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PERFECTIONISM, GENDER, AND STRESS AS PREDICTORS OF ALCOHOL CONSUMPTION, ALCOHOL RELATED PROBLEMS AND DRINKING TO COPE AMONG COLLEGE STUDENTS: A TEST OF THE DIATHESIS-STRESS MODEL OF PERFECTIONISM

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ABSTRACT

Perfectionism, Gender, and Stress as Predictors of Alcohol Consumption, Alcohol Related Problems, and Drinking to Cope Among College Students: A Test of the *Diathesis-Stress Model of Perfectionism*

By

Benjamin Neal Cohen

The purpose of this research was to investigate the utility of the *Diathesis-Stress Model of Perfectionism* to predict alcohol consumption, alcohol related problems, and drinking alcohol to cope among college students. It was hypothesized that gender and perfectionism (i.e., self-oriented, self-discrepant, socially-prescribed) would moderate the relationship between perceived stress and alcohol involvement. Results of logistic regression analyses (n = 198) found that self-oriented perfectionism, a two-way interaction (self-oriented perfection x perceived stress), and a three-way interaction (self-oriented perfectionism x perceived stress x gender) were associated with a change in the likelihood of consuming alcohol. Interpretation of the two-way interaction suggested that low self-oriented perfectionists who experienced low perceived stress were more likely to consume alcohol than low self-oriented perfectionist who experienced high or moderate perceived stress. Interpretation of the three-way interaction suggested a similar relationship among female college students. However, among male college students, low self-oriented perfectionists who experienced low perceived stress were less likely to consume alcohol than high self-oriented perfectionists who experienced low perceived stress. Results of two logistic regression models regarding alcohol related problems and drinking alcohol as a means to cope were not significant. Results suggest a possible

Stress-Buffer Model of Perfectionism among male college students. Clinical implications and limitation of the research are discussed.

Dedicated to Gabrielle and Eli.

May all your dreams come true.

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CHAPTER I: INTRODUCTION

Over the past two decades, perfectionism has become an important individual differences variable that has been linked to a multitude of negative psychological outcomes (Blatt, 1995; Hamachek, 1978; Hollender, 1978; Pacht, 1984). Researchers have found that perfectionism is related to anxiety (Alden, Bieling, & Wallace, 1994), chronic pain (Hewitt, Flett, & Mikail, 1995; Liebman, 1978; Van Houdenhove, 1986), depression (Hewitt & Dyck, 1986; Hewitt & Flett, 1990), eating disorders (Axtell & Newlon, 1993; Garner, Olmstead, & Polivy, 1983), obsessive-compulsive disorders (Frost, Steketee, Cohn, & Griess, 1994), personality disorders (Hewitt, Flett, & Turnbull, 1992), psychosomatic disorders (Forman, Tosi, & Rudy, 1987) and suicide (Adkins & Parker, 1996). Additional studies have also linked perfectionism to alcohol consumption in adults (Hewitt & Flett, 1991; Nerviano & Gross, 1983). For example, Hewitt and Flett (1991) have found that certain types of perfectionism are significantly related to alcohol consumption and have suggested that alcohol consumption may stem from having to cope with a perceived failure to achieve perfection due to high self-standards and self-critical reactions. They have also suggested that alcohol consumption may stem from being unable to meet perceived social pressures to be flawless that are imposed on them by significant others and by society.

Studies of perfectionism using college student samples have paralleled the findings of studies using adults. Studies of perfectionism among college students have also linked perfectionism to a variety of similar negative psychological outcomes, including academic adjustment problems (Rice & Mirzadeh, 2000), anxiety

(Deffenbacher, Zwemer, Whisman, Hill, & Sloan, 1986; Dunkley, Blankstein, Halsall, Williams, & Winkworth, 2000; Flett, Hewitt, & Dyck, 1989; Goldfried & Sobocinski, 1975; Johnson & Slaney, 1996), depression (Rice, Ashby, & Slaney, 1998), daily hassles (Dunkley, Blankstein, Halsall, Williams, & Winkworth, 2000), low self-esteem (Rice et al., 1998), suicide (Chang, 1998), and alcohol abuse (Cohen & Rice, 2003). The results of the only study to examine the relationship between perfectionism and alcohol abuse among college students found that perfectionism, when combined with low anxiety, was predictive of alcohol abuse (Cohen & Rice, 2003). Interestingly, perfectionism by itself was not predictive of alcohol abuse.

A theoretical link between perfectionism and alcohol involvement has been described in the literature, however few studies to date have empirically investigated this relationship. The few studies that have investigated this relationship empirically have found evidence of a theoretical link in adult samples, however, these studies used different instruments to assess perfectionism and thus operationalized perfectionism differently. No study to date has simultaneously examined multiple measures of perfectionism and their possible link to perfectionism. In addition, only one study has investigated this link using a college sample. This is surprising, given the current problematic alcohol consumption and alcohol related problems among college students.

Research suggests that late adolescence and early adulthood is associated with the highest prevalence of alcohol consumption (Grant et al., 1994; Johnston, O'Malley, & Bachman, 1996; Kessler, et al., 1997). In particular, studies indicate that alcohol consumption and abuse are widespread on college campuses, finding that over 85% of college students drink and up to 50% of college students report that they have engaged in

binge drinking with the intention of getting drunk (Wechsler, Davenport, Dowdall, Moeykens, & Castillo, 1994; Wechsler, Dowdall, Mainner, Gledhill-Hoyt, & Lee, 1998). In addition, psychosocial problems associated with heavy drinking, such as rapes, unplanned sexual intercourse, and violent crimes on campus have also increased in recent years (Schudkit, Klein, Twitchell, & Springer, 1994; Wechsler et al., 1994). Thus, given the high prevalence of alcohol consumption and alcohol related problems among college students as well as the empirical link between perfectionism and alcohol consumption in adult samples, an examination of the relationship between alcohol consumption and perfectionism among college students seems warranted.

Most recently, research on perfectionism has begun to examine the *Diathesis-Stress Model of Perfectionism* to predict negative psychological outcomes (Hewitt & Flett, 2002). This model may be useful to predict alcohol involvement among college students. This model proposes that perfectionists are more vulnerable to negative psychological outcomes because perfectionism exacerbates the influence of stress on negative psychological outcomes (Hewitt & Flett, 1991; Hewitt, Flett, & Ediger, 1996). Consistent with this model, there has been some evidence to suggest that perfectionism does indeed intensify the aversive effect of stress on negative psychological outcomes, such as anxiety (Chang & Rand, 2000; Joiner & Schmidt, 1995), depression (Flett, Hewitt, Blankstein, & Mosher, 1995; Hewitt & Dyck, 1986; Hewitt & Flett, 1993; Hewitt, Flett, & Ediger, 1996; Joiner & Schmidt, 1995), and suicide (Hewitt, Flett, & Weber, 1994). However, no study to date has investigated the utility of this model to predict alcohol involvement among college students. Given the prevalence of both perfectionism (Chang & Rand, 2000; Dunkley, Blankstein, Halsall, Williams, &

Winkworth, 2000; Rice, Ashby, Slaney, 1998) and stress (D'Zurilla & Sheedy, 1991; Gadzella, 1994; Hirsch & Ellis, 1996; Ross, Neibling, & Heckert, 1999; Towbes & Cohen, 1996) among college students, this may be a useful model to predict alcohol involvement among college students.

An additional argument for the use of the DSM to predict alcohol consumption among college students derives from studies that have found that stress is associated with alcohol consumption. Specifically, the *Stress-Response Dampening* (SRD) model (Sher & Levinson, 1982) posits that individuals will increase their use of alcohol during times of stress.

To date, the empirical evidence for the SRD model of alcohol consumption is mixed. Despite an intuitive appeal, recent reviews of empirical research of the SRD indicate that the relationship between stress and alcohol consumption is equivocal in college students. Perkins (1999) found that stress reduction was a motivating factor to drink among college students and recent college graduates. However, other studies have found no relationship between the number of stressful life events and increased alcohol consumption (Corcoran & Parker, 1991). Additional studies have found that college students' alcohol consumption decreases during times of stress, such as before exams (Noel & Cohen, 1998).

One reason for the discrepant findings may be due to the variety of instruments used to measure stress. According to some researchers (Chang & Rand, 2000; Cohen, Kamarck, & Mermelstein, 1983; Cohen, 1986; Hammen, 1992; Hewitt, Flett, & Mosher, 1992) instruments that assess stress using an endorsement of specific daily hassles or life events may be insensitive to chronic stress, stress occurring in the lives of close friends

and family, stress from expectations about the future, and stress from events not listed on the measure. Therefore, the mixed results may be due to inconsistent or inaccurate operationalization of stress.

Another reason for the inconsistent findings between alcohol consumption and stress may be due to important moderating variables that significantly influence the relationship between stress and alcohol involvement. To account for these inconsistent findings, researchers have attempted to identify theoretically significant individual-difference variables that moderate the relationship between stress and alcohol involvement (Cooper, Russell, Skinner, Frone, & Mudar, 1992; Greeley & Oei, 1999). Gender is one individual-difference variable that has been found to moderate the relationship between stress and alcohol consumption, alcohol related problems, and the motivation to drink alcohol to cope with negative emotions. However, to date no study has examined if personality characteristics, such as perfectionism, may also be important individual difference variables that may moderate the relationship between stress and alcohol related outcomes. This is surprising given research findings that indicate both perfectionism and gender moderate the relationship between stress and other negative psychological outcomes (Chang & Rand, 2000; Flett, Hewitt, Blankstein, & Mosher, 1995; Hewitt, Flett, & Ediger, 1996; Joiner & Schmidt, 1995).

To summarize, theory and research have linked perfectionism to alcohol involvement (Cohen & Rice, 2003; Hewitt & Flett, 1991). Theory and research have also linked stress to alcohol involvement (i.e., SRD), however this relationship is inconsistent and may be moderated by significant individual-difference variables, such as gender or personality characteristics, that make individuals more vulnerable to the effects of stress

(SVM). Interestingly, theory and research have also recently suggested that perfectionism may be an important individual-difference variable that may make individuals more vulnerable to the effects of stress and more likely to suffer from an exacerbation of negative psychological outcomes (DSM). It is notable, however, that no research to date has investigated the DSM to predict alcohol involvement. In particular, no study has investigated if perfectionism interacts with stress and gender to predict alcohol consumption, alcohol related problems, and the motivation to drink alcohol to cope. In addition, no study has examined these variables as they relate to college student alcohol involvement. Thus, the DSM may be a useful model to predict alcohol consumption, alcohol related problems, and the motivation to drink alcohol to cope among college students.

The purpose of this study is to investigate the relationship between perfectionism, stress, gender, and their interactions in the prediction of alcohol consumption, alcohol related problems, and the motivation to drink alcohol to cope. Based upon theoretical models as well as previous research, I hypothesize that perfectionism, stress, and gender will predict alcohol consumption, alcohol related problems, and the motivation to drink alcohol to cope. I also hypothesize that perfectionism and gender will moderate the relationship between: (a) stress and alcohol consumption, (b) stress and alcohol related problems, and (c) stress and the motivation to drink alcohol to cope. More specifically, I hypothesize that male gender will predict alcohol consumption, alcohol related problems, and the motivation to drink to cope with negative emotions, particularly when men report high levels of perfectionism (i.e., socially prescribed perfectionism, self-oriented perfectionism, and self-discrepant perfectionism) and report high levels of perceived

stress. In contrast, I hypothesize that female gender will not be predictive of alcohol consumption, alcohol related problems, and the motivation to drink alcohol to cope, despite reports of high perfectionism and perceived stress. The chapter that follows will critically review contemporary literature regarding perfectionism and negative psychological outcomes, alcohol consumption and alcohol related problems among college students, the *Diathesis-Stress Model of Perfectionism* (DSM), the *Stress-Response Dampening* (SRD) model, and the *Stress-Vulnerability Model* (SVM). I will then make an argument for utilizing the DSM as an integrative model to predict college student alcohol consumption, alcohol related problems, and motivation to drink to cope. The review will conclude with a discussion of specific research hypotheses of this study. These hypotheses will address the prediction of alcohol consumption, alcohol related problems, and motivation to drink alcohol.

CHAPTER II: LITERATURE REVIEW

In this chapter I present an organized review of the literature relevant to the current study. First, I critically review contemporary literature regarding perfectionism and negative psychological outcomes, including alcohol consumption among adults. Next, I examine the current problematic abuse of alcohol consumption among college students and the possible link between perfectionism and college alcohol drinking. Then, I examine the empirical evidence for the *Diathesis-Stress Model of Perfectionism* (DSM) and suggest its potential application toward a better understanding of alcohol involvement (i.e., alcohol consumption, alcohol related problems, and the motivation to drink to cope among college students). Next, I present the equivocal empirical results of the *Stress-Response Dampening* (SRD) model among college students and potential reasons for those equivocal results. The *Stress-Vulnerability Model* (SVM) will then be presented and examined. I then make an argument for the use of the DSM as an integration of the SRD and the SVM models to gain a better understanding and prediction of college student alcohol involvement. I conclude the chapter with a discussion of the specific research hypotheses based upon an integration of these theoretical models. These hypotheses will address the prediction of alcohol consumption, alcohol related problems, and drinking alcohol to cope among college students.

Perfectionism and Negative Psychological Outcomes

Perfectionism has historically been of interest to psychologists (Adler, 1956; Freud, 1926/1959; Hamachek, 1978; Horney, 1950). In fact, historians of psychology believe that the first psychological book ever written was entitled, *Psychologia hoc est,*

de hominus perfectione, or *Psychology: About the perfectibility of man* [sic], and was published in 1590 (Lapointe, 1970).

Psychologists have become increasingly interested in perfectionism in the last two decades and have come to regard perfectionism as an important individual difference that is theoretically linked to a multitude of negative psychological outcomes (Blatt, 1995; Hamachek, 1978; Hollender, 1978; Pacht, 1984). Researchers have also found empirical evidence that links perfectionism to negative psychological outcomes, including anxiety (Alden, Bieling, & Wallace, 1994), chronic pain (Hewitt, Flett, & Mikail, 1995; Liebman, 1978; Van Houdenhove, 1986), depression (Hewitt & Dyck, 1986; Hewitt & Flett, 1990), eating disorders (Axtell & Newlon, 1993; Garner, Olmstead, & Polivy, 1983), obsessive-compulsive disorders (Frost, Steketee, Cohn, & Griess, 1994), personality disorders (Hewitt, Flett, & Turnbull, 1992), psychosomatic disorders (Forman, Tosi, & Rudy, 1987) and suicide (Adkins & Parker, 1996; Blatt, 1995). Additional literature has also theoretically linked perfectionism to alcohol involvement. For example, Lombardi, Florentino, and Lombardi (1998) have theorized that alcohol involvement is one of the many negative psychological outcomes of perfectionism. Literature has also found an empirical link between perfectionism and alcohol consumption (Hewitt & Flett, 1991; Nerviano & Gross, 1983).

Perfectionism and Alcohol Involvement

Nerviano and Gross (1983) conducted a thorough review of the empirical literature regarding the relationship between personality and alcohol consumption. They concluded that, for some individuals, "destructive drinking seems to occur in the context

of obsessive perfectionism. These inhibited individuals are atypical of the alcoholic stereotype, but can be easily detected with intensive clinical effort and lack of prejudice" (p. 847). Thus, they argue that perfectionists may not fit the typical clinical profile of an alcoholic, however, their personality pattern may put them at greater risk for problematic drinking. Furthermore, these authors seem to suggest that perfectionists who do have destructive drinking patterns may not be diagnosed because of clinicians' bias against probing for drinking problems.

Hewitt and Flett (1991) found empirical evidence for a link between perfectionism and alcohol involvement. Based upon the self-discrepancy theory of alcohol abuse (Hull, 1981; Hull, 1987), Hewitt and Flett hypothesized that "excessive drinking is an attempt to alleviate the negative affect associated with discrepancies between the actual and ideal self" (p. 467). In order to test this theory, Hewitt and Flett (1991) operationalized three aspects of perfectionism. "Self-oriented perfectionism" is a personal need for the self to be flawless. "Socially prescribed perfectionism" is the individual's perception that others expect him or her to be flawless. "Other-oriented perfectionism" is the individual's expectation that others should be flawless. Hewitt and Flett (1991) found that alcohol consumption was significantly related to two aspects of perfectionism in a sample of 77 adult psychiatric patients. Alcohol consumption was significantly related to self-oriented perfectionism ($r = .22$, $p < .05$) and socially prescribed perfectionism ($r = .27$, $p < .05$), but was not significantly related to other-oriented perfectionism ($r = .20$, $p > .05$). However, it is worth noting that the effect size associated with other-oriented perfectionism is comparable to the effect size associated with self-oriented perfectionism and socially prescribed perfectionism.

Interestingly, this study also found that when men and women were analyzed separately, self-oriented perfectionism was significantly related to alcohol consumption for men, and not for women, whereas socially prescribed perfectionism was significantly related to alcohol consumption for women, and not for men. This led Hewitt and Flett (1991) to speculate that alcohol consumption in men stems from a discrepancy between their desired achievement and their actual achievement, and thus involves self-standards and self-critical reactions. In contrast, Hewitt and Flett (1991) speculated that alcohol involvement in women stems from a discrepancy between their desired interpersonal competence of their actual interpersonal competence, and thus involves needing to meet unrealistic social pressures and standards believed to be imposed by others. Thus, these researchers concluded that gender may be an important variable in understanding the relationship between alcohol involvement and perfectionism. However, one limitation of this study was that that the instrument used to operationalize perfectionism was not theoretically consistent with the self-discrepant aspect of perfectionism that they proposed is linked to alcohol abuse. In addition, the outcome measure assessed alcohol abuse. No outcome measure was used to assess perfectionists' underlying motivation for using alcohol. That is, Hewitt and Flett (1991) failed to directly assess if perfectionists were indeed motivated to drink alcohol in order to cope with negative emotions, as their theory suggests.

Cohen and Rice (2003) conducted the only study that has investigated the association between alcohol involvement and perfectionism among college students (n = 135). Based upon the Tension-Reduction Hypothesis (Conger, 1956), they investigated if anxiety, perfectionism, and the interaction of these variables were predictive of alcohol

abusers and non-alcohol abusers. In this study, perfectionism was assessed using the Almost Perfect Scale-Revised (APS-R; Slaney, Rice, Mobley, Trippi, & Ashby, 2001). In particular, the Discrepancy subscale of the APS-R was used, which assesses the difference between a person's ideal standards and a person's perceived performance. The rationale for the use of this instrument, instead of the Multidimensional Perfectionism Scale used in the Hewitt and Flett (1991) study, was that it operationalized perfectionism in a manner that was more consistent with the self-discrepancy theory of alcohol involvement described by Hull (1981) and Hewitt and Flett (1991). Results of a logistic regression analysis indicated that the neither perfectionism nor anxiety were predictive of drinking classification. However, a significant interaction effect was found, indicating that alcoholic classification was more likely under conditions of low anxiety and high perfectionism. The results of this study were unexpected, given the theoretical and empirical link between perfectionism and alcohol involvement. However, these results suggest that perfectionism, especially discrepancies between ideal standards and actual performance, may play a critical role moderating alcohol involvement in college students. Unfortunately, these researchers did not examine the possible moderating effects of gender, as suggested by Hewitt and Flett (1991). This would have provided a more complete examination of the gender specific self-discrepancy theory of alcohol involvement (Hewitt & Flett, 1991). In addition, this study was limited because it did not ascertain if self-discrepant perfectionism was associated with alcohol related problems or drinking to cope with negative emotions.

Empirical research on the relationship between perfectionism and alcohol involvement is limited to two studies, one of which found evidence for a direct link

between some aspects of perfectionism and alcohol abuse in a sample of psychiatric patients (Hewitt & Flett, 1991). This study also suggested the possible moderating effects of gender. Another study by Cohen and Rice (2003) found evidence for perfectionism as moderating alcohol involvement among a sample of college students. Although these studies utilized different types of samples and different measures of perfectionism, they seem to suggest that perfectionism may be linked to alcohol involvement, especially in the context of other moderating variables. However, the Hewitt and Flett (1991) model that associates perfectionism with alcohol involvement has not been fully examined among college students. This is surprising, given the pervasive and problematic use of alcohol among college students.

Alcohol Involvement Among College Students

Recently, a task force of the National Advisory Council on Alcohol Abuse and Alcoholism reviewed the current literature regarding college campus alcohol abuse (Malloy & Goldman, 2002). The findings from this review are alarming. Approximately 85% of college students drink alcohol (Wechsler, Davenport, Dowdall, Moeykens, & Castillo, 1994) and 31% meet diagnostic criteria for alcohol abuse (Knight et al., 2002).

