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Understanding High-Risk Drinking in College Students: The Role of Emotional Intelligence in College Students' Motivations for Alcohol Use, Binge Drinking, and Alcohol Related Problems

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UNDERSTANDING HIGH-RISK DRINKING IN COLLEGE STUDENTS:

THE ROLE OF EMOTIONAL INTELLIGENCE IN COLLEGE STUDENTS' MOTIVATIONS

FOR ALCOHOL USE, BINGE DRINKING, AND ALCOHOL RELATED PROBLEMS

By

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I dedicate this dissertation to the brilliant, courageous, and kind women who raised me and instilled in me a drive to pursue my goals without hesitation. To my nana, who taught me the power of self-determination, grit, and a healthy dose of stubbornness. I am guided by your wisdom and strength every day. To my mum, who has believed in me wholeheartedly and without reservation even when I did not believe in myself. Your compassion for others is admirable and inspiring. Thank you for your unwavering support, encouragement, and patience. To the rest of the "Burko Girls," thank you for modeling what perseverance, poise, and great organizational skills look like. To Deanie, who surpasses every definition of Godmother. Thank you for being my role model and one of my biggest cheerleaders. Finally, thank you to my partner in life and my lifeboat throughout graduate school, Ricky. Thank you for guiding me through every dissertation-induced panic with patience, support, and a good sense of humor. I admire your passion, drive, and kindness; your presence in my life has been the greatest gift.

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ABSTRACT

Existing research suggests that college students engage in concerning rates of high-risk drinking, including binge drinking, often resulting in significant alcohol related problems. The relationship between high-risk drinking and motives for alcohol use has been extensively explored in the literature, with findings suggesting that certain drinking motives are associated with dangerous drinking patterns. However, there is a great need to identify possible individual risk factors that may be associated with the development of drinking motives and high-risk drinking behavior. Recently, research has begun focusing on the relationship between individual factors, such as emotional intelligence, and alcohol use.

The aim of the present research study was to investigate the relationship between high-risk drinking (i.e., binge drinking and alcohol related problems), drinking motives, and perceived and performance-based emotional intelligence (EI) in a college sample. The sample included 375 college students from colleges and universities in the United States. Participants completed an online survey which included a demographic questionnaire, the Schutte Self-Report Emotional Intelligence Test (Schutte, Malouff, Hall, Haggerty, & Cooper, 1998), the Situational Test of Emotion Management-Brief (McCann & Roberts, 2008), the Drinking Motives Questionnaire-Revised (Cooper, 1994), the Rutgers Alcohol Problems Inventory-23 (White & Labouvie, 1989), the Perceived Stress Scale-10 (Cohen & Williamson, 1988), and open-response items related to binge drinking behavior. Statistical analyses included hierarchical and multiple regression as well as four parallel mediation analyses.

Results indicated that perceived and performance-based EI are significantly associated with drinking motives and high-risk drinking, however, the strength and direction of these relationships depends upon the model of emotional intelligence examined. Specifically, lower

performance-based EI was associated with higher scores on all drinking motives (i.e., enhancement, social, coping, conformity) and alcohol related problems, while higher scores on perceived EI was associated with greater enhancement and social motives and greater binge drinking frequency. Parallel mediation analyses indicated that coping and conformity motives help explain some of the relationships between EI and the high-risk drinking variables (i.e., binge drinking frequency and alcohol related problems). Implications of these results, as well as limitations of the study, are discussed.

CHAPTER 1

INTRODUCTION

High-risk drinking, a pattern of alcohol-use behaviors which often lead to negative physical, social, and legal consequences, is a serious problem in the college population which continues to be a top priority for several researchers as well as campus administrators (Wechsler, Seibring, Liu, & Ahl, 2004). As the necessity of a college education continues to increase in our society, so does the number of students who engage in dangerous drinking behaviors, such as binge drinking, while in college (Arnett & Schwab, 2012). While most colleges and universities have established interventions to address this issue, it remains a prevalent problem as students continue to consume alcohol in dangerous ways (Core Institute, 2013; O'Malley & Johnston, 2002; SAMHSA, 2014). Research has identified vast negative effects that result from high-risk drinking, supporting the importance of early identification of at-risk students (Hingson, Heeren, Winter, & Wechsler, 2005; Jennison, 2004; Paschall, 2003; Powell, Williams, & Wechsler, 2004; Viner & Taylor, 2007; Wechsler et al., 2002; Wechsler, Kuo, Lee, & Dowdall 2000).

The motivational model of alcohol use has been used widely throughout the research community and provides a theoretical rationale for why people drink and what may contribute to problematic or high-risk drinking (Cooper 1994; Cox & Klinger, 1998). This model serves as a foundation for identifying students at-risk for engaging in dangerous drinking behaviors (Carey & Correia, 1997; Cooper, 1994; Cooper, Frone, Russell, & Mudar, 1995; Simons, Correia, Carey, & Borsari, 1998, White, Anderson, Ray, & Mun, 2016). Several studies have investigated the relationship between drinking motives and drinking behavior, suggesting certain reasons for drinking may be associated with greater problems and high-risk drinking (Carey & Correia, 1997; Kong & Bergman, 2010; Martens, Cox, Beck, Heppner, 2003; Martens, Rocha,

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Martin, & Serrao, 2008). In addition, researchers have begun to study the relationship between individual difference factors and alcohol use. Emotional Intelligence (EI) has emerged as one such factor that may serve as a protective or risk factor for students. Specifically, lower EI has been associated with higher rates of alcohol use and more alcohol related problems (Brackett, Mayer, & Warner, 2004; Claros & Sharma, 2012; Cordovil de Sousa Uva, Timary, Cortesi, Mikolajczak, du Roy de Blicquy, & Luminet, 2010; Riley & Schutte, 2003; Schutte, Malouff, & Hine, 2011). However, no research has yet investigated the role of EI as it relates to alcohol use motives and subsequent problematic drinking in college students. This area of research is important as it expands upon the current research and may help identify students at the greatest risk for engaging in high-risk drinking and experiencing alcohol related problems.

This paper provides a comprehensive overview of alcohol use, motives for alcohol use, and EI, with a particular focus on the emerging adult and college student populations. This chapter will provide an overview of the problem, social significance, and purpose of this study. Additionally, study delimitations and key terminology are reviewed. Finally, research questions are listed.

Statement of the Problem and Purpose of the Study

The number of college students in the United States continues to grow (Arnett & Schwab, 2012). Of these students, significant numbers drink more than is considered safe and experience alcohol related problems while in college as a result. Sometimes these consequences are devastating and take the lives of staggering numbers of students every year (Hingson, Heeren, & Winter, 2006). Many researchers, as well as university administrators, have highlighted the importance of identifying at-risk students during their academic career to best prevent future

problems from developing (Task Force of the National Advisory Council on Alcohol Abuse and Alcoholism, 2002; Wechsler et al., 2004).

The motivational model of alcohol use explains drinking and the development of alcohol related problems through a drinking motives paradigm, where reasons for alcohol use predict drinking behaviors and alcohol related problems (Cox & Klinger, 1988). However, identifying students by the time they begin drinking and experiencing problems is often too late for effective intervention (Fromme, Corbin, & Kruse, 2008; Kassel, Jackson, & Unrod, 2000). Individual risk factors for developing certain motives for alcohol use, such as low EI, are important to investigate to increase our understanding of students who are at the highest risk for experiencing severe consequences of drinking. This may provide valuable data for the development of targeted interventions for this vulnerable population. The purpose of the current study is to examine the relationship between EI, alcohol use motives, high-risk alcohol use, and alcohol related problems in college students.

Social Significance

The public health cost of substance abuse problems is substantial (Center for Behavioral Health Statistics and Quality, 2015; Druss & Rosenheck, 1999; Goldman, Oroszi, & Ducci, 2005; Substance Abuse and Mental Health Services Administration, 2014). It is estimated that the United States economy spends approximately 600 billion dollars per year due to problems resulting from substance abuse (Center for Behavioral Health Statistics and Quality, 2015). In addition to the considerable public health cost, the personal cost of substance abuse is staggering. Substance abuse is a major mental health problem, affecting an estimated 8% in the United States (Center for Behavioral Health Statistics and Quality, 2015). Approximately 79% of those individuals suffer from an alcohol use disorder (Center for Behavioral Health Statistics and

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Quality, 2015). Alcohol dependence, which peaks during emerging adulthood at age 18 and begins declining after 25, leads to significant impairment in family, social, employment, and community domains of life and is linked to a myriad of negative health consequences (American Psychiatric Association, 2013; Li, Hewett, & Grant, 2004).

Given the obvious public health and personal costs of alcohol abuse, efforts focused on early identification of those at greatest risk for alcohol abuse or dependence are of great importance. Often, years of high-risk alcohol use behaviors are present before dependence or abuse (Del Boca, Darkes, Greenbaum, & Goldman, 2004; Jackson, Sher, Gotham, & Wood, 2001; Jennison, 2004; Sher & Gotham, 1999). While about 6% of individuals meet criteria for alcohol use disorders, many others report high-risk drinking behaviors (Center for Behavioral Health Statistics and Quality, 2015). In a 2014 national survey, 60.9 million (23%) Americans reported binge drinking alcohol (i.e., five drinks for men and four drinks for women on one occasion) and 16.3 million (6.2%) reported heavy alcohol use (i.e., five or more binge drinking episodes in the past month), which are frequently precursors to addiction and dependence (Bingham, Shope, & Tang, 2005; Center for Behavioral Health Statistics and Quality, 2015; Del Boca et al., 2004; Hingson et al., 2006; Jennison, 2004). Consequences from high-risk drinking include impairment in interpersonal relationships and social functioning (Viner & Taylor, 2007), poor academic performance (Aertgeerts & Buntinx, 2002; Sullivan & Risler, 2002), risk for future abuse and dependence (Bingham et al., 2005; Del Boca et al., 2004; Hingson et al., 2006; Jennison, 2004)**,** and possible death (Hingson et al., 2006).

A particularly vulnerable population for high-risk alcohol use are college students (Bingham et al., 2005; Fromme et al., 2008; Hingson et al., 2005; Johnston, O'Malley, Bachman & Schulenberg, 2009; Johnston, O'Malley, & Bachman, 2003). Given their developmental

period, excessive alcohol use may be especially concerning and hazardous. Research suggests that college students who engage in high-risk alcohol use may struggle to keep up academically (Powell et al., 2004; Wechsler, Lee, Kuo, Seibring, Nelson, & Lee 2002), experience greater frequency of mental health problems (Pedrelli et al., 2011; Weitzman, 2004), have legal issues (Wechsler et al., 2000), and engage in risky behavior including unsafe sex and drinking while driving (Hingson et al., 2005; Paschall, 2003).

Research has found that students who would benefit most from alcohol interventions are the least likely to seek them out (Blanco et al., 2008; Caldeira et al., 2009; Wu, Pilowsky, Schlenger, & Hasin, 2007). This suggests that preventive interventions may be most effective for this population and therefore identifying students who are at the greatest risk for high-risk drinking is imperative to help inform preventative interventions (Black & Coster, 1996; Presley & Pimentel, 2006).

Definition of Key Terms

Ability EI: A set of emotion-related abilities and cognitive skills, which make up a distinct type of intelligence and are measured through performance-based measures (Brackett & Mayer, 2003; Mayer & Salovey, 1997).

Alcohol Related Problems: Problems which are directly related to one's use of alcohol, including acute effects such as blackouts or hangovers, problems with school or work, not following through on responsibilities, health problems, as well as social and interpersonal consequences (White & Labouvie, 1989).

Alcohol Use Motives: Considered a proximal factor in drinking behavior, alcohol use motives are the reasons individuals choose to drink (Cox & Klinger, 1988). A four-factor model of alcohol

use motives has been established which includes enhancement motives, social motives, coping motives, and conformity motives (Cox & Klinger, 1988; Cooper, 1994).

Binge Drinking: For the purpose of this study, defined as consuming five or more drinks for men, and four or more drinks for women, on one occasion (Center for Disease Control and Prevention, 2015; Naimi, Brewer, Mokdad, Denny, Serdula, & Marks, 2003).

Emerging Adulthood: The developmental stage between the ages of 18 and 29, which is characterized by increased self-focus and autonomy, volition of choice, identity exploration, instability, and the perception of greater possibilities (Arnett, 2000; Arnett, 2015b).

EI: "Involves the accurate appraisal and expression of emotions in oneself and others and the regulation of emotion in a way that enhances living" (Mayer, DiPaolo, & Salovey, 1990, p. 772).

High-Risk Alcohol Use: A style of drinking which involves risky behaviors such as binge drinking, blacking out, underage drinking, and having a blood alcohol concentration over .08, and leads to negative physical, social, and legal consequences (Bingham et al., 2005; National Institute on Alcohol Abuse and Alcoholism [NIAAA], 2004; Wilke, Siebert, Delva, Smith, & Howell, 2005).

Mixed Model EI: A combination of abilities, psychosocial factors, and one's self-perceived emotional competency and self-efficacy which is assessed through self-report measures (Petrides & Furnham, 2001; Petrides, Pita, & Kokkinaki, 2007). Mixed EI and ability EI are distinct conceptualizations of the construct EI. While based upon the same basic principles, they each provide a unique perspective on the construct.

Research Questions

In an attempt to expand upon the current literature on EI, alcohol use motives, high-risk alcohol

use, and alcohol related problems in college students, the following research questions are explored:

Research Question 1: Are perceived and performance-based EI significantly associated with the four alcohol use motives, while controlling for stress?

Research Question 2: Are perceived and performance-based EI significantly associated with binge drinking frequency and alcohol related problems?

Research Question 3: Is the relationship between perceived EI and binge drinking frequency partially mediated by coping and conformity motives?

Research Question 4: Is the relationship between perceived EI and alcohol related problems partially mediated by coping and conformity motives?

Research Question 5: Is the relationship between performance-based EI and binge drinking frequency partially mediated by coping and conformity motives?

Research Question 6: Is the relationship between performance-based EI and alcohol related problems partially mediated by coping and conformity motives?

Delimitations

There are delimitations set by the researcher that may influence external validity, such as generalizability of the findings (Sampson, 2012). First, the sample of the study is limited to undergraduate college students from four-year U.S. colleges and universities who are at least 18-years old. Further, the sample was collected from one primary university, which may limit generalizability to other college campuses. Study recruitment at the primary university will include flyers and advertising the study through research pools, limiting the study only to those students who voluntarily elect to complete the survey. Additional participants were recruited from the Mechanical Turk system, which allows individuals to complete tasks for a designated

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payment. The use of Mechanical Turk hopes to increase the generalizability of the findings by recruiting college student participation through an online marketplace.

Delimitations that may influence internal validity were also set by the researcher. Regarding instrumentation, there are several measures available to assess alcohol use motives, EI, alcohol use, and alcohol related problems. The measures chosen were influenced by the research basis and strong psychometric properties of each, as well as the availability and feasibility of cost to the researcher. As the current study is comprised of several self-report measures, it relies on the truthfulness and authenticity of each participant when completing the survey. However, there is the possibility that participants may over or under-report on these instruments. To help mitigate the effects of some of these delimitations, confidentiality and anonymity is ensured by providing a separate survey platform for raffle entry, so student's contact information is in no way attached to their questionnaire responses. Each participant was assigned a research identification number in place of name or identifying information. Finally, the cross sectional design of the study indicates data was collected at one point in time. This limits the ability to determine a true predictive relationship between the variables.

Summary

This research study aims to contribute to the existing literature on alcohol use and EI, particularly with regard to drinking motives, high-risk drinking, and alcohol related problems in the college population. High-risk alcohol use by college students represents a serious problem that warrants further investigation, particularly with regard to individual differences, which may help identify at-risk students and provide implications for preventative interventions. The next chapter will provide a comprehensive review of the literature, theoretical foundations, and a critical analysis of the extant literature as it relates to this research study. Chapter 3 provides the

methodology of the current study, including the research questions, variables of interest and study design, instrumentation, procedures, and analyses. Chapter 4 includes a comprehensive description of the sample, reliability of instrumentation, and results of statistical analyses. Finally, Chapter 5 provides a comprehensive discussion of findings, limitations, and implications for theory, research, and practice.

CHAPTER 2

REVIEW OF THE LITERATURE

The purpose of this chapter is to provide a comprehensive review and critical analysis of the relevant literature to this research study. The following section will review the extant literature and research on the population of interest, alcohol use in college, and a theoretical model that helps explain why individuals use alcohol and how this may lead to future problems. Additionally, the construct of EI is closely examined and research connecting this construct to alcohol use and motives for alcohol use is reviewed. Finally, the existing research is critically evaluated and major limitations and gaps in methodology are outlined.

Emerging Adulthood

The theory of emerging adulthood describes a newly identified developmental period, first introduced by scholar Jeffrey Jenson Arnett in 2000 (Arnett, 2000). As society has shifted and developed over time, so have the people who live within that society. Young adults have been particularly affected by this change, as demands to settle on a life path and enter the "real world" have been delayed (Arnett, 2015b). In our current culture and society, time spent exploring one's options and the various possibilities and directions in life, has become the norm during this period. This represents a shift from previous generations, where settling down and establishing stability were the goals of individuals in their early twenties (Arnett, 2015b).

Emerging adulthood, like other developmental stages, may vary in duration. Generally, however, it begins at 18 and ends between 25 and 29 (Arnett, 2000; Arnett, 2015b). Typically, individuals of these ages have moved on from their family of origin, but may not have settled on where they will go next in life (Arnett, 2015b). Emerging adulthood is a unique period of development characterized by increased self-focus, autonomy, volition of choice, identity

exploration and formation, feeling "in-between," instability, and perception of greater

possibilities (Arnett, 2000; Arnett, 2015b; Roisman Masten, Coatsworth, & Tellegran, 2004;

Stone, Becker, Huber, & Catalano, 2012). During this developmental period, which follows

adolescence and precedes adulthood, individuals explore a variety of potential directions to

pursue in life (Arnett, 2000). Navigating this stage can be particularly challenging as it is an

intermediary stage of development and somewhat ambiguous, with many individuals reporting

that they do not feel like an adolescent but also do not fully identify as an adult (Arnett, 2000;

Arnett, 2015b).

Despite feeling they are in an in-between stage of development, emerging adulthood is a

time when many continue to develop an individual identity independent from their parents or

siblings (Arnett, 2015b). This is a time when individuals might begin to more firmly identify the

things in life that are meaningful to them, and seek out other people who have similar interests

and goals (Arnett, 2015b). While Erik Erikson (1950) identified adolescence as the

developmental frame for identity exploration and achievement, research has demonstrated that

this phase likely extends well beyond the end of high school (Arnett, 2015b). In addition to

identity exploration and increased autonomy, this stage might feel unstable to many individuals,

as various domains of life are characterized by uncertainty, especially within career and love

(Arnett, 2015b). A process of trial-and-error helps young people identify their trajectory in life,

which often feels challenging and may cause emotional instability (Arnett, 2015b). In addition

to many of these challenges—identity formation, uncertainty and instability, feeling caught in-

between two life stages—emerging adulthood is also characterized by a time of optimism and

perception of great possibilities (Arnett, 2015b). As most individuals at this period in their life

do not yet know where they will end up, the future is full of possibilities (Arnett, 2015b). Arnett

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(2015b) acknowledges that these developmental markers may not be universal and are influenced by culture and society. In American culture, this developmental stage is often accompanied with the pursuit of a college education (Bledstein, 1978).

College students.

While not all emerging adults are college students, most traditional college students are emerging adults. College students represent a subgroup of the emerging adult population and have their own unique characteristics in addition to those found in other emerging adults. According to the National Center for Education Statistics, approximately 66% of high school graduates go on to attend college (Kena et al., 2015). Of these students, about 35% will attend a 4-year college, while another 35% elect to enter a 2-year college such as community college or a technical or specialty school (Kena et al., 2015). This percentage has risen steadily throughout history, and will likely continue to rise as the majority of emerging adults feel that a college education is key to success in life (Arnett & Schwab, 2012). Not only is the number of students that choose to pursue a higher education growing, but the length of time this may take has also increased. Students attending U.S. Colleges and Universities are often not required to choose a major until they complete their second year of school, and research suggests that up to 75% of students will change their major at least once before graduation (Arnett, 2015a; Gordon, 1995; Hamilton & Hamilton, 2006), which may delay graduation by a semester or multiple years. In addition, the number of students choosing to pursue graduate school education has also increased substantially, which may be influenced by the increased median income of those with graduate degrees (Kena et al., 2015).

For many, college is not just a time for job training or finding a career, it is about the college experience and personal growth (Arnett, 2015a; Magolda & Taylor, 2015). This includes

academic and intellectual growth, embarking on new social experiences, and developing skills which will lead to greater independence and responsibility (Arnett, 2015a; Magolda & Taylor, 2015). For most, this is their first experience living away from home and often their first year is spent living amongst other newly independent first-year students in residential halls (Aselton, 2012). New living and social experiences, coupled with demanding and challenging coursework, may introduce a new set of stressors that students have not experienced in the past (Blanco et al., 2008, Brougham, Zail, Mendoza, & Miller, 2009; Dusselier, Dunn, Wang, Shelley, & Whalen, 2005; Galatzer-Levy, Burton, & Bonanno, 2012; Lefkowitz, 2005; Meadows, Brown, & Elder 2006; Pierceall & Keim, 2007; Skowron, Wester, & Azen, 2004; Towbes & Cohen, 1996; Voelker, 2004).

One experience new to many college students is the inclusion of alcohol during many social gatherings. While some students begin drinking during high school (Hingson, Heeren, Levenson, Jamanka, & Voas, 2002), for a number of students college is the first time alcohol is available in an unsupervised environment and frequency of drinking begins to increase (Bingham et al., 2005; Blanco et al., 2008; Fromme et al., 2008; Hingson et al., 2005; Johnston et al., 2009; Johnston et al., 2003; Johnston, O'Malley, Bachman, Schulenberg, & Miech, 2015; Kypri, McCarthy, Coe, & Brown, 2004; SAMHSA Office of Applied Studies, 2009). Research suggests that alcohol use significantly increases during young adulthood and is more prevalent in college students as compared to their non-college peers (Bingham et al., 2005; Johnston et al., 2015; Paschall, 2003; Paschall & Flewelling, 2003). For some students, this is a normal part of their college experience and does not result in serious consequences (Arnett, 2005). However, for many students, drinking poses a serious threat to health and wellbeing and can result in serious and long-lasting problems (Hingson, Zha, & Weitzman, 2009; Wechsler. Molnar,

Davenport, & Baer, 1999; Wechsler & Nelson, 2008). Understanding risk factors, which may make some individuals more likely to engage in high-risk drinking during the college years, is of great importance and may help inform prevention efforts prior to students beginning college.

Summary of emerging adulthood and college students.

Emerging adulthood is a developmental period marked by changes in autonomy and independence, identity exploration, and instability (Arnett, 2000). While the myriad of life opportunities makes this time exciting for many, it is also a time of ambiguity and confusion. Emerging adulthood is a critical stage in development in which individuals begin to take charge of their own life decisions. College students represent a large portion of the emerging adult population and experience unique and exciting changes as well as various challenges during this time of newly found independence (Brougham et al., 2009; Kena et al., 2015; Lefkowitz, 2005; Vaez & LaFlamme, 2008).

With independence and freedom from parental rules and restrictions, many college students begin drinking with greater frequency, as it is culturally and developmentally appropriate in the college setting (Arnett, 2005; Bingham et al., 2005; Blanco et al., 2008; Fromme et al., 2008; Hingson et al., 2005; Johnston et al., 2009; Johnston et al., 2003; Johnston et al., 2015; Kypri et al., 2004; SAMHSA Office of Applied Studies, 2009). The following section provides an overview of alcohol use by college students and outlines the important distinction between moderate and responsible drinking compared to high-risk and problematic drinking.

Alcohol Use in College

Young adults show a spike in alcohol use during the years following adolescence and graduating from high school (Bingham et al., 2005; Fromme et al., 2008; Hingson et al., 2005;

Johnston et al., 2009; Johnston et al., 2003; Kypri et al., 2004; SAMHSA Office of Applied Studies, 2009). Use of alcohol during college is a normal part of many students collegiate experience (Johnston et al., 2003). In comparison to other substances, alcohol is the most commonly used substance in the college population, and of the 35% of high school students who attend four-year colleges, between 60% and 75% report consuming alcohol regularly (Blanco et al., 2008; Johnston et al., 2015; SAMHSA, 2014).

Moderate use of alcohol is culturally acceptable in many different contexts (Arnett, 2005). The prevalence of "happy hour specials" at many restaurants and bars is testament to the acceptable drink or two after a long day to unwind with peers or colleagues. In fact, some research shows that regular alcohol use prospectively predicts decreased risk of developing some psychiatric disorders (Cougle, Hakes, Macatee, Chavarria, & Zvolensky, 2015), which may be due to the social aspects of drinking. Drinking during college is most often a social activity and may foster a sense of camaraderie amongst students (Cronin, 1997). Many college students engage in modest drinking behaviors, consuming one to four drinks a week (Core Institute, 2013; Marlatt et al., 1998). Across the United States, about 19% of college students report abstaining from drinking completely, while many (40%) report drinking 4 or fewer drinks when they last partied (Core Institute, 2013). Students who drink moderately are less likely to experience negative problems compared to their heavy-drinking peers (Marlatt et al., 1998). This data serves as evidence that a number of students choose not to drink or drink responsibly, indicating that there may be some differentiating factors between moderate and non-drinkers and those who engage in high-risk drinking.

High-risk drinking.

Though a number of students engage in drinking during college with few problematic outcomes, a large number of students experience negative effects due to risky drinking. The precise definition of high-risk drinking is unclear, as it varies across the literature. Most researchers include dangerous behaviors such as binge drinking, blacking out, underage drinking, and having a blood alcohol concentration over .08, in their assessment of high-risk drinking (Caudill et al., 2006; Center for Behavioral Health Statistics and Quality, 2015; Bingham et al., 2005; NIAAA, 2004; Wilke et al., 2005). The most consistent index of high-risk drinking used throughout the literature is binge drinking (Patrick, 2016). Binge drinking is most often defined as consuming five or more drinks for men and four or more drinks for women on one occasion or over the course of two hours (Caudill et al., 2006; Center for Behavioral Health Statistics and Quality, 2015; Center for Disease Control and Prevention, 2015; Wechsler & Nelson, 2001).

College students often engage in more high-risk drinking behaviors compared to their non-college peers, including binge drinking (Bingham et al., 2005; Johnston et al., 2015; Paschall, 2003, Paschall & Flewelling, 2003). Of college students who reported drinking in the past month, about 40-65% engaged in binge drinking (American College Health Association, 2016; Core Institute, 2013; O'Malley & Johnston, 2002; SAMHSA, 2014). Further, some researchers suggest that these statistics may underestimate how much students drink during binges, as few studies have investigated how much students report drinking beyond the traditional binge criteria (i.e., four to five drinks, Patrick, 2016; White et al., 2016). Given that the college years represent an important stage of development for emerging adults, these risky behaviors may have detrimental effects (Arnett, 2000; Bingham et al., 2005; Fromme et al., 2008; Stone et al., 2012).

Students who report engaging in high-risk drinking, such as binge drinking, report greater numbers of alcohol related problems (Wechsler et al., 1999; Wechsler et al., 2000). These problems include injuries (Hingson et al., 2009; Wechsler et al., 1999; Wechsler & Nelson, 2008), risky sex (Hingson et al., 2005; Wechsler et al., 2000), sexual and physical assault (Hingson et al., 2005; Hingson et al., 2009), driving while intoxicated (Hingson et al., 2009; Paschall, 2003; Wechsler, Lee, Nelson, & Lee, 2003), legal issues (Wechsler et al., 1999; Wechsler et al., 2000), committing vandalism (Wechsler et al., 1999; Wechsler et al, 2002), depression (Pedrelli et al., 2011; Weitzman, 2004), and academic challenges (Aertgeerts & Buntinx, 2002; Powell et al., 2004; Read, Merrill, Kahler, Strong, 2007; Sullivan & Risler, 2002; Thombs, Olds, Bondy, & Winchell, 2009; Wechsler & Nelson, 2008; Wechsler et al., 1999; Wechsler et al., 2002). Regarding academic performance, binge drinkers who drink three or more times per week are significantly more likely to perform poorly on tests and projects, skip class, fall behind in their schoolwork, and spend less time studying than their non-binge drinking peers (Thombs et al., 2009; Wechsler, 1999; Wechsler & Nelson, 2008). Individuals who consume more alcohol have also been found to have a more difficult time asserting themselves and deflecting peer influence (Borsari & Carey, 2001; Hops, Andrews, Duncan, Duncan, & Tildesley, 2000).

The most serious outcome of harm due to high-risk alcohol use is death (Hingson et al., 2009). Sadly, alcohol related deaths are one of the leading causes of death in college students, with an estimated 1,800 students losing their life due to alcohol related incidents annually (Hingson et al., 2006; Hingson et al., 2009; Davis & DeBarros, 2006). Many alcohol related deaths in the student population are explained by motor vehicle crashes; 13% of students admit to driving after having five or more drinks while an estimated 23% rode with a driver who was

drunk (Wechsler et al., 2003). Alcohol misuse not only impacts those engaging in the use, but may also negatively impact those around them (Hingson et al., 2009; White & Hingson, 2014). For instance, when binge drinking is more common, non-drinkers report more frequent experiences of physical and sexual assault, disruptions to sleep, and damage of property (Hingson et al., 2009; Wechsler & Nelson, 2008).

Blanco and colleagues (2008) discovered that alcohol use disorder was the most prevalent diagnosis amongst college students, however, despite these findings as well as the personal, social, and health-related consequences of high-risk alcohol use, college students are less likely to receive treatment for substance-related disorders (Blanco et al., 2008; Wu et al., 2007). High-risk alcohol use during this stage of life is particularly risky. Although use often decreases as individuals progress through adulthood, a substantial number of people continue to misuse alcohol, or escalate their use, which may lead to more serious consequences such as dependence (Del Boca et al., 2004; Jackson et al., 2001; Jennison, 2004; Sher & Gotham, 1999).

The severe consequences of high-risk drinking not only affect students immediately, but may also result in negative long-term outcomes. Long-term effects of high-risk drinking include alcohol dependence (Viner & Taylor, 2007), academic attrition (Jennison, 2004), employment difficulties (Jennison, 2004), impairment in cognitive functioning (Lisdahl & Tapert, 2012), and various health problems (Hingson et al., 2002; Miller, Naimi, Brewer, & Jones, 2007; Wechsler & Nelson, 2008). Outcome research has also found that over time, interpersonal relationships may suffer, resulting in social exclusion (Viner & Taylor, 2007; Wechsler & Nelson, 2008).

Risk factors for high-risk drinking.

Identifying the risk factors that may make students more likely to engage in high-risk alcohol use may assist in early identification and implementation of more targeted preventative

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efforts. Several factors have been identified in relation to high-risk alcohol use in college students, including sensation seeking (Del Boca et al., 2004), less religious involvement (Weitzman, Nelson, & Wechsler, 2003), involvement in Greek life (Borsari, Hustad, Capone, 2009; Larimer, Turner, Mallett, & Geisner, 2004; Wilke et al., 2005), drinking during adolescence (Baer, Kivlahan, & Marlatt, 1995; Grekin & Sher, 2006; Wood, Read, Mitchell, & Brand, 2004), parental acceptance of drinking (Boyle & Boekeloo, 2006), peer pressure (Borsari & Carey, 2001), perceived social normality of drinking (Borsari & Carey, 2001; Wechsler & Kuo, 2000; Wilke et al., 2005), and race and ethnicity (O'Malley & Johnson, 2002; Paschall & Flewelling, 2003; Paschall, Bersamin, & Flewelling, 2005).

Regarding race and ethnicity differences, research consistently shows that Caucasian students report the highest rates of binge drinking; while Black students report the lowest levels and Hispanic students fall in between the groups (O'Malley & Johnson, 2002; Paschall & Flewelling, 2003; Paschall et al., 2005). Within each racial group, males are more likely to engage in heavy drinking compared to females (O'Malley & Johnston, 2002; Paschall & Flewelling, 2003). Interestingly, researchers have found that while being enrolled in a four-year college was positively related to alcohol-use for Caucasian students, it was inversely related for Black and Asian students (Paschall et al., 2005). In terms of sex differences, findings suggest that men engage in more binge drinking than women (American College Health Association, 2008; Lyvers, Hasking, Hani, Rhodes, & Trew, 2010). While men may drink more heavily, findings suggest that men and women have similar levels of alcohol related problems (Lyvers et al., 2010). This is likely explained by the fact that women's blood alcohol concentration rises more quickly than men's, and they often require less alcohol to experience intoxication (Marlatt, Parks, & Calhoon, 2003).

