

DISSERTATION

EXISTENTIAL CONCERNS AND RISKY BEHAVIOR IN COLLEGE STUDENTS

Submitted by

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ABSTRACT

EXISTENTIAL CONCERNS AND RISKY BEHAVIOR IN COLLEGE STUDENTS

Substance use and sexual behavior are highly prevalent on college campuses (Arria et al., 2017; American College Health Association, 2018; Schulenberg et al., 2017). Substance misuse and risky sex can lead to adverse consequences (Furman & Collibee, 2014; Patrick & Terry-McElrath, 2016; Read, Haas, Radomski, Wickham, & Borish, 2016). There is high comorbidity between anxiety, substance use, and substance use disorders (Wolitzky et al., 2018). Existential anxiety may be a form of anxiety that is relevant to the college experience because college aged emerging adults are coping with existential issues, e.g., freedom, isolation, meaninglessness, and death, often for the first time. In a sample of undergraduate students, existential concerns predicted higher reports of binge drinking behavior. Existential concerns did not predict cannabis use or unprotected vaginal sex. Moderation analyses indicated that variables such as coping, and mindfulness are variables of interest that require further research to understand their influence on risky behavior as they relate to existential anxiety. Auxiliary analyses revealed that a focus on construct validity and continued measurement development for assessing existential concerns is critical. Various existential themes (i.e., isolation, meaning, freedom) were found to be more strongly associated with risky behavior. This study demonstrates the importance of considering the role existential anxiety plays in engagement of high-risk behaviors among college students.

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CHAPTER I

Emerging Adulthood

Historically, research on identity exploration has been examined during adolescence (Schwartz, Zamboanga, Luyckx, Meca, & Ritchie, 2013). However, Arnett (2005) argues that the majority of in-depth identity exploration happens during emerging adulthood. In 2000, Jeffery Arnett introduced the term “emerging adulthood,” to encompass the ages of 18-25 and is a bridge between adolescence and adulthood, marked by freedom to explore adult relationships, experiment with substances, explore various career opportunities, and formulate opinions and beliefs about the world (Schwartz et al., 2013). Many emerging adults attend a college or 4-year university. 16.8 million students were enrolled in 2017 in degree granting postsecondary schools (National Center for Education Statistics). According to the United States Census Bureau (2014), 19-22-year-old individuals encompass about 75% of undergraduates enrolled full-time in college. College offers a unique setting for emerging adults to take advantage of the distinctive features of emerging adulthood, including a wide variety of opportunities to explore one’s self and the world around them (Schwartz et al., 2013).

Erik Erikson’s theory of development identifies love and work as key areas of identity development within the formative adolescent years (Schwartz, 2001; Schwartz et al., 2013). Arnett (2005) agrees that, indeed, identity development begins in the adolescent years. Adolescence provides the first opportunities for major life milestones like a first romantic relationship, and a time to consider what kind of work one may wish to pursue for one’s career. Arnett argues however that emerging adulthood, not adolescence, is the period of time where love and work actually require an in depth look into the self to understand what types of

work/love will be fulfilling and meaningful in the long-term. Therefore, emerging adulthood requires formative identity development as well as development in areas of romantic relationships and career decisions.

In addition to identity development during the emerging adulthood years, college students are working to navigate the social components of college and attempt to form meaningful connections with others (Schwartz et al., 2013). College students are also working to make career decisions that will have a lasting influence on them after college. Therefore, development in emerging adulthood extends beyond developing one's identity. It further includes formulation of one's place in society and one's place in social groups (Schwartz et al., 2013). Areas of development that have gone un-noticed in this population extend beyond identity and include existential concerns. Other areas of development and growth include, awareness of death and mortality, freedom to make life choices and accept the consequences of those choices, working to build fulfilling romantic and non-romantic relationships, and establishing one's self as a meaningful member of society (Yalom, 1980).

Existentialism

Existentialism as a philosophy, and specifically existential anxiety as a psychological reaction to existential threats, is concerned with existence as a whole. Existentialism and existential anxiety often refer to unease and anxiety that does not have a tangible object, but instead deals with common experiences within the human existence (Karavalaki & Shumaker, 2016; May, 1950; Yalom, 1980). It is common to think of anxiety as being "worried" or "keyed up" about every-day stressors or thinking of anxiety as "free-floating" (American Psychiatric Association, 2013). Interventions therefore, often try to reason with an individual's anxiety by challenging either maladaptive thoughts or beliefs one might have about themselves and the

world that is contributing to their feelings of anxiety (Carpenter, Andrews, Witcraft, Powers, Smits, & Hofmann, 2017).

Existential anxiety on the other hand deals with the “I am,” not the, “I think” that so many modern therapies address (Solomon, 2005; May, 1977; Tillich, 1952). According to Yalom (1980), anxiety may stem from multiple domains. These include, ideas of death, concerns related to lack of meaning, fear of making wrong life choices, and the feeling of being unconnected. It focuses on anxiety that is concerned with identity (“who am I?”), social connection (“who cares about me?”), freedom (“all of my choices have consequences”), meaning/purpose (“what is my role in this world?”), guilt (“I expected so much more from myself”), and ultimately death (“what happens to me when I die?”). Existential empirical research often pulls from Irvin Yalom’s theory regarding existential death, freedom, existential isolation, and meaning/purpose. Anxiety, according to Yalom (1980), lies in the tension that is created from polarity within the above mentioned concerns.

Death

Death is often the most salient and strongest existential concern. The universal human experience is that one day we will all cease to exist (Yalom, 1980). However, as humans, we do what we can to fight death and preserve our existence. Therefore, anxiety comes from the conflict that death is salient and inevitable, but we have a strong desire to continue living and avoid death (Yalom, 1980).

Existential Death in College Years

By the time an individual begins college, many will have experienced a significant loss of a loved one, or be confronted by death in some capacity (Karavalaki & Shumaker, 2016).

Individuals in college may also be mourning the loss of childhood innocence or meaningful past relationships (Karavalaki & Shumaker, 2016). Some individuals in college may cope with the salience of mortality through creating meaning in their life or constructing positive schemas of the world. Others may struggle with tension between death and the desire to live and may lead to the desire to escape the tension and cope in less constructive manners (Karavalaki & Shumaker, 2016; Yalom, 1980).

Freedom

Yalom (1980) further postulates that freedom can cause panic and dread. Structure provides us all with safety and sets of rules to follow. But what happens when we realize our structure is arbitrary and in reality, we have the freedom to make some of life's biggest choices on our own? We have freedom to create our own life and fill it with meaning and purpose. This ultimate freedom can be overwhelming. The conflict that creates anxiety lies in the desire and disdain for a "structure" that ultimately does not exist (Yalom, 1980).

Freedom in College Years

College is marked by increased freedom from parental supervision (Arnett, 2005). College offers the freedom to choose a new social circle, freedom to make career decisions, and freedom to develop one's own beliefs about the world (Arnett, 2005). For many college students, college is their first experience of the "absence of external structure," (Yalom, 1980). And, for many college students, the absence of structure may bring about the realization that true freedom has consequences, and one must take responsibility for these consequences. This realization in college has the potential to cause tension, conflict, and anxiety (Arnett, 2005; Frankl, 1962; Yalom, 1980).

Existential Isolation

Existential isolation includes what Yalom (1980) refers to as the “unbridgeable gap.” There is a tension that arises in us when we realize that our own existence on this earth is ultimately isolated. We are not truly connected to anyone else’s existence but our own. This falls in conflict with our human experience, which includes the desire to be in connection with others and other things outside of ourselves. We wish to be part of something bigger than our own existence (Yalom, 1980). Anxiety in regard to existential isolation therefore, is created when we are made aware of this conflict and reality.

Existential Isolation in College

College offers the opportunity for connection and closeness with others. It also makes the idea of isolation potentially more salient than it has ever been for emerging adults. College has the potential to bring awareness the “unbridgeable gap,” as college students strive to make friends and feel socially accepted (Yalom, 1980). College students not only face pressure to find a social circle in which they feel accepted, but they may also actively work to defend against their fundamental aloneness by adhering to groups (e.g., sorority, fraternity) and belief systems (Karavalaki & Shumaker, 2016).

Lack of Meaning (Meaninglessness)

The concern regarding meaninglessness brings together Yalom’s three other existential concerns. If ultimately as our own world creators we will all die, alone in this world, what is the meaning of life? And what is the meaning of our life specifically? The universal experience lies in our struggle to make meaning out of a world that ultimately has no meaning outside from the one we create (Yalom, 1980).

Lack of Meaning in College

Both Frankl (1962) and Yalom (1980) argue that the responsibility for creating purpose and meaning in one's life lies with that individual. For many college students that may be grappling with the other existential tensions related to death, freedom, and isolation, they may also then wonder what the meaning of their existence is after all. If then, college students are struggling to make their own meaning and purpose, they may look externally to aid in their discomfort (Yalom, 1980).

As Practitioners, Why do We Care about Existential Anxiety in this Population?

Past literature has found that within the adolescent and adult population, there is a positive relationship between lack of perceived meaning and purpose in their life, and substance abuse (Karavalaki & Shumaker, 2016). Frankl (1963) even argued that addiction, suicide, and neurotic symptoms have their etiology within the inability to find meaning in life. Arnett (2005) argues that substances may be used as a way to expand experiences for emerging adults before they settle into "adult life." Substances may also be a way to alleviate some of the stress and confusion that comes with forming a stable identity as well as encourage social facilitation (Buckner, Heimberg, Ecker, & Vinci, 2012).

Schwartz et al. (2013) outlined work that has been done around identity development, exploration, and health risk behaviors. Health risk behaviors including substance use and risky sex have been found to be predicted by identity confusion (Schwartz et al, 2013). Other research has found health risk behaviors to be positively related to exploration on the part of the individual, suggesting that for some individuals, substances may not be a way to escape distress,

but rather a way to explore and expand their human experience (Arnett, 2005; Schwartz et al., 2013).

Alcohol and Cannabis Use from a Public Health Perspective

Beginning college is generally associated with increased alcohol and cannabis use that may lead to increases in negative consequences (Patrick & Terry-McElrath, 2016; Read, Haas, Radomski, Wickham, & Borish, 2016). Negative consequences may include: hangovers, physical illness from the effects of alcohol and cannabis, doing something they later regret, memory loss, been in trouble with the police, unprotected sex, physically injured themselves, or physically injured someone else (Keith, Hart, McNeil, Silver, & Goodwin, 2015; Read et al., 2016). Long-term consequences of substance use may include physical dependence, altered brain development, and other health concerns such as lung function and cardiovascular health (Keith et al., 2015; Kuntsche, Kuntsche, Thrul, & Gmel, 2017). Specifically, within the college student population, other consequences may include falling behind in classes, missed classes, or being kicked out of school (Kuntsche, Kuntsche, Thrul, & Gmel, 2017).

Alcohol

In the United States, the drinking rates are higher among college students than non-college age peers (Barnes, Welte, Hoffman, & Tidwell, 2010; Dawson, Grant, Stinson, & Chou, 2004; Patrick & Terry-McElrath, 2017). Monitoring the Future, a nationwide annual survey that follows trends in alcohol and drug use and uses a representative sample of approximately 15,000 high school seniors from approximately 130 schools, found in 2017 when comparing college students to their non-college peers, 33% of college students reported high intensity or binge drinking (five or more drinks in a row in the past two weeks) compared to 25% of their

noncollege peers (Schulenberg, Johnston, O'Malley, Bachman, Miech, & Patrick, 2017). Extreme binge drinking, drinking well beyond 5+ drinks in a 2-hour period, has gained considerable attention (Read et al., 2016). According to the 2017 Monitoring the Future Report, from 2005 to 2017, 12% of college students reported having 10 or more drinks in a row at least once during the past two weeks. Further, 4% reported having 15 or more drinks in a row at least once during the past two weeks (Schulenberg et al., 2017).

As previously mentioned, these patterns of drinking behavior place students at higher risk for adverse negative consequences. In a national sample of undergraduates from the American College Health Association-National College Health Assessment (ACHA-NCHA-II), spring 2018 report, 33.6% of students report doing something they later regretted as a result of drinking. Of those students, 29.2% report forgetting where they were or what they did, 13.1% report physically injuring themselves, 22.5% report having unprotected sex, and 2.0% report getting in trouble with the police. Alcohol use may also contribute to violence and homicide (Brewer & Swahn, 2005). In 2010, it was estimated that each year around 1800 students die from injuries related to alcohol use and 599,000 are injured because of drinking (Pedrelli et al., 2010). Further, 696,000 are hit or assaulted by another college student who had been drinking and 97,000 are victims of alcohol-related sexual assault or date rape.

Cannabis

Cannabis is another substance heavily found on college campuses. In an 8-year longitudinal study done by Arria et al. (2017), 9-25% of college students specifically initiate cannabis use after entering college. Cannabis use among college students has continued to increase since 2010. A study by Pedrelli (2010) found cannabis use increased from 30% in 2006 to 34% in 2014 in the sample of students attending a two or four-year college. In 2017 the annual

prevalence of cannabis among college students was 38% (Schulenberg et al., 2017). Within the emerging adult population, out of the drugs reportedly used (cannabis, prescription stimulants, prescription analgesics, cocaine, hallucinogens, prescription tranquilizers, ecstasy, inhalants, amphetamine/methamphetamine, heroin), cannabis was the most commonly used drug during and after college (annual prevalence was 45% at age 18, 47% age 20; Schulenberg et al., 2017).

Similar to dangerous alcohol use, heavy cannabis use also has the potential for adverse consequences. In their 2017 report, the National Academy of Sciences outlined their findings on the effect cannabis use has on various health outcomes. They found that smoking cannabis on a regular basis is associated with chronic cough and phlegm production and chronic bronchitis. Cannabis use prior to driving also increases risk of being in a motor vehicle accident (National Academy of Sciences, 2017). In states where cannabis is legal, there is a substantial increased risk of cannabis overdose. Cannabis use may further increase the risk of developing schizophrenia or other psychoses. With regard to academic performance, cannabis used within a 24-hour time frame has been shown to cause impairment in cognitive domains of learning, memory, and attention (National Academy of Sciences, 2017).

Risky Sex

College is also marked by increased freedom and exploration around sexuality and sexual behavior (Furman & Collibee, 2014). According to the spring 2018 American College Health Association (ACHA/ NCHA) report, 66.3% of college students had oral, vaginal, or anal intercourse over within the last 12 months, making sexual activity extremely prevalent on college campuses. Due to the positive culture around casual sexual behavior in college (or sex with a non-romantic partner), students may place themselves at higher risk for engaging in risky sexual behavior (Furman & Collibee, 2014). Risky sex involves participating in sexual activity without

condoms, using condoms infrequently, having multiple sex partners, not using protection from pregnancy, etc. In 2012, a systematic review and meta-analysis demonstrated that the intention to engage in unprotected sex increased by about 5% with a .01g/ml rise in BAC (Rehm, Shield, Joharchi, & Shuper, 2012).

Of students who were sexually active and engaged in oral, vaginal, and/or anal intercourse in the last 30 days, when asked how often in the last 30 days an individual or their partner used a condom or other protective barrier (e.g. male condom, female condom, dam, or glove), 5.1% reported they mostly or always use a protective barrier during oral sex; 45.9% reported they mostly or always use a protective barrier during vaginal intercourse; and 26.6 % reported they mostly or always use a protective barrier during anal intercourse (American College Health Association, 2018). Out of students who reported having vaginal intercourse, 53.2% reported using a method of contraception. This indicates that although a number of students are using protection against sexually transmitted infections and preventing pregnancy, many are also not using protective methods or using protection infrequently. Out of the students that were surveyed, 16.3% reported having unprotected sex within the context of drinking alcohol.

Existential Concerns, Substance Use, and Risky Sex

The college experience offers a unique setting for emerging adults to partake in wide varieties of opportunities to explore one's self and the world around them (Schwartz et al., 2013). Engagement in risky behavior may be partially explained by college students' struggles with larger existential concerns that are brought to light during their college years. Ideas of death, concerns related to lack of meaning, fear of making wrong life choices, and the feeling of being unconnected with others are particularly salient as college students struggle to establish

themselves as important members of society and within social groups (Yalom, 1980). College students are further faced with “big life” decisions and a new level of individual freedom to make those choices (Arnett, 2005; Yalom, 1980).

Alcohol use, cannabis use, and sexual behavior in the college student population have the potential for both positive reinforcement (i.e. numbing or forget about problems and worries) and negative reinforcement (adverse consequences, as mentioned above) (Keith et al., 2015; Kuntsche et al., 2017). These activities also offer the opportunity to connect with others and expand one’s experiences, especially in a college setting where substance use and sexual behavior are highly prevalent (Choi & DiNitto, 2011; Kachadourian, Pilver, & Potenza, 2014; Mushquash, Sherry, Mackinnon, Mushquash, & Stewart, 2014). In an attempt to try and resolve tension from universal existential concerns that college students experience, they may seek reinforcement, insight, or comfort through substance use and sexual behavior. Thus, there may be a direct relationship between existential concerns and high-risk health behaviors (e.g., substance use, risky sexual behavior).

What Strengthens or Weakens this Relationship?

Specific factors such as peer/social influence, family history, coping strategies, coping-self efficacy, and mindfulness may change the ways in which existential concerns influence the likelihood of substance use. Coping is the cognitive and behavioral efforts one engages in to manage a stressful situation, and it may be emotion focused, or problem focused (Lazarus & Folkman, 1984; Chesney, Neilands, Chambers, Taylor, & Folkman, 2006). In stressful situations, emotion-focused or problem-focused coping may be adaptive (e.g. emotional support, planning, acceptance) or maladaptive (e.g. substance use, avoidance) (Blevins, Farris, Brown, Strong, & Abrantes, 2016; Chesney et al., 2006). Chesney et al. (2006), offers that maladaptive coping

involves responding to uncontrollable stressors primarily with problem-focused coping and responding to controllable stressors with emotion focused coping. When an individual is discerning the ways in which they can attend to the stressful situation, they have to appraise to what extent they feel confident in their ability to control the outcome, and this confidence is referred to as self-efficacy (Bandura, 1997; Chesney et al., 2006). Therefore, when individuals are more confident in their ability to adaptively cope with stressors, it is expected this would positively influence their ability to manage a stressful situation, namely existential anxiety (Chesney et al., 2006).

Mindfulness includes intentional and non-judgmental awareness and has been shown to be a useful tool in psychological interventions aimed at reducing anxiety and depression (Bodhi, 2011; Veehof, Trompetter, Bohlmeijer, & Schreurs, 2016). Mindfulness is another potentially moderating factor between existential concerns and risky behavior in college students. Individuals that actively engage in mindfulness practices may feel less anxious symptoms than those who do not utilize mindfulness tools (Felder, Aten, Neudeck, Shiomi-Chen, & Robbins, 2014).

In contrast to weakening the relationship between existential concerns and risky behavior, there may be factors that strengthen this relationship. These variables represent external influences that are present or not present in college students' lives. The college experience includes a large social influence component and many students are working to form connections with others. For many students, engaging in high frequency substance use may coincide with misperceptions students have of other fellow student alcohol and cannabis use. The American College Health Association found that perceived alcohol use within the last 30-days was 93.6%. However, reported use by students found that 60.4% were engaging in this behavior during the

last 30 days. Student perception of cannabis use was also much higher (88.6%) than actual 30-day use (22.4%).

As mentioned above, individuals in college may be struggling with the tension between the desire to be connected with others, and the reality that their existence is ultimately isolated. Some individuals may choose to try and adhere to specific social groups for connection (e.g. fraternity or sorority). Based in the Theory of Normative Social Behavior (TNSB), Rimal & Real (2003) explained that social norms can only be understood through social interaction and they do not exist independently of individual group identity (Turner & Tajfel, 1986). Descriptive (i.e., the “is” of behavioral perceptions) and injunctive (i.e., the “ought” of behavioral perceptions) norms have strong foundational theory (Cialdini, Reno, & Kallgren, 1990; Rimal & Real, 2003) and experimental support (Borsari & Carey, 2003) in their effect on college student drinking.

What is especially relevant in regard to existential anxiety are injunctive norms, or the pressure to conform (Rimal & Real, 2003). This pressure to conform may come from a perceived threat. The perceived threat may include not forming friendships, or the threat of the benefits of the group being withheld from the individual. Further, within a group identity, Rimal & Real (2003) identify that the key factor in injunctive influence is the degree of connection people perceive within the group they want to adhere to. Therefore, individuals who choose to adhere to a specific group (i.e. sorority or fraternity) and therefore specific group norms, may experience stronger injunctive norms to conform to the behavior of the group based on perceived threat or level of connection with the specified group. This in turn may increase their risky behavior if the pressure to engage in risky behaviors is prevalent, especially when feeling a strong connection to a social group. This may indicate that students feel a need to engage in heavier alcohol and cannabis use in order to fit in or feel accepted. Therefore, if a large existential concern within the

human experience is around connection versus isolation, students that feel supported and connected by peers may not engage in as many risky behaviors as a result of their existential concerns. On the other hand, students that feel they are lacking in social support/connection may work harder to seek that reassurance as a result of existential angst.

Low familial support and positive family history of alcohol abuse/dependence are other external factors that may strengthen the relationship between existential concerns and risky behavior. Risk factors for substance use include poor family functioning and poor quality of familial relationships, as well as family history of alcohol dependence (Connor, Haber, & Hall, 2015; Karavalaki & Shumaker, 2016). Some of these same factors, family support and quality of familial communication have been shown to be important in regard to low-risk sexual behavior (LaSala, 2015). Therefore, college students that perceive low familial support may feel more overwhelmed by their existential concerns and may be more likely to seek externalizing behaviors like substance use and risky sex. Further, if there is a family history of alcohol abuse/dependence, due to the connection between family history and individual substance use, existential concerns and their relationship to risky behavior may be strengthened by family history.

Current Study (Existentialism, College Students, and Externalizing Behaviors)

Although we do not yet know the role existential concerns play in college students experiences, or how existential anxiety may influence decisions and behavior, we do know that college students often feel anxious, depressed, and lonely. The Substance Abuse and Mental Health Services Administration found 55% of students (within the last 12 months of being surveyed) reported having felt things were hopeless at some point. In addition, 88.1% reported

feeling overwhelmed by their responsibilities, 69.9 % reported feeling very sad, and 64.4% reported feeling very lonely.

