agree  4 = strongly agree

9. It would be better to have more freedom to do what I want on a job.
   
   1 = strongly disagree  2 = disagree  3 = agree  4 = strongly agree
10. If I am told what to do, I often do the opposite.
   1 = strongly disagree  2 = disagree  3 = agree  4 = strongly agree

11. I am sometimes afraid to disagree with others.
   1 = strongly disagree  2 = disagree  3 = agree  4 = strongly agree

12. It really bothers me when police officers tell people what to do.
   1 = strongly disagree  2 = disagree  3 = agree  4 = strongly agree

13. It does not upset me to change my plans because someone in the groups wants to do something else.
   1 = strongly disagree  2 = disagree  3 = agree  4 = strongly agree

14. I don’t mind other people telling me what to do.
   1 = strongly disagree  2 = disagree  3 = agree  4 = strongly agree

15. I enjoy debates with other people.
   1 = strongly disagree  2 = disagree  3 = agree  4 = strongly agree

16. If someone asks a favor of me, I will think twice about what this person is really after.
   1 = strongly disagree  2 = disagree  3 = agree  4 = strongly agree

17. I am not very tolerant of others’ attempts to persuade me.
   1 = strongly disagree  2 = disagree  3 = agree  4 = strongly agree

18. I often follow the suggestions of others.
   1 = strongly disagree  2 = disagree  3 = agree  4 = strongly agree

19. I am relatively opinionated.
   1 = strongly disagree  2 = disagree  3 = agree  4 = strongly agree
20. It is important to me to be in a powerful position relative to others.
   1 = strongly disagree  2 = disagree  3 = agree  4 = strongly agree

21. I am very open to solutions to my problems from others.
   1 = strongly disagree  2 = disagree  3 = agree  4 = strongly agree

22. I enjoy “showing up” people who think they are right
   1 = strongly disagree  2 = disagree  3 = agree  4 = strongly agree

23. I consider myself more competitive than cooperative.
   1 = strongly disagree  2 = disagree  3 = agree  4 = strongly agree

24. I don’t mind doing something for someone even when I don’t know why I’m doing it.
   1 = strongly disagree  2 = disagree  3 = agree  4 = strongly agree

25. I usually go along with others’ advice.
   1 = strongly disagree  2 = disagree  3 = agree  4 = strongly agree

26. I feel it is better to stand up for what I believe than to be silent.
   1 = strongly disagree  2 = disagree  3 = agree  4 = strongly agree

27. I am very stubborn and set in my ways.
   1 = strongly disagree  2 = disagree  3 = agree  4 = strongly agree

28. It is very important for me to get along well with the people I work with.
   1 = strongly disagree  2 = disagree  3 = agree  4 = strongly agree
APPENDIX E

TRIDIMENSIONAL PERSONALITY QUESTIONNAIRE
APPENDIX E

Tridimensional Personality Questionnaire Instrument

Please circle true or false to the following questions.