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Other risk factors for high-risk alcohol use include positive expectancies of alcohol use (Del Boca et al., 2004; Greenbaum, Del Boca, Darkes, Wang, Goldman, 2005; Lewis & O'Neill, 2000; O'Hare & Sherrer, 1997; Tran, Haaga, & Chambless, 1997) and motives for alcohol use (Carey & Correia, 1997; Cooper, 1994; Cooper et al., 1995; Simons et al., 1998). The remainder of the paper will focus specifically on motives for alcohol use and how these may be a salient risk factor for high-risk alcohol use in the college population.

Summary of alcohol use in college.

In summary, for many college students, drinking in an unsupervised dorm room with new friends is a rite of passage. While most students make the choice to drink during college, about one-fifth of students choose to abstain from drinking (American College Health Association, 2008). Of the students who regularly consume alcohol, many do so in a responsible way and report few alcohol related consequences. Moderate college drinkers report drinking fewer than four drinks per occasion, which falls below the binge drinking cutoff (American College Health Association, 2008).

While there are certainly students who choose not to drink or to drink moderately and responsibly, there are concerning numbers of college students who engage in high-risk drinking (Bingham et al., 2005; Johnston et al., 2015; O'Malley & Johnston, 2002; Paschall, 2003, Paschall & Flewelling, 2003; SAMHSA, 2014). These students engage in behaviors such as underage drinking and binge drinking and are at greater risk for numerous alcohol related consequences (Bingham et al., 2005; NIAAA, 2004; Wechsler & Nelson, 2008; Wilke et al., 2005). Such consequences are often severe and range from academic difficulties (Aertgeerts & Buntinx, 2002; Powell et al., 2004; Read et al., 2007; Sullivan & Risler, 2002; Thombs et al., 2009; Wechsler & Nelson, 2008; Wechsler et al., 1999; Wechsler et al., 2002) and peer

difficulties (Borsari & Carey, 2001; Hops et al., 2000; Viner & Taylor, 2007; Wechsler & Nelson, 2008) to legal issues (Wechsler et al., 2000) and death (Hingson et al., 2009).

Researchers have identified some risk factors for what make some students more likely to engage in high-risk drinking compared to their moderate alcohol-drinking peers. Factors such as less religious involvement (Weitzman et al., 2003), Greek life involvement, (Borsari et al., 2009; Wilke et al., 2005), peer pressure (Borsari & Carey, 2001), and race and ethnicity (O'Malley & Johnson, 2002; Paschall & Flewelling, 2003; Paschall et al., 2005) have all been identified. Further, reasons for drinking, or motives for alcohol use, are a salient risk factor for alcohol use in college students and may help explain why some students engage in high-risk drinking (Carey & Correia, 1997; Cooper, 1994; Cooper et al., 1995; Simons et al., 1998). The following section explores a motivational model of alcohol use, which lays a conceptual foundation for college students drinking behavior.

Theoretical Foundations

Given the increase of alcohol use during the college years, understanding college students use of alcohol and their motives for use is imperative. This section reviews the theoretical foundations of alcohol use and a well-known and extensively researched theory helps conceptualize the following literature: The Motivational Model of Alcohol Use. This model is supported by empirical research on motives for alcohol use in the college student population (Carey & Correia, 1997; Kong & Bergman, 2010; Martens et al., 2003; Martens et al., 2008).

   Motivational model of alcohol use.

The Motivational Model of Alcohol Use bridges theory of motivation and emotion in the context of alcohol use (Cox & Klinger, 1988). While there are many factors that may influence alcohol use, The Motivational Model suggests that motivations to drink explain the final pathway

to drinking behavior (Cooper, 1994; Cooper et al., 1995; Cox & Klinger, 1988). The model is based upon the principle that behavior is driven by positive incentives. Incentive motivation involves an individual's motivation to seek out positive rewards that result in a desired emotional change. This relates to alcohol use in that people's motives to use alcohol are based upon their expectation of positive outcomes, as well as resulting emotional changes. Within this theoretical model, both drinking expectancies and drinking motives play a role in the decision to drink.

Drinking expectancies are beliefs about the effects of alcohol, which after often developed in childhood and adolescence and are influenced by social learning (Cox & Klinger, 1988; Goldman, Brown, & Christiansen, 1987; Kong & Bergman, 2010). Due to when drinking expectancies develop, they are considered distal factors to drinking behavior (Christiansen, Goldman & Inn, 1982; Kraus, Smith & Ratner, 1994; Miller, Smith, & Goldman, 1990). Expectations of drinking directly influence one's motives for drinking.

For example, one positive expectation of using alcohol is that it helps you have more fun. This belief then influences one's reasons, or motives, for drinking in the future. Consider a child who grows up watching their parents host frequent social gatherings at their home. Alcohol is widely present and facilitates a good time amongst the guests. Although the child is not drinking, they develop an expectation that alcohol helps people socialize better. When they get to college where alcohol is readily available, this expectation influences why they choose to drink. They will likely endorse "social alcohol use motives" (described below), which involve drinking to facilitate socialization. Conversely, negative expectations of alcohol use also exist, and may involve an expectation such as alcohol makes people violent. This belief may influence an individual not to drink because alcohol would not be associated with a positive outcome.

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Drinking motives.

Drinking motives are the values or importance placed upon the expected effects of alcohol, which ultimately motivate an individual to drink (Cox & Klinger, 1988; Kong & Bergman, 2010). They are considered proximal factors to drinking behavior because they are closely related to choices about drinking. Motives to drink are considered necessary in the decision-making process for one to decide to use alcohol or not (Cooper, 1994; Kong & Bergman, 2010). From this perspective, drinking motives help explain drinking behavior and may mediate the effect of other drinking risk factors on drinking behavior (Kairouz, Hliksman, Demers, & Adlaf, 2002).

People make a choice to use alcohol or not based upon the anticipated positive emotional results they expect to result from drinking versus not drinking (Cooper, 1994; Cooper et al., 1995; Cox & Klinger, 1998). Based upon this explanation of alcohol use, alcohol either enhances positive mood or decreases negative mood (Carey & Correia, 1995; Cox & Klinger, 1988). In other words, drinking is either positively reinforcing or negatively reinforcing. Cox & Klinger (1988), the primary scholars behind the Motivational Model of Alcohol Use, suggest that there are four primary motives for alcohol use: (a) drinking to obtain social rewards; (b) drinking to enhance positive mood; (c) drinking to deal with negative emotions; and (d) drinking to avoid social rejection. Within this model, expectancies of alcohol use are considered antecedents to motives to drink (Cox & Klinger, 1988). Motives to drink are then based upon one's expectancies of the outcome (i.e., I expect drinking will make me have fun, therefore I am motivated to drink to enhance positive mood), which ultimately influences drinking behavior (Figure 1). Given the direct relationship between drinking motives and drinking behavior, the

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following sections will review the literature on motives for alcohol use and how these may be particularly related to high-risk alcohol use.
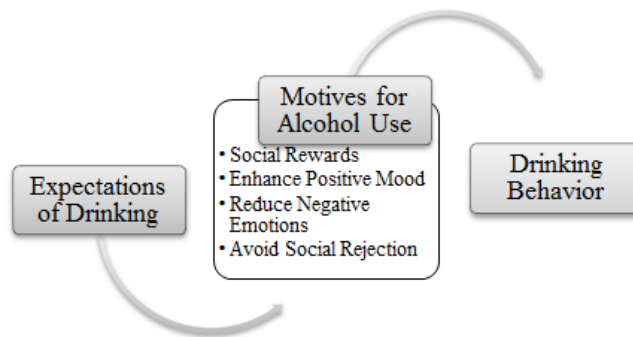
Figure 1: Motivational model of alcohol use

Motives for Alcohol Use

The research on motives for alcohol use suggests that some drinking motives predict greater negative consequences while others predict fewer consequences and less problematic outcomes. Motives for alcohol use are particularly relevant regarding the question of which college students may be at greatest risk for high-risk drinking and alcohol related consequences as well as providing a platform for interventions (White et al., 2016).

Previous research on drinking motives suggests that they may predict specific habits of drinking in regard to amount, frequency, and problems associated with alcohol use (Carey & Correia, 1997; Cooper et al., 1994). Exploring the underlying psychological motives for alcohol use may help explain patterns of use and provide valuable information to determine which students are at greatest risk for risky drinking behaviors (Carey & Correia, 1997; Cooper, 1994; Cox & Klinger, 1988; Simons et al., 1998)

Cooper (1994) confirmed Cox and Klinger's (1998) Motivational Model of Drinking by identifying a four-factor model of drinking motives, including enhancement, social, coping, and

conformity, which map on to the motives proposed in the original model. These motives are classified as positively reinforcing (enhancement and social) or negatively reinforcing (coping and conformity), based upon the desired outcome. This model has been well researched and validated in studies over the past two decades and serves as a foundational model for most current research on alcohol use motives (Kuntsche, Knibbe, Gmel, & Engels, 2005; MacLean & Lecci, 2000; Martens et al., 2008). The following sections provide an overview of the four drinking motives and associated research.

Positive reinforcement motives.

Positive reinforcement drinking motives involve an attempt to increase a desired outcome such as positive affect or social enjoyment (Cooper, 1994). The literature on positive reinforcement motives for drinking suggest that there may be a relationship between frequency and amount of drinking (Carey & Correia, 1997; Martens et al., 2003; Park & Levenson, 2002); however, the relationship between alcohol related problems is less clear. The two primary positive reinforcement motives are enhancement and social (Cooper, 1994).

Enhancement motives.

The first drinking motive is termed enhancement. Individuals report using alcohol for enhancement purposes, which is positively reinforcing as alcohol serves as a means to increase a desired outcome (Kuntsche et al., 2005; Kuntsche, von Fischer, & Gmel, 2008). In the context of drinking motives, enhancement refers to a positive affective or emotional change due to alcohol (Cooper 1994, Cooper et al., 1995). This may involve enhancing positive mood, enjoying the feeling of being drunk, or drinking for enjoyment (Cooper, 1994; Cronin, 1997; Stewart & Power, 2002). Those who endorse enhancement motives are likely to fall into the category of students who drink to get drunk.

Several studies have found that drinking as a result of enhancement motives is associated with greater use of alcohol (Carey, 1993; Kariouz et al., 2002), binge drinking (Martens et al., 2008) as well as a significant increase in problems due to alcohol use (Grant, Stewart, O'Connor, Blackwell & Conrad, 2007; Lyvers et al., 2010; Martens et al., 2008; White et al., 2016). In one study, individuals with enhancement motives were significantly more likely to reported alcohol dependence as compared to other motives (Lyvers et al., 2010). The relationship between enhancement motives and drinking heavily is increased in situations where binge drinking is encouraged (Cooper, 1994). In a study which examined extreme drinkers (defined as 10+ drinks for men and 8+ drinks for women) compared to binge drinkers and non-binge drinkers, individuals who reported extreme drinking were significantly more likely to endorse enhancement motives compared to the other two groups (White et al., 2016). Similarly, the binge drinking group reported significantly more enhancement motives than the non-binge group (White et al., 2016). Regarding specificity of enhancement motives, there is some evidence to suggest that men might be particularly more likely to drink for enhancement reasons as compared to women (Gire, 2002; Kairouz et al., 2002)

Social motives.

A second reason for drinking is for social motives. Drinking for social motives includes drinking to facilitate socializing or improve social gatherings (Kuntsche et al., 2005). The literature on social motives is mixed. Generally, social motives are endorsed by people who drink in social settings, and are not related to alcohol related problems or heavy drinking. Some findings suggest that individuals tend to report moderate or infrequent drinking and do not report significant problems associated with drinking behavior or alcohol dependence (Cooper, 1994; Karwacki & Bradley, 1996; Kassel et al., 2000; Lyvers et al., 2010; Read, Wood, Kahler,

Maddock & Palfai, 2003). In the emerging adult and college populations, research has found that those who endorse drinking for social motives drink less intensely (Labouvie & Bates, 2002).

However, other findings have indicated that those who drink for social motives reported significant alcohol related problems and greater alcohol consumption (Bradizza, Reifman, & Barnes, 1999; Lyvers et al., 2010; Martens et al., 2008). Other studies have found that although social motives predicted increased drinking rates, they did not predict alcohol related problems (Cronin, 1997; Kassel et al., 2010). While individuals who endorse social motives for drinking might drink more, this finding may be explained by the fact that they are involved in more social situations where alcohol is present and may drink more responsibly.

Few studies have specifically investigated racial, ethnic, or sex differences in relation to motives. However, one study did examine the differences in drinking motives across American and Nigerian college students (Gire, 2002). Results suggested that Nigerian students were significantly more likely to endorse social motives as compared to American students. Further, a sex effect was observed where social motives were significantly more likely to be reported by male students. The author of this study suggest that the cultural differences observed in this study in relation to social motives might be explained by the collectivist culture in Nigeria versus the primarily individualistic culture in America (Gire, 2002).

Negative reinforcement motives.

Negative reinforcement drinking motives involve an attempt to reduce or cope with negative mood or social pressures (Cooper, 1994). The broader literature on negative motivations of drinking suggest they are more likely to be associated with alcohol related

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problems (Carey & Correia, 1997; Cooper, 1994). The two primary negative motives are coping and conformity (Cooper, 1994).

Coping motives.

Drinking to cope with negative emotions is the third drinking motive. Using alcohol to avoid, reduce, or regulate negative emotions is a negatively reinforcing motive of alcohol use (Borsari, Murphy & Barnett, 2007; Kieffer, Cronin, & Gawet, 2006; Kuntsche et al., 2005; Moitra, Anderson, Christopher, & Stein, 2015; Novak, Burgess, Clark, Zvolensky, & Brown, 2003; Park, 2004; Yokoyama, Nishikitani, & Araki, 1999). Research suggests that this may be a particularly concerning drinking motive as drinking to cope is related to more high-risk drinking behaviors, including binge drinking and extreme drinking (Abbey, Smith, & Scott, 1993; Pritchard, Wilson, & Yamnitz, 2007; Mallett et al., 2013; Martens et al., 2008; McNally, Palfai, Levine, & Moore, 2003; Rice & Van Arsdale, 2010; Rutledge & Sher, 2001; White et al., 2016).

When students feel capable of regulating their negative mood on their own, they are less likely to engage in potentially harmful coping practices, including risky drinking (Kassel et al., 2000). However, when asked about their motivations for using alcohol, many college students indicate reducing negative emotions such as tension, anxiety, and stress as a primary motivator (Borsari et al., 2007; Kieffer et al., 2006; Yokoyama et al., 1999; Park, 2004; Novak et al., 2003; Moitra et al., 2015). Using alcohol to cope with negative affect is particularly problematic as it is an ineffective method for solving the source of the problem and may initiate a cycle of alcohol use and distress (Carver, Scheier, & Weintraub, 1989; Conger, 1956; Pritchard et al., 2007). Evidence suggests that coping drinking motives significantly predict heavy drinking (Abbey et al., 1993; MacLean & Lecci, 2000; Martens et al., 2008; McNally et al., 2003; Pritchard et al., 2007; Read et al., 2003; Rutledge & Sher, 2001), increased alcohol related consequences (Lyvers

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et al., 2010; Mallet et al., 2013; Martens et al., 2008; Read et al., 2003; Rice & Van Arsdale, 2010), and poorer psychological health (Lewis & O' Neill, 2000; O'Hare & Sherrer, 1997). Drinking to cope with stress was found to mediate the relationship between stress and alcohol related problems, indicating that students who drink to cope with their problems may experience a greater number of negative outcomes (Rice & Van Arsdale, 2010).

Coping motives stand apart from other motives in that they have been associated with long-term problems related to alcohol, including dependence (Cooper et al., 2015; Lyvers et al., 2010; Schellman-Offermans, Kuntsche, & Knibbe, 2011). In addition to predicting problematic drinking behaviors, coping motives have also been found to significantly predict other problems. Students who reported using alcohol to cope with negative emotions also reported higher levels of test and study worry (Kieffer et al., 2006), anxiety sensitivity (Novak et al., 2003), as well as maladaptive perfectionism (Rice & Van Arsdale, 2010).

Regarding specificity of coping motives, some findings suggest a gender effect, in which men were more likely to report drinking to cope motives compared to women (Gire, 2002; Kieffer et al., 2006; Rutledge & Sher, 2001), which strengthened as students aged (Rutledge & Sher, 2001). One finding based upon Gire's (2002) cross-national research suggests that American college students are more likely to endorse coping motives compared to Nigerian college students. This may be explained by fewer sources of social support in an individualistic society as compared to a collectivist society (Gire, 2002).

Conformity motives.

The fourth, and final drinking motive, is conformity. Conformity motives involve drinking to avoid social rejection (Stewart & Devine, 2000). Individuals who drink for conformity reasons drink to gain peer acceptance or social approval (Ham & Hope, 2003; Farber,

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Khavari, & Douglas, 1980). Students within their first few years of college may be more likely to drink for these reasons as conformity motives are particularly salient in the emerging adult and college population (Cooper, 1994). First-year college students report drinking to fit in with their peers, to feel a sense of belonging with others, or because everyone else is drinking, to a greater degree than those in the latter half of college (Ichiyama & Kruse, 1998).

Drinking for conformity has been linked to heavy drinking, including binge drinking (Hartzler & Fromme, 2003; Martens et al., 2008; Merrill & Read, 2010; Weitzman, Folkman, Folkman, & Wechsler, 2003), which may be more likely in men (Hartzler & Fromm, 2003). Conformity motives have also been found to predict alcohol related problems in the college population (Carey & Correia, 1997; Cooper, 1994). Further, a study by Kong & Bergman (2010) determined that conformity motives were significantly related to alcohol misuse in a sample of emerging adults, where alcohol misuse was defined as increased quantity and frequency of drinking as well as alcohol related problems. In another study, while not related to alcohol related problems or alcohol dependence, conformity motives did significantly predict amount of drinking in a sample of young adults (Lyvers et al., 2010). College students who drink for conformity motives have also been found to have higher levels of anxiety sensitivity (Stewart, Zvonlensky, & Eifert, 2001) and self-consciousness (Stewart & Devine, 2000).

Similar to the other alcohol-use motives, mixed findings have been reported on conformity motives. A study by White and colleagues (2016) which compared extreme drinkers, binge drinkers, and non-binge drinkers found no difference in conformity motives across groups. In other studies, conformity motives have had no predictive significance in regard to drinking behavior (Crutzen, Kuntsche, & Schelleman-Offermans, 2013) or weekend drinking (Kuntsche & Cooper, 2010).

Summary of motives for alcohol use.

The motivational model of alcohol use (Cox & Klinger, 1988) provides a foundational theory to help explain high-risk college alcohol use. The model suggests that motives for alcohol use are informed based upon positive expectations of drinking, which can be formed as young as childhood (Christiansen et al., 1982; Cox & Klinger, 1988; Kraus et al., 1994; Miller et al., 1990). Cox and Klinger (1988) identified four primary motives for alcohol use, which were later confirmed by Cooper (1994). These include enhancement and social (positive reinforcement motives) and coping and conformity (negative reinforcement motives). Enhancement motives include drinking to increase positive affect, to feel good, or drinking to get drunk (Kuntsche et al., 2005). Social motives involve drinking to improve social gatherings (Kuntsche et al., 2005). Coping motives include drinking to reduce negative affect such as stress or other negative emotions (Kuntsche et al., 2005). Conformity motives involve drinking to avoid social rejection or drinking because it seems it is what one should do as well as because of peer pressure (Ham & Hope, 2003; Stewart & Devine, 2000).

Research suggests that studying motives for alcohol use might help identify students who are at risk for risky drinking and alcohol related problems (Carey & Correia, 1997; Cooper, 1994; Cox & Klinger, 1988; Simons et al., 1998). Research on alcohol use motives in the college population suggest that both positive and negative reinforcement motives are associated with problematic drinking behaviors. In regards to positive reinforcement motives, enhancement motives are related to high-risk drinking behaviors including binge drinking (Martens et al., 2008) and alcohol related problems (Grant et al., 2007, Lyvers et al., 2010, Martens et al., 2008; White et al., 2016). Some studies suggest a sex effect with regard to enhancement motives, with men more likely to report drinking for these reasons (Gire, 2002; Kairouz et al., 2002).

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Regarding social motives, some studies suggest a relationship between alcohol related problems and alcohol consumption (Bradizza et al., 1999; Lyvers et al., 2010; Martens et al., 2008). However, several studies have shown that individuals who endorse social motives are more likely to be moderate or infrequent drinkers and experience fewer problems related to alcohol use (Cooper, 1994; Kassel, Jackson, & Unrod, 2000; Lyvers et al., 2010; Read et al., 2003; Labouvie & Bates, 2002). Findings also indicate that males and individuals from collectivist cultures may be more likely to endorse social motives (Gire, 2002).

Regarding negative reinforcement motives, coping motives are strongly and consistently related to risky drinking including binge drinking (Abbey et al., 1993; Pritchard et al., 2007; Rutledge & Sher, 2001; Mallett et al., 2013; MacLean & Lecci, 2000; Martens et al., 2008; McNally et al., 2003; Rice & Van Arsdale, 2010; Rutledge & Sher, 2001; White et al., 2016), alcohol related problems (Lyvers et al., 2010; Mallet et al., 2013; Martens et al., 2008; Read et al., 2003; Rice & Van Arsdale, 2010), and dependence (Cooper et al., 2015; Lyvers et al., 2010; Schellman-Offermans et al., 2011). Similar to the gender findings with other motives there was a sex effect suggesting that males might be more likely to endorse coping motives compared to females (Gire, 2002; Kieffer et al., 2006; Rutledge & Sher, 2001). Conformity motives were also associated with greater frequency of binge drinking (Hartzler & Fromme, 2003; Kong & Bergman, 2010; Martens et al., 2008; Merrill & Read, 2010; Weitzman et al., 2003) and alcohol related problems (Carey & Correia, 1997; Cooper, 1994; Kong & Bergman, 2010). However, these findings are less consistent as several studies have not identified a relationship between conformity motives and alcohol use behaviors (Crutzen et al., 2013; Kuntsche & Cooper, 2010; White et al., 2016).

While the literature on coping and enhancement motives is consistent, suggesting relationships to high-risk substance use and substance use problems, there are mixed findings regarding social and conformity motives. The contradictory findings suggest that additional research is needed to determine the association between these motives and problematic alcohol use.

Previous findings suggest that certain individual factors and underlying mechanisms may help us identify those at risk for developing alcohol use problems prior to the onset of dependence (American Psychiatric Association, 2013). It is necessary to further our understanding of why some individuals may be motivated to drink for certain reasons as this may help predict those at greatest risk for future alcohol related problems, including addiction and dependence (Kairouz et al., 2002). It is of great importance to identify individual differences, including trait level variables that may put some people at risk for developing certain motives for alcohol use, especially when they are introduced to environments where alcohol use is prominent. Identifying such factors has significant clinical relevance to help advance preventative interventions for at-risk students. One such factor, which has received some attention in the literature, is EI.

Emotional Intelligence

History and theoretical conceptions of emotional intelligence.

Peter Salovey and John Mayer first identified EI as construct in their landmark paper in 1990. Since that time, EI has been popularized in mainstream psychology and has become one of the most widely studied constructs in the field. EI "involves the accurate appraisal and expression of emotions in oneself and others and the regulation of emotion in a way that

enhances living" (Mayer et al., 1990, p.772). In more simple terms, EI is the integration of cognitions and emotions (Goleman, 1995; Salovey & Mayer, 1990).

There is some controversy in the field regarding the best way to conceptualize EI. It is a somewhat elusive construct as no one definition or model is universally accepted. Two broad theories of EI have emerged over the past few decades, including ability models and mixed models (Bar-On, 1997, 2002; Mayer, Salovey, & Caruso, 2000; Pérez, Petrides, & Furnham, 2005; Pfeiffer, 2001). Each of these paradigms evaluates the construct in a distinct way, though there is considerable overlap across the models. The following sections provide a succinct overview of ability models and mixed models, as well as measurement styles.

Ability models.

Ability models of EI view EI as an ability, distinct from a personality trait. Ability models of EI emphasize the use of emotional skills and the ability to process and reason about emotion (Brackett & Mayer, 2003; Mayer & Salovey, 1997). Salovey and Mayer (1990, p.189) describe EI as "the ability to monitor one's own and others' feelings and emotions, to discriminate among them and to use this information to guide one's thinking and actions". Ability models are also often defined as performance-based EI, because of the particular type of assessment used to measure the construct within these models. The Salovey and Mayer (1990, 1997) model of EI is an ability or performance model, as it views EI as a cognitive skill which has the capacity to be further developed through experience and learning. Within this theoretical conception, EI is viewed as a distinct type of intelligence (Mayer, Salovey, Caruso, & Sitarenios, 2001; Mayer et al., 2004; Stottlemyer, 2002; Stys & Brown, 2004).

Over time, Salovey and Mayer have further defined EI as including four primary branches: using emotions, perceiving emotions, understanding emotions, and managing emotions

(Mayer & Salovey, 1997; Mayer, Salovey, & Caruso, 2008). Using emotions involves the intersection of emotions and thoughts, and includes using emotion to help facilitate thinking. Perceiving emotions involves the accurate perception of emotion in oneself as well as in others. Perception of emotions often relies on nonverbal cues, such as reading sadness on someone's face. Understanding emotions involves relying on language, signals, and underlying factors which may influence emotions. Finally, managing emotions involves emotion regulation to facilitate attaining one's goals (Mayer & Salovey, 1997; Mayer et al., 2008). A criticism of ability models is that they do not account for the subjective experience of emotionality given its conceptualization as a cognitive ability which can be measured based upon performance (Brody, 2004; Matthews, Roberts, & Zeidner, 2004; Petrides et al., 2007). Ability models are also criticized by researchers who feel that EI is not a real form of intelligence (Pfeiffer, 2001).

Proponents of ability models of EI suggest that the most valid way to assess the construct is by measuring it in terms of skills and competencies (Mayer, Caruso, & Salovey, 1999). As ability models conceive that emotional abilities are a form of intelligence, maximum performance tests based upon testing cognitive emotional processing are used to assess ability EI. One such test of ability EI is the Mayer-Solvey-Caurso EI Test (MSCEIT; Mayer, Salovey, & Caruso, 2002), which assess experiential EI (perceiving emotions and using emotions) and strategic EI (understanding emotions and managing emotions) (Matthews, Zeidner, & Roberts, 2012; Mayer, Salovey, & Caruso, 2001; Salovey, Stroud, Woolery, & Epel, 2002, Austin, Saklofske, Egan, 2005, Brackett & Mayer, 2003, Pérez et al., 2005).

An emerging measurement method of ability EI is the situational judgement test (Legree, Psotska, Tremble, & Bourne, 2005; MacCann & Roberts, 2008; Matthews et al., 2012). The situational judgement test involves choosing the most appropriate emotional response to a

hypothetical scenario (MacCann & Roberts, 2008). Some of the subscales of the MSCEIT utilize a situational judgement test format, including the emotion management scale. The situational judgement test is considered a reliable way to assess one's ability EI (i.e., performance-based EI) as they do not require self-assessment, but are instead based upon performance and one's best guess of what emotional response or reaction is most appropriate for the situation (Matthews et al., 2012). Some situational judgement tests that have been used increasingly in research are the Levels of Emotional Awareness Scale (Lane, Quinlan, Schwartz, Walker, & Zeitlin, 1990), the Situational Test of Emotion Management (STEM, McCann & Roberts, 2008) and the Situational Test of Emotional Understanding (STEU, MacCann & Roberts, 2008). The STEM and the STEU are based upon Mayer & Salovey's (1997) conception of EI and align with two of the facets proposed in their model, including emotional understanding and emotion management (MacCann & Roberts, 2008; Matthews et al., 2012).

Mixed models.

The second well-researched model of EI is called the mixed model, also sometimes referred to as trait EI or perceived EI (Bar-On, 1997; 2002; Goleman, 1995). Mixed models of EI suggest that the construct is comprised of both abilities and traits (Neubauer & Freudenthaler, 2005). This comprehensive model includes a range of abilities, psychosocial factors, and one's self-perceived emotional competency and is sometimes considered a lower-level personality characteristic (Petrides & Furnham, 2001; Petrides et al., 2007). In addition to mental abilities, mixed models sometimes includes traits such as optimism, assertiveness, impulsiveness, motivation, and subjective well-being (Bar-On, 1997; Goleman, 1995).

The mixed model of EI was first popularized by Daniel Goleman in his book *EI,* published in 1995. Goleman describes five major components of EI, including self-awareness,

self-regulation, motivation, empathy, and social skills. According to Goleman's theory, self-awareness involves the ability to recognize and understand one's own emotions, as well as the impact these might have on others. Self-regulation refers to the ability to control or regulate emotions and consider consequences and outcomes before acting on emotions. Motivation is the ability to overcome obstacles to achieve goals. Empathy involves accurately perceiving the emotional experience of others. Finally, social skills refers to one's ability to build, manage, and influence interpersonal relationships.

Bar-On (1997, 2002) has also developed a model of EI, which falls under the mixed conceptualization. Bar-On (2010, p.57) describes that EI is comprised of an "array of interrelated emotional and social competencies and skills that determine how effectively individuals understand and express themselves, understand others and relate with them, and cope with daily demands, challenges, and pressures." The Bar-On (1997, 2002) mixed model of EI includes five primary factors: interpersonal skills, intrapersonal functioning, stress management, adaptability, and mood. Within this model, interpersonal skills involve factors such as empathy, social responsibility, and interpersonal relationships (Neubauer & Freudenthaler, 2005). This factor involves being aware of other's emotions, understanding their emotions, and developing and maintaining meaningful social relationships (Bar-On, 2002; Neubauer & Freudenthaler, 2005). Intrapersonal functioning involves self-awareness, assertiveness, independence, as well as self-actualization (Neubauer & Freudenthaler, 2005). This factor involves the ability to be aware of and understand one's own emotions, the ability to express such emotion, as well as be self-directed and recognize one's potential. Stress management involves stress tolerance and impulse control (Neubauer & Freudenthaler, 2005) and requires actively coping with stress and regulating emotions (Bar-On, 2002). Adaptability is comprised of problem solving and

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flexibility, and involves the ability to flexibly alter emotions dependent on the situation as well as constructively solving personal and social problems (Bar-On, 2002; Neubauer & Freudenthaler, 2005). Finally, mood involves the ability to feel positive emotions, such as happiness and optimism (Bar-On, 2002; Neubauer & Freudenthaler, 2005).

One of the distinguishing characteristics of mixed models, and also one of the biggest criticisms of these models, is that they rely on an individual's self-assessment of their traits and abilities (Brackett & Mayer, 2003). Relying on one's perception of their own EI may be inaccurate, or may assess something different from ability EI (Brackett & Mayer, 2003). Additionally, given that mixed models of EI encompass emotional, psychosocial, and personality factors, these models have been criticized as being too broad of a construct which includes too many abilities (Brackett & Mayer, 2003). On the contrary, mixed EI is favored in some respects because it is considered to encompass the subjective nature of emotions (Petrides et al., 2007). Further, while mixed EI has been found to overlap with personality traits to some extent, research has found that it also accounts for substantial unique variance as well (Van Rooy & Viswesvaran, 2004).

The exact traits and abilities included in this conceptualization are often dictated by the measure that is used, as many trait measures of EI exist and each gather unique information. The Bar-On EI Inventory (EQ-i:S; Bar-On, 1997) is one of the most widely used mixed-model assessment tool and evaluates each of the five primary factors of Bar-On's mixed model (Bar-On, 1997). The EQ-i:S is a self-report measure which requires individuals to self-assess their emotional skills and traits. An additional measure considered to fall under the mixed model of EI is the Schutte Self-Report EI Test (SSEIT, Schutte, Malouff, Hall, Haggerty, & Cooper, 1998). Though this measure is based upon Mayer and Salovey's four-branch model of EI (1990,

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1997), it is not considered an ability measure as it relies upon self-report. An additional measure used in research to assess perceived EI is the Trait Meta-Mood Scale (Salovey, Mayer, Goldman, Turvey, & Palfai, 1995). The authors of this measure suggest it should be interpreted as EI self-efficacy, or one's beliefs about their own EI (Salovey, Stroud, Woolery, & Epel, 2002).

