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The Roles of Perceived Stress, Coping Styles, and Perceived Social Support on the Alcohol Consumption Among American College Students

Abstract

The intention of this study was to better understand how certain aspects in a college student's life (i.e., perceived stress, styles of coping, and social support) or how combinations of these variables may contribute to higher levels of alcohol consumption. The present study examined the relationship between perceived stress, functional coping strategies, dysfunctional coping strategies, and perceived social support using Lazarus and Folkman's model of stress, appraisal, and coping. A sample of ($N = 201$) University of Denver undergraduate students between the ages of 18-25 complete measures of perceived stress, coping strategies, perceived social support, and alcohol use. Results of a hierarchical regression analysis indicated that utilization of functional coping strategies is a statistically significant predictor of lower levels of alcohol consumption. To date, there have been few studies examining the relationships between perceived stress, functional coping strategies, dysfunctional coping strategies, and perceived social support on alcohol consumption in college students. As such this dissertation provides implications for future research and academic training.

Document Type

Dissertation

Degree Name

Ph.D.

Department

Counseling Psychology

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Keywords

Alcohol consumption, Coping styles, Perceived social support, Perceived stress

Subject Categories

Counseling Psychology | Medicine and Health Sciences | Mental and Social Health | Substance Abuse and Addiction

Publication Statement

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THE ROLES OF PERCEIVED STRESS, COPING STYLES, AND PERCEIVED
SOCIAL SUPPORT ON THE ALCOHOL CONSUMPTION AMONG AMERICAN
COLLEGE STUDENTS

A Dissertation

Presented to

the Faculty of the Morgridge College of Education

University of Denver

In Partial Fulfillment

of the Requirements for the Degree

Doctor of Philosophy

by

Jesse Wynn

August 2017

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Title: THE ROLES OF PERCEIVED STRESS, COPING STYLES, AND PERCEIVED SOCIAL SUPPORT ON THE ALCOHOL CONSUMPTION AMONG AMERICAN COLLEGE STUDENTS

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Acknowledgements

I would like to express my deepest thanks to my dissertation committee for their unparalleled guidance and extraordinary support in this dissertation process. I'd also like to thank my mother and stepfather, grandmother, brother, wife, and daughter. Thanks to my family for the constant support and encouragement throughout this long process.

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Chapter One

Introduction

Alcohol Use in College Students

College students may resort to higher levels of consumption of alcohol as a method of coping with a variety of intrapersonal situations and interpersonal interactions alcohol to cope. Higher levels of alcohol consumption can be regarded as one of the many ways, in which college students' deal with stress or attempt to engage in self-regulation (Kassel, Jackson, Unrod, 2000; Leigh, 1989). College is a platform that provides an incredible amount of stress. Additionally, alcohol is easily accessible and widely accepted within the culture of the college experience. Alcohol abuse within the college student population is a significant public health problem. Murphy, Barnett, and Colby (2006) studied a sample of college student drinkers ($N = 108$; 56% female, 44% male) to examine the influence of drinking quantity and contextual variables on activity enjoyment. Overall, the participants found alcohol-related activities to be more enjoyable than alcohol free activities; in addition, drinking quantity was positively related to enjoyment. Although, alcohol free activities such as watching movies, attending live theater performances, attending museums, hanging out with friends, eating at restaurants, and engaging in creative activities were generally as enjoyable as drinking related activities within the same sample.

Alcohol use, if introduced during a time of distress, could become learned, reinforced, and introduced into an individual's dysfunctional coping repertoire. Using alcohol to cope with life stressors (i.e., academic stress, and family support) is generally identified as an escape-avoidance behavior. Consequently, the escape-avoidance coping strategy has been negatively associated with overall health outcomes, alcohol and substance misuse, and decreased psychological well-being (Cohen, 1984; Lazarus, 1991; Penley, Tomaka, & Wiebe, 2002). When a college student possesses deficiencies in their repertoire of coping skills and subsequently enters an environment where their previously learned coping strategies are ineffective, there exists a risk for initiation of problematic alcohol use, which may perpetuate itself as effective through negative reinforcement. College students who consume alcohol as a primary coping strategy, and are not well equipped with functional coping skills, may be at higher risk for engaging in escape-avoidance coping styles as a means of dealing with stressful situations (Cohen, 1984; Lazarus, 1991; Penley, Tomaka, Wiebe, 2002). Higher levels of alcohol consumption as a primary or secondary coping strategy could carry the potential for various negative short-term and long-term consequences. Accordingly, this dissertation attempts to test the contribution of four predictors (i.e., perceived stress, functional coping, dysfunctional coping, and social support) on alcohol consumption among college students.

Perceived Stress as a Moderator Variable

The human response to the perception of a stressful life event is an inevitable state of mind rooted in biological, psychological, and evolutionary theories. A conscious response to life stressors has served as a buffer against dangerous and fearful situations since the origin of the human species. As responding differs between individuals experiencing this psychological state the reactions are idiosyncratic in nature (Lazarus & Folkman, 1984). Stress or perceived stress experienced in activities of daily living can cause significant problems in the absence of intentional addition of more stressors (i.e., attending college). One particular cohort invariably confronted with an abundance of potentially stressful experiences is college students. College students will likely encounter increased demand within academic, financial, social, and family domains.

Experiencing distress can often be a consequential response commonly associated with a high number of life stressors (Brougham, Zail, Mendoza, & Miller, 2009). In general, universities employ specialists with varying academic degrees and experiences in an effort to assist with alleviation of distress. These professionals and paraprofessionals are generally student counselors, peer counselors, and other members of student services of whom offer educational, and social or emotional support. However, these services may fall short of meeting student needs, as talk therapy and peer support may fall out of the cultural scope of some individuals coping resources. Pierceall and Keim (2007) interviewed university students and found approximately 75 -80%

reported experiencing moderate levels of stress and 10-12% reported experiencing severe levels of stress within the academic year. Increased sources of stress soon exist as a common and expected element within the normal college experience. How college students perceive stress and respond to their perceptions has been an emerging topic in academic research. Conditioning of reactionary stress responses is learned across the developmental lifespan, implemented, reinforced, and either extinguished or reintroduced, dependent on outcome (Moulin, 2006).

In response to perceived stress, college students rely on internal and external resources as a method for avoiding distress. These internal and external methods for dealing with stress of everyday life are defined as coping strategies and/or coping mechanisms. Furthermore, coping styles that utilize positive methods for dealing with stress are essential resources for college students. According to stress research in college students, positive methods of coping are often associated in a linear relationship with an overall general sense of well-being (Ben-Zur, 2009; Chao, 2001). Therefore, the first hypothesis is that perceived stress will positively contribute to the variance of alcohol consumption among college students.

Functional Coping as a Moderator Variable

Lazarus and Folkman (1984) discuss coping in terms of strategies which are defined as either problem or emotion focused. *Problem focused coping*, functions as a problem solving mechanism whereby something should be immediately done to alter the

source of the stress (Carver, Scheier, & Weintraub, 1989; Folkman & Lazarus, 1980; Kilburn & Whitlock, 2013). In contrast, *emotion focused coping*, functions as a mechanism to reduce or manage the emotional distress that becomes associated with (or cued by) the situation. Although stressors generally require both problem and emotion focused coping, research has found problem-focused coping to predominate when individuals decide something constructive could be initiated. Emotion-focused coping tends to predominate when individuals feel that the stressor is something which must be endured (Carver, Scheier, & Weintraub, 1989; Folkman & Lazarus, 1980). Problem and emotion-focused coping strategies often function as either adaptive or maladaptive (i.e., functional or dysfunctional) depending on the individualized appraisal of the presented stimuli.

Empirical supported research has found problem-focused coping to predominate when individuals decide something constructive should be initiated (Carver, Scheier, & Weintraub, 1989; Folkman & Lazarus, 1980; Stroebe & Schut, 2001). These coping strategies are generally concrete plans of action with an intense focus on developing steps or a plan of action toward solving the problem. This often includes strategies for gathering information, making decisions, and resolving conflict in instrumental, situation-specific, and task-oriented actions (Carver, Scheier, & Weintraub, 1989; Kilburn & Whitlock, 2013). Problem-focused coping has the potential to be considered both positive and negative depending on the circumstances surrounding the event.

Research with a focus on assessing the relationship between daily coping and affect among university students found that problem-focused coping was positively correlated to positive affect (i.e., experience or feeling of emotion; Dunkley, Zuroff, & Blankstein, 2003; Gunthert, Cohen, & Armeli, 2002; Park, Armeli, & Tennen, 2004 as cited in Ben-Zur, 2009). Chao's (2012) study demonstrated that functional coping strategies carry the potential for a generally stable sense of well-being among college students. Additionally, several research studies have consistently provided similar outcome data which posits problem-focused coping as more effective in moderating affect than emotion-focused coping strategies (Chao, 2012). In addition, findings of positive associations between problem-focused coping and positive affect similar to the relationship between emotion-focused coping and negative affect were found in studies of samples of the visually blind, and adolescents with epilepsy.

The commonality of these studies provided preliminary confirmation of one aspect of the coping–affect differential association, that is, associations between positive affect and problem-focused coping, and negative affect and emotion-focused coping (Chao, 2012). The role of appraisal was researched using a sample of 159 college students from a St. Louis University to examine stress research theory of Lazarus and Folkman (1984) in attempts to correlate adaptive coping behaviors with positive appraisal in hopes of predicting positive outcomes (e.g., well-being and higher life satisfaction; Kohler et al., 2006; Latack, 1986). Therefore, the second hypothesis is that the functional

coping strategies will negatively contribute to the variance of alcohol consumption among college students. The third hypothesis is that the relationship between perceived stress and college students' alcohol consumption will be significantly moderated by functional coping strategies. That is, functional coping will weaken the relationship between perceived stress and college students' alcohol consumption.

Dysfunctional Coping as a Moderator Variable

Dysfunctional coping styles are prevalent within the collegiate arena of the current generation (Brougham et al., 2009). Dysfunctional coping refers to the strategies which yield little, if any, successful alleviation of symptoms for sustained periods of time (Roth & Cohen, 1986). Sideridis (2008) found that the five most frequently utilized coping strategies among college students were as follows: browsing the Internet, sleeping and resting, using instant messaging, complaining, and watching TV or movies. These aforementioned strategies fit into the following three categories: (a) focusing on and venting of emotions, (b) behavioral disengagement, and (c) mental disengagement (Carver et al., 1989). These dysfunctional coping strategies are oriented toward disengagement and/or avoidance of the problem, which may lead to distress (Marty, Segal, & Coolidge, 2010). Furthermore, mastery avoidance has been consistently linked to maladaptive network of negative cognitions and affect, which was subsequently linked to maladaptive processing and coping (Sideridis, 2008).

A direct relationship has been observed between the number of dysfunctional coping strategies utilized and the probability of anxiety being endured and reinforced throughout the process (Carver et al., 1989). Cumulative evidence identifies dysfunctional coping strategies as problematic when used in isolation of other methods for coping, and utilized for extended periods of time, often leading to exhaustion of the strategy (Carver & Scheier, 1994; Lazarus & Folkman, 1984; Marty, Segal, & Coolidge, 2010). Despite the short-lived success of dysfunctional coping strategies, their prevalence among college students remains elevated (Chao, 2012). Carver et al. (1989) found high levels of dysfunctional coping to correlate with an exacerbation between stress and well-being (Chao, 2012). As college students begin to perceive more stressors within their daily lives, the ability to cope or readjust may become overworked (Ross, Neibling, & Heckart, 1999). Depletion of these psychological coping strategies could increase the probability of subsequent physical illness or increased psychological distress (Lazarus & Folkman, 1994).

Dysfunctional coping strategies such as poor health behaviors have also been linked with high levels of undergraduate stress. Hudd et al. (2000) found that college students' who reported higher levels of stress also consumed a greater amount of unhealthy food, were less likely to exercise, and obtained inadequate amounts of sleep. With an abundance of dysfunctional coping strategies, undergraduate students may begin to engage in activities out of their normal element, such as higher levels of alcohol

consumption to alleviate distress. For purposes of clarification, consumption of alcohol is not in and of itself problematic, but rather, higher levels of alcohol consumption as a means of coping with life stressors with the intention of alleviating the associated emotional and cognitive consequences is considered dysfunctional. Thus, the fourth hypothesis is that dysfunctional coping strategies are hypothesized to positively contribute to the variance of alcohol consumption among college students. The seventh hypothesis is that the relationship between perceived stress and college students' alcohol consumption will be significantly moderated by dysfunctional coping strategies. That is, dysfunctional coping will strengthen the relationship between perceived stress and college students' alcohol consumption.

Social Support as a Moderator Variable

The role of supportive and positive parental relationships with their college children remains imperative as a buffer for overall well-being (Backer, et al. 2011; Collins & Lauren, 2004; Steinberg, 2001; Steinberg & Silk, 2002). Consequently, a general concern among first generation college students (FGCSs) is a lower level of social support from family and friends. McConnel (2000) reported that FGCSs perceived parents to be less supportive of their decision to attend college and are reportedly less encouraging than Non-FGCS peers (Chao, 2008; Collins & Lauren, 2004; Wang & Castañeda-Sound, 2008). This logic further reinforces the notion that college students with lower family support could also be deficient in their abilities to buffer against stress

(e.g., Arria et al., 2009; Solberg & Villareal, 1997; Wang & Castañeda-Sound, 2008).

Undeniably, higher levels of social support provides substantial benefits which operate as contributing factors to the subjective experience of happiness and life satisfaction (Ben-Zur, 2009; Lundberg, McIntire, & Creasman, 2008). Additionally, higher levels of social support has been found to negatively correlate with mental health concerns, which are generally associated with stress (Brown, Alpert, Lent, Hunt, & Brady, 1988). When asked about strategies or methods to cope with and manage levels of stress, many college students highlight higher levels of social support from other students, their environment, and family as their primary methods (Ben-Zur, 2009; Brown et al., 1988; Lundberg, McIntire, & Creasman, 2008).

Moreover, college students' perceived deficiency in the domain of social support was correlated with life dissatisfaction and in some cases suicidal ideation or behavior (Allgower, Wardle, & Steptoe, 2001). Lower levels of social support from family and friends is an important correlate to depression, substance use and misuse, and suicidal ideation for college students (D'Attilio, Campbell, Lubold et al., 1992; Harris & Molock, 2000; Harter, Marold, & Whitesell, 1992; Marion & Range, 2003; Mireault & de Man, 1996; Prinstein, Boergers, Spirito et al., 2000; Stravynski & Boyer, 2001; as cited in Arria et al. 2009). It is possible that some associations between personal health behaviors and depression are related to lower levels of family and social support. This, in turn, is linked with unfavorable health behaviors, such as alcohol or substance use as a

mechanism for coping (Allgower, Wardle, & Steptoe, 2001). Thus, the fifth hypothesis is that higher levels of social support will negatively contribute to the variance of alcohol consumption among college students. The sixth hypothesis is that the relationship between perceived stress and college students' alcohol consumption will be significantly moderated by higher levels of social support. That is, higher levels of social support will weaken the relationship between perceived stress and college students' alcohol consumption.

The Present Study

The specific purpose of this study is to examine the relationship between perceived stress, functional coping strategies, dysfunctional coping strategies, and social support as predictive variables of alcohol consumption in college students. More specifically, this study examined these predictive variables which may be influential in either lower and/or higher levels of alcohol consumption. In sum, college students are faced with a variety of stressors upon entrance into North American Universities. Generally, students enter into the collegiate environment with established coping strategies, however, this is not always the case. According to Lazarus (1991), personal factors such as motivation, goals and values, in addition to situational parameters (e.g., predictability, controllability, and imminence of a potential stressful encounter) are crucial factors relative to subjective experience, appraisal, and implemented coping response. Furthermore, the implemented coping strategies can be either functional or

dysfunctional. Research with a focus on assessing the relationship between daily coping and affect among university students suggests that problem-focused coping has been positively correlated with positive affect (i.e., experience or feeling of emotion; Dunkley, Zuroff, & Blankstein, 2003; Gunthert, Cohen, & Armeli, 2002; Park, Armeli, & Tennen, 2004 as cited in Ben-Zur, 2009). Problem-focused coping has been identified as adaptive or functional coping, whereas emotion-focused coping has been described more in terms of maladaptive or dysfunctional coping. Furthermore, dysfunctional coping can, ultimately, deteriorate well-being (Chao, 2012; O'Connor & O'Connor, 2003).

Yu, Evans, and Perfetti (2003) report that almost 75% and 55% of college men and women drink heavily, respectively. These staggering numbers of heavy drinkers should raise awareness of the increased need for Universities to intervene and serve these students struggling with problematic drinking patterns. What these researchers found was that those with more severe alcohol problems were less willing, and by default, less likely to seek university treatment services, whereas students with a general education of alcohol misuse and education around such topics were observed as more willing and likely to seek treatment when in need (Yu, Evans, & Perfetti, 2003). Zakletskaia, Wilson, and Fleming (2010) found that 57% of the students seen at the University Health Services were identified as at risk drinkers. The researchers further report that the students in their study arrived at student health approximately 2 times per year which significantly decreases the opportunity to intervene with the students at the highest risk. College

alcohol use and problem drinking have been identified in the literature as a health concern among young adults. The question then becomes an inquiry into how and why some students manage to drink responsibly and others struggle to control their drinking behaviors. Furthermore, why do some students consume alcohol in times of joy or social interactions and others use this substance as a means of coping with negative emotional states?

An investigation into contributing factors regarding, both, drinking and abstention from problematic patterns of alcohol consumption require further evaluation. College students who consume alcohol as a coping strategy and are also not well equipped with functional coping skills may be at higher risk for engaging in escape-avoidance coping styles as a means of dealing with life stressors (Cohen, 1984; Lazarus, 1991; Penley, Tomaka, & Wiebe, 2002). Alcohol use as a primary or secondary coping strategy could carry the potential for a multitude of negative short-term and long-term consequences. The study will look at the following research questions and hypotheses.