Research indicates that college students tend to consume drink more alcohol and experience more negative consequences of alcohol during their first two years of college than during their last two years of school, suggesting that college students may "mature out" of negative drinking behavior (Klein, 1994; Wechsler et al., 1998). Also notable is the fact that, unlike the general adult population, female college students consume approximately an equal amount of alcohol when compared to their male counterparts yet

have been ignored and underrepresented in the literature (Crandall, 1995; Martin & Hofffman, 1993; O'Hare, 1998; Perkins, 1992; Wechsler, Molnar, Davenport, & Baer, 1999).

This is a significant problem because college women who abuse alcohol are at a much greater risk of being the victim of alcohol related problems including rape, assault, violent crime, unprotected sexual intercourse, and unplanned sexual intercourse (Cooper, 2002; Hingson et al., 2002; Lo, 1996; O'Hare, 1998; Perkins et al., 2002; Wechsler et al., 1994). In particular, a national survey conducted by Wechsler et al. (1994) found that alcohol is a contributing factor in 90% of student rapes, 41% of unplanned sexual encounters, and 22% of unprotected sexual encounters.

It is also noteworthy that significant psychosocial problems associated with heavy drinking on campuses have increased in recent years (Schudkit, Klein, Twitchell, & Springer, 1994). An estimated 500,000 college students between the ages of 18-24 are unintentionally injured each year under the influence of alcohol and an additional 1400 students die from such injuries (Hingson et al., 2002), making alcohol related accidents and injuries the leading cause of death in this age group (National Institute of Alcohol Abuse and Alcoholism, 1984). In addition, 1.5% of the college student population per year attempts suicide due to drinking (Presley et al., 1998).

Academic performance in college is also significantly hindered by alcohol abuse. About 25% of college students report negative academic consequences of their drinking including missed classes, failure to complete assignments, performing poorly on exams, receiving lower grades and failing college courses (Berkowitz, & Perkins, 1986; Engs et al., 1996, Engs & Hanson, 1985; Presley et al., 1996; Wechsler, 2002).

In conclusion, the task force recommended that brief motivational or skill-based treatment interventions are most effective to reduce and prevent alcohol abuse, if such treatments are aimed at high-risk students. However, relatively few risk factors have been empirically identified to date (e.g., freshmen, members of fraternities/sororities, athletes), which has led researchers to recommend that future studies identify additional risk factors for college student alcohol abuse (Larimer & Cronce, 2002; Presley, Weilman, & Leichleiter, 2002).

Diathesis-Stress Model of Perfectionism

Most recently, research on perfectionism has begun to examine the *Diathesis-Stress Model of Perfectionism* (DSM) to predict negative psychological outcomes (Hewitt & Flett, 2002). This model may be useful to predict alcohol involvement among college students. Hewitt and Flett (2002) described the DSM as follows: "Perfectionism can play a moderating role in producing psychopathological states by enhancing or exacerbating the aversiveness of experienced stressors or failures" (p. 258). In particular, the *Diathesis-Stress Model of Perfectionism* proposes that perfectionism magnifies the effects of stress because perfectionism is associated with self-defeating styles of cognitive appraisal (i.e., overgeneralization, personalization, etc.), maladaptive coping, and poor problem-solving skills (Hewitt & Dyck, 1986; Hewitt & Flett, 1993; Hewitt & Flett, 2002).

Consistent with this model, there has been some evidence to suggest that perfectionism does indeed intensify the aversive effect of stress[1] on negative psychological outcomes, such as anxiety (Chang & Rand, 2000; Joiner & Schmidt, 1995), depression (Flett et al., 1995; Hewitt & Dyck, 1986; Hewitt & Flett, 1993; Hewitt et al., 1996; Joiner & Schmidt, 1995), hopelessness (Chang & Rand, 2000), and suicide (Hewitt et al., 1994).

Diathesis-Stress Model of Perfectionism and Negative Psychological Outcome

Hewitt and Dyck (1986) conducted what appears to be the earliest study of the DSM. A sample of 105 undergraduates completed measures of depression, stressful life events, and perfectionism on two occasions that were two months apart. Individuals were categorized into groups of either perfectionists or non-perfectionists based upon a median split of their scores on the 10-item Perfectionism Scale (Burns, 1980). The results indicated that for perfectionists, stress and depression were positively related on both occasions. For non-perfectionists, stress and depression were not significantly related on either occasion. Using multiple regression analyses, results indicated that the most powerful predictor of depression was a history of previous depression, which accounted for 31% of the variance. On the second occasion, perfectionism scores significantly predicted depression, after controlling for depression scores on the first occasion, which accounted for an additional 7% of the variance. Contrary to the DSM, however, the

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[1] Stress is defined as any circumstances that threatens or perceives to threaten an individual's well-being, thereby taxing the individual's coping ability (Whitehead, 1994).

interaction of stress and perfectionism was not predictive of depression. These researchers conjectured that the failure of the interaction of stress and perfectionism to predict depression was related to a poor measurement of stress. The authors reported the test-retest correlation of .63 across a two-month span and an internal consistency coefficient alpha of .70. I would further suggest that the failure to find evidence for the interaction of stress and perfectionism to predict depression was related to a poor measure of perfectionism with questionable reliability and validity. These authors state that the Perfectionism Scale "carries some reliability and validity as a measure of perfectionistic thinking" (p. 139) but report only a modest correlation between the measure and endorsed perfectionistic adjectives ($r = .23$, $p < .001$). Fortunately, more contemporary research on the DSM has benefited from the development of psychometrically valid measurements of perfectionism and stress. Hewitt and Flett (1993) examined a more circumscribed test of the DSM, which they termed the *Specific Vulnerability Hypothesis*. They hypothesized that self-oriented perfectionism, which is concerned with personal achievement, would interact with achievement related stressors (e.g., work load) to predict depression. They also hypothesized that socially prescribed perfectionism, which is concerned with meeting the expectations of others, would interact with interpersonal stressors (e.g., relationship problems) to predict depression. In a sample of depressed ($n = 51$) and non-depressed ($n = 94$) clients, they tested whether dimensions of perfectionism (i.e., self-oriented, other-oriented, and socially prescribed perfectionism), stress (i.e., achievement and interpersonal hassles), and their interaction were predictive of depression. Consistent with the *Specific Vulnerability Hypothesis*, a hierarchical regression analysis indicated

that self-oriented perfectionism interacted with achievement hassles to predict depression in both samples. That is, as achievement hassles increased, individuals with high self-oriented perfectionism tended to be more depressed. In contrast, as achievement hassles increased for individuals with low self-oriented perfectionism, there was no corresponding change in depression. In the depressed sample, the interaction of socially prescribed perfectionism and interpersonal hassles was also predictive of depression. As interpersonal hassles increased, individuals with high socially prescribed perfectionism tended to be more depressed. In contrast, as interpersonal hassles increased for individuals with low socially prescribed perfectionism, there was no corresponding change in depression. Additional results found that in the non-depressed sample, the interaction of socially prescribed perfectionism and achievement hassles was predictive of depression. As achievement hassles increased, individuals with high socially prescribed perfectionism tended to be more depressed, however, as achievement hassles increased for individuals with low socially prescribed perfectionism, there was no corresponding change in depression. The researchers concluded that this study yields partial- though not full- support the *Specific Vulnerability Hypothesis* of perfectionism. The most consistent finding was that self-oriented perfectionism interacted with achievement hassles to predict depression. However, most importantly, this study demonstrates evidence for the more general DSM, which suggests that perfectionism interacts with stress to yield more negative psychological outcomes, such as depression.

It is worth noting that one of the limitations of this study was that the instrument used to measure stress (Hassles Scale; Delongis, Folkman, & Lazarus, 1988) has questionable psychometric properties. For example, some researchers have claimed that

the instrument is confounded by psychiatric symptoms (Dohrenwend & Shrout, 1985), negative affect (Watson, 1990), and neuroticism (Costa & McCrae, 1990). Other researchers have criticized the measure for failing to assess the degree of perceived stress that is experienced, relying too much upon specific stressful events (Chang & Rand, 2000; Cohen et al., 1983; Cohen, 1986; Hammen, 1992; Hewitt, Flett, & Mosher, 1992). These researchers believe this instrument is not a reliable assessment of chronic stress, interpersonal stress, stress related to the future, and stress related to events that are not included on the instrument. Therefore, one reason for the mixed results may be due to inconsistent or inaccurate measurement of stress.

Flett et al. (1995) also tested the DSM to predict depression in two samples of college students. Consistent with this theory, they hypothesized that self-oriented perfectionism and socially prescribed perfectionism would interact with stress to produce higher levels of depression. Sample 1 consisted of 374 undergraduate students who completed measures of perfectionism, stress, and depression on one occasion. Sample 2 consisted of 173 undergraduate students who completed the same measures, on two occasions that were three months apart. Results of hierarchical regression analyses found that self-oriented perfectionism, life stress, and the interaction of these two variables were predictive of depression at Time 1 in both samples. Specifically, they found that for both samples, high levels of stress and high self-oriented perfectionism were associated with higher levels of depression among the undergraduates. In contrast, high levels of stress as well as low self-oriented perfectionism were not associated with depression. Another hierarchical regression analysis from the second sample found that increases in depression from Time 1 to Time 2 were associated with greater self-oriented

perfectionism. Results of other possible interactions between perfectionism and stress were not reported. No significant effects were found for socially prescribed perfectionism in the prediction of depression. The significant interactions between self-oriented perfectionism by life stress in the prediction of depression suggested the moderating effects of self-oriented perfectionism. In fact, the authors of this study concluded that self-oriented perfectionism may be relatively adaptive in situations of low stress but may be relatively maladaptive when faced with high levels of stress, resulting in a greater vulnerability to negative psychological outcomes, such as depression. This would be consistent with the DSM. However, the authors also stated that there is less evidence for the inclusion of socially prescribed perfectionism in the DSM.

Hewitt et al. (1996) conducted a second study that investigated the *Specific Vulnerability Hypothesis*, which is the more circumscribed theory of the DSM. In this model, self-oriented perfectionism was hypothesized to interact with achievement-oriented stress to exacerbate depression whereas socially prescribed perfectionism is thought to interact with interpersonal stress to exacerbate depression. These authors conducted a longitudinal study using a sample of undergraduates (n = 103), in which depression, stress type (i.e., achievement and interpersonal stress), and perfectionism were measured on two occasions, four months apart. Results of hierarchical regression analysis indicated that depression at Time 2 was predicted by achievement stress and the interaction of achievement stress by self-oriented perfectionism. An analysis of this interaction indicated that as achievement stress increased, only high self-oriented perfectionists experienced an increase in depression. Results of a second hierarchical regression analysis indicated that depression at Time 2 was predicted by socially

prescribed perfectionism and interpersonal stress, but not by the interaction of these terms. Thus, the results of this study were similar to the results of the Flett et al. (1995) study. Both studies found significant interactions for self-oriented perfectionism by achievement stress in the prediction of depression, but neither study found significant interactions for socially prescribed perfectionism by interpersonal stress, thus only obtaining partial support for the *Specific Vulnerability Hypothesis*. However, in my opinion, both studies support the more general DSM, which proposes that perfectionism (i.e., self-oriented and socially prescribed perfectionism) interacts with non-specific stress to cause negative psychological consequences, such as depression. However, the failure to find a significant interaction between socially prescribed perfectionism and interpersonal stress could also be attributed to the poor quality of the measurement of stress, as described earlier. To add to that critique, neither study used the measurement of stress (Life Events Questionnaire; Cochrane & Robertson, 1973) as it was originally designed. Instead, they had three graduate students categorize a list of 55 stressful events as related to either achievement or interpersonal stress and both studies report a surprisingly high 100% interrater agreement. This failure to find a significant interaction for socially prescribed perfectionism might also be attributed to the small sample size and subsequent lack of statistical power to adequately test this hypothesis.

Joiner and Schmidt (1995) conducted a similar study that investigated the DSM and the more refined *Specific Vulnerability Hypothesis*. Using a sample of undergraduates (n = 174), these researchers measured perfectionism (i.e., self-oriented and socially prescribed perfectionism), stress type (i.e., achievement stress and interpersonal stress), depression, and anxiety on two occasions, three weeks apart.

Similar to previous studies, this study used multiple regression analyses to investigate if an interaction between perfectionist type (i.e., socially prescribed and self-oriented) and specific stress (i.e., interpersonal and achievement) would predict depression (at Time 2). Based upon gender socialization theory, they believed that socially prescribed perfectionism and self-oriented perfectionism are more problematic for men, and used this theory as a justification for exploring possible moderating effects of gender. They conducted a second hierarchical regression analysis to predict anxiety and used the identical independent variables as they had used in the prediction of depression. Interestingly, these authors found a different result from previous studies (Hewitt & Flett, 1993; Hewitt et al., 1996). For men, they found that socially prescribed perfectionism interacted with both interpersonal stress and achievement stress in the prediction of depression. For example, men in the sample with high interpersonal stress and high socially prescribed perfectionism tended to have the highest level of depression, whereas men in the sample with low interpersonal stress and high socially prescribed perfectionism had the lowest level of depression. In contrast, women with high interpersonal stress and low socially prescribed perfectionism had the highest level of depression whereas women with low interpersonal stress and low socially prescribed perfectionism had the lowest level of depression. Contrary to Hewitt and Flett (1993) and Hewitt et al. (1996), they also found that the interaction of self-oriented perfectionism by achievement stress was not predictive of depression. In general, these results provide evidence for the DSM, but are contrary to the *Specific Vulnerability Hypothesis*.

In this study, they also investigated if the *Specific Vulnerability Hypothesis* could predict anxiety scores. Using hierarchical multiple regression, these researchers found

that among men only, the interaction of socially prescribed perfectionism by interpersonal stress was significantly predictive of scores on anxiety. (The nature of this interaction was not provided by the authors). This would be consistent with the *Stress-Vulnerability Hypothesis*. However, the interaction of self-oriented perfectionism by either type of stress was not predictive of anxiety scores for either gender.

As noted earlier, the results of this study contrasted the findings of other studies (Hewitt & Flett, 1993; Hewitt et al., 1996). One possible reason for this could be that different measures of perfectionism and stress were used, which might account for some of the discrepant findings between the studies. For example, the constructs of self-oriented perfectionism and socially prescribed perfection were measured by selecting six-items from the Eating Disorders Inventory (Garner, Olmstead, & Polivy, 1983) that were judged to measure the respective constructs. A clear rationale for the use of this instrument was not provided. Despite this limitation, the authors of this study concluded that the DSM received support among males but a more specific *Stress-Vulnerability Hypothesis* was not supported. Ultimately, the authors stated that both self-oriented and socially prescribed perfectionism may exacerbate both achievement stress and interpersonal stress, however, they suggested that gender role identity may be an important moderating variable in understanding this complex interaction.

Most recently, Chang and Rand (2000) have found support for the DSM in a sample of 215 undergraduates. Consistent with this model and similar to previous studies, perfectionism (i.e., self-oriented perfectionism, other oriented perfectionism, socially prescribed perfectionism), perceived stress, and the interaction of these variables were hypothesized to predict negative psychological outcome. However, instead of

predicting depression as other studies have done, Chang and Rand (2000) used this model to predict general psychological symptoms (Symptoms Check List-90-R; Derogatis, 1983) and hopelessness (Beck Hopelessness Scale; Beck, Weissman, Lester, & Texler, 1974). The procedure required that participants complete these measures on two occasions, 4 to 5 weeks apart. In addition, this study differed from previous studies because it measured perceived stress, as opposed to daily hassles or stressful life events. The rationale for this was to overcome the conceptual limitations associated with these instruments. As mentioned previously, several researchers have found that the endorsement of stressful events does not adequately capture the extent to which those events were perceived as being stressful, and such lists would most certainly fail to include all possible stressful life events that can be experienced (Chang & Rand, 2000; S. Cohen; 1986; Hammen, 1992; Hewitt, Flett, & Mosher, 1992).

Results of a series of hierarchical multiple regressions found that perceived stress was a significant predictor of psychological symptoms at Time 2, accounting for 21% of the variance. Socially prescribed perfectionism was a significant predictor of psychological symptoms at Time 2, accounting for 2% of the variance. Surprisingly, neither self-oriented perfectionism nor other-oriented perfectionism was predictive of psychological symptoms. There was also a significant interaction for socially prescribed perfectionism by perceived stress in the prediction of psychological symptoms at Time 2, accounting for 2% of the variance. An analysis of this interaction found that under high levels of perceived stress, high socially prescribed perfectionism was associated with more psychological symptoms than low socially prescribed perfectionism. When under low levels of perceived stress, low socially prescribed perfectionism did not significantly

differ from high socially prescribed perfectionism in measures of psychological symptoms.

A second hierarchical multiple regression analysis was conducted to predict hopelessness at Time 2. Results of this analysis found that perceived stress, self-oriented perfectionism, and socially prescribed perfectionism were predictive of hopelessness, accounting for 32%, 2.5%, and 2.5% of the variance, respectively. Other oriented perfectionism was not predictive of hopelessness. Similar to the previous analysis, a significant interaction effect was found for social prescribed perfectionism by perceived stress in the prediction of hopelessness, accounting for 3% of the variance. An analysis of this interaction revealed that at high levels of stress, high socially prescribed perfectionism was associated with higher levels of hopelessness than low socially prescribed perfectionism.

Chang and Rand (2000) concluded that this study provides incremental validity for the DSM. That is, socially prescribed perfectionism moderated the relationship between perceived stress and negative psychological outcomes beyond what would be predicted by perceived stress and perfectionism. However one notable limitation of this study is that these authors did not measure perceived stress at Time 2 when distress was measured. Nevertheless, these results are similar to another study that has found that only socially prescribed perfectionism was an important moderating variable in the DSM (Hewitt & Flett, 1993). Surprisingly, Chang and Rand (2000) failed to find support for a DSM that involved self-oriented perfectionism. Thus, these findings are contrary to the results of other studies that have found evidence for the moderating influence of both self-oriented perfectionism and socially prescribed perfectionism in the DSM (Hewitt &

Flett, 1993; Hewitt et al., 1996). The results of Chang and Rand (2000) are also in opposition to Flett et al. (1995) who found that only self-oriented perfectionism, and not socially prescribed perfectionism, was an important moderating variable in the DSM.

One possible reason for the inconsistent findings among these studies concerning the DSM may be related to the failure to account for the moderating effects of gender. Only two studies to date have found evidence for both self-oriented perfectionism and socially prescribed perfectionism in a DSM (Hewitt & Flett, 1993; Joiner & Schmidt, 1995). Notably, Joiner and Schmidt (1995) were the only researchers who considered the moderating effects of gender and found evidence for the moderating effects of both self-oriented perfectionism and socially prescribed perfectionism only among men, and not among women. As a result, these researchers have extended the DSM by suggesting that "perfectionistic men may be more vulnerable to psychological distress than perfectionistic women because departures from perfectionism may be less compatible with stereotypical masculine gender role than with stereotypical feminine gender roles" (Joiner & Schmidt, 1995, p. 180). Hence, they argued that future studies on this topic should include gender in their models, in order to further examine its possible moderating effects.

Although the results of studies related to the DSM are inconsistent in terms of the moderating effects of socially prescribed perfectionism and self-oriented perfectionism, the general trend of this research strongly suggests that when under high stress, high perfectionism is associated with an exacerbation of negative psychological symptoms. This may be particularly true among men. However, one of the limitations of research related to the DSM is that this model has only been used to predict depression, and to a

lesser extent, anxiety, hopelessness, and general negative psychological symptoms. No study to date has investigated the utility of the DSM to predict other negative psychological outcomes, such as alcohol involvement or alcohol related behaviors. This is surprising, given both the theoretical and empirical link between perfectionism and alcohol involvement (Hewitt & Flett, 1991; Nerviano & Gross, 1983).

Stress-Response Dampening

An additional argument for the use of the DSM to predict alcohol involvement and alcohol related behaviors derives from studies that have found that stress can lead to both alcohol involvement and alcohol related behaviors. Specifically, the *Stress-Response Dampening* (SRD) model proposed by Sher and Levinson (1982) posits that stress leads individuals to drink more alcohol as a means to cope with the negative effects of stress.

Perkins (1999) has argued that the SRD model is an especially useful model in understanding college drinking. He believes that the college environment includes stressors (e.g., demanding academic environment, transition toward adult autonomy) as well as a perceived social norm that encourages drinking. He believes that these factors lead many college students to use drinking as a means to cope with stress.