Concluding thoughts on conceptualization.

A meta-analysis of EI research found that while there is overlap between cognitive intelligence as well as personality, EI is a unique construct (Van Rooy & Viswesvaran, 2004). The different proposed models of EI are not necessarily contradictory, but offer different perspectives on the construct of EI (Schutte et al., 1998). Despite different conceptualizations, researchers generally agree that EI involves the ability to express and monitor one's own emotions, perceive and distinguish the emotions of others, as well as the ability to use this information in a meaningful way to guide actions and thinking (Carr, 2009; Elam, Stratton, & Andrykowski, 2001).

Brief overview of empirical findings.

The research on EI over the past several decades is extensive. This section is not intended to be a comprehensive review of the literature, but a brief overview of some of the key empirical findings. Some sex differences have been identified in the literature, suggesting that women may have slightly higher EI than men (Allen et al., 2015*;* Goldenberg, Matheson, & Mantler, 2006; Mayer et al., 1999; Mayer et al., 2000; Schutte et al., 1998; Van Rooy, Alonso, & Viswesvaran, 2005). Sex differences in EI are not fully understood, though neurological differences in emotional processing areas of the brain may help explain such findings (Gur, Gunning-Dixon, Bilker, & Gur, 2002).

Evidence suggests that in all models, higher EI is associated with better interpersonal relationships, including more satisfying friendships as well as romantic relationships (Bar-On & Parker, 2000; Brackett, Mayer, & Warner, 2004; Brackett, Warner, & Bosco, 2005; Lopes, Grewal, Kadis, Gall, & Salovey, 2006; Mayer et al., 1999; Van Rooy & Viswesvaran, 2004). Similarly, EI is related to better psychosocial functioning and better social support (Brown & Schutte, 2006). Individuals with higher EI also report greater emotional stability (Van Rooy & Viswesvaran, 2004) and psychological health (Dawda & Hart, 2000; Martins, Ramalho, & Morin, 2010; Matthews, Zeidner, & Roberts, 2002; Tsaousis & Nikolaou, 2005; Slaski & Cartwright, 2002), which may also make them more attractive friends or romantic partners. EI may also have implications for career success as higher EI is related to greater employment success (Lopes et al., 2006), as well as ability to cope with stress and work well with coworkers (Lopes et al., 2006). Overall, research supports that individuals with higher EI, across both models, often experience higher reported life satisfaction (Austin et al,. 2005; Gannon & Ranzijn, 2005; Law, Wong, & Song, 2004; Palmer, Donaldson, and Stough, 2002).

In contrast, individuals with lower EI report greater conflict in relationships and may have a more challenging time sustaining interpersonal relationships (Brackett et al., 2005). Lower EI has also been linked to several addictive behaviors including internet addictions (Parker, Taylor, Eastabrook, Schell, & Wood, 2008), gambling (Kaur, Schutte, and Thorsteinson, 2006; Parker et al., 2008), as well as greater substance use (Austin et al., 2005; Brackett & Mayer, 2003; Brackett et al., 2004; Ghee & Johnson, 2008; Hill & Maggi, 2011; Limonero, Tomás-Sábado, & Femández-Castro, 2006; Riley & Schutte, 2003; Trinidad & Johnson, 2002; Trinidad, Unger, Chou, & Anderson Johnson, 2004).

Emotional intelligence and motives for alcohol use.

Empirical research suggests an association between lower EI and poorer coping methods, including alcohol use, as well as interpersonal difficulties (Bar-On & Parker, 2000; Bibi, Kazmi, Chaudhry, & Khan, 2015; Brackett et al., 2004; Brackett et al., 2005; Lopes et al., 2006; Mayer et al., 1999; Van Rooy & Viswesvaran, 2004). Based upon these and other empirical findings, this paper proposes a theory that deficits in EI may be significantly associated with certain alcohol use motives (Figure 2). By predicting alcohol-use motives through an EI pathway, individuals at greatest risk for alcohol related problems may be identified before problematic drinking begins. Among alcohol-use motives, there seems to be stronger theoretical rationale and indirect empirical data to support the notion that low EI will be related to negative reinforcement motives, including coping and conformity motives for alcohol use.
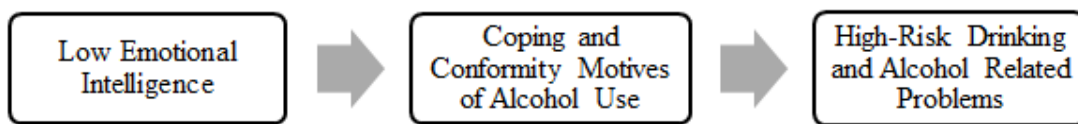
Figure 2: The pathway between EI and motives for alcohol use

Conformity and emotional intelligence.

EI is important as it helps people accurately identify and use emotions to guide thinking and behavior. When this is not fully developed it may cause difficulties in daily life, including with interpersonal relationships. Individuals with lower EI tend to have more social difficulties and experience poorer friendships and relationships (Brackett et al., 2005; Lopes et al., 2004). The role of EI in helping individuals facilitate and navigate social situations and activities may help explain these findings. Social interactions may be better facilitated by individuals with higher EI because they are better at understanding the emotions of others and communicating in

social situations. Specifically, those with lower EI may have a more difficult time managing their own thoughts and feelings as well as understanding others (Bar-On & Parker, 2000; Keltner & Haidt, 2001). This suggests that individuals with lower EI might have a more difficult time asserting themselves during situations where alcohol is involved and may conform to the actions of others around them, choosing to drink to fit in. Further, situations where alcohol and peer pressure to use alcohol is present may pose a significant risk to those with lower EI, making the college environment a particularly risky setting for those who are most vulnerable.

As such, some researchers have postulated that individuals with higher EI may be better at withstanding peer pressure compared to those with lower EI (Austin et al., 2005; Riley & Schutte, 2003; Trinidad & Johnson, 2002). Within the Mayer and Salovey (1997) model of EI, trouble standing up to one's peers might be explained by deficits in the managing emotions and understanding emotions of others branches. Individuals with lower EI in these branches may find it difficult to accurately identify, understand, and manage unwanted peer pressure (Trinidad & Johnson, 2002). Therefore, they may be less resistant to peer pressure due to poorer ability to understand and regulate emotions (Davis, Hurt, Morse, & O'Brian, 1987). Further, Trinidad & Johnson (2002) suggest that individuals with higher EI may be better able to use more advanced coping strategies to manage the stress of peer pressure and may be more comfortable discussing their feelings with others (Trinidad & Johnson, 2002; Mavroveli, Petrides, Rieffe, & Bakker, 2007). This relates to the conformity motive of alcohol use as those with lower EI might not be able to manage the stress of peer pressure, therefore giving in to drinking because others around them encourage drinking.

Research has found that higher EI is related to greater social competence and leadership (Mavroveli et al., 2007). Individuals who display these traits are also less likely to change their

behaviors to conform to expectations of others, and may be less likely to be swayed by peer pressure. Further, individuals who demonstrate fewer interpersonal skills such as assertiveness or leadership are likely to have lower EI (Kunnanatt, 2004). Within some models of EI, assertiveness is considered one trait which comprises the EI construct (Bar-On, 1997), indicating that individuals with lower EI may inherently have a more difficult time asserting themselves while experiencing peer pressure and may be more likely to try and conform with social norms. Further, difficulty managing emotions has been linked to impulsivity. Deficits in one's ability to manage their emotions may play a significant role in drinking for conformity reasons. When pressured to drink by peers, individuals with poorer emotion management may react impulsively and conform to group norms (Matthews et al., 2002; Schutte et al., 1998)

During the college years, there is an increased desire to be accepted by one's peers. If one is unable to manage and understand their emotions in a particularly stressful situation involving pressure from peers to drink, they may be more likely to succumb to this pressure. Individuals with lower EI may have a harder time navigating challenging situations, which involve conforming to dangerous behaviors, such as high-risk drinking.

Coping and emotional intelligence.

Despite what some may think, individuals with higher EI do not necessarily experience fewer distressing emotions. In fact, some studies have suggested that individuals with higher EI may actually experience greater distress when presented with a negative or stressful situation (Arora et al., 2011; Petrides & Furnham, 2003). One hypothesis which may help explain these findings is that those with higher EI may have more attuned emotional sensitivity and may experience emotions to a greater degree (Petrides & Furnham, 2003). However, there is also evidence suggesting the reverse, where college students with higher EI report lower stress levels

(Gohm, Corser, & Dalsky, 2005; Landa, Lopez-Zafra, Martos, & Aguilar-Luzon, 2008). Similarly, research suggests that higher EI promotes greater resilience to stressful experiences (Laborde, Brüll, Weber, & Anders, 2011; Mikolajczak, Roy, Luminet, Fillée, & de Timary, 2007).

While they may experience less, the same, or greater levels of distress as their lower-EI peers, evidence suggests that individuals with higher EI are better able to cope with and recover more quickly from negative emotions, stress, and challenges in life (Arora et al., 2011; Bar-On, 1997; Por, Barriball, Fitzpatrick, & Roberts, 2011; Salovey, Bedell, Detweiler, & Mayer, 1999; Salovey et al., 2002; Schutte, Malouff, Simunek, Hollander, & McKenley, 2002; Taylor, 2001). Specifically, studies show that higher EI is associated with more adaptive coping styles (Gohm et al., 2005; Landa, et al., 2008; Mikolajczak, Petrides, & Hurry, 2009; Salovey et al., 1999; Salovey et al., 2002). Evidence of better coping abilities was found in one study where individuals with higher EI habituated more quickly to stressors compared to those with lower EI (Salovey et al., 2002).

One hypothesis which helps explain the association between EI and adaptive coping is that individuals with higher EI have better insight into their emotions, including their experience of negative emotionality, and may be more capable of choosing appropriate and adaptive coping methods (Bibi et al., 2015). In contrast, individuals who have a more difficult time identifying their emotional experience may have less insight into what would help them cope adaptively (Bibi et al., 2015). An additional way to explain these associations is that the understanding of emotions and the ability to manage one's own emotions may allow for the use of a range of flexible coping strategies as opposed to sole use of maladaptive coping (Davis & Humphrey, 2012).

In contrast, college students with lower EI have been found to cope worse with stress (Görgens-Ekermans & Brand, 2012; Por et al., 2011; Riley & Schutte, 2003) and recover more slowly from stressful experiences as compared to their high-EI peers (Arora et al., 2011). Given their difficulty adaptively coping with distressing emotions or situations, students with lower EI may be more likely to use substances as an unhealthy or maladaptive means to reduce stress. These findings directly relate to coping motives for alcohol use and shed light on potential risk factors for individuals who experience alcohol related problems and engage in high-risk drinking. For emerging adults beginning college, there is increased distress associated with academic challenges, living independently, and new social experiences. This, coupled with a loss of traditional support system, may lead to students needing to find new ways to cope with distress. In regard to college students, those with lower EI might be more likely to use alcohol to cope with negative emotions as well as new and often challenging and distressing life circumstances (Borsari et al., 2007; O'Conner & Colder, 2005; Rutledge & Sher, 2001).

Emotional intelligence and alcohol use.

Although there have not yet been any empirical studies on EI and motives for alcohol use, there have been studies examining alcohol use and EI. These studies have generally found a relationship between alcohol use and EI and the outcomes of these relationships are consistent with outcomes of motives for alcohol use. The following 10 studies have begun to investigate this relationship and provide a foundation for the current research project and hypotheses.

A study by Brackett et al. (2004) investigated the relationship between an ability model of EI and daily behavior in a sample of college students ($N = 300$). Researchers used the Mayer-Salovey-Caruso EI Test (MSCEIT; Mayer et al., 2002) to assess EI. The MSCEIT has four subscales: perceiving emotion, using emotion to facilitate thought, understanding, and managing

emotions. These four subscales are clustered in two area scores: experiencing EI (perceiving emotions subscale and using emotion to facilitate thought subscale) and strategic EI (understanding emotion subscale and managing emotions subscale). The College Student Life Space Scale (Brackett, 2001) was used to evaluate a number of different domains in college student life, including alcohol use. Regarding alcohol use, experiencing EI ($r = -.32$, $p < .05$) and total EI ($r = -.28$, $p < .05$) were negatively correlated with alcohol consumption in males only.

A study using an undergraduate sample ($N = 248$) measured EI using the Schutte Self Report EI Test (Ghee & Johnson, 2008, Schutte et al., 1998). Alcohol use was measured via The Campus Survey of Alcohol and Other Drug Norms (Core Institute, 1997) and included data on student's reported alcohol use, perceived alcohol peer frequency, and perceived alcohol peer amount. Correlation analyses indicate that there was no significant relationship between EI and alcohol use. Hierarchical multiple regression revealed there was an interaction effect between EI and the perceived alcohol peer frequency and perceived alcohol peer amount variables ($r = .35$, $p < .01$). Specifically, there was a stronger relationship between perceived alcohol peer frequency and amount in individuals with lower EI. There was also a stronger relationship between alcohol use and perceived alcohol peer amount for students with lower EI ($r = .57$, $p < .01$). This is concerning as research has demonstrated that individuals who perceive that their peers drink heavily are less likely to be able to identify their own drinking problems (Novak & Crawford, 2001).

Riley and Schutte (2003) investigated the relationship between EI and substance-use problems in 141 adult participants in Australia. Participants completed the Self-Administered Alcoholism Screening Test (Hurt, Morse, & Swenson, 1980; Swenson & Morse, 1975) to assess

levels of alcohol use. The Schutte Self Report EI Test (Schutte et al., 1998) was completed as a measure of EI and psychosocial coping was assessed by the Behavioral Attributes of Psychosocial Competence Scale (Zea, Reisen, & Tyler, 1996). Correlation analyses suggest that lower EI is significantly associated with more alcohol related problems ($r = -.34$, $p < .05$), as well as poor psychosocial coping skills ($r = .62$, $p < .01$).

Researchers used the Schutte Self Report EI Test (Schutte et al., 1998) to assess EI in a sample of college students ($N = 362$) from Canada (Saklofske, Austin, Galloway, & Davidson, 2007). Participants also completed a health questionnaire (Roininen, Lahteenmaki, & Tuorila, 1999) which assessed weekly alcohol consumption. There was no significant relationship between EI and alcohol use.

Researchers examined the relationship between alcohol use and its relationship to EI in a sample of college students ($N = 199$, Claros & Sharma, 2012). Students completed the Schutte Self Report EI Test (SSEIT, Schutte et al., 1998) and the Alcohol Use Disorders identification test (AUDIT, Bohn, Babor, & Kranzler, 1995). Regression analyses indicate that the manage emotions subscale of the SSEIT significantly predicted alcohol use ($B = -.310$, $p < .05$). Researchers reported that the regulating emotions ($r = -.216$), utilizing emotions ($r = -.258$), and the managing emotions ($r = -.311$) subscales of the SSEIT were associated with alcohol use. It is noteworthy to mention that researchers did not provide significance values for the correlation analyses.

Alcohol-dependent subjects going under protracted recall were studied in regard to EI, alcohol craving, and affect (Cordovil de Sousa Uva et al., 2010). A sample of 41 participants, who were currently undergoing detoxification for alcohol, completed the obsessive-compulsive drinking scale (Anton, Moak, & Latham, 1996) to assess for alcohol cravings, the positive

affectivity negative affectivity schedule (PANAS, Watson, Clark, & Tellegen, 1988) to assess

negative and positive mood, as well as the Trait EI Questionnaire (Petrides & Furnham, 2003;

Mikolajczak et al., 2007) to assess EI. Participants completed the study battery at two time

points, once a day one of detox and at the end of the withdrawal period (14-18 days into

treatment). Findings revealed significant negative correlations between alcohol craving and EI at

both time points, indicating that those who had lower EI experienced more significant cravings.

Hierarchical regressions suggest that patients with higher EI experienced smaller cravings at the

second time point ($B = -.52$, $p < .001$). Further, an interaction between negative mood and EI

was observed ($B = -.41$, $p < .005$) where negative mood was associated with craving only for

those with lower EI scores.

Researchers investigated the relationship between EI and binge drinking and alcohol

related problems in a sample of 100 Australian participants (Schutte et al., 2011). EI was

assessed using two measures, the Schutte Self Report EI Test (SSEIT, Schutte et al., 1998) as

well as the MSCEIT (Mayer et al., 2002). The Young Adult Alcohol Consequence Questionnaire

was used to measure drinking-related problems. Heavy episodic drinking was measured using a

3-item index (Turrisi, 1999). Correlational findings indicated that MSCEIT ($r = -.30$, $p < .01$)

and the SSEIT ($r = -.27$, $p < .01$) were significantly negatively correlated with alcohol problems.

Both MSCEIT ($r = -.21$, $p < .05$) and SSEIT ($r = -.26$, $p < .05$) were also significantly negatively

correlated with heavy episodic drinking. Further, results of mediation test indicated that EI, as

measured by the SSEIT, mediated the relationship between the MSCEIT and alcohol problems

and heavy episodic drinking ($p < .05$).

Study participants included college students and employees ($N = 365$, Tsaousis &

Nikolaou, 2005). Participants completed the Traits EI Questionnaire (TEIQ, Tsaousis, 2003) and

the ASSET (Cartwright & Cooper, 2002) which assessed health behaviors including average weekly number of alcohol units. Correlational analyses found that weekly alcohol units was significantly negatively correlated with the understanding and reasoning subscale of the TEIQ ($r = -.15$, $p < .05$), but did not have significant correlations with the total score or the other subscales.

In a comprehensive measure validation study by Brackett and Mayer (2003), the relationship between EI and alcohol use was investigated. Their study included 207 college students who completed the Mayer-Salovey-Caruso EI Test (MSCEIT, Mayer et al., 2002), the Bar-On EI Inventory (Bar-On, 1997), and the Schutte Self Report EI Test (SSEIT, Schutte et al., 1998). Participants also completed an external life space criteria which measured smoking, drug use, and alcohol consumption. Alcohol consumption was measured by items including how many bottles of beer or liquor one owns and how many times one has fallen asleep due to intoxication. Findings were inconsistent across the different measures of EI. The Bar-On EI Inventory was significantly negatively correlated with alcohol use ($r = -.20$, $p < .001$). Alternatively, MSCEIT and SSEIT had no relationship any alcohol use variables.

In a study by Austin et al. (2005), a large sample ($N = 704$) of undergraduate students from Canada and Scotland completed a battery of measures aimed at further understanding the relationship between EI and health related variables. Researchers measured EI using the Schutte Self Report EI Test (SSEIT, Schutte et al., 1998) as well as the Bar-On EQ-I short form (Bar-On, 2002). To gage alcohol use, participants reported on how many alcoholic drinks they consumed over the course of the week. The study, which presented solely correlational data, concluded that alcohol consumption was negatively correlated with scores on the SSEIT ($r = -.19$, $p < .05$). The correlation for the Bar-On EQ-I short form and alcohol consumption was not provided. Further,

the authors did not provide analyses regarding the correlation between individual subscales of EI and alcohol consumption.

While the small number of studies described above have begun to explore the relationship between EI and alcohol use, few have provided empirical evidence to explain why the two constructs are related. One pathway that may help explain this relationship is through the motivational model of alcohol use. However, no existing studies have explicitly explored the mediating relationship between alcohol use motives, EI, and alcohol use. Theoretical evidence, including the proposed relationship between coping and conformity motives and EI, helps explain this relationship.

Summary of emotional intelligence.

EI has been studied extensively over the past several decades. Research suggests that EI may be a protective factor in regards to experiencing interpersonal conflict and addictive behaviors (Bar-On & Parker, 2000; Brackett et al., 2004; Brackett et al., 2005; Lopes et al., 2006; Kaur et al., 2006; Mayer et al., 1999; Parker et al., 2008; Van Rooy & Viswesvaran, 2004). Two primary models of EI have emerged, including ability EI (i.e., performance-based) and the mixed model of EI (i.e., perceived), each offering distinct conceptions of EI. Differences in measurement (self-report vs. performance measures) may capture different aspects of the construct, suggesting the importance of critically evaluating the literature of each model of EI in relation to alcohol use motives and alcohol use.

Research suggests a theoretical connection between EI and coping and conformity motives of alcohol use. Individuals with lower EI have poorer social relationships and more interpersonal problems (Brackett et al., 2005; Lopes et al., 2004). They may have a more difficult time understanding and managing their feelings, as well as asserting themselves to

others, and therefore may be more susceptible to peer pressure to drink (Austin et al., 2005; Bar-On & Parker, 2000; Keltner & Haidt, 2001; Riley & Schutte, 2003; Trinidad & Johnson, 2002). In regards to coping, the extant literature on EI suggests it likely plays a significant role in how individuals cope. Those with higher EI tend to cope more adaptively with distress and negative emotions as well as recover more quickly from stressful experiences (Arora et al., 2011; Gohm et al., 2005; Landa et al., 2008; Salovey et al., 2002). In contrast, individuals with lower EI have a more difficult time coping effectively and may be more likely to use alcohol to help reduce negative affect and distress (Arora et al., 2011; Görgens-Ekermans & Brand, 2012; Por et al., 2011; Riley & Schutte, 2003). These findings providing useful implications in two ways. First, lower EI may serve as a risk factor for individuals who develop coping and conformity motives in the future. Second, coping and conformity motives may help explain the relationship between EI and alcohol use.

Regarding the literature on alcohol use and EI, research has been conducted based upon different theoretical models and using different measures of EI. Findings across these studies have yielded similar results, suggesting there is a relationship between EI and alcohol use. In sum, a total of 10 studies were found which investigated the relationship between EI and alcohol use. Across the 10 studies, four different measures of EI were used, including performance and self-report measures. Further, several different variables of alcohol use were used across studies. These include alcohol use amount or frequency ($N = 7$), alcohol related problems ($N = 2$), alcohol craving ($N = 1$), binge drinking ($N = 1$), and peer frequency/amount ($N = 1$). Samples have included working adults, college students, and patients in inpatient substance abuse treatment in various locations include the United States, Canada, and Australia (Austin et al.,

2005; Cordovil de Sousa Uva et al., 2010; Ghee & Johnson, 2008; Riley & Schutte, 2003; Saklofske et al., 2007).

Three studies used a performance measure, specifically the MSCEIT (Mayer et al., 2002) to assess EI. Two of these studies found a significant negative relationship between EI and alcohol use, where lower EI was related to greater alcohol use (Brackett et al., 2004), as well as alcohol related problems and binge drinking (Schutte et al., 2011). A sex effect was observed in one study using performance-based measurement of EI, where only males with lower EI had higher alcohol consumption (Brackett et al., 2004). One study found no significant relationship between alcohol use and EI (Brackett et al., 2003). A total of nine studies used a self-report measure of EI. Of these studies, a significant relationship between EI and alcohol use (Brackett et al., 2004; Claros & Sharma, 2012; Tsaousis & Nikolaou, 2005), alcohol related problems (Riley & Schutte, 2003; Schutte et al., 2011), binge drinking (Schutte et al., 2011), and alcohol craving (Cordovil de Sousa et al., 2010) were identified. Two studies found non-significant associations between self-reported EI and alcohol use (Brackett et al., 2004; Saklofske et al., 2007) and one study reported no significant findings from the self-report EI measure used (Austin et al., 2005). One study using a self-report measure of EI found an indirect relationship between alcohol use and EI (Ghee & Johnson, 2008). Specifically, there was a stronger relationship between alcohol use and perceived alcohol peer amount for those with lower perceived EI (i.e., mixed or trait). This is an interesting finding as it suggests individuals with lower EI may have a more difficult time accurately perceiving the frequency and amount of alcohol that their peers are consuming. It may serve as additional evidence that individuals with lower EI may drink for conformity reasons, as they perceive that their peers are drinking more than may actually be true.

These findings suggest that while a relationship between EI and alcohol use likely exists, additional research is needed to replicate the results and identify specific factors that might influence this relationship. As there are limited studies examining this relationship, it is difficult to draw significant or meaningful conclusions from the existing data. Other factors, including motives for alcohol use, might be important mediators of the relationship between alcohol use and EI.

Concluding Summary

The extant research suggests that study of the emerging adult and college population is of great importance (Arnett, 2000; Arnett, 2015b). Given the unique and sensitive developmental period, attention to problematic behaviors, such as high-risk alcohol use, is imperative. While moderate and controlled drinking may not be problematic or dangerous, ample research suggests that alcohol use in college is neither moderate nor controlled. Frequently, dangerous behaviors such as binge drinking, blacking out, underage drinking, and drinking and driving occur, leading to concerning and sometimes fatal consequences (Bingham et al., 2005; Hingson et al., 2006; Hingson et al., 2009; Paschall, 2003; Paschall & Flewelling, 2003). Overall, college students who engage in high-risk alcohol use experience significant negative consequences as compared to their peers who do not engage in this type of drinking (Del Boca et al., 2004; Hingson et al., 2002; Jackson et al., 2001; Jennison, 2004; Miller et al., 2007; Sher & Gotham, 1999; Wechsler & Nelson, 2008). Research has suggested that one way to identify high-risk drinking is through a motivational model of alcohol use (Cox & Klinger, 1988). This theoretical model includes four distinct motives for alcohol use, including enhancement motives, social motives, coping motives, and conformity motives (Cooper, 1994; Cox & Klinger, 1988). The theory suggests

that individuals who drink for certain reasons may be more likely to experience negative

consequences or problems as a result (Cooper, 1994; Cox & Klinger, 1988).

While the research literature on motives for alcohol use is somewhat mixed, some

consistent patterns have emerged. All motives have been linked to higher-risk drinking,

including binge drinking (Abbey et al., 1993; Bradizza et al., 1999; Carey & Correia, 1997;

Cooper, 1994; Kong & Bergman, 2010; Lyvers et al., 2010; Mallett et al., 2013; MacLean &

Lecci, 2000; Martens et al., 2008; McNally et al., 2003; Pritchard et al., 2007; Rice & Van

Arsdale, 2010; Rutledge & Sher, 2001; White et al., 2016) and alcohol related problems (Lyvers

et al., 2010; Mallet et al., 2013; Martens et al., 2008; Read et al., 2003; Rice & Van Arsdale,

2010; White et al., 2016). Overall, enhancement motives and coping motives show the most

consistent relationship with these negative outcomes. Research on social motives and

conformity motives have been even less clear (Cooper, 1994; Crutzen et al., 2013; Kassel et al.,

2000; Kuntsche & Cooper, 2010; Labouvie & Bates, 2002; Lyvers et al., 2010; Read et al., 2003;

White et al., 2016). An individual factor, which might help predict those who use alcohol for

coping and conformity motives, is EI.

While limited, much of the research on EI and alcohol use suggests that lower EI may

place individuals at higher risk for using more alcohol and experiencing greater alcohol related

problems. Additionally, findings suggest that EI might also help explain perceptions of peer

substance use in college students (Ghee & Johnson, 2008). Studies have used performance and

self-report measures to assess EI across the research, and the majority of studies have yielded

significant results in the expected direction (Austin et al., 2005; Brackett et al., 2004; Claros &

Sharma, 2012; Cordovil de Sousa Uva et al., 2010; Riley & Schutte, 2003; Schutte et al., 2011;

Tsaousis & Nikolaou, 2005). Despite these mostly consistent findings, other results suggest that

such a relationship between EI and alcohol use might not be present (Brackett et al., 2003; Saklofske et al., 2007). Further research is needed to yield more generalizable conclusions about the relationship between these constructs as well as to help explain why this relationship exists.

Critical Analysis of the Literature

This section provides a critical overview of the literature with special attention to major limitations and gaps that warrant further investigation. By acknowledging these limits, areas for future research and exploration are revealed. The major limitation of this area of research is the limited number of studies. Research on the use of EI and alcohol use and EI and alcohol use motives is limited, and there is a clear need for further research on the relationships between these constructs.

Many of the studies used convenience samples, as they were taken from previously collected data sets or recruited from psychology departments, conferences, or community settings. This may be problematic in some cases as some individuals may be less likely to respond honestly if they know the researchers (e.g., professors of a class), or if their anonymity is not guaranteed. As the research topic (i.e., alcohol use) may be sensitive to some participants, it is essential that they feel comfortable answering these questions with assurance that their identity will not be known. Further, given that college students are vulnerable to adverse effects of alcohol use, additional college samples are needed.

Regarding design, all of the current research relies on quasi-experimental correlational or quasi-experimental comparative study designs. These approaches allow the basic relationships and directionality between constructs to be identified. In terms of statistical analyses, most of the studies conducted simple correlations or regressions analyses. While this information is

meaningful, more sophisticated analyses including mediation and moderation analyses might provide more specific information about the relationships between constructs.

A major concern of the research on EI and alcohol use is that often, drinking was not a main variable of the study. After review of the 10 studies examining alcohol use and EI, it was determined that in only half of these studies ($N = 5$) alcohol use was a primary variable. In the other half, the research fell under a broader umbrella of health related variables and EI. Given that alcohol use was not a primary focus of many of these studies, measurement and analyses were often limited. Alcohol use is an inherently difficult construct to measure, given that it relies on self-report of a personal and sometimes sensitive behavior. Therefore, it is important to assure the fidelity of the instruments that are used. While most studies did provide indication of the psychometric properties of the measures, many measures were not specific to measuring alcohol use, but instead measured a range of health and life variables, of which drinking was one. In some cases, this limited the scope of analyses as there were only a few questions regarding drinking behavior. Further, the measures of alcohol use relied on a self-reported average of past use, which may be inaccurate for some individuals as they might be unable or unwilling to report honestly. An alternative, but more time consuming approach, might be to have participants record their alcohol use over the course of a few weeks to a month to generate more reliable results. Alternatively, participants may retrospectively report their drinking over the past month which has been found to be representative of annual drinking behavior (Vakili, Carter, Sobell, Simco, Agrawal, & 2008).

There is also little specification in how alcohol use is defined across the literature. It is often reported as "alcohol use" or "alcohol consumption", but it is important to know if this is regarding frequency of use (days per week or month) or amount of drinks consumed (per day,

per week, or per month). Other studies have defined alcohol consumption as bottles of beer or liquor one owns, which may not be indicative of drinking patterns (Brackett & Mayer, 2003). These inconsistent definitions make it challenging to draw meaningful conclusions about the relationship between EI, alcohol use, and alcohol use motives. Only one study examined the relationship between binge drinking and EI, indicating a great need for additional research on the relationship between high-risk drinking and EI (Schutte et al., 2011). Further, only two studies investigated the relationship between EI and alcohol related problems (Riley & Schutte, 2003; Schutte et al., 2011). Examining alcohol related problems and binge drinking are essential as this provides direct evidence of high-risk drinking behavior and resulting problems rather than indirectly assuming problems exist due to greater alcohol use.

Regarding theoretical models of EI, some studies indicated their rationale for choosing a particular theory but some did not. Given the distinct conceptions of each model of EI, it is important to consider how each model might be uniquely related to alcohol use and drinking motives. The underlying explanations of why each model might share a relationship with these constructs may differ, and a better understanding of this will allow for more meaningful conclusions to be drawn. This might be addressed by including multiple measures of EI in studies to investigate how they might differently predict motives and alcohol use behavior.

A related limitation of the current research lies in the lack of ability EI (i.e., performance-based) measures in studies on alcohol use. As ability measures of EI evaluate cognitive processes via maximum performance tests and do not solely rely on self-report, they may be more difficult and time consuming administer to participants. Of the existing studies that have used a performance-based measure of EI, all have relied upon the Mayer-Solvey-Caurso EI Test (MSCEIT; Mayer, Salovey, & Caruso, 2002). No studies have used situational judgement tests

as a means of measuring EI as it related to alcohol use, leaving a wide gap in the research on

measurement techniques. It is important for future research to use different measures of

performance-based EI, such as situational judgement tests, to determine if findings are consistent

across different measures.

Research suggests that college students use alcohol to cope with negative affect or to fit

in with others. Endorsement of these motives of drinking has been associated with greater

alcohol use as well as alcohol related problems in several studies. Additional research to help

determine what factors or traits might be associated with these motives is imperative, as it may

provide implications for early identification of students at-risk for risky drinking behavior. No

studies have yet investigated the role of lower EI with regard to drinking motives, despite

evidence that EI and alcohol use and inversely related.