The following 7 hypotheses are discussed individually in light of current literature, and subsequently, were tested through a linear regression analysis. Although a variety of factors have been associated and hypothesized to predict problematic alcohol use, this study focused on seven hypotheses.

Research Question 1. How does perceived stress among college students in the United States contribute to the consumption of alcohol?

Hypothesis 1. Perceived stress positively contributes to alcohol consumption among college students.

Research Question 2. How does utilization of functional coping strategies among college students in the United States contribute to alcohol consumption?

Hypothesis 2. Functional coping strategies negatively contributes to the variance of alcohol consumption among college students.

Research Question 3. How do perceived stress and functional coping among college students in the United States interact to contribute to alcohol consumption?

Hypothesis 3. The relationship between perceived stress and college students' alcohol consumption is significantly moderated by functional coping strategies. That is, functional coping weakens the relationship between perceived stress and college students' alcohol consumption.

Research Question 4. How does utilization of dysfunctional coping strategies among college students in the United States contribute to the consumption of alcohol?

Hypothesis 4. Dysfunctional coping strategies positively contributes to the variance of alcohol consumption among college students.

Research Question 5. How does social support among college students in the United States contribute to the consumption of alcohol?

Hypothesis 5. Higher levels of social support negatively contributes to the variance of alcohol consumption among college students.

Research Question 6. How does perceived stress and social support among college students in the United States interact to contribute to alcohol consumption?

Hypothesis 6. The relationship between perceived stress and college students' alcohol consumption is significantly moderated by higher levels of social support. That is, higher levels of social support weakens the relationship between perceived stress and college students' alcohol consumption.

Research Question 7. How do perceived stress and dysfunctional coping among college students in the United States interact to contribute to alcohol consumption?

Hypothesis 7. The relationship between perceived stress and college students' alcohol consumption is significantly moderated by dysfunctional coping strategies. That is, dysfunctional coping strengthens the relationship between perceived stress and college students' alcohol consumption.

Summary of Research Procedure

In order to investigate the hypotheses listed above, the following design was applied. The University of Denver undergraduate professors were contacted via email to disseminate information as it relates to the nature and purpose of this study. Each department professor was provided with a link to the survey to pass along to interested students. The demographics information collected to be gathered from participating students included participants' age, gender, race/ethnicity, sexual orientation, relationship status, religion, college standing, SES, living arrangement, and three questions related to

ascertaining whether drinking patterns exist while experiencing stress. Approximately 201 participants read and reviewed the informed consent form. After reading informed consent and agreeing to participate, the students completed the following measures: demographic questionnaire, Perceived Stress Scale (PSS; Cohen, Kamarck, & Mermelstein, 1983), The Cope Inventory (COPE; Carver, Scheier, & Weintraub, 1989), The Audit Alcohol Consumption Questions (AUDIT-C; Bush, Kivlahan, D. R., McDonell, M. B., Fihn, S. D., & Bradley, K. A., 1998), and The Multidimensional Scale of Perceived Social Support (MSPSS; Zimet, Dahlem, Zimet & Farley, 1988). Data were collected using these instruments as they are in agreement with previous research of American college students measuring alcohol use, coping styles, and social support. With the collected data, statistical analysis of hierarchical multiple regression was applied to analyze the predictive and moderator effects in the hypothesized model.

Chapter Two

Literature Review

Alcohol Use in College Students

The pioneering work of Rotter (1954, 1982), Bandura (1977), Lazarus and Folkman (1984) have contributed to the understanding of the stress-coping process and has been a catalyst for considerable research examining these processes. Research has demonstrated that individual differences in coping styles (e.g., emotion-focused versus problem focused) are strongly associated with various clinical outcomes, including depression and/or alcohol and substance misuse (i.e., higher levels of alcohol consumption). Individuals consume alcohol for a variety of reasons (Leigh, 1989). However, those who consume alcohol as a means of coping with a negative mood are more likely to drink heavily and experience problems than those choosing to drink for social reasons. Moreover, alcohol consumption can be regarded as one of the many ways, in which, college student cope with stress or attempt to engage in self-regulation (Kassel, Jackson, Unrod, 2000; Leigh, 1989). College is a platform providing an incredible amount of stress, and alcohol is easily accessible and an accepted cultural component of the college experience.

Alcohol abuse within the college student population is a significant public health problem. Murphy, Barnett, and Colby (2006) studied a sample of college student drinkers ($N = 108$; 56% female, 44% male) to examine the influence of drinking quantity

and contextual variables on activity enjoyment. Overall, the participants found alcohol-related activities to be more enjoyable than alcohol free activities; in addition, drinking quantity was positively related to enjoyment. Although, alcohol free activities such as watching movies, attending live theater performances, attending museums, hanging out with friends, eating at restaurants, and engaging in creative activities were generally as enjoyable as drinking related activities within the same sample.

Furthermore, alcohol free activities that included peers or dates were rated as more enjoyable than solitary activities. A majority of the alcohol free events where students found enjoyment were typically outside of the dorm or home and located in specific contextual environments (i.e., social settings). In addition, the positive relationship between drinking quantity and activities is likely explained through the process of the non-problematic patterns of drinking observed in college settings (Murphy, Barnett, & Colby, 2006).

Rutledge and Sher (2001) examined the relationship between stress and heavy drinking patterns of 485 individuals (255 women) over the course of seven years. Stress (i.e., negative life events) was found to positively correlate with heavy drinking, in addition, a positive relationship was found between tension-reduction drinking motives and heavy drinking. These two studies emphasize the role of functional or dysfunctional coping has on college drinking behaviors. Alcohol use, if introduced during a time of distress, could provide negative reinforcement for the avoidance of life stressors and

therefore become a regularly used dysfunctional coping strategy. Consequently, the escape-avoidance strategy has been negatively associated with overall health outcomes, specifically decreased psychological well-being (Penley, Tomaka, & Wiebe, 2002). Escape-avoidance coping strategies may closely relate to engagement in activities such as taking drugs or alcohol in order to cope (Cohen, 1984; Lazarus, 1991; Penley, Tomaka, Wiebe, 2002). When a college student possesses deficiencies in their repertoire of coping skills and subsequently enters an environment where their primary and secondary appraisal techniques are ineffective, there exists a risk for initiation of alcohol use, which perpetuates itself as effective through negative reinforcement. College students who consume alcohol and are not well equipped with functional coping strategies may be at higher risk for engaging in escape-avoidance coping styles as a means of dealing with life stressors (Cohen, 1984; Lazarus, 1991; Penley, Tomaka, Wiebe, 2002). Alcohol use as a primary or secondary coping strategy could carry the potential for various negative short-term and long-term consequences. Alcohol-related negative consequences have increased to the point where negative consequences of alcohol consumption, in varying amounts, are one of the most serious health problems facing college students (Ham & Hope, 2003; Hingson et al., 2009).

A concerned effort consisting of hundreds of empirically supported studies, scholarly articles and reports have been published in peer reviewed journals and books, indicating a positive relationship between stress and problematic drinking patterns

emerging during the college experience (Borsari & Carey, 2014; Scott-Sheldon et al., 2014). Even though problematic alcohol use occurs across various age groups, young adults between 18–24 years of age are responsible for the highest rates of alcohol use and percentage of problem drinkers (Kandel & Logan, 1984; U.S. Department of Health and Human Services, 1997; as cited in Ham & Hope, 2003). Approximately 84.2% of college students endorse a heavy drinking episode (5+ standard drinks for men and 4+ for women) within the previous 90 days (Vik, Carrello, Tate, & Field, 2000).

According to Clements (1999), 13.1% of the 306 undergraduate psychology students randomly sampled met the Diagnostic and Statistical Manual of Mental Disorders Fourth Edition (DSM-IV) criteria for alcohol abuse and 11.4% for alcohol dependence within the last 12 months (American Psychiatric Association, 1994). If compared to the diagnostic criteria of the DSM-V the participants in the Clements (1999) study would likely meet criteria for Alcohol Use Disorder, with the specifier of mild, moderate or severe. The DSM-V merged the categories of alcohol abuse and alcohol dependence into the isolated category of alcohol use disorder with three severity specifiers, which include mild, moderate, and severe. The Clements (1999) data should be interpreted with caution, but not entirely dismissed. As if experiencing overwhelming amounts of stress were not difficult enough on the student, alcohol consumption in late adolescence and early young adulthood is fast becoming a major problem within the

collegiate environment, and often not attributed to any single causal factor (Rutledge & Sher, 2001).

The DSM-V has identified prevalence rates in adults 18 years and older within the United States meeting criteria for alcohol use disorder at 8.5%, with men accounting for greater rates at 12.4% compared with 4.9% among women. Additionally, the age of onset of an alcohol use disorder is late teens to early twenties (American Psychiatric Association, 2013). The DSM-V data considering age of onset and prevalence rates of alcohol use disorder within college populations could, in fact, be higher than reported by individual and meta-analytic studies. Continued research in other high-risk samples of college students is needed. Furthermore, it appears that minimum drinking age laws are relatively ineffective rules for reducing the availability of alcohol to underage drinkers or reducing drinking rates among 18 to 20-year-old students. Approximately 50% of the students polled reported that alcohol was easy to obtain (Wechsler, Lee, Nelson, & Kuo, 2002).

The pattern of alcohol consumption among college students has been of considerable interest to researchers in recent decades because of the reportedly increased rates of alcohol use by college students (Zeigler-Hill, Stubbs, & Madson, 2013). Moreover, alcohol related health and behavioral consequences have increased so dramatically that alcohol use is considered a serious health risk facing college students. An estimated 31% of college men consume greater than 21 drinks per week and 19% of

college women consume greater than 14 drinks per week. These statistics surpass established standards for safe levels of alcohol consumption (U.S. Department of Health and Human Services, 1990; Ham & Hope, 2003; Hingson et al., 2009; Vik, Carrello, Tate, & Field, 2000).

A substantial number of theories are in existence attempting to explain problematic substance use (i.e., alcohol use). A percentage of the variance has been attributable to situational variables (e.g., emotional states, surroundings, and environmental cues), in addition to the less salient effects of gender and SES (Bandura, 1977; Maisto, Carey, & Bradizza, 1999; Orcutt, Annette, & Schwabe, 2012). Furthermore, individual-difference variables possess the potential of influencing the reinforcing value of alcohol and/or drugs (e.g., subjective responses, anxiety sensitivity, and substance use outcome expectancies; Goldman, Del Boca, & Darkes, 1999; Leonard & Blane, 1999; as cited in Murphy, Barnett, & Colby, 2006). Respective of the various vulnerability theories, behavioral choice to consume alcohol occurs in a context which includes other potential activities or reinforcers (e.g., social situations, parties, sporting events; Bickel & Vuchinich, 2000; Higgins, Heil, & Plebani-Lussier, 2003; Rachlin, 1997; Vuchinich & Tucker, 1988 as cited in Murphy, Barnett, & Colby, 2006).

Research on personality and problematic alcohol use in college students has generally focused on personality dimensions found to be associated problematic drinking, such as the following traits: sensation seeking, impulsivity or novelty seeking,

neuroticism, emotionality, and/or negative affect (Ham & Hope, 2003). However, the notion of consuming alcohol for alleviation of stress or for coping purposes is a burgeoning field of research. For instance, college students with at least a moderate level of self-reported college related stress experience greater increases in problematic drinking within the previous 3 months than students experiencing a lower level of self-reported stress (Camatta & Nagoshi, 1995; O'Hare & Sherrer, 2000). Both quantity and severity of life stressors have been found to correlate with a greater risk of developing problematic drinking patterns (Ham & Hope, 2003).

The social learning theory, relative to college student drinking, would conceptualize alcohol consumption as an effective short-term method of coping with activities of daily living that may become maladaptive when used in excess (Maisto, Carey, & Bradizza, 1999). The subset of the population particularly vulnerable to problematic use generally lack sufficient coping skills or the self-efficacy to successfully navigate life stressors. According to this theory, an individual's vulnerability is increased if the expectation of alcohol use is precisely for the purposes of positive and/or coping benefits. Furthermore, stress related drinking correlated with coping motives and tension reduction expectancies. Thus, coping motives may help to explain when high levels of stress are related with higher levels of drinking problems, particularly for female college students. Individuals' deficient in coping skills may be more likely to use alcohol as a

means of coping with intra or interpersonal stress (Evans & Dunn, 1995; Karwacki & Bradley, 1996).

The belief that one can successfully alleviate unpleasant moods has been found to correlate with lower levels of problematic drinking in college students. Furthermore, this belief has been found to predict drinking behavior (Kassel et al., 2000). Thus, it seems that there is a component related to self-efficacy in coping with negative mood states that influences the likelihood of problematic college drinking. Furthermore, emotion-focused (i.e., dysfunctional) coping strategies have been associated with higher levels of alcohol consumption and greater endorsement of alcohol-related problems (Evans & Dunn, 1995; Karwacki & Bradley, 1996).

Certain individuals, generally, have been observed to desire an alcoholic beverage when experiencing distress, anxiety, anger, and/or sadness, as well as other negative feelings or emotions (Armeli, Tennen, Affleck, & Kranzler, 2000; Cooney, Litt, Morse, Bauer, & Gaup, 1997; Backer-Fulghum et al., 2011). A strong relationship exists between daily experiences of negativity and the desire to drink (Todd, Armeli, Tennen, Carney, & Affleck, 2003, cited in Backer-Fulghum et al., 2011). Individuals with stronger drinking to cope motives were found, in comparison, to consume alcohol earlier during high stress week versus a low stress week (Armeli, Todd, Conner, & Tennen, 2008). Furthermore, those who drink to cope with life stressors were also more likely to drink to intoxication, experience drinking-related problems, and meet criteria for an

alcohol use disorder (Carpenter & Hasin, 1998; Cooper, Agocha, & Sheldon, 2000; Simons, Correia, & Carey, 2000; as cited in Backer-Fulghum et al., 2011).

The vast majority of college students tend to mature out of problematic drinking behaviors. Students who maintain problematic drinking behaviors following college graduation place themselves and others at substantial risk of negative consequences. Although there has been a plethora of research investigating college drinking, there is still some ambiguity in the pursuit of a comprehensive understanding of problematic drinking patterns in college students. Many psychosocial factors seem interrelated and create difficulties in determining etiological factors. Understanding the variables related to problem drinking is essential in identifying those in need of services and informing prevention and intervention strategies (Ham & Hope, 2003).

Demographic factors, particularly gender, and in some cases race or ethnicity have been frequently cited as variables associated with problematic drinking in college students. More than likely this result is stemming from the number of large epidemiological studies on college drinking that have such demographic factors as gender and ethnicity easily accessible (i.e., public universities; Ham and Hope, 2003). The heaviest and most problematic drinking within college students has been documented among males. As a whole, male college students tend to consume alcohol with more frequency and in larger quantities than female college students (Clements, 1999;

O'Malley & Johnston, 2002; Read, Wood, Davidoff, McLacken, & Campbell, 2002; Valliant & Scanlan, 1996; as cited in Ham and Hope, 2003).

Overall, the research and literature reviewed on college alcohol consumption describes the various stressors within the college experience most often associated with alcohol related problems. Drinking to cope has been endorsed and accepted among thousands of Universities where alcohol consumption, regardless of age, appears commonplace in times of distress. Although, there are certain protective factors that seem to safeguard specific subgroups from developing long-term alcohol related problems. Positive family and social interaction, learning and implementation of functional coping strategies are important predictors of alcohol consumption in times of distress. Additional research and attention should be placed on understanding the relationship between perceived stress, functional and dysfunctional coping, and social support on alcohol consumption among undergraduate college students.

An Overview of the Phenomenon of Stress

The phenomenon of stress is a complex human experience primarily rooted in psychology and biology with correlations to the theory of evolution. The experience of stress has evolved into an ambiguous and universal organismic experience with both beneficial and problematic consequences. Development of a universal definition and understanding of the phenomenon termed stress has historically been subject of rigorous research and study within the disciplines of social sciences, primarily biology and

psychology. Lazarus and Folkman (1984) credit the popularization of the term stress to the publication of Janis Irving's 1958 book *Psychological stress: psychoanalytic and behavioral studies of surgical patients*. Irving's historical literary contribution served as a catalyzing force behind Lazarus and Folkman's (1984) theory of psychological stress.

The American Institute on Stress (AIS) contends that an agreeable and widely accepted definition of stress across disciplines has not been reached or clearly defined at time of publication in 2013. Furthermore, the AIS provides a description of stress in the most general sense, as "physical, mental, or emotional strain or tension", or "a condition or feeling experienced when a person perceives that demands exceed the personal and social resources the individual is able to mobilize (American Institute on Stress, 2013). The latter definition seems to parallel the purposes of this investigation into the stress placed on the individual within a specific context (i.e., college), under specific circumstances or conditions and defined as psychological stress or distress.

Generating an approach to understanding psychological stress through the lens of universal human experience would be incomplete without mentioning the evolutionary byproduct often associated with the "fight or flight" theory of survival for basic human evolution. Throughout the world, organisms regularly experience some form of physiological stress within their everyday existence. Not always a negative experience, stress can often serve as a beneficial function for survival. This notion is further captured through the AIS online publication that clearly defines stress as both good and bad.

Eustress has been defined as a good stress (e.g., winning an athletic event could be just as stressful as losing). In contrast to eustress is the more commonly accepted term known as distress. Distress is generally defined as a contributor to experiences of anxiety, psychological strain, or emotional suffering. Clearly understanding this differentiation holds relative importance when discussing such a broad term as stress.