Many modern psychological interventions are not designed to address the breadth of existential anxiety. The focus is on “getting rid” of anxiety instead of offering a space to meet developmental needs that are part of our common human experience, death, isolation, freedom, and meaninglessness (Yalom, 1980). It is not to say that modern therapies are not useful in reducing anxiety symptoms, but rather they do not directly address anxiety that is concerned with existence as a whole (Solomon, 2005). Without an in depth look at one’s experience, the experience of existential anxiety can be confusing, and students may find themselves trying to rationalize their way out of something that cannot be reasoned with. Students that are struggling to rationalize or avoid their inevitable existential concerns may be externalizing their concerns with cannabis or alcohol use, or risky sexual behavior.

Therefore, this study primarily was interested in whether existential concerns predicted risky behavior (e.g. substance use and risky sex) in college students. This study was also interested in understanding more about the relationship between existential concerns and risky behavior, specifically whether or not the relationship between the two varies as a function of coping, mindfulness, and familial/social influence factors.

Hypotheses

1. Hypothesis 1: Existential concerns will positively predict risky behavior in a sample of college students above and beyond demographic variables (e.g. age, biological sex).

2. Hypothesis 2: The relationship between existential concerns and risky behavior will vary as a function of coping, specifically the relationship between existential concerns and risky behavior will be strengthened by maladaptive coping. In contrast, the relationship will be weakened by the adaptive coping.
3. Hypothesis 3: The relationship between existential concerns and risky behavior will vary as a function of coping self-efficacy, specifically the relationship between existential concerns and risky behavior will be weakened by higher levels of perceived coping self-efficacy.
4. Hypothesis 4: Coping self-efficacy will predict existential concerns while controlling for coping.
5. Hypothesis 5: The relationship between existential concerns and risky behavior will vary as a function of mindfulness, specifically the relationship between existential concerns and risky behavior will be weakened by higher levels of mindfulness.
6. Hypothesis 6: The relationship between existential concerns and risky behavior will vary as a function of family history of substance use. Specifically, the relationship between existential concerns and risky behavior will be strengthened by the presence of family history of substance use.
7. Hypothesis 7: The relationship between existential concerns and risky behavior will vary as a function of perceived familial and social support. Specifically, the relationship between existential concerns and risky behavior will be weakened by the presence of perceived familial/social support.

CHAPTER II

Method

Participants and Procedure

Participants. My sample included 836 undergraduate students at Colorado State University who were enrolled in psychology classes. I collected sociodemographic information and relevant measures from all participants that consented to take part in the study for course credit. The inclusion criteria for this study was, over 18 years old and an undergraduate student enrolled in an eligible psychology undergraduate course.

Power. In order to determine the sample size needed to detect the hypothesized effects, two a-priori power analyses were conducted. G*Power 3.0.10 was used to run a power analysis designed to test study hypotheses using a multiple linear regression framework. In this power analysis, six predictor variables were used (i.e., death, guilt, freedom, isolation, meaninglessness, and moderating variables (e.g., coping, mindfulness) for each dependent variable, with an alpha of (.05), power (.8), and a medium effect size ($f = .15$). The required sample size from this power analysis was 146 participants.

Procedure. This was approved through the Colorado Multi-Institutional Review Board at Colorado State University (Protocol ID: 19-9233H). Participants were recruited through the option of gaining course credit (1/2 credit) for their participation. Participants saw the following information prior to the study: *This research study is designed to examine the relationship between existential concerns and externalizing behaviors.*

Specifically, through this research we are working to improve our understanding of college student's concerns regarding anxiety related to some of life's biggest questions and how they may deal with these concerns. By participating in this research you are helping us achieve these goals.

All participants who consented to the study completed demographic information and measures of interest. The measures for this study were: the socio-demographic questionnaire (see appendix A), Existential Concerns Questionnaire (ECQ) (see appendix B), a modified version of the Risky Behavior Inventory (RBI) (see appendix C), Five Facet Mindfulness Questionnaire (FFMQ) (see appendix D), The Brief COPE (see appendix E), Coping Self-Efficacy Scale (CSES) (see appendix F), and Depression and Anxiety Scale (DAAS) (see appendix G). Participants completed the survey online. Data was automatically stored and saved on a secure university server. Only the PI and the co-PI had access to the data. The full measures required an average of 30 minutes to complete.

Instruments

Demographic Characteristics. Participants were asked questions pertaining to age, ethnicity, biological sex, family history, and social history (see appendix A).

Family History of Use. A single item question pertaining to family history of substance use was asked. This question: "Does your family have a history of problematic substance use (e.g. alcoholism, addiction, dependence)?" was scored "0" if "No" or "I do not know" was endorsed. The item was scored "1" if "Yes" was endorsed (see appendix A).

Social and Familial Support. Two items were included to ask whether participants felt supported by family and friends. The following two items were scored dichotomously (i.e. “0” if “No” and “1” if “Yes”): “Do you feel supported by friends?”; “Do you feel supported by family?”

Existential Concerns Questionnaire. Following a 2015 systematic review of existential anxiety instruments by van Bruggen, Vos, Westerhof, Bohlmeijer, and Glas, van Bruggen, Klooster, Westerhof, Vos, de Kleine, Bohlmeijer, and Glas (2017) created the Existential Concerns Questionnaire (ECQ). The ECQ was developed to address broad existential concerns and address issues with construct validity found in past measures. The hope for ECQ was to be used in both research and clinical settings. This study is one of the first to use this instrument. The Existential Concerns Questionnaire (ECQ) is a 25-item scale that measures anxiety related to fundamental human existence. It assesses for anxiety related to death, meaninglessness, guilt, social isolation, and identity. Items are rated on a 5-point Likert scale ranging from 1 (Never) to 5 (Always). Item scores are summed for a total existential concern value. Higher values reflect higher concerns with existential issues. An example item from this scale is: “The question of whether life has meaning makes me anxious.” The initial validation of the ECQ demonstrated strong internal consistency (Cronbach’s alpha = .92) (van Bruggen et al., 2017).

Risky Behavior Inventory. A modified version of The Risky Behavior Inventory (RBI) was used for this study that included items related to alcohol and cannabis use and risky sexual behavior. The RBI was developed by Conner (unpublished) as an inventory of health risk behaviors. The RBI asks participants to report on engagement in a range of health risk behaviors including substance use, risky sex, disordered eating behaviors, and non-suicidal self-injury. Participants are asked to report on lifetime, past 12-months, and past 30-day engagement in these

behaviors. Response options are varied and include first a yes/no option for endorsement of a behavior. If endorsed, response options include frequency of engagement in the behavior (multiple choice or write in option). For the present study we used the following items as outcome variables: “On an average week, how many times do you use marijuana?”; “In the past 30 days, how many times have you consumed five or more drinks (if you are male) or four or more drinks (if you are female) on one drinking occasion?”; “Think of the day you consumed the most alcohol in the last month: How many standard drinks did you consume on that day?”; “How many times in the last 30 days have you had UNPROTECTED vaginal intercourse?”; “How many different people have you had UNPROTECTED vaginal intercourse with in the last 30 days?”

Five Facet Mindfulness Questionnaire. The 39-item Five Facet Mindfulness Questionnaire (FFMQ) measures five facets of mindfulness. These include: observing (includes items 1, 6, 11, 15, 20, 26, 31, 36), describing (includes items 2, 7, 12R, 16R, 22R, 27, 32, 37), acting with awareness (includes items 5R, 8R, 13R, 18R, 23R, 34R, 38), non-judging of inner experience (includes items 3R, 10R, 14R, 17R, 25R, 30R, 35R, 39R), and non-reactivity to inner experience (includes items 4, 9, 19, 21, 24, 29, 33). Example items for each subscale is as follows: observing, “When I’m walking, I deliberately notice the sensations of my body moving;” describing, “I’m good at finding words to describe my feelings;” non-judgement, “I criticize myself for having irrational or inappropriate emotions;” non-reactivity, “I perceive my feelings and emotions without having to react to them;” and acting with awareness, “When I do things, my mind wanders off and I’m easily distracted.” Items are rated on a 5-point Likert scale ranging from 1 (never or very rarely true) to 5 (very often or always true). Items denoted with “R” are reverse scored and a total score for each subscale is created by summing the items for

subscales. higher scores are representative of higher levels of mindfulness. The 39-item version of the FFMQ has demonstrated adequate internal consistency on all subscales, ranging from .80 to .92 (Watson-Singleton, Walker, LoParo, Mack, & Kaslow, 2018).

Brief COPE. The 28-item Brief COPE scale measures various ways people have been dealing with stress in their lives. Items are scored on a 4-point Likert scale from 1 (I haven't been doing this at all) to 4 (I've been doing this a lot). All items are directly scored and summed for a total score on each subscale. The Brief COPE includes the following subscales: distraction (items 1, 19, e.g. "I've been turning to work or other activities to take my mind off things"), active coping (items 2, 7, e.g. "I've been concentrating my efforts on doing something about the situation I'm in"), denial (items 3, 8, e.g. "I've been saying to myself "this isn't real"), substance use (items 4, 11, e.g. "I've been using alcohol or other drugs to make myself feel better"), emotional support (items 5, 15, e.g. "I've been getting emotional support from others"), instrumental support (items 10, 23, e.g. "I've been getting help and advice from other people"), behavioral disengagement (items 6, 16, e.g. "I've been giving up trying to deal with it"), venting (items 9, 21, e.g. "I've been saying things to let my unpleasant feelings escape"), positive reframe (items 12, 17, e.g. "I've been trying to see it in a different light, to make it seem more positive"), planning (items 14, 25, e.g. "I've been trying to come up with a strategy about what to do"), humor (items 18, 28, e.g. "I've been making jokes about it"), acceptance (items 20, 24, e.g. "I've been accepting the reality of the fact that it has happened"), religion (items 22, 27, e.g. "I've been trying to find comfort in my religion or spiritual beliefs"), self-blame (items 13, 26, e.g. "I've been criticizing myself"). Alpha values for the COPE range from (.50, venting) to (.90, substance use). It has been used in a variety of clinical and non-clinical populations (Carver, 1997).

Coping Self-Efficacy Scale. The Coping Self-Efficacy Scale (CSES) measures to what extent an individual feels they can adequately cope with stressful situations. The CSES is scored from 0 (Cannot do) to 10 (Certainly can do) on a continuous scale. All items are directly scored and summed to create a total score. The CSES does not have any subscales. An example item from this scale includes: “When things aren't going well for you, or when you're having problems, how confident or certain are you that you can talk positively to yourself?” The CSES has been widely used in a variety of clinical and non-clinical samples and yields acceptable internal consistency values ranging from .81 to .95 (Chesney et al., 2006; Timkova et al., 2018) (see appendix F).

Depression, Anxiety and Stress Scale. The Depression, Anxiety and Stress Scale (DASS) is a 42-item scale that measures negative emotional states such as depression, anxiety, and stress. Items are rated on a 4-point Likert scale ranging from 0 (did not apply to me at all over the last week), to 3 (applied to me very much or most of the time). The internal consistency for the DASS in a similar study yielded an alpha of .92 (Lovibond & Lovibond, 1993).

Analysis Plan

Descriptive Statistics. Means, standard deviations, and frequencies were calculated for all variables. Assumptions were tested in order to make accurate inferences about the data, based on the distribution. A discussion of assumptions can be found in the results section.

Inferential Statistics. Data for this study was analyzed in two ways, depending on the distribution of the outcome variables. The highly unbalanced dichotomous outcome data (e.g., engagement in a risky sexual behavior yes/no) were analyzed with penalized likelihood models. Highly skewed count variables (e.g., endorsement of binge drinking) were analyzed with

negative binomial regression. A penalized likelihood logistic regression accounts for rare events and reduces the chance of biased standard errors (Firth, 1993). A negative binomial count regression is appropriate for highly skewed count data (cf. Neal & Simons, 2007). A negative binomial count regression model includes an extra parameter to model over-dispersed count data.

This study was interested in assessing for moderation effects as discussed in the hypotheses. To guide the interpretations and significance of the findings from this study, it is important to note recommendations regarding moderations in non-experimental studies. McClelland & Judd (1993) discuss the difficulty in detecting moderator effects in nonexperimental studies. They highlight that moderator effects as small as 1% can be meaningful and are important to discuss (McClelland & Judd, 1993).

Auxiliary and Exploratory Hypotheses. The primary measure for this study, the Existential Concerns Questionnaire is unidimensional. Although the measure was psychometrically validated to not contain subscales, existential theory is conceptualized through the lens of ‘existential themes’ (e.g. freedom, meaning, death, isolation). Given this information, combined with the newness of the ECQ and past difficulty around construct validity with existential measures, this study was also interested in running a series of auxiliary analyses. The purpose of the auxiliary/exploratory analyses was to understand the influence of ‘existential themes’ on risky behavior compared to existential concerns as a singular construct. Following primary analyses, the ECQ was broken up into Yalom’s existential themes (freedom, meaning, death, isolation), based on my decisions around which item measures best matched up with each given category. Negative binomial regressions were utilized to look at each existential theme and its relationship to various risky behavior items.

Additionally, given the potential difficulty of identifying existential concerns, I wrote a question intended to capture existential anxiety in plain language for my participants, with regard to their engagement in using alcohol, cannabis, and sex to escape discomfort. The following question was included: “Have you ever used alcohol [cannabis, sex] to escape worry, boredom, or loneliness?” Logistic regression analyses were utilized to understand the relationship this dichotomous variable had with the existential concerns measure.

CHAPTER III

Results

Missing Data and Tests of Assumptions

To look at the pattern of missing data, Little's Missing Completely at Random (MCAR) test was conducted with the variables of interest (Little, 1998). The overall model was significant. However, inspection of each of the variables of interest demonstrated that none of the variables had more than 6% of the data missing. Although there is not a well-established cut-off for missing data, it has been suggested that between 5-10% is negligible (Dong & Peng, 2013).

Study variables were also examined for violations of linearity, homoscedasticity, normality, and independence. An autocorrelation test in SPSS revealed that there was no violation regarding independence of errors. Linear regression assumptions related to homoscedasticity and normality were violated. The predictor variable, Existential Concerns Questionnaire (ECQ) was normally distributed. However, as hypothesized, upon inspection of the dependent risky behavior variables, all dependent variables were best modeled as over-dispersed count variables. To account for these violations of ordinary least squares regression, negative binomial regression models were implemented. Linearity was assessed by plotting the residuals of the dependent variables against the predictor variable. Negative binomial models assume that the model is linear in parameters, however the expected response is not linearly related because the coefficients are exponentiated. All Tukey's tests were non-significant, indicating the assumption of linearity was not violated.

Descriptive Statistics

Univariate and bivariate descriptive statistics were conducted on all variables entered in the regression analyses to acquire frequencies (see Table 1), means, medians, ranges, standard deviations, and correlations (see Tables 2 & 3). The internal consistency for all predictor scales was also assessed using Cronbach's alpha reliability (see Table 4). The 'describing' subscale on the FFMQ yielded a low Cronbach's alpha (see Table 4). All other subscales and scales demonstrated adequate internal consistency reliability.

Inferential Statistics

The following results can be found in respective table ranges: binge drinking (tables 7-17); heaviest day of drinking (tables 18-28); weekly cannabis use (tables 29-39); unprotected vaginal sex frequency in 30 days (tables 40-49); unprotected sex number of different vaginal partners (tables 50-59).

Main Effects of ECQ on Outcomes

Overall, hypothesis one was not supported. Existential concerns did not predict the following risky behaviors: number of standard drinks on heaviest day of drinking, weekly cannabis use, number of different times engaged in unprotected vaginal sex, and number of different partners having unprotected sex. One exception was binge drinking which was significantly predicted by existential concerns, holding constant age, sex, year in school, race, and ethnicity ($RR= 1.01, p < .05$). The rate ratio suggests that for every one unit increase in existential concerns, individuals reported 1% greater binge drinking frequency.

Moderating Effect of Coping

Hypothesis two, which stated that the relationship between existential concerns and risky

behavior would be moderated by coping, was also not generally supported. There were a few exceptions for some risky behaviors. Positive reframing as a coping strategy moderated the relationship between existential concerns and heaviest day of drinking (see Table 19).

Specifically, simple slope tests revealed a positive and significant relation between ECQ and heaviest drinking day at low levels of positive reframing ($t(624)=2.71, p < .01$), and a negative, non-significant relation between ECQ and heaviest drinking day at high levels of positive reframing ($t(624)=-.70, p = .48$). Results also indicated that behavioral disengagement moderated the relationship between existential concerns and heaviest day of drinking (see Table 19).

However, probing this interaction revealed that the slopes did not differ from zero. Similarly, denial and humor moderated the relationship between existential concerns and weekly cannabis use (see Table 30), but probing of the interactions revealed these slopes also did not differ from zero.

Moderating Effect of Mindfulness

I hypothesized that the relationship between existential concerns and risky behavior would vary as a function of mindfulness. The Five Facet Mindfulness Questionnaire was used with relevant subscale scores (i.e. nonjudgement, nonreactivity, acting with awareness, observing, describing). With regard to unprotected vaginal sex as a risky behavior item, results revealed that the relationship between existential concerns and number of times engaging in unprotected sex was moderated by acting with awareness (see Table 46). Specifically, simple slope tests revealed there was a negative and significant effect of ECQ predicting unprotected sex at low levels of awareness ($t(278) = -2.56, p < .05$), whereas the relationship was a positive and not significant at high levels of awareness ($t(278) = .37, p = .71$).

Results also indicated the following main effects with regard to the five facets of

mindfulness. Acting with awareness predicted heaviest day of drinking (see Table 23), number of times having unprotected vaginal sex (see Table 46), and number of different partners one reports engaging in unprotected sex with (see Table 56). Additionally, non-judgement predicted weekly cannabis use (see Table 36).

Coping Self-Efficacy and Existential Concerns

Hypothesis four stated coping self-efficacy would significantly predict existential concerns while controlling for coping. Results revealed coping self-efficacy significantly predicted existential concerns while controlling for coping. This was a negative and significant relationship (see Table 6).

Moderating Effect of Mindfulness

I hypothesized that the relationship between existential concerns and risky behavior would vary as a function of perceived social support. Results revealed that risky behavior items related to alcohol use were moderated by perceived social support (see Tables 17 & 28). Specifically, there was a significant and positive effect of ECQ predicting binge drinking for both individuals who endorsed social support ($t(628) = 2.56, p < .05$), and for those who denied social support ($t(628) = 2.57, p < .05$). The interaction revealed that for those who denied social support, however, there was a substantial difference in their level of reported binge drinking at higher levels of ECQ (see Figure 2). Probing the interaction for heaviest day of drinking revealed that there was a significant and positive effect of ECQ predicting drinking for individuals who denied social support ($t(628) = 2.33, p < .05$). There was not a significant effect for individuals who endorsed social support ($t(628) = 1.49, p = .14$).

The relationship between existential concerns and risky behavior did not vary as a function of coping self-efficacy, family history of substance use, or perceived familial support.

Results from Auxiliary and Exploratory Analyses

The following results can be found in respective table ranges: existential themes and heaviest day of drinking (table 60); existential themes and binge drinking (table 61); existential themes and weekly cannabis use (table 62); existential themes and unprotected sex frequency in 30 days (table 63); existential themes and unprotected sex number of partners (table 64); logistic regressions (tables 65-67).

A series of auxiliary and exploratory analyses were conducted to further examine how existential concerns may be experienced by college students. Although these results were not hypothesized as primary research questions, they offer valuable information for future research in this area, as well as future direction in measuring existential issues in this population.

Logistic Regressions

One question that was written and adapted for each risky behavior item was, “Have you ever used alcohol [cannabis, vaginal sex] to escape worry, boredom, or loneliness?” This question was derived from understanding the conceptual framework of existential anxiety (e.g. isolation, anxiety) and directly asking participants whether they have used substances or sexual activity to escape these issues. Using existential concerns as the predictor variable, logistic regression results revealed positive and significant results for using alcohol to escape worry, boredom, or loneliness (see Table 65). Results revealed negative and significant results for using cannabis to escape worry boredom, or loneliness (see Table 66) and negative and significant results for using vaginal sex to escape worry, boredom, or loneliness (see Table 67).

Existential Themes

In its initial validation, The Existential Concerns Questionnaire was found to be unidimensional. There are limited measures available to measure existential anxiety, and

therefore it is important to explore how to best evaluate this construct. Using Yalom's (1980) theory of existential psychotherapy, existential anxiety falls into the following categories: death, freedom, isolation, and meaning. The Existential Concerns Questionnaire was examined and divided into "themes" based on these constructs to explore how these constructs acted with this sample (Yalom, 1980). Exploratory results revealed that when breaking up existential concerns into relevant themes, certain themes were more predictive of risky behavior than others. It should be noted that the themes used for these exploratory analyses were chosen by the administrators and have not been validated within the scale. The results provide useful information regarding how we may better understand existential concerns as a construct within the college student population and may provide guidance and support for creating relevant scales with subscales.

Results indicated that with regard to binge drinking, there was a significant and positive relationship between freedom and meaning as distinct components of existential concerns (see Table 61). There was a negative and significant relationship between isolation and binge drinking (see Table 61). Related to heaviest day of drinking, results indicated another negative and significant relationship between isolation and heaviest day of drinking and a positive and significant relationship between meaning and heaviest day of drinking (see Table 60). Related to number of different partners having unprotected sex with, results revealed a negative and significant relationship between isolation and number of different partners and a positive and significant relationship between meaning and number of different partners (see Table 64).

Results revealed that none of the chosen separate themes for existential concerns were significant predictors of cannabis use nor number of times having unprotected sex. In addition, death anxiety was not a significant predictor for any of the risky behavior items.

CHAPTER IV

Discussion

Although existential anxiety has been a core human issue throughout philosophical writing, the role of existential anxiety within the human experience, including human behavior is less understood (Weems, Costa, Dehon, & Berman, 2004). Early psychological thought heavily incorporated existential perspectives (Koole, Greenberg, & Pyszczynski, 2006; van Bruggen, Vos, Westerhof, Bohlmeijer, & Glas, 2015). However, as behaviorism took over the field of psychology in the 20th century, existential concerns were forced into the background, critiqued to be too subjective and vague against the rigor of the scientific method (Koole et al., 2006).

To the credit of individuals who critique placing existential psychology on the same playing field as other areas of psychological science, measuring existential concerns and the influence they exert on human behavior and cognitions is difficult. Yalom himself stated that existential anxiety does not lend itself well to being studied empirically (Yalom, 1980). Researchers and scholars familiar with the existential field understand that confrontation with existential concerns most often manifest as a result of a large event or tragedy (Koole et al., 2006). Therefore, for existential concerns to be at the forefront of an individual's experience, a certain set of conditions typically must be met to catalyze the awareness of the concern, and further cultivate the opportunity for deep reflection. And yet, many in the field agree that existential issues are influencing behavior constantly, whether inside or outside of awareness (Koole et al., 2006). As such, they remain imperative to our understanding of the human experience.