1. I usually am confident that everything will go well even in situations that worry most people. True  False

2. I often try things just for fun or thrills even if most people think it is a waste of time. True  False

3. I like to discuss my experiences and feelings openly with friends instead of keeping them to myself. True  False

4. When nothing new is happening, I usually start looking for something that is thrilling or exciting. True  False

5. Usually I am more worried than most people that something might go wrong in the future. True  False

6. I don’t mind discussing my personal problems with people whom I have known briefly or slightly. True  False

7. I would like to have warm and close friends with me most of the time. True  False

8. I nearly always stay relaxed and carefree, even when nearly everyone else is fearful. True  False

9. I usually demand very good practical reasons before I am willing to change my old ways of doing things. True  False
10. I often have to stop what I am doing because I start worrying about what might go wrong.  True  False
11. I hate to change the way I do things, even if many people tell me there is a new and better way to do it.  True  False
12. My friends find it hard to know my feelings because I seldom tell them about my private thoughts.  True  False
13. I like it when people can do whatever they want without strict rules and regulations.  True  False
14. I often stop what I am doing because I get worried, even when my friends tell me everything will go well.  True  False
15. It wouldn’t bother me to be alone all the time.  True  False
16. I like to be very organized and set up rules for people whenever I can.  True  False
17. I usually do things my own way – rather than giving in to the wishes of other people.  True  False
18. I would do almost anything legal in order to become rich and famous, even if I would lose the trust of many old friends.  True  False
19. I often feel tense and worried in unfamiliar situations, even when others feel there is little to worry about.  True  False
20. Other people often think I am too independent because I won’t do what they want.  True  False
21. Even when most people feel it is not important, I often insist on things being done in a strict and orderly way.  True  False
22. I often do things based on how I feel at the moment without thinking about how they were done in the past.  
23. I often feel tense and worried in unfamiliar situations, even when others feel there is no danger.  
24. I often break rules and regulations when I think I can get away with it.  
25. I don’t care very much whether other people like me or the way I do things.  
26. I usually stay calm and secure in situations that most people would find physically dangerous.  
27. I feel it is important to be sympathetic and understanding of other people than to be practical and tough-minded.  
28. I lose my temper more quickly than most people.  
29. I am usually confident that I can easily do things that most people would consider dangerous (such as driving an automobile fast on a wet or icy road).  
30. I often react so strongly to unexpected news that I say or do things that I regret.  
31. People find it easy to come to me for help, sympathy, and warm understanding.  
32. I am much more reserved and controlled than most people.  
33. When I have to meet a group of strangers, I am more shy than most people.
34. I am strongly moved by sentimental appeal (like when asked to help crippled children).

35. I almost never get so excited that I lose control of myself.

36. I have a reputation as someone who is very practical and does not act on emotion.

37. I often avoid meeting strangers because I lack confidence with people I do not know.

38. I usually stay away from social situations where I would have to meet strangers, even if I am assured that they will be friendly.

39. I usually push myself harder than most people do because I want to do as well as I possibly can.

40. I am slower than most people to get excited about news and activities.

41. I often push myself to the point of exhaustion or try to do more than I really can.

42. I would probably stay relaxed and outgoing when meeting a group of strangers, even if I were told they were unfriendly.

43. I recover more slowly than most people from minor illnesses or stress.

44. I think I would stay confident and relaxed when meeting strangers, even if I were told they are angry at me.

45. I could probably accomplish more than I do, but I don’t see the point in pushing myself harder than is necessary to get by.
46. I like to think about things for a long time before I make a decision.  
   True  False

47. Most of the time I would prefer to do something a little risky (like riding in an automobile over steep hills and sharp turns) — rather than having to stay quiet and inactive for a few hours.  
   True  False

48. I often follow my instincts, hunches, or intuition without thinking through all the details.  
   True  False

49. I try to do as little work as possible, even when other people expect more of me.  
   True  False

50. I often have to change my decisions because I had a wrong hunch or mistaken first impression.  
   True  False

51. Most of the time I would prefer to do something risky (like hang-gliding or parachute jumping) — rather than having to stay quiet and inactive for a few hours. 
   True  False

52. I am satisfied with my accomplishments, and have little desire to do better.  
   True  False

53. I see no point in continuing to work on something unless there is a good chance of success.  
   True  False

54. I have less energy and get tired more quickly than most people.  
   True  False

55. I usually think about all the facts in detail before I make a decision.  
   True  False

56. I nearly always think about all the facts in detail before I make a decision, even when other people demand a quick decision.  
   True  False