Further, while the current research has begun to shed light on the relationship between EI

and alcohol use, a major limitation of the existing research is that few studies have investigated

other factors that might help explain these relationships. One such pathway that may help

explain these relationships are negative reinforcement alcohol use motives, including coping and

conformity drinking motives. As the EI and coping literature suggests that those with lower EI

cope poorly, it is a reasonable hypothesis that those with lower EI may use substances to cope

with stressful life events. It is essential when conducting these analyses that stress is controlled

for, as it may be a confounding variable. Individuals with lower EI may experience greater stress

in general, which may cause them to be more likely to drink to cope as compared to their higher

EI peers. Controlling for this confound will help determine whether EI is associated with coping

motives, above-and-beyond perceived stressful experiences. Further, those with lower EI may

be more likely to drink for conformity reasons due to trouble deflecting peer pressure. Studies

examining these mediating relationships are needed to further uncover what might help explain these associations.

Based upon the literature supporting the significance of high-risk college student drinking as well as support for a relationship between EI and alcohol use motives, alcohol use, and alcohol related problems, the following research questions are explored:

Research Question 1: Are perceived and performance-based EI significantly associated with the four alcohol use motives, while controlling for stress?

Research Question 2: Are perceived and performance-based EI significantly associated with binge drinking frequency and alcohol related problems?

Research Question 3: Is the relationship between perceived EI and binge drinking frequency partially mediated by coping and conformity motives?

Research Question 4: Is the relationship between perceived EI and alcohol related problems partially mediated by coping and conformity motives?

Research Question 5: Is the relationship between performance-based EI and binge drinking frequency partially mediated by coping and conformity motives?

Research Question 6: Is the relationship between performance-based EI and alcohol related problems partially mediated by coping and conformity motives?

CHAPTER 3

METHODOLOGY

The purpose of this research is to determine the relationship between EI, college student's motivations to drink alcohol, and high-risk drinking. This chapter provides a comprehensive overview of the methodology used in this study. This section covers the research questions and hypotheses, participants, recruitment procedures, research design and variables, procedure, instrumentation, and data analyses.

Research Questions and Hypotheses

Research Question 1: Are perceived and performance-based EI significantly associated with the four alcohol use motives, while controlling for stress?

Perceived EI was measured using the Schutte Self Report EI Test (SSEIT, Schutte et al., 1998). Performance-based EI was measured using The Situational Test of Emotion Management-Brief (STEM-B, Allen et al., 2015; MacCann & Roberts, 2008). Drinking motives was measured using the Drinking Motives Questionnaire-Revised (DMQ-R, Cooper, 1994). Stress was measured by the Perceived Stress Scale-10 (PSS-10, Cohen & Williamson, 1988).

Hypothesis 1: Perceived and performance-based EI will be significantly inversely associated with *coping* and *conformity* drinking motives but not with *enhancement* and *social* drinking motives, when controlling for stress.

Research Question 2: Are perceived and performance-based EI significantly associated with binge drinking frequency and alcohol related problems?

Perceived EI was measured using the Schutte Self Report EI Test (SSEIT, Schutte et al., 1998). Performance-based EI was measured using The Situational Test of Emotion Management-Brief (STEM-B, Allen et al., 2015; MacCann & Roberts, 2008). Binge drinking frequency was

measured with a total score. Alcohol related problems was measured using the Rutgers Alcohol

Problems Index (RAPI-23, White & Labouvie, 1989).

Hypothesis 2: Perceived and performance-based EI will be significantly inversely associated

with binge drinking frequency and alcohol related problems.

Research Question 3: Is the relationship between perceived EI and binge drinking frequency

partially mediated by coping and conformity motives?

Perceived EI was measured using the Schutte Self Report EI Test (SSEIT, Schutte et al., 1998).

Binge drinking frequency was measured with a total score. Drinking motives was measured

using the Drinking Motives Questionnaire-Revised (DMQ-R, Cooper, 1994).

Hypothesis 3: Coping and conformity drinking motives will partially mediate the relationship

between perceived EI and binge drinking frequency.

Research Question 4: Is the relationship between perceived EI and alcohol related problems

partially mediated by coping and conformity motives?

Perceived EI was measured using the Schutte Self Report EI Test (SSEIT, Schutte et al., 1998).

Alcohol related problems was measured using the Rutgers Alcohol Problems Index (RAPI-23,

White & Labouvie, 1989). Drinking motives was measured using the Drinking Motives

Questionnaire-Revised (DMQ-R, Cooper, 1994).

Hypothesis 4: Coping and conformity drinking motives will partially mediate the relationship

between perceived EI and alcohol related problems.

Research Question 5: Is the relationship between performance-based EI and binge drinking

frequency partially mediated by coping and conformity motives?

Performance-based EI was measured using The Situational Test of Emotion Management-Brief

(STEM-B, Allen et al., 2015; MacCann & Roberts, 2008). Binge drinking frequency was

measured with a total score. Drinking motives was measured using the Drinking Motives Questionnaire-Revised (DMQ-R, Cooper, 1994).

Hypothesis 5: Coping and conformity drinking motives will partially mediate the relationship between performance-based EI and binge drinking frequency.

Research Question 6: Is the relationship between performance-based EI and alcohol related problems partially mediated by coping and conformity motives?

Performance-based EI was measured using The Situational Test of Emotion Management-Brief (STEM-B, Allen et al., 2015; MacCann & Roberts, 2008). Alcohol related problems was measured using the Rutgers Alcohol Problems Index (RAPI-23, White & Labouvie, 1989). Drinking motives was measured using the Drinking Motives Questionnaire-Revised (DMQ-R, Cooper, 1994).

Hypothesis 6: Coping and conformity drinking motives will partially mediate the relationship between performance-based EI and alcohol related problems.

Research Design & Variables

This study is a correlational cross-sectional design, meaning data collection occurred at one time point and will not include longitudinal research design. The study attempted to examine the relationship between individual differences in perceived and performance-based EI and clinically significant alcohol variables. Two variables of EI, including a measure of perceived EI and a measure of performance-based EI were predictor variables. Six alcohol variables, including enhancement drinking motives, social drinking motives, coping drinking motives, conformity drinking motives, binge drinking frequency, and alcohol related problems were criterion variables. Two alcohol variables, coping drinking motives and conformity

drinking motives, also served as a mediator variable. Stress was also included as a variable and controlled for during analyses in which it was believed it could be a confounding variable.

Emotional intelligence variables.

Data on both perceived (i.e., mixed) EI and performance-based (i.e., ability) EI was collected in this study. The purpose of this is to expand the research on both ability model measures and mixed model measures of EI in relation to alcohol use. This may also provide valuable information as to the specificity of perceived versus performance-based EI in predicting high-risk alcohol use. Perceived EI was measured using the total score on the Schutte Self-Report EI Test (Schutte et al., 1998). Performance-based EI was measured using the total score on the The Situational Test of Emotion Management-Brief (Allen et al., 2015; MacCann & Roberts, 2008).

Alcohol variables.

Six alcohol variables were collected for the purpose of this study. Enhancement motives, social motives, coping motives, and conformity motives are four alcohol variables and were measured by total subscale scores of the Drinking Motives Questionnaire (DMQ-R, Cooper, 1994). Previous literature on college student drinking highlights binge drinking as a primary indicator of high-risk drinking (Patrick, 2016; Wilke, Mennicke, Howell, & Magnuson, 2014). Therefore, data on binge drinking frequency was used to assess high-risk drinking. Binge drinking was measured with a total score using open response questions. For the purpose of this study, a binge episode was defined as five drinks for men and four drinks for women on one occasion. Binge drinking frequency was measured by the total number of binge episodes per month. Alcohol related problems were also assessed using the total score on the Rutgers Alcohol Problems Index (RAPI-23, White & Labouvie, 1989).

Confounding variables.

Stress may be a confounding variable in this study, specifically in regard to coping motives (F.Prevatt, personal communication, March 14, 2016) While some studies indicate similar levels of stress levels in individuals with high and low EI (Arora et al., 2011; Petrides & Furnham, 2003), other studies have found that people with lower EI report greater stress compared to those with higher EI (Gohm et al., 2005; Laborde et al., 2011; Landa et al., 2008; Mikolajczak et al., 2007). Further, stress predicts the dependent variable, coping motives (Rice & Van Arsdale, 2010). The relationship between lower EI and stress, as well as the relationship between stress and coping motives may explain why coping motives are endorsed by individuals with lower EI. It is important to determine whether EI is associated with coping motives above and beyond stressful events. Therefore, the Perceived Stress Scale-10 (PSS, Cohen & Williamson, 1988) was used to assess for stress. This variable was controlled for during analyses of EI and alcohol use motives to ensure that any relationship between EI and motives is not attributable to higher levels of stress.

Participants and Recruitment Procedure

Participants included undergraduate college students enrolled in a four-year college in the United States. Results of a priori power analyses suggested that a sample size of at least 275 participants was needed (see page 83 for detailed a-priori power analysis). The eligibility criteria for participation in the study includes being at least 18 years of age and being enrolled a four-year college or university in the United States.

Participants were recruited from two primary sources, including Florida State University, a large public university in the Southeast United States, and Amazon's Mechanical Turk system. Recruitment procedures at Florida State University involved both advertisement of the study and

inclusion of the study in Florida State University College of Education research participant pool

as well as the research studies at Florida State University recruitment website. Advertisement of

the study involved distribution of flyers throughout campus as well as throughout the local

community and online. Due to the possibility that one or more recruitment sources may result in

a disproportionately high number of female students, every effort was made to have a sample

which matches the male-to-female ratio of 45:55. This involved over-sampling for male

participants.

Instrumentation

The study included five measures as well as a screening questionnaire, demographic

questionnaire, and open response questions about drinking behavior, including: the Schutte Self

Report EI Test (SSEIT, Schutte et al., 1998), The Situational Test of Emotion Management-Brief

(STEM-B; Allen et al., 2015; MacCann & Roberts, 2008), the Drinking Motives Questionnaire

(DMQ-R, Cooper, 1994), the Rutgers Alcohol Problems Index (RAPI-23, White & Labouvie,

1989), and the Perceived Stress Scale-10 (PSS-10, Cohen & Williamson, 1988). Samples of the

informed consent and all measures can be found in Appendices B-K. The following section

provides an overview of each measure including the psychometric properties and rationale for

choosing each instrument.

Screening questionnaire.

A screening questionnaire was developed to diminish the number of ineligible

participants completing the survey. The screening questionnaire included two questions: "Are

you 18 years of age or older?" and "Are you currently enrolled as an undergraduate college

student attending a four-year university?" As these are the two primary eligibility criteria,

participants should answer "yes" to each question. If they answered "yes", they were directed to

the demographic questionnaire to continue participation in the study. If they answered "no",

they were thanked for their time and informed that they did not meet eligibility criteria for the

study.

Demographic questionnaire.

A demographic questionnaire was used to gather information about each participant.

Participants provided information on their age, sex, gender identity, race, and ethnicity, and

sexual orientation. They also responded to academic questions, including the name of the

college they were attending, year in college, Greek life involvement, and grade point average.

The demographic questionnaire helped determine how diverse and representative the collected

sample is.

Schutte self-report EI test.

The Schutte Self Report EI Test (SSEIT, Schutte et al., 1998) is a 33-item self-report

measure of EI based upon the Mayer and Salovey model of EI (Mayer & Salovey, 1997; Salovey

& Mayer, 1990). Items are scored on a five-point agreement Likert scale from 1 to 5 (1=strongly

disagree, 2=disagree, 3=neither disagree or agree, 4=agree, 5=strongly agree). Example items

include: "I find it hard to understand the nonverbal messages of other people", "I am aware of

my emotions as I experience them", "I know why my emotions change", and "I used good

moods to help myself keep trying in the face of obstacles". Items 5, 28, and 33 are reverse coded

and a total score is generated by summing all items scores. The minimum score on the SSEIT is

a 33 and the maximum score is a 165, with a higher score indicating greater EI.

The SSEIT is considered a measure of mixed or trait (i.e., perceived) EI as it is measured

via self-report. Findings suggest that ability and mixed measures of EI tend to correlate

moderately (Brackett & Mayer, 2003; Mayer et al., 2008; Schutte et al., 2011; Schutte, Malouff,

& Bhullar, 2009). The psychometric properties of the SSEIT are good and have been replicated

across studies. The internal consistency of the measure is strong ($\alpha = .90$) which has been

consistent at replication ($\alpha = .93$) (Brackett & Mayer, 2003; Schutte et al., 1998). Test-retest

reliability is also good ($r = .78$). Convergent validity has been confirmed in the expected

direction with the Toronto Alexithymia Scale ($r = -.65$, $p < .0001$), several subscales of the Trait

Meta Mood Scale (attention to feelings [$r = .63$, $p < .0001$], clarity of feelings [$r = .52$, $p <$

.0001], mood repair [$r = .68$, $p < .0001$]), as well as the Mayer-Salovey-Caruso EI Test ($r = .33$,

$p < .01$, Schutte et al., 2011). Convergent validity has also been confirmed on measures of

optimism, pessimism, depression, and impulsivity (Schutte et al., 1998). The SSEIT (Schutte et

al., 1998) has discriminant validity in regards to achievement and personality, as it was not

related to SAT scores and was unrelated to most personality scales (Schutte et al., 1998).

The SSEIT (Schutte et al., 1998) was selected for the study for several reasons. First, the

strong psychometric properties suggest it is a valid and reliable measure of EI (Schutte et al.,

1998). The SSEIT is based upon the theoretical model of EI described by Mayer & Salovey

(1997), which is one of the most widely acknowledged and researched models. It correlates

highly with a performance measure based upon this model (Schutte et al., 2011), but the self-

report nature increased feasibility in regards to time spent by participants. Further, results of

mediation analyses indicated that EI as measured by the SSEIT mediated the relationship

between the MSCEIT and binge drinking, indicating that the SSEIT might better explain the

relationship between EI and alcohol use. Finally, many ($N = 7$) of the studies on alcohol use and

EI have used the SSEIT. As this is the first study examining alcohol use motives, EI, and

alcohol use it is beneficial to use a measure that can be compared to several previous studies.

Situational test of emotion management-brief.

The Situational Test of Emotion Management-Brief (STEM-B) is an 18-item, multiple choice, situational judgement test of EI (Allen et al., 2015; MacCann & Roberts, 2008). The STEM-B is a measure of ability EI (i.e., performance-based) as it relies upon individual's performance and emotional skill as opposed to self-assessment.

The original STEM (full test) is 44 items and was developed using qualitative analysis of semi-structured interviews of emotional experiences. Scoring is based upon experts in emotion management (Matthews et al., 2002; MacCann & Roberts, 2008). A brief form of the STEM was developed using 3-parameter logistic item response theory and choosing items with 75% expert consensus (Allen et al., 2015). An example item includes: "Clayton has been overseas for a long time and returns to visit his family. So much has changed that Clayton feels left out. *What action would be the most effective for Clayton?* (a) Nothing – it will sort itself out soon enough. (b) Tell his family he feels left out. (c) Spend time listening and getting involved again. (d) Reflect that relationships can change with time." For each question, there is generally one answer which is considered the best option (answer C above). However, other answers may be acceptable and are awarded a smaller point amount. For example, answers B and D in the item above are considered acceptable, and are awarded a point amount of .16 and .083, respectively. Answer C, the best option, is awarded a point amount of .75. Answer A is awarded no points.

The brief version of the STEM was chosen for this study as it has been found to have higher internal consistency compared to the full version ($\alpha = .84$ vs. $\alpha = .68$). Convergent validity has been established and the measure is correlated with the Situational Test of Emotional Understanding ($r = .29$, $p < .001$), the Toronto Alexithymia Scale ($r = -.43$, $p < .01$), and the

Mayer-Salovey-Caruso EI Test ($r = .36$, $p < .001$) (Allen et al., 2015; Austin, 2010; MacCann & Roberts, 2008).

Drinking motives questionnaire-revised.

The Drinking Motives Questionnaire-Revised (DMQ-R, Cooper, 1994) is a 28-item self-report measure based upon Cox and Klinger's (1988) Motivational Model of Alcohol Use. The DMQ-R assesses four distinct motives for using alcohol, including Enhancement motives, Social motives, Coping motives, and Conformity motives. Each subscale is comprised of five items. The measure includes instructions to "decide how frequently your own drinking is motivated by each of the reasons listed". Example items from each subscale include: "Because you like the feeling" (Enhancement), "Because it improves parties and celebrations" (Social), "Because it helps you when you feel depressed or nervous" (Coping), and "To fit in with a group you like" (Conformity). All items are positively scored and are rated on a five-point frequency Likert scale from 1 to 5 (1=almost never/never, 2=some of the time, 3=half of the time, 4=most of the time, 5=almost always/always). Responses in each subscale are then totaled to generate subscale scores. A total score for the DMQ-R is generally not calculated though may be done by summing all responses

Regarding the psychometric properties of the DMQ-R, the four-factor structure of the measure has been confirmed (Cooper, 1994; Grant et al., 2007; MacLean & Lecci, 2000) and was shown to be superior to a single-factor model, two correlated two-factor models, and a correlated three-factor model (Cooper, 1994; MacLean & Lecci, 2000). The DMQ-R has good internal consistency on all three subscales: enhancement ($\alpha = .88$), social ($\alpha = .85$), coping ($\alpha = .84$), and conformity ($\alpha = .85$). Internal reliability of the scale was confirmed in undergraduate students, with internal consistency scores ranging from $\alpha = .81-.94$. Further, all scales have been

found to be reliable across subgroups of age, gender, and race (Cooper, 1994). Test-retest reliability of the DMQ-R has shown good to excellent consistency in scores in the college population over three months: enhancement ($r = .78$, $p < .001$), social ($r = .67$, $p < .001$), coping ($r = .68$, $p < .001$), and conformity ($r = .61$, $p < .001$) (Grant et al., 2007).

The DMQ-R was chosen for this study because it demonstrates strong psychometric properties and has been used widely in research on drinking motives (Kuntsche, et al., 2005). A comprehensive review of drinking motives found that 25 different measures were used across studies to measure drinking motives (Kuntsche et al., 2005). The majority of these (N=16) were unnamed measures. Findings of the review indicated that the DMQ-R (Cooper, 1994) was the most frequently used measure to assess drinking motives.

Drinking behavior.

To assess drinking behavior, including binge drinking frequency, four open response questions were asked. The questions were developed based upon similar questions asked in previous research (Siebert, Wilke, Delva, Smith, & Howell, 2003). Participants were instructed to answer the following questions while thinking about a typical month: "On how many days do you typically drink alcohol?", "On how many days do you have more than 4/5 drinks on one occasion?" [female/male version], "What is the typical number of drinks you have when you drink alcohol?", and "What is the maximum number of drinks you have on occasion in a typical month?" The second question was based upon the participant's sex, where females were asked how often they have had more than four drinks and males were asked how often they have had greater than five drinks. For the purpose of this study, the following variable was examined: binge drinking episode frequency over the past month (i.e., four drinks for women, five drinks for men on one occasion). This variable is captured by question two.

Rutgers alcohol problems index.

The Rutgers Alcohol Problem Index (RAPI, White & Labouvie, 1989) is 23-item self-report measure designed to assess alcohol related problems including interpersonal issues, academic or job problems, negative experiences while drinking, and emotional problems. Respondents respond to each item based upon the prompt: "How many times has this happened to you while you were drinking or because of your drinking during the last year?" Example items include: "Got into fights with other people (friends, relatives, strangers), "Neglected your responsibilities", "Noticed a change in your personality", "Missed a day (or part of a day) of school or work", and "Passed out or fainted suddenly". The RAPI requires a 12-year-old reading level and takes 10 minutes or less to complete. All items are positively scored and summed to generate a total score. Norms based on non-clinical sample indicate that the mean score for females is 7.4 and mean score for males is 8.2. There is no cutoff score on the RAPI-23, but higher scores are indicative of more alcohol related problems.

The RAPI-23 has strong internal reliability ($\alpha = .92$) as well as test-retest reliability at one month ($r = .89$), three months ($r = .92$), and one year ($r = .92$) (Miller et al., 2002; White & Labouvie, 1989). The RAPI-23 also has convergent validity between alcohol use intensity ($r = .35-.37$, $p < .01$), as well as good discriminant and construct validity (White, Filstead, Labouvie, Conlin, & Pandina, 1988; White & Labouvie, 2000; White & Labouvie, 1989).

The RAPI-23 was chosen because it specifically measures alcohol related problems, a construct being examined in this study. Further, the RAPI-23 has been frequently used with college students and has reliably identified alcohol related problems in this population (White, Lavouvie, & Papadaratsakis, 2005). While it has good convergent validity between alcohol use intensity, the moderate correlations suggest that identifying high-risk drinkers should include

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both measures of use and alcohol problems (White & Labouvie, 1989). The RAPI-23 has been modified for this study and students are asked to respond to the questions in regard to the past month. This was done as the other alcohol use measures in this study rely upon behaviors in the past month. This adjustment has been approved by the authors of the measure and has been made by previous researchers using the RAPI-23 with the college population (White & Labouvie, 1989; Wilke et al., 2014).

Perceived stress scale-10.

The Perceived Stress Scale-10 (PSS-10; Cohen & Williamson, 1988) is a 10-item self-report measure which assesses individual's perception of stress in their lives. Respondents are asked to respond on their feelings and thoughts in the last month, and indicate how often they have experienced feeling or thinking that way. Example items include: "In the last month, how often have you been upset because of something that happened unexpectedly?", "In the last month, how often have you felt nervous and "stressed"?", and "In the last month, how often have you felt difficulties were piling up so high that you could not overcome them?" Items are scored on a 5 point frequency Likert scale (0=Never, 1=Almost Never, 2=Sometimes, 3=Fairly Often, 4=Very Often). The PSS requires an 8th grade reading level and takes about five minutes to complete.

The PSS-10 has been extensively validated and has been used in both community and college samples. The internal validity of the measure is strong ($r = .78-.91$, Lee, 2012). Test-retest reliability after two weeks is .77 (Remor, 2006) and is between .72 and .88 for four weeks (Wongpakaran & Wongpakaran, 2010). The PSS-10 has concurrent validity with measures of post-traumatic stress arousal ($r = .69$, Mitchell, Crane, & Kim, 2008), trait anxiety ($r = .73$, Roberti, Harrington, & Storch, 2006), depressive symptomology ($r = .60$, Wongpakaran &

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Wongpakaran, 2010). Divergent validity of the PSS-10 has also been supported by weaker

correlations on unrelated constructs such as sensation seeking ($r = $ -.04, $p > $.001) and

religiousness ($r = $ .02, $p > $. 001) (Roberti et al., 2006). The PSS serves as a measure to assess a

potential confounding variable of stress or other negative events that would warrant coping

behaviors. The PSS-10 was chosen as it has been used extensively in the literature and is a

psychometrically sound measure of stress.

Procedures

As the current study involves the participation of human subjects, the study was

submitted to the Florida State University Human Subjects Review Committee and obtained

approval (Appendix A). All measures were assembled into the online survey platform Qualtrics.

Qualtrics' privacy settings allow for confidential participation by all participants and

questionnaire results were only be accessible via a login by the principle investigator.

Participants were only required to provide their name on the optional gift card raffle. Each

participant was assigned a research identification number in place of name or identifying

information to ensure anonymity and confidentiality.

Students who chose to participate in the study through the Florida State University

College of Education research pool accessed the study by navigating to:

https://fsu.qualtrics.com/jfe6/form/SV_9FBMHgme0mwJXCJ. They then had the option to

select and complete the research study. These participants may have received research credits

for their participation. Students who found the research study through the research studies at

Florida State University recruitment website

(http://humansubjects.research.fsu.edu/researchstudy/directory/) were provided the principle

investigator's email address and were instructed to email the principle investigator to obtain the

Qualtrics link to the study. Students who became aware of the study through flyers or advertisements emailed or called the principle investigator to obtain the Qualtrics link to the study. Alternatively, they may have scanned the QR code on the flyer and were able to access the study immediately. Upon the completion of data collection, the participants who chose to do so were entered into a raffle to win one of four $50 Visa gift cards. To provide an additional layer of confidentiality and anonymity, participants were directed to a separate Qualtrics survey where they entered their contact information to be entered into the survey. This information was kept completely separate from questionnaire data.

The research study was also listed on Amazon's Mechanical Turk system. Mechanical Turk allows individuals to choose tasks to complete in return for a small fee (Buhrmester, Kwang, & Gosling, 2011). Participants that elected to participate in the study through Mechanical Turk were paid $1. These participants selected the study on the Mechanical Turk website and were then directed to the Qualtrics link to complete the study. As these participants were paid for their participation, they were not given the option to enter the raffle.

Once participants accessed the survey on the Qualtrics platform, they were first directed to an informed research consent (Appendices B & C) in which they were informed about the purpose of the research study and any risks and benefits of participation. After consenting to participate, participants completed a brief screening questionnaire (Appendix D) involving questions regarding their age and status as a college student. If they did not meet criteria for the study, they were thanked for their time and participation and were not directed to the research survey. If they answered the screening questions affirmatively, they were then directed to the research survey, which took approximately 20 minutes. To prevent order effects, the order of the questionnaires was randomized for each participant. Participants were required to answer all

research questions before moving on to the next part of the survey. After each block of questions (i.e., each questionnaire) students were prompted if they missed one or more questions. Finally, trap questions were added periodically throughout the survey to prevent participants from speeding through the survey without providing honest responses. The questions asked that a participant provide a specific answer to the question. An example includes: "Please respond 'Strongly Agree' to this question."

Participants who entered the study through FSU College of Education subject pool, the research studies at Florida State University recruitment website, or from advertisements were given the option to enter into a raffle to win a $50 Visa gift card. They were informed that in order to enter into the raffle, they needed to provide an email address. Upon the completion of data collection, the survey results were downloaded from the Qualtrics survey platform for analysis. The research identification number of all participants were entered into the raffle was entered into a random number generator and four numbers were chosen at random. If selected as a gift card recipient, the participant needed to either meet the researcher in person or provide their name and mailing address to receive the gift card by mail.

Statistical Analyses

A priori power analysis for questions one and two was conducted using G*Power 3.1.3 (Appendix K; Faul, Erdfelder, Buchner, & Lang, 2007) to determine the minimum number of participants needed to detect a medium (.15) effect. A medium effect was determined based upon previous effect sizes found in the existing literature. For an a priori, linear multiple regression: fixed model, R^2 increase statistical test, with a power (1-B err prob) of .80, α err prob of .05, two tested predictors and three total predictors, G*Power results indicate a minimum sample size of 68 was needed. A preliminary power analysis for research questions three, four,

five, and six was conducted using Monte Carlo method in MPlus Version 7.3 (Table 10, Appendix L). The Monte Carlo approach derives an estimated power by simulating a large number of iterations and determining the "percentage of cases in which an estimate of interest is significantly different from zero" (Theommes, MacKinnon, & Reiser, 2010, p. 510). Previous findings in the literature were used to derive estimates of parameters between the variables. Results of this analysis found that with a sample size of 275, alpha of .05, the model was significant 80% of the time. This indicates that with an adequate sample size of at least 275, there should be adequate power to detect an indirect effect in the mediation models.

Prior to running any statistical analysis, key assumptions of multiple linear regression were checked. These include a linear relationship, normal distribution, no multicollinearity, and homoscedasticity. The following section provides a description of the statistical analyses that were used to answer each research question.

Research Question 1: Are perceived and performance-based EI significantly associated with the four alcohol use motives, while controlling for stress?

Research question one involved four hierarchical multiple regressions. Enhancement motives was regressed on stress (PSS-10; entered in step one) and the two EI variables: (a) SSEIT and (b) STEM-B (entered in step two). This was completed three more times for each of the criterion variables (i.e., social motives, coping motives, and conformity motives).

Research Question 2: Are perceived and performance-based EI significantly associated with binge drinking frequency and alcohol related problems?

Two multiple linear regressions were utilized to answer research question two. Binge drinking frequency was regressed on the two EI variables: (a) SSEIT and (b) STEM-B. The same analysis was completed with alcohol related problems (RAPI-23) as the criterion variable.

Mediation models.

The Hayes (2013) method for parallel mediation was used to assess the relationship between EI, coping motives, conformity motives, binge-drinking frequency, and alcohol related problems in research questions three, four, five, and six (Figures 4-7). Parallel mediation was chosen because while the mediators (i.e., coping motives and conformity motives) are likely correlated, it is not assumed that they causally influence each other (Hayes, 2013). This assumption supports the use of parallel mediation over an alternative multiple mediator model. Further, parallel mediation allows for a comparison of the indirect effects of each mediator (Hayes, 2013). Mediation analyses were conducted using the PROCESS macro version 2.13 in SPSS, which allowed for bootstrapping multiple mediation effects (Hayes, 2013; Preacher & Hayes, 2008). The following section describes an overview of the analysis that were conducted for research questions three, four, five, and six; however, the PROCESS macro simplifies analyses by running all regressions in one command (Hayes, 2013).

To test the parallel mediation (Figure 3), the direct effect of X on Y (c') was estimated using linear regression to regress Y on X while holding M_1 and M_2 constant. The indirect effects of X on Y was estimated by (1) regressing M_1 on X to obtain a_1, regressing M_2 on X to obtain a_2; and (2) regressing Y on M_1, M_2, and X to obtain b_1 and b_2, and (3) multiplying a_1 and b_1 ($a_1 * b_1$) and multiplying a_2 and b_2 ($a_1 * b_2$). The total effect (c) is calculated by summing the indirect effects of M_1 and M_2 ($a_1 * b_1 + a_2 * b_2$) and the direct effect (c').

Research Question 3: Is the relationship between perceived EI and binge drinking frequency partially mediated by coping and conformity motives?

The parallel mediation model described above was used to answer research question three (Figure 4).

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Research Question 4: Is the relationship between perceived EI and alcohol related problems partially mediated by coping and conformity motives?

The parallel mediation model described above was used to answer research question four (Figure 5).

Research Question 5: Is the relationship between performance-based EI and binge drinking frequency partially mediated by coping and conformity motives?

The parallel mediation model described above was used to answer research question five (Figure 6)

Research Question 6: Is the relationship between performance-based EI and alcohol related problems partially mediated by coping and conformity motives?