Much of the recent empirical work that has been conducted around existential anxiety can be attributed to the growing field of experimental psychology, and terror management theory (Koole et al., 2006). Advancements in experimental studies have found that existential influences are present and ever pervasive, often influencing unconscious behavior. It has been identified that although we can understand more about unconscious behavior, there is a challenge to applying existential insights to everyday life given the fact most people are unaware of the presence and influence existential concerns have on their lives (Koole et al., 2006).

The intent of the current study is to add to the growing interest for incorporation of existential perspectives into psychological science, as well as understanding more about what contributes to college students' engagement in risky behavior. There is high comorbidity between anxiety and substance use and substance use disorders (Wolitzky, Krull, Rawsom, Roy-Bryne, Ries, & Craske, 2018). Existential anxiety may be a form of anxiety that is relevant to the college experience. Additionally, anxiety, substance use, and sexual behavior are extremely prevalent for emerging adults that attend college and many treatments are targeted at reducing anxiety and potentially harmful health risk behaviors (Arria et al., 2017; Bamber & Schneider, 2015; Barnes, et al., 2010; Dawson, Grant, Stinson, & Chou, 2004; Dawson, Li, & Grant, 2008; Furman & Collibee, 2014; Patrick & Terry-McElrath, 2017; Read et al., 2016; Schulenberg et al., 2017).

This study primarily aimed to investigate the relationship between existential concerns and risky externalizing behaviors (i.e. binge drinking, heavy drinking, unprotected sexual experiences) in an emerging adult population. The Existential Concerns Questionnaire (ECQ) was used as an instrument to measure individuals' confrontation with the givens of existence (van Bruggen et al., 2017). Risky behaviors questions were included to assess frequency of

engagement in defense mechanisms/common behaviors that are typically associated with the college experience.

Results from this study demonstrated that engagement in binge drinking behavior was the one risky behavior significantly predicted by existential concerns, holding constant age, sex, year in school, race, and ethnicity. This means that students who reported higher levels of existential concerns, also reported binge drinking behavior more often. Given that binge-drinking behavior is the most commonly researched high-quantity drinking behavior, this finding adds importance to the binge-drinking literature (Patrick & Terry-McElrath, 2016). Because of the prevalence of binge drinking and the associated consequences, there is a desire to understand more about what drives binge drinking (White, Anderson, Ray, & Mun, 2016). Social motives, enhancement motives, conformity motives, and coping motives from Cooper, Russell, Skinner, & Windle's (1992) framework have been the most widely studied alcohol use motives (White et al., 2016). This study suggests that existential concerns may be an unexplored drinking motive.

In addition to understanding more about what may lead to binge drinking behavior, the finding that existential concerns predict higher reported binge drinking is also important in prevention and intervention efforts. Anxiety has been at the forefront of mental health interventions for college students (Bamber & Schneider, 2016). In 2000, 11.3% reported anxiety impacted academics and in 2015, this was 21.9% (Bamber & Schneider, 2016). Given what some experiential existential studies have found regarding the awareness of existential concerns, unlike other forms of anxiety, it is highly likely that college students are reacting on existential angst and it is occurring outside of their awareness (Eisenberger, Lieberman, & Williams, 2003; Koole et al., 2006; Pyszczynski, Solomon, & Greenberg, 2003). Without the ability to identify what is contributing to student's internal emotional experience and potential distress, it is harder for

college students to change behavior.

Results from this study may support intervention and prevention efforts in order to decrease unconscious participation in risky drinking. By bringing attention not only to existential concerns, but also unconscious motivations to drinking may reduce the need college students may feel to use alcohol to manage these concerns. Critical elements included in this discussion and intervention would revolve around existential concerns and their universal presence, providing a model of behavior and what contributes to our engagement in defense mechanisms, and provide alternative resources for coping.

Coping was an additional variable of interest in this study. Adaptive coping has been shown to be positively related to fewer psychological symptoms and greater well-being (Chesney et al., 2006). Therefore, many interventions work to increase adaptive coping to reduce overall distress (Chesney et al., 2006). Given what is known about adaptive coping, it was expected that individuals who report not only higher endorsement of adaptive coping strategies, but also greater confidence in their ability to effectively cope, or greater coping self-efficacy, they would be less likely to engage in health risk behaviors when confronted with existential concerns (Chesney et al., 2006). When examining the relationship between coping self-efficacy, coping, and existential concerns, results demonstrated that many maladaptive coping strategies predicted higher reports of existential concerns. Specifically, individuals who reported higher endorsement of distraction, denial, behavioral disengagement, and self-blame, also reported higher levels of existential concerns (see Table 6). This falls in line with what we expected given the literature on coping and responding to stress (Lazarus & Folkman, 1986; Chesney et al., 2006). In addition, those who reported higher coping self-efficacy reported lower existential concerns.

Although these results fell in line with what was expected, contrary to hypothesized relationships, neither coping nor coping self-efficacy had a substantial influence on the relationship between existential concerns and risky behavior. In addition, the relationship between substance use as a coping strategy predicting existential concerns was not significant. Inconsistent results indicate there may be something unique about the combined relationship between existential concerns, coping and coping self-efficacy, and risky behavior that was not captured in this study.

It was also hypothesized that the relationship between existential concerns and risky behavior would vary as a function of mindfulness. As mentioned above, mindfulness has been shown to be a useful tool in psychological interventions aimed at reducing anxiety and depression (Acceptance and Commitment Therapy Bodhi, 2011; Veehof et al., 2016). There are several components of mindfulness. The Five Facet Mindfulness Questionnaire that was used for this study focused on the following: describing, acting with awareness, observing, non-reactivity and non-judgment (Watson-Singleton et al., 2018). The idea then is that if individuals are better able to engage in these mindful skills, they may be less likely to be consumed by negative emotions.

Mindfulness was hypothesized as a protective factor against the influence of existential concerns and higher risky behavior with the thought that higher engagement in mindfulness would lessen the negative impact of existential anxiety. Only one outcome variable and one facet of mindfulness yielded significant results regarding the moderating effect between existential concerns and risky behavior. Results revealed that the trend overall for individuals who report lower levels of acting with awareness, the more existential concerns they report, the lower

frequency of unprotected vaginal sex they are engaging in. In contrast, individuals who report higher levels of acting with awareness, the more existential concerns they report, the greater frequency of unprotected vaginal sex.

As mentioned, one of the first steps in mindfulness skills includes bringing awareness to the thoughts and emotions during the present moment (Hayes & Smith, 2005). With regard to existential anxiety, according to Yalom (1980), awareness of existential concerns actually precedes the anxiety an individual experiences. Among philosophers, awareness and attentive descriptions of experience do not claim to be protective against existential and ultimate concerns, but instead fosters ideal settings in order to be less restricted by the confinements of our social world and allow for reflection of these concerns (Felder et al., 2014). As such, for individuals who reported higher levels of awareness in relation to existential issues and engagement in risky sex, it could be that their awareness of the concern is a risk factor toward feeling more distressed and less able to effectively cope with the reality of their mortality, freedom, isolation, or purpose in life, especially if they do not have high endorsement of other mindfulness facets (e.g. non-reactivity, observing, describing, nonjudgement). Simply awareness alone of existential concerns could lead to negative behavioral outcomes or emotional outcomes.

Social support as a moderator was found to moderate the relationship between existential concerns and alcohol related items. In line with what was expected, that lack of social support would be an added risk factor for the effects of existential concerns on drinking behaviors, for reported heaviest day of drinking, those students who denied feeling supported by their friends, they reported higher numbers of drinks on their heaviest days of drinking compared to those who endorsed feeling supported by friends. With regard to binge drinking, for students who endorsed social support and for those who endorsed a lack of social support, there were positive

relationships between ECQ and binge drinking. Because binge drinking is often associated with parties and social gatherings, social support may actually facilitate instances of binge drinking when considering the context of college. It is notable however, that for those who denied feeling supported by friends, there was a substantially larger influence on their binge drinking (see Figure 2). This indicates that those who are not as well supported by friends may be at higher risk from the adverse consequences of drinking associated with ECQ.

Call for Future Research on the Assessment of Existential Concerns

Results from this study highlight the difficulty assessing existential concerns in everyday life. The variability in results indicate a call for future psychometric development of existential concerns measures. Improved measurement of existential issues and re-incorporating existential perspectives into psychological science and treatment methods has the potential to contribute to the overall interest in understanding more about human cognitions and behavior.

The field lacks a well-validated and comprehensive measure to assess existential anxiety as a broad construct, especially around everyday life concerns (van Bruggen et al., 2017). As discussed, one of the issues in empirically measuring a construct such as existential anxiety lies in the difficulty of truly understanding the construct. In a systematic review conducted by Bruggen et al. (2015), only five instruments were found in the literature that looked at a general perspective on existential anxiety. Bruggen et al., (2015) found that in examining these broad instruments for their psychometric quality, all studies had one or more major flaws, with the most notable being lack of evidence regarding content validity. The Existential Concerns Questionnaire (ECQ) (the measure used in this study) was developed to address this gap in the field and was built on the conceptual framework of Glas (2003), Yalom (1980), (Tillich, 1952), and Koole et al., 2006).

The Existential Concerns Questionnaire covers the following theoretical domains: death, meaninglessness, guilt, social isolation, and identity (van Bruggen et al., 2017). However, in its initial validation, the scale was found to be unidimensional. The majority of the results from this study using Existential Concerns as a unidimensional construct indicated that there was not a relationship between existential concerns and risky behavior. Because of what is known about the various facets of existential anxiety, and the history of difficulty around construct validity, it is possible that existential concerns are better understood through relevant subscales. The ECQ was matched onto Yalom's 1980 theory that is used as a conceptual understanding of existential anxiety for this dissertation and items were selected to fit into an "existential theme." The following existential themes were created: death, freedom, isolation, and meaning. Exploratory results demonstrated promising support for the relationship between existential concerns and risky behavior items, as understood through these relevant themes.

College provides a unique setting in which there is typically students' first experience of the absence of parental structure (Arnett, 2005). There is a universal experience of anxiety when as individuals we realize we have complete freedom to make choices and decisions, and that ultimate freedom comes with consequences. Freedom as an existential theme significantly and positively predicted binge drinking behavior. As discussed, within Yalom's framework, the existential conflict that arises from freedom deals with the idea that we desire freedom and are comforted by structure. Reactance theory has shown that threats to freedom create adverse psychological states that motivates individuals to restore and reassert their freedom. However, Koole et al., 2006 also highlights that unrestrained freedom may increase feelings of not being grounded and creating anxiety about uncertainty, similar to Yalom's postulates about the freedom conflict. Therefore, results from this study support the likelihood that for many college

students, the absence of structure may bring about the realization that true freedom has consequences, and one must take responsibility for these consequences. This realization in college has the potential to cause tension, conflict, and anxiety (Arnett, 2005; Frankl, 1962; Yalom, 1980).

There were significant and negative relationships between isolation and binge drinking, heaviest day of drinking, and number of different partners with whom [an individual] has had unprotected vaginal sex with (past 30 days). Specifically, at higher levels of reported anxiety regarding isolation, individuals reported less binge drinking frequency and lower numbers of standard drinks on their heaviest day of drinking, as well as lower numbers of different unprotected sex partners. This relationship is contrary as to what would be expected for individuals feeling greater anxiety regarding isolation, that they would engage in higher drinking and more sexual partners to facilitate social interactions and social connectedness.

I would expect that college has the potential to bring awareness to the “unbridgeable gap,” between individuals and others. Yalom (1980) discusses that part of our universal human experience is the desire to be in connection with others and connect with other things outside of ourselves. College has an extremely important social component and as college students strive to make friends and feel socially accepted, we would expect college students not only face pressure to find a social circle in which they feel accepted, but also actively work to defend against their fundamental aloneness by adhering to groups (e.g., sorority, fraternity) and belief systems (Karavalaki & Shumaker, 2016). Experiments around social exclusion have found that feelings of isolation can be temporarily relieved when people encounter others who appear to share their subjective experience (Pinel, Long, Landau, Alexander, & Pyszczynski, 2006). One explanation may be that individuals who are feeling more anxiety regarding isolation may be less apt to

engaging in social interactions due to their anxiety and therefore may not be engaging in social drinking behaviors and sexual behaviors.

Meaning as a theme was also positively related to both binge drinking behavior and heaviest day of drinking behavior, and number of different vaginal sex partners. Meaning is discussed as the culmination of freedom, isolation, and death. Lack of meaning (also known as meaninglessness) has received considerable amount of research attention (Tillich, 1952; Weems et al., 2004). According to existential theory, each individual is responsible for creating their own meaning in life (Frankl, 1962; Yalom, 1980). Koole et al., 2006 said it well when they said that “in a world where the only real certainty is death, where one can never fully share one’s experiences with others, where one’s identity is uncertain, and where one is prodded by external forces while facing a bewildering array of choices, what meaning does life have?” These results indicate that college students also are struggling with the anxiety of creating their own meaning and purpose in life and therefore may be seeking comfort in externalizing behaviors.

Death was not a significant predictor for any risky behavior items. This is helpful information moving forward working to understanding how existential anxiety components are or are not present for college students. According to Terror Management Theory (TMT), the awareness of the salience of human mortality is associated with anxiety and people manage it unconsciously (Lewis, 2014). TMT posits that people enact proximal and distal defenses against conscious death related thoughts (Pyszczynski, Greenberg & Solomon, 1999). Proximal defenses use distractions or methods of downplaying the threat as an immediate problem to reduce the threat (Pyszczynski et al., 1999). Therefore, we may expect that substance use and sex would be proximal defenses or distractions to diffuse the threat of death. Taking TMT into account, results may on the other hand indicate that although students may be enacting defenses in response to

thoughts, because they are doing so, their responses on the ECQ related to death do not reach a level of clinical “concern.”

Results may also indicate that a greater focus on isolation, meaning, and freedom may be a better representation of college students’ confrontation with existential concerns. Results regarding death may also explain why as a unidimensional construct, existential concerns did not predict overall engagement in risky behavior, because questions regarding death “masked” other concerns on relevant theme items. It may be that the ECQ did not ask the appropriate death related questions for college students, making it difficult to discover the most accurate influence of death and other themes. Therefore, it may be that isolation, guilt, meaning, and freedom are more salient for this emerging adult population and should be the focus of broad existential concern measures.

In addition to calling attention for the need of further research in this area, additional questions were created to ask more directly about college students using health risk behaviors to cope. For participants who endorsed using alcohol, cannabis, and had vaginal intercourse, when asked whether or not they had ever used alcohol, cannabis, or sex, to avoid worry, boredom, or loneliness, roughly 40% of respondents answered yes for alcohol, 50% reported yes to using cannabis, and over 70% reported yes when asked about using sex to escape worry, boredom, or loneliness. These results reveal that in fact, a large percentage of college students are directly using alcohol and sex as coping strategies and as defense mechanisms. Primary results from this study do in fact support that some of the engagement in using alcohol as a coping strategy is attributable to the anxiety cause by existential concerns. In addition, exploratory logistic regressions revealed a positive and significant relationship between existential concerns and using alcohol to escape worry, boredom, or loneliness. As such, there is evidence that college

students are aware they are engaging in these behaviors to ease discomfort. Some of this discomfort may be attributable to anxiety regarding existence and more research is needed to understand not only more about this relationship, but also more about college students' awareness of these given concerns. This study has discussed the uniqueness around 'awareness' and how that plays a factor in reporting existential issues. Therefore, further research should directly address self-reporting around existential issues related to awareness of existential concerns.

Implications for Practice

For myself, a large desire to understand more about the presence and influence of existential issues lie in my ability to apply this knowledge to treatment settings. Analogous to the field of psychology's desire to achieve a level of scientific rigor in methodology and empirical studies, so too has the field of psychotherapy pushed for quantifiable treatment methods and outcomes. Manualized treatment has shown that although there is an improvement in well-being through skills and specialized techniques, there is not an explanation as to how the variables reached the outcome (Corsini & Wedding, 2011).

Yalom believed that "throw ins" or elements of treatment that do not fit well into a specified technique, made the difference in treatment (Yalom, 1980). Existential psychotherapy does not fit conceptually within the field's idea of manualized treatment. Existential psychotherapy does not "stand alone" as a treatment modality. Instead, it is often incorporated into the clinician's work. The argument has been made that because of the universality of existential issues, all types of treatment should therefore incorporate a level of discussion around these topics (Corsini & Wedding, 2011; Yalom, 1980). And although existential perspectives in treatment have not been a focus of clinical work for many graduate training programs and

schools of thought, existential anxiety has a growing following regarding its contribution to psychopathology (van Bruggen et al., 2015). There is promising information regarding incorporating existential discussions into treatment. Bruggen (2013) suggested that giving more attention to existential issues, similar to Yalom's argument, within treatment may contribute to improved methods of treatment and overall health.

This study indicates that in fact, further conversations about existential issues and the pervasive influence they have on the human experience could be extremely helpful to college students' wellbeing within a treatment setting. In addition, because of the difficulty of accessing existential issues for college students, responsibility lies within the practitioner to facilitate and bring to light these issues. In addition, this study brought light to the fact that for students who lack a sense of social support, they may be at a much higher risk for increased drinking behavior when struggling with existential issues. A clinical intervention that may be of help for students grappling with existential anxiety may therefore take the form of both a group and individual format. A group based intervention may allow for normalization of existential concerns among peers, as well as a supportive environment to foster motivation and insight around effective ways to manage existential concerns. Individual intervention sessions would allow participants to dive deeper into their own personal issues around existential confrontations and how they experience the effects of existential concerns on their behavior and emotions. In order for interventions to be effective, writers like Yalom indicate that the practitioners must be willing to walk through the issues of existence, that are arguable some of life's biggest problems, with their clients (Corsini & Wedding, 2011). Therefore, within clinical practice, clinicians would need a level of academic knowledge and training to discuss topics of existential based anxiety with their clients.

Limitations

Very little is known regarding the influence of existential concerns on risky behavior. Perhaps the most important limitation of this study is the lack of ability to assess via self-report measures the extent to which existential concerns are truly influencing risky behavior. Self-report measures, like the ones used in this study likely will never be able to capture the breadth of influence of existential issues. As, Yalom (1980) describes, existential concerns occur primarily outside of awareness. The field is in need of measures regarding existential anxiety, similar to other forms of anxiety. The development of valid measures of existential anxiety will require careful and creative research design. At this point, quantitatively studying existential concerns is in its infancy, despite centuries of study of these issues in philosophy, poetry, art, and prose.

Future Directions for Additional Research

Existential concerns are universal (Yalom, 1980). However, it is also expected that the degree to which an individual experiences existential issues, and which existential issues are more prevalent than others will depend on individual differences and intersectionality of identities. Carstensen, Isaacowitz, and Charles (1999) argue that the perception of time and the approach of “endings” is a critical factor in selection of social goals and heightened feelings and emotions. This study did not focus on differences between ages and year in school. However, based on Socioemotional Selectivity Theory, it would be expected that students nearing the end of their time in college may place higher emphasis on the present time compared to those just starting college (Carstensen, Isaacowitz, & Charles, 1999). This emphasis on the present time and the heightened emotions that may come for students who have less time left in college could yield important differences in the way these students experience existential issues compared to

students who have more recently transitioned to college. Specifically, when taking into account differences between students based on their year in school, the theory would predict that students in their later college years would report greater distress related to existential issues and upcoming phase of life transitions.

In addition, a focus on individual and cultural differences regarding race and ethnicity is another critical factor in understanding more about how existential concerns in college students. No one has yet looked at existential anxiety by race or ethnicity. This study yielded information that demonstrates women, Nonwhite, and Hispanic participants have slightly higher mean levels of existential concerns compared to men, white, and non-Hispanic participants. Additional studies are needed to elucidate the etiology of differences in existential concerns related to sex, gender, race, and ethnicity. Specifically, it could be useful for studies to pay attention to which existential concerns are relevant to an individual given their identities and why. It may also be that individuals with marginalized identities have reflected on and or been made more aware of their own experience of existential issues due to a history of systematic oppression.

Conclusion

This study offers the first look into understanding the influence existential concerns have on alcohol use, cannabis use, and risky sexual behavior in college students. Consciously or unconsciously, anxiety that is created from existential concerns can influence engagement in college students' risky behavior. This study demonstrated that existential concerns influence drinking behavior, and that existential concerns could be an unexplored drinking motive. This study also highlighted that measuring existential concerns and the influence they exert on human behavior and cognitions is difficult. Therefore, it is highly likely that college students are reacting on existential angst and it is occurring outside of their awareness. Results from this

study highlight that information regarding existential issues is especially important with college students given the pivotal moment they are at in their lives. For many students, whether they are aware or unaware, they may be experiencing existential issues for the first time while engaging in high risk behaviors.

The purpose of this study was to add to the growing interest for re-incorporation of existential perspectives back into our psychological science, while also attempting to understand more about what contributes to college students' engagement in alcohol, cannabis, and risky sexual behavior. This study demonstrates that existential concerns are contributing to college students' engagement in risky behavior and opens the door for further research questions around understanding the influence existential concerns have in the every day life of college students.

CHAPTER V

Epilogue

“If we reflect deeply upon our “situation” in the world, upon our existence, our boundaries, our possibilities, if we arrive at the ground that underlies all other ground, we invariably confront the givens of existence” (Yalom, 1980, p. 8). While writing a dissertation in the middle of a pandemic, it is hard not to sit and reflect on both Yalom’s words and the salience and utility of existential issues. It is virtually impossible to try and separate personal experience with the collective experience during this time. Prior to this collective trauma, many people, college students included, have been able to evade questions and reflective thought around the givens of existence. I would imagine many college students felt their possibilities and their boundaries were endless. And yet now, it seems one cannot run fast enough away from the next topical conversation regarding existential issues, our existence as a whole, and the future of humanity. Each and everyone’s situation in the world has changed.

I believe we have all been forced into the perfect set of conditions for reflection on existential issues. We have all been confronted with a global tragedy; one that has expanded time, forced use into solitude, created deafening silence, and stripped freedoms. I think about what this means for not only the data from this current dissertation, but what this means about the awareness and salience of existential issues for college students moving forward.