There exists significant value in understanding stress as more than the sympathetic nervous system responding to perceived danger; wherein adrenaline secretion in the “fight or flight” phenomenon occurs. The ASI contends that the subjectivity of the biological, psychological, and sociological response differs for each individual, such that a cross-sectional definition is nearly incomprehensible. For the purposes of clarity and straightforwardness the term stress used henceforth will be understood as defined by Cohen, Deverts, and Miller (2007) as:

"A feeling of strain and pressure; symptoms may include a sense of being overwhelmed, feelings of anxiety, overall irritability, insecurity, nervousness, social withdrawal, loss of appetite, depression, panic attacks, exhaustion, high or low blood pressure, skin eruptions or rashes, insomnia, lack of sexual desire (sexual dysfunction), migraine, gastrointestinal difficulties (constipation or diarrhea), and for women, menstrual symptoms. It may also cause more serious conditions such as heart problems."

As the agreement on defining stress has been specified for the purposes of this literature review, the focus will shift to a particular group of individuals who experience stress with some regularity, college students. The college experience has been found to be stressful for many young adults (Pierceall & Keim 2007). Stress among the

undergraduate student population results from various areas of life, such as: school, social interactions, household tasks, grooming, eating and sleeping, employment/volunteering, leisure, and various miscellaneous obligations and tasks (Larson, 2006).

Goldman and Wong (1997) separated college aged participants into high and low stress categories and administered a scale measuring life satisfaction. The authors found that the individuals within high stress groups reported lower scores on domains such as scholastic and job competence, intellectual ability, close friendships, appearance, and ability to find humor in their lives (Pierceall & Keim, 2007). Hudd et al. (2000) surveyed 225 undergraduates and found students with high levels of stress to perceive themselves as less healthy, more prone to practice poor health habits such as higher levels of alcohol consumption.

Ross, Neibling, and Heckart (1999) explained that as stressors begin to accumulate an individuals' ability to cope or readjust can be overworked. Furthermore, depleting these psychological coping strategies could increase the probability of subsequent physical illness or psychological distress (Lazarus & Folkman, 1994). According to Sax (2003) the frequency of undergraduate students feeling constantly overwhelmed has increased from 16% in 1985 to 27% in 2002. In addition, Pierceall and Keim (2007) studied undergraduate stress and reported that 75 -80% of college students were experiencing a moderate level of reported stress and 10-12% reported experiencing severe levels of stress. A major concern with this data is the incidence of depressive and

anxiety disorders within undergraduate college populations. The choices for coping with such highly stressful situations and activities are dependent and subjective to the individual experiencing the stress. High levels of undergraduate stress have also been linked to poor health behaviors. Furthermore, Hudd et al. (2000) found that college students' who reported higher levels of stress also consumed a greater amount of unhealthy food, were less likely to exercise, and less likely to obtain adequate amounts of sleep. Without an adequate amount of positive or functional coping strategies, undergraduate students may begin to engage in activities out of their normal element (i.e., alcohol misuse).

Coping Styles – Lazarus and Folkman's (1984) Model

The above review provides evidence into the relationship between life stressors (i.e., intra and interpersonal) and coping strategies (functional and dysfunctional) on higher levels of alcohol consumption. Thus, it is critical to understand how college students appraise their stress which appears to be resulting in higher levels of alcohol consumption. Moreover, we must examine whether college students endeavor to cope with life stressors is a general cause of higher levels of alcohol consumption.

Accordingly, Lazarus and Folkman's (1984) theory on stress, appraisal, and coping provides a theoretical framework for this dissertation.

According to Lazarus and Folkman, the interpretation of stress is a bi-directional process; it involves the environmental production of stressors, and the subsequent

response of the individual experiencing or subjected to these stressors. This initial conception regarding stress served as a catalyst in the development of the theory of cognitive appraisal of stress. The theory includes the threatening tendency of the stress to the individual and the assessment of resources required to minimize, tolerate, or eradicate the stressor and the experience it produces (Lazarus & Folkman, 1984).

The concepts of appraisal (i.e., individuals' evaluation of internal or external significance of an event or stimuli), and coping (i.e., efforts in cognition and action to manage precise demands) remain central to Lazarus's theory of stress, appraisal, and coping (Chao, 2012; Krohne, 2002). One particularly vital variable within this model is the relational component existing between emotional processes (i.e., stress) and subjective expectancies; often unique to the individuals' perception, prediction, and subsequent outcome during the encounter. Furthermore, individual differences in quality, intensity, and duration of an experienced emotion in specific situations seem objectively similar for different individuals (Krohne, 2002). However, these reactions generally differ relative to the personal factors of the individual experiencing the stressor.

According to Lazarus (1991), personal factors such as motivation, goals, and values, in addition to situational parameters (e.g., predictability, controllability, and imminence of a potential stressful encounter) are crucial factors relative to subjective experience, appraisal, and subsequent coping response. A comprehensive emotional theory was proposed by Lazarus and Folkman (1984) identifying and defining two

fundamental forms of appraisal; primary and secondary appraisal. Primary appraisal concerns whether something of relevance to the individuals' well-being is occurring or has occurred; whereas, secondary appraisal concerns coping options or a viable and resourceful response. (Lazarus & Folkman, 1984; Lazarus 1996; Lazarus 1991; Krohne 2002). *Primary appraisal* is the process of perceiving an environmental or subjective threat to oneself and/or integrity. Whereas, *Secondary appraisal* is the process of bringing to mind a potential response to the threat. *Coping* is merely the process of executing the decided response or course of action (Lazarus & Folkman, 1984; Carver, Scheier, & Weintraub, 1989). Lazarus and Folkman (1984) further define specific methods of coping as either problem or emotion focused strategies.

The first strategy, termed *problem focused coping*, is aimed at problem solving or doing something to immediately alter the source of the stress. In contrast, *emotion focused coping*, is aimed at reducing or managing the emotional distress that is associated with (or cued by) the situation. Although, stressors generally require both problem and emotion focused coping. Research has found problem-focused coping to predominate when individuals decide something constructive could be initiated and emotion-focused strategies tend to predominate when an individual feels that the stressor must be endured (Folkman & Lazarus, 1984; Carver, Scheier, & Weintraub, 1989). Problem and emotion-focused coping strategies often function as either functional or dysfunctional, depending

on the individualized appraisal of the presented stimuli. Research consistently concludes problem-focused coping to be the more effective strategy (Lazarus & Folkman, 1984).

Perceived Stress in College Students

This section addresses perceived or experienced stress, in relation to undergraduate college students. It is generally acknowledged that the undergraduate college experience is a time for adolescents to mature into responsible adults, well prepared for the transition into early adulthood. Consequently, college students become immediately immersed into a highly competitive environment with intensive demands to achieve, establish new social relationships, all this while simultaneously adjusting to a new and different environment. In theory these young adolescents are being exposed to variable sources of acute and/or chronic psychological stress (Hodgson & Fischer, 1979; Kramer, Berger & Miller, 1974; Santiago-Rivera & Bernstein, 1996; Lapsley, Rice & Shadid, 1989). Fortunately, the academic community has spent the past several decades attempting to understand or at least create a general consensus in terms of etiology, prevalence, and intervention strategies to decrease stress in college students with relative success; although, researchers have yet to clearly identify a solution. Rather a plethora of data has been produced to assist in making sense of this potentially dangerous issue. Importantly, perceived stress among college students may result in higher levels of alcohol consumption.

Hypothesis 1: Perceived stress will positively contribute to the variance of alcohol consumption among college students.

Functional Coping and College Students

Without delay following entrance into a collegiate program the student becomes engrossed in various stressful events (Roberti, Harrington, & Storch, 2006). Students invariably cope with stress through different methods, often mutually exclusive, and either functional or dysfunctional. Furthermore, strategies that utilize positive methods for coping often have a linear relationship with a general sense of well-being (Chao, 2001; Ben-Zur, 2009). Lazarus and Folkman (1984) cited the work of Janis (1958) and Lindemann's (1944) "Greif Work" to explain the utility behind consciously selecting a dysfunctional coping strategy. Individuals who attentively face a threat will suffer more initial distress at the outset of the experience of the stressor; however, distress will be experienced as less severe on subsequent occasions due to preparedness for handling the specific situation (Leigh, 1989).

Research with a focus on assessing the relationship between daily coping and affect among university students found that problem-focused (i.e., functional) coping was positively correlated to positive affect (i.e., experience or feeling of emotion; Dunkley, Zuroff, & Blankstein, 2003; Gunthert, Cohen, & Armeli, 2002; Park, Armeli, & Tennen, 2004 as cited in Ben-Zur, 2009). Several research studies have consistently provided

similar outcome data which posits problem-focused coping as more effective in moderating affect than emotion-focused coping strategies (Chao, 2012).

Momentarily viewing this conceptualization from a medical model may prove helpful in understanding the true seriousness of the relationship between coping and affect. Lowe, Norman, & Bennett (2000) found problem-focused coping within a sample of myocardial Infarction (MI) patients to be related to positive affect; whereas emotion-focused and avoidant coping were positively related to negative affect (Chao, 2012). In addition, findings of positive associations between problem-focused coping and positive affect similar to the relationship between emotion-focused coping and negative affect were found in studies of samples of the visually blind, and adolescents with epilepsy. The commonality of these studies provided preliminary confirmation of one aspect of the coping–affect differential association, that is, associations between positive affect and problem-focused coping, and negative affect and emotion-focused coping (Chao, 2012). The role of appraisal was examined and researched in a sample of 159 college students from a St. Louis University to examine stress research theory of Lazarus and Folkman, in attempts to correlate functional coping behaviors with positive appraisal in hopes of predicting positive outcomes (e.g., well-being and higher life satisfaction; Kohler et al., 2006; Latack, 1986). Consistent with the authors' hypotheses, positive appraisal was correlated with lower stressor perceptions and with more functional coping behaviors (Giancola, Grawitch, & Borchert, 2009).

The term *problem focused coping* is defined as a strategy aimed at problem solving or developing an immediate plan to address the source of the distress (Folkman & Lazarus, 1980; Carver, Scheier, & Weintraub, 1989; Kilburn & Whitlock, 2013). Empirical supported research has found problem-focused coping to predominate when individuals decide something constructive should be initiated (Folkman & Lazarus, 1980; Carver, Scheier, & Weintraub, 1989; Stroebe & Schut, 2001). Problem-focused coping strategies, are generally, concrete plans of action with an intense focus on developing steps or a plan of action with motivation toward solving the problem, which includes strategies for gathering information, making decisions, and resolving conflict in instrumental, situation-specific, and task-oriented actions (Kilburn & Whitlock, 2013; Carver, Scheier, & Weintraub, 1989). The following example exhibits the utility of problem-focused coping.

During the 1990's there was little medical intervention to control the course of AIDS and Moskowitz et al. (1996) began studying caregivers reactions to their loved ones who were afflicted with this virus. The overall situation seemed uncontrollable and the caregivers reported feelings of helplessness resulting from the unpredictability and uncontrollability of their loved ones' disease (Folkman, et al. 1994). As well intentioned as these caregivers became, they were unable to make their partners better. However, caregivers in this study were not passive in the face of uncontrollability; instead, they began to pursue realistic and attainable goals by focusing on specific tasks or problems

related to caregiver roles. Within this population of caregivers' problem-focused coping made it possible for the individual to feel effective and experience situational mastery and control in the face of incredible distress (Carver & Scheier, 1998; Klinger, 1998). Problem-focused coping allows the individual to cope with the immediate source of distress with the specific goal of solving the problem leading to distress, which, in turn, will increase confidence utilizing a specific functional coping method.

Hypothesis 2: Functional coping strategies will negatively contribute to the variance of alcohol consumption among college students.

Hypothesis 3: Functional coping strategies are hypothesized to moderate the relationship between perceived stress and alcohol consumption.

Dysfunctional Coping and College Students

Coping styles by definition are individualized processes for effectively managing the demands of internal or external stress through strategies or styles directed toward alleviating the subjective experience of stress between an individual and their environment. Patterns or methods of coping generally become encapsulated within two specific definitions of coping styles, functional and dysfunctional (Lazarus and Folkman, 1986; Krohne, 2002; Lazarus, 1991; Austenfeld and Stanton 2004; & Marty, Segal, & Coolidge, 2010). Dysfunctional methods for coping often become reinforced based on successful alleviation of a distressful emotion (emotion-focused coping). Significant differences exist between functional and dysfunctional coping strategies which will be

explored and examined in the following section (Marty, Segal, & Coolidge, 2010; Carver & Scheier, 1994). Folkman and Lazarus (1980) distinguished two theory-based functions of coping: Emotion-focused coping (e.g., improve or modify the negative emotions associated with the problem) or problem-focused coping (e.g., address or solve the problem causing distress). Emotion-focused coping has become predominately distinguished as the less healthy method of coping in contrast to problem-focused coping.

Empirical research studies have consistently found emotion-focused coping strategies as less effective strategies for handling stress (Lazarus & Folkman, 1984). *Emotion focused coping*, is aimed at reducing or managing the emotional distress that is associated with (or cued by) the situation, and tends to predominate when individuals feel that the stressor is something that must be endured (Folkman & Lazarus, 1980; Carver, Scheier, & Weintraub, 1989). Austenfeld and Stanton (2004) defined emotion-focused strategies as the following: avoidance, seeking emotional support, positive reappraisal, and generally any method for short-term and immediate resolution of an intense emotional experience. These types of coping strategies are directed toward managing or reducing emotional distress, which also includes cognitive strategies such as looking on the bright side, or behavioral strategies such as seeking emotional support, having a drink, or using illicit substances.

Emotion-focused coping strategies have often been associated with or received connotation as negative or less effective than problem-focused coping, and frequently

categorized as dysfunctional methods of coping. Coping strategies include distraction, substance use (e.g., alcohol misuse), or seeking emotional support as primary methods for alleviation of emotional distress (Folkman & Moskowitz, 2004; Lazarus & Folkman, 1986). Take the example of distancing, which is a method of coping in which the problem is recognized, but intentional efforts are made to momentarily place it out of the individuals mind (Folkman & Moskowitz, 2004; Lazarus & Folkman, 1986). Additionally, consider the notion of escape-avoidance, which includes behaviors such as substance use or abuse. Both distancing and escape-avoidance strategies fall within the defining language of emotion-focused coping (Folkman & Moskowitz, 2004). The problem, however, seems to occur when one dysfunctional coping strategy is used repeatedly regardless of the stressful event or situation (Carver & Scheier, 1994; Marty, Segal, & Coolidge, 2010). Cumulative evidence indicates dysfunctional coping strategies as problematic when used in isolation of other methods for coping, and utilized for extended periods of time (Lazarus & Folkman, 1984; Carver & Scheier, 1994; Marty, Segal, & Coolidge, 2010).

One particularly vital variable within the framework of discussing dysfunctional coping strategies is the relational component which exists between emotional processes (i.e., stress) and subjective expectancies. Subjective expectancies are shaped through the individuals' perception, prediction, and subsequent outcome during the encounter with a stressful situation (Krohne, 2002). Furthermore, individual differences in quality,

intensity, and duration of an experienced emotion in specific situations seem objectively similar for different individuals (Krohne, 2002). Comparatively, subjective reactions are quite different relative to the personal factors of the individual experiencing the stressor.

Personal factors such as motivation, goals, and values, in addition to situational parameters (e.g., predictability, controllability, and imminence of a potential stressful encounter) are crucial factors relative to subjective experience, appraisal, and subsequent coping response (Lazarus & Folkman, 1984; Lazarus 1996; Lazarus 1991; Krohne 2002). Additionally, the ability of an individual to modify their coping response according to specific demands is a phenomenon referred to as coping flexibility (Lester et al. 1994). Coping flexibility, in essence, could grant the individual more mastery of their responses to stress, therefore, reinforcing successes and continued use of either functional or dysfunctional coping strategies, depending on situational factors.

Psychological stress has been regarded as a relational concept (i.e., the relationship between an individual and their environment), and therefore the subsequent coping responses have been defined as fluid and changing from moment to moment throughout the course of a stressful event or situation (Carver & Scheier, 1994; Lazarus & Folkman, 1986; Krohne, 2002). Dysfunctional beliefs seem to reinforce, with relative ease, individuals utilization of maladaptive coping strategies, regardless of consequence and without the knowledge of a more stable or alternative method for coping. These

responses seem to provide immediate resolution of feelings associated with the problem, but, also reinforce use of one specific coping strategy.

Furthermore, coping responses, much like stressors, are fluid and change from moment to moment throughout the course of the stressful event or situation (Carver & Scheier, 1994). Kagan (1998) noted that children who are highly sensitive to an environmental situation, tend to manifest internal responses to these events with fear and/or behavioral instability. Often these internal responses result in social withdrawal, self-criticism, and avoidant type behaviors. In contrast, children observed as oriented with a preference toward a behavioral style of coping often appeared oblivious to internal experiences. These polar distinctions in appraisal and coping tend to occur across various cultures and age groups (i.e., into adulthood; Kagan, 1998; Butler et al, 2011). Skinner and Edge (1998) propose that an individual's methods for coping may have an effect on the reactions of social and material partners across the lifespan. These reactions may have a lasting effect on the individual and function to reinforce and perpetuate coping strategies and behaviors across the lifespan. Hence, these reactions can serve to consolidate or transform the original ways of coping which developed in childhood to persist and maintain stability throughout adulthood (Kagan, 1998; Butler et al., 2011; Skinner & Edge, 1998).

Gender differences in stress and coping responses were studied by Matud (2004) from a sample of 2816 adults between the ages of 18 and 65 (1566 women and 1250

men). Participants in this study were described as possessing diverse socio-demographic characteristics. The resulting data indicated women as significantly more likely than men to report experiencing acute or chronic daily stressors, and more likely to utilize an emotional or avoidant coping style. The men in this particular study were found to experience more emotional inhibition than the women during appraisal and coping. Furthermore, the relationship between gender, stress, and coping processes may result as a byproduct of culturally conditioned socialization patterns.