57. I often need naps or extra rest periods because I get tired so easily.  
   True  False
<table>
<thead>
<tr>
<th></th>
<th>Statement</th>
<th>True</th>
<th>False</th>
</tr>
</thead>
<tbody>
<tr>
<td>58.</td>
<td>I don’t go out of my way to please other people.</td>
<td></td>
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<tr>
<td>59.</td>
<td>I am more energetic and tire less quickly than most people.</td>
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<tr>
<td>60.</td>
<td>I am usually able to get other people to believe me, even when I know what I am saying is exaggerated or untrue.</td>
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<tr>
<td>62.</td>
<td>I can usually do a good job of stretching the truth to tell a funnier story or to play a joke on someone.</td>
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<tr>
<td>63.</td>
<td>I usually can stay “on the go” all day without having to push myself.</td>
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<td>64.</td>
<td>I am usually more upset than most people by the loss of a close friend.</td>
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<td>65.</td>
<td>I have trouble telling a lie, even when it is meant to spare someone else’s feelings.</td>
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<td>66.</td>
<td>I am better at saving money than most people.</td>
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<tr>
<td>67.</td>
<td>Even after there are problems in a friendship, I nearly always try to keep it going anyway.</td>
<td></td>
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<tr>
<td>68.</td>
<td>I recover more slowly than most people from minor illnesses or stress.</td>
<td></td>
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<tr>
<td>69.</td>
<td>I need much extra rest, support, or reassurance to recover from minor illnesses or stress.</td>
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<tr>
<td>70.</td>
<td>I often spend money until I run out of cash or get into debt from using too much credit.</td>
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<tr>
<td>71.</td>
<td>I have lied a lot on this questionnaire.</td>
<td></td>
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<tr>
<td>72.</td>
<td>Because I so often spend too much money on impulse, it is hard for me to save money—even for special plans like vacations.</td>
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<tr>
<td>73.</td>
<td>It is extremely difficult for me to adjust to changes in my usual way of doing things because I get so tense, tired, or worried.</td>
<td>True False</td>
<td></td>
</tr>
<tr>
<td>74.</td>
<td>If I am feeling upset, I usually feel better around friends than when left alone.</td>
<td>True False</td>
<td></td>
</tr>
<tr>
<td>75.</td>
<td>I usually feel much more confident and energetic than most people, even after minor illnesses or stress.</td>
<td>True False</td>
<td></td>
</tr>
<tr>
<td>76.</td>
<td>Some people think I am too stingy or tight with my money.</td>
<td>True False</td>
<td></td>
</tr>
<tr>
<td>77.</td>
<td>I often keep trying the same thing over and over again, even when I have not had much success in a long time.</td>
<td>True False</td>
<td></td>
</tr>
<tr>
<td>78.</td>
<td>It is hard for me to enjoy spending money on myself, even when I have saved plenty of money.</td>
<td>True False</td>
<td></td>
</tr>
<tr>
<td>79.</td>
<td>I seldom let myself get upset or frustrated when things don’t work out, I simply move on to other activities.</td>
<td>True False</td>
<td></td>
</tr>
<tr>
<td>80.</td>
<td>I recover more quickly than most people from minor illnesses or stress.</td>
<td>True False</td>
<td></td>
</tr>
<tr>
<td>81.</td>
<td>I hate to make decisions based only on my first impressions.</td>
<td>True False</td>
<td></td>
</tr>
<tr>
<td>82.</td>
<td>I think I will have very good luck in the future.</td>
<td>True False</td>
<td></td>
</tr>
<tr>
<td>83.</td>
<td>I am often moved deeply by a fine speech or poetry.</td>
<td>True False</td>
<td></td>
</tr>
<tr>
<td>84.</td>
<td>If I am embarrassed or humiliated, I get over it very quickly.</td>
<td>True False</td>
<td></td>
</tr>
<tr>
<td>85.</td>
<td>I like old “tried and true” ways of doing things much better than trying new and improved” ways.</td>
<td>True False</td>
<td></td>
</tr>
<tr>
<td>86.</td>
<td>I like to keep my problems to myself.</td>
<td>True False</td>
<td></td>
</tr>
</tbody>
</table>
87. I enjoy saving money more than spending it on entertainment or thrills. True  False
88. Even when I am with friends, I prefer not to “open up” very much. True  False
89. I feel very confident and sure of myself in almost all social situations. True  False
90. I usually like to stay cool and detached from other people. True  False
91. I never worry about terrible things that might happen in the future. True  False
92. I am more hard-working than most people. True  False
93. In conversations I am much better as a listener than as a talker. True  False
94. I like to please other people as much as I can. True  False
95. Regardless of my temporary problem that I have to overcome, I always think it will turn out well. True  False
96. I like to stay at home better than to travel or explore new places. True  False
97. I am usually so determined that I continued to work long after other people have given up. True  False
98. I usually have good luck in whatever I try to do. True  False
99. I like to pay close attention to details in everything I do. True  False
100. It is easy for me to organize my thoughts while talking to someone. True  False