Prior to this tragedy, I was interested in this topic for the emerging adult population, as I felt it there was a gap in acknowledging the potential relevance of these issues for this unique age group, in a unique setting. Although my initial results may have demonstrated a level of emotional and mental freedom to avoid the burdening questions regarding existence, the playing

field has changed drastically. I feel ever more compelled to understand more about these issues for this population and how it influences their anxiety, behavior, and pattern of thinking moving forward.

This topic has the potential to be the most relevant for emerging adults. In the midst of also experiencing the trauma of this pandemic, intense demands have been placed on this young population that have the potential to bring an added level of distress. Emerging adults in particular, amid being stripped of their freedom, losing out on their college experiences, being turned away from internships and jobs they have worked for, have also been placed with immense responsibility to protect the more vulnerable. For a group of individuals who may be confronting the reality of their own existence for the first time, they also have been tasked (either directly or peripherally) with the existence of so many others.

Additional data is being gathered from college students during this time. I would imagine for some of them, deep reflection may prove to be too painful. To have their freedom that they so desperately cling to taken, may provoke anger and higher engagement in certain behaviors. They may feel a greater sense of purpose, knowing their actions have the potential to influence the fragility of life. They may find that they are struck by the juxtaposition of complexity and simplicity within one's existence. They may find that although we may be fellow travelers on this journey and that no one person is more immune to the tragedies of existence than another, the paradox of existence is that at the end of the day, we are alone in our suffering.

TABLES

Table 1. *Existential Concerns Questionnaire Scores and Sample Sizes by Demographics*

Variable	<i>n</i>	Mean	Min	Max
Sex				
Female	643	57.24	22	109
Male	192	48.08	22	93
Race				
Nonwhite	116	59.41	24	103
Black		59.00	26	103
Asian		60.13	23	94
American Indian or Alaska Native		60.91	25	103
Middle Eastern or North African		54.00	34	86
Native Hawaiian or Other Pacific Islander		56.44	46	76
White	692	54.79	22	109
Ethnicity				
Non-Hispanic Latino	707	54.84	22	109
Hispanic/Latino	129	57.11	24	99
Year in School				
1 st	568	55.77	22	109
2 nd	154	54.17	22	106
3 rd	74	53.39	22	80
4 th	30	53.50	32	86
5 th	10	56.11	28	90
Age				
18-19	682			
20-22	125			
23-25	13			
26+	14			

Table 2. *Variable Means, Standard Deviations, Correlations, and Confidence Intervals of Outcome Variables*

Variable	<i>M</i>	<i>SD</i>	1	2	3	4	5
1. Binge Drinking	2.72	3.93					
2. Heavy Drinking	5.02	3.99	.69** [.64, .72]				
3. Cannabis Use	2.91	2.68	.03 [-.06, .13]	.07 [-.02, .17]			
4. Vaginal Sex Number of Times	3.29	6.02	.13* [.02, .25]	.17** [.06, .29]	.04 [-.09, .17]		
5. Vaginal Sex Number of People	0.77	0.96	.30** [.19, .40]	.26** [.15, .37]	-.02 [-.15, .11]	.41** [.31, .50]	

Table 3. *Reliabilities for Predictor Variables*

Variable	<i>Cronbach's Alpha</i>
1. Existential Concerns Questionnaire	.95
2. Brief COPE	.86
3. Coping Self- Efficacy	.96
4. Five Facet Mindfulness Questionnaire	.85
Observing	.77
Acting with Awareness	.85
Non-Judgement	.90
Non-Reactivity	.77
Describing	.34

Table 4. *Variable Means, Standard Deviations, Correlations, and Confidence Intervals of Existential Themes*

Variable	<i>M</i>	<i>SD</i>	1	2	3	4
1. ECQ	55.18	17.40				
2. Death	16.67	6.09	.87** [.86, .89]			
3. Freedom	11.27	3.37	.87** [.85, .88]	.64** [.60, .68]		
4. Isolation	10.27	3.90	.87** [.85, .89]	.65** [.61, .69]	.76** [.72, .78]	
5. Meaning	17.09	6.12	.93** [.92, .94]	.71** [.67, .74]	.79** [.77, .82]	.77** [.74, .80]

Table 5

Means, standard deviations, and correlations with confidence intervals of predictor variables

Variable	M	SD	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1. ECQ	55.18	17.40																							
2. CSES	154.81	44.39	-.48*																						
			[-.53, -.42]																						
3. Observing	22.76	5.58	.16*	.04																					
			[.09, .23]	[-.03, .11]																					
4. Describing	24.75	5.80	-.39*	.46*	.14*																				
			[-.45, -.33]	[.40, .51]	[.08, .21]																				
5. Nonjudge	28.51	6.98	-.57*	.39*	.19*	.26*																			
			[-.62, -.52]	[.32, .44]	[-.26, -.13]	[.20, .33]																			
6. Nonreact	17.27	4.46	-.20*	.39*	.26*	.29*	.05																		
			[-.26, -.13]	[.33, .45]	[.19, .32]	[.22, .35]	[-.02, .11]																		
7. Aware	23.06	4.09	-.51*	.36*	.21*	.32*	.49*	.07*																	
			[-.56, -.45]	[.30, .42]	[-.27, -.14]	[.26, .38]	[.43, .54]	[.00, .14]																	
8. Distraction	5.40	1.57	.35*	.13*	.16*	-.06	.36*	-.07	.25*																
			[.29, .41]	[-.20, -.06]	[.09, .22]	[-.13, .01]	[-.42, -.29]	[-.13, .00]	[-.31, -.18]																
9. Active coping	5.31	1.47	.10*	.35*	.22*	.32*	.03	.25*	.09*	.15*															
			[-.17, -.03]	[.29, .41]	[.15, .28]	[.25, .38]	[-.04, .10]	[.18, .31]	[.02, .16]	[.08, .22]															
10.	2.90	1.27	.37*	-.12*	-.01	-.01	.18*	-.04																	

Denial			*	.23*	*	.17*	.32*		.33*	*									
			[.31,	[-.30,	[.05,	[-.24,	[-.38,	[-.06,	[-.40,	[.12,	[-.11,								
			.43]	-.16]	.19]	-.10]	-.25]	.08]	-.27]	.25]	.03]								
11. Subst ance use	3.16	1.60	.27*	-.20*	.15*	-.16*	.21*	.05	.29*	.17*	-.03	.30*							
			[.20,	[-.27,	[.09,	[-.23,	[-.27,	[-.02,	[-.35,	[.10,	[-.10,	[.23,							
			.33]	-.13]	.22]	-.09]	-.14]	.11]	-.22]	.24]	.04]	.36]							
12. Emotio nal support	5.16	1.77	.00	.24*	.19*	.24*	-.04	.06	.02	.22*	.43*	.04	.01						
			[-.07,	[.17,	[.12,	[.17,	[-.10,	[-.01,	[-.05,	[.15,	[.37,	[-.03,	[-.06,						
			.07]	.31]	.25]	.30]	.03]	.13]	.09]	.28]	.49]	.11]	.08]						
13. Instru mental support	5.02	1.82	-.03	.26*	.17*	.25*	-.03	.08*	.03	.18*	.41*	.00	-.00	.77*					
			[-.10,	[.19,	[.10,	[.19,	[-.10,	[.01,	[-.04,	[.11,	[.35,	[-.07,	[-.07,	[.74,					
			.04]	.32]	.23]	.31]	.04]	.15]	.10]	.24]	.47]	.07]	.07]	.80]					
14. Behavi oral disenga gement	3.26	1.48	.46*	.45*	.12*	.27*	.49*	-.07	.43*	.25*	.18*	.49*	.34*	-.01	-.03				
			[.40,	[-.50,	[.05,	[-.33,	[-.54,	[-.13,	[-.49,	[.19,	[-.25,	[.43,	[.27,	[-.08,	[-.10,				
			.52]	-.39]	.19]	-.20]	-.43]	.00]	-.38]	.32]	-.11]	.54]	.40]	.06]	.04]				
15. venting	4.16	1.37	.20*	-.02	.19*	.09*	.26*	.02	.12*	.22*	.30*	.22*	.13*	.42*	.40*	.25*			
			[.13,	[-.09,	[.12,	[.02,	[-.32,	[-.05,	[-.19,	[.16,	[.23,	[.15,	[.06,	[.37,	[.35,	[.18,			
			.26]	.05]	.25]	.16]	-.19]	.09]	-.05]	.29]	.36]	.28]	.19]	.48]	.46]	.31]			
16. positiv e refram e	5.35	1.57	-.01	.30*	.20*	.19*	.02	.22*	.02	.21*	.50*	.01	.06	.40*	.38*	.13*	.25*		
			[-.08,	[.24,	[.13,	[.13,	[-.05,	[.15,	[-.05,	[.14,	[.45,	[-.06,	[-.01,	[.34,	[.32,	[-.19,	[.18,		
			.06]	.37]	.27]	.26]	.09]	.29]	.09]	.27]	.55]	.08]	.13]	.46]	.43]	-.06]	.31]		
17. plannin g	5.35	1.61	.04	.25*	.29*	.24*	-.08*	.19*	.02	.22*	.61*	-.00	.01	.40*	.45*	-.06	.36*	.48*	
			[-.03,	[.18,	[.22,	[.17,	[-.15,	[.12,	[-.05,	[.15,	[.57,	[-.07,	[-.06,	[.34,	[.39,	[-.12,	[.30,	[.43,	
			.11]	.31]	.35]	.30]	-.01]	.25]	.09]	.29]	.66]	.07]	.08]	.46]	.50]	.01]	.42]	.54]	
18. humor	4.72	1.94	.21*	-.05	.16*	-.04	.24*	.11*	.29*	.30*	.12*	.16*	.23*	.18*	.17*	.22*	.21*	.26*	.19*
			[.14,	[-.12,	[.09,	[-.11,	[-.30,	[.04,	[-.35,	[.23,	[.05,	[.09,	[.16,	[.11,	[.11,	[.15,	[.14,	[.19,	[.12,
			.28]	.02]	.23]	.03]	-.17]	.18]	-.22]	.36]	.19]	.23]	.29]	.24]	.29]	.28]	.32]	.26]	.26]

19. acceptance	5.55	1.54	.01	.21*	.20*	.19*	-.02	.26*	.01	.26*	.39*	-.00	.06	.33*	.33*	-.03	.29*	.45*	.45*	.27*				
			[-.06, .08]	[.15, .28]	[.13, .26]	[.12, .26]	[-.09, .05]	[.19, .32]	[-.06, .08]	[.20, .33]	[.33, .45]	[-.07, .07]	[-.01, .13]	[.27, .39]	[.27, .39]	[-.10, .04]	[.23, .36]	[.39, .50]	[.39, .50]	[.21, .34]				
20. religion	3.75	1.99	-.03	.26*	.09*	.16*	-.07*	.11*	.03	.02	.22*	.13*	-.01	.21*	.28*	.03	.14*	.20*	.23*	.04	.14*			
			[-.10, .04]	[.20, .33]	[.02, .16]	[.10, .23]	[-.14, -.00]	[.04, .18]	[-.04, .10]	[-.05, .09]	[.15, .29]	[.06, .20]	[-.08, .06]	[.15, .28]	[.21, .34]	[-.04, .10]	[.07, .21]	[.14, .27]	[.16, .29]	[-.03, .10]	[.07, .20]			
21. self blame	4.92	1.88	.49*	.40*	.15*	.24*	.64*	.11*	.38*	.35*	.03	.25*	.29*	.05	.08*	.49*	.30*	.03	.19*	.27*	.10*	.00		
			[.44, .54]	[-.46, -.34]	[.08, .21]	[-.30, -.17]	[-.68, -.60]	[-.18, -.04]	[-.44, -.32]	[.29, .41]	[-.04, .10]	[.19, .32]	[.22, .35]	[-.02, .12]	[.01, .15]	[.44, .54]	[.24, .37]	[-.04, .10]	[.12, .26]	[.21, .34]	[.03, .16]	[-.07, .07]		
22. family history	0.39	0.49	-.09*	-.08*	.04	-.01	-.07*	-.01	-.08*	.08*	.01	.03	.16*	.02	.02	.08*	.07*	.05	.05	.13*	.10*	-.01	.07*	
			[.02, .16]	[-.15, -.01]	[-.03, .11]	[-.08, .06]	[-.14, -.00]	[-.08, .06]	[-.15, -.01]	[.01, .15]	[-.06, .08]	[-.04, .10]	[.09, .23]	[-.05, .09]	[-.05, .09]	[.01, .15]	[.00, .14]	[-.02, .11]	[-.02, .12]	[.06, .19]	[.03, .17]	[-.08, .06]	[.01, .14]	
23. family support	0.95	0.21	-.12*	.14*	-.02	.00	.15*	-.02	.05	-.05	.05	-.05	-.08*	.06	.06	-.09*	-.01	.05	.00	-.03	-.02	.02	.13*	.10**
			[-.19, -.05]	[.07, .20]	[-.09, .05]	[-.06, .07]	[.08, .22]	[-.09, .05]	[-.02, .11]	[-.12, .02]	[-.02, .12]	[-.12, .01]	[-.15, -.01]	[-.01, .13]	[-.00, .13]	[-.15, -.02]	[-.08, .06]	[-.02, .12]	[-.07, .07]	[-.10, .04]	[-.09, .05]	[.05, .09]	[-.05, -.06]	[-.16, .03]
24. social support	0.96	0.19	-.10*	.15*	.01	.06	.12*	.03	.05	-.05	.05	-.04	.00	.13*	.11*	-.07*	.01	.13*	-.00	-.02	.02	.06	.09*	.31*
			[-.16, -.03]	[.08, .22]	[-.05, .08]	[-.01, .13]	[.05, .19]	[-.04, .10]	[-.02, .12]	[-.12, .02]	[-.02, .11]	[-.10, .03]	[-.07, .07]	[.06, .20]	[.04, .18]	[-.14, -.00]	[-.06, .08]	[.06, .20]	[-.07, .07]	[-.09, .05]	[-.05, .09]	[.01, .13]	[-.01, -.02]	[-.09, .05]

Note. *M* and *SD* are used to represent mean and standard deviation, respectively. Values in square brackets indicate the 95% confidence interval for each correlation. The confidence interval is a plausible range of population correlations that could have caused the sample correlation (Cumming, 2014). * indicates $p < .05$. ** indicates $p < .01$

Table 6. *Linear Regression Prediction of Existential Concerns and Coping Self-Efficacy*

Variable	B	SE(B)	z	p
Coping Self-	-.11	.01	-7.61	.00**
Efficacy				
Age	-.24	.32	-.75	.45
Sex	6.63	1.25	5.31	.00**
Year	-.64	.72	-.88	.38
Race				
Non-White	2.96	1.76	1.68	.09
Ethnicity				
Hispanic	.59	1.35	.44	.66
Distraction	1.50	.35	4.27	.00**
Active Coping	-.36	.47	-.78	.44
Denial	2.13	.45	4.75	.00**
Substance Use	.57	.33	1.71	.09
Emotional	-.23	.45	-.53	.60
Support				
Instrumental	-.24	.43	-.56	.58
Support				
Behavioral	.91	.46	1.98	.05*
Disengagement				
Venting	.13	.44	.29	.77
Positive	.48	.40	1.20	.23
Reframe				

Planning	.60	.43	1.40	.16
Humor	.29	.28	1.01	.31
Acceptance	.01	.38	.03	.98
Religion	.15	.26	.58	.56
Self-Blame	2.07	.33	6.26	.00**

Note. ECQ = Existential Concerns Questionnaire. Note: * $p < .05$, ** $p < .01$.

Table 7. *Negative Binomial Regression Prediction of Binge Drinking*

Variable	RR	B	SE(B)	z	p
ECQ	1.01	.01	.00	2.49	.01*
Age	0.83	-.19	.06	-3.38	.00**
Sex	0.67	-.40	.14	-2.95	.00**
Year	1.17	.16	.09	1.71	.09
Race					
Non-White	0.42	-.86	.24	-3.62	.00**
Ethnicity					
Hispanic	0.99	-.01	.16	-.05	.96

Note. RR = rate ratio; SE = standard error; ECQ = Existential Concerns Questionnaire. Note: * p < .05, ** p < .01.

Table 8. *Negative Binomial Regression Prediction of Binge Drinking Moderated by Coping*

Variable	RR	B	SE(B)	z	p
ECQ	1.02	.02	.02	1.10	.27
Age	0.83	-.19	.06	-3.37	.00**
Sex	0.77	-.26	.14	-1.92	.05
Year	1.26	.23	.09	2.57	.01*
Race					
Non-White	0.41	-.90	.23	-3.94	.00**
Ethnicity					
Hispanic	0.93	-.07	.15	-.50	.62
Distraction	0.88	-.13	.13	-1.02	.30
Active Coping	0.96	-.04	1.9	-.19	.85
Denial	1.23	.21	.18	1.17	.24
Substance Use	1.17	.16	.13	1.22	.22
Emotional Support	1.09	.09	.15	.59	.55
Instrumental		-.13	.17	-.75	.45
Support	0.88				
Behavioral		.26	.19	1.35	.18
Disengagement	1.30				
Venting	1.14	.13	.15	.85	.40
Positive Reframe	1.35	.30	.15	1.98	.05*
Planning	0.82	-.20	.17	-1.23	.22
Humor	1.08	.08	.10	.78	.43
Acceptance	1.15	.14	.13	1.01	.31
Religion	0.85	-.16	.09	-1.66	.10

Self-Blame	0.99	-.01	.12	-.08	.94
ECQ*Distraction	1.00	.00	.00	.59	.55
ECQ*Active		-.00	.00	-.37	.71
Coping	1.00				
ECQ*Denial	1.00	-.00	.00	-.35	.73
ECQ*Substance		.00	.00	1.30	.19
Use	1.00				
ECQ*Emotional		-.00	.00	.94	.53
Support	1.00				
ECQ*Instrumental		.00	.00	.94	.35
Support	1.00				
ECQ*Behavioral		-.00	.00	-1.46	.15
Disengagement	1.00				
ECQ*Venting	1.00	-.00	.00	-1.35	.18
ECQ*Positive		-.00	.00	-1.30	.19
Reframe	1.00				
ECQ*Planning	1.00	.00	.00	1.08	.28
ECQ*Humor	1.00	-.00	.00	-.33	.74
ECQ*Acceptance	1.00	-.00	.00	-.62	.54
ECQ*Religion	1.00	.00	.00	1.50	.13
ECQ*Self Blame	1.00	-.00	.00	-.27	.79

Note. RR = rate ratio; SE = standard error Note. ECQ = Existential Concerns Questionnaire. Note: * p < .05, ** p < .01.

Table 9. *Negative Binomial Regression Prediction of Binge Drinking Moderated by Coping Self-Efficacy*

Variable	RR	B	SE(B)	z	p
ECQ	1.01	<.01	<.01	1.65	.10
Age	0.82	-.20	.06	-3.41	.00**
Sex	0.66	-.41	.13	-3.02	.00**
Year	1.17	.16	.09	1.69	.09
Race					
Non-White	0.47	-.76	.25	-3.08	.00**
Ethnicity					
Hispanic	1.01	.01	.16	.09	.93
Coping Self		<.01	<.01	.57	.57
Efficacy	1.01				
ECQ*Coping		<-.01	<.01	-.95	.34
Self-Efficacy	0.99				

Note. RR = rate ratio; SE = standard error; ECQ = Existential Concerns Questionnaire. Note: * p < .05, ** p < .01.

Table 10. *Negative Binomial Regression Prediction of Binge Drinking Moderated by Mindfulness-Non-Reactivity*

Variable	RR	B	SE(B)	z	p
ECQ	1.00	.00	.01	.30	.77
Age	0.83	-.19	.06	-3.32	.00**
Sex	0.68	-.38	.14	-2.67	.01**
Year	1.17	.16	.09	1.68	.09
Race					
Non-White	0.41	-.88	.24	-3.68	.00**
Ethnicity					
Hispanic	0.99	-.01	.16	-.09	.93
Non-		-.01	.04	-.14	.90
reactivity	0.99				
ECQ*Non-		.00	.00	.48	.63
reactivity	1.00				

Note. RR = rate ratio; SE = standard error; ECQ = Existential Concerns Questionnaire. Note: * p < .05, ** p < .01.

Table 11. *Negative Binomial Regression Prediction of Binge Drinking Moderated by Mindfulness-Describing*

Variable	RR	B	SE(B)	z	p
ECQ	1.01	<.01	.01	.32	.75
Age	0.82	-.20	.06	-3.41	.00**
Sex	0.65	-.43	.14	-3.09	.01*
Year	1.19	.17	.09	1.78	.07
Race					
Non-White	0.44	-.81	.24	-3.39	.00**
Ethnicity					
Hispanic	1.01	<.01	.15	.00	1.00
Describing	0.98	<-.02	.03	-.62	.54
ECQ*Describing	1.01	<.01	<.01	.15	.88

Note. RR = rate ratio; SE = standard error; ECQ = Existential Concerns Questionnaire. Note: * p < .05, ** p < .01.

Table 12. *Negative Binomial Regression Prediction of Binge Drinking Moderated by Mindfulness-Acting with Awareness*

Variable	RR	B	SE(B)	z	p
ECQ	0.99	-.01	.02	-.62	.54
Age	0.82	-.20	.06	-3.40	.00**
Sex	0.67	-.40	.14	-2.95	.00**
Year	1.19	.17	.09	1.80	.07
Race					
Non-White	0.42	-.87	.24	-3.62	.00**
Ethnicity					
Hispanic	0.97	-.03	.16	-.19	.85
Acting w/ Awareness	0.92	-.08	.05	-1.79	.07
ECQ*Acting w/ Awareness	1.00	.00	.00	.82	.41

Note. RR = rate ratio; SE = standard error; ECQ = Existential Concerns Questionnaire. Note: * p < .05, ** p < .01.

Table 13. *Negative Binomial Regression Prediction of Binge Drinking Moderated by Mindfulness-Observing*

Variable	<i>RR</i>	<i>B</i>	<i>SE(B)</i>	<i>z</i>	<i>p</i>
ECQ	1.00	-.00	.01	-.07	.94
Age	0.83	-.19	.06	-3.33	.00**
Sex	0.65	-.43	.14	-3.08	.00**
Year	1.17	.16	.09	1.75	.08
Race					
Non-White	0.43	-.85	.24	-3.55	.00**
Ethnicity					
Hispanic	1.01	.01	.16	.08	.94
Observing	0.97	-.03	.03	-.82	.41
ECQ*Observing	1.00	.00	.00	.82	.41

Note. RR = rate ratio; SE = standard error; ECQ = Existential Concerns Questionnaire. Note: * p < .05, ** p < .01.