Historically, traditional female gender roles prescribe dependence, affiliation, emotional expressiveness, and a lack of assertiveness. In stark contrast, men have been prescribed the role of being autonomous, self-confident, and assertive members of society. Socialization patterns could create difficulties for men to be perceived as weak, incompetent or fearful; which ultimately would discourage emotional-focused coping strategies. Although, Felsten (1998) points out, gender differences in the use of coping strategies may be decreasing and becoming less consistent. However, the small effect sizes found in this study affirmatively support the analysis that gender differences, do in fact exist, irrespective of the proposed decrease with future generations (Matud, 2004). These gender differences will be important in understanding potential confounding effects of gender on alcohol consumption.

Individuals between the ages of 18 and 25 years are categorized as cohort transitioning through a period in life termed emerging adulthood (Arnett, 2000). A time

period in the lives of young adults wherein stress should be encountered with some regularity. Emerging adulthood also encompasses the age cohort of traditional college students falling between 18-25 years of age (Landrum, Hood, & McAdams, 2001). These traditional college students may respond to stressful events through the use of adaptive (functional) or maladaptive (dysfunctional) coping styles. Dysfunctional coping strategies have been found prevalent within the collegiate arena (Brougham et al., 2009).

As a consequence of attending college a multitude of students generally relocate geographically, gain independence and personal responsibility, and acclimate to a new environment; all while declaring a major of study, gaining social acceptance, and experiencing an incredible amount of freedom to make individualized choices (Chao, 2012). These transitions often require students to appraise or reappraise their current coping strategies, and social support necessary for stress management (Brougham et al., 2009). During this period of time in collegiate settings, functional or dysfunctional coping strategies often arise due to the lack of appropriate resources for coping with an abundance of stressors (Roth & Cohen, 1986). Carver et al. (1989) describes three aspects of dysfunctional coping: (a) focusing on and venting of emotions, (b) behavioral disengagement, and (c) mental disengagement (as cited in Chao, 2012).

Dysfunctional coping styles are prevalent within the collegiate arena of the current generation (Brougham et al., 2009). Sideridis (2008) found that the five most frequently utilized coping strategies among college students were as follows: browsing

the Internet, sleeping and resting, using instant messaging, complaining, and watching TV or movies. In addition, Sideridis (2008) found that mastery avoidance was consistently linked to maladaptive network of negative cognitions and affect, which was subsequently linked to maladaptive processing and coping. A direct relationship has been observed between the numbers of dysfunctional coping strategies utilized and the likelihood of anxiety being reinforced and endured throughout the process (Carver et al., 1989). Coping researchers Skinner, Edge, Altman, & Sherwood (2003) argue that methods utilized in dealing with stress can reduce or amplify the effects of adverse life events and conditions, on both short-term functioning and long-term functioning; in addition to exacerbation or development of physical and/or mental health or disorder(s). Researchers maintain the notion that coping strategies and method are invariably relevant.

Unfortunately, despite the failure of dysfunctional coping strategies, these strategies still prevail among those students (Chao, 2012). Individuals, more specifically, college students may experience greater emotional ease on the first instance of dysfunctional coping (e.g., immediate relief of anxious symptoms); although, the individual may suffer an emotional toll on each subsequent utilization of the maladaptive response. Using a sample of 459 college students Chao (2012) examined whether higher levels of social support predicted amount of perceived stress within this population and furthermore, attempting to identify whether higher levels of social support provides a

buffering effect against dysfunctional coping. The research suggested that satisfaction with social support is a buffer against dysfunctional coping. Furthermore, dysfunctional coping can, ultimately, deteriorate well-being (Chao, 2012; O'Connor & O'Connor, 2003).

Hypothesis 4: Dysfunctional coping strategies will positively contribute to the variance of alcohol consumption among college students.

Hypothesis 7: Dysfunctional coping strategies are hypothesized to moderate the relationship between perceived stress and alcohol consumption.

Social Support and College Students

The evolving pressure of achievement placed on contemporary college students varies substantially from the traditional institutional philosophy of parental involvement within the collegiate setting (Daniel et al., 2001). College has progressively developed from a place where parents send their children for four years, and subsequently abdicate their control, to an atmosphere where parents participate, to varying degrees, in the students' choices and lifestyle. One possible reason for this level of involvement relates to the burden parents carry through various methods (e.g., paying tuition bills, providing social support) in addition to carrying responsibility for terminating their child's college experience if things should deviate from stated or agreed upon expectations (Toor, 2000; Chronicle of Higher Education Almanac, 2000; Daniel, et al., 2001). Furthermore, the reality for many students becomes a college experience meant for learning, maturing, and

gaining autonomy, to being intertwined with parental expectations, control, and higher and lower levels of social support (Daniel et al., 2001).

Just as society once followed clearly delineated roles and traditions, so too did higher education once have clear parameters for engaging, or choosing not to engage, families. (Daniel et al., 2001). As a result of the rapid changes of contemporary society; college students' perceptions of social support have shifted from viewing their supports as stable to seeing them as variable and fluctuating when they most need help (Daniel, Evans, & Scott, 2001). The role of a parental relationship with their children remains imperative in the students' life (Collins & Lauren, 2004; Steinberg, 2001; Steinberg & Silk, 2002; Backer et al. 2011). Consequently a general concern among first generation college students (FGCSs) is a lower levels of social support from family and friends. McConnel (2000) reported that FGCSs perceived parents to be less supportive of their choice or decision to attend college and less encouraging than did Non-FGCS peers (Wang & Castañeda-Sound, 2008; Chao, 2008; Collins & Lauren, 2004). This logic further reinforces the notion that college students with lower family support could also be deficient in their abilities for buffering against stress (e.g., Solberg & Villareal, 1997; Wang & Castañeda-Sound, 2008; Arria et al., 2009).

Undeniably, social support has a long list of benefits (Ben-Zur, 2009; Lundberg, McIntire, & Creasman, 2008) serving as contributing factors to the subjective experience of happiness and life satisfaction; additionally, higher levels of social support has been

found to be negatively related to mental health problems (Brown, Alpert, Lent, Hunt, & Brady, 1988), which are generally associated with stress. When asked about strategies or methods for coping and managing levels of stress, many college students highlight higher levels of social support from other students, their environment, and often family as a first line of defense for coping with stress (Ben-Zur, 2009; Lundberg, McIntire, & Creasman, 2008; Brown, Alpert, Lent, Hunt, & Brady, 1988).

College students' perceived lower levels of social support was found more likely to be related to life dissatisfaction and in some cases suicidal ideation or behavior (Allgower, Wardle, & Steptoe, 2001). Lower levels of social support from family and friends is an important correlate of depression, substance use, and suicidal ideation for adolescents, adults, and college students (D'Attilio, Campbell, Lubold et al., 1992; Harris & Molock, 2000; Harter, Marold, & Whitesell, 1992; Marion & Range, 2003; Mireault & de Man, 1996; Prinstein, Boergers, Spirito et al., 2000; Stravynski & Boyer, 2001; as cited in Arria et al. 2009).

In an interview of 1,249 college students, 6% reported having suicidal ideation, and lower levels of social support was a predictor to suicidal ideation (Arria et al., 2009). The aforementioned empirical evidence shows that, when perceiving lower levels of social support, college students would lack a buffer against life stress that deteriorates well-being. The level of social support could be the first moderator between stress and well-being. That is, when encountering life stress, the college students' who have higher

levels of social support may have a buffer to moderate the association between stress and well-being, and those with lower levels of social support would lack the buffer against stress (Chao, 2012). Perhaps available supports enable some students to maintain a relatively positive mental health despite stress (Chao, 2012).

Social support has decreased in the past decade (Arria et al., 2009), what is missing is a consideration of how lower levels of social support affects the management of stress (Curran, Totenhagen, & Serido, 2010), or an inadequate social life (Sirgy, Lee, & Bae, 2006). The relationship between lower levels of social support and depression is well established, and in addition, social support plays an important role in the maintenance of health behaviors and the stimulation of health behavior change (Geertsen, 1997). On a more positive note, higher levels of social support appear to exert a protective effect against suicidal behaviors by increasing self-efficacy (Thompson, Eggert, & Herting, 2000; Arria et al. 2009) or through reductions in stress (Clum & Febraro, 1994; Schutt, Meschede, & Rierdan, 1994; Yang & Clum, 1994). It is possible that some associations between personal health behaviors and depression result from the fact that depression is related to lower levels of social support, which is in turn linked with unfavorable health behaviors, such as alcohol or substance use as a mechanism for coping (Allgower, Wardle, & Steptoe, 2001).

Higher levels of perceived social support (MSPSS) from family members has been examined and related to less use of substances and proposed to be the greatest

during early adolescence and, thus, high family support during this developmental period has the potential to delay the onset of drugs and alcohol use when adolescents are older and enter the college arena (Averna & Hesselbrock, 2001). Nonetheless, students with lower levels of social support were more likely to engage in less healthy activities, such as sedentary behavior, alcohol use, and too much or too little sleep (Thorsteinsson & Brown, 2008).

Communication with mothers about alcohol was correlated with negative beliefs about drinking consequences (Ham & Hope, 2003; Turrisi et al., 2000). Negative views and perceptions of parental attitudes toward drinking could correlate with a college student's drinking norms (Ham & Hope, 2003; Collins & Lauren; 2004; Steinberg & Silk, 2002). In addition, the level of parental autonomy has been found to reflect confidence in their child's abilities.

Furthermore, in college students, drug and alcohol abuse has been linked to both suicide ideation and suicide attempts (Brenner, Hassan, & Barrios, 1999; Levy & Deykin, 1989) especially for men (Bukstein, Brent, Perper et al., 1993; Dhossche, Meloukheia, & Chakravorty, 2000; Wu, Hoven, Liu et al., 2004; Arria et al. 2009). This explanation is reinforced by the fact that higher levels of alcohol consumption were observed in students who had lower levels of social support (Allgower, Wardle, & Steptoe, 2001). When considering the relevance of coping strategies, the notion of substance use, more specifically, alcohol use, as a coping mechanism could become intertwined with the

college students' perceived lower levels of social support. Investigating the relationship between alcohol use and coping should be explored as a method for understanding negative consequences and buffering effects of alcohol use in college students during times of stress.

Hypothesis 5: Perceived social support is hypothesized to negatively contribute to the variance of alcohol consumption among college students.

Hypothesis 6: Perceived social support is hypothesized to moderate the relationship between perceived stress and alcohol consumption.

Chapter Three

Methodology

Participants. Participants were 381 University of Denver undergraduate students between the ages of 18-25 who were in the process of obtaining a bachelor's degree. The participants were recruited to complete this online survey through their professors via email. Individuals actively working toward masters or doctoral level degrees were not included in this sample. Utilizing the final, cleaned data set, 201 participants provided viable data.

The mean age of participants was 19 years old with a range from 18 to 25. The majority of the sample identified as White (n=155, 77.1%) with 10% identifying as Asian or Asian American (n=20), 6.5% identifying as Hispanic or Latina/Latino (n=13), 4.5% as Biracial/Multiracial (n=9), 1% as Black or African American (n=2), 0.5% as Native American (n=1), and 0.5% indicating another identity (n=1). Female participants reflected 76% of the sample (n=153) and 24% identified as men (n=24); 83% of the sample reported being heterosexual (n=167) with 7.5% identifying as bisexual (n=15), 3% of the respondents did not answer (n=6), 2% responded as questioning (n=4), 2% as other (n=4), 1.5% as gay (n=3), and 1% as pansexual (n=2).

A plurality of the participants identified as no belief/atheist/agnostic (n=95, 47%) with 34% identifying as Christian (n=69), 9% as other (n=18), 8% as Jewish (n=16), 1% as Buddhist (n=2), and 0.5% as Islamic (n=1). In regards to marital status, 98.5%

identified as single (n=198) with 1% as married (n=2), and 0.5% did not respond. The majority of students were in their first year (33%, n=67) with 24% in their second year (n=48), 23% in their fourth year (n=47), 19% in their third year (n=38), and 0.5% in their fifth year (n=1). When asked about living situation 54% report on-campus housing (n=109) with 37% living off-campus (n=75), and 8.5% living at home (n=17). The final question assessed current abstinence from alcohol and (100%, n=201) indicated no abstinence. See Table 1 below for a complete outline of the demographic characteristics of the sample.

Table 1

Overview of Demographic Variables

Characteristic	Frequency	Percentage
Total Viable Participants	201	100
Age		
18	46	22.9
19	55	27.4
20	38	18.9
21	48	23.9
22	13	6.5
25	1	.05
Missing	0	0
Gender		
Female	153	76.1
Male	48	23.9
Transgender	0	0
Missing	0	0

Race/Ethnicity	201	100
Native American	1	.05
Asian or Asian American	20	10
Black or African American	2	1.0
Hispanic or Latina/Latino	13	6.5
White	155	77.1
Biracial/Multiracial	9	4.5
Other	1	.5
Missing	0	0
Sexual Orientation	201	100
Bisexual	15	7.5
Gay	3	1.5
Heterosexual	167	83.1
Questioning	4	2.0
Pansexual	2	1.0
Other	4	2.0
Missing	6	3.0
Religion	201	100
Buddhist	2	1.0
Christian	69	34.3
Islamic	1	.5
Jewish	16	8.0
No Belief/Atheist/Agnostic	95	47.3
Other	18	9.0
Missing	0	0
Marital Status	201	100
Single	198	98.5
Married	2	1.0
Missing	1	.5
Highest Education Achieved	201	100
First Year	67	33.3
Second Year	48	23.9
Third Year	38	18.9
Fourth Year	47	23.4

Fifth Year	1	.5
Missing	0	0
Living Situation		
At Home	17	8.5
On Campus	109	54.2
Off Campus	75	37.3
Missing	0	0
Abstinence from alcohol	201	100
Yes	0	0
No	201	100
Missing	0	0

Measures

Demographic Questionnaire. Ten demographic items were included in the questionnaire portion of this study as a method to gather information of participants' age, gender, race/ethnicity, sexual orientation, relationship status, religion, college standing, SES, living arrangement, and three questions related to ascertaining whether drinking patterns exist while experiencing stress.

Perceived Stress Scale (PSS; Cohen, Kamarck, & Mermelstein, 1983). The PSS was used to measure students' perception of stress. Furthermore, the measure assessed the degree to which situations in the students' life are appraised as stressful. The PSS is a 10-item assessment measuring 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 scale from 0 (*never*) to 4 (*very often*). Item responses are summed for a total score which

ranged from 0 to 56. Scores were recorded in how the respondent felt in the past 30 days and higher scores indicated higher perceived stress in the last month.

The PSS was designed for use within community samples with, at minimum, a high school education (Cohen, Kamarck, & Mermelstein, 1983). Two college samples were utilized for norming of the PSS, the first were 332 (121 male, 209 female) and 114 (53 female, 60 male, 1 with no sex specified), and one smoking cessation sample of 64 (27 male, 37 female). Age distributions were quite skewed in the sample and therefore the correlations between PSS and age were .04, -.08, in college samples and -.02 in smoking cessation sample. Coefficient alpha reliability for the PSS was .84, .85, and .86 in the samples, respectively. For this assessment, two time intervals were measured, two days, and six weeks. The PSS was administered on two occasions separated by two days, to the college students ($n = 82$). Test-retest correlations were .85. Test-retest correlations were .55 for the smoking cessation group who were retested after six weeks. Correlations between the PSS were calculated separately for males and females in each of the three samples. There were no significant differences between male and female at the $p < .05$ level.

Correlations between PSS and life-event scores indicate significance for student sample I and the smoking cessation sample at the initiation of treatment. There did exist a difference in the correlation between PSS and number of negative life events for young and old participants in the smoking cessation sample. The correlation for the young

members was .65 ($p < .05$); and .19 for older participants. PSS versus life events as a predictor of symptomatology was significant at ($p < .05$) in all cases. The correlation for PSS and symptomatology was .16, $p < .01$, in sample I and .17, $p < .07$, for sample II. CES-D and physical symptomatology, the correlation was .31, $p < .01$, in sample I, and .38, $p < .01$, in sample II. Despite the high correlation between PSS and CES-D, both scales independently predicted physical symptomatology. When measuring PSS versus life events as a predictor of utilization of health services, significance was found in sample I during the five-week period after completion of the scale. In sample II, there was a non-significant correlation. The correlations between physical illness visits after administration of the scales was .15, $p < .007$, for sample I and -.02 for sample II. The authors suggest the correlations of life-event scores with utilization were not significant in both samples for physical illness and all visits, these correlations ranged from -.04 to .03. PSS versus life events as a predictor of social anxiety, found increases in social anxiety associated with increases in perceived stress in both student samples (.37 and .48, $p < .001$).

The PSS has adequate internal and test-retest reliability and is correlated in the expected manner with a range of self-report and behavioral scales and criteria. A correlation of PSS with symptomatologic measures was high (.52 to .76). Relationships between PSS and validity criteria were not significantly affected by age or sex. Estimates of internal consistency estimates based on a sample of college samples has generally been

found in the .70 –.80 range, and test–retest correlations have been adequate as well (Chang & Rand, 2000; Cohen et al., 1983; Rice et al., 2006). Scores on the PSS have been positively and significantly associated with the number of stressful life events and the perceived impact of these events (Cohen, 1986). The PSS is a brief and relatively simple to administer measure with substantial reliability and validity and therefore is an excellent tool for examination of the issues about the role of appraised stress levels in the college students.

The COPE Inventory (COPE; Carver, Scheier, & Weintraub, 1989). The COPE Inventory was used to assess the ways, in which, college students responded to and coped with stressful life events and situations. The COPE is a 60-item self-report measure designed to assess different ways of responding to stress. The items were scored on 4-point Likert-type scale ranging from 1 (I usually don't do this at all) to 4 (I usually do this a lot). The COPE Inventory is a multidimensional coping inventory used to assess the different ways individuals respond to stress. A total of five scales (each with four items) measured aspects of problem-focused coping (i.e., active coping, planning, suppression of competing activities, restraint coping, seeking of instrumental social support); and five scales measured aspects of emotion-focused coping (i.e., seeking of emotional social support, positive reinterpretation, acceptance, denial, turning to religion); and three scales measured coping responses commonly labeled as less useful (i.e., focus on and venting of emotions, behavioral disengagement, mental disengagement).