Several studies among college students have found evidence in support of the SRD model. That is, they have found evidence that college students consume more alcohol when they are under stress. In a recent survey (n = 163), 36% of college students reported that drinking to alleviate stress was an acceptable use of alcohol (McCormack, 1996). Surprisingly, this percentage increased from 23% in a similar survey conducted four years previously at the same university. It is also noteworthy that 41% of the men

and 26% of the women believed that drinking to alleviate stress was an acceptable use of alcohol. This suggests that men and women may differ in their motivation to use alcohol to cope with stress. Although data were obtained from only one university, the authors suggested that using alcohol to alleviate stress is becoming increasingly popular on college campuses.

Perkins (1999) conducted a survey of motivations for drinking among college students. Based upon a sample of undergraduates in 1991 (n = 926), Perkins (1999) found that 57% of men and 54% of women reported that stress was a significant motivation to drink alcohol. Interestingly, Perkins also found that this percentage of stress-motivated drinking seems to decrease after graduation from college. He found that twelve to thirteen years after graduation, about 39% of men and 40% of women reported that stress was a significant motivation to drink alcohol.

Noel and Lisman (1980) conducted an early study that investigated the relationship between alcohol involvement and stress among college students. These researchers used a series of experiments in which female participants were randomly assigned to two conditions. In the first condition, participants were presented with anagram problems that *were* able to be solved. In the second condition, participants were presented with anagram problems that *were not* able to be solved. After attempting to solve the anagram puzzles, participants were then asked to "taste" an alcoholic drink. Results of this study indicate that participants who were presented unsolvable anagrams consumed significantly more alcohol than participants who were presented solvable anagrams. The researchers concluded that the reason those participants drank more alcohol was because the unsolvable problems provoked more stress, which in turn lead to

more alcohol involvement. However, a major limitation of this research was a failure of the researchers to assess the level of stress the participants were experiencing, thus leaving this conclusion to be speculative.

Rabow and Neuman (1984) also obtained evidence for the SRD model among 76 undergraduates. These participants were asked to record their alcohol consumption and stress level in a journal for one month. Using a qualitative analysis, these authors found that binge drinking was significantly associated with stressful life events. In particular, they found that number of alcoholic beverages consumed, as well as the frequency of consumption, increased significantly following academically stressful times, such as mid-term and final exams. Thus, the results of this study would seem to be consistent with the SRD model.

Orcutt and Harvey (1991) found modest support for the SRD model among 328 undergraduate students. These researchers investigated college-drinking behavior in four-hour blocks during the week and weekend. Results of their study indicated support for the SRD during the weekday but not during the weekend. That is, they found that individuals during the week who reported more stress during the day were found to drink more alcohol later that evening. However, the relationship between stress and subsequent alcohol consumption was not found during the weekend. The researchers had difficulty explaining this inconsistency and concluded that drinking on weekdays may be deemed a culturally appropriate "time out" from stress (e.g., "happy hour"). Presumably, drinking during the weekend to alleviate stress is not deemed as culturally acceptable.

Another study conducted by Kidorf and Lang (1999) used an experimental design to investigate the relationship between induced stress and alcohol consumption. Eighty-

four undergraduates participated in a two-part experiment. In the first part of the experiment, participants consumed alcohol for thirty minutes. This level of alcohol consumption served as an indication of alcohol under low-stress condition. The participants then returned two to five days later. At this time, participants were told that they were to consume alcohol for thirty minutes and then they would be required to give a speech concerning "their most undesirable characteristic." Participants were told that this speech would be videotaped and evaluated by faculty and students. This condition was regarded as a high-stress condition. Although the participants were never actually required to give such a speech, their degree of stress and alcohol consumption was measured in anticipation of such a speech. Results indicated that the undergraduates' consumption of alcohol increased in the stressful condition when compared to the low-stress condition. The researchers concluded that this was evidence for the SRD model.

In contrast, additional studies have found that college students' alcohol consumption seems to decrease during times of stress. This would be contrary to the SRD model of alcohol involvement. For example, Noel and Cohen (1998) had a sample of 73 undergraduates record their level of alcohol consumption "during a typical week" and "during an exam week." These researchers hypothesized that alcohol consumption would increase during exam week, when students were presumed to be under more stress. Contrary to their hypotheses, the undergraduate students actually consumed significantly less alcohol per day during exam week when compared to the daily consumption of alcohol during a typical week. This is despite the finding that the undergraduates experienced more reported stress during exam week than during a typical week. This is the opposite of what was expected based upon the SRD model. Hence, the researchers

concluded that the decreased drinking during stressful times occurred because the undergraduates used "effective alternatives to drinking" in order to cope with their stress.

Other studies have found no relationship between the number of stressful life events and increased alcohol involvement. For example, Corcoran and Parker (1991) conducted an experiment with 69 undergraduates in which one group was exposed to a low-stress condition (i.e., brief essay on a favorite leisure activity) and another group was exposed to a high-stress condition (i.e., a speech on their most embarrassing body part). They then measured the amount of alcohol that the undergraduates consumed. Contrary to the SRD model, these researchers failed to find any significant difference in the amount of alcohol consumed between the two levels of stress.

McCreary and Sadava (1998) also investigated the SRD model in a sample of 288 undergraduates. These researchers used three different measurements of stress, which assessed perceived stress, daily hassles, and negative life events. Outcome measurements included alcohol consumption and adverse consequences of alcohol involvement (i.e., alcohol related problems). These researchers used a hierarchical multiple regression analysis to predict alcohol consumption. Results of this analysis found that none of the measures of stress were significant predictors of alcohol consumption. The failure to find that any of the three measures of stress were predictive of alcohol consumption was surprising and contrary to the SRD model and the previous cited research. A second hierarchical multiple regression analysis found that daily hassles were a significant predictor of alcohol related problems. Daily hassles accounted for approximately 9% of the variance, after controlling for the effects of alcohol consumption and gender. This may suggest that the SRD model may be most useful in predicting alcohol related

problems among college students, rather than alcohol consumption per se. Results of this study also found only a moderate relationship between alcohol consumption and alcohol related problems ($r = .54$), suggesting that alcohol consumption and alcohol related problems may be related, but distinct constructs, each worthy of investigation .

Based upon these finding, McCreary and Sadava (1998) speculated that their results did not support the SRD model was that "the stress-alcohol association may be salient in only certain contexts" (p. 254). Unfortunately, these authors did not adequately clarify the "contexts" in which they believed this association would be most salient. It might be that significant moderating variables may significantly influence the relationship between stress and alcohol involvement. This speculation has been supported by a thorough review of the research related to the SRD model (Greeley & Oei, 1999). After considering the mixed results of many studies, Greeley and Oei (1999) concluded that, "These studies demonstrate that there are many factors that act as moderators...of alcohol as a SRD agent. A simple SRD model of alcohol involvement is inadequate to account for most problem-drinking behavior. Interactive models that incorporate the effects of individual differences on stress...have supplanted the simpler, single-factor explanatory models such as ...SRD" (p. 38).

Stress-Vulnerability Model (SVM) of Alcohol Involvement

Stress-Vulnerability Model (SVM) is an example of an interactive model that incorporates how individual differences interact with stress to predict alcohol consumption and alcohol related problems. Among the moderating variables that this model explores is gender (Cooper, Frone, Russell, & Peirce, 1997; Cooper, Russell,

Skinner, Frone, & Mudar, 1992). To date, research strongly suggests that men consume more alcohol and experience more alcohol related problems when compared to women (Lemle & Mishkind, 1989; McCreary, Newcomb, & Sadava, 1999; Perkins, 1999), however the SVM extends this line of research by theorizing that gender moderates the relationship between stress and alcohol involvement. In particular, this model proposes that men are more prone than women to externalize their stress by using alcohol and exhibiting alcohol related problems when exposed to high stress. This model also theorizes that men are more likely to be motivated to drink alcohol to cope with negative emotions.

One of the most interesting aspects of SVM is that it is not only used to predict alcohol consumption and alcohol related problems, but it is also used to predict the underlying motivation to drink alcohol. In contrast to the predominant view of researchers, Cooper and her colleagues believe that "drinking behavior is not a unitary phenomenon but instead represents multiple psychologically distinct behaviors defined by the different underlying functions they serve" (Cooper, Frone, Russell, & Mudar, 1995, p. 990). Specifically, Cooper and her colleagues have described four fundamentally different motivations to drink alcohol. These motives include coping with negative emotions, improving socialization, enhancing mood, and conforming to peer pressure. Individuals who drink to cope with negative emotions or enhance positive emotions, have presumably learned to do so because they lack more adaptive strategies to self-regulate emotions. In contrast, individuals who are motivated to drink to socialize or conform to peer pressure are engaging in normative behavior and may not present the same risk for chronic alcohol dependency. The work of Cooper and her colleagues have made an

important contribution to the literature because it is an interactive model that not only predicts alcohol consumption and alcohol related problems, but also predicts the underlying motivations to drink alcohol.

In one of the first studies to investigate the *Stress-Vulnerability Model* of alcohol involvement, Cooper et al. (1992) sampled 1316 adult drinkers. They hypothesized that alcohol consumption, alcohol related problems, and the motive to drink to cope with negative emotions would be predicted by stress, gender and the interaction of stress and gender. In particular, they hypothesized that men who were high in stress would be most likely to consume alcohol, have alcohol related problems, and acknowledge the motive to drink to cope. Results of hierarchical multiple regressions found that gender, stress, and the interaction of stress and gender were indeed significantly predictive of alcohol consumption and alcohol related problems. An analysis of the interactions found that men under high stress were most likely to consume alcohol and experience alcohol related problems. In contrast, differences in the level of stress were not predictive of alcohol consumption or alcohol related problems for women. With regard to drinking to cope, results indicated that male gender and high stress were significant predictors, however, no significant interaction of these terms was found. The authors concluded that the results of this study found partial support for SVM. Based upon these results, Cooper et al. (1992) concluded that the SRD model of alcohol involvement is "overly broad and that individual characteristics must be considered in order to account for stress-related effects on alcohol use" (p. 148). That is, the results of this study suggest that some individual characteristics, such as gender, may indeed make some individuals more vulnerable to using alcohol when they are stressed.

Another study by Laurent, Catanzaro, and Callan (1995) examined the SVM using an adolescent sample of high school students (n =184; average age = 17 years old). Based upon the SVM described by Cooper et al. (1992), they hypothesized that alcohol consumption, alcohol related problems, and the motive of drinking to cope with negative emotions would be predicted by stress, gender, and the interaction of stress and gender. They predicted that men under stress would be particularly vulnerable to alcohol consumption, alcohol related problems, and drinking alcohol to cope. Interestingly, the results of this study differed from the findings of Cooper et al. (1992). Hierarchical multiple regressions found that gender was not predictive of alcohol consumption, alcohol related problems, or drinking alcohol to cope. Stress was predictive of drinking to cope and alcohol related problems but was not predictive of alcohol consumption. However, the interaction of stress by gender was predictive of alcohol consumption, accounting for 5% of the variance. An analysis of this interaction suggested that under high stress, adolescent girls reported more alcohol consumption than adolescent boys. Surprisingly, the interaction of stress by gender was not predictive of either drinking to cope or alcohol related problems. Similar to Cooper et al. (1992), these researchers concluded that gender is one individual difference variable that moderates the relationship between stress and alcohol consumption, thus providing evidence for the SVM of alcohol consumption. However, these researchers found it difficult to interpret the unexpected finding that under high stress, it is adolescent girls-not adolescent boys-who consume more alcohol. This is contrary to what would be expected based upon the SVM (Cooper, Russell, & Frone, 1990; Cooper et al., 1992; Cooper et al., 1997). These results are provocative because they suggest the nature of the moderating effects of

gender on alcohol consumption may by influenced by age. The researchers did conclude that "in the future, it may be useful to examine additional variables, such as drinking motives beyond drinking to cope" (p. 650) and recommended that future research on the SVM use the Drinking Motives Questionnaire (Cooper, 1994) to predict additional motives for alcohol involvement.

In summary, Cooper and colleagues (Cooper, Russell, & Frone, 1990; Cooper et al., 1992; Cooper et al., 1997) have investigated an interactive model in which specific individual differences make individuals more vulnerable to abusing alcohol when under stress. Cooper and colleagues have found evidence for a *Stress-Vulnerability Model* (SVM) in which adult men who experience high stress are more likely to consume alcohol and experience more alcohol related problems. However, this model is limited because these results may not be consistent across age groups (e.g., Laurent et al., 1995). In addition, the SVM has yet to consider additional individual differences, such as personality, that may make individuals more vulnerable to alcohol consumption when under stress. In particular, this model has yet to consider how perfectionism may moderate this relationship, despite empirical evidence that directly links self-oriented perfectionism and socially prescribed perfectionism to alcohol involvement (Hewitt & Flett, 1991). In addition, the DSM indicates that self-oriented and socially prescribed perfectionism may interact with gender to make individuals more vulnerable to stress, and thus be associated with other negative psychological outcomes such as depression, anxiety hopelessness, and negative psychological symptoms (Chang & Rand, 2000; Flett et al., 1995; Hewitt et al., 1996; Hewitt & Flett, 1993; Joiner & Schmidt, 1995). Thus, it seems plausible that perfectionism may be an additional individual difference variable

that may moderate the relationship between stress and alcohol consumption and alcohol related problems.

General Summary

Despite theoretical and intuitive appeals to link high stress with alcohol involvement (i.e., SRD), empirical research has failed to find a consistent link between these variables. The equivocal results might be due in part to the differences in the operationalization of stress, however, these results might also be due important moderating variables that influence the effect stress has in the prediction of alcohol involvement. In fact, researchers who have investigated the *Stress-Vulnerability Model* of alcohol involvement have identified gender as a significant individual difference variable that moderates the relationship between stress and alcohol involvement. A general trend of the research is that adult men, more so than adult women, tend to report alcohol consumption, alcohol related problems, and the motivation to drink alcohol to cope with negative emotions when under stress (Cooper et al., 1992; Greeley & Oei, 1999). However, research also suggests that adolescent girls, more so than adolescent boys, tend to consume more alcohol when under stress. However, to date no study has examined if personality characteristics may also be an important individual difference variables that moderate the relationship between stress and these alcohol related outcomes. This is surprising, given research findings that indicate both perfectionism (Hewitt & Flett, 1991) and gender (Lemele & Mishkind, 1989; McCreary, Newcomb, & Sadava, 1999) predict alcohol involvement. Furthermore, according to the DSM, perfectionism has also been found to be an individual difference variable that makes individuals more vulnerable

to a multitude of negative psychological outcomes such as depression (Flett, Hewitt, Blankstein, & Mosher, 1995; Hewitt, Flett, & Ediger, 1996; Joiner & Schmidt, 1995), anxiety (Joiner & Schmidt, 1995), hopelessness (Chang & Rand, 2000), and general negative psychological symptoms (Chang & Rand, 2000).

To date, no study has investigated if perfectionism interacts with stress and gender to predict alcohol consumption, alcohol related problems, and motivation to drink alcohol to cope. In addition, no study has examined these variables as they relate to college student alcohol involvement. Thus, an integration of these models may yield a useful model in predicting alcohol consumption, alcohol related problems, and the motivation to drink alcohol to cope.

Therefore, the purpose of this study is to investigate if perfectionism interacts with stress to predict alcohol consumption, alcohol related problems, and the motivation to drink alcohol to cope. Because gender has been found to be a significant moderating variable in both the DSM and the *Stress-Vulnerability Model* (SVM) of alcohol involvement, gender as a possible second moderating variable will also be explored.

Hypotheses

Based upon theoretical models and previous research, the following hypotheses were derived for this study:

1. Among college students, male gender will increase the likelihood of consuming alcohol, having alcohol related problems, and using alcohol to cope.

2. After statistically controlling for gender, perfectionism will increase the likelihood of consuming alcohol, having alcohol related problems, and using alcohol to cope among college students. More specifically, socially prescribed perfectionism, self-oriented perfectionism, and self-discrepant perfectionism will be associated with an increased likelihood of consuming alcohol, having alcohol related problems, and using alcohol to cope.
3. After statistically controlling for gender and perfectionism, perceived stress will be associated with an increased likelihood of consuming alcohol, having alcohol related problems, and using alcohol to cope.
4. Perfectionism will moderate the relationship between stress and alcohol involvement among college students. That is, socially prescribed perfectionism, self-oriented perfectionism, and self-discrepant perfectionism will interact with perceived stress to increase the likelihood of consuming alcohol, having alcohol related problems, and using alcohol to cope. More specifically, self-reports of high perfectionism (i.e., socially prescribed perfectionism, self-oriented perfectionism, and self-discrepant perfectionism) and high perceived stress will be associated with an increased likelihood of consuming alcohol, having alcohol related problems, and using alcohol to cope. In contrast, self-reports of low perfectionism and high perceived stress will not differ from self-reports of low perfectionism and low perceived stress in terms of the increased likelihood of consuming alcohol, having alcohol related problems, and using alcohol to cope.

5. Gender will interact with perceived stress to increase the likelihood of consuming alcohol, having alcohol related problems, and using alcohol to cope. More specifically, men with high-perceived stress will be most likely to consume alcohol, have alcohol related problems, and drink alcohol as a motive to cope. In contrast, women with high-perceived stress will not differ from women with low perceived stress in terms of the likelihood of consuming alcohol, having alcohol related problems, and drinking alcohol as a motive to cope.
6. Both gender and perfectionism will moderate the relationship between stress and alcohol involvement among college students. That is, male gender and perfectionism (i.e., socially prescribed perfectionism, self-oriented perfectionism, and self-discrepant perfectionism) will interact with perceived stress to increase the likelihood of consuming alcohol, having alcohol related problems, and using alcohol to cope. More specifically, I hypothesize that men with high perfectionism and high-perceived stress would be the most likely to consume alcohol, have alcohol related problems, and use alcohol to cope. In contrast, among women who are high in perfectionism, perceived stress level would not be associated with consuming alcohol, having alcohol related problems, and using alcohol to cope.

Clinical Implications

This study has significant implications for the treatment of alcohol consumption among college students. Currently, one of the predominant approaches to treating alcohol involvement is to train clients to better manage their stress through healthy behaviors such as cognitive restructuring, coping skills, and problem solving skills (Marlatt, 1996; Marlatt & Gordon, 1985). In fact, Marlatt and colleagues have developed a brief cognitive-behavioral harm-reduction program for college students called the Brief Alcohol Screening and Intervention for College Students (BASIC; Dimeff, Baer, Kivlahan, & Marlatt, 1999). This program includes harm-reduction principles (e.g., model of addiction, nutrition/exercise information), motivational enhancement, and cognitive-behavioral skills training (e.g., relaxation training, setting drinking limits, assertiveness training, relapse-prevention strategies). This treatment was recently shown to be more effective for college students than other treatment approaches, such as a psychoeducational intervention and an assessment-only control group (Murphy et al., 2001). Other clinicians have recommended that alcohol involvement can be decreased with additional approaches to stress reduction, such as autogenic training, biofeedback, and meditation (Yost & Mines, 1985). However, research related to the effectiveness of these stress-reducing interventions has yielded equivocal results, suggesting possible moderating variables (Baer, Marlatt, Kivlahan, Fromme, Larimer, & Williams, 1992; Hawkins, Catalano & Wells, 1986; Hitchcox, 1979; Kivlahan, Marlatt, Fromme, Coppel, & Williams, 1990; Krummel, 1977; Myers & Brown, 1990; Richter, Brown, & Mott, 1991).

If perfectionism is found to predict increased alcohol involvement, it would suggest that long-term therapy focused on changing underlying personality may be appropriate. For example, Blatt and Zuroff (2002) summarize their empirical research on the treatment of perfectionism and conclude that long-term, intensive, psychodynamically-oriented psychotherapy may be necessary in the treatment of perfectionism because it involves changing underlying personality structure.

Furthermore, if perfectionism is found to be a variable that exacerbates the effects of stress on alcohol involvement, clinicians may want to use treatment strategies that address issues of perfectionism in the context of stress. For example, existing intervention programs that address issues of both perfectionism and stress in the transition to college (e.g., Moore & Barrow, 1986) may be adapted to prevent alcohol misuse and alcohol related problems. These treatment approaches suggest that reducing alcohol involvement for perfectionists may not be straightforward and may involve long-term therapy to address longstanding characterological traits.

It is worth noting that literature indicates that perfectionism may potentially interfere with the psychological treatment of clinical alcohol abuse. Literature provided by Alcoholics Anonymous (i.e., the Twelve-Step treatment for alcohol abuse and dependency) suggests that perfectionism impedes several stages of the alcohol recovery process. Most notably, Alcoholic Anonymous proponents such as Brian (1985), argue that perfectionists will have difficulty with issues of humility ("accepting limitations as imperfect beings") and surrender ("admit we are powerless to control addictions").