Table 14. *Negative Binomial Regression Prediction of Binge Drinking Moderated by Mindfulness-Non-Judgement*

Variable	RR	B	SE(B)	z	p
ECQ	1.02	.02	.01	1.30	.19
Age	0.83	-.19	.06	-3.28	.00**
Sex	0.66	-.42	.14	-3.02	.00**
Year	1.17	.16	.09	1.69	.09
Race					
Non-White	0.42	-.86	.24	-3.55	.00**
Ethnicity					
Hispanic	1.04	.04	.16	.24	.81
Non-judgement	1.03	.03	.03	.91	.46
ECQ*Non-		-.00	.00	-.38	.71
Judgement	1.00				

Note. RR = rate ratio; SE = standard error; ECQ = Existential Concerns Questionnaire. Note: * p < .05, ** p < .01.

Table 15. *Negative Binomial Regression Prediction of Binge Drinking Moderated by Family History of Substance Use*

Variable	RR	B	SE(B)	z	p
ECQ	1.00	.00	.00	1.11	.27
Age	0.82	-.20	.06	-3.48	.00**
Sex	0.64	-.45	.14	-3.24	.00**
Year	1.17	.16	.09	1.72	.09
Race					
Non-White	0.41	-.88	.24	-3.69	.00**
Ethnicity					
Hispanic	1.00	-.00	.16	-.01	.99
Family History	0.91	-.09	.39	-.24	.81
ECQ*Family		.01	.01	1.00	.32
History	1.01				

Note. RR = rate ratio; SE = standard error; ECQ = Existential Concerns Questionnaire. Note: * p < .05, ** p < .01.

Table 16. *Negative Binomial Regression Prediction of Binge Drinking Moderated by Family Support*

Variable	RR	B	SE(B)	z	p
ECQ	1.00	-.00	.02	-.27	.79
Age	0.83	-.19	.06	-3.34	.00**
Sex	0.68	-.38	.14	-2.79	.01**
Year	1.17	.16	.09	1.73	.08
Race					
Non-White	0.43	-.85	.24	-3.54	.00**
Ethnicity					
Hispanic	1.00	.00	.16	.00	1.00
Family Support	0.48	-.73	1.25	-.59	.56
ECQ*Family		.01	.02	.78	.43
Support	1.01				

Note. RR = rate ratio; SE = standard error; ECQ = Existential Concerns Questionnaire. Note: * p < .05, ** p < .01.

Table 17. *Negative Binomial Regression Prediction of Binge Drinking Moderated by Social Support*

Variable	RR	B	SE(B)	z	P
ECQ	1.07	.07	.03	2.57	.01*
Age	0.83	-.19	.06	-3.42	.00**
Sex	0.66	-.42	.14	-3.06	.00**
Year	1.16	.15	.09	1.63	.10
Race					
Non-White	0.42	-.86	.24	-3.60	.00**
Ethnicity					
Hispanic	1.01	.01	.16	.07	.94
Social Support	357.81	5.88	2.13	2.76	.01**
ECQ*Social		-.07	.03	-2.26	.02*
Support	0.93				

Note. RR = rate ratio; SE = standard error; ECQ = Existential Concerns Questionnaire. Note: * p < .05, ** p < .01.

Table 18. *Negative Binomial Regression Prediction of Heaviest Day of Drinking*

Variable	<i>RR</i>	<i>B</i>	<i>SE(B)</i>	<i>z</i>	<i>p</i>
ECQ	1.00	.00	.00	1.63	.10
Age	0.90	-.11	.03	-3.75	.00**
Sex	0.64	-.44	.08	-5.62	.00**
Year	1.12	.11	.05	2.20	.03*
Race					
Non-White	0.58	-.54	.14	-3.97	.00**
Ethnicity					
Hispanic	1.13	.12	.09	1.39	.16

Note. RR = rate ratio; SE = standard error; ECQ = Existential Concerns Questionnaire. Note: * p < .05, ** p < .01.

Table 19. *Negative Binomial Regression Prediction of Heavy Drinking Moderated by Coping*

Variable	RR	B	SE(B)	z	p
ECQ	1.02	.02	.01	1.79	.07
Age	0.90	-.10	.03	-3.72	.00**
Sex	0.71	-.34	.08	-4.37	.00**
Year	1.15	.14	.05	2.92	.00**
Race					
Non-White	0.56	-.58	.13	-4.58	.00**
Ethnicity					
Hispanic	1.04	.04	.08	.54	.59
Distraction	0.90	-.10	.07	-1.32	.19
Active Coping	0.99	-.01	.11	-.09	.93
Denial		.06	.10	.57	.57
Substance Use	1.12	.11	.07	1.49	.14
Emotional Support	0.84	-.17	.09	-1.92	.06
Instrumental		-.01	.09	-.08	.93
Support	0.99				
Behavioral		.23	.11	2.11	.03*
Disengagement	1.26				
Venting	1.12	.11	.09	1.26	.21
Positive Reframe	1.35	.30	.09	3.48	.00**
Planning	1.03	.03	.10	.31	.76
Humor	1.04	.04	.06	.62	.54
Acceptance	1.00	.00	.08	.04	.97
Religion	0.89	-.12	.05	-2.29	.02*

Self-Blame	1.00	.00	.07	.01	.99
ECQ*Distraction	1.00	<.00	.00	.44	.66
ECQ*Active		<.00	.00	.06	.95
Coping	1.00				
ECQ*Denial	1.00	<.00	.00	.08	.94
ECQ*Substance		<.00	.00	.68	.50
Use	1.00				
ECQ*Emotional		.00	.00	1.70	.09
Support	1.00				
ECQ*Instrumental		.00	.00	.10	.92
Support	1.00				
ECQ*Behavioral		-.00	.00	-2.06	.04*
Disengagement	1.00				
ECQ*Venting	1.00	-.00	.00	-1.50	.13
ECQ*Positive		-.00	.00	-2.90	.00*
Reframe	1.00				
ECQ*Planning	1.00	-.00	.00	-.83	.41
ECQ*Humor	1.00	<-.00	.00	-.03	.98
ECQ*Acceptance	1.00	.00	.00	.51	.61
ECQ*Religion	1.00	.00	.00	1.79	.07
ECQ*Self Blame	1.00	-.00	.00	-.12	.91

Note. RR = rate ratio; SE = standard error; ECQ = Existential Concerns Questionnaire. Note: * p < .05, ** p < .01.

Table 20. *Negative Binomial Regression Prediction of Heaviest Day of Drinking and Coping Self-Efficacy*

Variable	RR	B	SE(B)	z	p
ECQ	1.01	<.01	<.01	1.54	.12
Age	0.90	-.11	.03	-3.83	.00**
Sex	0.64	-.44	.08	-5.69	.00**
Year	1.12	.11	.05	2.16	.03*
Race					
Non-White	0.63	-.46	.14	-3.29	.00**
Ethnicity					
Hispanic	1.14	.13	.09	1.45	.15
Coping Self-Efficacy		<.01	<.01	.89	.38
ECQ*Coping Self-Efficacy		<-.01	<.01	-1.17	.24
Self-Efficacy	0.99				

Note. RR = rate ratio; SE = standard error; ECQ = Existential Concerns Questionnaire. Note: * p < .05, ** p < .01.

Table 21. *Negative Binomial Regression Prediction of Heaviest Day of Drinking and Mindfulness Nonreactivity*

Variable	<i>RR</i>	<i>B</i>	<i>SE(B)</i>	<i>z</i>	<i>p</i>
ECQ	1.00	.00	.01	.05	.96
Age	0.90	-.11	.03	-3.70	.00**
Sex	0.66	-.42	.08	-5.25	.00**
Year	1.12	.11	.05	2.17	.03*
Race					
Non-White	0.58	-.55	.14	-4.02	.00**
Ethnicity					
Hispanic	1.14	.13	.09	1.41	.16
Nonreactivity	1.00	-.00	.02	-.05	.96
ECQ*Nonreactivity	1.00	.00	.00	.47	.64

Note. RR = rate ratio; SE = standard error; ECQ = Existential Concerns Questionnaire. Note: * $p < .05$, ** $p < .01$.

Table 22. *Negative Binomial Regression Prediction of Heaviest Day of Drinking and Mindfulness Observing*

Variable	RR	B	SE(B)	z	p
ECQ	1.01	<.01	.01	.14	.89
Age	0.90	-.11	.03	-3.79	.00**
Sex	0.66	-.42	.08	-5.40	.00**
Year	1.13	.12	.05	2.30	.02*
Race					
Non-White	0.59	-.52	.14	-3.89	.00**
Ethnicity					
Hispanic	1.13	.12	.09	1.38	.17
Observing	0.99	-.01	.02	-.35	.73
ECQ*Observing	1.01	<.01	<.01	.31	.76

Note. RR = rate ratio; SE = standard error; ECQ = Existential Concerns Questionnaire. Note: * p < .05, ** p < .01.

Table 23. *Negative Binomial Regression Prediction of Heaviest Day of Drinking and Acting with Awareness*

Variable	RR	B	SE(B)	z	p
ECQ	0.99	-.01	.01	-1.39	.16
Age	0.90	-.11	.03	-3.76	.00**
Sex	0.65	-.43	.08	-5.60	.00**
Year	1.12	.11	.05	2.22	.03*
Race					
Non-White	0.58	-.54	.14	-4.00	.00**
Ethnicity					
Hispanic	1.11	.10	.09	1.19	.24
Acting with Awareness		-.06	.03	-2.18	.03*
ECQ*Acting with Awareness	0.94	.00	.00	1.54	.12
	1.00				

Note. RR = rate ratio; SE = standard error; ECQ = Existential Concerns Questionnaire. Note: * p < .05, ** p < .01.

Table 24. *Negative Binomial Regression Prediction of Heaviest Day of Drinking and Mindfulness Describing*

Variable	<i>RR</i>	<i>B</i>	<i>SE(B)</i>	<i>z</i>	<i>p</i>
ECQ	1.00	.00	<.01	.52	.61
Age	0.90	-.11	.03	-3.76	.00**
Sex	0.66	-.43	.08	-5.59	.00**
Year	1.12	.11	.05	2.19	.03*
Race					
Non-White	0.60	-.51	.14	-3.77	.00**
Ethnicity					
Hispanic	1.13	.12	.09	1.35	.18
Mindfulness		<-.01	.02	-.18	.86
Describing	0.99				
ECQ*Describing	1.00	-.00	.00	-.26	.80

Note. RR = rate ratio; SE = standard error; ECQ = Existential Concerns Questionnaire. Note: * p < .05, ** p < .01.

Table 25. *Negative Binomial Regression Prediction of Heaviest Day of Drinking and Mindfulness-Nonjudgement*

Variable	RR	B	SE(B)	z	p
ECQ	1.01	.01	.01	1.00	.32
Age	0.90	-.11	.03	-3.71	.00**
Sex	0.64	-.44	.08	-5.55	.00**
Year	1.13	.12	.05	2.29	.02*
Race					
Non-White	0.59	-.53	.14	-3.90	.00**
Ethnicity					
Hispanic	1.15	.14	.09	1.61	.11
Non-judgement	1.01	.01	.02	.70	.48
ECQ*Non-		-.00	.00	-.49	.63
judgement	1.00				

Note. RR = rate ratio; SE = standard error; ECQ = Existential Concerns Questionnaire. Note: * p < .05, ** p < .01.

Table 26. *Negative Binomial Regression Prediction of Heaviest Day of Drinking and Family History*

Variable	RR	B	SE(B)	z	p
ECQ	1.00	.00	.00	.12	.91
Age	0.90	-.11	.03	-3.86	.00**
Sex	0.64	-.45	.08	-5.84	.00**
Year	0.90	-.11	.05	2.24	.03*
Race					
Non-White	0.58	-.55	.14	-4.06	.00**
Ethnicity					
Hispanic	1.14	.13	.09	1.43	.15
Family History	0.84	-.17	.22	-.75	.46
ECQ*Family		.06	.00	1.53	.13
History	1.06				

Note. RR = rate ratio; SE = standard error; ECQ = Existential Concerns Questionnaire. Note: * p < .05, ** p < .01.

Table 27. *Negative Binomial Regression Prediction of Heaviest Day of Drinking and Family Support*

Variable	RR	B	SE(B)	z	p
ECQ	1.02	.02	.01	1.85	.06
Age	0.90	-.11	.03	-3.68	.00**
Sex	0.66	-.42	.08	-5.42	.00**
Year	1.12	.11	.05	2.25	.02*
Race					
Non-White	0.58	-.55	.14	-4.02	.00**
Ethnicity					
Hispanic	1.15	.14	.09	1.55	.12
Family Support	3.71	1.31	.75	1.74	.08
ECQ*Family		-.02	.01	-1.55	.12
Support	0.98				

Note. RR = rate ratio; SE = standard error; ECQ = Existential Concerns Questionnaire. Note: * p < .05, ** p < .01.

Table 28. *Negative Binomial Regression Prediction of Heaviest Day of Drinking and Social Support*

Variable	RR	B	SE(B)	z	p
ECQ	1.03	.03	.01	2.33	.02*
Age	0.90	-.11	.03	-3.81	.00**
Sex	0.64	-.45	.08	-5.78	.00**
Year	1.12	.11	.05	2.09	.04*
Race					
Non-White	0.59	-.53	.14	-3.92	.00**
Ethnicity					
Hispanic	1.14	.13	.09	1.48	.14
Social Support	7.77	2.05	.86	2.38	.02*
ECQ*Social		-.03	.01	-2.08	.04*
Support	0.97				

Note. RR = rate ratio; SE = standard error; ECQ = Existential Concerns Questionnaire. Note: * p < .05, ** p < .01.

Table 29. *Negative Binomial Regression Prediction of Weekly Cannabis Use*

Variable	<i>RR</i>	<i>B</i>	<i>SE(B)</i>	<i>z</i>	<i>p</i>
ECQ	1.00	.00	.00	1.00	.32
Age	0.95	-.05	.03	-1.63	.10
Sex	0.66	-.41	.10	-4.19	.00**
Year	1.12	.11	.06	1.81	.07
Race					
Non-White	1.36	.31	.14	2.27	.02*
Ethnicity					
Hispanic	0.88	-.13	.12	-1.11	.27

Note. RR = rate ratio; SE = standard error; ECQ = Existential Concerns Questionnaire. Note: * $p < .05$, ** $p < .01$.

Table 30. *Negative Binomial Regression Prediction of Weekly Cannabis Moderated by Coping*

Variable	RR	B	SE(B)	z	p
ECQ	1.00	.00	.01	.32	.75
Age	0.98	-.02	.03	-.67	.51
Sex	0.73	-.32	.10	-3.22	.00**
Year	1.09	.09	.06	1.44	.15
Race					
Non-White	1.30	.26	.13	1.98	.05*
Ethnicity					
Hispanic	0.88	-.13	.11	-1.19	.23
Distraction	0.91	-.09	.10	-.95	.34
Active Coping	0.95	-.05	.14	-.38	.70
Denial		.30	.14	2.12	.04*
Substance Use	1.17	.16	.09	1.80	.07
Emotional Support	1.05	.05	.12	.43	.67
Instrumental		-.11	.13	-.89	.37
Support	0.90				
Behavioral		-.07	.15	-.47	.64
Disengagement	0.93				
Venting	0.82	-.20	.13	-1.58	.11
Positive Reframe	1.03	.03	.12	.26	.79
Planning	1.15	.14	.13	1.08	.28
Humor	.83	-.19	.08	-2.43	.01*
Acceptance	1.13	.12	.11	1.11	.27
Religion	1.06	.06	.08	.70	.49

Self-Blame	1.13	.12	.10	1.18	.24
ECQ*Distraction	1.00	<.00	.00	.43	.67
ECQ*Active		<.00	.00	.01	.99
Coping	1.00				
ECQ*Denial	1.00	-.00	.00	-2.04	.04*
ECQ*Substance		.00	.00	.36	.72
Use	1.00				
ECQ*Emotional		<.00	.00	.02	.98
Support	1.00				
ECQ*Instrumental		.00	.00	.34	.74
Support	1.00				
ECQ*Behavioral		.00	.00	.08	.94
Disengagement	1.00				
ECQ*Venting	1.00	.00	.00	1.53	.13
ECQ*Positive		-.00	.00	-.35	.72
Reframe	1.00				
ECQ*Planning	1.00	-.00	.00	-.96	.34
ECQ*Humor	1.00	.00	.00	2.44	.01*
ECQ*Acceptance	1.00	-.00	.00	-.21	.84
ECQ*Religion	1.00	-.00	.00	-1.17	.24
ECQ*Self Blame	1.00	-.00	.00	-1.27	.21

Note. RR = rate ratio; SE = standard error; ECQ = Existential Concerns Questionnaire. Note: * p < .05, ** p < .01.

Table 31. *Negative Binomial Regression Prediction of Cannabis and Coping Self-Efficacy*

Variable	RR	B	SE(B)	z	p
ECQ	0.99	<-.01	<.01	-.46	.65
Age	0.95	-.05	.03	-1.63	.10
Sex	0.68	-.39	.10	-4.03	.00**
Year	1.12	.11	.06	1.81	.07
Race					
Non-White	1.43	.36	.14	2.52	.01*
Ethnicity					
Hispanic	0.84	-.17	.12	-1.46	.14
Coping Self-		<-.01	<.01	-.88	.38
Efficacy	0.99				
ECQ*Coping		<.01	<.01	.30	.76
Self-Efficacy	1.01				

Note. RR = rate ratio; SE = standard error; ECQ = Existential Concerns Questionnaire. Note: * p < .05, ** p < .01.

Table 32. *Negative Binomial Regression Prediction of Weekly Cannabis and Mindfulness Non-reactivity*

Variable	RR	B	SE(B)	z	p
ECQ	1.02	.02	.01	1.79	.07
Age	0.95	-.05	.03	-1.76	.08
Sex	0.67	-.40	.10	-4.00	.00**
Year	1.14	.13	.06	2.09	.04*
Race					
Non-White	1.35	.30	.14	2.19	.03*
Ethnicity					
Hispanic	0.89	-.12	.12	-1.06	.29
Non-reactivity	1.05	.05	.03	1.69	.09
ECQ*Non-reactivity	1.00	-.00	.00	-1.66	.10

Note. RR = rate ratio; SE = standard error; ECQ = Existential Concerns Questionnaire. Note: * p < .05, ** p < .01.

Table 33. *Negative Binomial Regression Prediction of Weekly Cannabis and Mindfulness-Observing*

Variable	RR	B	SE(B)	z	p
ECQ	1.00	.00	.01	.43	.67
Age	0.95	-.05	.03	-1.80	.07
Sex	0.68	-.39	.10	-4.02	.00**
Year	1.13	.12	.06	1.90	.06
Race					
Non-White	1.36	.31	.14	2.25	.02*
Ethnicity					
Hispanic	0.87	-.14	.12	-1.19	.24
Observing	1.03	.03	.03	1.24	.22
ECQ*Observing	1.00	-.00	.00	-.32	.75

Note. RR = rate ratio; SE = standard error; ECQ = Existential Concerns Questionnaire. Note: * p < .05, ** p < .01.

Table 34. *Negative Binomial Regression Prediction of Weekly Cannabis and Mindfulness-Acting with Awareness*

Variable	RR	B	SE(B)	z	p
ECQ	1.02	.02	.01	1.57	.12
Age	0.95	-.05	.03	-1.65	.10
Sex	0.66	-.41	.10	-4.14	.00**
Year	1.12	.11	.06	1.83	.07
Race					
Non-White	1.40	.34	.14	2.45	.01*
Ethnicity					
Hispanic	0.90	-.11	.12	-.94	.35
Acting with		.05	.03	1.39	.17
Awareness	1.05				
ECQ*Acting		-.00	.00	-1.36	.17
with Awareness	1.00				

Note. RR = rate ratio; SE = standard error; ECQ = Existential Concerns Questionnaire. Note: * p < .05, ** p < .01.

Table 35. *Negative Binomial Regression Prediction of Weekly Cannabis and Mindfulness-Describing*

Variable	<i>RR</i>	<i>B</i>	<i>SE(B)</i>	<i>z</i>	<i>p</i>
ECQ	1.01	.01	.01	.89	.37
Age	0.95	-.05	.03	-1.67	.09
Sex	0.66	-.42	.10	-4.24	.00**
Year	1.13	.12	.06	1.93	.05
Race					
Non-White	1.36	.31	.14	2.19	.03*
Ethnicity					
Hispanic	0.89	-.12	.12	-1.07	.28
Describing	1.02	.02	.02	.75	.46
ECQ*Describing	1.00	-.00	.00	-.63	.53

Note. RR = rate ratio; SE = standard error; ECQ = Existential Concerns Questionnaire. Note: * $p < .05$, ** $p < .01$.

Table 36. *Negative Binomial Regression Prediction of Weekly Cannabis and Mindfulness-Non-Judgement*

Variable	RR	B	SE(B)	z	p
ECQ	1.02	.02	.01	2.32	.02*
Age	0.96	-.04	.03	-1.49	.14
Sex	0.66	-.41	.10	-4.13	.00**
Year	1.13	.12	.06	1.96	.05*
Race					
Non-White	1.39	.33	.14	2.39	.02*
Ethnicity					
Hispanic	0.91	-.09	.12	-.75	.45
Non-Judgement	1.05	.05	.02	2.31	.02*
ECQ*Non-		-.00	.00	-1.83	.07
Judgement	1.00				

Note. RR = rate ratio; SE = standard error; ECQ = Existential Concerns Questionnaire. Note: * p < .05, ** p < .01.

Table 37. *Negative Binomial Regression Prediction of Weekly Cannabis and Family History of Substance Use*

Variable	RR	B	SE(B)	z	p
ECQ	1.00	-.00	.00	-.18	.86
Age	0.95	-.05	.03	-1.78	.08
Sex	0.63	-.46	.10	-4.72	.00**
Year	1.12	.11	.06	1.83	.07
Race					
Non-White	1.40	.34	.14	2.50	.01*
Ethnicity					
Hispanic	0.87	-.14	.11	-1.21	.23
Family History	1.09	.09	.29	.30	.76
ECQ*Family		.00	.00	.81	.42
History	1.00				

Note. RR = rate ratio; SE = standard error; ECQ = Existential Concerns Questionnaire. Note: * p < .05, ** p < .01.