Item Selection and Scale Construction: the instrument incorporates 15 conceptually distinct scales. The following items were identified and measured in the origination and creation of the scale (*active coping, planning, suppression of competing activities, restraint coping, seeking social support for instrumental reasons, seeking social support for emotional reasons, focusing on and venting emotions, behavioral disengagement, helplessness, positive reinterpretation and growth, denial, acceptance, turning to religion, and alcohol-drug disengagement, and humor*). The final item set was completed by 978 undergraduates at the University of Miami, in group sessions.

Cronbach's Alpha Reliability, Test-Retest Reliabilities on Two Samples, and Means and Standard Deviations Among a College Student Sample for the Dispositional COPE Scales: *Active coping*; Cronbach's alpha = .62, test-retest reliability, sample 1 = .56, sample 2 = .69, Mean = 11.89, SD = 2.26; *Planning*; Cronbach's alpha = .80, test-retest reliability, sample 1 = .63, sample 2 = .69, Mean = 12.58, SD = 2.66; *Suppression of competing resources*; Cronbach's alpha = .68, test-retest reliability, sample 1 = .46, sample 2 = .64, Mean = 9.92, SD = 2.42; *Restraint coping*; Cronbach's alpha = .72, test-retest reliability, sample 1 = .51, sample 2 = .51, Mean = 10.42, SD = 2.53; *Seeking social support, instrumental*; Cronbach's alpha = .75, test-retest reliability, sample 1 = .64, sample 2 = .76, Mean = 11.50, SD = 2.88; *Seeking social support, emotional*; Cronbach's alpha = .85, test-retest reliability, sample 1 = .77, sample 2 = .72, Mean = 11.01, SD = 3.46; *Positive reinterpretation and growth*; Cronbach's alpha = .68, test-

retest reliability, sample 1 = .48, sample 2 = .63, Mean = 12.40, SD = 2.42; *Acceptance*; Cronbach's alpha = .65, test-retest reliability, sample 1 = .63, sample 2 = .61, Mean = 11.84, SD = 2.56; *Turning to religion*; Cronbach's alpha = .92, test-retest reliability, sample 1 = .86, sample 2 = .89, Mean = 8.82, SD = 4.10; *Focus on venting of emotions*; Cronbach's alpha = .77, test-retest reliability, sample 1 = .69, sample 2 = .69, Mean = 10.17, SD = 3.08; *Denial*; Cronbach's alpha = .71, test-retest reliability, sample 1 = .54, sample 2 = .54, Mean = 6.07, SD = 2.37; *Behavioral disengagement*; Cronbach's alpha = .63, test-retest reliability, sample 1 = .66, sample 2 = .42, Mean = 6.11, SD = 2.07; *Mental disengagement*; Cronbach's alpha = .45, test-retest reliability, sample 1 = .58, sample 2 = .56, Mean = 9.66, SD = 2.46; *Alcohol and drug disengagement*; Cronbach's alpha = not reported, test-retest reliability, sample 1 = .57, sample 2 = .61, Mean = 1.38, SD = 0.75. Cronbach's alpha for all 15 scales of the COPE ranged from .37 to .93. With the exception of mental disengagement, the alphas all fell above .59, with the majority above .70, and the average alpha was .79 (Carver et al., 1989).

The AUDIT Alcohol Consumption Questions (AUDIT-C; Bush, Kivlahan, McDonell, Fihn, & Bradley, 1998). The AUDIT-C assessed students' drinking patterns through a 3-item questionnaire which covered the domains of alcohol consumption and drinking behaviors. A 3-item questionnaire (AUDIT-C) was derived from the research and original publication of the 10-item AUDIT of Saunders et al (1993). The time required for administration of the 10-item AUDIT is quite lengthy and the latter 7

questions are of little relevance within the current study (Wade et al., 2014). Bush et al (1998) evaluated the three alcohol consumption questions from the Alcohol Use Disorders Identification Test (AUDIT) as a brief screening test, and found the measure to be a practical, valid screening tool for heavy drinking and/or active alcohol abuse or dependence. An overwhelming majority of alcohol screening instruments were specifically developed for detection of alcoholism, rather than a screening instrument for identification of drinking patterns (Saunders et al. 1993). The AUDIT-C was found more effective when assessing for alcohol consumption than the full AUDIT (Bush, et al. 1998).

More importantly, the AUDIT has been found reliable and valid for use in adult samples and is commonly used with college students; however, little research exists in which an optimal cut-off score to screen for at-risk drinking has been established (DeMartini & Carey, 2012). As a result the AUDIT-C significantly outperformed the AUDIT in the detection of at-risk drinking in a sample of college students (AUROC = 0.89, 95% CI = 0.86-.92). Evidence exists for recommendation of the AUDIT-C as an efficacious alcohol screening measure for use among young adults (Cook, Chung, Kelly, & Clark, 2005). The AUDIT-C performed better than the AUDIT in the detection of at-risk drinking within a population of (N=443, 18-25 year-old) college students. Additionally, few studies exist, in which, the AUDIT is compared with the AUDIT-C;

however, of those in existence the outcomes indicate promising results for use of the AUDIT-C with younger populations of drinkers.

A total of 401 current drinkers completed computerized assessments of demographics, family history of alcohol use disorders, alcohol use history, alcohol-related problems, and general health. Of the 401 drinkers, 207 met criteria for at-risk drinking. Receiver-operating characteristic (ROC) curve analysis revealed that the AUROC of the AUDIT was 0.86 (95% CI = 0.83-0.90). The AUDIT-C (AUROC = 0.89, 95% CI = 0.86-.92) performed significantly better than the AUDIT in the detection of at-risk drinking in the whole sample, and specifically for females. Gender differences emerged in the optimal cut-off scores for the AUDIT-C. A total calculated cutoff score of 7 should be used for males and 5 for females. These empirical guidelines may enhance identification of at-risk drinkers in college settings (DeMartini & Carey, 2012).

The following three questions comprise the AUDIT-C: *How often do you have a drink containing alcohol (never – 0 points, monthly or less – 1 point, two to four times a month – 2 points, two to three times a week – 3 points, four or more times a week – 4 points).* *How many drinks containing alcohol do you have on a typical day when you are drinking? (1 or 2 – 0 points, 3 or 4 – 1 point, 5 or 6 – 2 points, 7 to 9 – 3 points, 10 or more – 4 points).* *How often do you have six or more drinks on one occasion? (Never – 0 points, less than monthly – 1 point, weekly – 3 points, daily or almost daily – 4 points;* Frank et al., 2008). Summing of the three questions results in a possible AUDIT-C score

of 0-12 points. The recommended threshold of ≥ 4 points for men and ≥ 3 points for women.

The Multidimensional Scale of Perceived Social Support (MSPSS; Zimet, Dahlem, Zimet & Farley, 1988). The MSPSS assessed the subjective experience of social support adequacy. This scale is designed specifically to assess college student's perceptions of social support deriving from three specific sources (family, friends, and significant others; Zimet, Dahlem, Zimet & Farley, 1988). This assessment measure was normed on 275 Duke University undergraduate students (136 women & 139 men) as part of an introductory psychology course. The ages of the subjects ranged from 17-21 years old (Zimet et al., 1988). During the initial test construction the MSPSS consisted of 24 test items which measured relationship with friends, family, and significant others in the following domains: social popularity, respect, and items related to perceived social support. Repeated factor analysis was completed in order to remove statements that were not directly measuring perceived social support (i.e., social popularity and respect). The current assessment is composed of 12 items. Each of the assessment items was rated on a 7-point Likert scale, 1 – very strongly disagree, 2 – strongly disagree, 3 – mildly disagree, 4 – neutral, 5 – mildly agree, 6 – strongly agree, and 7 – very strongly agree. More importantly this measure was found to be a reliable and valid measure of perceived social support. Cronbach's alpha for the three primary subscales (significant others, family, and friends) was found to be .91, .87, and .85, respectively. In terms of the overall

reliability, the authors reported a .88, thereby indicating good internal consistency of the measure in its entirety and the three subscales. The construct validity found perceived support of family to be inversely related to both depression ($r = -.24, p < .01$), and anxiety ($r = -.18, p < .01$). Additionally, perceived social support from friends was correlated with depression ($r = -.24, p < .01$), but not with anxiety. The authors report that the significant other subscale was significantly related to depression ($r = -.13, p < .05$), as was the scale in its entirety ($r = -.25, p < .01$). The MSPSS appears to be a psychometrically sound instrument as evidenced by adequate internal and test-retest reliability in addition to a strong factorial validity and moderate construct validity.

The following twelve questions comprise the MSPSS: 1. *There is a special person who is around when I am in need.* 2. *There is a special person with whom I can share joys and sorrows.* 3. *My family really tries to help me.* 4. *I get the emotional help and support I need from my family.* 5. *I have a special person who is the real source of comfort to me.* 6. *My friends really try to help me.* 7. *I can count on my friends when things go wrong.* 8. *I can talk about my problems with my family.* 9. *I have friends with whom I can share my joys and sorrows.* 10. *There is a special person in my life who cares about my feelings.* 11. *My family is willing to help me make decisions.* 12. *I can talk about my problems with my friends.*

Procedure. Approval was received from the University of Denver Institutional Review Board (IRB). Based on the power analysis, a sample of 201 undergraduate students (see under Expected Data Analysis for participant sample size) were recruited from The University of Denver. Undergraduate professors in all departments were contacted through email and presented with information that discussed the purpose and nature of this study, in addition to a link for the survey. Each university professor forwarded to email and link to the students meeting criteria for this study. For the interested student, each was directed to an online program (Qualtrics) where the survey was presented and administered. Informed consent was presented as the first screen once the link had been selected. The statement indicated the purpose of the study, listed all potential risks and benefits of participation, a confidentiality clause, purpose for data collection and how the data will be used, an approximated amount of time required for full participation, and contact information of the primary researcher and University of Denver. Participants of the study were required to indicate their acknowledgement and agreement to participate in the study. Further, each participant was informed of the nature of voluntary participation, and was provided the choice of not participating without receiving a penalty. Participants were offered the choice to receive results about the study, and each was provided with the researcher's email address to indicate their interest in receiving results. As incentive to participate in study, participants could choose to provide their email address to enter a drawing for four \$50 Amazon gift cards. All

respondents could provide their email address for the Amazon gift card drawing regardless of racial identification.

Sample Size. Using G*Power software) an *a priori* power analysis was conducted as a method of determining the appropriate sample size for the desired statistical analysis (Faul, Erdfelder, Lang, & Buchner, 2007). Based on the power analysis, it appears a sample size of 89 participants is necessary for a moderate effect size and to take into consideration participants with missing data.

For the linear multiple regression analysis with 4 predictor variables with an acceptable alpha level of .05 and a beta (power) of .95 and an expected small effect size (0.02) the total sample size would be 652 participants.

T-tests - Linear multiple regression: Fixed model, single regression coefficient

Analysis: A priori: Compute required sample size

Input:	Tail(s)	=	Two
	Effect size f^2	=	0.02
	α err prob	=	0.05
	Power (1- β err prob)	=	0.95
	Number of predictors	=	4
Output:	Noncentrality parameter δ	=	13.040000
	Critical t	=	3.855871
	Df	=	647
	Total sample size	=	652
	Actual power	=	0.950094

Aiming for a moderate effect size will be most appropriate for this study due to the accessibility of the participants. For the linear multiple regression analysis with 4

predictor variables with an acceptable alpha level of .05 and a beta (power) of .95 and an expected medium effect size (0.15), the total sample size would be 89 participants.

T-tests - Linear multiple regression: Fixed model, single regression coefficient

Analysis: A priori: Compute required sample size

Input: Tail(s) = Two
 Effect size f^2 = 0.15
 α err prob = 0.05
 Power (1- β err prob) = 0.95
 Number of predictors = 4

Output: Noncentrality parameter δ = 13.350000
 Critical t = 3.954568
 Df = 84
 Total sample size = 89
 Actual power = 0.950704

For the linear multiple regression analysis with 4 predictor variables with an acceptable alpha level of .05 and a beta (power) of .95 and an expected large effect size (0.35) the total sample size would be 40 participants.

T-tests - Linear multiple regression: Fixed model, single regression coefficient

Analysis: A priori: Compute required sample size

Input: Tail(s) = Two
 Effect size f^2 = 0.35
 α err prob = 0.05
 Power (1- β err prob) = 0.95
 Number of predictors = 4

Output: Noncentrality parameter δ = 14.000000
 Critical t = 4.121338
 Df = 35
 Total sample size = 40
 Actual power = 0.953247

General Procedures for the Statistical Analysis. Initial data preparation

consisted of identification of cases with missing data as a method of determining whether

the data are missing completely at random, missing at random, or not missing at random. A dummy variable was created in order to indicate missing versus non-missing data and then used to test mean differences in the independent and dependent variables. Next, a plot of the regression line helped to identify outliers.

Following completion of data cleaning the testing of assumptions was carried out to ensure the data could analyzed using a multiple regression analysis. This process included examination of residual plots of predicted scores by errors of prediction, for the assumptions of normality, linearity, and homoscedasticity as suggested by Tabachnick and Fidell (2001). Further, the coefficient alpha, an indication of reliability, was computed for each of the measures.

Once the data cleaning process was complete and the assumptions tested, hierarchical multiple regression analyses was carried out testing four, direct, nonmediated relationships, and three mediated relationships. In this study, the covariate variables (how often students drink when feeling stressed, and race) were statistically controlled as a method to address any potentially confounding effects on the dependent variable (i.e., alcohol consumption). In utilizing a hierarchical analysis, the variables entered into the equation were done so in a specified order, with the covariates entered in first step, variables of interest in the second step, and interaction terms entered in the third step (Tabachnik & Fidell, 2001). Regression coefficients and significance values were

reviewed in the process of understanding which, if any, terms significantly contributed to the prediction of the dependent variable.

One primary concern when conducting a regression analysis using interaction terms is multicollinearity or correlations among the independent variable. This was addressed by centering of the independent variables (Tabachnik & Fidell, 2001). Once this issue was addressed, interaction terms of perceived stress x functional coping, perceived stress x dysfunctional coping, and perceived stress x social support, were computed. Following computation, all variables were prepared for analysis including covariates, predictor variables, the moderating variable, and interaction terms. A hierarchical linear regression analysis was conducted as a method of investigating the relationship between the independent variables (perceived stress, functional coping, dysfunctional coping, and social support) and the dependent variable (alcohol consumption). In order to test the first hypothesis, the data analysis indicated whether perceived stress positively contributed to alcohol consumption. The covariate variables were entered in Step 1, and perceived stress was entered at Step 2. To test the second hypothesis, the data analysis indicated whether use functional coping strategies negatively contributed to alcohol consumption. The covariate variables were entered in Step 1, and functional coping was entered at Step 2. To test the third hypothesis, the data analysis indicated whether the relationship between perceived stress and college students' alcohol consumption would be moderated by functional coping skills. The covariate

variables were entered at Step 1, perceived stress and functional coping was entered at Step 2, and the interaction term of perceived stress \times functional coping skills was entered at Step 3. If the regression coefficient for the two-way interaction of perceived stress \times functional coping skills was statistically significant, the proceeding step would be interpretation of the interaction or to test the moderator effect. Aiken and West (1991) suggest the strategy of examining the moderator's effect at two levels (lower levels of functional coping skills and higher levels of functional coping skills). This strategy is carried out by plotting functional coping skills scores for perceived stress of one standard deviation above and below the mean. In using a simple regression analysis, the slopes of the lines would be tested to see whether the slope at each level is statistically significant from zero.

To test the fourth hypothesis, the data analysis indicated whether dysfunctional coping strategies positively contributed to alcohol consumption. The covariate variables were entered in Step 1, and dysfunctional coping was entered at Step 2. To test the fifth hypothesis, the data analysis indicated whether higher levels of social support negatively contributed to alcohol consumption. The covariate variables were entered in Step 1, and social support was entered in Step 2. To test the sixth hypothesis, the data analysis indicated whether social support moderated the relationship between perceived stress and alcohol consumption. The covariate variables were entered in Step 1, and perceived stress and social support were entered in Step 2. At Step 3, a two-way interaction of perceived

stress x social support was entered to predict alcohol consumption. If the regression coefficient for this two-way interaction was statistically significant, the subsequent step, as mentioned for testing the third hypothesis, would be to interpret the interaction or to test the moderator effect. Further, the moderator effect would have been compared at two levels (higher and lower levels of social support) by plotting social support scores of one standard deviation above and below the mean (Aiken & West, 1991). The next step would be conducting simple regression analyses to check whether the slopes of the regression lines at high and low social support were significantly different from zero. To test the seventh hypothesis, the data analysis indicated whether dysfunctional coping strategies would significantly moderate the relationship between perceived stress and alcohol consumption. The covariate variables were entered in Step 1, perceived stress and dysfunctional coping was entered at Step 2, and a two-way interaction of perceived stress x dysfunctional coping skills was entered at Step 3. The steps taken to test the moderating variable effect, if statistically significant, is the same as hypotheses three and six.

Chapter Four

Results

Overview. Data analysis consisted of data preparation, cleaning, exploration of missing data, preliminary analyses, a description of the composition of the sample, and an analysis of the seven main hypotheses. All statistical tests utilized a two-tailed test with an alpha level of $p < .05$.

Data preparation. In order to ensure the validity of the sample, all participants that had not consumed alcohol more than 4 times in the past 365 days were eliminated from participating in this study, immediately following informed consent. The number of ineligible participants was 135, reducing the sample size to 246. Following closure of the study, all those participants that did not complete the four major variables of the study (MSPSS, PSS, COPE, and AUDIT-C) were eliminated from data analysis. Each participant agreed to participate by completing the online informed consent page. If the individual participant did not agree to participate in the study, their data were not able to be collected. The remaining participants agreed to participate in this study. This resulted in deletion of 25 responses, reducing the samples size from 246 to 221. Lastly, participants under the age of 18 and over the age of 25 were removed from the study as they were outside the range of the proposed sample. This ultimately resulted in 201 participants. Finally, the primary administration of the survey was completed online through the Qualtrics software program.