The parallel mediation model described above was used to answer research question six (Figure 7).
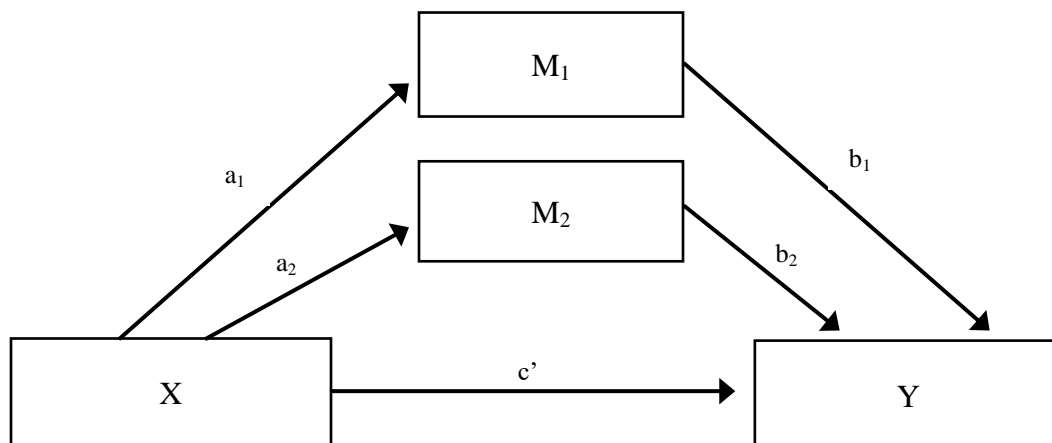
Figure 3: General parallel mediation model
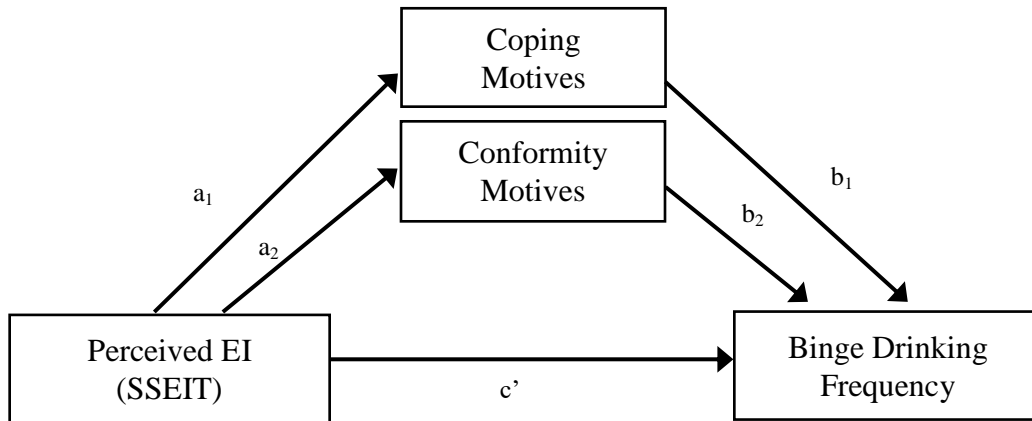
Figure 4: Parallel mediation model between perceived EI, coping motives, conformity motives, and binge drinking frequency
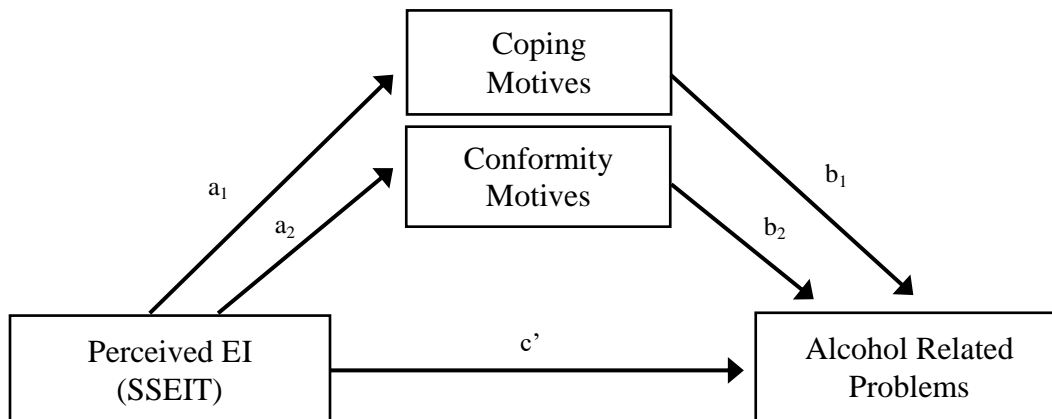
Figure 5: Parallel mediation model between perceived EI, coping motives, conformity motives, and alcohol related problems
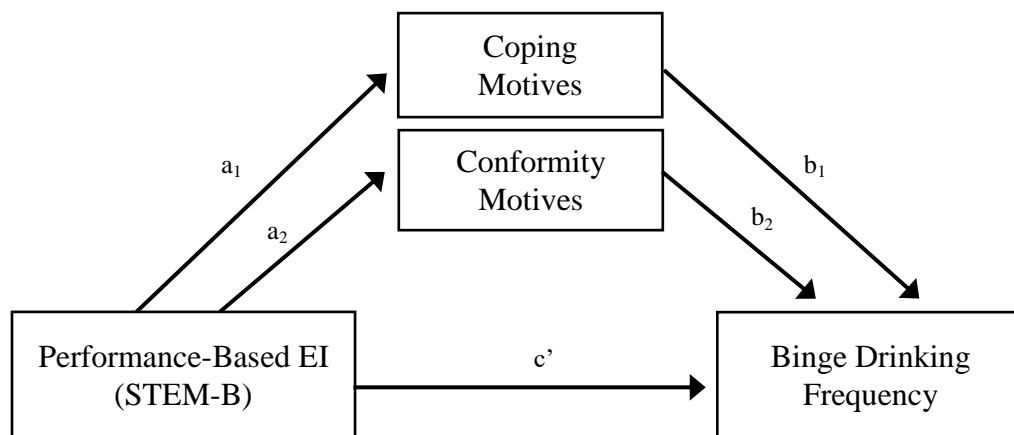
Figure 6: Parallel mediation model between performance-based EI, coping motives, conformity motives, and binge drinking frequency
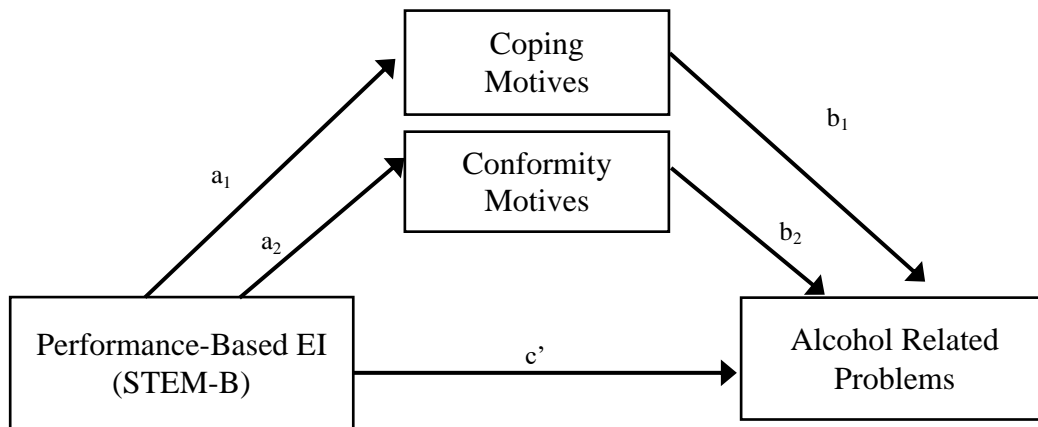
Figure 7: Parallel mediation model between performance-based EI, coping motives, conformity motives, and alcohol related problems

Secondary Research Questions

Secondary Research Question 1: Is a measure of perceived EI (SSEIT) significantly associated

with a measure of performance-based EI (STEM-B)?

CHAPTER 4

RESULTS

Findings of the research study are provided in this chapter. Sample characteristics, reliability of instruments, assumptions of analyses, and findings for each of the six research questions are provided. Analyses were conducted using SPSS version 24 and PROCESS macro version 2.13 in SPSS

Characteristics of Participants

Participants were 375 undergraduate college students in the United States. Participants were recruited utilizing four sources with 60.5% ($n = 227$) of the sample recruited from the College of Education subject pool at Florida State University, 2.2% ($n = 8$) from the research studies at Florida State recruitment website, and 0% ($n = 0$) from flyers around campus. The remaining 37.3% ($n = 140$) of participants were recruited from Mechanical Turk. Participants ranged in age from 18 to 50 ($M = 21.98$, $SD = 4.58$). In terms of sex, 56.8% ($n = 213$) reported their sex as female and 43.2% ($n = 162$) reported their sex as male. Gender identity was similar, with 56.8% ($n = 213$) self-identifying as female, 42.9% ($n = 161$) self-identifying as male, 0% ($n = 0$) self-identifying as transgender, and 0.3% ($n = 1$) self-identifying as "Other." One participant (0.3%) selected both "male" and "female." The participant who identified as "Other" wrote in "gender non-conforming." In terms of race, 79.7% ($n = 299$) identified as White or Caucasian, 10.7% ($n = 40$) as Black or African American, 1.1% ($n = 4$) as American Indian or Alaskan Native, 2.7% ($n = 10$) as Asian/American Asian, 0% ($n = 0$) as Native Hawaiian or Other Pacific Islander, 2.7% ($n = 10$) as multiracial, and 3.2% ($n = 12$) as Other. Of the sample, 3.5% ($n = 13$) identified as more than one race, selecting multiple options. Those who identified their race as "Other" wrote in the following responses: "As a Mixed Race American" ($n = 1$),

"Caribbean" ($n = 1$), "Latino/Hispanic" ($n = 8$), "Indian" ($n = 1$), "Mexican" ($n = 1$), and "South American" ($n = 1$). In terms of ethnicity, 14.4% ($n = 54$) of participants identified as Hispanic/Latino(a).

Participants also provided information on their sexual orientation, with 89.1% ($n = 334$) identifying at heterosexual, 2.1% ($n = 8$) identifying as lesbian, 1.1% ($n = 4$) as gay, 5.9% (n = 22) as bisexual, 1.1% ($n = 4$) as questioning, 0.8% ($n = 3$) identifying as "Other." Those who identified their sexual orientation as "Other" wrote in the following responses: "Asexual" ($n = 1$), "Demisexual" ($n = 1$), and "Queer" ($n = 1$). Of the sample, 0.5% ($n = 2$) selected two responses on sexual orientation.

While all participants reported that they were currently enrolled in a four-year college or university, a total of 102 different institutions are represented in the data. Students attending Florida State University make up 63.4% ($n = 238$) of the data, while the other 36.6% ($n = 137$) are from schools across the United States. Grade point average (GPA) was reported by participants and fell between 1.75 and 7 ($M = 3.42$, $SD = 0.53$). Students in their first semester made up 13.1% ($n = 49$) and therefore did not have a GPA to report. In terms of Greek life affiliation, 24.2% ($n = 90$) of the sample indicated they were members of Greek life (33.3% males, 66.6% females). Regarding drinking behavior in the past month, 85.1% ($n = 319$) of participants reported drinking in the past month. Of those who consumed alcohol in the past month, 69% ($n = 259$) reported binge drinking at least one time. Information on demographic data can be found in Table 1.

Table 1

Demographic Characteristics of Sample

Variable	Frequency (*n*)	Percentage (%)
Sex		
Male	162	43.2
Female	213	56.8
Self-Identified Gender[1]		
Male	161	42.9
Female	213	56.8
Transgender	0	0
Other	1	0.3
Race[1]		
Caucasian	299	79.7
Black or African American	40	10.7
American Indian or Alaskan Native	4	1.1
Asian or Asian American	10	2.7
Native Hawaiian or Other Pacific Islander	0	0
Multiracial	10	2.7
Other	12	3.2
Ethnicity		
Hispanic/Latino(a)	54	14.4
Non-Hispanic	321	85.6
Sexual Orientation[1]		
Heterosexual	334	89.1
Lesbian	8	2.1
Gay	4	1.1
Bisexual	22	5.9
Questioning	4	1.1
Other	3	.8
Member of Greek Life		
Yes	91	24.2
No	284	75.8
Drank in the Past Month		
Yes	319	85.1
No	56	14.9
Binge Drank in the Past Month		
Yes (Female)	144	67.6
No (Female)	69	32.4
Yes (Male)	115	80
No (Male)	47	29

[1] This table includes the primary gender, race, and sexual orientation identified by participants

To determine whether the two primary samples (i.e. FSU & Mechanical Turk) were comparable, independent t-tests were used to explore differences in GPA as well as independent and dependent variables across groups. After removing outliers, findings indicated that there was no significant difference between FSU and Mechanical Turk samples in terms of GPA $t(316) = .65$, $p = .519$, binge drinking frequency $t(367) = -1.72$, $p = .072$, or social motives $t(373) = .136$, $p = .892$. Differences between the two groups were observed for alcohol related problems (RAPI-23), where the Mechanical Turk sample reported significantly more alcohol related problems than the Florida State sample $t(370) = 5.99$, $p < .001$. The Mechanical Turk sample also reported more enhancement motives ($t(373) = 3.04$, $p < .01$), coping motives ($t(367) = 7.77$, $p < .001$), and conformity motives ($t(368) = 7.47$, $p < .001$) than the FSU sample. Regarding emotional intelligence, the FSU sample scored significantly higher on both measures of EI (SSEIT [$t(373) = -4.41$, $p < .001$], STEM-B [$t(373) = -8.83$, $p < .001$]). Findings are presented in Table 2.

Table 2

Results of t-test and Descriptive Statistics for Variables by Sample

	FSU			Mechanical Turk			
	n	*M*	*SD*	*n*	*M*	*SD*	*t*
GPA	197	3.36	.45	121	3.39	.41	.65
BDF	233	2	2.84	136	2.5	2.38	-1.72
RAPI-23	235	5	6.26	137	13.34	15.58	5.99**
Enhancement Motives	235	12.22	4.19	140	13.84	5.12	3.04*
Social Motives	235	14.28	4.73	140	14.35	4.80	.136
Coping Motives	233	20.77	8.03	136	29.92	12.37	7.77**
Conformity Motives	234	6.56	2.61	136	9.88	4.79	7.47**
SSEIT	235	126.43	13.54	140	118.78	17.69	-4.41**
STEM-B	235	11.12	2.18	140	8.38	3.25	-8.83**

Note *$p < .01$, **$p < .001$, GPA=Grade Point Average, BDF=Binge Drinking Frequency

To explore whether these mean differences by recruitment source may be due to sex, independent t-tests were used to explore differences in alcohol related problems, enhancement motives, coping motives, conformity motives, and both measures of emotional intelligence by sex. Findings revealed that there was no difference between males and females in terms of enhancement drinking motives $t(373) = 1.59$, $p = .112$. Significant differences between males and females were observed for alcohol related problems (RAPI-23) $t(240) = 3.81$, $p < .001$, coping drinking motives $t(300) = 4.11$, $p < .001$, and conformity drinking motives $t(268) = 4.79$, $p < .001$, with males scoring higher on each of these variables. Regarding EI, findings revealed that females scored higher on both measures of EI (SSEIT [$t(373) = -3.45$, $p < .001$], STEM-B [$t(286) = -6.15$, $p < .001$]).

To determine whether the differences between the two primary samples (i.e., FSU and Mechanical Turk) may be due to sex, two-way ANOVA was used to explore differences in alcohol related problems (RAPI-23), coping motives, conformity motives, and both measures of EI (SSEIT and STEM-B). Findings revealed non-significant interaction effects between recruitment source and sex for the SSEIT $F(1,371) = .310$, $p = .578$, STEM-B $F(1,375) = 2.94$, $p = .087$, and coping motives $F(1,369) = .617$, $p = .433$. There was a significant interaction effect between recruitment source and sex for the RAPI-23 $F(1,368) = 6.74$, $p < .01$ and conformity motives $F(1,366) = 6.77$, $p < .01$. The significant interaction effects suggest that the relationship between recruitment source and alcohol related problems and conformity motives depends on gender.

In sum, there were significant mean differences between the two recruitment sources on the RAPI-23, enhancement motives, coping motives, conformity motives, SSEIT, and STEM-B (Table 2). These differences were found to be non-attributable to gender, except for alcohol

related problems (RAPI-23) and conformity motives. On the RAPI-23 and conformity motives it appears that gender may be responsible for the significant mean difference between recruitment source. Implications and limitations of these differences are discussed in the discussion.

Exclusions.

A total of 549 participant responses were collected, however, 174 of these responses were determined to be ineligible and were therefore excluded from the final sample. Data was excluded from the study for four reasons, including: (a) incomplete survey data; (b) participant did not attend a U.S. college or university; (c) participant did not attend a 4-year college or university; (d) participant failed one or more trap (i.e., control) questions. In total, 53 participants did not complete the survey after beginning, 17 participants did not attend a U.S. college or university, 18 participants did not attend a 4-year college or university, and 86 participants failed one or more trap questions.

Descriptive and reliability analyses of instruments.

Analyses were conducted to review the descriptive statistics as well as reliability statistics of the six instruments (SSEIT, STEM-B, DMQ-R, RAPI-23, Binge Drinking Frequency, and PSS-10). Internal consistency of the binge drinking frequency question could not be calculated, as it is a single-item measure. Descriptive statistics for each measure are provided in Table 3. Results of the reliability analyses indicate acceptable to excellent internal consistency across measures. Cronbach alpha coefficients were .927 (SSEIT), .796 (STEM-B), .954 (DMQ-R), .966 (RAPI-23), and .785 (PSS-10). Cronbach alpha coefficients for the DMQ-R subscales were .851 (Enhancement), .836 (Social), .944 (Coping), and .901 (Conformity).

Table 3

Descriptive Statistics and Psychometric Properties of Instruments

Instrument	Range	*M* (*SD*)	Cronbach's α
SSEIT	50-163	123.57 (15.64)	.927
STEM-B	1.16-15.08	9.71 (2.87)	.796
DMQ-R		59.83 (21.62)	.954
Enhancement	5-25	12.82 (5.04)	.851
Social	5-25	14.307 (4.75)	.836
Coping	13-64	24.73 (11.6)	.946
Conformity	5-24	7.97 (4.2)	.901
RAPI-23	0-59	8.45 (12.11)	.966
Binge Drinking Frequency*	0-29	2.62 (3.61)	
PSS-10	0-32	17.48 (6.03)	.785

*Number of binge-drinking episodes in a typical month

Assumptions for regression analyses.

Prior to running analyses, the data was checked to determine if it sufficiently met the

major assumptions necessary to conduct multiple regression analyses. Normal distribution of the

dependent variables was assessed by examining histograms, reviewing the Shapiro-Wilk

statistic[1], as well as reviewing the Kurtosis and Skewness of the data. Findings revealed that

data was not normally distributed for the DMQ-R (Enhancement, Social, Coping, Conformity),

RAPI-23, and binge drinking frequency, though the distributions of the residuals were adequate.

Several transformation methods were attempted in an effort to remedy the non-normality of the

dependent variables. The variables were initially transformed using natural log transformations.

As some variables included data points of zero (RAPI-23 and binge drinking frequency),

transformation was not possible. To address this issue, a constant of 1 was added to each

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[1] The Shapiro Wilk statistic was chosen instead of the Kolmogorov statistic because the sample is less than 2000 participants.

variable and then transformed. After natural log transformations, the distributions of the dependent variables still did not approximate the shape of a normal curve. Histograms of non-transformed and transformed variables are presented in Appendix N. Several additional methods to transform the data were attempted, including square root transformation, reciprocal transformation, and log10 transformation (Landau & Everitt, 2004). After review of these histograms, it was again determined that there were no significant improvements in the distributions after transformation.

A review of previous studies which used the same instruments suggest that skewness of the data is common (Crutzen et al., 2013; Kong & Bergman, 2010). Additional review of existing studies revealed that the means of the variables in this study were higher than those in some previous studies (Engels et al., 2005; Theakson et al., 2004) but similar to means in other studies (Maclean & Lecci, 2000). While other authors have not provided specific information on the normality of the distributions, these particular variables may be non-normally distributed given the nature of what they are measuring. Further, non-normality of the data may be explained by the variance in the current sample (i.e., non-drinkers and drinkers). As the interpretation of transformed variables is complex and the transformations of variables did not significantly improve distributions, analyses were conducted using the original non-transformed variables. Implications and potential limitations of this approach are discussed in the limitations section of the manuscript.

The assumption of multicollinearity between the predictor variables was also examined. Concerns of multicollinearity arise when correlations between predictor variables are greater than $r = .8$ (Abu Bader, 2010). Multicollinearity was assessed by examining the correlations between predictor variables (STEM-B, SSEIT, and PSS-10), the Variation Inflation Factor

(VIF), and Tolerance of each predictor variable. Correlation results between SSEIT and STEM-B is $r = .403$ ($p < .001$), SSEIT and PSI-10 is $r = -.234$ ($p < .001$), and STEM-B and PSS-10 is $r = -.174$ ($p < .001$). These results suggest that multicollinearity between independent variables is not problematic as all correlation coefficients fall below .8 (Abu Bader, 2010). Both VIF and Tolerance statistics for each predictor variable were in the acceptable range with VIF scores under 10 and Tolerance scores above .10 (Keith, 2006).

Inspection of scatterplots revealed linear associations between the independent variables and dependent variables, indicating that the assumption of linearity was met. The assumption of homoscedasticity was evaluated by examining scatterplots of residuals vs. predicted residuals. Examination of these plots suggest that the assumption of homoscedasticity is met for all motives (i.e., enhancement, social, coping, and conformity). Plots appeared skewed and suggest the possibility for heteroscedasticity for the outcome variables RAPI-23 and binge drinking frequency. Consistent with the attempts to transform the data to correct for non-normal distributions, scatterplots were examined for transformed data as well, though scatterplots did not improve significantly.

Outliers.

Possible outliers were identified by examining the standardized residuals for each analysis. Participants with residuals which were three or more standard deviations away from the line of best fit were removed for that analysis (Landau & Everitt, 2004). This method was utilized, rather than excluding these data points from all analyses, to maximize the data used in each analysis. Outliers identified through this method were crosschecked with participants whose responses fell outside the Tukey Hinges (Landau & Everitt, 2004). All participants with residuals three or more standard deviations away from the best fit line also had data points which

fell outside the Tukey Hinges. It is notable that this method did result in different sample sizes for each research question. Across the six research questions, the overall sample size decreased by 0.2% - 1.8% ($N = 368$-374) after outliers were identified and removed.

Primary Analyses

Research question 1.

A series of hierarchical multiple regressions were conducted to examine the relationship between perceived (SSEIT) and performance-based (STEM-B) EI and drinking motives while controlling for perceived stress (PSS-10). To answer the first part of the research question, enhancement motives was entered as the criterion variable. After controlling for perceived stress, the EI predictors accounted for an additional 4.4% of the variance in enhancement motives ($R^2 = .064$, $F(3, 371) = 8.39$, $p < .001$). Examination of standardized beta weights revealed that performance-based EI was inversely associated with enhancement motives ($\beta = -0.205$, $p < .001$). Perceived EI was also significantly associated with enhancement motives, but in a positive direction ($\beta = 0.179$, $p < .01$). These findings suggest that lower performance-based EI, and higher perceived EI, may result in greater enhancement motives for drinking. Table 4 provides a summary of these findings.

Table 4

Summary of Hierarchical Regression Analyses Predicting Enhancement Motives

Variable	B	SEb	B	p-value	R^2	R^2 Change	f^2
Step 1					.019		
PS	.116	.043	0.139	.007			
Step 2					.064	.044	.068
PBEI	-.352	.095	-0.205	.000			
PEI	.057	.018	0.179	.002			

Note: PS = perceived stress, PBEI = performance-based EI, PEI = perceived EI

To answer the second part of the research question, social motives was entered as the criterion variable. After controlling for perceived stress, the EI predictors accounted for an additional 7.7% of the variance in social motives ($R^2 = .079$, $F(3, 371) = 10.627$, $p < .001$). Examination of standardized beta weights revealed that performance-based EI was inversely associated with social motives ($\beta = -.228$, $p < .001$). Perceived EI was also significantly associated with social motives, but in a positive direction ($\beta = .277$, $p < .001$). These findings suggest that lower performance-based EI, and higher perceived EI, may result in greater social motives for drinking. Table 5 provides a summary of these findings.

Table 5

Summary of Hierarchical Regression Analyses Predicting Social Motives

Variable	B	SEb	B	p-value	R^2	R^2 Change	f^2
Step 1					.002		
PS	.033	.041	.042	.415			
Step 2					.079	.077	.085
PBEI	-.369	.088	-.228	.000			
PEI	.084	.017	.277	.000			

Note: PS = perceived stress, PBEI = performance-based EI, PEI = perceived EI

To answer the third part of the research question, coping motives was entered as the criterion variable. After controlling for perceived stress, the EI predictors accounted for an additional 21% of the variance in coping motives ($R^2 = .298$, $F(3, 365) = 51.679$, $p < .001$). Examination of standardized beta weights revealed that performance-based EI was inversely associated with coping motives ($\beta = -0.465$, $p < .001$). Alternatively, perceived EI was not-significantly associated with coping motives ($\beta = -0.001$, $p = .982$). These findings suggest that lower performance-based EI may be associated with greater coping motives for drinking. Table 6 provides a summary of these findings.

Table 6

Summary of Hierarchical Regression Analyses Predicting Coping Motives

Variable	B	SEb	B	p-value	R^2	R^2 Change	f^2
Step 1					.088		
PS	.529	.089	0.297	.000			
Step 2					.298	.210	.424
PBEI	-1.703	.177	-0.465	.000			
PEI	-.001	.034	-0.001	.982			

Note: PS = perceived stress, PBEI = performance-based EI, PEI = perceived EI

To answer the final part of the research question, conformity motives was entered as the criterion variable. After controlling for perceived stress, the EI predictors accounted for an additional 28% of the variance in conformity motives ($R^2 = .307$, $F(3, 366) = 54.008$, $p < .001$). Examination of standardized beta weights revealed that performance-based EI was inversely associated with conformity motives ($\beta = -0.512$, $p < .001$). Alternatively, perceived EI was not significantly associated with conformity motives ($\beta = -0.060$, $p = .218$). These findings suggest that lower performance-based EI may be associated with greater conformity motives for drinking. Table 7 provides a summary of these findings.

Table 7

Summary of Hierarchical Regression Analyses Predicting Conformity Motives

Variable	B	SEb	β	p-value	R^2	R^2 Change	f^2
Step 1					.027		
PSS-10	.106	.033	0.165	.001			
Step 2					.307	.280	.443
PBEI	-.679	.064	-0.512	.000			
PEI	-.015	.012	-0.060	.218			

Note: PS = perceived stress, PBEI = performance-based EI, PEI = perceived EI

Research question 2.

Multiple regression analyses examined the relationship between perceived (SSEIT) and performance-based (STEM-B) EI and binge drinking frequency and alcohol related problems (RAPI-23). To answer the first part of the research question, perceived and performance-based EI were entered simultaneously into the regression model and binge drinking frequency was entered as the criterion variable. As illustrated in Table 8, the overall model with two predictors accounts for 1.4% of the variance in binge drinking frequency ($R^2 = .014$, $F(2, 366) = 2.61$, $p = .075$). Though the overall model was non-significant, examination of the standardized regression coefficients for each predictor variable suggest that perceived EI significantly predicts binge drinking frequency ($\beta = 0.129$, $p < .05$), while performance-based EI was not significantly associated with binge drinking frequency ($\beta = -0.065$, $p = .257$).

Table 8

Summary of Multiple Regression Analyses Predicting Binge Drinking Frequency

Variable	B	SEb	β	p-value	R^2	f^2
PBEI	-.059	.052	-0.065	.257	.014	.014
PEI	.022	.010	0.129	.024	.014	.014

Note: PBEI = performance-based EI, PEI = perceived EI

To examine the second part of the research question, multiple regression analyses explored the association between perceived and performance-based EI and alcohol related problems (Table 9). Perceived and performance-based EI were entered simultaneously into the regression model and the total score of alcohol related problems was entered as the criterion variable. The overall model with two predictors accounts for 27.7% of the variance in alcohol related problems ($R^2 = .277$, $F(2, 369) = 70.70$, $p < .001$). Examination of the standardized

regression coefficients for each predictor variable suggest that performance-based EI

significantly predicts alcohol related problems (β = -0.518, $p <$ .001) while perceived EI was not

significantly related to alcohol related problems (β = -0.019, p = .699). These findings suggest

that performance-based EI accounts for a significant amount of variance in alcohol-related

problems, however, perceived EI does not. In other words, those with lower performance-based

EI may tend to experience greater alcohol related problems.

Table 9

Summary of Multiple Regression Analyses Predicting Alcohol Related Problems

Variable	B	SEb	β	p-value	R^2	f^2
PBEI	-2.02	.191	-0.518	.000	.277	.383
PEI	-.014	.036	-0.019	.699	.277	.383

Note: PBEI = performance-based EI, PEI = perceived EI

Observed power.

Observed power was calculated using G*Power 3.1.3 (Faul et al., 2007) to determine

power of the final sample utilized in research questions one and two (N = 368-374). Effect sizes

observed in research question one ranged from small (f^2 = .068, .085) to large (f^2 = .424, .443).

These effect sizes indicate that the observed power for the first analysis in research question one

(enhancement motives regressed on perceived and performance-based EI) is .996 and observed

power for the second analysis in research question one (social motives regressed on perceived

and performance-based EI) is .999. Observed power for the third analysis (coping motives

regressed on perceived and performance-based EI) is 1.0 and observed power in the fourth

analysis in research question one (conformity motives regressed on perceived and performance-

based EI) is 1.0. In sum, observed power for research question one is excellent and suggests that the probability of Type 1 error is unlikely.

Effect sizes observed in research question two ranged from small ($f^2 = .014$) to large ($f^2 = .383$). These effect sizes indicate that the observed power for the first analysis in research question two (binge drinking frequency regressed on perceived and performance-based EI) is .521 and observed power for the second analysis in research question two (alcohol related problems regressed on perceived and performance-based EI) is 1.0. Observed power for the multiple regression between two EI variables and binge drinking frequency is inadequate, suggesting that Type 1 error is possible. Observed power for the multiple regression between two EI variables and alcohol related problems is excellent, suggesting that Type 1 error is unlikely in this analysis. Details of these power analyses are provided in Appendix O.

Research question 3.

Research question three sought to determine if the relationship between perceived EI (SSEIT) and binge drinking frequency is partially mediated by coping and conformity motives (DMQ-R). Figure 8 illustrates the Hayes method for parallel mediation analyses for research question three and provides unstandardized beta weights (Hayes, 2013; Preacher & Hayes, 2008). Linear regression between perceived EI and binge drinking frequency (c) was statistically significant ($B = 0.018$, $p < .05$). Indirect effects were estimated by assessing the relationship between the predictor variable (perceived EI) and the mediator variables (coping motives and conformity motives) as well as the relationship between the criterion variable (binge drinking frequency) and the mediator variables (coping motives and conformity motives). Analyses revealed significant relationships between perceived EI and coping motives ($B = -0.152$, $p < .001$) as well as conformity motives ($B = -0.055$, $p < .001$). The relationship between binge

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drinking frequency and coping motives ($B = 0.061$, $p < .001$) was also significant, however, there was a non-significant relationship between binge drinking frequency and conformity motives ($B = -0.039$, $p = .420$). The total indirect effect was calculated by multiplying a_1 and b_1 and multiplying a_2 and b_2 and summing the two products $[(-0.152*0.061) + (-0.055*-0.039) = -0.007]$. The direct effect of perceived EI on binge drinking frequency while controlling for coping motives and conformity motives (c') is $B = 0.025$ ($p < .01$).

Significance of the indirect effect (i.e., effect of perceived EI on binge drinking frequency through motives) was assessed using bootstrapping where unstandardized indirect effects were computed for 5,000 bootstrapped samples. The bootstrapped indirect effect for coping motives was -0.009, Confidence Interval (CI) 95% [-0.018, -0.003]. The bootstrapped indirect effect for conformity motives was 0.002, CI 95% [-0.003, 0.009]. Examination of the confidence intervals suggests that only coping motives are contributing to the relationship between perceived EI and binge drinking frequency. Conformity motives are non-significant as the confidence interval contains zero. Post hoc power analysis using Monte Carlo bootstrapping found that power to detect an indirect effect with a sample size of 369 is .043. A sample size of at least 4,700 is necessary to detect significance at .80 with an alpha of .05. Details of these analyses appear in Appendix P (Table 11).

Research question 4.

Research question four sought to determine if the relationship between perceived EI (SSEIT) and alcohol related problems (RAPI-23) is partially mediated by coping and conformity motives (DMQ-R). Figure 9 illustrates the Hayes method for parallel mediation analyses for research question four and provides unstandardized beta weights (Hayes, 2013; Preacher & Hayes, 2008). Linear regression between perceived EI and alcohol related problems (c) was

statistically significant (B = -0.173, $p < .001$). Indirect effects were estimated by assessing the relationship between the predictor variable (perceived EI) and the mediator variables (coping motives and conformity motives) as well as the relationship between the criterion variable (alcohol related problems) and the mediator variables (coping motives and conformity motives). Analyses revealed significant relationships between perceived EI and coping motives (B = -0.165, $p < .001$) as well as conformity motives (B = -0.064, $p < .001$). The relationship between alcohol related problems and coping motives (B = 0.235, $p < .001$) and conformity motives (B = 1.25, $p < .001$) were also significant. The total indirect effect was calculated by multiplying a_1 and b_1 and multiplying a_2 and b_2 and summing the two products [(-0.165*0.235) + (-0.064*1.25) = -0.119]. The direct effect of perceived EI on alcohol related problems while controlling for coping motives and conformity motives (c') is B = -0.054 ($p = .067$).

Significance of the indirect effect (i.e., effect of perceived EI on alcohol related problems through motives) was assessed using bootstrapping where unstandardized indirect effects were computed for 5,000 bootstrapped samples. The bootstrapped indirect effect for coping motives was -0.039, Confidence Interval (CI) 95% [-0.072, -0.018]. The bootstrapped indirect effect for conformity motives was -0.081, CI 95% [-0.136, -0.038]. Examination of the confidence intervals suggests that both coping motives and conformity are contributing to the relationship between perceived EI and alcohol related problems as their confidence intervals do not include zero. Post hoc power analysis using Monte Carlo bootstrapping found that power to detect an indirect effect with a sample size of 372 is .394. A sample size of at least 1,000 is necessary to detect significance at .80 with an alpha of .05. Details of these analyses appear in Appendix P (Table 12).

Research question 5.