Table 38. *Negative Binomial Regression Prediction of Weekly Cannabis and Family Support*

Variable	<i>RR</i>	<i>B</i>	<i>SE(B)</i>	<i>z</i>	<i>p</i>
ECQ	0.99	-.01	.01	-1.26	.21
Age	0.94	-.06	.03	-1.94	.05
Sex	0.65	-.43	.10	-4.34	.00**
Year	1.13	.12	.06	1.97	.05*
Race					
Non-White	1.40	.34	.14	2.42	.02*
Ethnicity					
Hispanic	0.86	-.15	.12	-1.28	.20
Family Support	0.30	-1.22	.72	-1.69	.09
ECQ*Family		.02	.01	1.53	.13
Support	1.02				

Note. RR = rate ratio; SE = standard error; ECQ = Existential Concerns Questionnaire. Note: * p < .05, ** p < .01.

Table 39. *Negative Binomial Regression Prediction of Weekly Cannabis and Social Support*

Variable	<i>RR</i>	<i>B</i>	<i>SE(B)</i>	<i>z</i>	<i>p</i>
ECQ	1.01	.01	.01	.71	.48
Age	0.96	-.04	.03	-1.48	.14
Sex	0.66	-.41	.10	-4.16	.00**
Year	1.12	.11	.06	1.73	.08
Race					
Non-White	1.36	.31	.14	2.26	.02*
Ethnicity					
Hispanic	0.88	-.13	.12	-1.09	.28
Social Support	1.79	.58	.94	.62	.53
ECQ*Social		-.01	.01	-.53	.60
Support	0.99				

Note. RR = rate ratio; SE = standard error; ECQ = Existential Concerns Questionnaire. Note: * p < .05, ** p < .01.

Table 40. *Negative Binomial Regression Prediction of Unprotected Vaginal Sex in 30 Days*

Variable	<i>RR</i>	<i>B</i>	<i>SE(B)</i>	<i>z</i>	<i>p</i>
ECQ	0.99	-.01	.01	-1.90	.06
Age	1.00	-.00	.05	-.07	.95
Sex	0.94	-.06	.29	-.20	.84
Year	1.12	.11	.15	.77	.44
Race					
Non-White	0.78	-.25	.46	-.54	.59
Ethnicity					
Hispanic	1.00	.00	.29	.00	1.00

Note. RR = rate ratio; SE = standard error; ECQ = Existential Concerns Questionnaire. Note: * p < .05, ** p < .01.

Table 41. *Negative Binomial Regression Prediction of Unprotected Sex (Frequency) Moderated by Coping*

Variable	RR	B	SE(B)	z	p
ECQ	1.06	.06	.04	1.64	.10
Age	0.98	-.02	.06	-.34	.73
Sex	0.66	-.41	.31	-1.31	.19
Year	1.21	.19	.15	1.25	.21
Race					
Non-White	1.62	.48	.45	1.07	.29
Ethnicity					
Hispanic	0.94	-.06	.29	-.22	.83
Distraction	1.01	.01	.29	.05	.96
Active Coping	1.67	.51	.39	1.30	.19
Denial		.20	.37	.55	.58
Substance Use	1.13	.12	.27	.45	.66
Emotional Support	1.23	.21	.32	.64	.52
Instrumental		.35	.33	1.06	.29
Support	1.42				
Behavioral		.51	.39	1.30	.20
Disengagement	1.67				
Venting	1.00	.00	.33	.01	.99
Positive Reframe	0.80	-.22	.31	-.70	.48
Planning	0.68	-.39	.38	-1.05	.30
Humor	0.90	-.10	.22	-.44	.66
Acceptance	0.90	-.10	.31	-.31	.76

Religion	1.23	.21	.22	.95	.34
Self-Blame	0.82	-.20	.27	-.73	.46
ECQ*Distraction	1.00	-.00	.01	-.20	.84
ECQ*Active		-.01	.01	-1.32	.19
Coping	0.99				
ECQ*Denial	1.00	-.00	.01	-.48	.63
ECQ*Substance		-.00	.00	-.45	.65
Use	1.00				
ECQ*Emotional		-.00	.01	-.22	.83
Support	1.00				
ECQ*Instrumental		-.01	.01	-.88	.38
Support	0.99				
ECQ*Behavioral		-.01	.01	-.92	.36
Disengagement	0.99				
ECQ*Venting	1.00	-.00	.01	-.33	.74
ECQ*Positive		.01	.01	1.31	.19
Reframe	1.01				
ECQ*Planning	1.01	.01	.01	.92	.36
ECQ*Humor	1.00	.00	.00	.21	.84
ECQ*Acceptance	1.00	.00	.01	.35	.72
ECQ*Religion	0.99	-.01	.00	-1.66	.10
ECQ*Self Blame	1.00	-.00	.00	-.09	.93

Note. RR = rate ratio; SE = standard error; ECQ = Existential Concerns Questionnaire. Note: * p < .05, ** p < .01.

Table 42. *Negative Binomial Regression Prediction of Unprotected Vaginal Sex in 30 Days and Coping Self-Efficacy*

Variable	RR	B	SE(B)	z	p
ECQ	0.97	-.03	.02	-1.66	.10
Age	1.01	.01	.05	.20	.84
Sex	0.91	-.09	.29	-.32	.75
Year	1.09	.09	.15	.60	.55
Race					
Non-White	0.70	-.35	.49	-.72	.47
Ethnicity					
Hispanic	0.97	-.03	.29	-.12	.91
Coping Self-		-.01	.01	-.83	.40
Efficacy	0.99				
ECQ*Coping		.00	.00	1.33	.19
Self-Efficacy	1.00				

Note. RR = rate ratio; SE = standard error; ECQ = Existential Concerns Questionnaire. Note: * p < .05, ** p < .01.

Table 43. *Negative Binomial Regression Prediction of Unprotected Vaginal Sex in 30 Days and Mindfulness- Non-reactivity*

Variable	RR	B	SE(B)	z	p
ECQ	0.94	-.06	.03	-2.33	.02*
Age	1.03	.03	.05	.64	.52
Sex	0.93	-.07	.29	-.24	.81
Year	1.04	.04	.15	.26	.79
Race					
Non-White	0.85	-.16	.46	-.34	.73
Ethnicity					
Hispanic	1.07	.07	.29	.25	.80
Non-reactivity	0.88	-.13	.08	-1.61	.11
ECQ*Non-		.00	.00	1.88	.06
reactivity	1.00				

Note. RR = rate ratio; SE = standard error; ECQ = Existential Concerns Questionnaire. Note: * p < .05, ** p < .01.

Table 44. *Negative Binomial Regression Prediction of Unprotected Vaginal Sex in 30 Days and Mindfulness- Describing*

Variable	<i>RR</i>	<i>B</i>	<i>SE(B)</i>	<i>z</i>	<i>p</i>
ECQ	0.98	-.02	.03	-.70	.48
Age	1.00	.00	.05	.02	.99
Sex	0.94	-.06	.29	-.22	.82
Year	1.13	.12	.15	.80	.43
Race					
Non-White	0.70	-.36	.46	-.77	.44
Ethnicity					
Hispanic	1.07	.07	.29	.24	.81
Describing	1.01	.01	.06	.13	.89
ECQ*Describing	1.00	.00	.00	.45	.65

Note. RR = rate ratio; SE = standard error; ECQ = Existential Concerns Questionnaire. Note: * p < .05, ** p < .01.

Table 45. *Negative Binomial Regression Prediction of Unprotected Vaginal Sex in 30 Days and Mindfulness- Observing*

Variable	RR	B	SE(B)	z	p
ECQ	0.99	-.01	.03	-.31	.76
Age	0.99	-.01	.06	-.13	.90
Sex	1.02	.02	.29	.08	.94
Year	1.15	.14	.15	.91	.36
Race					
Non-White	0.78	-.25	.47	-.54	.59
Ethnicity					
Hispanic	1.04	.04	.29	.12	.90
Observing	1.01	.01	.06	.18	.86
ECQ*Observing	1.00	-.00	.00	-.09	.93

Note. RR = rate ratio; SE = standard error; ECQ = Existential Concerns Questionnaire. Note: * p < .05, ** p < .01.

Table 46. *Negative Binomial Regression Prediction of Unprotected Vaginal Sex in 30 Days and Mindfulness- Acting with Awareness*

Variable	RR	B	SE(B)	z	p
ECQ	0.92	-.08	.03	-2.38	.02*
Age	1.02	.02	.05	.40	.69
Sex	0.96	-.04	.29	-.15	.88
Year	1.06	.06	.15	.41	.68
Race					
Non-White	0.77	-.26	.46	-.56	.58
Ethnicity					
Hispanic	1.04	.04	.29	.15	.89
Acting with		-.17	.08	-2.04	.04*
Awareness	0.84				
ECQ*Acting		.00	.00	2.06	.04*
with Awareness	1.00				

Note. RR = rate ratio; SE = standard error; ECQ = Existential Concerns Questionnaire. Note: * p < .05, ** p < .01.

Table 47. *Negative Binomial Regression Prediction of Unprotected Vaginal Sex in 30 Days and Mindfulness- Nonjudgement*

Variable	<i>RR</i>	<i>B</i>	<i>SE(B)</i>	<i>z</i>	<i>p</i>
ECQ	0.95	-.05	.03	-1.98	.05*
Age	0.99	-.01	.05	-.12	.90
Sex	0.86	-.15	.29	-.51	.61
Year	1.13	.12	.15	.77	.44
Race					
Non-White	0.75	-.29	.47	-.63	.53
Ethnicity					
Hispanic	0.94	-.06	.29	-.21	.84
Nonjudgement	0.92	-.08	.05	-1.39	.16
ECQ*Nonjudgement	1.00	.00	.00	1.67	.09

Note. RR = rate ratio; SE = standard error; ECQ = Existential Concerns Questionnaire. Note: * $p < .05$, ** $p < .01$.

Table 48. *Negative Binomial Regression Prediction of Unprotected Vaginal Sex in 30 Days and Family Support*

Variable	RR	B	SE(B)	z	p
ECQ	0.98	-.02	.02	-.87	.39
Age	1.00	-.00	.06	-.06	.95
Sex	0.93	-.07	.29	-.24	.81
Year	1.12	.11	.15	.75	.45
Race					
Non-White	0.78	-.25	.46	-.55	.58
Ethnicity					
Hispanic	1.03	.03	.29	.10	.92
Family Support	0.89	-.12	1.66	-.07	.94
ECQ*Family		.01	.03	.35	.73
Support	1.01				

Note. RR = rate ratio; SE = standard error; ECQ = Existential Concerns Questionnaire. Note: * p < .05, ** p < .01.

Table 49. *Negative Binomial Regression Prediction of Unprotected Vaginal Sex in 30 Days and Social Support*

Variable	RR	B	SE(B)	z	p
ECQ	1.02	.02	.03	.64	.52
Age	0.99	-.01	.06	-.09	.93
Sex	0.95	-.05	.29	-.16	.87
Year	1.14	.13	.15	.86	.39
Race					
Non-White	0.87	-.14	.46	-.30	.77
Ethnicity					
Hispanic	1.01	.01	.29	.02	.99
Social Support	8.58	2.15	2.02	1.06	.29
ECQ*Social		-.04	.03	-1.09	.28
Support	0.96				

Note. RR = rate ratio; SE = standard error; ECQ = Existential Concerns Questionnaire. Note: * p < .05, ** p < .01.

Table 50. *Negative Binomial Regression Prediction of Unprotected Vaginal Sex/Number of Partners in 30 Days*

Variable	RR	B	SE(B)	z	p
ECQ	0.99	-.01	.00	-1.55	.12
Age	0.93	-.07	.05	-1.42	.16
Sex	1.05	.05	.18	.26	.79
Year	1.07	.07	.10	.67	.50
Race					
Non-White	0.78	-.25	.32	-.78	.44
Ethnicity					
Hispanic	1.00	-.00	.18	-.00	1.00

Note. RR = rate ratio; SE = standard error; ECQ = Existential Concerns Questionnaire. Note: * p < .05, ** p < .01.

Table 51. *Negative Binomial Regression Prediction of Unprotected Sex/Number of Partners Moderated by Coping*

Variable	RR	B	SE(B)	z	p
ECQ	1.03	.03	.03	1.21	.23
Age	0.93	-.07	.05	-1.27	.20
Sex	1.00	-.00	.20	-.01	.99
Year	1.11	.10	.11	.92	.36
Race					
Non-White	0.90	-.11	.34	-.33	.74
Ethnicity					
Hispanic	1.06	.06	.19	.34	.74
Distraction	1.09	.09	.18	.47	.64
Active Coping	1.45	.37	.26	1.42	.16
Denial		.25	.23	1.12	.26
Substance Use	1.14	.13	.16	.81	.42
Emotional Support	0.99	-.01	.21	-.05	.96
Instrumental		.16	.22	.71	.48
Support	1.17				
Behavioral		.09	.23	.40	.69
Disengagement	1.09				
Venting	1.27	.24	.21	1.17	.24
Positive Reframe	0.94	-.06	.20	-.31	.76
Planning	0.67	-.40	.25	-1.64	.10
Humor	1.16	.15	.14	1.08	.28
Acceptance	0.98	-.02	.20	-.10	.92

Religion	0.86	-.15	.16	-.94	.35
Self-Blame	1.00	-.00	.16	-.01	.99
ECQ*Distraction	1.00	-.00	.00	-.62	.53
ECQ*Active		-.01	.00	-1.54	.12
Coping	0.99				
ECQ*Denial	1.00	-.00	.00	-.76	.45
ECQ*Substance		-.00	.00	-.21	.83
Use	1.00				
ECQ*Emotional		.00	.00	.49	.62
Support	1.00				
ECQ*Instrumental		-.00	.00	-.87	.39
Support	1.00				
ECQ*Behavioral		.00	.00	.29	.77
Disengagement	1.00				
ECQ*Venting	0.99	-.01	.00	-1.39	.16
ECQ*Positive		.00	.00	.44	.66
Reframe	1.00				
ECQ*Planning	1.01	.01	.00	1.47	.14
ECQ*Humor	1.00	-.00	.00	-1.07	.28
ECQ*Acceptance	1.00	.00	.00	.22	.83
ECQ*Religion	1.00	.00	.00	.42	.67
ECQ*Self Blame	1.00	-.00	.00	-.05	.96

Note. RR = rate ratio; SE = standard error; ECQ = Existential Concerns Questionnaire. Note: * p < .05, ** p < .01.

Table 52. *Negative Binomial Regression Prediction of Unprotected Vaginal Sex/Number of Partners in 30 Days and Mindfulness-Non-reactivity*

Variable	RR	B	SE(B)	z	p
ECQ	0.99	-.01	.02	-.77	.44
Age	0.93	-.07	.05	-1.39	.17
Sex	0.98	-.02	.18	-.10	.92
Year	1.06	.06	.10	.63	.53
Race					
Non-White	0.79	-.24	.32	-.76	.45
Ethnicity					
Hispanic	1.00	-.00	.18	-.01	.99
Non-reactivity	0.97	-.03	.05	-.68	.50
ECQ*Non-		.00	.00	.35	.73
reactivity	1.00				

Note. RR = rate ratio; SE = standard error; ECQ = Existential Concerns Questionnaire. Note: * p < .05, ** p < .01.

Table 53. *Negative Binomial Regression Prediction of Unprotected Vaginal Sex/Number of Partners in 30 Days and Coping Self-Efficacy*

Variable	RR	B	SE(B)	z	p
ECQ	0.99	-.01	.01	-1.15	.25
Age	0.94	-.06	.05	-1.28	.20
Sex	1.02	.02	.18	.11	.92
Year	1.06	.06	.10	.61	.54
Race					
Non-White	0.88	-.13	.34	-.37	.71
Ethnicity					
Hispanic	0.98	-.02	.19	-.11	.91
Coping Self-		-.00	.00	-1.11	.27
Efficacy	1.00				
ECQ*Coping		.00	.00	.15	.88
Self-Efficacy	1.00				

Note. RR = rate ratio; SE = standard error; ECQ = Existential Concerns Questionnaire. Note: * p < .05, ** p < .01.

Table 54. *Negative Binomial Regression Prediction of Unprotected Vaginal Sex/Number of Partners in 30 Days and Mindfulness-Describing*

Variable	RR	B	SE(B)	z	p
ECQ	1.00	-.00	.02	-.25	.80
Age	0.93	-.07	.05	-1.35	.18
Sex	1.04	.04	.18	.23	.82
Year	1.07	.07	.10	.70	.49
Race					
Non-White	0.82	-.20	.32	-.61	.54
Ethnicity					
Hispanic	1.00	-.00	.18	-.01	.99
Describing	0.99	-.01	.04	-.27	.78
ECQ*Describing	1.00	-.00	.00	-.44	.66

Note. RR = rate ratio; SE = standard error; ECQ = Existential Concerns Questionnaire. Note: * p < .05, ** p < .01.

Table 55. *Negative Binomial Regression Prediction of Unprotected Vaginal Sex/Number of Partners in 30 Days and Mindfulness-Observing*

Variable	RR	B	SE(B)	z	p
ECQ	0.99	-.01	.02	-.77	.44
Age	0.93	-.07	.05	-1.39	.17
Sex	1.04	.04	.18	.23	.82
Year	1.07	.07	.10	.68	.50
Race					
Non-White	0.80	-.22	.32	-.70	.48
Ethnicity					
Hispanic	1.04	.04	.18	.24	.81
Observing	0.99	-.01	.04	-.24	.81
ECQ*Observing	1.00	.00	.00	.54	.59

Note. RR = rate ratio; SE = standard error; ECQ = Existential Concerns Questionnaire. Note: * p < .05, ** p < .01.

Table 56. *Negative Binomial Regression Prediction of Unprotected Vaginal Sex/Number of Partners in 30 Days and Mindfulness-Acting with Awareness*

Variable	RR	B	SE(B)	z	p
ECQ	0.96	-.04	.02	-2.12	.03*
Age	0.94	-.06	.05	-1.14	.25
Sex	1.04	.04	.18	.22	.83
Year	1.04	.04	.10	.43	.67
Race					
Non-White	0.80	-.22	.32	-.69	.49
Ethnicity					
Hispanic	0.99	-.01	.18	-.04	.97
Acting with		-.12	.05	-2.29	.02*
Awareness	0.89				
ECQ*Acting		.00	.00	1.59	.11
with Awareness	1.00				

Note. RR = rate ratio; SE = standard error; ECQ = Existential Concerns Questionnaire. Note: * p < .05, ** p < .01.

Table 57. *Negative Binomial Regression Prediction of Unprotected Vaginal Sex/Number of Partners in 30 Days and Mindfulness-Nonjudgement*

Variable	RR	B	SE(B)	z	p
ECQ	0.97	-.03	.02	-1.82	.07
Age	0.93	-.07	.05	-1.39	.17
Sex	1.02	.02	.18	.11	.91
Year	1.07	.07	.10	.67	.50
Race					
Non-White	0.79	-.24	.32	-.76	.45
Ethnicity					
Hispanic	1.00	-.00	.18	-.01	.99
Non-Judgement	0.95	-.05	.03	-1.38	.17
ECQ*Non-		.00	.00	1.54	.12
Judgement	1.00				

Note. RR = rate ratio; SE = standard error; ECQ = Existential Concerns Questionnaire. Note: * p < .05, ** p < .01.

Table 58. *Negative Binomial Regression Prediction of Unprotected Vaginal Sex/Number of Partners in 30 Days and Family Support*

Variable	RR	B	SE(B)	z	p
ECQ	1.00	.00	.02	.03	.98
Age	0.94	-.06	.05	-1.20	.23
Sex	1.04	.04	.18	.22	.82
Year	1.06	.06	.10	.58	.56
Race					
Non-White	0.79	-.23	.32	-.72	.47
Ethnicity					
Hispanic	1.01	.01	.18	.05	.96
Family Support	2.29	.83	1.37	.61	.54
ECQ*Family		-.01	.02	-.37	.71
Support	0.99				

Note. RR = rate ratio; SE = standard error; ECQ = Existential Concerns Questionnaire. Note: * p < .05, ** p < .01.

Table 59. *Negative Binomial Regression Prediction of Unprotected Vaginal Sex/Number of Partners in 30 Days and Social Support*

Variable	RR	B	SE(B)	z	p
ECQ	1.01	.01	.03	.32	.75
Age	0.94	-.06	.05	-1.25	.21
Sex	1.05	.05	.18	.30	.76
Year	1.06	.06	.10	.59	.55
Race					
Non-White	0.79	-.23	.32	-.72	.47
Ethnicity					
Hispanic	1.00	.00	.18	.01	.99
Social Support	4.10	1.41	1.83	.77	.44
ECQ*Social		-.02	.03	-.57	.57
Support	0.98				

Note. RR = rate ratio; SE = standard error; ECQ = Existential Concerns Questionnaire. Note: * p < .05, ** p < .01.

Table 60. *Negative Binomial Regression Prediction of Heaviest Day of Drinking and Existential Themes*

Variable	RR	B	SE(B)	z	p
Age	0.90	-.10	.03	-3.66	.00**
Sex	0.64	-.44	.08	-5.66	.00**
Year	1.12	.11	.05	2.22	.03*
Race					
Non-White	0.60	-.51	.13	-3.78	.00**
Ethnicity					
Hispanic	1.12	.11	.09	1.27	.21
Death		-.00	.01	-.22	.83
Freedom	1.02	.02	.02	1.46	.15
Isolation	0.97	-.03	.01	-2.45	.01
Meaning	1.02	.02	.01	1.94	.05*

Note. RR = rate ratio; SE = standard error; ECQ = Existential Concerns Questionnaire. Note: * p < .05, ** p < .01.

Table 61. *Negative Binomial Regression Prediction of Binge Drinking and Existential Themes*

Variable	<i>RR</i>	<i>B</i>	<i>SE(B)</i>	<i>z</i>	<i>p</i>
Age	0.83	-.19	.06	-3.39	.00**
Sex	0.66	-.41	.13	-3.01	.00**
Year	1.17	.16	.09	1.76	.08
Race					
Non-White	0.44	-.82	.24	-3.45	.00**
Ethnicity					
Hispanic	0.95	-.05	.15	-.31	.76
Death	1.01	.01	.01	.77	.44
Freedom	1.08	.08	.03	2.93	.00**
Isolation	0.90	-.10	.02	-4.21	.00**
Meaning	1.04	.04	.02	2.12	.03*

Note. RR = rate ratio; SE = standard error; ECQ = Existential Concerns Questionnaire. Note: * p < .05, ** p < .01.