This study will hopefully help clinicians gain a better understand of how the various aspects of perfectionism may moderate perceived stress, and thereby

differentially influence alcohol involvement, alcohol related problems and motives for using alcohol. A better understanding of how this complex relationship may differ between men and women would also be of interest to clinicians.

CHAPTER III: METHOD

This chapter outlines the methodology utilized in the current study. First, it presents a description of the procedures utilized to recruit participants, obtain informed consent, and collect data. The chapter then provides details of the demographic characteristics of the sample that was obtained. Then the chapter describes the demographic questionnaire and the six self-reported measures that were used to assess the variables of interest. Psychometric information regarding the reliability and validity of the instruments is provided.

Procedures

This study was conducted at a large, public university in the southeast that has a national reputation for significant alcohol involvement among its students. For example, this university was ranked as the fifth best "party school" in the recent survey of US colleges and universities conducted by the Princeton Review (Franek, 2002). This ranking was based upon a 70-item questionnaire that was randomly distributed to 100,158 students at 345 colleges. The criteria for a "party school" emphasized alcohol use and other indicators of alcohol involvement on campus. Based on this reputation, it is reasonable to suspect that students may be attracted to this university, perhaps in part, because of their interest in drinking.

To order to obtain a diverse sample of undergraduates that are representative of the population of college students, prospective participants were selected from a random list of 1000 undergraduate college students generated by the Academic Affairs Office of the university. Based upon demographic characteristics provided on the list, participants were selected for inclusion in the study if they met all of the following criteria: (1) were

enrolled full-time (12 credits or more), (2) were freshmen or sophomores, (3) were 18 or 19 years old, and (4) lived in a residence hall (i.e., dormitory room). The rationale for limiting the sample to traditionally-aged freshmen and sophomores was based on research that indicates that the first two years of college among traditionally-aged colleges students is associated with the most alcohol consumption and the highest frequency of alcohol related problems (Klein, 1994; Wechsler et al., 1994).

A total of 391 individuals on the random list of 1000 met the specified criteria. These individuals were contacted via phone during weekday evenings. A total of five attempted phone calls were made before a potential participant was dropped. Potential recruits were asked if they would like to participate in a study with the purpose of "learning more about the characteristics of college students that contribute to college drinking habits." The recruitment script, informed consent, and research questionnaire packet were approved by the research institutional review boards at the University of Florida (#2002-702) and at Michigan State University (#02-228). A total of 200 participants (men = 106, women = 94) were offered (and subsequently paid) $10 for their participation in the study. The researcher arranged for participants to complete research instruments in a medium-sized classroom at a time that did not conflict with scheduled courses. Participants completed their questionnaire packets during the months of October and November as well as the first week of December, 2002. These dates were selected in order to avoid measuring drinking behavior associated with the adjustment and transition to the start and finish of the academic semester.

After obtaining informed consent from the participants and after providing the participants with a copy of the informed consent, participants were asked to complete a

packet of questionnaires that contained the instruments described below. Three versions of the packet of questionnaires were generated, in which the order of the questionnaires was varied. (A total of 66 participants completed Version 1, 77 completed Version 2, and 65 completed Version 3). In addition, participants were asked to complete a questionnaire regarding their background and demographic characteristics as well as some background and demographic characteristics of their parents (e.g., marital status, education, employment type). Socioeconomic status was determined based upon parent education and occupational prestige (Stevens & Hoisington, 1987). To ensure anonymity, the questionnaire packets did not request any identifying information (e.g., name, social security number, student number, etc.). All questionnaire packets were coded so that the information obtained from the participants was not be able to be matched with the person who had completed it.

Participants

Table 1 and Table 2 present the demographic characteristics of the sample of 198 participants. By design, the age of participants in the sample ranged from 18 to 19 years (M = 18.38, SD = .49). About 52% (n = 104) of the sample was male and about 48% (n = 94) of the sample was female. Approximately 58% of the sample was White/European American, 15% was Black/African American, 14% was Hispanic/Latino, 6% was Asian/Asian-American, 2% was Multiracial, 1.5% was Native-American, and 0.5% was Pacific Islander. Demographic characteristics of first and second year college students at the University of Florida, who were enrolled as full-time students in the Fall of 2002, were calculated based upon data provided by the university (http://www.ir.ufl.edu/

factbook/ipedsenr.pdf). Demographic characteristics of the population indicated that approximately 70% of the population was White/European American, 10% was Black/African American, 12% was Hispanic/Latino, 7% was Asian/Asian-American/Pacific Islander, 0.5% was Native-American, and 1% was of "unknown race/ethnicity." In addition, 44% of the population were men and 56% were women. In general, demographic characteristics of the sample approximated the demographic characteristics of the population of interest, although demographic characteristics of the obtained sample seemed to include more racial/ethnic minorities and men. These differences between the demographic characteristic of the obtained sample and the population may be accounted for by the selection criteria of the study, which included only 18 or 19 years-old students who lived in residential halls.

College majors were varied but the most frequent reported majors were Business Administration (21%), Engineering (19%), Journalism and Communications (12%), Liberal Arts and Sciences (8%), and Natural Resources and Environment (7%). Approximately 14% were undecided about their major. On average, students had completed one semester of college. Average reported GPA was 3.41 (SD = .52), though GPA was only available for 55% of participants who had completed at least one semester of college. Most participants' parents were married and living together (68%) although 17% reported that their parents had divorced and remarried and about 7% indicated that their parents divorced and remained unmarried. As can be seen in Table 2, participants' mothers and fathers were well educated, responding that 57% of mothers and 66% of fathers had a college education or higher. Approximately 66% of mothers and 83% of fathers worked full-time. Parent occupational prestige score is an index of

socioeconomic status. Higher prestige scores reflect higher socioeconomic status. In this study the mean prestige score for participants' fathers was 51.72. This degree of prestige would be consistent with occupations such as social workers, funeral directors, and electricians. The mean prestige score for participants' mothers was 43.70. This degree of prestige would be consistent with occupations such as nursing assistants, bank tellers, and insurance agents.

Table 1.

Demographic Characteristics

Grade Point Average	
Mean	3.41
SD	0.52
Range	1.0 - 4.0
Number of Completed Semesters	
Mean	1.04
SD	1.23
Range	0-4
Gender (%)	
Men	52.5
Women	47.5
Age (%)	
18 years-old	62.1
19 years-old	37.9
Race (%)	
Asian/Asian American	6.1
Black/African-American	15.2
Hispanic, Latino, Mexican-American	13.6
Pacific Islander	0.5
Native American/American Indian	1.5
White, European-American	58.1
Multicultural/Multiracial	2.5
Other	2.5

College Major (%)	
Agriculture & Life Sciences	3.5
Liberal Arts & Sciences	8.1
Business Administration	21.2
Journalism and Communications	11.6
Education	3
Engineering	19.2
Health and Human Performance	6.6
Health Professions	0.5
Design, Construction, & Planning	2
Natural Resources and Environment	7.1
Pharmacy	0.5
Nursing	2.5
Undecided (No preference)	14.1

Parents' Marital Status (%)	
Married and living together	67.5
Separated	3.6
Divorced and neither parent remarried	7.1
Divorced and one or both parent remarried	16.8
Widowed, or one parent deceased	2.5
Single-parent (never been married)	2.5

Table 2.

Demographic Characteristics of Parents

	Mother	Father
Education of Parent (%)		
Less than high school	5.6	4.6
High school degree/GED	10.2	8.6
Post high school/Technical school	8.1	7.1
Associate's degree/some college	19.3	13.7
College Degree	32.5	26.9
Some graduate or post-bachelor's training	5.6	5.1
Graduate or post-bachelor's training	18.8	34.0
Current Employment Status of Parent (%)		
Works full-time	65.5	82.6
Works part-time	12.2	0.5
Does not work outside of the home	12.2	3.1
Laid off/unemployed	2.5	6.2
Disabled	1	6.7
Retired	2	0.5
Other	4.6	0.5
Prestige Score of Parent's Occupation		
Mean	43.70	51.72
SD	15.25	15.30
Range	16.08-81.09	17.5-81.09

Instruments

Alcohol Consumption. The Quantity-Frequency (QF) instrument was used to assess alcohol consumption in this study. The most recent version of this instrument was used in the Harvard School of Public Health College Alcohol Study (Wechsler et al., 1994; Wecshler, 1998; Wecshler & Kuo, 2000). This study was a national survey of college alcohol consumption on 140 colleges campuses and included 17, 592 college students. The instrument standardizes the criteria for a "drink" (i.e., 12-oz can of beer, 4-oz glass of wine, 12-oz can/bottle of wine cooler, or 1.25-oz shot of liquor). The QF instrument is composed of two items. The first item assesses how many occasions the respondent drank in the last 30 days. The six possible responses include a range: (1) 0, (2) 1-2, (3) 3-5, (4) 6-9, (5) 10-19, (6) 20-39, and (7) 40 or more. For the purpose of analysis, the midpoint of each of the response categories is used to define how often the students drank in the last 30 days. For example, the midpoint for response (2) would be 1.5 and the midpoint for response (3) would be 4, etc. In order to reduce skewness caused by extreme scores, "40 or more" drinks is defined as 40 drinks. The second item on the QF assesses the volume of alcohol consumed: "In the past 30 days, on those occasions when you drank alcohol, how many drinks did you usually have?" The response choices include 0,1, 2, 3, 4, 5, 6, 7, 8, 9+. Again, in order to reduce skewness caused by extreme scores, "9+" drinks is defined as 9 drinks. The total number of drinks consumed during the 30 days is calculated by multiplying the number of occasions of drinking during the 30 days by the number of drinks per occasion during those 30 days. Thus, the total number of drinks in the past 30 days could range from 0 to 360.

This quantity x frequency method of alcohol consumption was first introduced by Jessor, Graves, Hanson, and Jessor (1968) and has been widely used in the assessment of adult alcohol consumption (Cooper, Russell, Skinner, Frone, & Mudar, 1992; Wilsnack, Klassen, & Wilsnack, 1984) as well as college alcohol consumption (Greenfield, 1986; McCreary & Sadava, 1998; Wechsler et al., 1994; Wechsler, 1998; Wecshler & Kuo, 2000).

In a review of the literature, Sobell, Sobell, Klajner, Pavan, and Basian (1986) concluded that measures of self-reported alcohol consumption are both reliable and valid. In particular, the QF instrument demonstrates adequate psychometric properties. With regard to reliability, Wood et. al (2001) obtained an α coefficient of .89 using this instrument by combining the two-item questionnaire with similar questions that assess the quantity and frequency of alcohol use in the past year as well as quantity and frequency of heavy alcohol use in the past week. In the current study, only the quantity x frequency product term was used. Cronbach's coefficient α is based on a sum of items whereas the QF is based on a product of two items. Therefore Cronbach's coefficient α is not an appropriate index of internal consistency for this measure. With regard to validity, Stacy, Widman, Hays, and DiMatteo (1985) found adequate evidence for construct validity using a mulitrait-multimethod matrix (Campbell & Fiske, 1959). Convergent validity was demonstrated by a strong positive relationship ($r = .85$) between self-ratings of alcohol involvement (i.e., degree to which an individual rates self as alcohol user) and self-reports of alcohol involvement (i.e., amount of alcohol an individual reports to consume). These researchers compared self-reports of marijuana and cigarette consumption to self-reports of alcohol consumption, and found only a modest

relationship between self-reported use of these substances. Thus, these researchers argued that this demonstrated adequate evidence for discriminant validity of the QF instrument. Concurrent validity is reported by Room (1991) who found a positive association between the responses on the QF instrument and long-term health effects of alcohol (e.g., cirrhosis of the liver) and the sale of alcohol. Concurrent validity is also supported in a study by Williams, Aitken, and Malin (1985) who found that the QF instrument was significantly associated with alcohol use in daily diary entries ($r = .74$). In addition, the QF instrument was significantly predictive of subsequent self-reported alcohol involvement in daily diary entries ($r = .73$), thus indicating the predictive validity of the instrument. More recently, Nystrom, Perasalo, and Salaspuro (1993) found evidence for concurrent validity. These researchers found a significant relationship between the QF instrument and alcohol intoxication frequency for both men ($r = .73$) and women ($r = .82$). Nystrom, Perasalo, and Salaspuro (1993) also found a significant relationship between the QF instrument and the degree of alcohol related problems for both men ($r = .51$) and women ($r = .62$).

Alcohol Related Problems. The Young Adult Alcohol Problems Screening Test (YAAPST) is a 27-item questionnaire that assesses the negative consequences of alcohol involvement among college students (Hurlbut & Sher, 1992). Participants respond to the items based upon a 9-point scale that indicates the frequency of occurrence of the problems (0= No, never; 9 = 40 or more times per year). The YAAPST is specifically designed for use with college students and includes negative consequences that are typically associated with alcohol involvement among the general population (e.g., headaches, blackouts, intoxicated driving), as well as negative consequences that are

typically associated with alcohol involvement among college students (e.g., missing classes, low grades on exams, regretful sexual situations). This instrument allows for various scoring options in order to assess lifetime alcohol problems, recent alcohol problems (in the last year), or past-year severity of alcohol problems. For the past-year severity of alcohol problems, items are weighted according to the severity of the problem. For this study, the past-year severity of alcohol problems scoring criteria will be used.

The psychometric properties of the instrument were based upon a sample of 482 undergraduate students that included both abusive and non-abusive drinkers (Hurlbut & Sher, 1992). A factor analysis of the 27-items yielded a one-factor solution, suggesting the YAAPST is a one-dimensional instrument. Internal consistency has also been demonstrated in this study, yielding a coefficient α of .84 for past-year severity scores. Test-retest reliability has also been demonstrated. The intraclass correlation coefficients during a nine-month period was .78 for the past-year severity scores.

Concurrent validity for the YAAPST has also been demonstrated (Hurlbut & Sher, 1992). The scores on the YAAPST were compared with other measures of alcohol involvement and alcohol related problems, including the Short Form of the Michigan Alcohol Screening Test, the Quantity-Frequency measure of alcohol consumption in the past year, the Quantity-Frequency measure of alcohol consumption in the past month, and the heavy drinking composite. Correlations with these instruments were .43, .46, .57., and .65, respectively. Construct validity was assessed by comparing the YAAPST to variables that are theorized to be related to alcohol problems. The YAAPST was found to be significantly correlated with alcohol expectancies, including tension reduction (r = .47), social lubrication (r = .50), enhanced activities (r = .54), and enhanced performance (r =

.37). The YAAPST was also found to be significantly correlated with motives for drinking, including affect regulation (r = .57) and social drinking (r = .39).

The YAAPST was also compared to diagnoses of alcohol abuse obtained from a semi-structured clinical interviews. Using these diagnoses as the criterion variable, a cut off score of 35 on the past-year severity index yields a sensitivity of approximately 90% and a specificity of approximately 60%. The authors of the instrument conclude that this instrument has demonstrated greater reliability and validity than other measures of alcohol related problems among college students and have recommended the instrument be used as both a research and clinical instrument (Hurlbut & Sher, 1992).

Motives for Drinking. The motivation to drink alcohol was measured by the Drinking Motives Questionnaire (DMQ; Cooper, 1994). This instrument is a 20-item instrument designed to measure four different motivations to drink alcohol. The items are rated on a 6-point Likert-Type scale that ranges from 1 (never) to 6 (almost always). The four motivational subscales include social motives ("How often do you drink because it helps you enjoy a party?"), coping motives ("How often do you drink because it helps you when you feel depressed or nervous?"), enhancement motives ("How often do you drink because you like the feeling?"), and conformity motives ("How often would you say you drink to fit in with a group you like?").

The DMQ was studied in an initial sample of 1243 older adolescents, whose average age was 17.3 years and who had all reported that they had consumed alcohol. In fact, 95% reported that they drank alcohol in the past 6 months. A factor analysis of the 20-items yielded a four-factor solution, suggesting the DMQ is a multidimensional instrument with four relatively independent subscales. This four-factor solution did not

vary across gender, race, or age. Internal consistency has also been demonstrated in this study, yielding a coefficient α of .85, .84, .88, and .85, for social motives, coping motives, enhancing motives, and conformity motives, respectively (Cooper, 1994). Correlations among these subscales ranged from $r = .16$ (Enhancement and Conformity) to $r = .68$ (Enhancement and Social). Cross-time stability was been reported by Copper (1994). They compared data from their late adolescent sample to data obtained from an adult sample (Cooper et al., 1992) and reported "remarkably similar patterns" in the motives to drink alcohol, suggesting that motives to drink are relatively stable across time. However, these measures were not completed by the same individuals across this time span and to date, no test-retest reliability has been reported in the literature.

Concurrent validity for the DMQ has also been demonstrated by comparing it with other with other measures of alcohol involvement and alcohol related problems, including a quantity of alcohol consumed in the past six months, a frequency of alcohol consumed in the six months, a heavy drinking composite index, and a drinking problems index. Hierarchical multiple regression analyses indicated that all four subscales were predictive of the quantity of alcohol consumed in the past six months and the frequency of alcohol consumed in the six month. Coping motives, enhancement motives, and conformity motives were also predictive of heavy drinking and drinking problems, however, social motives were not.

Concurrent validity for the DMQ is also established by findings that suggest that each motive to drink alcohol was associated with a distinct drinking context. That is social motives were negatively associated with drinking at home, at a friends house, and with family and was positively associated with drinking at parties. Coping motives was

negatively associated with drinking at parties and with family and was positively associated with drinking at home. Enhancement motives were negatively associated with drinking at parties and positively associated with drinking at a friend's house, drinking at bars, and drinking with same-sex friends. Conformity motives were negatively associated with drinking at home and at bars, and positively associated with drinking at parties (Cooper, 1994).

Cooper and colleagues assert that the DMQ is a valid and reliable instrument that yields four empirically based distinct motivations to drink alcohol. These four patterns represent psychologically distinct behaviors defined by the different underlying functions that they serve (Cooper, 1994; Cooper et al., 1995). Cooper and colleagues add that the instrument can be utilized in research and clinical assessment.

Stress. Stress was measured using the Perceived Stress Scale (PSS; Cohen, Kamarck, & Mermelstein, 1983). This instrument is a 14-item measure of stress, as perceived by the respondent (e.g., "In the last month, how often have you felt nervous and 'stressed'?"). The items are rated on a 5-point Likert-Type scale from 0 (never) to 4 (very often). Higher scores indicate higher perceived stress in the last month. Unlike other measures of stress, this measure is not dependent upon endorsement of specific stressful daily events but rather purports to measure the overall perceived degree of stress (Cohen et al., 1983).

The instrument has demonstrated good reliability. Internal consistency estimates of the instrument using two independent college samples were $\alpha = .84$ and $\alpha = .85$ (Cohen et al., 1983). The test-retest correlation coefficient for two days was $r = .85$ whereas the test-retest correlation coefficient for six weeks was .55 (Cohen et al., 1983). This is

theoretically consistent with the construct of stress, because stress is anticipated to stay relatively stable for short periods of time, but is not necessarily expected to remain stable for long periods of time because it is influenced by changes in daily hassles, major life events, and ability to cope with stress. Construct validity has also been demonstrated using this instrument. The PSS was found to be positively and significantly related to instruments that assess the number of life events and the perceived impact of these life events (Cohen, 1986). The PSS has been found to be significantly positively related to depression, utilization of health services, and physical complaints. In addition, the PSS has been found to independently predict social anxiety and smoking-reduction maintenance (Cohen et al., 1983). Hewitt, Flett, and Mosher (1992) have also found this instrument to be significantly related to depression [r (94) = .57, $p < .001$] and have found that scores on the PSS were higher for clinical samples than for non-clinical samples (e.g., college students), thus supporting the construct validity of the instrument.

Perfectionism. Two instruments were used to measure perfectionism. The first instrument is the Multidimensional Perfectionism Scale (MPS; Hewitt & Flett, 1991), which is a 45-item instrument in which respondents are asked to rate their agreement to statements based on a Likert-type scale. Typically, the instrument ranges from 1 (*Strongly Agree*) to 7 (*Strongly Disagree*), with a lower numerical values indicate greater agreement with the item (i.e., more perfectionistic traits). However, for the purposes of this study, the Likert-type scale was reversed so that higher numerical values indicate greater agreement with the item (i.e., 1= *Strongly Disagree* and 7 = *Strongly Agree*). This scale was modified in order to be consistent with the scaling of other instruments and to aid in statistical interpretation.

The MPS assesses three theoretically distinct dimensions of perfectionism. The Self-Oriented Perfectionism (MPS-Self) scale assesses high personal expectations that individuals hold for themselves (e.g., "It makes me uneasy to see an error in my work"). The Socially Prescribed Perfectionism (MPS-Social) scale assesses the concerns about meeting the perfectionistic standards of other people (e.g., "My family expects me to be perfect"). The Other-Oriented Perfectionism (MPS-Other) scales assesses the degree to which individuals have perfectionistic standards for others (e.g., "I have high expectations for the people who are important to me").