Initially, the data were examined to determine consistency, acceptable values and ranges and coding fidelity. Any data point (e.g., demographic or subtest variables) with a value above the highest possible score or below the lowest possible score was examined for data entry errors.

Analysis of missing data. Guidelines for exploring the patterns of missing data and dealing with missing data have been outlined by Tabachnick and Fidell (2007) and were utilized for the current research. All items of the survey had less than 5% missing and upon further investigation specified a nonsystematic pattern of absent values. Each of the predictor variables (MSPSS, PSS, COPE, and AUDIT-C) were dummy coded and used to conduct a t-test regarding significant differences on the dependent variable (i.e., alcohol consumption). Significant differences were not found. Next, several options for addressing the missing values were considered. Deleting cases listwise involves dropping all cases that have missing values. In times when a more sophisticated means of estimating missing data is unavailable, this method is often used (Tabachnick & Fidell, 2007). Due to the reduction in sample size that this would create, it was not chosen as a method. Mean substitution is a way of estimating the values of missing data. This preserves cases that have missing data, but has the risk of reducing variance in the sample. However, when working with small amounts of missing data, this procedure can be viewed as a reasonably conservative method (Tabachnick & Fidell, 2007). As each item had small amounts of missing data (< 5%), the mean of the scale was calculated and

then imputed in place of the missing item(s). In order to address possible concerns surrounding the type of procedure used, both were utilized to conduct the analyses and subsequently compared. Mean substitution revealed similar results to listwise deletion while preserving a larger number of cases for the analysis. For this reason, the mean substitution procedure was used to handle missing data.

Initial data exploration. In the initial exploration of the data, the means, standard deviations, ranges of scores of main measures, skewness, kurtosis, and Cronbach's alpha were calculated (Table 2): The MSPSS ($\alpha = .87$), the PSS ($\alpha = .88$), the COPE Functional ($\alpha = .73$), the COPE Dysfunctional ($\alpha = .78$), and the AUDIT-C ($\alpha = .71$). These scales all showed reliability coefficients in an acceptable range.

Table 2

Correlations, Means, Standard Deviations, Alphas of Variables, Standard Deviations, Skewness, Kurtosis, and Ranges.

Variable	1	2	3	4	5
1. MSPSS	--				
2. PSS	.05	--			
3. (Cope) Functional	.36**	.09	--		
4. (Cope) dysfunctional	-.21**	-.03	-.13	--	
5. Audit-C	-.01	.02	-.19**	.08	--

Alpha	.87	.88	.73	.78	.77
<i>M</i>	5.71	1.58	2.57	2.12	5.53
<i>SD</i>	.90	1.52	.47	.48	2.38
Skewness	-.79	.26	-.02	.48	.25
Kurtosis	.40	-.22	.07	.35	-.76
Range	2.8 – 7.0	.40 – 4.0	1.2 – 3.8	1.1 – 3.7	1.0 - 11.0

* $p < 0.5$, ** $p < 0.01$, *** $p < 0.001$; Note: MSPSS = *Multidimensional Scale of Perceived Social Support*, PSS = *Perceived Stress Scale*, Cope Functional = *The Cope Inventory*, Cope Dysfunctional = *The Cope Inventory*, and AUDIT-C = *Alcohol Use Disorders Identification Test*.

In order to provide support for the use of this collection of instruments as a valid measure of alcohol consumption among college students, it was necessary to calculate the correlations between the MSPSS, PSS, COPE Functional, COPE Dysfunctional, and AUDIT-C. There existed a significant positive correlation between MSPSS and COPE Functional ($r = .36, p < .05$). A significant negative correlation was found between MSPSS and COPE Dysfunctional ($r = -.21, p < .05$). Finally, a significant negative correlation was found between COPE Functional and AUDIT-C ($r = -.19, p < .05$).

Control Variables. Prior to conducting the regression analyses, it was imperative to decide which demographic variables would be included as controls. To examine whether the criterion variable (i.e., AUDIT-C) varied as a function of participants' demographic variables. A series of analysis were conducted. First, the correlation analysis between continuous demographic variables (i.e., age, college year, and

frequency of drinking when feeling stressed) and the dependent variable (i.e., AUDIT-C) was conducted. The correlation analysis showed that only the frequency of drinking when feeling stressed was significantly correlated with the criterion variable ($r = .43, p < .001$). The correlation analysis also showed that the AUDIT-C was not significantly correlated with age ($r = .05, p = .43$) and college year ($r = .11, p = .11$). Second, an analysis of variance (ANOVA) was conducted to examine whether the criterion variable (i.e., AUDIT-C) varied as a function of participants' sex, sexual orientation, race, religions, marital status, and living status, respectively. Results indicated there was a significant main effect on AUDIT-C for race ($F = 3.378, p = .003$), but there were no significant main effects on AUDIT-C for sex ($F = .003, p = .95$), sexual orientation ($F = .77, p = .59$), religion ($F = 2.09, p = .06$), marital status ($F = 1.14, p = .28$), and living status ($F = 2.39, p = .09$). Since frequency of drinking when feeling stressed and race were significantly related to the criterion variable (AUDIT-C), these two variables were used as covariates in subsequent analyses. Thus, the variables chosen for control was the participants' race and frequency of drinking when feeling stressed, as these factors could have influenced the manner in which each participant approached the consumption of alcohol.

Analysis of the assumptions of multiple regression. To conduct analyses that produce accurate results, it was vital to first explore the basic assumptions of parametric statistical tests, tests that rely on the normal distribution (Field, 2009). A multiple

regression is most robust when the following assumptions are met (normality of residuals, linearity, homogeneity of variance, non-multicollinearity, and mean independence; Tabachnick & Fidell, 2007). The assumptions were tested for all seven main analyses. This section highlights how the assumptions were tested, and includes the general results. Initially, it was appropriate to examine unusual combinations of independent variables with the potential of biasing the regression model. These values indicate the distance from the means of the direction of the predictor variables and, it is recommended by Field (2009) that with a small to medium sample size, a value above 15 could be considered an outlier. There were not any identified cases that were found nor removed from the data set. Regarding normality, standardized residual plots including a normality plot and histogram were examined. Inspection of residuals using the histogram revealed an approximately normal distribution. Further, the normal probability plot graphs observed residuals in relation to a straight line indicating a normal distribution (Field, 2009). Table 2 illustrates the skewness and kurtosis of the residuals for each of the primary hypotheses. The Kolmogorov-Smirnov test was used to formally test the normality of the residuals. To support the normality of the residuals, it is expected that the results of this test be non-significant, which proved true for each of the hypotheses.

To further assess the assumption of linearity and homoscedasticity, a scatterplot of the standardized residuals by the standardized predicted values was examined. As expected the plotted data showed an even distribution of points around zero with no

apparent pattern or funneling shape. Although lack of multicollinearity is not an assumption of multiple regression, it can impact the results of this type of analysis and was investigated. Multicollinearity is a phenomenon when two or more predictor variables used in a regression model are too closely correlated, thereby confounding the results. Two diagnostics exist which assist with determining the presence of multicollinearity: the tolerance statistic and variance inflation factor. The data were not found to be highly multicollinear. Lastly, the assumption of independent errors recommends that the residuals of the regression analysis must not be correlated. The Durbin-Watson statistic is an acceptable measure for assessing this assumption (Tabachnick & Fidell, 2007). The Durbin Watson statistic was ($d = 2.035$) when perceived stress was the predictor in Hypothesis 1, which is between the critical values of $1.5 < d < 2.5$. The Durbin Watson statistics for other regression analyses were also in the range between $1.5 < d < 2.5$, ($d = 2.018$) for Hypothesis 2, ($d = 2.052$) for Hypothesis 3, ($d = 2.038$) for Hypothesis 4, ($d = 2.007$) for Hypothesis 5, ($d = 2.070$) for Hypothesis 6, and ($d = 2.068$) for Hypothesis 7. Therefore, we can assume that there do not exist first order auto-correlations in this multiple regression data.

Analysis of the primary research hypotheses.

Hypothesis 1. Hypothesis 1 stated that Perceived Stress significantly predicts the alcohol consumption among college students, controlling for how often a student consumes alcohol when feeling stressed, and race. Covariates were entered in Block 1 of

the analysis. Covariates included how often do you drink when feeling stressed and race. The covariates represented 22% of the variance in alcohol consumption $F(2, 190) = 27.80, p < .001$. The predictor variable Perceived Stress was entered in Block 2 of the analysis. Perceived Stress in addition to the covariates represented 22% of the variance in alcohol consumption, $F(1, 189) = .017, p = .89$, and was not a significant predictor.

Table 3

Hierarchical Regression of Perceived Stress (PSS) on Alcohol Consumption (AUDIT-C)

Block 1	B	SE B	β	p
Race	.38	.11	.21	.001***
Stressed	1.00	.15	.41	.001***
Block 2				
Race	.38	.11	.21	.001***
Stressed	1.00	.15	.42	<.001***
Perceived Stress	-.20	.15	-.008	.89

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$; Note. For block 1, $R^2 = .226, p < .001$, and for block 2, $R^2 = .227, \Delta R^2 = <.001, p = .897$.

Hypothesis 2. Hypothesis 2 stated that utilization of Functional Coping strategies significantly predicts alcohol consumption among college students. Covariates were entered in Block 1 of the analysis. Covariates included how often do you drink when feeling stressed and race. Covariates represented 23% of the variance in alcohol

consumption $F(2, 185) = 29.12, p = .001$. The predictor variable Functional Coping was entered in Block 2 of the analysis. Functional Coping with covariates represented 26% of the variance in alcohol consumption, $F(1, 184) = 7.30, p = .008$, and was a significant predictor.

Table 4

Hierarchical Regression of Functional Coping Skills (COPE) on Alcohol Consumption (AUDIT-C)

Block 1	B	SE B	β	p
Stressed	.80	.12	.42	<.001***
Race	.38	.11	.2	.001***
Block 2				
Stressed	.80	.12	.4	<.001***
Race	.36	.11	.21	.001***
Functional Coping	-.41	.15	-.17	.008**

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$; Note. For block 1, $R^2 = .231, p = .001$, and for block 2, $R^2 = .269, \Delta R^2 = .029, p = .008$.

Hypothesis 3. Hypothesis 3 stated that the relationship between Perceived Stress and college students' alcohol consumption would be significantly moderated by Functional Coping strategies. Covariates were entered in Block 1 of the analysis. Covariates included how often do you drink when feeling stressed and race. Covariates

represented 23% of the variance in alcohol consumption, $F(2, 180) = 27.69, p < .001$. The predictor and moderator variable were entered in Block 2 of the analysis. Perceived Stress and Functional Coping in addition to covariate variables represented 26% of the variance in alcohol consumption $F(2, 178) = 3.63, p = .02$. Tabachnick and Fidell (2007) recommend centering variables used for regression analyses that involve the examination of interaction effects in order to reduce multicollinearity. The interaction term of Perceived Stress and Functional Coping was entered in Block 3 of the analysis. The interaction of Perceived Stress and Functional Coping with covariates represented 26% of the variance in alcohol consumption, $F(1, 177) = .10, p = .74$. No further analysis were completed as the interaction was not significant.

Table 5

<i>Hierarchical Regression of Perceived Stress (PSS) on Alcohol Consumption (AUDIT-C), and Perceived Stress x Functional Coping on Alcohol Consumption (AUDIT-C)</i>				
	B	SE B	β	p
Block 1				
Race	.38	.11	.21	.001***
Stressed	1.02	.15	.42	<.001***
Block 2				
Race	.35	.11	.20	.002**
Stressed	1.00	.15	.41	<.001***

Perceived Stress	.03	.15	.01	.835
Functional Coping	-.41	.15	-.17	.008**
Block 3				
Race	.35	.11	.19	.003**
Stressed	1.00	.15	.41	.001***
Perceived Stress (PS)	.02	.15	.01	.87
Functional Coping (FC)	-.41	.15	-.17	.009**
PS x FC	-.05	.16	-.02	.74

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$; For block 1, $R^2 = .235$, $p < .001$. For block 2, $R^2 = .265$, $\Delta R^2 = .030$, $p = .028$. For block 3, $R^2 = .266$, $\Delta R^2 < .001$, $p = .741$.

Hypothesis 4. Hypothesis 4 stated that the utilizing Dysfunctional Coping strategies significantly predicts alcohol consumption among college students. Covariates were entered in Block 1 of the analysis. Covariates included how often do you drink when feeling stressed and race. Covariates represented 22% of the variance in alcohol consumption $F(2, 190) = .27.49$, $p < .001$. The predictor variable Dysfunctional Coping was entered in Block 2 of the analysis. Dysfunctional Coping and covariates represented 23% of the variance in alcohol consumption, $F(1, 189) = 2.25$, $p = .13$.

Table 6

Hierarchical Regression of Dysfunctional Coping Skills (COPE) on Alcohol Consumption (AUDIT-C)

Block 1	B	SE B	β	p
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Stressed	.78	.12	.40	<.001***
Race	.38	.11	.21	.001***
Block 2				
Stressed	.75	.12	.39	<.001***
Race	.43	.11	.24	<.001***
Dysfunctional Coping	.23	.15	.10	.135

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$; *Note.* For block 1, $R^2 = .234$, $p < .001$, and for block 2, $R^2 = .234$, $\Delta R^2 = .009$, $p = .135$.

Hypothesis 5. Hypothesis 5 stated that higher levels of social support significantly predicts alcohol consumption among college students. The covariates were entered in Block 1 of the analysis. Covariates included how often do you drink when feeling stressed and race. The covariate represented 22% of the variance in alcohol consumption $F(2, 193) = 28.62$, $p < .001$. The predictor variable Social Support was entered in Block 2 of the analysis. Social Support and covariates represented 23% of the variance in alcohol consumption, $F(1, 192) = .36$, $p = .54$.

Table 7

Hierarchical Regression of Social Support (MSPSS) on Alcohol Consumption (AUDIT-C)

Block 1	B	SE B	β	p
Stressed	.79	.12	.41	<.001***
Race	.38	.11	.21	.001***

Block 2

Stressed	.80	.12	.41	<.001***
Race	.38	.11	.21	.001***
Social Support	.09	.15	.03	.54

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$. *Note.* For block 1, $R^2 = .229$, $p < .001$, and for block 2, $R^2 = .230$, $\Delta R^2 = .001$, $p = .548$.

Hypothesis 6. Hypothesis 6 stated that the relationship between Perceived Stress and college students' alcohol consumption is significantly moderated by Social Support. Covariates were entered in Block 1 of the analysis. Covariates included how often do you drink when feeling stressed and race. Covariates represented 22% of the variance in alcohol consumption $F(2, 188) = 27.22$, $p < .001$. The predictor and moderator variable were entered in Block 2 of the analysis. Perceived Stress and Social Support in addition to the covariates represented 22% of the variance in alcohol consumption, with a nonsignificant incremental R^2 , $F(2, 186) = .14$, $p = .86$. Tabachnick and Fidell (2007) recommend centering variables used for regression analyses that involve the examination of interaction effects in order to reduce multicollinearity. The interaction term of Perceived Stress and Social Support were entered in Block 3 of the analysis. The interaction term of Perceived Stress and Social Support with covariates represented 24%

of the variance of alcohol consumption, $F(1, 185) = 3.47, p = .06$. No further analysis were completed as the interaction was not significant.

Table 8

Hierarchical Regression of Perceived Stress (PSS) and Social Support (MSPSS) on Alcohol Consumption (AUDIT-C), and Perceived Stress x Social Support on Alcohol Consumption (AUDIT-C)

Block 1	B	SE B	β	<i>p</i>
Race	.38	.11	.21	.001***
Stressed	1.00	.15	.41	<.001***
Block 2				
Race	.37	.11	.21	.001***
Stressed	1.01	.15	.42	<.001***
Perceived Stress	-.09	.15	-.004	.95
Social Support	.08	.16	.03	.59
Block 3				
Race	.36	.11	.20	.002**
Stressed	1.04	.15	.43	<.001***
Perceived Stress (PS)	.004	.15	.002	<.001***
Social Support (SS)	.10	.16	.04	.51
PS x SS	-.29	.15	-.12	.06

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$. Note. For block 1, $R^2 = .225, p < .001$,

for block 2, $R^2 = .226$, $\Delta R^2 = .001$, $p = .863$, and for block 3, $R^2 = .240$, $\Delta R^2 = .014$, $p = .064$.

Hypothesis 7. Hypothesis 7 stated that the relationship between Perceived Stress and college students' alcohol consumption is moderated by Dysfunctional Coping skills. Covariates were entered in Block 1 of the analyses. Covariates included how often do you drink when feeling stressed and race. Covariates represented 22% of the variance in alcohol consumption $F(2, 185) = 26.11$, $p < .001$. The predictor and moderator variables were entered in Block 2 of the analysis. Dysfunctional Coping and Perceived Stress in addition to the covariates represented 22% of the variance of alcohol consumption $F(2, 183) = 1.00$, $p = .36$. Tabachnick and Fidell (2007) recommend centering variables used for regression analyses that involve the examination of interaction effects in order to reduce multicollinearity. The interaction term of Dysfunctional Coping and Perceived Stress was entered in Block 3 of the analysis. The interaction term of Dysfunctional Coping and Perceived Stress with covariates represented 23% of the variance of alcohol consumption, $F(1, 182) = 1.43$, $p = .233$. No further analysis were completed as the interaction was not significant.