Research question five sought to determine if the relationship between performance-based EI (STEM-B) and binge drinking frequency is partially mediated by coping and conformity motives (DMQ-R). Figure 10 illustrates the Hayes method for parallel mediation analyses for research question five and provides unstandardized beta weights (Hayes, 2013; Preacher & Hayes, 2008). Linear regression between performance-based EI and binge drinking frequency (c) was not statistically significant ($B = -0.011$, $p = .816$). Indirect effects were estimated by assessing the relationship between the predictor variable (performance-based EI) and the mediator variables (coping motives and conformity motives) as well as the relationship between the criterion variable (binge drinking frequency) and the mediator variables (coping motives and conformity motives). Analyses revealed significant relationships between performance-based EI and coping motives ($B = -0.863$, $p < .001$) as well as conformity motives ($B = -0.719$, $p < .001$). The relationship between binge drinking frequency and coping motives ($B = 0.062$, $p < .001$) was also significant, however, there was a non-significant relationship between binge drinking frequency and conformity motives ($B = -0.031$, $p = .540$). The total indirect effect was calculated by multiplying a_1 and b_1 and multiplying a_2 and b_2 and summing the two products $[(-1.863*0.062) + (-0.719*-0.031) = -0.094]$. The direct effect of performance-based EI on binge drinking frequency while controlling for Coping Motives and Conformity Motives (c') is $B = 0.089$ ($p = .139$).

Significance of the indirect effect (i.e., effect of performance-based EI on binge drinking frequency through motives) was assessed using bootstrapping where unstandardized indirect effects were computed for 5,000 bootstrapped samples. The bootstrapped indirect effect for coping motives was -0.115, Confidence Interval (CI) 95% [-0.189, -0.054]. The bootstrapped

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indirect effect for conformity motives was 0.022, CI 95% [-0.048, 0.090]. Examination of the confidence intervals suggests that only coping motives are contributing to the relationship between performance-based EI and binge drinking frequency. Conformity motives are non-significant as the confidence interval contains zero. However, as the total effect is non-significant this indicates a non-significant mediation effect. Post hoc power analysis using Monte Carlo bootstrapping found that power to detect an indirect with a sample size of 369 is .160. A sample size of at least 3,900 is necessary to detect significance at .80 with an alpha of .05. Details of these analyses appear in Appendix P (Table 13).

Research question 6.

Research question six sought to determine if the relationship between performance-based EI (STEM-B) and alcohol related problems (RAPI-23) is partially mediated by coping and conformity motives (DMQ-R). Figure 11 illustrates the Hayes method for parallel mediation analyses for research question six and provides unstandardized beta weights (Hayes, 2013; Preacher & Hayes, 2008). Linear regression between performance-based EI and alcohol related problems (c) was statistically significant ($B = -2.056, p < .001$). Indirect effects were estimated by assessing the relationship between the predictor variable (performance-based EI) and the mediator variables (coping motives and conformity motives) as well as the relationship between the criterion variable (alcohol related problems) and the mediator variables (coping motives and conformity motives). Analyses revealed significant relationships between performance-based EI and coping motives ($B = -1.795, p < .001$) as well as conformity motives ($B = -0.710, p < .001$). The relationship between alcohol related problems and coping motives ($B = 0.191, p < .001$) and conformity motives ($B = 1.045, p < .001$) were also significant. The total indirect effect was calculated by multiplying a_1 and b_1 and multiplying a_2 and b_2 and summing the two products [(-

1.795*0.191) + (-0.710*1.045) = -1.085]. The direct effect of performance-based EI on alcohol

related problems while controlling for coping motives and conformity motives (c') is B = -0.970

($p < .001$).

Significance of the indirect effect (i.e., effect of performance-based EI on alcohol related

problems through motives) was assessed using bootstrapping where unstandardized indirect

effects were computed for 5,000 bootstrapped samples. The bootstrapped indirect effect for

coping motives was -0.349, confidence interval (CI) 95% [-0.575, -0.147]. The bootstrapped

indirect effect for conformity motives was -0.742, CI 95% [-1.124, -0.433]. Examination of the

confidence intervals suggests that both coping motives and conformity are contributing to the

relationship between performance-based EI and alcohol related problems as their confidence

intervals do not include zero. Post hoc power analysis using Monte Carlo bootstrapping found

that power to detect an indirect effect with a sample size of 372 is 1.0. Details of these analyses

appear in Appendix P (Table 14).
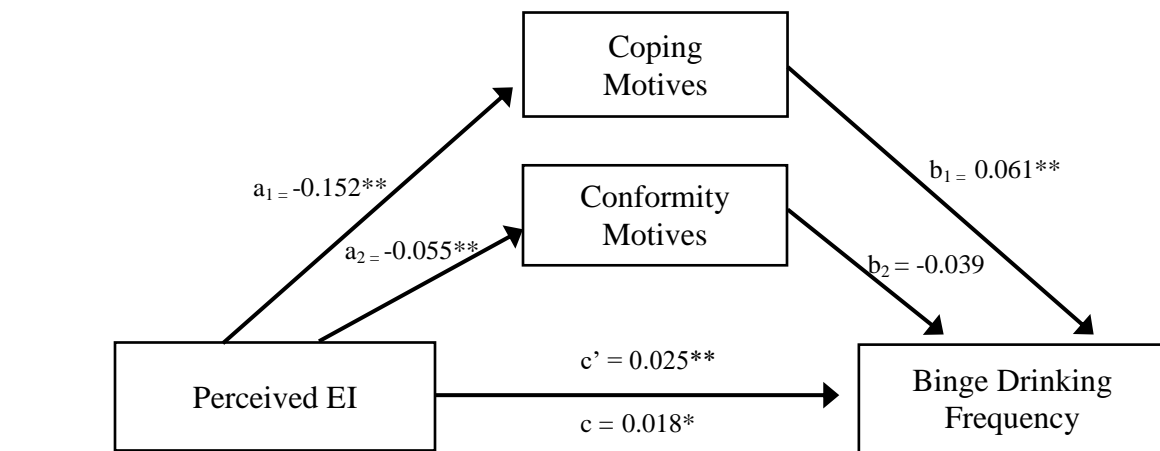
$*p < .05, **p < .01, ***p < .001$
Figure 8: Parallel mediation between perceived EI, coping motives, conformity motives, and alcohol related problems
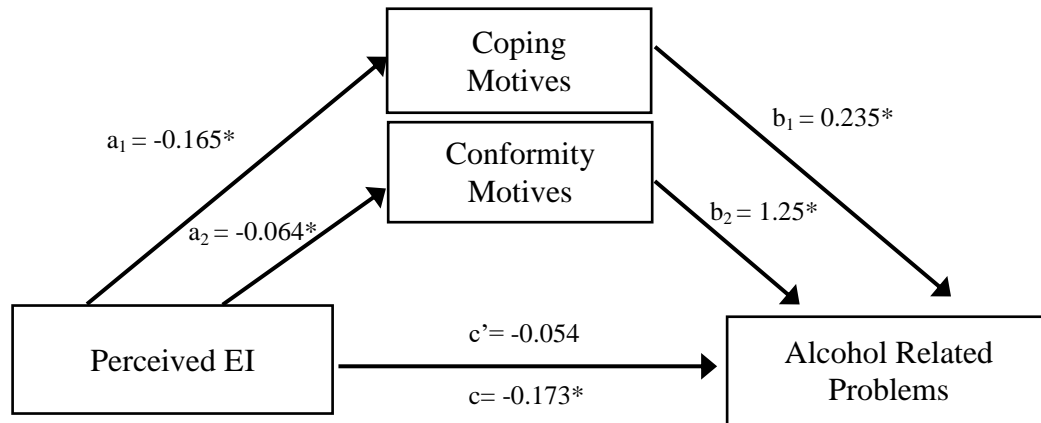
*p<.001
Figure 9: Parallel mediation between perceived EI, coping motives, conformity motives, and alcohol related problems
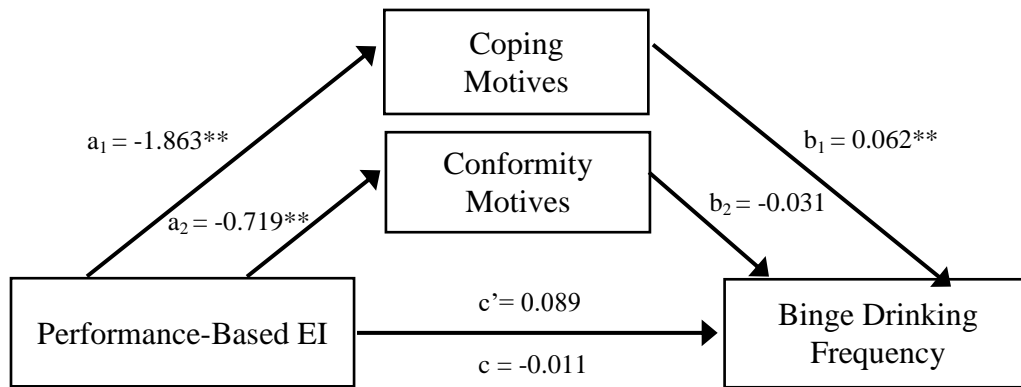
*p < .05, **p < .001
Figure 10: Parallel mediation between performance-based EI, coping motives, conformity motives, and binge drinking frequency

*p < .05, **p < .001
Figure 11: Parallel mediation between performance-based EI, coping motives, conformity motives, and alcohol related problem
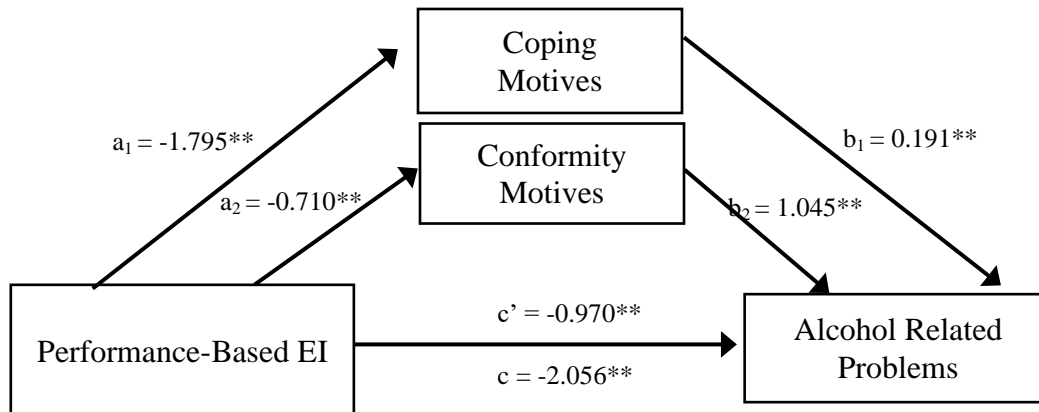
Secondary research question.

Correlation analyses examined the relationship between a measure of perceived EI (SSEIT) and a measure of performance-based EI (STEM-B). Analyses revealed a significant relationship between the two measures ($r = .403$, $p < .001$).

Multiple comparisons.

As this study ran 10 separate analyses to answer six research question, there is a greater likelihood of making a Type 1 error (i.e., falsely rejecting the null hypothesis). To be conservative, the Bonferonni correction could have been applied to help mitigate the issue of multiple comparisons. Using the Bonferroni correction would have changed the significance level from .05 to .005 (.05/10 analyses), and would have resulted in non-significance of some results that were significant at the .05 level. These include the relationship between perceived EI and binge drinking frequency as analyzed by multiple regression, the total effect of perceived EI on alcohol related problems as analyzed by parallel mediation, and the direct effect of perceived EI on binge drinking frequency as analyzed by parallel mediation. Given that there are contradictory recommendations regarding the use of a priori Bonferonni correction for regression analyses (Abu Bader, 2010; Mundfrom, Perrett, Schaffer, Piccone, Roozeboom, 2006) and all research questions were determined prior to data collection and were influenced by theory, Bonferonni correction was not used in interpretation of the results of this study (F. Prevatt, personal communication, August 4th, 2016).

CHAPTER 5

DISCUSSION

This section of the paper provides a summary of findings and comprehensive discussion of the results and hypothesis testing. Implications of these findings and suggestions for future clinical practice and research directions are explored. Additionally, a discussion of the limitations of this research study are provided.

The present study explored the relationship between high-risk drinking, drinking motives, and EI in college students. College students in the United States engage in dangerous drinking behaviors, including binge drinking, which often result in significant alcohol related problems (Hingson et al., 2006). Due to increasing rates of high-risk drinking behavior in the college population, there is a need to identify factors that may be associated with the development of such behaviors (Task Force of the National Advisory Council on Alcohol Abuse and Alcoholism, 2002; Wechsler et al., 2004). This study sought to determine if lower EI serves as a risk factor for engaging in binge drinking and experiencing negative consequences of drinking, as well as understanding the role of drinking motives in this relationship.

Summary of Findings and Discussion of Results

The present study yielded a number of interesting research findings that are further discussed in the following sections. The main findings revealed significant inverse relationships between performance-based EI and alcohol related problems and all four drinking motives. There were significant positive relationships between perceived EI and binge drinking frequency and positive reinforcement motives (i.e., enhancement and social). In addition, negative reinforcement motives (i.e., coping and conformity) mediated some of the relationships between EI and the alcohol variables.

Research question 1.

Multiple hierarchical regression was used to explore whether performance-based and perceived EI are associated with drinking motives above and beyond perceived stress. Results partially supported the hypothesis that the two variables of EI would be inversely associated with coping and conformity motives but not associated with enhancement or social motives, after controlling for perceived stress. Regarding performance-based EI, analyses revealed significant inverse associations with all four motives after controlling for perceived stress. Regarding perceived EI, analyses revealed that this variable is significantly positively associated with enhancement motives and social motives, but was not significantly related statistically to coping or conformity motives, after controlling for perceived stress. In sum, lower performance-based EI was associated with greater endorsement of enhancement, social, coping, and conformity drinking motives. Higher perceived EI was associated with greater endorsement of enhancement and social motives. A visual representation of these findings is provided in Figures 12 and 13.

The strongest associations were observed between performance-based EI and negative reinforcement motives (i.e., coping [$\beta = -0.465$] and conformity motives [$\beta = -0.512$]), which is consistent with the hypothesis. This suggests that those who have lower EI as measured by a performance measure may be more likely to engage in drinking for coping or conformity reasons. This finding is supported by the literature, which suggests that individuals with lower EI have a more difficult time understanding and managing their emotions (Bar-On & Parker, 2000; Keltner & Haidt, 2001). These deficits may result in individuals engaging in maladaptive coping strategies, such as drinking, to manage their feelings. Additionally, research suggests that individuals with higher EI tend to cope more adaptively with stress as they may have a better understanding of their emotions and the appropriate coping techniques to use (Gohm et al., 2005;

Landa, et al., 2008; Mikolajczak et al., 2009; Salovey et al., 1999; Salovey et al., 2002). The current findings regarding performance-based EI and coping motives aligns with the existing literature, suggesting that those with lower EI may utilize alcohol for coping while those with higher EI do not endorse using alcohol for that reason. Regarding conformity motives, research suggests that those with higher EI have greater leadership and social competence while those with lower EI may be more susceptible to peer pressure (Austin et al., 2005; Mavroveli et al., 2007; Riley & Schutte, 2003; Trinidad & Johnson, 2002). The current results supports these previous findings and suggest that in situations with alcohol present, those with lower performance-based EI might be more likely to drink to fit in with their peers whereas those with higher performance-based EI may be less likely to do so.

Several findings here do not support the hypothesis and warrant further discussion. The inverse relationship between performance-based EI and positive reinforcement motives (i.e., social and enhancement) was not initially hypothesized. These data may indicate that those with higher EI drink less overall and therefore report fewer motives for drinking. It may also be explained by the fact that those with higher performance-based EI have higher life satisfaction and feel secure in their interpersonal relationships and therefore do not feel they need to drink to enhance their mood (Bar-On & Parker, 2000; Brackett et al., 2004; Brackett et al., 2005; Lopes et al., 2006; Mayer et al., 1999; Van Rooy & Viswesvaran, 2004). On the other hand, when performance-based EI is lower there may be less life satisfaction and less security or satisfaction with interpersonal relationships and therefore a greater desire to drink to enhance ones' mood or facilitate socialization with others.

Conversely, perceived EI was positively associated with the two positive reinforcement motives (i.e., social and enhancement motives). This suggests that people who rate their own EI

as higher also tend to report engaging in drinking for positive reinforcement reasons, though it is worth noting that effect sizes were small. The fact that two measures of EI predicted relationships in opposite directions is particularly interesting and may speak to differences in what the instruments are measuring. Measures of perceived EI have been criticized for containing too much social desirability response bias as well as too much overlap with personality characteristics (Brackett & Mayer, 2003). This may lead to higher scores on the self-report EI measure, as respondents may try to "look good," which may influence results (Petrides & Furnham, 2000).

It is also possible that perceived EI measures may, inadvertently, be tapping-into other related but distinct psychological constructs. The measure of perceived EI used in this study is considered a measure of mixed or trait EI. This suggests that it may be measuring a range of abilities, personality factors, emotional self-efficacy, optimism, extroversion, subjective well-being, and other psychosocial factors (Bar-On, 1997; Brackett & Mayer, 2003; Goleman, 1995, Petrides & Furnham, 2001; Petrides et al., 2007). For example, items such as "I expect good things to happen to me," "I arrange events other's enjoy," "I expect I will do well on most things I try," and "I seek out activities that make me happy," may reflect one's social competencies or personality more than EI. Interestingly, past studies have found that the SSEIT is significantly related to higher openness to experience and extraversion (Brackett & Mayer, 2003; Schutte et al., 1998). While a performance-based measure (i.e., MSCEIT) was also related to openness to experience, the effect of SSEIT was double that of the performance measure (Brackett & Mayer, 2003). Though the SSEIT has high internal consistency ($\alpha = .927$), it appears that it measures a distinct construct from what is assessed by performance-based measures of EI. Therefore, what the SSEIT measures may be considerably different from what the STEM-B measured, which

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provides an explanation for the stark differences in findings between measures. These are important findings as they provide additional evidence that the mixed models and ability models of EI are qualitatively different constructs.

If the SSEIT includes a significant overlap with factors such as extroversion, openness to experience, and emotional/social self-efficacy, the positive association between this and the positive reinforcement motives makes theoretical sense. A greater desire to seek out exciting or new social experiences may result in drinking because it is fun and social. Further, if the perceived measure of EI is measuring more emotional self-efficacy or social confidence, as opposed to EI, it is reasonable to hypothesize that those with these traits will be more likely to engage in social situations with more opportunities to drink for fun and to enhance positive emotionality.

The non-significant relationship between perceived EI and negative reinforcement motives warrants further research. One possible explanation of the non-significant association may be explained by examining the mediation analyses (research questions 3 & 4) where perceived EI was significantly inversely associated with negative reinforcement motives. Perceived EI and performance-based EI are correlated at .40; when performance-based EI is not included in the model the relationship between perceived EI and negative reinforcement motives is significant. After performance-based EI is included, the relationship becomes non-significant; suggesting that perceived EI's bivariate relations with negative reinforcement motives is influenced by shared variance with performance-based EI.

Research question 2.

Multiple linear regression was used to explore whether performance-based and perceived EI were associated with binge drinking frequency and alcohol related problems. The results

partially support the hypothesis that the two predictor variables would be significantly inversely associated with the criterion variables. Performance-based EI was significantly inversely associated with alcohol related problems, however, perceived EI was not. Regarding binge drinking frequency, while the overall model was not significant ($p = .075$), perceived EI was significantly positively associated with binge drinking frequency. As the overall model was not significant, these results should be interpreted with caution, especially as the effect size was small ($\beta = 0.129$). Conversely, performance-based EI was not associated with binge drinking frequency. In sum, lower performance-based EI was related to greater alcohol related problems and higher perceived EI was related to greater binge drinking frequency. A visual representation of these findings is provided in Figures 12 and 13.

The significant inverse relationship between performance-based EI and alcohol related problems is supported by previous findings in the literature (Schutte et al., 2011). Existing literature suggests that negative reinforcement motives may be more likely to be associated with alcohol related problems (Carey & Correia, 1997; Cooper, 1994; Lyvers et al., 2010; Mallet et al., 2013; Martens et al., 2008; Read et al., 2003; Rice & Van Arsdale, 2010). The inverse relationship between negative reinforcement motives and performance-based EI may help explain the relationship between alcohol related problems and performance-based EI, as is discussed in research question six.

Although perceived EI was significantly associated with binge drinking frequency, it was in a positive direction as opposed to the inverse direction hypothesized. This suggests that as perceived EI rises, so does frequency one engages in binge episodes per month. This finding is inconsistent with the majority of the literature on perceived EI and alcohol use, which has linked lower perceived EI to greater alcohol consumption (Austin et al., 2005; Claros & Sharma, 2012;

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Schutte et al., 2011; Tsaousis & Nikolaou, 2005). However, the finding is particularly interesting as the positive direction of the relationship is similar to the findings between perceived EI and social motives and enhancement motives in research question one (Figure 13). Existing literature suggests that enhancement and social motives may be related to greater rates of binge drinking (Bradizza et al., 1999; Cooper, 1994; Martens et al., 2008), which may help explain the relationship between perceived EI and binge drinking frequency.

Though individuals with greater perceived EI may engage in higher rates of binge drinking, there was no relationship between perceived EI and alcohol related problems, suggesting they are not necessarily more likely to experience significant harm from binge drinking. This is supported by existing literature that suggests that while positive reinforcement motives may increase the rate and frequency of drinking, they may not be associated with alcohol related problems (Cronin, 1997; Kassel et al., 2010). This is further discussed in relation to the findings of research question four.

The relationship between performance-based EI and binge drinking frequency was non-significant. This finding is also inconsistent with the majority of findings in the existing literature, which link lower performance-based EI to higher rates of drinking (Mayer et al., 2002; Schutte et al., 2011). Despite the non-significant relationship, there was an indirect effect of performance-based EI on binge drinking frequency through coping motives, as is explained in research question five. However, the overall null association between performance-based EI and binge drinking frequency requires additional research.

In sum, these findings suggest that those with lower performance-based EI may be more likely to experience alcohol related problems at higher rates than those with higher performance-based EI. This is particularly interesting, as the results suggest it does not necessarily mean they

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are more likely to engage in binge drinking at a higher frequency. Alternatively, those with

higher perceived EI reported a higher frequency of binge drinking, but there was no association

between perceived EI and alcohol related problems. Overall, the findings seem to provide

additional evidence that performance-based and perceived EI may be distinct constructs that are

associated with, and may predict, unique drinking motives and high-risk drinking behaviors.
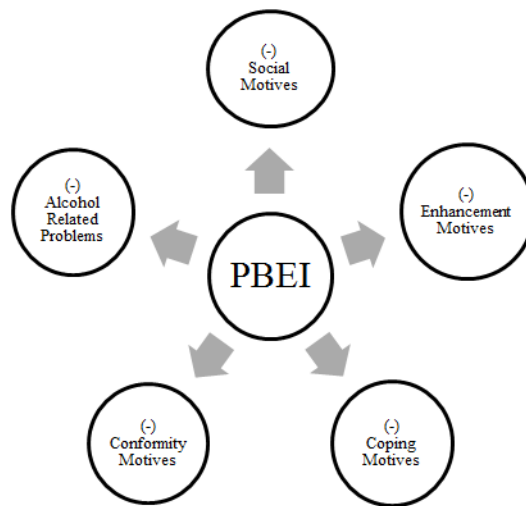
Figure 12: Summary of relationship between performance-based EI (PBEI) and outcome
variables as tested in research question one and two
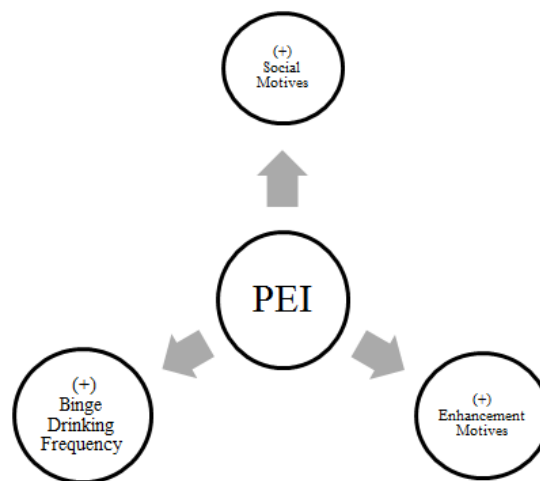
Figure 13: Summary of relationship between perceived EI (PEI) and outcome variables as tested
in research question 1 and 2

Research questions 3-6.

Research Questions three, four, five, and six sought to further explore the relationship between EI and drinking behavior by determining if negative reinforcement motives might explain these associations. Parallel mediation analyses using the Hayes method (2013) was used to explore the following four research questions.

Research question 3.

Results partially supported the hypothesis that coping and conformity motives would partially mediate the relationship between perceived EI and binge drinking frequency. Analyses revealed that coping motives, but not conformity motives, mediate the relationship between perceived EI and binge drinking frequency. Consistent with the hypothesis, it appears that coping motives explains a significant portion of variance in the relationship between perceived EI and binge drinking frequency.

It is particularly important to review the direction of the relationships in this mediation. The relationship between perceived EI and binge drinking frequency while controlling for coping and conformity motives is positive. When coping and conformity motives are not controlled for, the relationship is still positive but reduces in strength. This occurs because the total indirect effect of the mediators is negative, and they are suppressing the relationship to some extent. While the mediators are acting in the expected direction, it is the relationship between the predictor and criterion variable that are not in the hypothesized direction. Coping motives have a positive relationship with heavy drinking, as is supported in existing literature (Abbey et al., 1993; Pritchard et al., 2007; Mallett et al., 2013; Martens et al., 2008; McNally et al., 2003; Rice & Van Arsdale, 2010; Rutledge & Sher, 2001; White et al., 2016). These findings indicate that the relationship between perceived EI and binge drinking frequency is partially explained

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through drinking to cope motives. As the association between perceived EI and binge drinking frequency was discussed in regards to research question two, as those who exhibit more extroversion or positive emotion may be more likely to binge drink (McAdams & Donnellan, 2009), it may be prudent for future research to include positive reinforcement motives in mediation analyses.

As discussed earlier, it is worth noting that the relationship between perceived EI and negative reinforcement motives was non-significant when tested in research question one, but was significant in this model. This finding is explained by the fact that when perceived EI is placed in the same model as performance-based EI, the latter variable accounts for significantly more variance in the relationship with negative reinforcement motives.

Research question 4.

Results support the hypothesis that coping and conformity motives partially mediate the relationship between perceived EI and alcohol related problems. Analyses reveal that the relationship between perceived EI and alcohol related problems becomes non-significant when the motives are controlled. Examination of confidence intervals reveals that both motives are contributing to the relationship between perceived EI and alcohol related problems. The non-significance of the direct effect suggests that lower perceived EI is not necessarily linked with greater alcohol related problems, but that the relationship acts through coping and conformity motives of drinking.

As was explained in the discussion of research question one, lower EI may result in greater likelihood of drinking for negative reinforcement reasons due to poorer ability to understand one's own emotions and a lack of adaptive coping styles (Gohm et al., 2005; Landa, et al., 2008; Mikolajczak et al., 2009; Salovey et al., 1999; Salovey et al., 2002). Further, there

may be a greater likelihood that one will be susceptible to peer pressure if they have lower EI, resulting in a greater use of alcohol for conformity reasons (Matthews et al., 2002; Schutte et al., 1998; Trinidad & Johnson, 2002; Mavroveli et al., 2007). Additionally, previous research supports the relationship between negative reinforcement motives and alcohol related problems (Carey & Correia, 1997; Cooper, 1994; Lyvers et al., 2010; Mallet et al., 2013; Martens et al., 2008; Read et al., 2003; Rice & Van Arsdale, 2010). Therefore, these findings suggest that individuals with lower perceived EI may drink to cope with negative affect or to fit in with their peers, which then results in a greater number of alcohol related problems.

It is worth noting that the relationship between perceived EI & alcohol related problems is only significant when there is only one EI predictor in the model. In research question two, when both EI measures are placed in the model to predict alcohol related problems, the measured of perceived EI (SSEIT) did not significantly predict alcohol related problems. This suggests that performance measure (STEM-B) accounts for a significant amount of variance in alcohol related problems, resulting in a non-significant contribution of the SSEIT when they are placed in the model together.

Research question 5.

Results partially supported the hypothesis that coping and conformity motives partially mediate the relationship between performance-based EI and binge drinking frequency. Although there was no statistically significant direct effect between performance-based EI and binge drinking frequency, there was a significant indirect effect of performance-based EI on binge drinking frequency through coping motives. This suggests that although the direct effect did not reach statistical significance, the relationship between low performance-based EI and greater past month binge drinking frequency was partially attributable to greater coping motive endorsement

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in individuals with lower performance-based EI, as was hypothesized. Interestingly, a similar indirect effect was not observed for conformity motives.

These findings suggest that while lower levels of performance-based EI do tend to predict greater negative reinforcement motives and in turn, greater binge drinking, the relationship between performance-based EI and binge drinking frequency remained non-significant. These findings are partially consistent with previous findings in the literature, which suggest that those who drink for coping reasons may be more likely to engage in binge drinking (Abbey et al., 1993; Martens et al., 2008; McNally et al., 2003; Palfai et al., 2003; Pritchard et al., 2007; Rice & Van Arsdale, 2010; Rutledge & Sher, 2001; White et al., 2016). However, are inconsistent with findings suggesting that individuals who drink for conformity reasons may be more likely to engage in binge drinking (Hartzler & Fromme, 2003; Martens et al., 2008; Merrill & Read, 2010; Weitzman, Folkman, Folkman, & Wechsler, 2003), as well as findings which associate binge drinking and EI (Mayer et al., 2002; Schutte et al., 2011). The findings that conformity motives are not significantly positively associated with binge drinking frequency contribute to findings in some studies that suggest conformity motives are not associated with drinking amount or frequency (Lyvers et al., 2010, Crutzen et al., 2013, Kuntsche & Cooper, 2010).

Research question 6.

Results support the hypothesis that coping and conformity motives partially mediate the relationship between performance-based EI and alcohol related problems. When controlling for the motives, the relationship between performance-based EI and alcohol related problems is still significant, but decreases substantially indicating that the motives are contributing to the relationship. The significant indirect effects revealed that both coping and conformity motives contribute to the relationship between performance-based EI and alcohol related problems.

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These findings relate to the results in research question two as coping and conformity motives help explain the relationship between a performance measure of EI and alcohol related problems. These findings are consistent with the literature on negative reinforcement motives and alcohol related problems, where drinking for coping and conformity reasons has been associated with an increase in consequences associated with alcohol (Carey & Correia, 1997; Cooper, 1994; Lyvers et al., 2010; Mallet et al., 2013; Martens et al., 2008; Read et al., 2003; Rice & Van Arsdale, 2010). However, it is important to note that the relationship between performance-based EI and alcohol related problems does not become non-significant when motives are controlled for, indicating that EI (or some other variable) is still accounting for a significant amount of variance in alcohol related problems beyond what coping and conformity motives may account for. Given that previous analyses suggested a relationship between performance-based and enhancement and social motives, it is possible they are also contributing to this relationship. Future analyses may explore a multiple mediation analysis with four mediators to determine how much variance these additional motives account for.

Additional findings.

In addition to the primary six research questions, the secondary research question regarding the relationship between a perceived measure of EI (SSEIT) and a performance-based measure of EI (STEM-B) was also tested. Findings revealed a moderate positive relationship between the two measures. This is an important finding as both measures suggest they measure the same construct (EI). While the SSEIT is a trait measure of EI, the STEM-B is considered an ability measure. The finding of a moderate correlation suggests that while the two measures are related, there are also substantial differences in what they are measuring. This contributes to the literature on the conceptual difference between trait and ability EI.

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Limitations & Delimitations

    Sampling.

The goal of this study was to obtain a representative college sample. The majority of the sample was obtained through the FSU College of Education subject pool. While this method of recruitment increased the sample size, the students collected from this recruitment method were mostly female education majors at a large public university in the Southeast United States. This inherently limits the generalizability of the findings, as it is possible that students at this particular university differ from those at other colleges and universities across the country. This may be particularly relevant given the nature of the study, as the university used as the primary data collection site is considered a "party school" (Princeton Review, 2017) and it is likely that the consumption of alcohol at this university may be greater than at other schools, limiting the generalizability of findings. However, a large portion of the sample (37.3%) was collected through Mechanical Turk, which included students from 101 additional schools across the country. This likely assisted in increasing power as well as the external validity of the study.