A principal-component factor analysis of data obtained from a college sample has indicated a three-factor solution, comprising the MPS-Self scale (15 items), MPS-Social scale (15 items), and the MPS-Other scale (15 items). Hewitt and Flett (1991) used a college sample and also found high internal consistency for the three scales of the MPS (MPS-Self α= .89; MPS-Social α= .86; MPS-Other α= .79). Research on the MPS has also demonstrated good test-retest reliability over a three-month period (MPS-Self r = .88; MPS-Social r = .75; MPS-Other r = .85).

The MPS has also demonstrated good concurrent validity, indicated by the scales correlating with other measures in the expected manner. Specifically, Hewitt, Flett, Turnbill, and Mikail (1991) found that the three scales of the MPS were significantly positively correlated with other measures of perfectionism, such as Burns' (1983) Perfectionism Scale and Frost, Marten, Lahart; and Rosenblate's (1990) Multidimensional Perfectionism Scale. Hewitt, Flett, Turnbill, and Mikail (1991) also found that the MPS was not significantly related to measures of social desirability (Marlowe-Crowne Social Desirability Scale; Crowne & Marlowe, 1960).

The second instrument used to measure perfectionism was the Almost Perfect Scale-Revised (APS-R; Slaney, Rice, & Ashby, 2002; Slaney, Rice, Mobley, Trippi, & Ashby, 2001). This instrument consists of 23 items that are responded to based upon a Likert-type scale that ranges from 1= *Strongly Disagree* to 7= *Strongly Agree*. A confirmatory factor analysis by Slaney et al. (2001) has yielded a three-factor solution for the items on the APS-R. This three-factor solution was later cross-validated on an independent sample. The three scales that comprise the APS-R are Standards (APS-R Standards; 7 items that measure personal standards; "I have high expectations for myself"), Discrepancy (APS-R Discrepancy; 12 items that measure the discrepancy between performance and standards; "My performance rarely measures up to my standards"), and Order (APS- R Order; 4 items that measure organization and need for order; "I am an orderly person"). Factor analyses by Slaney et al. (2001) have given further evidence for the convergent and discriminant validity of these scales. They found that the correlations between the scales of the APS-R were modest or insignificant (Standards and Order, $r = .42$; Standards and Discrepancy, $r = -.12$, Order and Discrepancy, $r = -.03$). In addition, the APS-R was correlated with the three scales of the MPS. Results indicated a modest to non-significant correlation between the scales. The highest correlations were between Discrepancy and Socially Prescribed Perfectionism ($r = .50$) and between Standards and Self-Oriented Perfectionism ($r = .55$). In addition, the scales of the APS-R and the MPS were found to relate in different ways to depression, self-esteem, and Grade Point Average. This indicates that the APS-R and the MPS have scales that are tapping unique dimensions of perfectionism. Cronbach's coefficient alphas

for the subscales have been α= .85 (High Standards), α= .92 (Discrepancies), α= .86 (Order).

CHAPTER IV: RESULTS

Data Cleaning

Analyses for this study were conducted using SPSS 10.1. Prior to scoring and analysis, the data were screened for accuracy of data entry, missing values and fit between their distribution and the underlying statistical assumptions of multiple regression (Fox, 1991; Tabachnik & Fidell, 1996). First, data from 200 participants were examined for data entry errors and missing values by visual inspection and by comparing the actual range of data with the possible values. One case had missing values for the Drinking Alcohol as a Motive to Cope and one case had missing values for the Multidimensional Perfectionism Scale. These two cases were deleted in subsequent analyses, yielding a total of 198 participants. The calculation of the scores of the various scales were computed using an SPSS syntax program, according to the scoring criteria described in the literature. The scoring of the instruments' scales were checked for accuracy by comparing them to two cases calculated by hand.

Descriptive Statistics and Preliminary Analyses

Scale means, standard deviations, ranges, and reliability estimates of all measures are presented in Table 3. The scale means, standard deviations, ranges, and reliability estimates of the measures are generally consistent with the those obtained in previous studies. The mean scores and standard deviations of the perfectionism measures in this study are comparable to others studies involving college students. For example, Suddath and Slaney (2001) report Discrepancy mean scores and standard deviations of 23.20 (SD = 14.04). They also report Self-Oriented Perfectionism mean scores and standard

deviations of 68.70 (SD = 14.55) as well as Socially Prescribed Perfectionism mean scores and standard deviations of 50.10 (SD = 12.61). With regard to Perceived Stress Scale, Cohen et al. (1983) reported a mean score of 23.18 and a standard deviation of 7.31 among a college student sample. This is also comparable to the results of this study. With regard to the alcohol related instruments, Cooper et al. (1994) reports a sample mean of 5.60 and a standard deviation of 1.75 among a college student sample, which is somewhat lower than the means and standard deviations obtained in this sample. As far as alcohol consumption is concerned, Wechsler et al. (1999) report a mean score of 21.21 drinks consumed per month. They also report the average mean score of "binge drinkers" which was 77.57 drinks consumed per month. The results of this study found a higher mean score of alcohol consumption (36.36) among this sample, although this mean was not as high as the mean score of alcohol consumption for "binge drinkers" in the Wechsler et al. (1999) study.

Table 3.
Descriptive Statistics

	Possible Score Range	Actual Score Range	Mean	SD	α
APS-R Discrepancy	12-84	12-79	39.49	14.66	.91
MPS- Self Oriented Perfectionism	15-105	31-105	71.92	15.54	.89
MPS- Socially Prescribed Perfectionism	15-105	24-91	54.66	13.19	.83
PSS	0-56	5-49	24.18	8.77	.86
QF	0-360	0-265.5	36.36	58.23	N/A
YAAPST	0-134	0-77	12.44	16.34	.90
DMQ- Coping	5-30	5-30	8.9	5.1	.88

Note: APS-R = Almost Perfect Scale-Revised;
DMQ-Coping = Drinking Motives Questionnaire-Coping;
MPS = Multidimensional Perfectionism Scale; PSS = Perceived Stress Scale;
QF = Quantity-Frequency;YAAPST = Young Adult Alcohol Problems Screening Test

Pearson product-moment correlations among the variables are presented in Table 4. Based upon this correlational matrix, there is no indication of multicollinearity because no correlation was greater than .80 (Tabachnik & Fidell, 1996).

Table 4.

Correlation Matrix of Variables

Measure	1	2	3	4	5	6
1. QF	-					
2. YAAPST	.45**	-				
3. DMQ-Coping	.55**	-.52**	-			
4. PSS	-.18*	.06	.04	-		
5. APS-R Discrepant	-.08	-.00	.00	.61**	-	
6. MPS- Socially Prescribed	-.09	.02	-.02	.50**	.46**	-
7. MPS- Self-Oriented	-.20**	-.11	-.14*	.25**	.30**	.59**

Note: N = 198 * $p < .05$. ** $p < .01$.

APS-R = Almost Perfect Scale-Revised
DMQ-Coping = Drinking Motives Questionnaire-Coping
MPS = Multidimensional Perfectionism Scale
PSS = Perceived Stress Scale
QF = Quantity-Frequency
YAAPST = Young Adult Alcohol Problems Screening Test

To check for normal distribution of the variables, frequency distributions of the independent and dependent variables, as well as the distribution of the residual error of the dependent variables (i.e., the difference between the predicted and obtained DV values) derived from multiple regression analyses, were conducted. Results of the frequency distribution of the independent variables (MPS-Social, MPS-Self, APSR-Discrepancy, PSS) indicated that the distributions were approximately normal. However, the frequency distribution and a scatterplot of the three dependent variables (QF,

YAAPST, DMQ-Coping) were significantly skewed in a positive direction, resulting in 31%, 28%, and 40% of participants in the sample yielding the lowest possible total score on the QF, the YAAPST, and the DMQ-Coping, respectively. The dependent variables were transformed using various techniques (e.g., square root, logarithm, inverse transformations) yet this did not result in a normal distribution of the residual errors. Therefore, a categorization was created such that individuals who had the lowest possible score on the QF (QF = 0) would compose the group of non-alcohol consumers whereas QF scores higher than 0 would compose a group of alcohol consumers. In a similar manner, students with the lowest possible score on the YAAPST (YAAPST = 0) would compose the group of students with no alcohol related problems whereas YAAPST scores greater than 0 would compose the group of students with alcohol related problems. In addition, students with the lowest possible score on the DMQ-Coping (DMQ-Coping = 5) would compose the group of students who did not drink alcohol to cope whereas students with DMQ-Coping scores greater than 5 would compose the group of students who did drink alcohol to cope.

Chi-square analyses were conducted to see if there were significant differences in the frequencies of the dependent variables (alcohol consumption, alcohol related problems, and drinking alcohol to cope) between the two age groups (18 and 19 year olds) in the sample. Results of a chi-square analysis of age and alcohol consumption indicated no statistically significant association, $\chi^2 (1, 198) = .361, p = .548$. Similarly, there was no statistically significant association between age and alcohol related problems, $\chi^2 (1, 198) = .074, p = .785$. In addition, results of a chi-square analysis

between age and drinking alcohol to cope indicated no statistically significant association, χ^2 (1, 198) = 3.30, p = .069.

Chi-square analyses were also conducted to test the association between the frequencies of the dependent variables (alcohol consumption, alcohol related problems, and drinking alcohol to cope) and the number of semesters in college. Results of a chi-square analysis between semester in college and alcohol consumption indicated no statistically significant association, χ^2 (4, 198) = 4.35, p = .36. Similarly, results revealed no statistically significant association between semester in college and alcohol related problems, χ^2 (4, 198) = 2.40, p = .66]. Results also indicated no significant association between age and drinking alcohol to cope, χ^2 (4, 198) = .64, p = .960.

Following recommendations from Jaccard (2001), predictor variables were "centered" or transformed into deviation score form by subtracting the respective group mean score from individual scores, yielding a mean of approximately 0. These predictor variables include the perceived stress scale from the PSS, one subscale of the APS-R (APS-R Discrepancy), and the two subscales of the MPS (MPS-Self and MPS-Socially Prescribed). This transformation yields an intercept that is more interpretable than would be the case for non-centered variables. In addition, this approach maximizes variability, reduces multicollinearity, and increases the likelihood of detecting significant interaction effects. However, centering does not change the value of the regression coefficients (Jaccard, 2001).

Analyses

Hierarchical Logistic Regression: Prediction of Alcohol Consumption Group

Hierarchical logistic regression analysis was used to predict alcohol consumption group membership (QF score greater than 0). The variable entered first in the model was gender (1 = male; 0 = female) to test for possible differences between men and women (Hypothesis 1). Step 1 was not statistically significant [$\chi^2_{(1, N=198)} = 2.42, p = .12$]. In the next block, the three centered perfectionism subscales (i.e., self-oriented perfectionism, socially prescribed perfectionism, and self-discrepant perfectionism) were entered. In addition, centered perceived stress from the PSS scale was also entered into this block (Hypothesis 2). Step 2 was statistically significant [$\chi^2_{(4, N=198)} = 8.59, p = .04$]. The following block consisted of the multiplicative term of centered perceived stress by each of the three centered subscales of perfectionism (Hypothesis 3). Step 3 was statistically significant [$\chi^2_{(3, N=198)} = 4.02, p = .045$]. The fourth block was composed of the multiplicative term of centered perceived stress by gender (Hypothesis 4). Step 4 was not statistically significant [$\chi^2_{(1, N=198)} = .17, p = .68$]. The final step consisted of a three-way interaction of perceived stress by the three scales of perfectionism by gender (Hypothesis 5). Step 5 was statistically significant [$\chi^2_{(3, N=198)} = 10.61, p = .01$]. The results of the overall logistic regression model which included all variables (G_M) was statistically significant [$\chi^2_{(12, N=198)} = 26.46, p = .01$]. In addition, the overall, the model correctly classified 72.2% of the cases.

The Hosmer and Lemeshow Test (HLT) is an indication of the unexplained variance in the model, wherein statistical significance and large values are indicative of a poorly fitting model. In this model, the HLT was not significant. This result indicated that

the overall model, which included all variables, was a reasonable fit for the data, $\chi^2_{(12, N=198)} = 5.86, p = .66$.

Hosmer and Lemeshow (1989) have proposed a measure of the pseudo-variance explained by logistic regression models. Specifically, R_L^2 is the proportional reduction in χ^2 when the predictor variables are included in the model compared to the model when these variables are not included. This is derived by dividing the chi-square for the model by the initial Log-Likelihood measure (26.46 ÷ 228.71 = .116). Thus, this overall model accounted for about a 12% reduction in explained variance when compared to a model with no predictor variables (Menard, 1995). Nagelkerke (1991) has proposed a comparable adjusted estimate of pseudo-variance. In this model, the Nagelkerke R^2 was .176. Therefore, this model explained about 17.6 % of the variance.

Table 5 shows the logistic regression coefficients (β), standard errors (SE), Wald statistics (W^2), and odd ratios (OR) for each variable in the model. The Wald statistics for centered MPS-Self in Step 2 was statistically significant, $\chi^2_{(1, N=198)} = 10.58, p = .001$. The OR for the MPS-Self variable represents the multiplying factor by which the odds of drinking are predicted to change, given a one-unit increase in self-oriented perfectionism, when the other variables in the model equal 0 (e.g., when perceived stress is average and gender is female). The OR for MPS-Self was .950. Subtracting one from this term and multiplying by 100 indicates the percentage change in the odds of being classified in the group that consumes alcohol, as this term changes by one unit. Thus, there is a reduction in the odds of being classified in the group that consumes alcohol by 5%. Thus, self-oriented perfectionists were less likely to be classified in the group who consumed alcohol, after controlling for the other variables in the model (Hypothesis 2).

Table 5.

Hierarchical Logistic Regression to Predict Alcohol Consumption Group

	Variable	B	S.E.	Wald	*p*	Exp (B)	95% C.I. Exp (B)	
							Lower	Upper
Step 1	Gender	.410	.396	1.07	.30	1.51	.693	3.278
Step 2	MPS-Self	-.051	.016	10.58	.001**	0.95	.921	0.980
	MPS-Social	.024	.019	1.61	.204	1.03	.987	1.06
	APS-R Discrepancy	.016	.016	1.03	.309	1.02	.985	1.05
	PSS	-.056	.037	2.34	.13	0.95	.880	1.016
Step 3	MPS-Self x PSS	.006	.003	5.14	.023*	1.01	1.00	1.012
	MPS-Social x PSS	-.001	.003	.276	.599	0.99	.993	1.004
	APS-R Discrepancy x PSS	-.001	.002	.283	.595	0.99	.995	1.003
Step 4	Gender x PSS	.004	.045	.006	.936	1.00	.919	1.095
Step 5	Gender x PSS x MPS-Self	-.009	.004	5.90	.015*	.991	.984	0.998
	Gender x PSS x MPS Social	.001	.004	.021	.844	.999	.992	1.007
	Gender x PSS x Discrepancy.	.004	.003	1.78	.183	1.004	.998	1.009
Intercept		.687	.268	6.55	.010*	1.988		

Note: * = $p < .05$

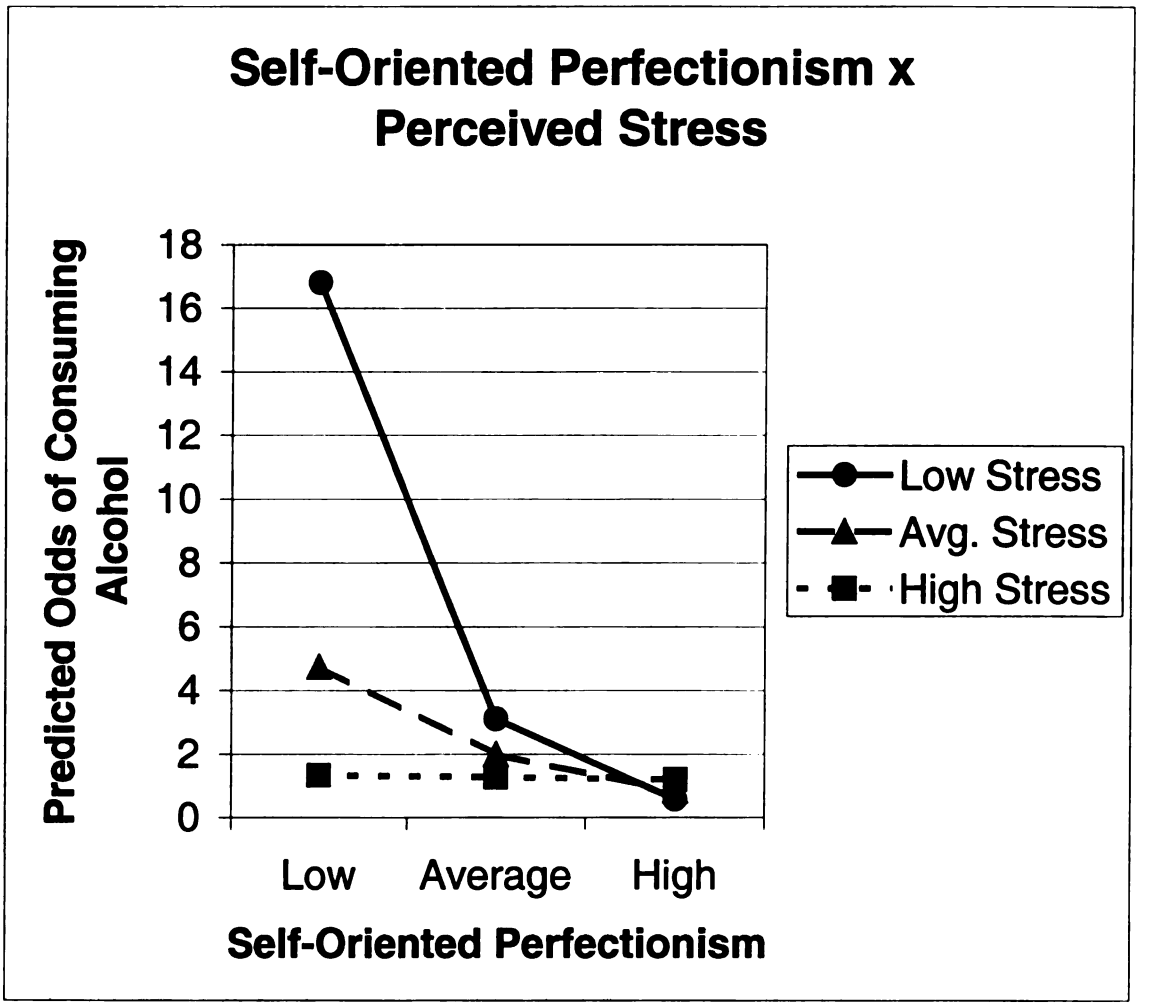
** = $p < .001$

The Wald statistic for the interaction of PSS x MPS-Self in Step 3 (Hypothesis 3) was statistically significant [$\chi^2_{(1, N=198)} = 5.14$, $p = .023$]. The OR for PSS x MPS-Self reflects the two-way interaction contrast between self- oriented perfectionism and perceived stress when other variables in the model equal 0 (i.e., gender is female).

Jaccard (2001) and Cohen, Cohen, West, and Aiken (2003) suggest a method of plotting the predicted odds of interactions in logistic regression. In order to facilitate the interpretation of interactions, these authors provide the following formula: logit (π) = α + $\beta_1 X + \beta_2 Z + \beta_3 XZ$, where in this case logit (π) = the log odds of being categorized as an alcohol consumer, α = constant, β_1 = coefficient associated with variable X (i.e., Perceived Stress), β_2 = coefficient associated with variable Z (i.e., Self-Oriented Perfectionism), and β_3 = coefficient associated with the interaction of XZ. This equation can be re-written as: logit (π) = $[\beta_1 + \beta_3 Z]\ X\ + [\beta_2 Z\ + \alpha]$ or with regard to the specific test variables, logit (π) = $[\beta_1 + \beta_3$ (Self-Oriented Perfectionism)] [Perceived Stress] + [β_2 (Self-Oriented Perfectionism) + constant]. Therefore, the equation for the interaction of Self-Oriented Perfectionism by Perceived Stress (Hypothesis 3) was: logit (π) = [.687 + .0006 Z] X = [0.051 Z + 0.687]. Values equal to the centered mean (Average), one standard deviation above the centered mean (High), and one standard deviation below the centered mean (Low) of Perceived Stress and Self-Oriented Perfectionism were substituted into the equation above. The resulting log odds of being categorized as an alcohol consumer was then transformed into predicted odds of being categorized as consuming alcohol by using the exponent function. Figure 1 graphically represents the nature of this interaction.