Table 9

Hierarchical Regression of Perceived Stress (PSS) and Dysfunctional Coping (COPE) on Alcohol Consumption (AUDIT-C), and Perceived Stress x Dysfunctional Coping on Alcohol Consumption (AUDIT-C)

Block 1	B	SE B	β	p
Race	.38	.11	.21	.001***

Stressed	.98	.15	.40	<.001***
Block 2				
Race	.43	.12	.24	<.001***
Stressed	.95	.15	.39	<.001***
Perceived Stress	.02	.15	.009	.89
Dysfunctional Coping	.22	.16	.09	.15
Block 3				
Race	.41	.12	.22	.001***
Stressed	.96	.15	.40	<.001***
Perceived Stress	.02	.15	.008	.90
Dysfunctional Coping	.24	.16	.10	.13
PS x DC	.17	.14	.07	.23

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$. *Note.* For block 1, $R^2 = .220$, $p < .001$, for block 2, $R^2 = .229$, $\Delta R^2 = .008$, $p = .368$, and for block 3, $R^2 = .235$, $\Delta R^2 = .006$, $p = .233$.

Chapter Five

Discussion

Overview and discussion of hypotheses. Stress is a natural byproduct of the collegiate experience; following is a non-exhaustive list of common stressors for this group: leaving their homes, increased pressure to obtain high grades, social and romantic pressure, and financial pressures. It is essential that educators and clinicians working to provide services within the collegiate setting understand the individual and groups needs of this population. College student's reactions to perceived stress are a relational concept which is idiosyncratic to the individual experiencing the stressful event. Interpretation of the stressful event is a bi-directional process, often involving the environmental production of stressors and the resulting response from the individual experiencing the perceived stressors (Lazarus & Folkman, 1984). College can serve as a platform for experimentation, and increased socialization and autonomy. Within the culture of college come increased opportunities for alcohol consumption. Though college students typically drink alcohol in social situations with other students, there exists the risk of drinking as a method of coping with life stressors or stressors related to the college experience. As such, it is imperative to examine the factors that may contribute to drinking as a primary method for coping with anxiety and stress.

Lazarus and Folkman's (1984) model of stress, appraisal, and coping provides an overarching framework for this study. According to Lazarus and Folkman, interpretation

of stress is a bi-directional process; it involves the environmental production of stressors, and the subsequent response of the individual experiencing or subjected to these stressors.

The concepts of appraisal (i.e., individuals' evaluation of internal or external significance of an event or stimuli), and coping (i.e., efforts in cognition and action to manage precise demands) remain central to this theory. One particularly vital variable within this model is the relational component existing between emotional processes (i.e., stress) and subjective expectancies; often unique to the individuals' perception, prediction, and subsequent outcome during the encounter. Lazarus and Folkman (1984) introduce two primary methods of coping with stress: the first strategy, termed *problem focused coping*, referred in this study as functional coping, is aimed at problem solving or doing something to immediately alter the source of the stress. In contrast, *emotion focused coping*, referred in this study as dysfunctional coping, is intended to reduce or manage the emotional distress that is associated with (or cued by) the situation.

One negative outcome of alcohol use as a coping strategy in times of stress is providing immediate reinforcement and relief without sufficiently addressing the underlying problem. College students who consume alcohol as a primary coping strategy may be less equipped with functional coping skills, and may be at higher risk for engaging in escape-avoidance coping styles as a means of dealing with stressful situations (Cohen, 1984; Lazarus, 1991; Penley, Tomaka & Wiebe, 2002). Furthermore,

those who drink to cope with life stressors were also more likely to drink to intoxication, experience drinking-related problems, and meet criteria for an alcohol use disorder (Carpenter & Hasin, 1998). The current study sought to understand how aspects in a college student's life (i.e., perceived stress, styles of coping, and social support) contribute to, or how combinations of these factors may moderate alcohol consumption.

Examinations of correlational coefficients revealed significant relationships among several of the variables measured. It was expected and supported that there exists a significant negative relationship between perceived social (MSPSS) and utilization of dysfunctional coping skills (COPE). College students' perception of social support is best explained as viewing their support (parents, friends, and romantic partners) as stable, consistent, and available when they need the most assistance (Daniel, Evans, & Scott, 2001). Perhaps the availability of social support within this cohort is best explained as a result of their environment. Specifically, a plethora of on-campus opportunities exist for the traditional college student to meet and interact in interpersonal situations (e.g., class, sporting events, dorm rooms, social functions, and romantic partners/dating). Another possible explanation is increased support from parents, family members, and other members of the students' life outside of the collegiate environment. Higher levels of perceived social support (MSPSS) from family members has been examined and related to less use of substances (i.e., alcohol use). It is proposed to have the greatest moderating effect during early adolescence and, thus, high family support during this developmental

period has the potential to delay the onset of drugs and alcohol use when adolescents are older and enter the collegiate arena (Averna & Hesselbrock, 2001). Additionally, students with lower levels of social support have been found to be more likely to engage in less healthy activities, such as sedentary behavior, alcohol use, and sleeping too little or too much (Thorsteinsson & Brown, 2008). In this particular sample higher levels of social support may be serving as a buffer against engaging in dysfunctional coping skills.

It was expected and supported that as a significant negative relationship between functional coping (COPE) and alcohol consumption (AUDIT-C) was found. However, it is important to note that there did not exist a relationship among increase of dysfunctional coping strategies and higher levels of alcohol consumption. Alcohol consumption is described in the literature by Leigh (1989) which proposes the contention that differences in coping styles (functional versus dysfunctional) are strongly related with various clinical outcomes, including depression and/or alcohol and substance misuse (i.e., higher levels of alcohol consumption). Moreover, something occurred within this sample indicative of increased functional coping strategies and lower levels of alcohol consumption. Further, there was a statistically significant relationship when used in the multiple regression model as well.

The main seven hypotheses were proposed and tested utilizing hierarchical multiple regression analyses. The first hypothesis stated that when controlling for demographic variables, increased Perceived Stress significantly predicts higher levels of

alcohol consumption among college students. It was found that perceived stress including the covariate variables represented 22% of the variance in alcohol consumption. These results do not support the idea that higher levels of perceived stress within the collegiate population results in higher levels of alcohol consumption as a method of coping. This is a discouraging finding for my hypotheses set, but an engaging finding for college students and universities alike.

The second hypothesis in this study stated that utilization of functional coping strategies significantly predicts lower levels of alcohol consumption among college students. Functional coping strategies including the covariate variables represented 26.9% of the variance in alcohol consumption. Functional coping is defined as a strategy aimed at problem solving or developing an immediate plan to address the source of the distress. This finding did reach statistical significance. When controlling for how often college students' drink when they are stressed, and race, this finding supported the notion that increased functional coping skills negatively contributed to the variance of alcohol consumption within this population.

The third hypothesis evaluated the moderating role of functional coping strategies on perceived stress and higher levels of alcohol consumption. The interaction including the covariate variables represented 26% of the variance in alcohol consumption. Previous research by Rutledge and Sher (2001) found positively correlated stress (i.e., negative life events) in college students with heavy drinking patterns, so it was a little surprising that

utilizing functional coping skills represented such a small amount of variance in this study. The fourth hypothesis stated that the utilizing dysfunctional coping strategies significantly predicts higher levels of alcohol consumption among college students. Dysfunctional coping defined strategies as defined by Stanton (2004) as: avoidance, seeking emotional support, positive reappraisal, and generally any method for short-term and immediate resolution of an intense emotional experience (i.e., alcohol consumption). Although, dysfunctional coping strategies including covariate variables represented 23% of the variance in alcohol consumption, the finding was not statistically significant. This too was surprising as this strategy of coping can directly involve alcohol consumption. However, it is encouraging to find that the college students within this sample engaging in dysfunctional coping strategies did not predict increased alcohol use.

The fifth hypothesis stated that social support will negatively contribute to the variance of alcohol consumption among college students. Social support is defined as support from family, friends, and romantic partners. Social support including the covariate variables represented 23% of the variance in alcohol consumption. This finding was surprising, as lower levels of social support from family and friends was found, in previous research, to be an important correlate of depression, substance use, and suicidal ideation among college students (D'Attilio, Campbell, & Lubold et al., 1992). Hypothesis six stated that higher levels of social support would moderate the relationship between perceived stress and college students' higher levels of alcohol consumption. This

interaction including covariate variables contributed to 24% of the variance for alcohol consumption. Given that lower levels of social support has been found to contribute to maladaptive coping methods, increased mental health problems, and alcohol use, it was surprising to find such a small amount of contribution. However, this finding is certainly encouraging for college students and universities, as college students with lower levels of social support are finding healthier ways of coping other than alcohol use. The seventh hypothesis stated that the relationship between perceived stress and college students' higher levels of alcohol consumption would be moderated by dysfunctional coping skills. The interaction of dysfunctional coping and perceived stress including covariate variables contributed 23% of the variance in alcohol consumption. Although, not reaching statistical significance, this is an important finding nonetheless. It would be interesting to understand which dysfunctional coping skills college students' are engaging in to further moderate this relationship. The current study proposed that certain aspects in a college student's life (i.e., perceived stress, styles of coping, and social support) or how combinations of these variables may contribute to higher levels of alcohol consumption. This study did reveal statistical significance for hypothesis two. There were several limitations to this study that may have contributed to a lack of findings.

Implications. The results of this study have implications for the field of psychology including clinical practice and information to be disseminated to universities and college students. Although, only one of the findings was statistically significant, the

overall notion behind the research, examination of the stress placed on college students, remains important. For example, encouraging data comes from this study, which suggests that when controlling for how often students' consume alcohol when feeling stressed, and race, the use of functional coping skills contributes to lower levels in alcohol consumption among this population. This information could be used in a variety of settings (i.e., clinical, classroom, and within social organizations). Many college students' may have a limited awareness of which styles of coping they utilize in times of distress (i.e., functional versus dysfunctional). Encouraging exploration into styles of coping may be a beneficial intervention for clinicians and educators to consider as they assist students in their navigation of the college experience. Further, clinicians and university faculty should continue the dialogue of understanding the methods, by which, undergraduate college students are coping with the stress and pressure of completing a four-year degree.

Additionally, the lack of significance for the six additional hypotheses is encouraging as it may suggest that college students are not resorting to alcohol use in times of perceived stress, with lower levels of social support, or when utilizing dysfunctional coping skills. This data can be informative when attempting to understand exactly how college students cope with the many stressors associated with the college experience. Aligning with previous research, alcohol abuse within the college student population is a significant public health problem. Further, hundreds of empirically supported studies, scholarly articles and reports have been published in peer reviewed

journals and books, indicating a positive relationship between stress and problematic drinking patterns emerging during the college experience (Borsari & Carey, 2014; Scott-Sheldon et al., 2014).

Unquestionably, several variables are shown in previous research to be vital in the well-being of college students, and in buffering the effects of mental health conditions, including social support and functional coping. Additionally, universities and clinicians should continue to examine college students' alcohol use patterns and encourage the dialogue and education regarding short-term and long-term effects of acute and chronic alcohol use in order to continue raising awareness.

The results of this study found significant evidence to support the second hypothesis that functional coping strategies negatively contributed to the variance of alcohol consumption among college students. Further, by not finding statistical significance within the other six hypotheses, the argument could be made that alcohol consumption is not being used as a method for coping with perceived stress or to cope in times of lower levels of social support. This is a positive finding, and clinicians and educators should utilize this data to continue encouraging positive methods for coping with stress. Moreover, this information could be used to highlight the strengths of students who do not appear to be consuming alcohol as a primary method of coping with stress.

Limitations: Several factors should be taken into consideration when utilizing and interpreting the results of this study. First, the sampling method was convenience sampling. It should not be considered a full representation of the larger population of college students across US universities. A significant limitation to this study was the disparity in gender representation, as woman made up 76% of the sample, with zero representatives from the transgender community. Although, this data is highly representative of the University of Denver student body, it should not be generalized to other universities without careful consideration. Statistics from The University of Denver website list the first year demographics of 2016 incoming freshman as 55% women and 45% men. The DSM-V has identified prevalence rates in adults 18 years and older within the United States meeting criteria for alcohol use disorder at 8.5%, with men accounting for greater rates at 12.4% compared with 4.9% among women. Additionally, college men have been identified to have higher levels of alcohol consumption compared to their female classmates. This imbalance in gender is a limiting factor as three quarters of the study sample may have reported different drinking patterns and motives than would be expected from men.

A significant limitation in this study is that the data of 100 participants who attempted to complete this survey were unable to participate as they self-described as abstinent from alcohol within the last 365 days. The major limitation is absence of a comparison group of individuals who experience stress and utilize alternative methods of

coping besides higher levels of alcohol use. Another limitation is the limited racial/ethnic diversity of the participants surveyed. White/Caucasian students comprised 77% of the respondents who completed this survey. This limitation made multiple group comparison difficult, and inhibited the ability to look at the responses of other racial and ethnic groups who may have a completely different experience both on campus and in the community. Perhaps a larger sample size may have provided a more diverse sample of participants.

The measures utilized in this study were selected based on previous research and each demonstrated sufficient reliability and validity. However, there exist limitations to one of the scales which should be discussed. The AUDIT-C was validated on a sample of predominately White participants, and its performance in different racial/ethnic groups is unclear (Frank, DeBenedetti, Volk, Williams, Kivlahan, & Bradley, 2008). As 23% of the sample used in this study did not identify as White/Caucasian, this is an important limitation to mention. Another significant limitation to the study was age of participants with 52% of the sample population defined as 21 years or younger. Considering that the legal drinking age is the United States and Colorado is 21 years of age, this is problematic as underreporting of alcohol consumption may be likely.

Another limiting factor was the cutoff criteria for participation in this study. An affirmative response to the question “have you consumed more than 4 alcoholic drinks in the last 365 days?” was sufficient criteria for participation in this study. However, it is

understood that binge drinking is common on college campuses, and perhaps a student could have only consumed alcohol on one occasion over the past year in which they consumed 4 alcoholic beverages. One additional limiting factor in this study design was the lack of a manipulation check for the survey. This design was comprised of responses on a Likert scale. It would have been helpful to disconfirm random responding by adding a question to this survey. Even a simple question such as “if you are reading this, check no” would have allowed the researcher to understand whether the participant read through and understood the questions or was answering at random.

Future Directions. It is recommended that future research continue to focus on college student alcohol consumption with an emphasis on understanding variables contributing to or buffering problematic alcohol consumption on college campuses. Future studies may also want to include a comparison group comprised of college students who have received disciplinary action or self-admitted to drinking to cope with the stressors of college. Additionally, a comparison sample of college students meeting the criteria for an alcohol use disorder could be an interesting comparison group. Perhaps, increasing the threshold of cutoff for drinkers to meet criteria for this study would also be beneficial. Future studies could change the participation criteria to the following statement: “have you engaged in 4 or more drinking episodes in which you consumed more than four or more alcoholic beverages within the past year?” Including a statement

similar to this could provide insight into the individual differences between casual drinkers and binge drinkers, or at least assist in identification of the two groups.

Future research may delineate the relationship by also controlling for additional demographic variables such as gender, age, religion, ethnicity, or year in the program. Additionally, future research should also further investigate the relationship between race and alcohol consumption as this study found a main effect on AUDIT-C for race. Further exploration into the descriptive statistics revealed that individuals who identified as white, non-Hispanic reported higher levels of drinking than any other racial group, with Asian Americans as the second highest drinking group. These results were similar to statistics from a multi-campus study by the National Institute on Abuse and Alcoholism (NIAAA). However, the NIAAA study found Asian Americans to be the second lowest drinking group, whereas this study found Asian Americans to be the second highest drinking group. This is worth further research and consideration as Asian Americans, on the national level, report lower levels of alcohol consumption compared to the results to this study.

Further studies may also be interested in applying a more longitudinal approach to data collection or collecting data at different time points in the year within the same sample group. Having a more robust sample of alcohol consuming populations could contribute to the tailoring of university programs for providing further education and student support to those who are engaging in more regular and problematic patterns of

alcohol consumption. It also might be worthwhile, at least in Colorado, to look at consumption of cannabis as a means of coping with college related stressors. With the recent legalization of cannabis in Colorado this is likely a substance of abuse that has not received much research attention on college campuses.

This dissertation revealed that the demographic question “how often, on the average, do you have a drink when feeling stressed?” controlled for a significant amount of variance within this population. For this reason, the variable was controlled for in all 7 main analyses. However, it is worth noting that this single question appears to have been a better predictor of alcohol consumption than the outcome variable (AUDIT-C). The one limitation being the problematic nature of having a single variable as the outcome variable. Further, future studies should consider incorporating this question in their research.

Concluding Remarks. As current data suggests, alcohol consumption on college campuses is part of the culture, however, it carries the potential to be significantly problematic for the student body. NIH statistics report that approximately 20% of college students meet the criteria for an alcohol use disorder in a given year. Additionally, the percentage of students who endorsed drinking 4 or more times in the past 365 days was 67% of the those invited to participate in the study. This is slightly higher than the national average, 44%, of individuals aged 18-22 who reported a binge drinking episode within the past month. There may be several reasons for this data. This study included

individuals between the ages of 18-25, and were not specifically examining binge drinking episodes. Additionally, Colorado has a culture of appreciation for craft beers and celebrating alcohol consumption. This variable could have also help explain the differences.

To date, there is significant research studying the relationship between stress, coping styles, social and family support, and alcohol consumption. There are few studies which incorporate all of these variables into the research method. The intention of this study was to continue the conversation of alcohol use on college campuses, to bring awareness to the impact of problematic alcohol consumption on college campuses, and to attempt to understand the casual variables for college students struggling with alcohol related problems. The results of this study speak to the relationship between positive coping strategies and lower levels of alcohol consumption. Future studies could build upon these findings or the non-findings to illustrate the mechanisms by which college students engage in alcohol consumption.