Table 62. *Negative Binomial Regression Prediction of Cannabis Use and Existential Themes*

Variable	<i>RR</i>	<i>B</i>	<i>SE(B)</i>	<i>z</i>	<i>p</i>
Age	0.96	-.04	.03	-1.49	.14
Sex	0.67	-.40	.10	-4.10	.00**
Year	1.11	.10	.06	1.65	.10
Race					
Non-White	1.39	.33	.14	2.36	.02*
Ethnicity					
Hispanic	0.88	-.13	.12	-1.11	.27
Death	0.99	-.01	.01	-1.53	.13
Freedom	1.01	.01	.02	.36	.72
Isolation	0.99	-.01	.02	-.33	.74
Meaning	1.02	.02	.01	1.69	.09

Note. RR = rate ratio; SE = standard error; ECQ = Existential Concerns Questionnaire. Note: * $p < .05$, ** $p < .01$.

Table 63. *Negative Binomial Regression Prediction of Unprotected Sex (Frequency) and Existential Themes*

Variable	RR	B	SE(B)	z	p
Age	0.98	-.02	.05	-.28	.78
Sex	0.91	-.09	.29	-.31	.76
Year	1.20	.18	.15	1.18	.24
Race					
Non-White	1.02	.02	.46	.04	.97
Ethnicity					
Hispanic	0.93	-.07	.29	-.24	.81
Death	1.00	-.00	.03	-.09	.93
Freedom	0.93	-.07	.06	-1.29	.20
Isolation	0.91	-.09	.05	-1.70	.09
Meaning	1.06	.06	.04	1.57	.12

Note. RR = rate ratio; SE = standard error; ECQ = Existential Concerns Questionnaire. Note: * p < .05, ** p < .01.

Table 64. *Negative Binomial Regression Prediction of Unprotected Sex (Number of People) and Existential Themes*

Variable	RR	B	SE(B)	z	p
Age	0.93	-.07	.05	-1.45	.15
Sex	1.05	.05	.18	.29	.77
Year	1.12	.11	.10	1.04	.30
Race					
Non-White	0.89	-.12	.32	-.37	.71
Ethnicity					
Hispanic	0.93	-.07	.18	-.40	.69
Death	1.00	.00	.02	.08	.94
Freedom	0.98	-.02	.04	-.64	.53
Isolation	0.89	-.12	.03	-3.53	.00**
Meaning	1.06	.06	.02	2.52	.01*

Note. RR = rate ratio; SE = standard error; ECQ = Existential Concerns Questionnaire. Note: * p < .05, ** p < .01.

Table 65. *Logistic Regression Prediction of Using Alcohol to Reduce Worry, Boredom, and Loneliness and Existential Concerns*

Variable	<i>OR</i>	<i>B</i>	<i>SE(B)</i>	<i>z</i>	<i>p</i>
ECQ	1.03	.03	.01	5.89	.00**
Age	1.03	.03	.06	.46	.64
Sex	1.06	.06	.21	.30	.76
Year	1.35	.30	.13	2.35	.02*
Race					
Non-White	1.15	.14	.32	.44	.66
Ethnicity					
Hispanic	1.23	.21	.23	.91	.36

Note. OR = odds ratio; SE = standard error; ECQ = Existential Concerns Questionnaire. Note: * p < .05, ** p < .01.

Table 66. *Logistic Regression Prediction of Using Cannabis to Reduce Worry, Boredom, and Loneliness and Existential Concerns*

Variable	<i>OR</i>	<i>B</i>	<i>SE(B)</i>	<i>z</i>	<i>p</i>
ECQ	0.97	-.03	.01	-4.04	.00**
Age	1.03	.03	.06	.51	.61
Sex	1.40	.34	.25	1.35	.18
Year	0.84	-.17	.15	-1.14	.26
Race					
Non-White	0.66	-.41	.37	-1.10	.27
Ethnicity					
Hispanic	0.92	-.08	.28	-.27	.78

Note. OR = odds ratio; SE = standard error; ECQ = Existential Concerns Questionnaire. Note: * p < .05, ** p < .01.

Table 67. *Logistic Regression Prediction of Using Vaginal Sex to Reduce Worry, Boredom, and Loneliness and Existential Concerns*

Variable	<i>OR</i>	<i>B</i>	<i>SE(B)</i>	<i>z</i>	<i>p</i>
ECQ	0.96	-.04	.01	-3.97	.00**
Age	0.83	-.19	.14	-1.35	.18
Sex	1.35	.30	.48	.61	.54
Year	0.93	-.07	.24	-.30	.76
Race					
Non-White	1.51	.41	.68	.61	.54
Ethnicity					
Hispanic	0.92	-.08	.43	-.18	.86

Note. OR = odds ratio; SE = standard error; ECQ = Existential Concerns Questionnaire. Note: * p < .05, ** p < .01.

FIGURES

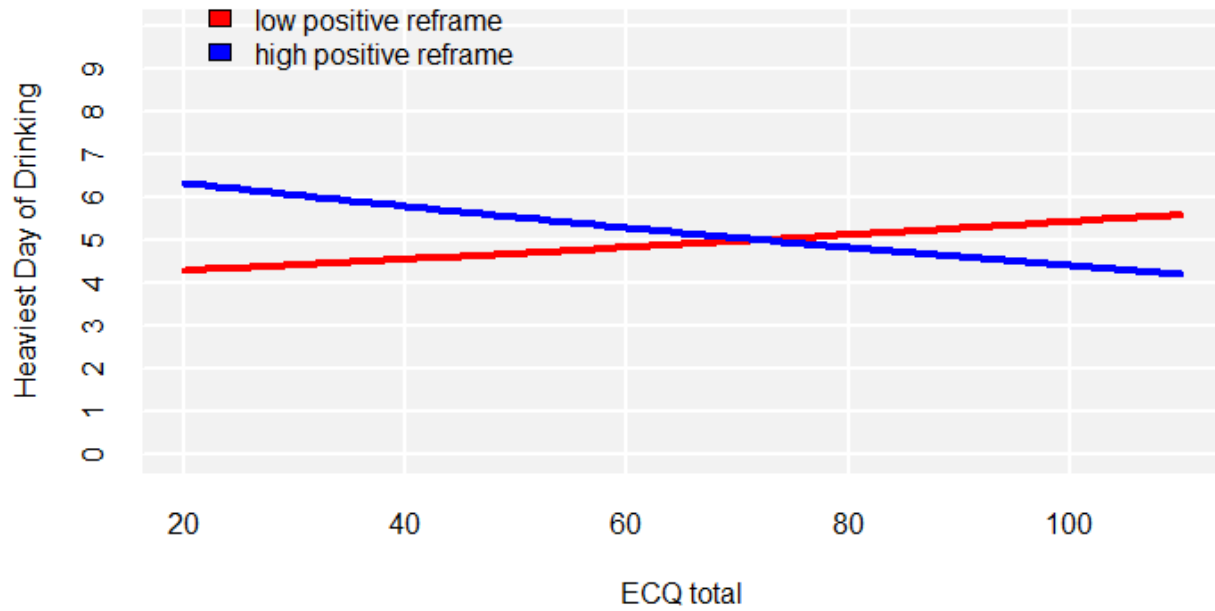


Figure 1. *Interaction plot of heaviest day of drinking and existential concerns moderated by positive reframe.*

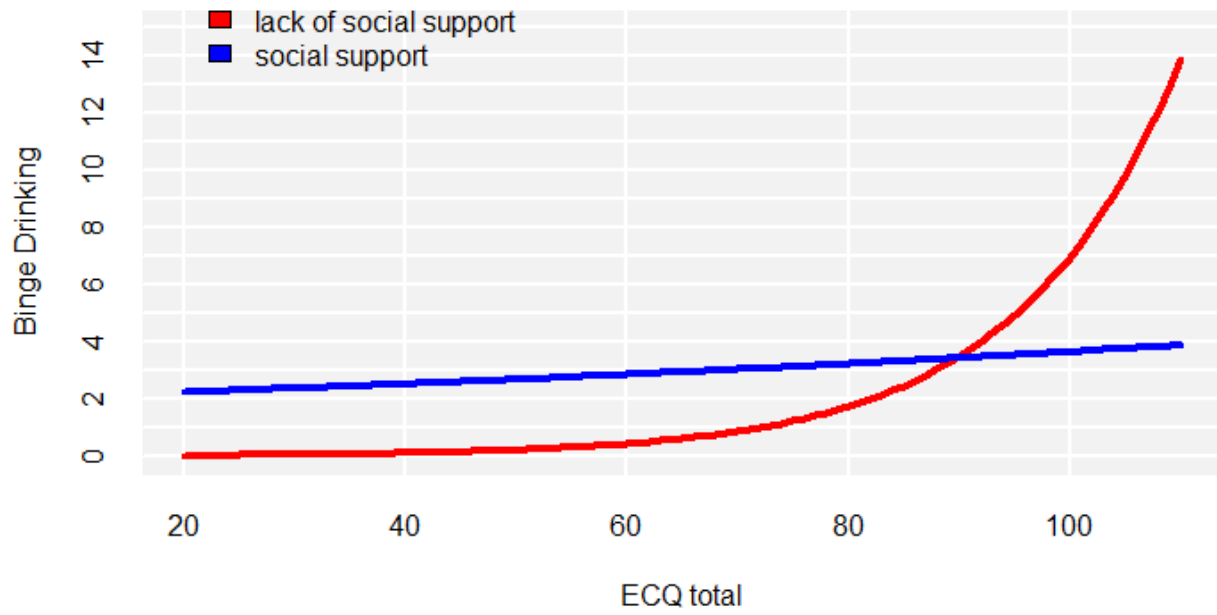


Figure 2. *Interaction plot of binge drinking and existential concerns moderated by perceived social support.*

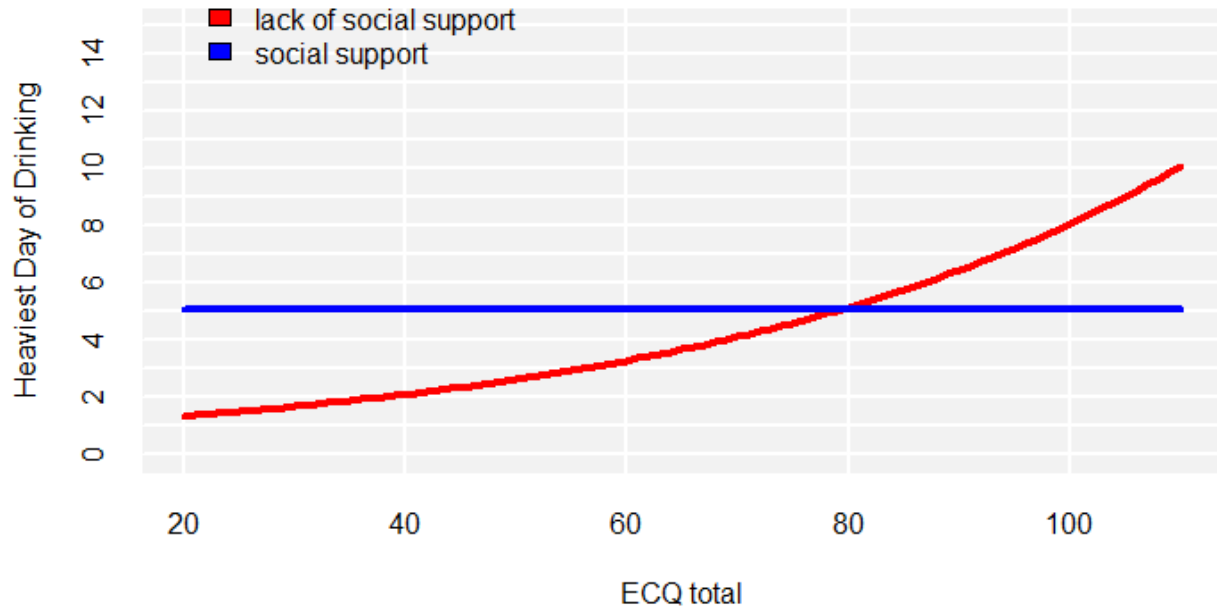


Figure 3. *Interaction plot of heaviest day of drinking and existential concerns moderated by perceived social support.*

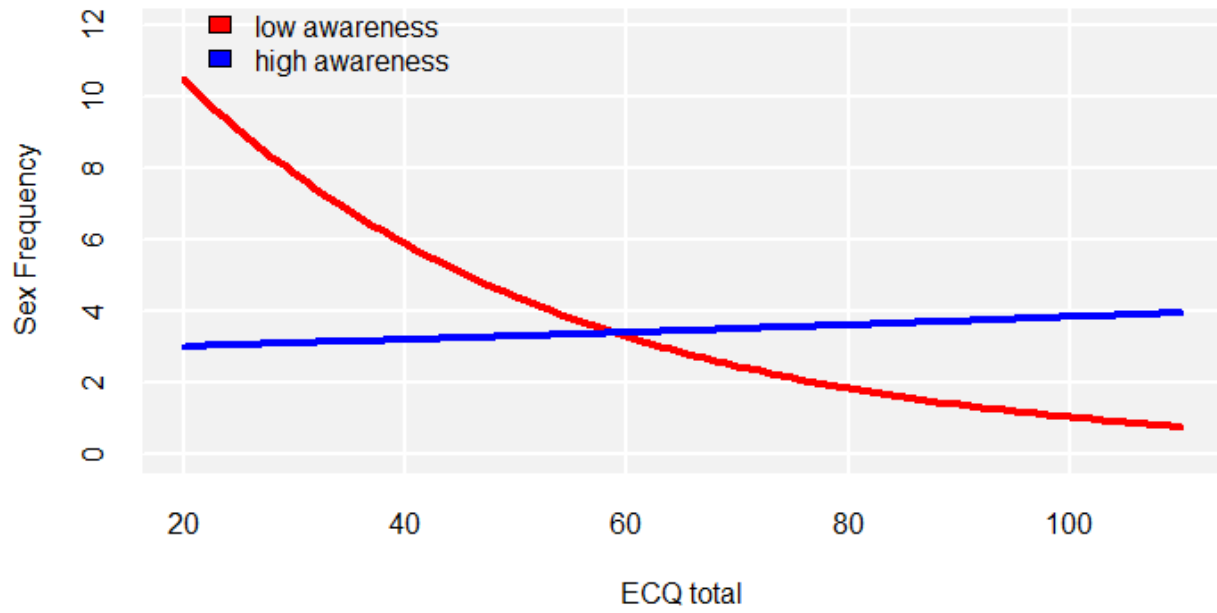


Figure 4. *Interaction plot of frequency of unprotected sex and existential concerns moderated by mindfulness-acting with awareness.*

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Appendix A

Demographic Questions

What is your age?

What year are you in college?

What is your sex?

- Male
- Female
- Prefer not to say

What is your ethnicity?

- White
- Hispanic, Latino or Spanish origin
- Black or African American
- Asian
- American Indian or Alaska Native
- Middle Eastern or North African
- Native Hawaiian or Other Pacific Islander
- Some other race, ethnicity or origin

Does your family have a history of problematic substance use (e.g. alcoholism, addiction, dependence)?

- Yes
- No
- I do not know

Do you feel supported by your family?

- Yes
- No

Do you feel supported by your friends?

- Yes
- No

Are you in a sorority or fraternity?

- Yes
- No

Please rate the following questions using the scale below

1 _____ 2 _____ 3 _____ 4 _____ 5 _____ 6 _____ 7
Not at _____ Completely
All

1. To what extent do you feel your fellow students are respectable?
2. To what extent do you feel your fellow students are inspiring?
3. To what extent do you look up to most of your fellow students?
4. To what extent do you think highly of your fellow students?
5. How similar do you think most fellow students are to you intellectually?
6. How similar do you think most fellow students are to you in the way they think?
7. How similar do you think most fellow students are to you in their values?
8. How similar do you think most fellow students are to you in their behavior?

Please rate the following question using the scale below

1 _____ 2 _____ 3 _____ 4 _____ 5 _____ 6 _____ 7
Never _____ More than 6 times

1. Over the past 2 weeks how often have you talked with your friends or siblings about your drinking alcohol?

Please rate the following question using the scale below

1 _____ 2 _____ 3 _____ 4 _____ 5 _____ 6 _____ 7 _____ 8 _____ 9 _____ 10
Never _____ All the time

1. How often do you normally talk with your friends or siblings about alcohol consumption?

Appendix B

Existential Concerns Questionnaire:

1. The question of whether life has meaning makes me anxious.
2. It frightens me when I realize how many choices life offers.
3. I worry about not being at home in the world, as if I do not belong here.
5. Existence feels threatening to me, as if at any moment something terrible could happen to me.
6. It frightens me that at some point in time I will be dead.
7. I worry about the meaning of life.
8. I try to forget that all my choices have consequences.
9. I get anxious because of losing touch with myself.
10. I struggle with the feeling that in the end I am on my own in life.
12. It makes me anxious that my life is passing by.
13. When the question of whether life has meaning enters my mind, I try to think quickly about something else.
14. I worry about not living the life that I could live.
16. The awareness that other people will never know me at the deepest level frightens me.
17. I worry that, out of the blue, something terrible might happen to me.
18. I try to push away the thought that life will end.
19. It frightens me that things I once considered important seem meaningless when I look back on them.
20. I am afraid that I do not get out of life what is in it.
21. I try to avoid the question of who I really am.
22. I have the anxious feeling that there is a gap between me and other people.
23. I become anxious when I realize how vulnerable my body is to the dangers of life.
24. I worry about having to let go of everything at the moment of my death.
25. I am afraid that I will never know myself at the deepest level.

Appendix C

Risky Behavior Inventory

The following items assess substance use behaviors. Please answer all of the items honestly and as accurately as possible. Remember, NONE of this information could be used to identify you or be linked to you.

For questions about how many times: When asked about how many times in the last 30 days: If you do it daily, please enter 30, twice a day would be 60, three times a day would be 90, etc. Please use your best estimate.

Have you ever smoked a cigarette?

- No
- Yes

How old were you the first time you smoked a cigarette?

On a typical day, how many cigarettes do you smoke? (Enter a number, e.g. 5., if every other day, enter .5)

Have you ever used an electronic cigarette (i.e. e-cig)?

- No
- Yes

How old were you the first time you used an electronic cigarette?

On a typical day, how many times per day do you use your electronic cigarette?

When using your electronic cigarette, how many "puffs"/"drags" do you typically take?

How many milligrams (mg) of nicotine are in the electronic cigarettes you typically use?

- 0 mg (nicotine free)
- approximately 6 mg
- approximately 12 mg
- approximately 18 mg
- approximately 24 mg
- more than 24 mg
- I'm not sure

Have you ever smoked a cigarette or used an electronic cigarette to escape worry, trouble, boredom, or loneliness?

- No
- Yes

Have you ever used marijuana (smoked or other method)?

- No
- Yes

How old were you the first time you used marijuana?

How many times have you used marijuana in the last 30 days?

For an average week, how many times do you use marijuana?

- 0
- 1
- 2
- 3
- 4
- 5
- 6
- 7
- more than once a day

Have you ever used marijuana to escape worry, trouble, boredom, or loneliness?

- No
- Yes

Have you ever used ecstasy? (i.e. MDMA, X, MDA, Molly, rolls, etc.)

- No
- Yes

How old were you the first time you used ecstasy?

How many times have you used ecstasy in the last 30 days?

For an average week, how many times do you use ecstasy?

- 0
- 1
- 2
- 3
- 4
- 5
- 6
- 7
- more than once a day

Have you ever used ecstasy to escape worry, trouble, boredom, or loneliness?

- No
- Yes

Have you ever used heroin?

- No
- Yes

How old were you the first time you used heroin?

How many times have you used heroin in the last 30 days?

How have you used heroin? (check all that apply)

- Smoked
- Snorted
- Injected into your veins
- Injected not into your veins
- Other _____

For an average week, how many times do you use heroin?

- 0
- 1
- 2
- 3
- 4
- 5
- 6
- 7
- more than once a day

Have you ever used heroin to escape worry, trouble, boredom, or loneliness?

- No
- Yes

Have you ever used pills/prescription drugs not for medical reasons, but to get high?

- No
- Yes

How old were you the first time you used pills/prescription drugs not for medical reasons, but to get high?

How many times have you used pills/prescription drugs not for medical reasons, but to get high in the last 30 days?

For an average week, how many times do you use pills/prescription drugs not for medical reasons, but to get high?

- 0
- 1
- 2
- 3
- 4
- 5
- 6
- 7
- more than once a day

What pills/prescription drugs have you taken to get high? (check all that apply)

- Opioids / pain killers (e.g. codeine, morphine, hydrocodone/Vicodin, oxycodone/Percocet, Oxycontin, darvon, demeral, dilaudid, lomotil, methadone, etc.)
- Stimulants / "uppers" (e.g. adderall, dexadrine, ritaline, Concerta, Vyvanse, methylenidate, etc.)
- Depressants / "downers" (e.g. barbiturates, benzodiazepines, muscle relaxers, tranquilizers, xanax, valium, phenobarbital, nembutal, quaalude, roofies, etc.)
- Other _____

Have you ever used pills/prescription drugs to escape worry, trouble, boredom, or loneliness?

- No
- Yes

Have you ever used cocaine? (do not include crack use in your answers)

- No
- Yes

How old were you the first time you used cocaine?

How many times have you used cocaine in the last 30 days?

For an average week, how many times do you use cocaine?

- 0
- 1
- 2
- 3
- 4
- 5
- 6
- 7
- more than once a day

How have you used cocaine? (check all that apply)

- Smoked
- Snorted
- Injected into your veins
- Injected not into your veins
- Other _____

Have you ever used cocaine to escape worry, trouble, boredom, or loneliness?

- No
- Yes

Have you ever smoked crack? (do not include cocaine use in your answers)

- No
- Yes

How old were you the first time you smoked crack?

How many times have you smoked crack in the last 30 days?

For an average week, how many times do you use smoke crack?

- 0
- 1
- 2
- 3
- 4
- 5
- 6
- 7
- more than once a day

Have you ever used crack to escape worry, trouble, boredom, or loneliness?

- No
- Yes

Have you ever inhaled (or huffed) anything in order to get high? (e.g. "whip-its" nitrous, poppers, freon, glue, gasoline, paint, nitrates, paint thinner, spray cans, etc.)

- No
- Yes

How old were you the first time you inhaled (or huffed) anything in order to get high?

How many times have you inhaled (or huffed) anything in order to get high in the last 30 days?

For an average week, how many times do you use inhale (or huff) anything in order to get high?