Figure 1

Figure Caption. Interaction of Self-Oriented Perfectionism and Perceived Stress in the Predicted Odds of Consuming Alcohol.



A graphical representation of the two-way interaction of MPS-Self and PSS (Figure 1) suggests that among college students with low MPS-Self scores, low scores on the PSS are associated with a 16.8 fold increase in the odds of alcohol consumption. Among college students with low MPS-Self scores, average and high scores on the PSS

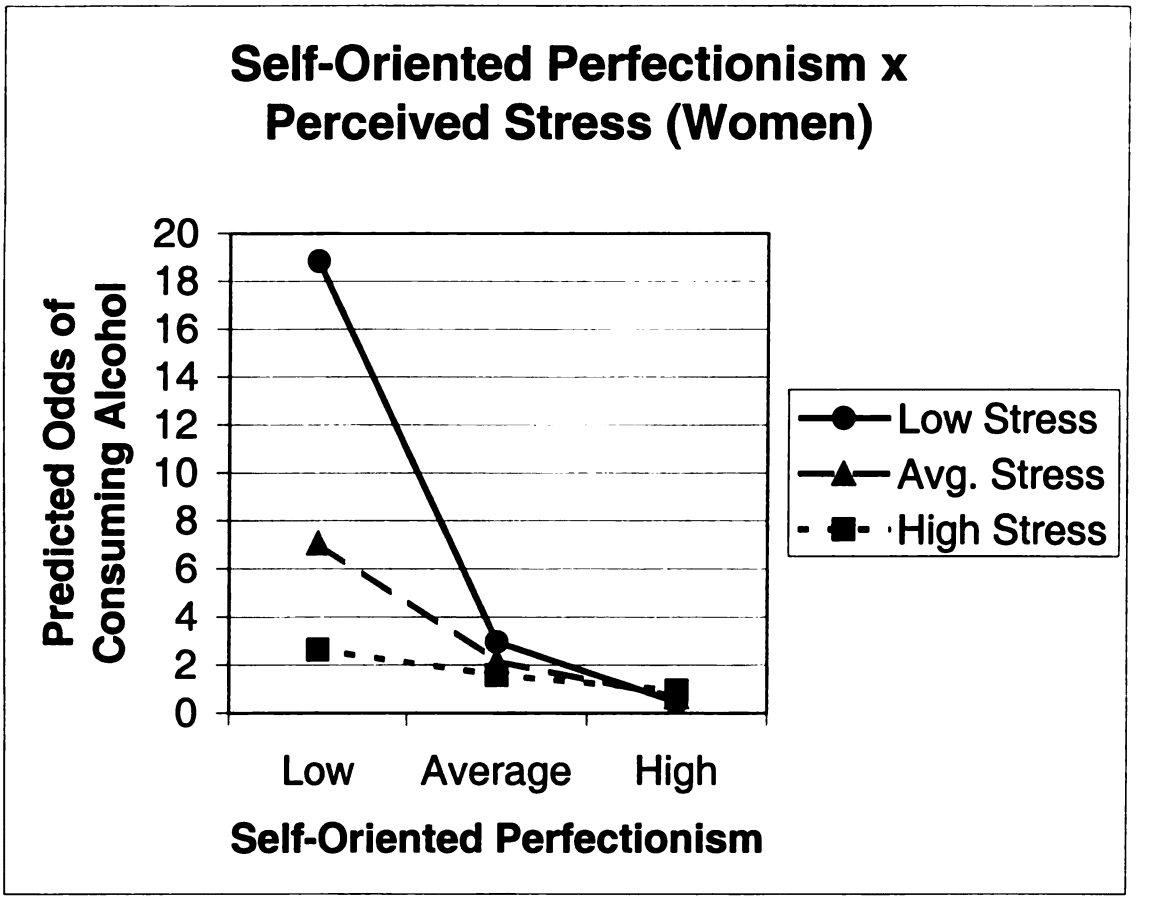
are associated with a 4.7 and 1.3 fold increase in the odds of alcohol consumption. Among college students with high MPS-Self scores, average and low PSS scores are associated with a slight decrease in the odds of alcohol consumption (.83 and .57, respectively). This suggests that college students who are low in self-oriented perfectionism are more likely to consume alcohol when they experience low and moderate degrees of perceived stress compared to when they experience a high degree of perceived stress. In contrast, college students with high MPS-Self scores are less likely to consume alcohol than their counterparts, regardless of scores on the PSS.

As reported previously, the three-way interaction of centered PSS, MPS-Self, and gender (Hypothesis 5) was statistically significant in Step 5 [$\chi^2_{(1, N=198)} = 5.90, p = .015$]. In order to facilitate the interpretation of this three-way interaction, the data file was "split" and the logistic regression models to predict alcohol consumption were analyzed separately for each gender. The resulting coefficients associated with PSS, MPS-Self, and the interaction between PSS and MPS-Self were derived and were used to generate equations for each gender. As described previously, values equal to the centered mean (Average), one standard deviation above the centered mean (High), and one standard deviation below the centered mean (Low) of Perceived Stress, and Self-Oriented Perfectionism were substituted into the equation. The resulting log odds of being categorized as consuming alcohol was then transformed into predicted odds of being categorized as consuming alcohol by using the exponent function.

The equation derived for the interaction of Self-Oriented Perfectionism x Perceived Stress among women was: logit (π) = [-.039 + (.005) Z] X = [(-.071) Z + .771]. Figure 2 graphically represents the nature of this interaction.

Figure 2

Figure Caption. Self-Oriented Perfectionism and Perceived Stress Among Women in the Predicted Odds of Consuming Alcohol.



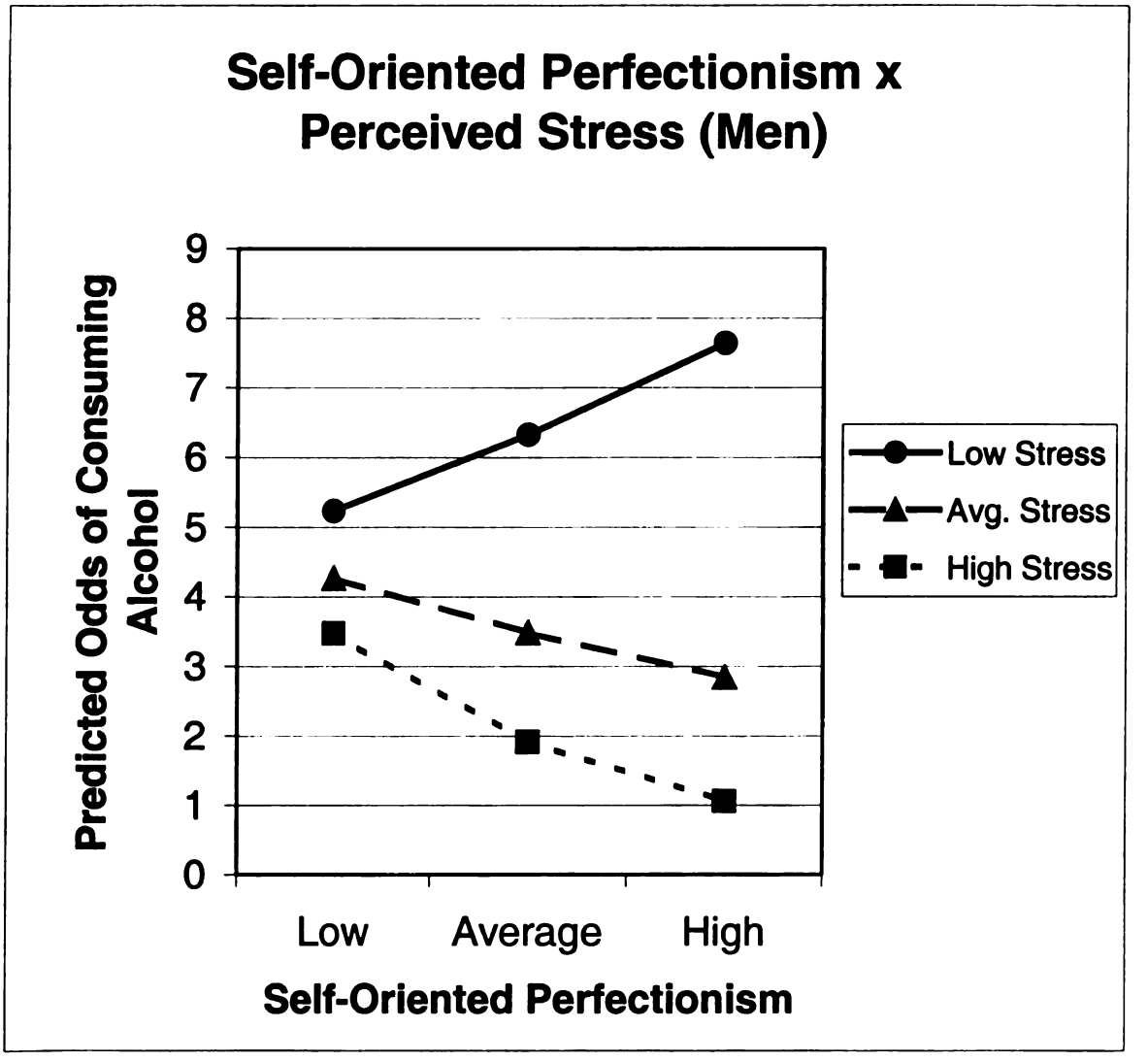
A graphical representation of the interaction of self-oriented perfectionism and perceived stress (Figure 2) is virtually identical to the relationships described above. Among college students with low MPS-Self scores, low scores on the PSS are associated with a 18.8 fold increase in the odds of alcohol consumption. Among college students with low MPS-Self scores, average and high scores on the PSS are associated with a 7.1 and 2.6 fold increase in the odds of consuming alcohol. Among college students with

high MPS-Self scores, high, average and low PSS scores are associated with a slight decrease in the odds of alcohol consumption (.46, .66, and .94, respectively). This suggests that college students who are low in self-oriented perfectionism are more likely to consume alcohol when they experience low and moderate degrees of perceived stress compared to when they experience a high degree of perceived stress. In contrast, college students with high MPS-Self scores are less likely to consume alcohol than their counterparts, regardless of scores on the PSS.

The equation derived for the interaction of Self-Oriented Perfectionism x Perceived Stress among men was: logit (π) = [-.066 + (-.003) Z] X + [(-.014) Z + 1.25]. Figure 3 graphically represents the nature of this interaction. Values equal to the centered mean (Average), one standard deviation above the centered mean (High), and one standard deviation below the centered mean (Low) of Perceived Stress and Self-Oriented Perfectionism were substituted into this equation. The resulting log odds of being categorized as consuming alcohol was then transformed into predicted odds of being categorized as consuming alcohol by using the exponent function.

Figure 3.

Figure Caption. Interaction of Self-Oriented Perfectionism and Perceived Stress Among Men in the Predicted Odds of Consuming Alcohol.



Among male college students with high scores on the MPS-Self and were associated with significant increases in the likelihood of consuming alcohol. Specifically, among male college students with high scores on the MPS-Self, low scores on the PSS have a 7.6 fold increase in likelihood alcohol consumption. This is compared with male

college students with high scores on the MPS-Self and high scores on the PSS, who were only 1.1 times more likely to consume alcohol. In contrast, among male college students with low scores on the MPS-Self, students with low PSS scores have a 5.2 fold increase in the likelihood of alcohol consumption whereas students with low scores on the MPS-Self and high scores on the PSS were 3.5 times more likely to consume alcohol. This suggests that high self-oriented perfectionism may buffer the effects of stress on alcohol consumed among male college students.

Hierarchical Logistic Regression: Prediction of Alcohol Related Problems Group

In order to predict group membership of college students with alcohol related problems (YAAPST score greater than 0), the same step sequence of variables was used as in the previous model involving alcohol consumption. The variable entered first in the model was gender (1 = male; 0 = female) to test for possible differences between genders (Hypothesis 1). This step was not statistically significant [$\chi^2_{(1, N=198)} = 2.41, p = .12$]. In the next block, the three centered perfectionism subscales (i.e., self-oriented perfectionism, socially prescribed perfectionism, and self-discrepant perfectionism) were entered. In addition, centered perceived stress from the PSS scale was entered into the same block (Hypothesis 2). Step 2 was not statistically significant [$\chi^2_{(4, N=198)} = .08, p = .784$]. The following block consisted of the multiplicative term of centered perceived stress by each of the three centered subscales of perfectionism (Hypothesis 3). Step 3 was not statistically significant [$\chi^2_{(3, N=198)} = .98, p = .81$]. The fourth block was composed of the multiplicative term of centered perceived stress by gender (Hypothesis 4). Step 4 was not statistically significant [$\chi^2_{(1, N=198)} = .00, p = .99$]. The final step

consisted of a three-way interaction of perceived stress by the three scales of perfectionism by gender (Hypothesis 5). Step 5 was not statistically significant [$\chi^2_{(3, N=198)} = 5.11, p = .164$]. The results of the logistic regression of the full model (G_M), which included all variables, was not statistically significant, $\chi^2_{(12, N=198)} = 16.90, p = .153$. Table 6 indicates the results associated with each variable in the model.

Table 6.

Hierarchical Logistic Regression to Predict Alcohol Related Problems Group

	Variables	B	S.E.	Wald	*p*	Exp (B)	95% C.I. Lower	Upper
Step 1	Gender	0.624	0.40	2.426	0.119	1.866	0.851	4.089
Step 2	Self-Perfectionism	-0.028	0.015	3.523	0.061	0.972	0.944	1.001
	Social Perfectionism	-0.016	0.019	0.694	0.405	0.984	0.947	1.022
	Discrepant Perfectionism	0.01	0.016	0.389	0.533	0.984	0.979	1.042
	Perceived Stress	-0.009	0.034	0.063	0.803	0.991	0.927	1.061
Step 3	Self-Perfectionism x Perceived Stress	0.004	0.003	1.734	0.188	1.004	0.998	1.009
	Social Perfectionism x Perceived Stress	-0.002	0.003	0.333	0.564	0.998	0.993	1.004
	Discrepant Perfectionism x Perceived Stress	0.00	0.002	0.03	0.863	1.00	0.997	1.004
Step 4	Gender x Perceived Stress	0.013	0.044	2.6535	0.105	0.994	0.93	1.104
Step 5	Gender x Perceived Stress x Self-Perfectionism	-0.006	0.004	2.65	0.105	0.994	0.93	1.104
	Gender x Perceived Stress x Social Perfectionism	-0.001	0.004	0.05	0.824	0.999	0.992	1.006
	Gender x Perceived Stress x Discrepant Perfectionism	0.003	0.003	1.048	0.306	1.003	0.997	1.008
Intercept		0.686	0.262	6.861	0.009	1.985		

Note: * = p < .05
** = p < .01

Logistic Regression: Prediction of Drinking Alcohol to Cope Group

This logistic regression analysis model predicted group membership of college students who drink alcohol to cope (DMQ score greater than 5). The order of entry of the variables remained the same as in the previous model. The variable entered first in the model was gender (1 = male; 0 = female) to test for possible differences between genders (Hypothesis 1). Step 1 was not statistically significant [$\chi^2_{(1, N=198)} = 1.03, p = .31$]. In the next block, the three centered perfectionism subscales (i.e., self-oriented perfectionism, socially prescribed perfectionism, and self-discrepant perfectionism) were entered. In addition, centered perceived stress from the PSS scale was entered into this block (Hypothesis 2). Step 2 was not statistically significant [$\chi^2_{(4, N=198)} = 1.10, p = .30$]. The following block consisted of the multiplicative term of centered perceived stress by each of the three centered subscales of perfectionism (Hypothesis 3). Step 3 was not statistically significant [$\chi^2_{(3, N=198)} = 4.28, p = .23$]. The fourth block was composed of the multiplicative term of centered perceived stress by gender (Hypothesis 4). Step 4 was not statistically significant [$\chi^2_{(1, N=198)} = 1.44, p = .23$]. The final step consisted of a three-way interaction of perceived stress by the three scales of perfectionism by gender (Hypothesis 5). Step 5 was not statistically significant [$\chi^2_{(3, N=198)} = 4.46, p = .22$]. The results of the overall logistic regression model (G_M), which included all variables, was not statistically significant [$\chi^2_{(12, N=198)} = 17.87, p = .12$]. Table 7 shows the significance level of each variables.

Table 7.

Hierarchical Logistic Regression to Predict Drinking Alcohol to Cope Group

	Variables	B	S.E.	Wald	*p*	Exp (B)	95% C.I. Lower	95% C.I. Upper
Step 1	Gender	0.498	0.372	1.787	0.181	1.645	0.793	3.415
Step 2	Self-Perfectionism	-0.029	0.014	4434	0.035	0.972	0.946	.998
	Social Perfectionism	0.001	0.018	0.002	0.966	1.001	0.966	1.036
	Discrepant Perfectionism	-0.002	0.015	0.013	0.909	0.998	0.969	1.028
	Perceived Stress	0.007	0.032	0.049	0.824	1.007	0.947	1.071
Step 3	Self-Perfectionism x Perceived Stress	.000	0.002	0.026	0.873	1.00	0.966	1.005
	Social Perfectionism x Perceived Stress	.000	0.003	0.001	0.981	1.00	0.995	1.005
	Discrepant Perfectionism x Perceived Stress	0.001	0.002	0.362	0.547	1.001	0.998	1.004
Step 4	Gender x Perceived Stress	0.056	0.04	1.933	0.164	1.057	0.977	1.144
Step 5	Gender x Perceived Stress x Self-Perfectionism	-0.003	0.003	0.985	0.321	0.997	0.99	1.003
	Gender x Perceived Stress x Social Perfectionism	-0.003	0.004	0.778	0.378	0.997	0.99	1.004
	Gender x Perceived Stress x Discrepant Perfectionism	0.004	0.003	1.81	0.178	1.004	0.998	1.01
Intercept		0.153	0.247	0.385	0.535	1.166		

Note: * = p < .05

** = p < .01

Exploratory Analyses

Several predicted hypotheses were not supported in this study. Therefore, in order to ascertain the reasons why these hypotheses were not supported, a number of exploratory analyses were conducted. In particular, it is possible that students pursuing different majors could experience different degrees of stress, have different tendencies toward perfectionism, and have different academic environments where drinking alcohol is more or less normative. To that end, an examination of the association between college major and the variables in this study was conducted. College students in this sample reported a total of 12 different majors. However, five categories of majors contained fewer than 10 students, and were therefore not included in these analyses. Only the seven categories of majors that included at least 10 or more students were examined. A series of three chi-square analyses were conducted to determine the association between drinking involvement across the seven majors. The association between college major and alcohol consumption group (QF) was not statistically significant, χ^2 (6, 198) = 1.89, p = .93. The association between college major and alcohol related problems group (YAAPST) was not statistically significant, χ^2 (6, 198) = 5.03, p = .54. Similarly, the association between college major and drinking alcohol to cope group (DMQ-Coping) was not statistically significant, χ^2 (6, 198) = 5.03, p = .54.

In addition, a series of univariate analyses of variance (ANOVA) were conducted to determine if the study variables were significantly different across college majors. Results of the univariate ANOVAs did not reveal significant mean differences between the study variables. Results of an ANOVA did not reveal significant differences in the mean scores of perceived stress (PSS) among college students, F (6,198) = 1.79, p = .11.

Results of an ANOVA also did not reveal significant differences in the mean scores of Discrepancy, F (6,198) = .85, p = .534. In addition, there were no significant differences between college majors on self-oriented perfectionism, F (6,198) = .64, p = .70. Similarly, no significant differences were found on socially-prescribed perfectionism, F (6,198) = .66, p = .67.

As a result of these exploratory analyses, the substantive findings, or lack thereof, were not likely attributable to systematic differences between students pursuing different college majors. Said differently, in this sample, there do not appear to be culture-specific norms for drinking, perfectionism, or stress as reflected by the students' major course of study.

CHAPTER V: DISCUSSION

Based upon previous research conducted on college students (Lemle & Mishkind, 1989; McCreary, Newcomb, & Sadava, 1999; Perkins, 1999), I hypothesized that male gender would significantly increase the likelihood of being categorized as being involved with alcohol. In contrast to Hypothesis 1, male gender was not found to be associated with a greater probability of being categorized as consuming alcohol, having alcohol related problems, or drinking alcohol to cope among this college sample. Failing to find a significant gender difference in alcohol involvement is consistent with recent research conducted at a Midwestern and Southern university conducted by Lo (1996). Perkins (1999), however, makes a valid point when he reminds readers that failing to find a significant gender difference in the likelihood of consuming alcohol does not suggest that the degree of intoxication is equivalent between the genders. Although the mean consumption of alcohol among men and women may not significantly differ, women who consume an equal amount of alcohol as men may achieve a much higher degree of blood alcohol concentration because of biological differences in body weight, fat-to-water ratios, and metabolic processing. Thus, although male gender was not predictive of alcohol involvement in this study, this does not suggest that gender would not be predictive of intoxication levels.