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Appendix A

Definition of Key Terms

Alcohol Consumption in College Students. Consumption of alcohol as a means of relieving stress is a strategy employed by some college students (Kassel, Jackson, & Unrod, 2000; Leigh, 1989). College is a platform providing quite a lot of stressful experiences, and alcohol use is accepted within the culture of the college experience. Distress (i.e., negative life events) has been found to positively relate to tension-reduction drinking motives among college students. Alcohol use, if introduced during a time of distress, could provide negative reinforcement in individuals' dysfunctional coping styles. Alcohol consumption is thought to be related to the following variables: perceived stress, functional coping, dysfunctional coping, and social support.

College Student. A student is an individual enrolled in a college or university program. For purposes of this study a student refers to a individual enrolled at a University and meeting undergraduate criteria, 18 – 25 years of age. Graduate students will not be asked to participate in this study.

Coping Strategies. Coping strategies are both behavioral and psychological mechanisms, in which, an individual will attempt to reduce, minimize, tolerate, and/or master thoughts and/or feelings related to stressful life dilemmas. These strategies are often distinguished from one another as either problem or emotion focused. Problem-focused strategies are defined as those in which an individual engages in active problem solving techniques to

minimize stressful events; wherein, emotion-focused strategies are more specific to alleviation or regulation of the emotional consequences related to stressful events (Holahan & Moos, 1987; Lazarus & Folkman, 1984; Taylor, 1998).

Distress. Generally defined as a contributor to experiences of anxiety, psychological strain, or emotional suffering; causing someone anxiety, sorrow, and/or pain.

DSM-V. The *Diagnostic and Statistical Manual of Mental Disorder (DSM-V)* is the standard classification of mental disorders used by mental health professionals in the United States. It is intended to be applicable in a wide array of contexts and used by clinicians and researchers of many different orientations. *The Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition (DSM-5)* is the current edition and has been designed for use across clinical settings (inpatient, outpatient, partial hospitalization, consultation-liaison, clinic, private practice, and primary care), with community populations (American Psychiatric Association, 2015).

Dysfunctional Coping. Coping strategies labeled as dysfunctional often become overwhelmingly stigmatized as ineffective for management of a stressful situation and refer to the strategies with little or no success (Roth & Cohen, 1986). The problem seems to occur when one dysfunctional coping strategy is used repeatedly regardless of the stressful event or situation (Carver & Scheier, 1994; Marty, Segal, & Coolidge, 2010). Cumulative evidence indicates dysfunctional coping strategies as problematic when used in isolation of other methods and for extended periods of time (Carver & Scheier, 1994;

Lazarus & Folkman, 1984; Marty, Segal, & Coolidge, 2010). Strategies described as dysfunctional were oriented toward disengagement and/or avoidance of the problem (Marty, Segal, & Coolidge, 2010). Carver et al. (1989) identified the three aspects of dysfunctional coping as follows: (a) focusing on and venting of emotions, (b) behavioral disengagement, and (c) mental disengagement (as cited in Chao, 2012).

Emotion-Focused Coping. *Emotion-focused coping*, is a coping strategy with the intention of reducing or managing the emotional distress that is associated with (or cued by) a stressful situation.

Eustress. Has been defined as a good stress (e.g., winning an athletic event could be just as stressful as losing). In contrast to eustress is the more commonly accepted term known as distress.

Functional Coping. Problem-focused coping strategies or those described as functional coping strategies, are generally concrete plans of action with an intense focus on developing steps or a plan toward solving the problem; which includes strategies for gathering information, making decisions, and resolving conflict in instrumental, situation-specific, and task-oriented actions (Carver, Scheier, & Weintraub, 1989; Kilburn & Whitlock, 2013).

Lazarus and Folkman (1984) theory on stress, appraisal, and coping. Lazarus and Folkman's (1984) model of stress, appraisal, and coping as applicable through a multitude of life events (Chao, 2012). According to Lazarus and Folkman, interpretation

of stress is a bi-directional process; it involves the environmental production of stressors, and the subsequent response of the individual experiencing or subjected to these stressors. This initial conception regarding stress served as a catalyst in the development of the theory for cognitive appraisal of stress. The theory includes the threatening tendency of the stress to the individual and the assessment of resources required to minimize, tolerate, or eradicate the stressor and the experience it produces. The concepts of appraisal (i.e., individuals' evaluation of internal or external significance of an event or stimuli), and coping (i.e., efforts in cognition and action to manage precise demands) remain central to Lazarus's theory of stress, appraisal, and coping (Chao, 2012; Krohne, 2002). One particularly vital variable within this model is the relational component existing between emotional processes (i.e., stress) and subjective expectancies; often unique to the individuals' perception, prediction, and subsequent outcome during the encounter. Furthermore, individual differences in quality, intensity, and duration of an experienced emotion in specific situations seem objectively similar for different individuals (Krohne, 2002). However, these reactions generally differ relative to the personal factors of the individual experiencing the stressor.

Furthermore, Lazarus and Folkman identified and defined two fundamental forms of appraisal; primary and secondary appraisal. Primary appraisal concerns whether something of relevance to the individuals' well-being is occurring or has occurred; whereas secondary appraisal concerns coping options or a viable and resourceful

response. (Krohne 2002; Lazarus & Folkman, 1984; Lazarus 1991; Lazarus 1996).

Primary appraisal is the process of perceiving an environmental or subjective threat to oneself and/or integrity. Whereas, *Secondary appraisal* is the process of bringing to mind a potential response to the threat. *Coping* is merely the process of executing the decided response or course of action (Carver, Scheier, & Weintraub, 1989; Lazarus & Folkman, 1984). Methods of coping are defined as either problem or emotion focused strategies.

The first strategy, termed *problem focused coping*, is aimed at problem solving or doing something to immediately alter the source of the stress. In contrast, *emotion focused coping*, is intended to reduce or manage the emotional distress that is associated with (or cued by) the situation. Although stressors generally require both problem and emotion focused coping, research has found problem-focused coping to predominate when individuals decide something constructive could be initiated. Emotion-focused coping strategies tend to predominate when the individual thinks that the stressor must be endured (Carver, Scheier, & Weintraub, 1989; Folkman & Lazarus, 1984). Problem and emotion-focused coping strategies often function as either functional or dysfunctional, depending on the individualized appraisal of the presented stimuli. Research consistently concludes problem-focused coping to be the more effective strategy (Lazarus & Folkman, 1984).

Perceived Stress. There have been multiple definitions of stress throughout the history of research into human behavior. Lazarus' definition of stress is, "an inharmonious fit between the person and the environment, one in which the person's resources are taxed or exceeded, forcing the person to struggle, usually in complex ways, to cope." Therefore, perceived stress is the degree to which situations in an individuals' life are appraised as stressful.

Problem-Focused Coping. *Problem-focused coping*, is a strategy for coping with stress, in which, the individual has the intention of initiating an action to immediately alter the source of distress.

Stress. As defined by Cohen, Deverts, and Miller (2007) as:

"A feeling of strain and pressure; symptoms may include a sense of being overwhelmed, feelings of anxiety, overall irritability, insecurity, nervousness, social withdrawal, loss of appetite, depression, panic attacks, exhaustion, high or low blood pressure, skin eruptions or rashes, insomnia, lack of sexual desire (sexual dysfunction), migraine, gastrointestinal difficulties (constipation or diarrhea), and for women, menstrual symptoms. It may also cause more serious conditions such as heart problems."

Social Support. Parents, siblings, friends, and romantic partners support their college student through various methods (e.g., paying tuition bills, and providing social and emotional support (Chronicle of Higher Education Almanac, 2000; Daniel et al., 2001; Toor, 2000). Moreover, college students' perceived lower levels of social support has been found to be related to life dissatisfaction, and in some cases suicidal ideation or behavior (Allgower, Wardle, & Steptoe, 2001). Lower levels of social support from

family and friends correlates with increased depression, substance use, and suicidal ideation college students (D'Attilio, Campbell, Lubold et al., 1992; Harris & Molock, 2000; Harter, Marold, & Whitesell, 1992; Marion & Range, 2003; Mireault & de Man, 1996; Prinstein, Boergers, Spirito et al., 2000; Stravynski & Boyer, 2001; as cited in Arria et al. 2009).

Appendix B
Demographic Questionnaire

1. What is your age?

2. What is your gender?
 - a. Male
 - b. Female
 - c. Transgender

3. Which of the following best describes you?
 - a. Bisexual
 - b. Gay
 - c. Lesbian
 - d. Heterosexual
 - e. Not Sure/Questioning
 - f. Pansexual
 - g. Other

4. How would you describe your race/ethnicity?
 - a. American Indian or Alaska Native
 - b. Asian or Asian American
 - c. Black or African American
 - d. Hispanic or Latino/Latina
 - e. Native Hawaiian or other Pacific Islander
 - f. White

- g. Biracial/Multiracial
- h. Other

5. What religion do you consider yourself to be?

- a. Buddhist
- b. Christian
- c. Hindu
- d. Islamic
- e. Jewish
- f. No religious belief/agnostic/atheist
- g. Other

6. What is your marital status?

- a. Single
- b. Married

7. What is the present level of college standing?

- a. First year
- b. Second year
- c. Third year
- d. Fourth year
- e. Fifth year

8. How would you describe your Socioeconomic Status (SES)?

- a. Low
- b. Low-middle

- c. Middle
- d. Middle-upper
- e. Upper class

9. What is your present living arrangement?

- a. At home
- b. On campus
- c. Off campus

10. What is your age at time of this survey?

- a. _____

WE WOULD LIKE TO ASK ABOUT YOUR DRINKING PATTERNS

11. Are you abstinent from alcohol for any reason?

- a. Yes
- b. No

12. Have you ever received medical or mental health treatment for alcohol related concerns or problems?

- a. Yes
- b. No

13. Was there ever a time when you experienced medical problems related to consumption of alcohol?

- a. Yes
- b. No

14. Have you consumed alcohol in the past 30 days?

- a. Yes
- b. No

15. Have you ever, during your college experience, drank alcohol to decrease feelings related to a stressful situation (not including social situations)?

- a. Yes
- b. No

16. How often, on the average, do you have a drink when feeling stressed?

- a. Never
- b. Every day
- c. At least once a week, but not every day
- d. At least once a month, but less than once a week

17. When feeling stressed, what types of techniques do you engage in to provide relief (Please check all that apply)?

- a. Drinking alcohol
- b. Using prescription drugs
- c. Using non-prescription drugs
- d. Isolating self from others/being alone
- e. Watching television
- f. Seeking friends for support
- g. Seeking family for support
- h. Add any alternative(s) not mentioned above:
 - i. _____

MULTIDIMENSIONAL SCALE OF PERCEIVED SOCIAL SUPPORT (MSPSS)

INSTRUCTIONS: This scale is made up of a list of statements each of which may or may not be true about you as it relates to your social support. Please use the seven-point scale below to answer each question.

Read each statement carefully. Indicate how you feel about each statement.

Choose “1” if you Very Strongly Disagree

Choose “2” if you Strongly Disagree

Choose “3” if you Mildly Disagree

Choose “4” if you are Neutral

Choose “5” if you Mildly Agree

Choose “6” if you Strongly Agree

Choose “7” if you Very Strongly Agree

- 1. There is a special person who is around when I am in need.
- 2. There is a special person with whom I can share joys and sorrows.
- 3. My family really tries to help me.
- 4. I get the emotional help & support I need from my family.
- 5. I have a special person who is a real source of comfort to me.
- 6. My friends really try to help me.
- 7. I can count on my friends when things go wrong.
- 8. I can talk about my problems with my family.
- 9. I have friends with whom I can share my joys and sorrows.
- 10. There is a special person in my life who cares about my feelings.
- 11. My family is willing to help me make decisions.
- 12. I can talk about my problems with my friends.

The Perceived Stress Scale (PSS)

INSTRUCTIONS: The questions in this scale ask you about your feelings and thoughts during the last month. In each case, you will be asked to indicate by circling how often you felt or thought a certain way.

The rating scale is as follows:

0-----1-----2-----3-----4
NEVER ALMOST NEVER SOMETIMES FAIRLY OFTEN 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 your life?
- ___3. In the last month, how often have you felt nervous and “stressed”?
- ___4. In the last month, how often have you felt confident about your ability to handle your personal problems?
- ___5. In the last month, how often have you felt that things were going your way?
- ___6. In the last month, how often have you found that you could not cope with all the things that you had to do?
- ___7. In the last month, how often have you been able to control irritations in your life?
- ___8. In the last month, how often have you felt that you were on top of things?
- ___9. In the last month, how often have you been angered because of things that were outside of your control?
- ___10. In the last month, how often have you felt difficulties were piling up so high that you could not overcome them?

The Cope Inventory (COPE)

INSTRUCTIONS: We are interested in how people respond when they confront difficult or stressful events in their lives. There are lots of ways to try to deal with stress. This questionnaire asks you to indicate what you generally do and feel, when you experience stressful events. Please try to respond to each item separately in your mind from each other item. Choose your answers thoughtfully, and make your answers as true

FOR YOU as you can. There are no "right" or "wrong" answers, so choose the most accurate answer for YOU--not what you think "most people" would say or do. Indicate what YOU usually do when YOU experience a stressful event.

The rating scale is as follows:

- 1 = I usually don't do this at all
- 2 = I usually do this a little bit
- 3 = I usually do this a medium amount
- 4 = I usually do this a lot

- ___1. I try to grow as a person as a result of the experience.
- ___2. I turn to work or other substitute activities to take my mind off things.
- ___3. I get upset and let my emotions out.
- ___4. I try to get advice from someone about what to do.
- ___5. I concentrate my efforts on doing something about it.
- ___6. I say to myself "this isn't real."
- ___7. I put my trust in God.
- ___8. I laugh about the situation.
- ___9. I admit to myself that I can't deal with it, and quit trying.
- ___10. I restrain myself from doing anything too quickly.
- ___11. I discuss my feelings with someone.
- ___12. I use alcohol or drugs to make myself feel better.
- ___13. I get used to the idea that it happened.
- ___14. I talk to someone to find out more about the situation.

- ___15. I keep myself from getting distracted by other thoughts or activities.
- ___16. I daydream about things other than this.
- ___17. I get upset, and am really aware of it.
- ___18. I seek God's help.
- ___19. I make a plan of action.
- ___20. I make jokes about it.
- ___21. I accept that this has happened and that it can't be changed.
- ___22. I hold off doing anything about it until the situation permits.
- ___23. I try to get emotional support from friends or relatives.
- ___24. I just give up trying to reach my goal.
- ___25. I take additional action to try to get rid of the problem.
- ___26. I try to lose myself for a while by drinking alcohol or taking drugs.
- ___27. I refuse to believe that it has happened.
- ___28. I let my feelings out.
- ___29. I try to see it in a different light, to make it seem more positive.
- ___30. I talk to someone who could do something concrete about the problem.
- ___31. I sleep more than usual.
- ___32. I try to come up with a strategy about what to do.
- ___33. I focus on dealing with this problem, and if necessary let other things slide a little.
- ___34. I get sympathy and understanding from someone.
- ___35. I drink alcohol or take drugs, in order to think about it less.

- ___36. I kid around about it.
- ___37. I give up the attempt to get what I want.
- ___38. I look for something good in what is happening.
- ___39. I think about how I might best handle the problem.
- ___40. I pretend that it hasn't really happened.
- ___41. I make sure not to make matters worse by acting too soon.
- ___42. I try hard to prevent other things from interfering with my efforts at dealing with this.
- ___43. I go to movies or watch TV, to think about it less.
- ___44. I accept the reality of the fact that it happened.
- ___45. I ask people who have had similar experiences what they did.
- ___46. I feel a lot of emotional distress and I find myself expressing those feelings a lot.
- ___47. I take direct action to get around the problem.
- ___48. I try to find comfort in my religion.
- ___49. I force myself to wait for the right time to do something.
- ___50. I make fun of the situation.
- ___51. I reduce the amount of effort I'm putting into solving the problem.
- ___52. I talk to someone about how I feel.
- ___53. I use alcohol or drugs to help me get through it.
- ___54. I learn to live with it.
- ___55. I put aside other activities in order to concentrate on this.
- ___56. I think hard about what steps to take.

___57. I act as though it hasn't even happened.

___58. I do what has to be done, one step at a time.

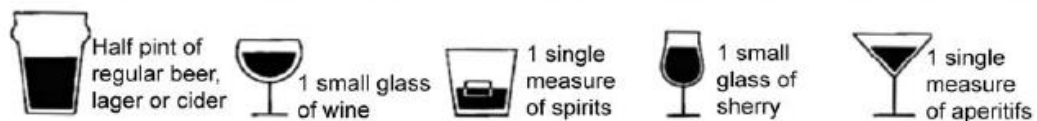
___59. I learn something from the experience.

___60. I pray more than usual

Alcohol Use Disorders Identification Test (AUDIT-C)

INSTRUCTIONS: We are interested in frequency of alcohol consumption and the amount of alcohol consumed on a typical day of drinking. Your answers will remain confidential, so please be as accurate as possible. Try to answer the questions in terms of 'standard drinks'. Please refer to the below chart for clarification if required

This is one unit of alcohol...



...and each of these is more than one unit



1. How often do you have a drinking containing alcohol?
 - a. Never
 - b. Monthly or less
 - c. 2-4 times per month
 - d. 2-3 times per week

- e. 4+ times per week
2. How many units of alcohol do you drink on a typical day when you are drinking?
- a. 1-2
 - b. 3-4
 - c. 5-6
 - d. 7-9
 - e. 10+
3. How often have you had 6 or more units if female, or 8 or more if male, on a single occasion in the last year?
- a. Never
 - b. Less than monthly
 - c. Monthly
 - d. Weekly
 - e. Daily or almost daily

Thank you for participating as a research participant in the present study concerning the roles of perceived stress, coping styles, self-esteem, and family support on the alcohol consumption among undergraduate college students.

Again, we thank you for your participation in this study. If you have any questions regarding this study, please feel free to email the principal investigator Jesse Wynn (email: jesse.wynn83@gmail.com).