- 0
- 1
- 2
- 3
- 4
- 5
- 6
- 7
- more than once a day

Have you ever inhaled (or huffed) anything to escape worry, trouble, boredom, or loneliness?

- No
- Yes

Have you ever used hallucinogens (acid, LSD, "magic mushrooms", psilocybin, DMT, mescaline, peyote, 2CI, 2CB, etc.)?

- No
- Yes

How old were you the first time you used hallucinogens?

How many times have you used hallucinogens in the last 30 days?

For an average week, how many times do you use hallucinogens?

- 0
- 1
- 2
- 3
- 4
- 5
- 6
- 7
- more than once a day

What hallucinogens have you used? (check all that apply)

- LSD / "acid"
- Psilocybin / "magic mushrooms"
- DMT
- Mescaline / Peyote
- Synthetic hallucinogens / research chemicals (e.g. 2CI, 2CB, 25i nbome, DOB, etc.)
- Other _____

Have you ever used hallucinogens to escape worry, trouble, boredom, or loneliness?

- No
- Yes

Have you ever used methamphetamine? (i.e. meth, crystal ice, crank, ice, etc.)

- No
- Yes

How old were you the first time you used methamphetamine?

How many times have you used methamphetamine in the last 30 days?

For an average week, how many times do you use methamphetamine?

- 0
- 1
- 2
- 3
- 4
- 5
- 6
- 7
- more than once a day

How have you used methamphetamine? (check all that apply)

- Smoked
- Snorted
- Injected into your veins
- Injected not into your veins
- Other _____

Have you ever used methamphetamine to escape worry, trouble, boredom, or loneliness?

- No
- Yes

Have you ever used a substance not yet mentioned to get high?

- No
- Yes

Have you ever used a combination of substances to get a better high?

- No
- Yes

How many times have you combined these drugs in the last 30 days?

Have you ever used an unknown substance (i.e., someone just hands you something and you swallow, snort, smoke, or inject it without knowing what it is)?

- No
- Yes

How old were you the first time you used an unknown substance?

How many times have you used an unknown substance in the last 30 days?

Have you ever used an unknown substance to escape worry, trouble, boredom, or loneliness?

- No
- Yes

With respect to alcohol consumption, 1 standard drink is equivalent to 12 oz beer OR 4 oz wine OR 1.5 oz shot of liquor straight or in a mixed drink.

Have you ever consumed alcohol?

- Yes
- No

On how many days during the past 30 days did you consume alcohol?

On how many days during the past 30 days did you drink to the point of being drunk?

On how many days during the past 30 days did you pass out or get sick from drinking alcohol?

How old were you the first time you drank alcohol?

In the past 30 days, how many times have you consumed five or more drinks (if you are male) or four or more drinks (if you are female) on one drinking occasion?

Think of the day you consumed the most alcohol in the last month: How many standard drinks did you consume on that day?

On this heaviest drinking day, approximately how many hours passed from the beginning of the first drink to the finishing of the last?

Have you ever used alcohol to escape worry, trouble, boredom, or loneliness?

- No
- Yes

For the purposes of this questionnaire, please use the following definitions: "UNPROTECTED" For FEMALES: engaging in sexual acts or behavior without the use of a condom AND also without the use of hormonal contraception (i.e. birth control pills, the patch, the ring, IUD, etc.); put another way, this means having no protection from pregnancy or sexually transmitted infections (STI). For MALES: engaging in sexual acts or behavior without the use of a condom AND also without the knowledge of your partner's use of hormonal contraception (i.e. birth control pills, the patch, the ring, IUD, etc.); put another way, this means having no protection from pregnancy or sexually transmitted infection (STI). "UNDER PROTECTED" For FEMALES: engaging in sexual acts or behavior with protection from hormonal contraception

(i.e. birth control pills, the patch, the ring, IUD, etc.) only; put another way, this means using no condom or dental dam and having no protection from sexually transmitted infections (STI). For MALES: engaging in sexual acts or behavior with protection from your partner's hormonal contraception (i.e. birth control pills, the patch, the ring, IUD, etc.) only; put another way, this means using no condom or dental dam and having no protection from sexually transmitted infections (STI). For questions about how many times: When asked about how many times in the last 30 days: If you do it daily, please enter 30, twice a day would be 60, three times a day would be 90, etc.

What is your sexual orientation?

Choose a number that best describes your sexual orientation/preferences:(Enter "0" if you do not wish to answer or if you cannot describe your orientation/preference using this scale) Exclusively Homosexual (1) - - Mostly Homosexual - - Bisexual (4) - - Mostly Heterosexual - - Exclusively Heterosexual (7)

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 0

Have you ever performed oral sex on anyone?

- No
- Yes

How old were you the first time you performed oral sex on someone?

How many times in the last 30 days have you performed oral sex on someone?

How many different people have you performed oral sex on in the last 30 days?

Of the times that you have performed oral sex on someone, approximately how many times did you use protection? (i.e. barrier protection, such as condoms or dental dams. Not hormonal contraception)

- Never
- Less than half of the times
- Half of the times
- More than half of the times
- All of the times

Have you ever had oral sex performed on you?

- No
- Yes

How old were you the first time oral sex was performed on you?

How many times in the last 30 days was oral sex performed on you?

How many different people have performed oral sex on you in the last 30 days?

Of the times that you've have performed oral sex on you, approximately how many times did you use protection? (i.e. barrier protection, such as condoms or dental dams. Not hormonal contraception, such as birth control pills or IUD)

- Never
- Less than half of the times
- Half of the times
- More than half of the times
- All of the times

Have you ever used oral sex to escape worry, trouble, boredom, or loneliness?

- No
- Yes

Have you ever had vaginal intercourse?

- No
- Yes

How old were you the first time you had vaginal intercourse?

How many times in the last 30 days have you had vaginal intercourse?

How many different people have you had vaginal intercourse with in the last 30 days?

Have you ever had UNPROTECTED vaginal intercourse?

- No
- Yes

How old were you the first time you had UNPROTECTED vaginal intercourse?

How many times in the last 30 days have you had UNPROTECTED vaginal intercourse?

How many different people have you had UNPROTECTED vaginal intercourse with in the last 30 days?

How many of these people were you in a serious, committed, monogamous relationship with at the time you were having UNPROTECTED vaginal intercourse with them?

Of these, how many did you have UNPROTECTED vaginal intercourse with when you first met, before you were in a relationship with them?

Have you ever had UNDER PROTECTED vaginal intercourse?

- No
- Yes

How old were you the first time you had UNDER PROTECTED vaginal intercourse?

How many times in the last 30 days have you had UNDER PROTECTED vaginal intercourse?

How many different people have you had UNDER PROTECTED vaginal intercourse with in the last 30 days?

How many of these people were you in a serious, committed, monogamous relationship with at the time you were having UNDER PROTECTED vaginal intercourse with them?

Of these, how many did you have UNDER PROTECTED vaginal intercourse with when you first met, before you were in a relationship with them?

Have you ever had vaginal intercourse to escape worry, trouble, boredom, or loneliness?

- No
- Yes

Have you ever had anal intercourse?

- No
- Yes

How old were you the first time you had anal intercourse?

How many times in the last 30 days have you had anal intercourse?

How many different people have you had anal intercourse with in the last 30 days?

Have you ever had UNPROTECTED anal intercourse?

- No
- Yes

How old were you the first time you had UNPROTECTED anal intercourse?

How many times in the last 30 days have you had UNPROTECTED anal intercourse?

How many different people have you had UNPROTECTED anal intercourse with in the last 30 days?

How many of these people were you in a serious, committed, monogamous relationship with at the time you were having UNPROTECTED anal intercourse with them?

Of these, how many did you have UNPROTECTED anal intercourse with when you first met, before you were in a relationship with them? Have you ever engaged in any other intimate or sexual acts with a person of a different sex than you? If so, please list what. (ex. kissing, body contact, mutual masturbation, etc.)

- No
- Yes _____

Have you ever had anal intercourse to escape worry, trouble, boredom, or loneliness?

- No
- Yes

Have you ever had sexual intercourse with more than one person at the same time?

- No
- Yes

How old were you the first time you had sexual intercourse with more than one person at the same time?

How many times in the last 30 days have you had sexual intercourse with more than one person at the same time?

How many different people have you had sexual intercourse with more than one person at the same time with in the last 30 days?

How many different people have you had sexual intercourse with more than one person at the same time with in you life?

Have you ever had a sexual encounter (oral, vaginal and/or anal sex) with a member of the same sex as you?

- No
- Yes

How old were you the first time you had a sexual encounter with someone of the same sex as you?

How many times in the last 30 days have you had a sexual encounter with someone of the same sex as you?

How many different people of the same sex have you had a sexual encounter with in the last 30 days?

Have you ever had an UNPROTECTED sexual encounter with a member of the same sex has you?

- No
- Yes

How many different same sex partners have you had an UNPROTECTED sexual encounter with in the last 30 days?

How many of these same sex partners were you in a serious, committed, monogamous relationship with at the time you were having an UNPROTECTED sexual encounter with them?

Of these, how many did you have an UNPROTECTED sexual encounter with when you first met, before you were in a relationship with them?

Have you ever engaged in any other intimate or sexual acts with a person of the same sex as you? If so, please list what. (ex. kissing, body contact, mutual masturbation, etc.)

- No
- Yes _____

Have you ever had a one-night stand--a single sexual encounter (oral, vaginal, and/or anal sex) without an immediate plan for forming a long-term sexual or romantic relationship with the other individual?

- No
- Yes

How old were you the first time you had a one-night stand?

How many times in the last 30 days have you had a one-night stand?

How many different people have you had a one-night stand with in the last 30 days?

How many different people in your life have you had a one-night stand with?

Of all the people you have had a one-night stand with, how many did you know before the encounter?

Have you ever had an UNPROTECTED sexual encounter during a one-night stand?

- No
- Yes

How many different people have you had an UNPROTECTED sexual encounter as part of a one-night stand with in your life?

Have you ever had UNDER PROTECTED vaginal intercourse during a one-night stand?

- No
- Yes

How many different people have you had UNDER PROTECTED vaginal intercourse as part of a one-night stand with in the last 30 days?

Have you ever had a one-night stand to escape worry, trouble, boredom, or loneliness?

- No
- Yes

Have you ever engaged in any other intimate or sexual acts with as part of a one-night stand? If so, please list what. (ex. kissing, body contact, mutual masturbation, etc.)

- No
- Yes _____

While in a committed relationship, have you ever had a sexual encounter (oral, vaginal and/or anal sex) with a person who was not your partner?

- No
- Yes

Of these encounter, how many times were UNPROTECTED sexual encounters?

Of these encounter, how many times were UNDER PROTECTED vaginal sex?

How often do you use condoms when having vaginal or anal intercourse with a serious partner (i.e., a long term partner or someone you are in a relationship with)?

- Never
- Almost Never
- Sometimes
- Almost Always
- Always
- I Have Never Had a Serious Partner

How often do you use condoms when having vaginal or anal intercourse with casual partners (i.e., in a one-night stand, or a person you are having sex with outside of a romantic relationship)?

- Never
- Almost Never
- Sometimes
- Almost Always
- Always
- Not Applicable to Me

How often do you use other forms of contraception besides condoms (i.e., birth control pills/patch/shot/ring, IUDs, spermicidal foam, etc.) when having vaginal intercourse?

- Never
- Almost Never
- Sometimes
- Almost Always
- Always
- Not Applicable to Me

Have you ever gotten tested for sexually transmitted diseases or infections?

- No
- Yes

How often do you get tested?

- Once per month or more
- 3-4 times per year
- Twice per year
- Once per year
- Less than once per year

Have you ever tested positive for a sexually transmitted disease or infection?

- No
- Yes

Have you ever taken naked pictures of yourself?

- No
- Yes

Did you send these naked pictures to anyone?

- No
- Yes

Was that person a stranger (someone you did not know)?

- No
- Yes

Have you ever made a video of yourself while having a sexual encounter (oral, vaginal, and/or anal sex)?

- No
- Yes

Did you send this video to anyone?

- No
- Yes

Was that person a stranger (someone you did not know)?

- No
- Yes

Have you ever posed for or taken nude or semi-nude photos, videos, or webcams (including sexual encounters) knowing that they would be posted online?

- No
- Yes

Have you ever taken nude or semi-nude photos, videos, or webcams (including sexual encounters) of your sexual partner?

- No
- Yes

Did your partner consent to this activity?

- No
- Yes

Did you ever post these online?

- No
- Yes

Did you ever post these online without your partner's permission?

- No
- Yes

Do you ask your partners if they have been recently tested for sexual transmitted diseases or infections before having sex?

- No
- Yes

Have you ever ridden in a car with someone who was driving while drunk or high?

- No
- Yes

Did you ever do this while you, yourself, were drunk or high?

- yes
- No

How many times have you ridden in a car with someone who was driving while drunk or high in the past 30 days?

Have you ever gambled?

- No
- Yes

How often do you gamble?

- Once per year or less
- A few times a year
- Monthly
- Weekly
- Daily

How much money do you usually bet?

- \$0 to \$10
- \$11 to \$20
- \$21 to \$50
- \$51 to \$100
- \$100 to \$500
- \$500 or more

Have you ever gambled in a casino or at a horse/dog track?

- No
- Yes

Have you ever gambled in an informal place (i.e., poker games, game pools, with friends)?

- No
- Yes

In the last 30 days, how many days did you gamble?

Have you ever gambled to escape worry, trouble, boredom, or loneliness?

- No
- Yes

Appendix D

Five Facet Mindfulness Questionnaire

Please rate each of the following statements using the scale provided. Write the number in the blank that best describes your own opinion of what is generally true for you.

1 = never or very rarely true

2 = sometimes true

3 = often true

4 = very often true

5 = always true

1. When I'm walking, I deliberately notice the sensations of my body moving.

2. I'm good at finding words to describe my feelings.

3. I criticize myself for having irrational or inappropriate emotions.

4. I perceive my feelings and emotions without having to react to them.

5. When I do things, my mind wanders off and I'm easily distracted.

6. When I take a shower or bath, I stay alert to the sensations of water on my body.

7. I can easily put my beliefs, opinions, and expectations into words.

8. I don't pay attention to what I'm doing because I'm daydreaming, worrying, or otherwise distracted.

9. I watch my feelings without getting lost in them.

10. I tell myself I shouldn't be feeling the way I'm feeling.

11. I notice how foods and drinks affect my thoughts, bodily sensations, and emotions.

12. It's hard for me to find the words to describe what I'm thinking.

13. I am easily distracted.

14. I believe some of my thoughts are abnormal or bad and I shouldn't think that way.

15. I pay attention to sensations, such as the wind in my hair or sun on my face.

16. I have trouble thinking of the right words to express how I feel about things

17. I make judgments about whether my thoughts are good or bad.

18. I find it difficult to stay focused on what's happening in the present.

19. When I have distressing thoughts or images, I “step back” and am aware of the thought or image without getting taken over by it.
20. I pay attention to sounds, such as clocks ticking, birds chirping, or cars passing.
21. In difficult situations, I can pause without immediately reacting.
22. When I have a sensation in my body, it’s difficult for me to describe it because I can’t find the right words.
23. It seems I am “running on automatic” without much awareness of what I’m doing.
24. When I have distressing thoughts or images, I feel calm soon after.
25. I tell myself that I shouldn’t be thinking the way I’m thinking.
26. I notice the smells and aromas of things.
27. Even when I’m feeling terribly upset, I can find a way to put it into words.
28. I rush through activities without being really attentive to them.
29. When I have distressing thoughts or images I am able just to notice them without reacting.
30. I think some of my emotions are bad or inappropriate and I shouldn’t feel them.
31. I notice visual elements in art or nature, such as colors, shapes, textures, or patterns of light and shadow.
32. My natural tendency is to put my experiences into words.
33. When I have distressing thoughts or images, I just notice them and let them go.
34. I do jobs or tasks automatically without being aware of what I’m doing.
35. When I have distressing thoughts or images, I judge myself as good or bad, depending what the thought/image is about.
36. I pay attention to how my emotions affect my thoughts and behavior.
37. I can usually describe how I feel at the moment in considerable detail.
38. I find myself doing things without paying attention.
39. I disapprove of myself when I have irrational ideas.

Appendix E

Brief COPE

These items deal with ways you've been coping with the stress in your life. There are many ways to try to deal with problems. Don't answer on the basis of whether it seems to be working or not—just whether or not you're doing it. Use these response choices. Try to rate each item separately in your mind from the others. Make your answers as true FOR YOU as you can.

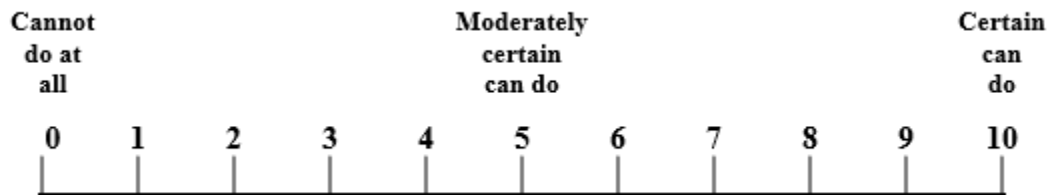
- 1 = I haven't been doing this at all
- 2 = I've been doing this a little bit
- 3 = I've been doing this a medium amount
- 4 = I've been doing this a lot

1. I've been turning to work or other activities to take my mind off things.
2. I've been concentrating my efforts on doing something about the situation I'm in.
3. I've been saying to myself "this isn't real."
4. I've been using alcohol or other drugs to make myself feel better.
5. I've been getting emotional support from others.
6. I've been giving up trying to deal with it.
7. I've been taking action to try to make the situation better.
8. I've been refusing to believe that it has happened.
9. I've been saying things to let my unpleasant feelings escape.
10. I've been getting help and advice from other people.
11. I've been using alcohol or other drugs to help me get through it.
12. I've been trying to see it in a different light, to make it seem more positive.
13. I've been criticizing myself.
14. I've been trying to come up with a strategy about what to do.
15. I've been getting comfort and understanding from someone.
16. I've been giving up the attempt to cope.
17. I've been looking for something good in what is happening.
18. I've been making jokes about it.
19. I've been doing something to think about it less, such as going to movies, watching TV, reading, daydreaming, sleeping, or shopping.
20. I've been accepting the reality of the fact that it has happened.
21. I've been expressing my negative feelings.
22. I've been trying to find comfort in my religion or spiritual beliefs.
23. I've been trying to get advice or help from other people about what to do.
24. I've been learning to live with it.
25. I've been thinking hard about what steps to take.
26. I've been blaming myself for things that happened.
27. I've been praying or meditating.
28. I've been making fun of the situation.

Appendix F

Coping Self-Efficacy Scale (CSES)

When things aren't going well for you, or when you're having problems, how confident or certain are you that you can do the following:



For each of the following items, write a number from 0 - 10, using the scale above.

When things aren't going well for you, how confident are you that you can:

1. Keep from getting down in the dumps.
2. Talk positively to yourself.
3. Sort out what can be changed, and what can not be changed.
4. Get emotional support from friends and family.
5. Find solutions to your most difficult problems.
6. Break an upsetting problem down into smaller parts.
7. Leave options open when things get stressful.
8. Make a plan of action and follow it when confronted with a problem.
9. Develop new hobbies or recreations.
10. Take your mind off unpleasant thoughts.
11. Look for something good in a negative situation.
12. Keep from feeling sad.
13. See things from the other person's point of view during a heated argument.
14. Try other solutions to your problems if your first solutions don't work.

15. Stop yourself from being upset by unpleasant thoughts.
16. Make new friends.
17. Get friends to help you with the things you need.
18. Do something positive for yourself when you are feeling discouraged.
19. Make unpleasant thoughts go away.
20. Think about one part of the problem at a time.
21. Visualize a pleasant activity or place.
22. Keep yourself from feeling lonely.
23. Pray or meditate.
24. Get emotional support from community organizations or resources.
25. Stand your ground and fight for what you want.
26. Resist the impulse to act hastily when under pressure.

Appendix G

Depression, Anxiety, and Stress Scale (DASS)

Please read each statement and circle a number 0, 1, 2, or 3 which indicates how much the statement applied to you *over the past week*. There are no right or wrong answers. Do not spend too much time on any statement.

The rating scale is as follows:

0 = Did not apply to me

1 = Applied to me to some degree, or some of the time

2 = Applied to me to a considerable degree, or a good part of the time

3 = Applied to me very much, or most of the time

1. I found myself getting upset by quite trivial things.
2. I was aware of dryness of my mouth.
3. I couldn't seem to experience any positive feeling at all.
4. I experienced breathing difficulty (e.g. excessively rapid breathing, breathlessness in the absence of physical exertion).
5. I just couldn't seem to get going.
6. I tended to over-react to situations.
7. I had a feeling of shakiness (e.g. legs going to give way).
8. I found it difficult to relax.
9. I found myself in situations that made me so anxious I was most relieved when they ended.
10. I felt that I had nothing to look forward to.
11. I found myself getting upset rather easily.
12. I felt that I was using a lot of nervous energy.
13. I felt sad and depressed.
14. I found myself getting impatient when I was delayed in any way (e.g. elevators, traffic lights, being kept waiting).
15. I had a feeling of faintness.
16. I felt that I had lost interest in just about everything.

17. I felt I wasn't worth much as a person.
18. I felt that I was rather touchy.
19. I perspired noticeably (e.g. hands sweaty) in the absence of high temperatures or physical exertion.
20. I felt scared without any good reason.
21. I felt that life wasn't worthwhile.
22. I found it hard to wind down.
23. I had difficulty in swallowing.
24. I couldn't seem to get any enjoyment out of the things I did.
25. I was aware of the action of my heart in the absence of the physical exertion (e.g. sense of heart rate increase, heart missing a beat).
26. I felt down-hearted and blue.
27. I found that I was very irritable.
28. I felt I was close to panic.
29. I found it hard to calm down after something upset me.
30. I feared that I would be "thrown" by some trivial but unfamiliar task.
31. I was unable to become enthusiastic about anything.
32. I found it difficult to tolerate interruptions to what I was doing.
33. I was in a state of nervous tension.
34. I felt I was pretty worthless.
35. I was intolerant of anything that kept me from getting on with what I was doing.
36. I felt terrified.
37. I could see nothing in the future to be hopeful about.
38. I felt that life was meaningless.
39. I found myself getting agitated.
40. I was worried about situations in which I might panic and make a fool of myself.
41. I experienced trembling (e.g. in the hands).
42. I found it difficult to work up the initiative to do things.