Consistent with Hypothesis 2, the results of this study found that self-oriented perfectionism was associated with a slight decrease in the likelihood of being categorized as consuming alcohol (after statistically controlling for the effects of gender). However, self-oriented perfectionism was not associated with a greater or lesser likelihood of being categorized as having alcohol related problems or using alcohol to cope. In addition,

other measures of perfectionism, such as self-discrepant perfectionism and socially-prescribed perfectionism, were not associated with any of the three measures of alcohol involvement. Furthermore, the finding that self-oriented perfectionism was associated with a 5% *decrease* in the likelihood of being categorized as consuming alcohol was not in the expected direction. Based upon previous literature among adult samples (i.e., Hewitt & Flett, 1991; Nerviano & Gross, 1983), it was hypothesized that self-oriented perfectionism would be associated with an increased likelihood of being categorized as consuming alcohol. The finding that self-oriented perfectionism was not associated with such an increase among a college sample suggests that the relationship between self-oriented perfectionism and alcohol consumption among the college population may differ from adult clinical samples.

The reason why self-oriented perfectionism is associated with a decrease in alcohol consumption among college student but is associated with an increase in alcohol consumption among adult clinical samples is not obvious. Self-oriented perfectionism is conceptualized as having high personal standards and a strong motivation to be flawless. A recent review of the literature regarding the MPS-Self has suggested that it may measure a relatively adaptive trait, associated with self-related personality traits rather than the negative psychological symptoms or characteristics associated with other measures of perfectionism (Enn & Cox, 2002). The notion that self-oriented perfectionism is a relatively adaptive trait would be consistent with the finding that self-oriented perfectionism was associated with a slight decrease in the likelihood of being categorized in the group of alcohol consumers. It is conceivable that self-oriented perfectionists are less likely to consume alcohol because they believe that doing so would

not be consistent their high personal standards or may impede with their strong motivation to perform flawlessly on tasks.

The results of this study failed to find evidence that perceived stress increases the likelihood of being categorized as consuming alcohol, having alcohol related problems, or using alcohol to cope, which was also predicted (Hypothesis 2). Thus, this study did not find evidence for the *Stress-Response Dampening* model proposed by Sher and Levinson (1982). This is consistent with previous literature that did not find an association between stress and alcohol involvement (Corcoran & Parker, 1991; McCreary & Sadava, 1998). However, this study did find a statistically significant (inverse) correlation between perceived stress and being categorized as a consumer of alcohol (r = -.18). This finding is inconsistent with the *Stress-Response Dampening* model, but would be consistent with an alternative to the SRD model of alcohol consumption proposed by Krause (1991). He theorizes that stress can lead to a decrease in alcohol consumption rather than an increase. He asserts that individuals may choose to decrease their consumption of alcohol depending upon the nature and source of the stress. For example, he believes that health-related stressors may cause people to reduce their drinking because of a fear that it might exacerbate health problems. Similarly, Krause believes that financial stressors may cause people to reduce their drinking because they cannot afford to purchase alcohol. Therefore, it may be that the particular type of stress experienced by the college students in this sample (e.g., transition to college, college coursework, peer relationships, etc.) may be associated with a decrease in alcohol consumption.

Hypothesis 3 stated that perfectionism would interact with perceived stress to increase the likelihood of being categorized as consuming alcohol, having alcohol related problems, and using alcohol to cope. In particular, high perfectionism and high perceived stress was hypothesized to be associated with an increased likelihood of being categorized as consuming alcohol, having alcohol related problems, and using alcohol to cope. The results of this study did find a significant interaction between perceived stress and self-oriented perfectionism. Although contrary to Hypothesis 3, low self-oriented perfectionists with low perceived stress had the highest predicted odds of alcohol consumption when compared with low self-oriented perfectionists with average and high perceived stress. In addition, college students with low self-oriented perfectionism and low perceived stress also had a higher predicted odds of consuming alcohol when compared to high self-oriented perfectionists with low, average, or high perceived stress. This finding is consistent with a previous study that found that college students with low self-discrepant perfectionism and low anxiety were most predictive of alcohol consumption (Cohen & Rice, 2003). However, results from this study are the opposite of predictions based upon the *Diathesis-Stress Model of Perfectionism* (DSM), which proposes that perfectionism magnifies the effects of stress and becomes relatively maladaptive because it is associated with self-defeating styles of cognitive appraisal, maladaptive coping and poor problem-solving skills (Hewitt & Dyck, 1986; Hewitt & Flett, 1993; Hewitt & Flett, 2002). In addition, the results of this study are not consistent with several previous research studies that linked the DSM to depression and psychological distress (Chang & Rand, 2000; Hewitt & Dyck, 1986; Hewitt & Flett, 1993; Flett, Hewitt, Blankstein, & Mosher, 1995; Joiner & Schmidt, 1995). It is

interesting to note that among college students with low self-oriented perfectionists, the predicted odds of consuming alcohol decreases only as perceived stress increases. In contrast, among high self-oriented perfectionists, the predicted odds of consuming alcohol does not increase, regardless of the perceived stress level. This might indicate that high self-oriented perfectionists are less likely to consume alcohol, regardless of perceived stress level, because they believe that any degree of alcohol consumption may interfere with their ability to be perfect or perform flawlessly at tasks (i.e., tests, classroom assignments, studying). However, the same may not be true of college students with low self-oriented perfectionism. Such individuals may only become concerned about task performance (or perhaps task completion) when they perceive a high degree of stress. It is at this time that they choose to decrease their alcohol consumption.

It was hypothesized that male gender would interact with perceived stress to increase the likelihood of being categorized as consuming alcohol, having alcohol related problems, or using alcohol to cope (Hypothesis 4). According to the *Stress-Vulnerability Model* (SVM) proposed by Cooper et al. (1992), male college students were expected to be more prone than female college students to externalize their stress by consuming alcohol, having alcohol related problems, and drinking alcohol to cope when exposed to high stress. Unlike previous studies, this study failed to find evidence for the moderating effects of gender on stress in the prediction of alcohol involvement (Cooper et al., 1992; Laurent, Catanzaro, & Callan, 1995). Cooper et al. (1992) found that among adult, male gender moderated the relationship between stress and alcohol involvement. However, Laurent et al. (1995) found that among adolescents, female gender moderated the

relationship between stress and alcohol involvement. The lack of a significant interaction between gender and alcohol involvement in the current study may be due to the age of the participants, which was slightly older than the mean age in the adolescent sample but younger than the mean age in the adult sample. Perhaps during this transitional period between adolescence and adulthood, the relative impact of gender on stress may not be significantly different. Alternatively, as described below, the impact of a third moderating variable (i.e., self-oriented perfectionism) may significantly moderate the relationship between gender and stress in the likelihood of alcohol involvement.

Hypothesis 5 proposed that among men with high perfectionism, high-perceived stress and would be most likely to consume alcohol, have alcohol related problems, and use alcohol to cope. In contrast, among women who are high in perfectionism, perceived stress level would not be predictive of alcohol consumption, having alcohol related problems, and using alcohol to cope. Results of this study are partially consistent with Hypothesis 5, in that among women with high self-oriented perfectionism, the degree of perceived stress was not predictive of alcohol consumption. Similar to the two-way interaction described previously, among women with low self-oriented perfectionism, high and average perceived stress was associated with the highest predicted odds of alcohol consumption. In contrast, among high self-oriented perfectionists, the predicted odds of consuming alcohol increased, regardless of the perceived stress level. Again, this may indicate that women with high self-oriented perfectionism are less likely to consume alcohol, regardless of perceived stress level, because they believe that any degree of alcohol consumption may interfere with their ability to be perfect or perform flawlessly at tasks. Female college students with low self-oriented perfectionism may only decrease

their alcohol consumption after they become concerned that it may hamper their ability to performance a task under intense pressure or stress.

The relationship does hold true of male college students and the results for men were not consistent with Hypothesis 5. Results of the two-way interaction between self-oriented perfectionism and perceived stress among male college students indicated that high self-oriented perfectionists with low perceived stress was most predictive of alcohol consumption when compared to high self-oriented perfectionists with average to high perceived stress. The finding that among male college students, high self-oriented perfectionists with high perceived stress consume less alcohol than high self-oriented perfectionists with low perceived stress suggests that college males with high self-oriented perfectionism may monitor their use of alcohol consumption and may reduce their alcohol involvement when they experience stress, electing to use adaptive coping. Indeed, there is evidence in the literature to suggest that self-oriented perfectionism is associated with adaptively coping with stress, such as positive problem-solving orientations and learned resourcefulness (Flett, Hewitt, Blankstein, & O'Brien, 1991; Flett, Hewitt, Blankstein, Solnik, & Van Brunschot, 1996). This may suggest that among male college students, a new theory of perfection may be in order that proposes that relatively adaptive aspects of perfectionism (i.e., self-oriented perfectionism) may buffer the effects of stress on alcohol consumption. That is, as stress increases, male self-oriented perfectionists are able to draw upon their adaptive coping skills when confronted with stress and are less prone to using maladaptive coping skills, such as consuming alcohol. I propose that this theory could be referred to as the *Stress-Buffer Model of Perfectionism* (SBM). This indicates that future studies could examine if self-oriented

perfectionism among male college students interacts with coping responses and stress level to predict alcohol involvement.

In general, these results suggest that among college students, gender seems to moderate the relationship between perfectionism (i.e., self-oriented perfectionism) and perceived stress with regard to alcohol consumption. This suggests that the *Stress-Buffer Model of Perfectionism* related to alcohol consumption may be a useful model to understand alcohol consumption among male college students (see Hypothesis 3), but not as useful in understanding alcohol consumption among female college students. Therefore, models should take into account the effects of gender, which may differentially affect the interaction between self-oriented perfectionism and perceived stress regarding alcohol consumption.

One surprising finding of the study was that only self-oriented perfectionism was related to alcohol involvement whereas other aspects of perfectionism (i.e., self-discrepant and socially-prescribed perfectionism) were not significantly related to alcohol involvement. The reason for this is not clear. As discussed previously, self-oriented perfectionism involves high personal standards and is regarded by some researchers as a relatively adaptive trait (Enn & Cox, 2002). In contrast, self-discrepant perfectionism is conceptualized as the person's perception of the extent to which perfectionistic standards have been achieved. Slaney et al. (2001) argue that this perceived discrepancy is maladaptive and is related to significant psychological distress. Socially-prescribed perfectionism involves the perception that unrealistically high standards are being imposed by others. Likewise, it has been regarded as a relatively maladaptive trait (Enn & Cox, 2002) and has been found to be associated with alcohol consumption among

adults (Hewitt & Flett, 1991). Therefore, a rationale as to why self-discrepant perfectionism and socially-prescribed perfectionism were not associated with an increase in alcohol involvement among colleges students may be because college students, unlike their adults counterpart, do not tend to use alcohol to cope with the psychological distress associated with their perfectionism. They may utilize other means to cope with their distress.

It was also surprising that of the models proposed, the only dependent variable that was predicted by the independent variables in the study was alcohol consumption. Although self-oriented perfectionism was significantly (negatively) associated with drinking alcohol to cope (r = -.14), gender, perfectionism, perceived stress, and their respective interactions were not predictive of either alcohol related problems or drinking alcohol to cope. I believe that it is most likely that the young age of the participants influenced lack of association between alcohol related problems as well as the motivation to drink alcohol to cope with negative emotions. It is worth reminding readers that the college students in the study were intentionally sampled because they were young (18 and 19 year-olds) and had experienced only a few semesters at the university. Therefore, none of the adolescents in the sample were of legal drinking age, which might make it difficult to detect important associations between the independent and dependent variables. These indicators of alcohol involvement may not emerge until later in the students' academic career or until the later stages of adulthood. For example, college students during this developmental stage were perhaps able to curtail their alcohol consumption before it led to significant alcohol related problems. This argument is consistent with the results of a recent study by Turrisi, Padilla, and Wierma (2000), in

which drinking related problems, as assessment by the YAAPST, were significantly fewer among traditionally-aged college freshmen and sophomores when compared to nontraditionally-aged college freshmen and sophomores as well as upperclassmen (i.e., juniors and seniors).

In addition, the motivation to drink alcohol to cope with negative emotions may be more of a characteristic of later stages of development when it is associated with clinical alcohol dependence. Perhaps other motives to drink, such as social motives, enhancement motives, and conformity motives described by Cooper (1994), may be more predictive of college student drinking. These and other possibilities could be examined in future studies.

Limitations

This study had several notable limitations. First, the use of a self-reported stress questionnaire has been criticized by some researchers. Critics have argued that such measures can be biased and inaccurate because of participants' faulty memories of events and their subsequent misperception of those events (McQuaid et al., 1992; Raphael, Cloitre, & Dohrenwend, 1991). Some researchers have suggested that interview based measures of stress can provide more accurate measures of stressful events when compared to self-report measures (e.g., Hewitt et al., 1996; Hewitt & Flett, 2002). Therefore, future studies may benefit from assessing stress via clinical interviews.

In addition, the results obtained from college students at this university may not be consistent with college students at other universities. It is quite possible that a self-selection process occurred in which the college students at the university where the data

were gathered had selected the university because their perception of alcohol involvement on campus. Specifically, the university from which the data were obtained has a reputation for being a "party school," which would tend to attract college students who were interested in drinking. Therefore, the extent of alcohol consumption, alcohol related problems, and motivation to cope with negative emotions via alcohol consumption may not generalize to other universities.

Another limitation of this study was that the methodology only addressed the relationships among average levels of the variables of interest. Kenny, Bolger, and Kashy (1999) and Bryk and Raudenbush (1992) remind researchers that within-person associations can differ in both magnitude and direction from between-person associations. Thus, future research would benefit from a methodology design, such as a daily process design, that assesses the pertinent variables on a daily basis. This would allow for a multilevel hierarchical linear regression model that could account for both between-person and within-person variance, thus yielding a better understanding of the complex relationship between stress, perfectionism, and alcohol involvement. In particular, Dowdall and Wechsler (2002) suggest that multilevel hierarchical linear regression model may be particularly useful when analyzing drinking related data from college students at several universities because such an analysis could statistically control for characteristics shared by students attending the same university.

This study is also limited because of the reliance on retrospective self-reports of alcohol consumption, stress, and perfectionism. This may be a methodological barrier because it fails to capture the rapid and dynamic relationship between these variables. Such an approach might also be hindered by the participants' tendency to not

acknowledge the extent of their alcohol consumption. One method of overcoming the retrospective self-report bias would be to utilize an ecological momentary assessment (Stone & Shiffman, 1994) in which participants record their responses to questionnaires on a daily basis. In particular, this methodological approach is utilized more frequently in studies that investigate alcohol consumption (Collins, Morsheimer, Shiffman, Paty, Gyns, & Papandonatos, 1998; Swendson, Tennen, Carney, Affleck, Willard & Hromi, 2000).

Clinical Implications

This study has several implications for the treatment of alcohol involvement among college students. Currently, one of the predominant approaches to treating alcohol consumption is to train clients to better manage their stress through healthy behaviors (Marlatt, 1996; Marlatt & Gordon, 1985) and stress reduction (Yost & Mines, 1985). Research indicates that these approaches do indeed decrease the level of alcohol consumption and can prevent relapse (Hawkins, Catalano & Wells, 1986; Murphy et al., 2001; Myers & Brown, 1990; Richter, Brown, & Mott, 1991). However, the finding that perceived stress by itself was not predictive of alcohol involvement among this sample of college students suggest that additional interventions strategies may be warranted.

The finding that self-oriented perfectionism, regarded by some researchers as an adaptive characteristic, was associated with a decreased likelihood of being categorized as a consumer of alcohol, suggests that these are approaches that clinicians may want to utilize strategies to enhance some adaptive aspects of perfectionism, such as high personal standards and a motivation to be flawless, as a means to decrease, or perhaps prevent, alcohol consumption among college students. This approach may serve to

develop additional resilient factors in the prevention of alcohol involvement. Rather than being a negative and intransigent personality trait that needs to be modified by long-term, intensive, psychodynamically-oriented psychotherapy (e.g., Blatt & Zuroff, 2002), some perfectionistic traits should be enhanced in psychotherapy. This may be especially helpful for male college students, for whom the adaptive trait of perfectionism seems to buffer the effects of stress on alcohol consumption. In addition, among female college students, a high degree of (self-oriented) perfectionism was associated with a significant decrease in the likelihood of consuming alcohol at all levels of stress, suggesting that enhancing the adaptive characteristics of perfectionism may be a particularly useful therapeutic intervention for female college students. These clinical implications are speculative at this point and would necessitate an empirical research to assess the validity of such treatment approaches.

Conclusions and Future Directions for Research

In summary, this research investigated the utility of the *Diathesis-Stress Model of Perfectionism* to predict alcohol consumption, alcohol related problems, and drinking alcohol to cope. The study hypothesized that both gender and perfectionism (i.e., self-oriented, self-discrepant, socially-prescribed) would moderate the relationship between perceived stress and alcohol involvement among college students. Although gender did not moderate the relationship between perceived stress and alcohol involvement, the results of a logistic regression analysis (n = 198) found that self-oriented perfectionism, a two-way interaction (self-oriented perfection x perceived stress), and a three-way interaction (self-oriented perfectionism x perceived stress x gender) were associated with

a change in the likelihood of consuming alcohol. Interpretation of the two-way interaction suggested that low self-oriented perfectionists who experienced low perceived stress were about 16 times more likely to consume alcohol than low self-oriented perfectionists who experienced high perceived stress. Interpretation of the three-way interaction suggested a similar relationship among female college students. However, among male college students, low self-oriented perfectionists who experienced low perceived stress were less likely to consume alcohol than high self-oriented perfectionists who experienced low perceived stress. Results of two logistic regression models regarding alcohol related problems and drinking alcohol as a means to cope were not significant, perhaps due to the age of the participants and differing motives to drinking alcohol. Results of this study suggest a possible *Stress-Buffer Model of Perfectionism* among male college students.

Because the association between perceived stress, self-oriented perfectionism, and alcohol consumption seems to differ between men and women, future studies may benefit from further investigation of academic adjustment variables as well. These may include additional measures of academic performance (i.e., GPA), social adjustment, and psychological well-being. For example, the low level of stress that appeared to be associated with an increased likelihood of being classified into a drinking or drinking-related problem category under certain conditions may not be indicative of the absence of other college-relevant adjustment difficulties. It may be that those students are unlikely to persist in their studies and more likely to experience academic difficulties and prematurely withdraw from the university.

It is evident from these results that future research would also benefit from a further exploration of the *Stress-Buffer Hypothesis of Perfectionism*, particularly among male college students. The nature of the seemingly beneficial effects of self-oriented perfectionism among college men could be examined. Theories, such as gender socialization, which account for differences in the buffering effects of stress among perfectionistic men could be further explored.

The results of this study also suggest that future research may want to include a wider range of age of the participants. Turrisi et al. (2000) have found that upperclassmen (i.e., juniors and seniors) tend to consume more alcohol than both traditionally-aged and nontraditionally-aged freshmen and sophomores. In addition, this study found that traditionally-aged freshmen and sophomores tend to have fewer alcohol related problems than nontraditionally-aged freshmen and sophomores as well as upperclassmen (i.e., juniors and seniors). However, this finding is not consistent across all studies (i.e., Klein, 1994; Wechsler et al., 1998). This suggests that future studies would benefit from a longitudinal study that compares drinking behaviors across several different age groups (e.g., traditionally-age compared with non-traditionally-aged; upper classmen compared with lower classmen).

Furthermore, future studies should measure differences in college student's susceptibility to alcohol intoxication in a laboratory setting, in addition to measuring alcohol consumption, alcohol related problems, and motives to drink alcohol. This would allow researchers to assess how the various combinations of perfectionism, stress, and gender relate to possible differences in alcohol intoxication. As Perkins (1999) reminds readers, women are more prone to becoming intoxicated after they consume an equal

quantity of alcohol than their male counterparts. Are various combinations of these factors associated with greater levels of intoxication? Future studies could also expand upon this research by including additional measures to assess additional aspects of perfectionism (e.g., other-oriented perfectionism, high personal standards, high need for order) as well as additional motives to drink alcohol (social motives, enhancement motives, conformity motives, etc.). In summary, this study has prompted enough potential avenues for research to last a career.