Regarding the two recruitment sources, findings suggest that there are some significant differences between the FSU sample and Mechanical Turk sample in terms of alcohol related problems, enhancement motives, coping motives, conformity motives, and both measures of emotional intelligence (Table 2). Additionally, there were significant sex differences across several of these variables, including alcohol related problems, coping motives, conformity motives, and both measures of EI. Findings revealed that the differences in coping motives and alcohol related problems between samples may be due to sex differences. However, for the other measures, there did not appear to be a significant sex effect. These findings suggest that when studying the college population, samples collected from Mechanical Turk may have higher

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severity on some motives for drinking and lower scores on measures of emotional intelligence. A similar effect may be seen for males as well, as males in the present study tended to report more alcohol problems, greater coping and conformity motives, and lower EI.

However, it is also possible that the Florida State sample is unique and may not be generalizable to other colleges across the country. This is an important research finding which should inform future research practices with college samples. Additionally, while a comparison of Florida State University and Mechanical Turk GPA's suggests there is no significant difference between the samples on that particular variable, it would have been beneficial to collect other variables to help determine if the samples are similar. For instance, collecting information on family SES may have provided valuable data for the purpose of sample comparison.

An additional sample limitation observed after data collection is the race and ethnicity makeup of the sample. Nearly 80% of the current sample self-identified as White, limiting the generalizability of these findings to other White students. Existing literature suggests that White students may drink more and may drink in more high-risk ways compared to Black, Asian, or Hispanic students, indicating that this sample was likely representative of the types of students who drink in college (O'Malley & Johnson, 2002; Paschall & Flewelling, 2003; Paschall et al., 2005).

Measures.

The majority of the measures used in this study relied upon participant self-report. This method of measurement has inherent limitations as it relies upon the honesty and authenticity of each participant when completing the measures. The nature of this study involved topics where social desirability might influence responses (Kluemper, 2007). For example, participants were

asked to report how often they consume alcohol and on how many occasions they binge drink alcohol. Despite the fact that they may engage in this type of behavior regularly, there may be a broader societal view that it is "wrong" to do so, especially if they are under the legal age of 21. However, given that the sample population is comprised of college students, the opposite phenomenon could take place where there is a social desirability to partake in greater amounts of binge drinking. Further, even if a participant was attempting to be forthright and honest, this question relies on one's memory to determine how many binge episodes took place over the past month, which also may inherently include inaccuracies.

As has been discussed, the differences in the relationships between EI measures in this study suggest that there may be some concern with measurement. Regarding the self-report measure, it seems there was a high response bias in the positive direction, indicating there may be some inflation of responses on the SSEIT. However, given the evidence of strong reliability and validity of the SSEIT in previous studies, excellent internal validity in the present study, similar mean scores to participants in the initial validation study (Schutte et al., 1998), and lack of any direct evidence that participants did not respond honestly on this measure, it is believed that this is an accurate representation of participants perceived EI. Regarding the performance-based measure of EI, the mean score across items in the present sample ($M = .50$) was comparable to scores during validation of the measure ($M = .59$), suggesting that this is likely an accurate representation of participants performance-based EI (Allen et al., 2015). The findings of this study may reflect fundamental differences in trait or ability EI as constructs.

Data analyses.

As noted in Chapter 3, the dependent variables were not normally distributed and there was evidence of heteroscedasticity for two variables. These are primary assumptions that must

be met prior to running regression analyses and interpreting results. Normally, analysis of data would not have moved forward after the discovery of these violations, due to the impact they may have on the results. After several attempts were made to transform the data, it was determined that transformations were not useful in normalizing the distributions. Due to the nature of this project (i.e., doctoral dissertation), analyses were run with the non-normal data, with the understanding that this would not be acceptable for the purpose of peer-reviewed scientific publications. Therefore, results should be interpreted with some caution as the non-normal distributions and heteroscedasticity may have affected results.

Secondly, while the PROCESS macro for SPSS is generally considered a strong statistical method, there are some limitations. First, as estimations in PROCESS rely upon observed variables, there is an inherent possibility of measurement error (Hayes, 2012). Future studies may consider using structural equation modeling, such as path analysis, with latent variables to reduce measurement error. This may be particularly relevant in studies investigating EI, as the construct seems to lack consistency in measurement (Hayes, 2012).

Thirdly, as was mentioned in the results section, the Bonferonni correction was not used when interpreting the results of the analyses. If the Bonferonni correction was utilized, all p-values between .005 and .05 would be considered non-significant. Results indicate that three findings resulted in p-values in this range and therefore, these results should be interpreted with caution.

Fourthly, observed power for research questions one and two was generally very strong, with the exception of the analysis for part one of research question two (i.e., binge drinking frequency regressed on perceived and performance-based EI). Observed power for this analysis was .521, indicating that there is a possibility that a Type 1 error was committed, indicating the

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false rejection of the null hypothesis (i.e., false positive results). This suggests that the finding that perceived EI is positively associated with binge drinking frequency should be interpreted with caution. Regarding the observed power of research questions three, four, five, and six, only one parallel mediation analysis had strong enough power to detect an indirect effect (i.e., research question six). The other three analyses needed significantly more participants, requiring samples from 1,000 to 4,700 to achieve adequate power of .80. These findings suggest that there is a possibility of Type 1 error in research questions three, four, and five, indicating these results should be interpreted with some caution. Future studies should anticipate needing more robust sample sizes to achieve adequate power, assuming effect sizes remain similar as they were in this study.

Implications & Future Directions

Theory development.

The current study has several implications for theory development. Past research provides evidence for the motivational model of alcohol use (Cooper 1994; Cox & Klinger, 1998), which was used as a theoretical foundation for this study. Much of the existing research on the motivational model has examined outcomes of motives, as opposed to predictors of motives. This study contributes to the existing literature and to the motivational model by providing new evidence regarding associations between EI and drinking motives. While the current study is unable to determine causation (e.g., lower EI results in certain motives), the findings do provide an important step towards identifying possible predictors of drinking motives. This is important as it may serve as a method of identifying those at risk for developing high-risk drinking in the future.

This study also contributes to theories of EI. The findings provide evidence in support of two distinct facets of EI (i.e., trait and ability), which are not mutually exclusive, share some significant overlap, as well as distinct characteristics. These findings provide support for the notion that studies involving the construct of EI should be informed by research and theory in order to guide which specific measure of EI will be utilized. Further, implications for theory development are significant. Findings indicate that trait EI may in fact contain traits more highly associated with sensation seeking and extroversion, while ability EI may be a more accurate representation of the ability to identify and manage one's emotions.

Research.

Several implications and direction for future research emerged from the current study. While the present sample was generally representative of college enrollment, due to the limitations of power and non-normal distributions of data, as well as the limited race and ethnicity makeup of the current study, future research should aim to collect large diverse samples. Since many colleges and universities collect data on student alcohol and drug use on an annual basis, future studies may piggyback on this established data collection and add on measures of drinking motives and EI for a subset of the sample. This may facilitate collection of large amounts of data and improve power and distribution of the data. Further, as discussed earlier, many studies have found unequal distributions when using the variables and measures in this study, suggesting that the population may not be normally distributed in regards to high-risk drinking and drinking motives.

Future studies may consider dichotomizing the data between drinkers and non-drinkers. Dichotomizing the data may result in more normally distributed results and may also yield interesting findings regarding differences in EI between drinkers and non-drinkers. Should the

data still be non-normally distributed after dichotomization, the Mann-Whitney test would be a good alternative to t-test to examine between group differences, as it does not require an assumption of normality (Abu Bader, 2010; Landau & Everitt, 2004). Future research may also consider the possible influence of a threshold effect of EI as threshold effects may result in a change in phenomenon after a certain quantitative limit is passed (International Encyclopedia of the Social Sciences, 2008).

As this is the first study examining whether negative reinforcement motives mediate the relationship between EI and high-risk drinking, additional studies are needed to replicate the results found in this study. In addition to replication of the current findings, future studies may also consider examining whether positive reinforcement motives mediate the relationship between perceived EI and binge drinking frequency and alcohol related problems, as well as between performance-based EI and alcohol related problems. In regards to measurement, additional variables of alcohol use could be examined, including drinking frequency, extreme drinking, estimated blood alcohol concentration (BAC), or interview-based assessment. These methods may provide more accurate and reliable reporting or drinking behaviors. Further, it is important to determine if other measures of perceived and performance-based EI would yield similar results to this study. Therefore, future research may consider using measures such as the MSCEIT (Mayer et al., 2002), EQ-i:S (Bar-On, 1997), and the Trait Meta Mood Scale (Salovey et al., 1995). Another interesting perspective would be to utilize an other-report measure of EI, where a friend or family member rates the EI of the participant.

Regarding EI research, there appears to be a subset of literature focused specifically on theoretical conceptions of EI, including measurement and theoretical differences in models of EI. However, often when this construct is explored in relation to other psychological variables or

behaviors, there is a lack of justification for choosing a particular model or measures of EI. Findings of this study revealed unique relationships between two models of EI and drinking motives and high-risk drinking, indicating that ability and trait models may have unique relationships with these and possibly other variables. Further, the moderate correlation between these two instruments indicates there are fundamental differences in what the two models consist of. This paper highlights the importance of thoughtful consideration of how different conceptions of EI may be related to other variables of interest. It may be beneficial to include multiple measures of EI in future research studies to further the understanding of how each model of EI uniquely relates to psychological variables and behaviors.

Finally, the main purpose of this study was to identify possible risk factors for high-risk drinking behaviors at the college level. However, given the fact that this study was cross-sectional it limits the true predictability of the findings. Future studies should consider longitudinal design, ideally with measurement beginning in adolescence and concluding in early adulthood. Longitudinal research will help determine if EI is truly predictive of high-risk drinking and if targeted EI interventions would be useful in reducing the likelihood of students engaging in this type of behavior in college.

Practice.

The current findings provide several implications for practice. Findings suggest that students with lower performance-based EI and perceived EI may experience greater alcohol related problems. As the results of this study suggest, this may be due to an increased use of alcohol to cope with problems in individuals with lower EI. This highlights the importance of increasing coping skills and emotion management and regulation in those with lower EI, as this may diminish the frequency with which they utilize alcohol or other drugs for coping purposes.

Clinicians may consider a brief measure of performance-based or perceived EI, such as the STEM-B, STEU, or SSEIT to screen for deficits in EI. Providing EI interventions or training in coping skills may serve as an indirect intervention for high-risk drinking in the college or young adult population.

Regarding drinking behavior, previous findings suggest that about 40-65% of college students who drink engage in binge drinking (American College Health Association, 2016; Core Institute, 2013; O'Malley & Johnston, 2002; SAMHSA, 2014). In the present sample, 69% of those who drank in the past month engaged in binge drinking. This suggests that the present sample is likely representative of many college students and may indicate that the majority of college students engage in binge drinking behavior. As drinking is common practice amongst the college population, it may be assumed that those who do not drink in a safe or moderate way are just making poor choices. However, the results of this study suggest that high-risk drinking may be indicative of a larger underlying problems which warrants attention from mental health providers. For instance, students engaging in high rates of binge drinking, as well as those who experience greater alcohol related problems, may be drinking to cope with negative emotions or to fit in with their peers. These issues may be effectively explored in therapy, allowing individuals to learn more healthy and adaptive coping strategies. Further, this study has shed light on some unique characteristics of students engaging in high-risk drinking, including lower performance-based or higher perceived EI. These findings may inform specific interventions targeted towards the unique vulnerabilities of this population.

However, another interesting implication for practice is the possibility that individuals engaging in high-risk drinking may not present for mental health services, as they may not have insight into their emotional problems, due to lower EI. Therefore, it is important for clinicians to

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be cognizant or problematic behaviors (e.g., problems resulting from alcohol use) in the absence of emotional difficulties endorsed by the client.

Conclusion

The present study sought to explore the relationship between high-risk drinking, drinking motives, and EI in the college population. The purpose of this research was to identify potential risk factors, or precursors, to dangerous drinking behavior in emerging adults. By identifying such factors, interventions may be implemented to reduce the likelihood that these students will engage in high-risk drinking and experience negative consequences of drinking during college. Further, it provides a way to identify students who may drink for specific reasons (e.g., coping) and provide more targeted interventions.

Findings of this study provide useful information to further understanding of high-risk drinking behaviors in college students. Findings revealed significant associations between EI and drinking behaviors and drinking motives. Specifically, data suggest that lower performance-based EI is associated with greater enhancement, social, coping, and conformity drinking motives, as well as greater alcohol related problems. Higher perceived EI is associated with greater enhancement and social motives, as well as a higher rate of binge drinking. When these associations were further explored, findings revealed that coping motives help explain the relationship between perceived EI and binge drinking frequency as well as the relationship between performance-based EI and binge drinking frequency. Both coping and conformity motives help explain the relationship between perceived EI and alcohol related problems and performance-based EI and alcohol related problems.

In sum, these findings suggest that mixed (i.e., trait) and ability models of EI may uniquely predict motives of drinking, binge drinking, and alcohol related problems in college

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students. Lower EI may serve as a risk factor for certain drinking motives that are associated with greater high risk drinking and alcohol related problems. Further, findings suggest underlying differences in EI constructs, indicating that mixed and ability models of EI may be uniquely associated with drinking behaviors and problems in this population.

This provides implications for theory development and research in terms of the motivational model of alcohol use and the salient differences between mixed and ability EI. Further, implications for practice are significant as these findings may suggest that interventions for EI may indirectly influence development of high-risk drinking behaviors. While additional research is needed to replicate the current findings, this research serves as a step forward in understanding the relationship between EI and the development of high-risk drinking.

APPENDIX A

IRB APPROVAL MEMORANDUM

Florida State UNIVERSITY

Office of the Vice President For Research
Human Subjects Committee
Tallahassee, Florida 32306-2742
(850) 644-8673 · FAX (850) 644-4392

APPROVAL MEMORANDUM

Date: 10/24/2016

To: Jordan Burko

Address:

Dept.:   EDUCATIONAL PSYCHOLOGY AND LEARNING SYSTEMS

From: Thomas L. Jacobson, Chair

Re: Use of Human Subjects in Research
UNDERSTANDING HIGH-RISK DRINKING IN COLLEGE STUDENTS: THE ROLE OF EI IN COLLEGE
STUDENTS' MOTIVATIONS FOR ALCOHOL USE, BINGE DRINKING, AND

The application that you submitted to this office in regard to the use of human subjects in the research proposal
referenced above has been reviewed by the Human Subjects Committee at its meeting on 09/14/2016
Your project was approved by the Committee.

The Human Subjects Committee has not evaluated your proposal for scientific merit, except to weigh the risk to the
human participants and the aspects of the proposal related to potential risk and benefit. This approval does not
replace any departmental or other approvals which may be required.

If you submitted a proposed consent form with your application, the approved stamped consent form is attached to
this approval notice. Only the stamped version of the consent form may be used in recruiting research subjects.

If the project has not been completed by 09/13/2017 you must request a renewal of approval for continuation of the
project. As a courtesy, a renewal notice will be sent to you prior to your expiration date; however, it is your
responsibility as the Principal Investigator to timely request renewal of your approval from the Committee.

You are advised that any change in protocol for this project must be reviewed and approved by the Committee prior
to implementation of the proposed change in the protocol. A protocol change/amendment form is required to be
submitted for approval by the Committee. In addition, federal regulations require that the Principal Investigator
promptly report, in writing, any unanticipated problems or adverse events involving risks to research subjects or
others.

By copy of this memorandum, the chairman of your department and/or your major professor is reminded that he/she is responsible for being informed concerning research projects involving human subjects in the department, and should review protocols as often as needed to insure that the project is being conducted in compliance with our institution and with DHHS regulations.

This institution has an Assurance on file with the Office for Human Research Protection. The Assurance Number is IRB00000446.

Cc: Steven Pfeiffer ███████████████ Advisor
HSC No. 2016.19049

FLORIDA STATE UNIVERSITY INFORMED CONSENT

Dear Student,

You are invited to participate in a dissertation research study about EI and alcohol use in college students. This study is being conducted by Jordan A. Burko, a doctoral candidate in Counseling Psychology and School Psychology at Florida State University, and is supervised by Steven I. Pfeiffer, Ph.D., a faculty member at Florida State University. Your participation in this study would be greatly appreciated. Please read this form and direct any questions you may have to the researcher.

The purpose of this study is to further the research on the relationship between EI and alcohol use. While many college students use alcohol in a responsible way, high-risk drinking is prevalent. Research on the association between EI, reasons for using alcohol, high-risk alcohol use, and alcohol related problems in college students has practical implications for better understanding students who might be at risk for high-risk drinking.

If you agree to be in this study, you will be asked to complete an online survey. The survey includes a screening questionnaire, a demographic questionnaire, and seven assessments about EI, alcohol use, and life stress. Please complete all measures honestly and provide an answer to each question to the best of your ability. Completion of the survey should take approximately 20 minutes. You will not be provided individual feedback regarding the assessments you complete.

By participating in this study, you are eligible to receive one of four $50 Visa gift cards. To be included in the gift card raffle, you must complete the entire study. There will be an opportunity at the end of the study for you to indicate if you would like to be included in the gift card raffle. If you choose to be included in the gift card raffle, you will be directed to a separate survey where you will enter your contact information and you will be notified if you are a winner! Your contact information will be kept completely separate from your questionnaire responses to protect your confidentiality. The gift card recipients will be chosen at random once all data has been collected.

All of the information obtained in this research study will be kept private and confidential to the extent permitted by law. The online survey portal used for this study is Qualtrics, which will be password protected and only accessible by the principle investigator. Data is also encrypted to add an additional layer of privacy and protection. Your personal responses will not be released to the public and will only be seen by the principle investigator and faculty advisors. In any future publication of the results of this study, no information will be included that would make it possible to identify a participant. Data will be retained in a secure manner until September 12th, 2023, after which it will be destroyed.

Your participation in this study is completely voluntary. Your decision whether or not to participate will not affect your current or future relations with your university. If at any time you choose to decline to answer any survey questions or choose to withdraw from the study, you may

do so without any consequences. The risks involved in this study are minimal. It is possible that you may experience some discomfort answering personal questions about your alcohol use and problems you experience due to drinking as well as become more aware of some personal characteristics that relate to EI. If you experience any anxiety or discomfort after completing the study, please contact your universities counseling center or another mental health agency to discuss this further.

There are no direct benefits to you for participating in this study, though it is possible you may benefit from learning more about your alcohol use and characteristics of EI. Your participation in this study makes a valuable contribution to the understanding of the relationship between EI and alcohol use in the college population. This information is valuable and your participation is greatly appreciated.

If you have any questions regarding this research, please contact Jordan Burko at ▮▮▮▮▮▮ or call ▮▮▮▮▮▮ You may also contact the faculty advisor of this research project, Steven Pfeiffer, Ph.D., at ▮▮▮▮▮▮ or by phone at ▮▮▮▮▮▮ Should you have any questions or concerns about the study that you prefer to direct to someone other than the researcher, you are encouraged to contact the FSU IRB at 2010 Levy Street, Research Building B, Suite 276, Tallahassee, FL 32306-2742, or 850-644-8633, or by email at humansubjects@fsu.edu.

If you are satisfied with the information provided and are willing to participate in the research study, please indicate your consent by choosing the appropriate response below. Thank you for your time and participation in this research project.

Jordan A. Burko, B.A.
Doctoral Candidate
Combined Counseling Psychology and School Psychology
Florida State University

Steven I. Pfeiffer, Ph.D.
Faculty Advisor
Department of Educational Psychology and Learning Systems
Florida State University

APPENDIX C

MECHANICAL TURK INFORMED CONSENT

Dear Student,

You are invited to participate in a dissertation research study about EI and alcohol use in college students. This study is being conducted by Jordan A. Burko, a doctoral candidate in Counseling Psychology and School Psychology at Florida State University, and is supervised by Steven I. Pfeiffer, Ph.D., a faculty member at Florida State University. Your participation in this study would be greatly appreciated. Please read this form and direct any questions you may have to the researcher.

The purpose of this study is to further the research on the relationship between EI and alcohol use. While many college students use alcohol in a responsible way, high-risk drinking is prevalent. Research on the association between EI, reasons for using alcohol, high-risk alcohol use, and alcohol related problems in college students has practical implications for better understanding students who might be at risk for high-risk drinking.

If you agree to be in this study, you will be asked to complete an online survey. The survey includes a screening questionnaire, a demographic questionnaire, and seven assessments about EI, alcohol use, and life stress. Please complete all measures honestly and provide an answer to each question to the best of your ability. Completion of the survey should take approximately 20 minutes. You will not be provided individual feedback regarding the assessments you complete. By participating in this study, you will be compensated $1.

All of the information obtained in this research study will be kept private and confidential to the extent permitted by law. The online survey portal used for this study is Qualtrics, which will be password protected and only accessible by the principle investigator. Data is also encrypted to add an additional layer of privacy and protection. Your personal responses will not be released to the public and will only be seen by the principle investigator and faculty advisors. In any future publication of the results of this study, no information will be included that would make it possible to identify a participant. Data will be retained in a secure manner until September 12th, 2023, after which it will be destroyed.

Your participation in this study is completely voluntary. Your decision whether or not to participate will not affect your current or future relations with your university. If at any time you choose to decline to answer any survey questions or choose to withdraw from the study, you may do so without any consequences. The risks involved in this study are minimal. It is possible that you may experience some discomfort answering personal questions about your alcohol use and problems you experience due to drinking as well as become more aware of some personal characteristics that relate to EI. If you experience any anxiety or discomfort after completing the study, please contact your universities counseling center or another mental health agency to discuss this further.

There are no direct benefits to you for participating in this study, though it is possible you may benefit from learning more about your alcohol use and characteristics of EI. Your participation in this study makes a valuable contribution to the understanding of the relationship between EI and alcohol use in the college population. This information is valuable and your participation is greatly appreciated.

If you have any questions regarding this research, please contact Jordan Burko at ███████████ or call ████████████ You may also contact the faculty advisor of this research project, Steven Pfeiffer, Ph.D., at ████████████ or by phone at ████████████ Should you have any questions or concerns about the study that you prefer to direct to someone other than the researcher, you are encouraged to contact the FSU IRB at 2010 Levy Street, Research Building B, Suite 276, Tallahassee, FL 32306-2742, or 850-644-8633, or by email at humansubjects@fsu.edu.

If you are satisfied with the information provided and are willing to participate in the research study, please indicate your consent by choosing the appropriate response below. Thank you for your time and participation in this research project.

Jordan A. Burko, B.A.
Doctoral Candidate
Combined Counseling Psychology and School Psychology
Florida State University

Steven I. Pfeiffer, Ph.D.
Faculty Advisor
Department of Educational Psychology and Learning Systems
Florida State University

APPENDIX D

SCREENING QUESTIONNAIRE

1. Are you 18 years of age or older?

    o Yes
    o No

2. Are you currently enrolled as an undergraduate college student attending a four-year college or university?

    o Yes
    o No

APPENDIX E

DEMOGRAPHIC QUESTIONNAIRE

Instructions: Please provide a response to each of the following questions.

1. What is your age?
   - _____

2. What is your sex?
   - Male
   - Female

3. What is your gender identity?
   - Male
   - Female
   - Transgender
   - Other: _____

4. What is your sexual orientation?
   - Heterosexual
   - Lesbian
   - Gay
   - Bisexual
   - Questioning
   - Other: _____

5. What is your race? (Select as many as apply)
   - White or Caucasian
   - Black or African American
   - American Indian or Alaskan Native
   - Asian or Asian American
   - Native Hawaiian or Other Pacific Islander
   - Multiracial
   - Other: _____

6. What is your ethnicity
   - Hispanic or Latino/a
   - Non-Hispanic

7. What is the name of college or university you are currently attending?
   - _____

8. Are you a member of Greek life?
   - Yes
   - No

9. What is your college G.P.A.?
   - _____
   - I do not yet have a college G.P.A. (first semester college freshman)

SCHUTTE SELF REPORT EI TEST (SSEIT)

Instructions: Indicate the extent to which each item applies to you using the following scale:

1 = strongly disagree
2 = disagree
3 = neither disagree nor agree
4 = agree
5 = strongly agree

1. I know when to speak about my personal problems to others
2. When I am faced with obstacles, I remember times I faced similar obstacles and overcame them
3. I expect that I will do well on most things I try
4. Other people find it easy to confide in me
5. I find it hard to understand the non-verbal messages of other people*
6. Some of the major events of my life have led me to re-evaluate what is important and not important
7. When my mood changes, I see new possibilities
8. Emotions are one of the things that make my life worth living
9. I am aware of my emotions as I experience them
10. I expect good things to happen
11. I like to share my emotions with others
12. When I experience a positive emotion, I know how to make it last
13. I arrange events others enjoy
14. I seek out activities that make me happy
15. I am aware of the non-verbal messages I send to others
16. I present myself in a way that makes a good impression on others
17. When I am in a positive mood, solving problems is easy for me
18. By looking at their facial expressions, I recognize the emotions people are experiencing
19. I know why my emotions change
20. When I am in a positive mood, I am able to come up with new ideas
21. I have control over my emotions
22. I easily recognize my emotions as I experience them
23. I motivate myself by imagining a good outcome to tasks I take on
24. I compliment others when they have done something well
25. I am aware of the non-verbal messages other people send
26. When another person tells me about an important event in his or her life, I almost feel as though I have experienced this event myself
27. When I feel a change in emotions, I tend to come up with new ideas
28. When I am faced with a challenge, I give up because I believe I will fail*

29. I know what other people are feeling just by looking at them
30. I help other people feel better when they are down
31. I use good moods to help myself keep trying in the face of obstacles
32. I can tell how people are feeling by listening to the tone of their voice
33. It is difficult for me to understand why people feel the way they do*

SITUATIONAL TEST OF EMOTION MANAGEMENT-BRIEF (STEM-B)

Instructions: In this test, you will be presented with a few brief details about an emotional situation, and asked to choose from four responses the most effective course of action to manage both the emotions the person is feeling and the problems they face in that situation.

Although more than one course of action might be acceptable, you are asked to choose what you think the most effective response for that person in that situation would be.

Remember, you are not necessarily choosing what you would do, or the nicest thing to do, but choosing the most effective response for that situation.

Test Items:

1. Wai-Hin and Connie have shared an office for years but Wai-Hin gets a new job and Connie loses contact with her. *What action would be the most effective for Connie?*
(a) Just accept that she is gone and the friendship is over.
(b) Ring Wai-Hin and ask her out for lunch or coffee to catch up.
(c) Contact Wai-Hin and arrange to catch up but also make friends with her replacement.
(d) Spend time getting to know the other people in the office, and strike up new friendships.

2. Manual is only a few years from retirement when he finds out his position will no longer exist, although he will still have a job with a less prestigious role. *What action would be the most effective for Manual?*
(a) Carefully consider his options and discuss it with his family.
(b) Talk to his boss or the management about it.
(c) Accept the situation, but still feel bitter about it.
(d) Walk out of that job.

3. Surbhi starts a new job where he doesn't know anyone and finds that no one is particularly friendly. *What action would be the most effective for Surbhi?*
(a) Have fun with his friends outside of work hours.
(b) Concentrate on doing his work well at the new job.
(c) Make an effort to talk to people and be friendly himself.
(d) Leave the job and find one with a better environment.

4. Andre moves away from the city his friends and family are in. He finds his friends make less effort to keep in contact than he thought they would. *What action would be the most effective for Andre?*
(a) Try to adjust to life in the new city by joining clubs and activities there.
(b) He should make the effort to contact them, but also try to meet people in his new city.
(c) Let go of his old friends, who have shown themselves to be unreliable.
(d) Tell his friends he is disappointed in them for not contacting him.

5. Clayton has been overseas for a long time and returns to visit his family. So much has changed that Clayton feels left out. *What action would be the most effective for Clayton?*
(a) Nothing – it will sort itself out soon enough.
(b) Tell his family he feels left out.
(c) Spend time listening and getting involved again.
(d) Reflect that relationships can change with time.

6. Daniel has been accepted for a prestigious position in a different country from his family, who he is close to. He and his wife decide it is worth relocating. *What action would be the most effective for Daniel?*
(a) Realize he shouldn't have applied for the job if he didn't want to leave.
(b) Set up a system for staying in touch, like weekly phone calls or emails.
(c) Think about the great opportunities this change offers.
(d) Don't take the position.

7. Mei Ling answers the phone and hears that close relatives are in hospital critically ill. *What action would be the most effective for Mei Ling?*
(a) Let herself cry and express emotion for as long as she feels like.
(b) Speak to other family to calm herself and find out what is happening, then visit the hospital.
(c) There is nothing she can do.
(d) Visit the hospital and ask staff about their condition.

8. Shona has not spoken to her nephew for months, whereas when he was younger they were very close. She rings him but he can only talk for five minutes. *What action would be the most effective for Shona?*
(a) Realize that he is growing up and might not want to spend so much time with his family any more.
(b) Make plans to drop by and visit him in person and have a good chat.
(c) Understand that relationships change, but keep calling him from time to time.
(d) Be upset about it, but realize there is nothing she can do.

9. Mina and her sister-in-law normally get along quite well, and the sister-in-law regularly baby-sits for her for a small fee. Lately she has also been cleaning away cobwebs, commenting on the mess, which Mina finds insulting. *What action would be the most effective for Mina?*
(a) Tell her sister-in-law these comments upset her.
(b) Get a new babysitter.
(c) Be grateful her house is being cleaned for free.
(d) Tell her only to baby-sit, not to clean.

10. Juno is fairly sure his company is going down and his job is under threat. It is a large company and nothing official has been said. *What action would be the most effective for Juno?*
(a) Find out what is happening and discuss his concerns with his family.
(b) Try to keep the company afloat by working harder.
(c) Start applying for other jobs.
(d) Think of these events as an opportunity for a new start.

11. Mallory moves from a small company to a very large one, where there is little personal contact, which she misses. *What action would be the most effective for Mallory?*
(a) Talk to her workmates, try to create social contacts and make friends.
(b) Start looking for a new job so she can leave that environment.
(c) Just give it time, and things will be okay.
(d) Concentrate on her outside-work friends and colleagues from previous jobs.

12. A demanding client takes up a lot of Jill's time and then asks to speak to Jill's boss about her performance. Although Jill's boss assures her that her performance is fine, Jill feels upset. *What action would be the most effective for Jill?*
(a) Talk to her friends or workmates about it.
(b) Ignore the incident and move on to her next task.
(c) Calm down by taking deep breaths or going for a short walk.
(d) Think that she has been successful in the past and this client being difficult is not her fault.

13. Blair and Flynn usually go to a cafe after the working week and chat about what's going on in the company. After Blair's job is moved to a different section in the company, he stops coming to the cafe. Flynn misses these Friday talks. *What action would be the most effective for Flynn?*
(a) Go to the cafe or socialize with other workers.
(b) Don't worry about it, ignore the changes and let Blair be.
(c) Not talk to Blair again.
(d) Invite Blair again, maybe rescheduling for another time.

14. Michelle's friend Dara is moving overseas to live with her partner. They have been good friends for many years and Dara is unlikely to come back. *What action would be the most effective for Michelle?*
(a) Forget about Dara.
(b) Spend time with other friends, keeping herself busy.
(c) Think that Dara and her partner will return soon.
(d) Make sure she keeps in contact through email, phone or letter writing.

15. Hannah's access to essential resources has been delayed and her work is way behind schedule. Her progress report makes no mention of the lack of resources. *What action would be the most effective for Hannah?*
(a) Explain the lack of resources to her boss or to management.
(b) Learn that she should plan ahead for next time.
(c) Document the lack of resources in her progress report.
(d) Don't worry about it.

16. Reece's friend points out that her young children seem to be developing more quickly than Reece's. Reece sees that this is true. *What action would be the most effective for Reece?*
(a) Talk the issue over with another friend.
(b) Angrily confront her friend about making such statements.
(c) Realize that children develop at different rates.

(d) Talk to a doctor about what the normal rates of development are.

17. Jumah has been working at a new job part-time while he studies. His shift times for the week are changed at the last minute, without consulting him. *What action would be the most effective for Jumah?*
(a) Refuse to work the new shifts.
(b) Find out if there is some reasonable explanation for the shift changes.
(c) Tell the manager in charge of shifts that he is not happy about it.
(d) Grumpily accept the changes and do the shifts.

18. Julie hasn't seen Ka for ages and looks forward to their weekend trip away. However, Ka has changed a lot and Julie finds that she is no longer an interesting companion. *What action would be the most effective for Julie?*
(a) Cancel the trip and go home.
(b) Realize that it is time to give up the friendship and move on.
(c) Understand that people change, so move on, but remember the good times.
(d) Concentrate on her other, more rewarding friendships.

DRINKING MOTIVES QUESTIONNAIRE-REVISED (DMQ-R)

Instructions: Listed below are reasons people might be inclined to drink alcoholic beverages. Using the five-point scale below, decide how frequently your own drinking is motivated by each of the reasons listed.

	1. Almost Never/Never	2. Some of the Time	3. Half of the Time	4. Most of the Time	5. Almost Always/Always
DMQR 1. As a way to celebrate.	○	○	○	○	○
DMQR 2. To relax.	○	○	○	○	○
DMQR 3. Because I like the feeling.	○	○	○	○	○
DMQR 4. Because it is what most of my friends do when we get together.	○	○	○	○	○
DMQR 5. To forget my worries.	○	○	○	○	○
DMQR 6. Because it is exciting.	○	○	○	○	○
DMQR 7. To be sociable.	○	○	○	○	○
DMQR 8. Because I feel more self-confident or sure of myself.	○	○	○	○	○
DMQR 9. To get a high.	○	○	○	○	○
DMQR 10. Because it is customary on special occasions.	○	○	○	○	○
DMQR 11. Because it helps me when I am feeling nervous.	○	○	○	○	○
DMQR 12. Because it's fun.	○	○	○	○	○
DMQR 13. Because it makes a social gathering more enjoyable.	○	○	○	○	○
DMQR 14. To cheer me up when I'm in a bad mood.	○	○	○	○	○
DMQR 15. To be liked.	○	○	○	○	○
DMQR 16. To numb my pain.	○	○	○	○	○

DMQR 17. Because it helps me when I am feeling depressed.	○	○	○	○	○
DMQR 18. So that others won't kid me about not using.	○	○	○	○	○
DMQR 19. To reduce my anxiety.	○	○	○	○	○
DMQR 20. To stop me from dwelling on things	○	○	○	○	○
DMQR 21. To turn off negative thoughts about myself.	○	○	○	○	○
DMQR 22. To help me feel more positive about things in my life.	○	○	○	○	○
DMQR 23. To stop me from feeling so hopeless about the future.	○	○	○	○	○
DMQR 24. Because my friends pressure me to use.	○	○	○	○	○
DMQR 25. To fit in with a group I like.	○	○	○	○	○
DMQR 26. Because it makes me feel good.	○	○	○	○	○
DMQR 27. To forget painful memories.	○	○	○	○	○
DMQR 28. So I won't feel left out.	○	○	○	○	○

APPENDIX I

DRINKING BEHAVIOR

Instructions: Please answer the following questions based upon a typical month.

1. On how many days do you typically drink alcohol?

2. On how many days do you have more than 4/5 drinks on one occasion?*

3. What is the typical number of drinks you have when you drink alcohol?

4. What is the maximum number of drinks you have on occasion in a typical month?

* Based upon the participants sex, question #2 will be presented as either 4 drinks (female) or 5 drinks (male).

RUTGERS ALCOHOL PROBLEM INDEX (RAPI-23)

Instructions: Different things happen to people while they are drinking ALCOHOL or because of their <u>ALCOHOL </u>drinking. Several of these things are listed below. Indicate <u>how many times</u> each of these things happened to you WITHIN THE LAST YEAR.

Use the following code:
0 = None
1 = 1-2 times
2 = 3-5 times
3 = More than 5 times

<u>HOW MANY TIMES HAS THIS HAPPENED TO YOU WHILE YOU WERE DRINKING OR BECAUSE OF YOUR DRINKING DURING THE LAST YEAR?</u>

0 1 2 3 Not able to do your homework or study for a test
0 1 2 3 Got into fights with other people (friends, relatives, strangers)
0 1 2 3 Missed out on other things because you spent too much money on alcohol
0 1 2 3 Went to work or school high or drunk
0 1 2 3 Caused shame or embarrassment to someone
0 1 2 3 Neglected your responsibilities
0 1 2 3 Relatives avoided you
0 1 2 3 Felt that you needed <u>more </u>alcohol than you used to in order to get the same effect
0 1 2 3 Tried to control your drinking (tried to drink only at certain times of the day or in certain places, that is, tried to change your pattern of drinking)
0 1 2 3 Had withdrawal symptoms, that is, felt sick because you stopped or cut down on drinking
0 1 2 3 Noticed a change in your personality
0 1 2 3 Felt that you had a problem with alcohol
0 1 2 3 Missed a day (or part of a day) of school or work
0 1 2 3 Wanted to stop drinking but couldn't
0 1 2 3 Suddenly found yourself in a place that you could not remember getting to
0 1 2 3 Passed out or fainted suddenly
0 1 2 3 Had a fight, argument or bad feeling with a friend
0 1 2 3 Had a fight, argument or bad feeling with a family member
0 1 2 3 Kept drinking when you promised yourself not to
0 1 2 3 Felt you were going crazy
0 1 2 3 Had a bad time
0 1 2 3 Felt physically or psychologically dependent on alcohol
0 1 2 3 Was told by a friend, neighbor or relative to stop or cut down drinking

APPENDIX K

PERCEIVED STRESS SCALE-10 (PSS-10)

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.

0 = Never 1 = Almost Never 2 = Sometimes 3 = Fairly Often 4 = Very Often

1. In the last month, how often have you been upset because of something that happened unexpectedly?
2. In the last month, how often have you felt that you were unable to control the important things in 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?

A PRIORI G*POWER OUTPUT
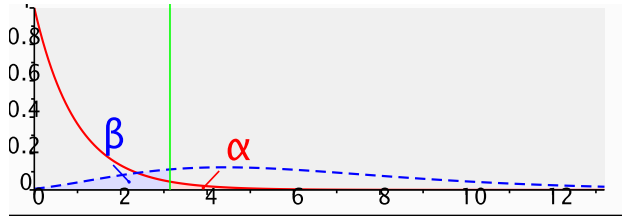
F tests - Linear multiple regression: Fixed model, R² increase

Analysis: A priori: Compute required sample size

Input:
Effect size f²	=	0.15
α err prob	=	0.05
Power (1-β err prob)	=	0.80
Number of tested predictors	=	2
Total number of predictors	=	3

Output:
Noncentrality parameter λ	=	10.2000000
Critical F	=	3.1404376
Numerator df	=	2
Denominator df	=	64
Total sample size	=	68
Actual power	=	0.8041131

APPENDIX M

A PRIORI MONTE CARLO POWER ANALYSIS OUTPUT

Table 10

A Priori Monte Carlo Power Analysis

	Population	Average	S.D.	S.E.	M.S.E.	95 % Coeff	% Sig (N=275)
M1 on X	0.300	0.2984	0.0833	0.0850	0.0069	0.956	**0.947**
M2 on X	0.250	0.2522	0.0885	0.0851	0.0078	0.937	**0.832**
Y on M1	0.300	0.2999	0.0610	0.0603	0.0037	0.935	**0.999**
Y on M2	0.250	0.2487	0.0591	0.0602	0.0035	0.958	**0.985**
Y on X	-0.250	0.2543	0.0903	0.0883	0.0082	0.946	**0.808**
Total	.0375	0.3793	0.0906	0.0902	0.0082	0.947	**.0982**
Total Indirect	0.125	0.1251	0.0386	0.0379	0.0015	0.944	**0.969**

DEPENDENT VARIABLE DISTRIBUTIONS
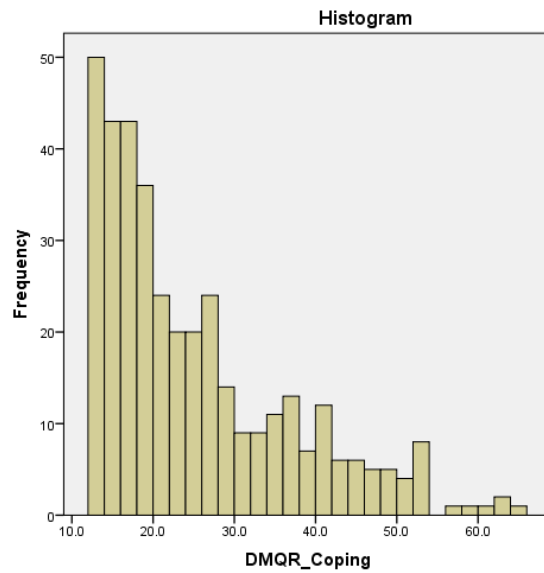
Figure 14: Coping motives distribution

Figure 15: Distribution of coping motives after natural log transformation
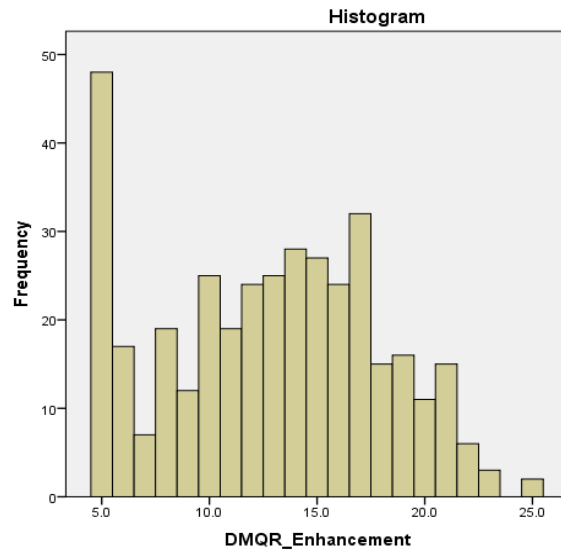
Figure 16: Enhancement motives distribution
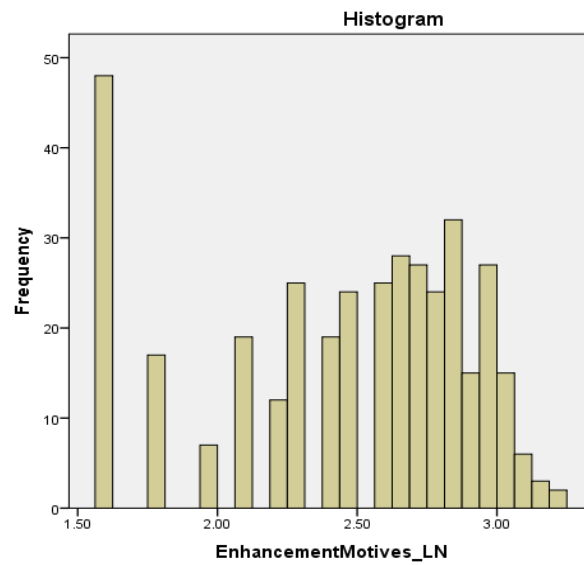
Figure 17: Distribution of enhancement motives after natural log transformation
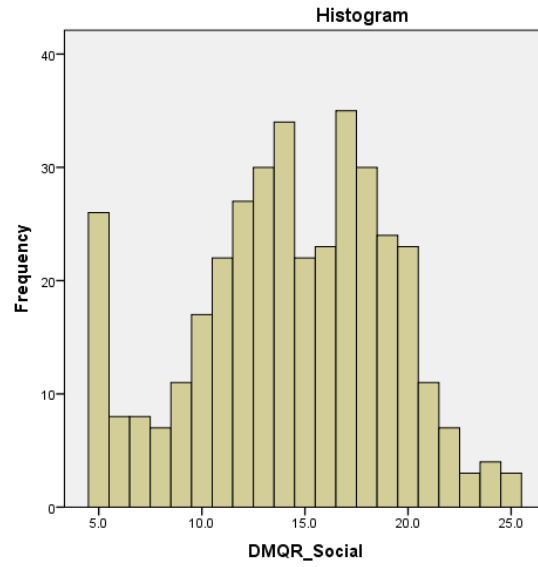
Figure 18: Social motives distribution
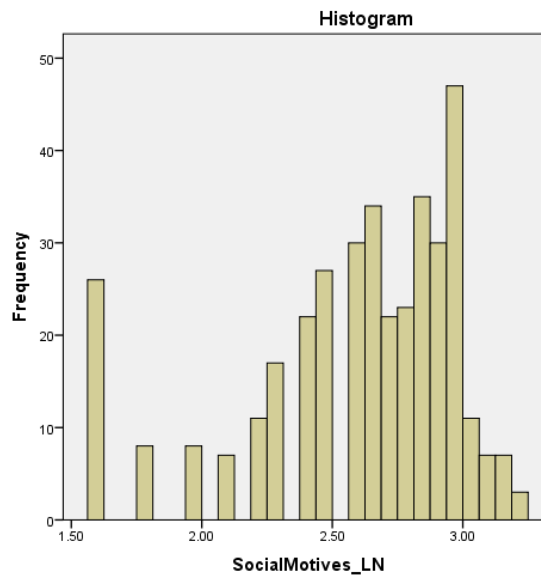
Figure 19: Distribution of social motives after natural log transformation

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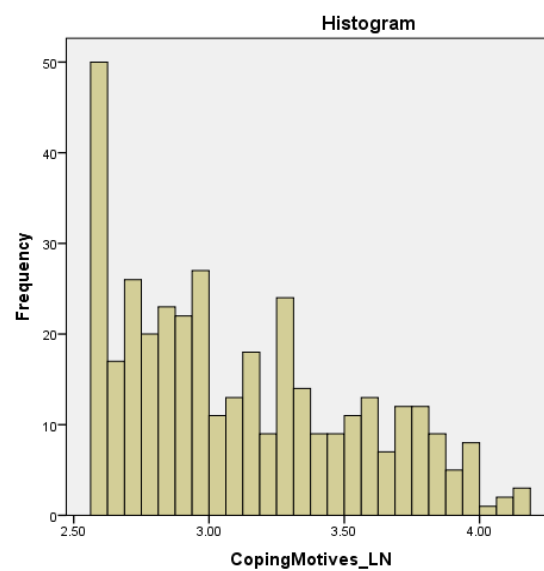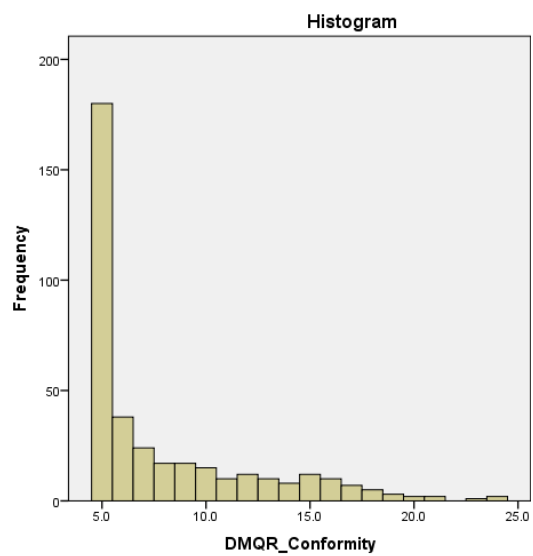*Figure 20:* Conformity motives distribution
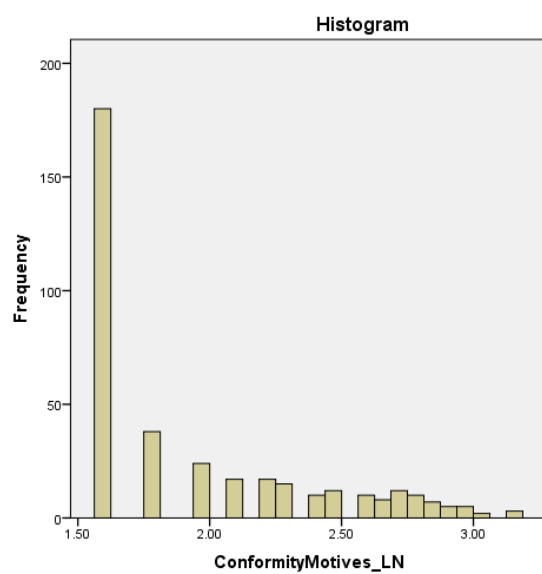
Figure 21: Distribution of conformity after natural log transformation
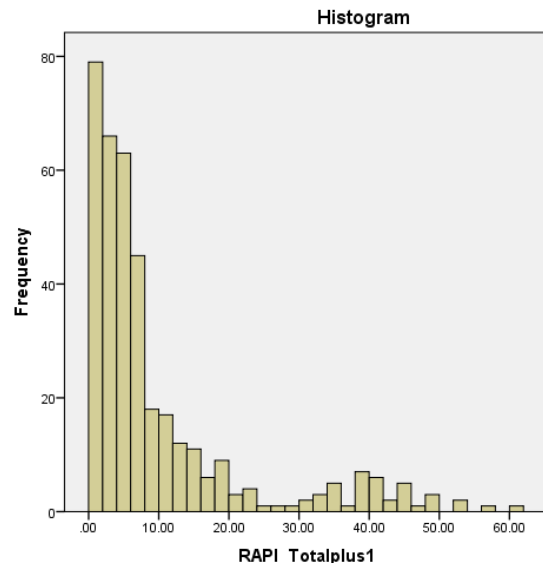
Figure 22: RAPI-23 plus 1 distribution
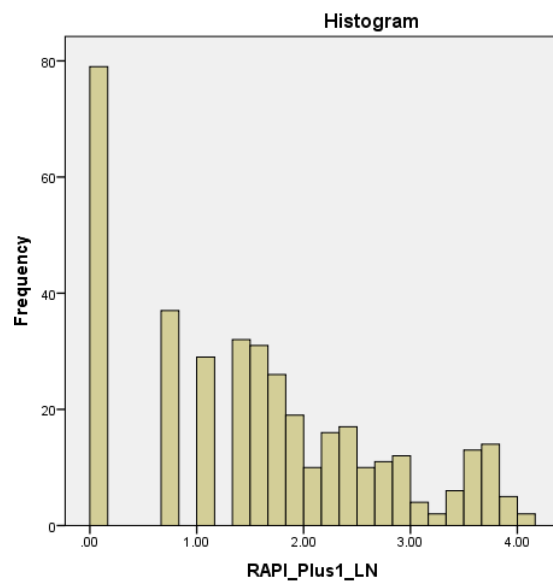
Figure 23: Distribution of RAPI-23 plus 1 after natural log transformation
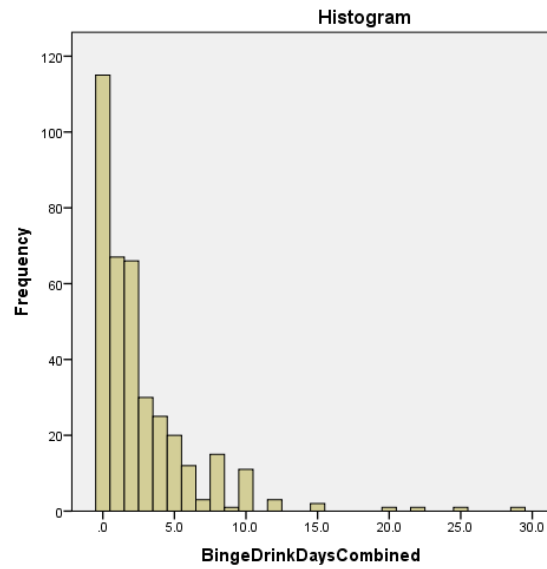
Figure 24: Binge drinking frequency plus 1
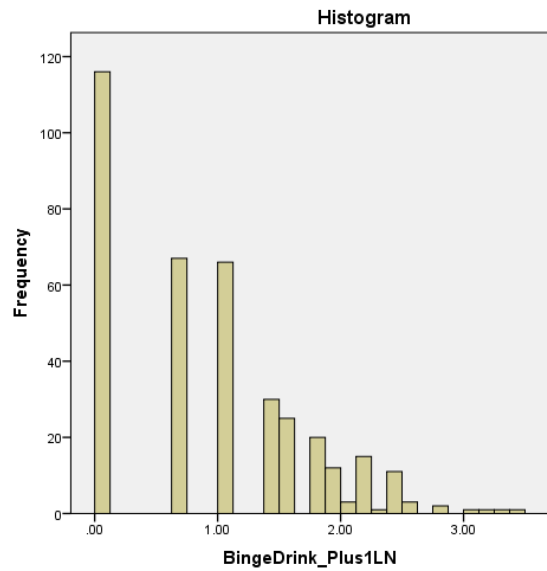
Figure 25: Distribution of binge drinking distribution frequency plus 1 after natural log transformation

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APPENDIX O

POST HOC G*POWER OUTPUT

Research Question 1
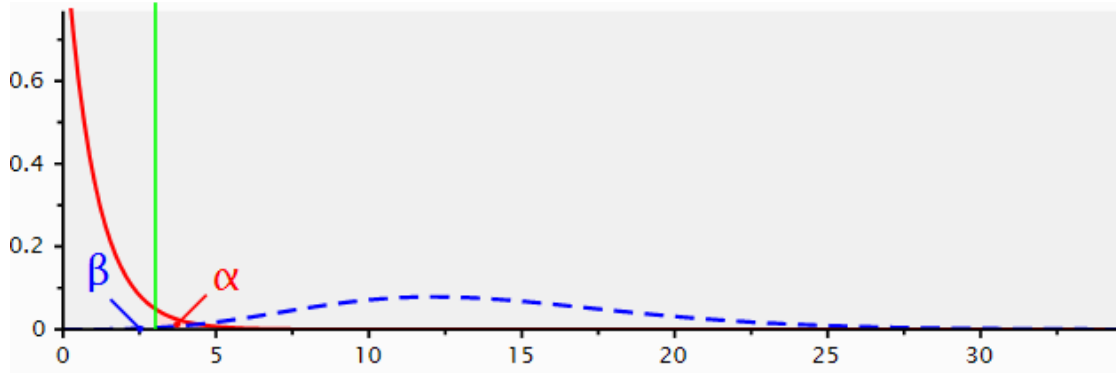
F tests   Linear multiple regression: Fixed model, R² increase
Analysis: Post hoc: Compute achieved power
Input: Effect size f²   = 0.068
               α err prob   = 0.05
               Total sample size   = 374
               Number of tested predictors   = 2
               Total number of predictors   = 3
Output: Noncentrality parameter λ   = 25.4320000
               Critical F   = 3.0201189
               Numerator df   = 2
               Denominator df   = 370
               Power (1-β err prob)   = 0.9967014

Research Question 2
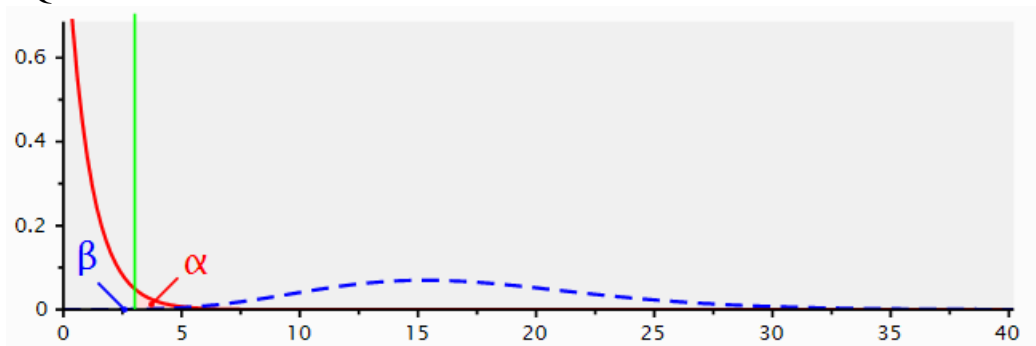
F tests   Linear multiple regression: Fixed model, R² increase
Analysis: Post hoc: Compute achieved power
Input: Effect size f²   = 0.085
               α err prob   = 0.05
               Total sample size   = 374
               Number of tested predictors   = 2

Total number of predictors   = 3

Output: Noncentrality parameter λ   = 31.7900000
Critical F   = 3.0201189
Numerator df   = 2
Denominator df   = 370
Power (1-β err prob)   = 0.9995174

Research Question 3
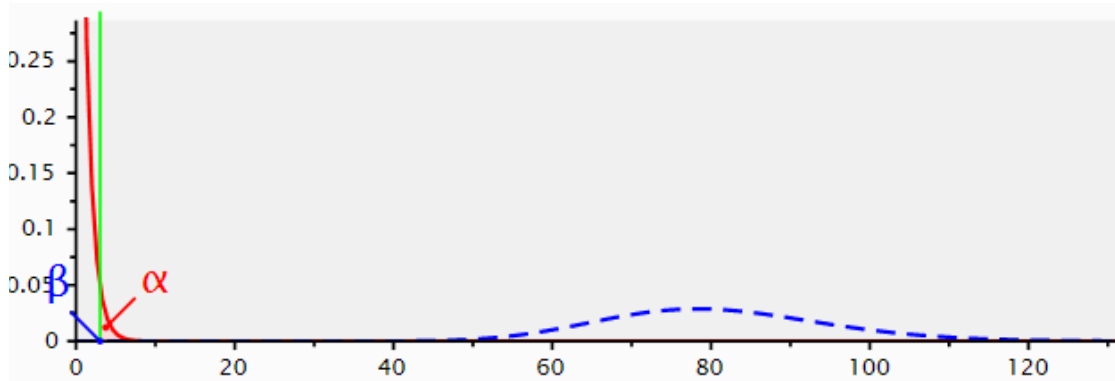
F tests   Linear multiple regression: Fixed model, R² increase
Analysis: Post hoc: Compute achieved power
Input: Effect size f²   = 0.424
α err prob   = 0.05
Total sample size   = 374
Number of tested predictors   = 2
Total number of predictors   = 3
Output: Noncentrality parameter λ   = 158.576
Critical F   = 3.0201189
Numerator df   = 2
Denominator df   = 370
Power (1-β err prob)   = 1.0000000

Research Question 4
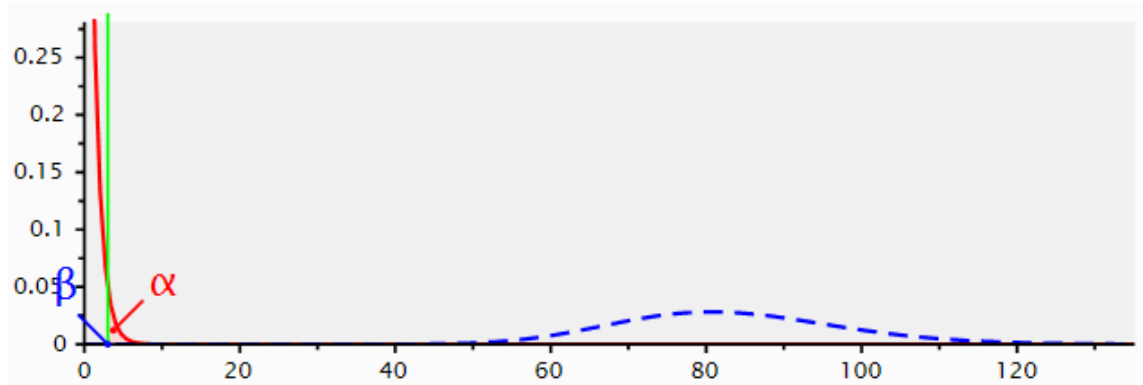
F tests   Linear multiple regression: Fixed model, R² increase

Analysis: Post hoc: Compute achieved power
Input: Effect size f²   = 0.443
               α err prob   = 0.05
               Total sample size   = 369
               Number of tested predictors = 2
               Total number of predictors   = 3
Output: Noncentrality parameter λ   = 163.467
               Critical F   = 3.0204548
               Numerator df   = 2
               Denominator df   = 365
               Power (1-β err prob)   = 1.0000000

APPENDIX P

POST HOC MONTE CARLO POWER ANALYSES

Table 11

Research Question 3 Post Hoc Monte Carlo Power Analysis

|	Population	Average	*SD*	*S.E.*	*M.S.E*	95 % Coeff	**% Sig** **(*N*=369)**	**% Sig** **(*N*=4,700)**
M1 on X	-0.152	-0.1502	0.0512	0.0520	0.0026	0.950	**0.832**	**1.0**
M2 on X	-0.055	-0.0529	0.0524	0.0521	0.0027	0.938	**0.177**	**.967**
Y on M1	0.061	0.0604	0.0531	0.0521	0.0028	0.947	**0.226**	**.979**
Y on M2	-0.039	-0.0369	0.0526	0.0520	0.0028	0.942	**0.118**	**.734**
Y on X	0.025	0.0271	0.0529	0.0527	0.0028	0.942	**0.077**	**.381**
Total	.018	.0200	.0518	.0522	.0027	.941	**.057**	**.214**
Total Indirect	-.007	-.0071	.0100	.0103	.0001	.976	**.043**	**.815**

Table 12

Research Question 4 Post Hoc Monte Carlo Power Analysis

	Population	Average	*S.D.*	*S.E.*	*M.S.E.*	95 % Coeff	**% Sig** **(*N*=372)**	**% Sig** **(*N*=1,000)**
M1 on X	-0.165	-0.1630	.0515	.0518	.0026	.954	**.882**	**1.0**
M2 on X	-.064	-0.615	.0504	.0519	.0025	.950	**.211**	**.523**
Y on M1	.235	.2347	.0519	.0519	.0027	.957	**.995**	**1.0**
Y on M2	1.253	1.2553	.0521	.0518	.0027	.94q	**1.0**	**1.0**
Y on X	-0.054	-.0518	.0510	.0526	.0026	.960	**0.155**	**.368**
Total	-0.173	-0.1672	.0816	.0841	.0067	.958	**.513**	**.919**
Total Indirect	-.119	-.1154	.0655	.0670	.0043	.955	**.394**	**.812**

Table 13

Research Question 5 Post Hoc Monte Carlo Power Analysis

	Population	Average	*S.D.*	*S.E.*	*M.S.E.*	95 % Coeff	**% Sig** **(*N*=369)**	**% Sig** **(*N*=3,900)**
M1 on X	-1.863	-1.8610	.0512	.0520	.0026	.950	**1.0**	**1.0**
M2 on X	-.719	-.7172	.0524	.0521	.0027	.938	**1.0**	**1.0**
Y on M1	.062	.0611	.0531	.0521	.0028	.947	**.230**	**.962**
Y on M2	-0.031	-0.0288	0.0526	.0520	.0028	0.942	**0.095**	**.464**
Y on X	.082	.0841	.1205	.1161	.0145	.946	**.127**	**.637**
Total	-.011	-0.0089	0.0518	.0522	0.0027	0.0942	**0.057**	**.099**
Total Indirect	-0.093	-0.0930	0.1062	0.1040	0.0113	0.952	**0.160**	**.830**

Table 14

Research Question 6 Post Hoc Monte Carlo Power Analysis

	Population	Average	*S.D.*	*S.E.*	*M.S.E.*	95 % Coeff	**% Sig (N=372)**
M1 on X	-1.795	-1.7929	0.0515	0.0518	0.0026	0.954	**1.0**
M2 on X	-0.710	-0.7078	0.0504	0.0519	0.0025	0.950	**1.0**
Y on M1	0.191	0.1907	0.0520	0.0519	0.0027	0.957	**0.962**
Y on M2	1.045	1.0477	0.0521	0.0518	0.0027	0.941	**1.0**
Y on X	-0.970	-0.9673	0.1145	0.1126	0.0131	0.957	**1.0**
Total	-2.056	-2.0506	0.0733	0.0758	0.0054	0.961	**1.0**
Total Indirect	-1.085	-1.0833	0.1137	0.1143	0.0129	0.948	**1.0**

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BIOGRAPHICAL SKETCH

Born and raised in the great state of New Hampshire, Jordan earned her Bachelors of Arts degree with a concentration in Women and Gender's Studies at the College of the Holy Cross in Worcester, Massachusetts. Her curiosity for understanding human behavior and love for learning brought her to the Counseling and School Psychology program at Florida State University, where she has been admitted to doctoral candidacy. She has acquired clinical experiences in diverse settings over the years, including inpatient hospitals, correctional facilities, school-based sites, and university clinics. Jordan's passion for working with the college population emerged during her time in graduate school and she looks forward to beginning an APA-accredited pre-doctoral internship at the University of Northern Illinois in DeKalb, IL this summer. Jordan is anticipated to graduate with her Doctor in Philosophy in Counseling and School Psychology in August 2018. She looks forward to a fulfilling and exciting career as a practicing psychologist.