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Appendix I

Informed Consent

SUBJECT RESEARCH INFORMATION AND CONSENT FORM

You are being asked to participate in a research study. This consent form provides you with information about the study. The Principal Investigators (people in charge of this research) and their representatives will describe this study to you and answer all of your questions. Read the information below and ask questions about anything you do not understand before deciding whether or not to take part.

Your participation is entirely voluntary and you can refuse to participate without penalty or loss of benefits to which you are otherwise entitled. You may take home an unsigned copy of this consent form to think about or discus with family or friends before making your decision. **Note, you must be 18 years old or older to participate in this research study.**

What is this study? The purpose of this study is to learn more about the characteristics of college students that contribute to college drinking habits.

What will be done if you take part in this study? If you choose to participate in this study, you will complete paper-and-pencil questionnaires that contain questions about drinking habits, personality, and stress. It will take about 30 minutes to complete the questionnaires. There are no right or wrong responses to the items on the measures.

Where will participants go to complete the research questionnaires? Participants will complete the research questionnaires in a medium-sized classroom (about 45 seats) in the psychology building.

What are the possible discomforts and risks? There are no known risks involved in completing the questionnaires and many students find that they learn something about themselves from answering the items. Nonetheless, if answering the questions makes you feel uncomfortable, you may consider speaking to a counselor who may be able to help you with your reactions. (Contact information for campus counseling services appear at the end of this form).

What are the possible benefits to you and to others? You may benefit by participating in this study through increased awareness and self-understanding. You will also be contributing to knowledge regarding researchers ability to understand college student drinking habits.

Will you receive payment for your participation in this study? You will be paid $10.00 for your participation in this research.

How will your privacy and confidentiality of your research records be protected? Your privacy will be protected to the maximum extent permissible by law. The following precautions will be taken to assure confidentiality. Information that you provide will not be associated with your name or any other identifying information. Your name will not appear on any of the questionnaires and your name will not be included in any written report. Responses will only be associated with a participant identification number, which is based upon the order in which the instrument was administered. Knowledge of your participation in this study is limited to the principal investigators, however, we will only be aware of your participation in the study and we will not know which questionnaires you completed. Questionnaire responses and demographic information will be stored on the Principal Investigators' personal computers and will be

kept in password-protected files. The computers will be kept in locked offices of the Principal Investigators.

Who would you call if you have any questions? In the future, you may have questions about your study participation. If you have any questions, you may contact the Principal Investigators, **Dr. Ken Rice or Ben Cohen, at 392-0601, ext. 246**. Should you have any questions or concerns about your rights as a research participant, you may contact the office of the University of Florida Institutional Review Board (Dr. C. Michael Levy, UFIRB Office, P.O. Box 112250, Gainesville, FL 32611-2250, 98A Psychology Building, 392-0433).

If you have read the information above and consider yourself to be informed about this study's purpose, procedures, possible benefits and risks, please sign your name below indicating your agreement to participate in this research on a purely voluntary basis. Keep the other copy of the consent form for your records.

I voluntarily agree to participate in the procedure and I have received a copy of this description.

_____ _____

(Sign your name here) **(Date)**

Campus Counseling Resource: University of Florida Counseling Center, P301 Peabody Hall, 392-0433 Sudent Mental Health Services, 245 Infirmary Building, 392-1171

Appendix II

Recruiting Script (Phone)

Hello, my name is Ben Cohen and I am conducting research at the University of Florida. The purpose of my research is learn more about the characteristics of college students that contribute to college drinking habits. I am calling to see if you may be interested in participating in this research. Are you 18 years old or older? {If response is "no", say "Ok. I am sorry but you can not participate in this research unless you are 18 years old or older. Thank you. Have a nice day." Do not continue with recruitment. If response is "yes", continue...}. Would you like me to tell you more about what will be done if you participate in the study?_____{If response is "no", say "Ok. Thank you. Have a nice day." Do not continue with recruitment. If response is "yes", continue...}. If you choose to participate in this study, you will complete paper-and-pencil questionnaires that contain questions about drinking habits, personality, and stress. It will take about 30 minutes to complete the questionnaires. There are no right or wrong responses to the items on the questionnaires. You will be paid $10.00 for your participation in this research.

There are no known risks involved in completing the questionnaires and many students find that they learn something about themselves from answering the items. You may benefit by participating in this study through increased awareness and self-understanding. You will also be contributing to knowledge regarding researchers ability to understand college student drinking habits.

Your privacy will be protected to the maximum extent permissible by law. The following precautions will be taken to assure confidentiality. Information that you

provide will not be associated with your name or any other identifying information. Your name will not appear on any of the questionnaires and your name will not be included in any written report. Responses will only be associated with a participant identification number, which is based upon the order in which the questionnaire was administered. Knowledge of your participation in this study is limited to the principal investigators, however, we will only be aware of your participation in the study and we will not know which measures you completed. Questionnaire responses and demographic information will be stored on the Principal Investigators' personal computers and will be kept in password-protected files. The computers will be kept in locked offices of the Principal Investigators.

Do you think that you may want to participate in this research? {If response is "no," say "Ok. Thank you. Have a nice day." Do not continue with recruitment. If response is "yes," continue...}. OK. Here are the days and times that are available. {Give at least four choices of days/times during which instrument will be administered}. Are you able to participate during one of those times? {If "no" say, "OK, we will contact you in about two weeks when we have some different times available. Would that be ok?" If "yes," say...} "OK. That will be in room _____ of the Psychology Building."

If you have any questions, you can contact the Principal Investigators, Dr. Ken Rice or Ben Cohen, at 392-3684. Should you have any questions or concerns about your rights as a research participant, you may contact the office of the University of Florida Institutional Review Board at 392-0433.

Appendix III

Demographic Information

1. Please circle the number next to your gender:

   (1) MALE

   (2) FEMALE

2. How old are you? _____ years old

3. Please circle the number next to your Race/Ethnicity or please describe the specific group that you identify with the most in the blank next to your ethnicity (for example, Chinese American, German, Navajo, Alaskan Aleut)

   (1) Asian or Asian-American_____

   (2) Black, African-American_____

   (3) Hispanic, Latino, Mexican-American_____

   (4) Pacific Islander_____

   (5) Native American or American Indian_____

   (6) White, European American_____

   (7) Multicultural/Multiracial _____

   (8) Other, please specify_____

4. Please circle the number next to your college:

   (1) Agriculture & Life Sciences

   (2) Liberal Arts & Sciences

   (3) Business Administration

   (4) Journalism and Communications

   (5) Education

   (6) Engineering

   (7) Health and Human Performance

   (8) Health Professions

   (9) Design, Construction, & Planning

   (10) Natural Resources and Environment

   (11) Pharmacy

   (12) Social Sciences

   (13) Veterinary Medicine

   (14) Nursing

   (15) Undecided (No preference)

5. How many semesters have you completed of college? _____**Semesters**

   (do not count the current semester, put 0 if you are a first semester student)

6. Please indicate your undergraduate Grade Point Average: _____ **GPA (4.0 scale)**

   (skip this if you do not have a GPA yet)

7. Please circle the number next to your **parents'** marital status:

(1) Married and living together

(2) Separated

(3) Divorced and neither parent remarried

(4) Divorced and one or both parent remarried

(5) Widowed, or one parent deceased

(6) Single-parent (never been married)

*******The following questions ask about your MOTHER or the person who is or was the primary female caregiver in your family.**

8. How much education has your mother (or primary female caregiver in the family) completed? (please circle)

(1) less than high school

(2) high school degree (or GED)

(3) post high school (e.g., trade, technical, secretarial)

(4) some college (e.g., one year, associate's degree)

(5) completed college (e.g., bachelor's degree)

(6) some graduate or post-bachelor's training

(7) completed graduate or post-bachelor's training

9. What is her current occupation? (Please name job or describe what she does or did, even you she is laid off, disabled, or retired).

_____

10. What is her current employment status? (please circle)

(1) she works full-time

(2) she works part-time (less than 30 hours per week)

(3) she does not work outside of the home because she is employed full-time in home-making

(4) she does not work because she is laid off or unemployed

(5) she does not work because she is disabled

(6) she does not work because she is retired

(7) other (describe) _____

*******The following questions ask about your FATHER or the person who is or was the primary male caregiver in your family.**

11. How much education has your father (or primary male caregiver in the family) completed? (please circle)

    (1) less than high school

    (2) high school degree (or GED)

    (3) post high school (e.g., trade, technical, secretarial)

    (4) some college (e.g., one year, associate's degree)

    (5) completed college (e.g., bachelor's degree)

    (6) some graduate or post-bachelor's training

    (7) completed graduate or post-bachelor's training

12. What is his current occupation? (Please name job or describe what he does or did, even you he is laid off, disabled, or retired).

    _____

13. What is his current employment status? (please circle)

    (1) he works full-time

    (2) he works part-time (less than 30 hours per week)

    (3) he does not work outside of the home because he is employed full-time in home-making

    (4) he does not work because he is laid off or unemployed he does not work because he is disabled

    (5) **he does not work because he is retired other (describe)**

Appendix IV

QF

For the next two questions, a drink is defined as:

- 12 ounce (360 mL) can/ bottle of beer
- 5 ounce (120 mL) glass of wine
- 12 ounce (360 mL) can/ bottle of wine cooler
- 1.25 ounce (37mL) shot of liquor (straight or mixed)

Please answer the next two questions by circling the letter next to your response:

1). On how many occasions did you drink alcohol in the past 30 days?

a). 0 occasions

b). 1-2 occasions

c). 3-5 occasions

d). 6-9 occasions

e). 10-19 occasions

f). 20-39 occasions

g). 40 or more occasions

2). In the past 30 days, on those occasions when you drank alcohol, how many drinks did you usually have?

a). Not applicable

b). 1

c). 2

d). 3

e). 4

f). 5

g). 6

h). 7

i). 8

j). 9+

YAAPST

Below is a list of problems related to alcohol use. Please indicate how frequently you experienced the particular problem **in the last year** by recording the corresponding number in the space next to the item. It is important to be as honest as possible.

For questions # 1 to #8:

0 = No, never

1 = Yes, but not in the past year

2 = One time in the past year

3 = Two times in the past year

4 = Three times in the past year

5 = Four to six times in the past year

6 = Seven to eleven times in the past year

7 = Twelve to twenty times in the past year

8 = Twenty-one to thirty-nine times in the past year

9 = Forty or more times in the past year

____1. Have you driven a car when you knew you had too much to drink to drive safely?

____2. Have you ever had a headache (hangover) the morning after you had been drinking?

____3. Have you ever felt very sick to your stomach or thrown up after drinking?

____4. Have you showed up late for work or school because of drinking, a hangover, or an illness caused by drinking?

____5. Have you not gone to work or missed classes at school because of drinking, a hangover, or an illness caused by drinking?

____6. Have you gotten into physical fights when drinking?

____7. Have you ever gotten trouble at work or school because of drinking?

____8. Have you ever been fired from a job or suspended or expelled from school because of your drinking?

For questions #9 to #20:

0 = No, never

1 = Yes, but not in the past year

2 = One time in the past year

3 = Two times in the past year

4 = Three or more times in the past year

____9. Have you damaged property, set off a false alarm, or other things like that after you had been drinking?

____10. Has your boyfriend/girlfriend (spouse), parent(s), or other near relative ever complained to you about your drinking?

____11. Has your drinking ever created problems between you and your boyfriend/girlfriend (or spouse) or another near relative?

____12. Have you ever lost friends (including boyfriends or girlfriends) because of your drinking?

____13. Have you ever neglected your obligations, your family, your work, or school work for two or more days in a row because of your drinking?

____14. Has drinking ever gotten you into sexual situations which you later regretted?

____15. Have you ever received a lower grade on an exam or paper than you should have because of your drinking?

____16. Have you ever been arrested for drunken driving, driving while intoxicated, or driving under the influence of alcohol?

____17. Have you ever been arrested, even for a few hours, because of other drunken behaviors?

____18. Have you awakened the morning after a good bit of drinking and found that you could not remember a part of the evening before?

____19. Have you ever had "the shakes" after stopping or cutting down on drinking (for example, your hands shake so that your coffee cup rattles in the saucer or you have trouble lighting a cigarette)?

____20. Have you ever felt like you needed a drink just after you'd gotten up (that is, before breakfast)?

For questions #21 to #27:

0 = No, never

1 = Yes, but not in the past year

2 = Yes, in the past year

____21. Have you ever found you needed larger amounts of alcohol to feel any effect, or that you could no longer get high or drunk on the amount that used to get you high or drunk?

____22. Have you ever felt that you needed alcohol or were dependent on alcohol?

____23. Have you ever felt guilty about your drinking?

____24. Has a doctor ever told you that your drinking was harming your health?

____25. Have you ever gone to anyone for help to control your drinking?

____26. Have you ever attended a meeting of Alcoholics Anonymous because of your concern about your drinking?

____27. Have you ever sought professional help for your drinking (for example, spoken to a physician, psychologist, psychiatrist, alcoholism counselor, clergyman about your drinking)?

DMQ

Below is a list of reasons people give for drinking alcohol. There are no right or wrong answers to these questions. We just want to know about the reasons why you usually drink when you do.

Thinking now of all the times you drink, and using the following scale record your answer in the space next to the question.

1 = Never

2 = Almost never

3 = Some of the time

4 = About half of the time

5 = Most of the time

6 = Almost always

_____1. How often do you drink because it helps you enjoy a party?

_____2. How often do you drink because you like the feeling?

_____3. How often would you say you drink to be sociable?

_____4. How often do you drink to forget your worries?

_____5. How often do you drink because it make social gathering more fun?

_____6. How often do you drink because it helps you when you feel depressed or nervous?

_____7. How often do you drink to cheer up when you're in a bad mood?

_____8. How often do you drink because your friends pressure you to drink?

_____9. How often do you drink because it's fun?

____10. How often do you drink because it's exciting?

____11. How often do you drink it improves parties and celebrations?

____12. How often do you drink so that others won't kid you about not drinking?

____13. How often do you get drunk to get high?

____14. How often do you drink to celebrate a special occasion with friends?

____15. How often do you drink because you feel more self-confident or sure of yourself?

____16. How often do you drink so you won't feel left out?

____17. How often do you drink to forget about your problems?

____18. How often do you drink because it gives you a pleasant feeling?

____19. How often would you say you drink to fit in with a group you like?

____20. How often do you drink to be liked?

PSS

The questions in this scale ask you how you about your feelings and thoughts during the last month. In each case, you will be asked to indicate *how often* you felt or thought a certain way. Although some of the questions are similar, there are differences between them and you should treat each one as a separate question. The best approach is to answer each question fairly quickly. This is, don't try to count up the number of times you felt a particular way, but rather indicate the alternative that seems like a reasonable estimate.

For each of the questions, choose from the following alternatives:

0= Never

1=almost never

2=sometimes

3=fairly often

4=very often

___ 1. In the last month, how often have you been upset because of something that happened unexpectedly?

___ 2. In the last month, how often have you felt that you were unable to control the important things in you life?

___ 3. In the last month, how often have you felt nervous and "stressed"?

___ 4. In the last month, how often have you dealt successfully with irritating life hassles?

___ 5. In the last month, how often have you felt that you were effectively coping with important changes that were occurring in your life?

___ 6. In the last month, how often have you confident in your ability to handle your personal problems?

___ 7. In the last month, how often have felt that things were going your way?

___ 8. In the last month, how often have you found that you could not cope with all the things that you had to do?

___ 9. In the last month, how often have you been able to control irritations in your life?

___10. In the last month, how often have you felt that you were on top of things?

___11. In the last month, how often have you been angered because of things that happened that were outside of your control?

___12. In the last month, how often have you found yourself thinking about things that you have to accomplish?

___13. In the last month, how often have you been able to control the way you spend you time?

___14. In the last month, how often have you felt difficulties were piling up so high that you could not overcome them?

MPS

Listed below are a number of statements concerning personal characteristics and traits. Read each item and decide whether you agree or disagree and to what extent. In the space next to the statement, mark "1" if you strongly disagree, mark "7" if you strongly agree. If you feel somewhere in between, mark any one of the numbers between 1 and 7; if you feel neutral or undecided, mark the midpoint, "4."

Strongly Disagree	**Disagree**	**Slightly Disagree**	**Neutral**	**Slightly Agree**	**Agree**	**Strongly Agree**
1	**2**	**3**	**4**	**5**	**6**	**7**

_____ 1. When I am working on something, I cannot relax until it is perfect.

_____ 2. I am not likely to criticize someone for giving up too easily.

_____ 3. It is not important that the people I am close to are successful.

_____ 4. I seldom criticize my friends for accepting second best.

_____ 5. I find it difficult to meet others' expectations of me.

_____ 6. One of my goals is to be perfect in everything I do.

_____ 7. Everything that others do must be of top-notch quality.

_____ 8. I never aim for perfection in my work.

_____9. Those around me readily accept that I can make mistakes too.

_____10. It doesn't matter when someone close to me does not do their absolute best.

_____11. The better I do, the better I am expected to do.

_____12. I seldom feel the need to be perfect.

_____13. Anything I do that is less than excellent will be seen as poor work by those around me.

_____14. I strive to be as perfect as I can be.

_____15. It is important that I am perfect in everything I attempt.

_____16. I have very high expectations for the people who are important to me.

_____17. I strive to be the best at everything I do.

_____18. The people around me expect me to succeed at everything I do.

_____19. I do not have very high standards for those around me.

_____20. I demand nothing less than perfection of myself.

_____21. Others will like me even if I don't excel at everything.

_____22. I can't be bothered with people who won't strive to better themselves.

_____23. It make me uneasy to see an error in my work.

_____24. I do not expect a lot from my friends.

_____25. Success means that I must work even harder to please others.

_____26. If I ask someone to do something, I expect it to be done flawlessly.

_____27. I cannot stand to see people close to me make mistakes.

_____28. I am perfectionistic in setting my goals.

_____29. The people who matter to me should never let me down.

_____30. Others think I am okay, even when I do not succeed.

_____31. I feel that people are too demanding of me.

_____32. I must work to my full potential at all time.

_____33. Although they may not show it, other people get very upset with me when I slip up.

____ 34. I do not have to be the best at whatever I am doing.

_____35. My family expects me to be perfect.

_____36. I do not have very high goals for myself.

_____37. My parents rarely expected me to excel in all aspects of my life.

_____38. I respect people who are average.

_____39. People expect nothing less than perfection from me.

_____40. I set very high standards for myself.

_____41. People expect more from me than I am capable of giving.

_____42. I must always be successful at school or work.

_____43. It does not matter to me when a close friend does not try their hardest.

_____44. People around me think I am still competent even if I make a mistake.

_____45. I seldom expect others to excel at whatever they do.

APS-R

The following items are designed to measure certain attitudes people have toward themselves, their performance, and toward others. It is important that your answers be true and accurate for you. In the space next to the statement, please enter a number from "1" (strongly disagree) to "7" (strongly agree) to describe your degree of agreement with each item.

Strongly Disagree	**Disagree**	**Slightly Disagree**	**Neutral**	**Slightly Agree**	**Agree**	**Strongly Agree**
1	**2**	**3**	**4**	**5**	**6**	**7**

___ 1. I have high standards for my performance at work or at school.

___ 2. I am an orderly person.

___ 3. I often feel frustrated because I can't meet my goals.

___ 4. Neatness is important to me.

___ 5. If you don't expect much out of yourself you will never be succeed.

___ 6. My best just never seems to be good enough for me.

___7. I think things should be put away in their place.

___8. I have high expectations for myself.

___9. I rarely live up to my high standards.

___10. I like to always be organized and disciplined.

___11. Doing my best never seems to be enough.

___12. I set very high standards for myself.

___13. I am never satisfied with my accomplishments.

___14. I expect the best from myself.

___15. I often worry about not measuring up to my own expectations.

___16. My performance rarely measures up to my standards.

___17. I am not satisfied even when I know I have done my best.

___18. I am seldom able to meet my own standards for performance.

___19. I try to do my best at everything I do.

___20. I am hardly ever satisfied with my performance.

___21. I hardly ever feel that what I've done is good enough.

___22. I have a strong need to strive for excellence.

___23. I often feel disappointment after completing a task because I know I could have done it better.

___24. Using the scale above, please rate the degree to which you agree that you are perfectionistic.

Yes No 25. Do you think of yourself as perfectionistic? Please circle. (Note that this may apply only to areas of your life that are of importance to you. It need not apply to all areas of your life).

Yes No 26. Have significant others (persons you know well) said that you are perfectionistic or referred to you as perfectionistic?

Yes No 27. Have you ever been referred to as perfectionistic by a counselor or a therapist?

Yes No 28. Have you ever entered counseling or psychotherapy in an attempt to deal with or reduce your perfectionism?