DRINKING TO COPE IN COLLEGE AGED STUDENTS: THE RELATIONSHIP BETWEEN NEGATIVE AFFECT, STRESS, AVOIDANT COPING, AND ALCOHOL AND DRUG USE

A THESIS

SUBMITTED ON THE 4TH OF MAY 2017

TO THE DEPARTMENT OF PSYCHOLOGY

IN PARTIAL FULFILLMENT OF THE REQUIREMENTS

OF THE SCHOOL OF SCIENCE AND ENGINEERING

OF TULANE UNIVERSITY

FOR THE DEGREE OF

MASTER OF SCIENCE BY

Chinwendu Duru, B.S.

APPROVED: _____

Courtney N. Baker, Ph.D.

_____

Michael P. Hoerger, Ph.D.

_____

Julie A. Alvarez, Ph.D.

Drinking to Cope in College Aged Students: The Relationship Between Negative Affect, Stress, Avoidant Coping, and Alcohol and Drug Use

Chinwendu Duru

Tulane University

Abstract

Alcohol and drug use to cope is a common phenomenon that is found in those who are of college age. Drinking and drug use to cope has negative short- and long-term outcomes including chronic disease and possibly death. Alcohol and drug use to cope may be more common when individuals are not able allocate other resources in order to cope with their strong uncomfortable feelings (specifically depression, anger, and anxiety) and stress. Women and people of color may be particularly vulnerable to these patterns of maladaptive coping. I hypothesize that increased negative affect, stress, and avoidant coping will be associated with more alcohol and drug use. I also predict that there will be increased alcohol and drug use behavior for women and people of color in the context of negative affect, stress, and avoidant coping. The AUDIT, Brief COPE, DASS, PROMIS Anger, PSS, Race-Related Stress Item, and AAQ-II were used in data collected cross-sectionally from 360 participants. Pearson's correlations and multiple regressions were used to analyze the data. Men and women did not differ in their alcohol and drug use, though people of color did consume less alcohol then their white counterparts. Alcohol and drug use was highly correlated with negative affect and general stress. It also was found that men displayed more substance use behavior when faced with race-stress/perceived discrimination. Predicted relationships between race-related stress and alcohol and drug use and between avoidant coping and alcohol and drug use were not supported. In addition, none of the other hypothesized interactions were statistically significant predictors of alcohol and drug use. Implications for supporting college aged individuals are discussed.

Keywords: coping, drinking, drug use, college aged, negative affect, stress, avoidant coping

Drinking to Cope in College Aged Students: The Relationship Between Negative Affect, Stress, Avoidant Coping and Alcohol and Drug Use

Drinking and drug use in college students is common and can have negative short- and long-term outcomes. Drinking and using drugs to cope is a coping motivation that involves the use of alcohol and drugs and is associated with particularly negative effects, such as chronic disease and possibly death (Park & Levenson, 2002). Drinking and using drugs to cope may be more common in individuals who experience higher levels of negative emotions, more stress, or fewer coping skills. The relationships between these individual vulnerabilities and drinking and using drugs to cope also may be exacerbated in marginalized populations, such as women and people of color **(**Gilmore & Bountress, 2016; O'Hara, Boynton, et al., 2014**).** The primary purpose of this study is to evaluate the associations between negative affect (i.e., depression, anxiety, and anger), perceived general and race-specific stress, experiential avoidance, and alcohol and substance use. In addition, this study will evaluate these relationships by gender and racial minority status.

Alcohol and Drug Use and Abuse

Throughout the United States, college is a time where heavy drinking is a normative occurrence (Park & Levenson, 2002). Problematic alcohol use is common in college-aged adults. As many as 13% of college-aged students meet the criteria in the fifth edition of the Diagnostic and Statistical Manual of Mental Disorders (DSM-5) for an alcohol use disorder (see Table 1) (American Psychiatric Association [APA], 2013; Substance Abuse and Mental Health Services Administration [SAMHSA], 2014). A common example of alcohol abuse that is seen in college-aged students is that of binge drinking, especially in fraternities and sororities. Binge drinking is

defined as consuming five or more drinks in a single occasion in a 30-day period (Sarafino & Smith, 2014). Forty-two percent of young adults ages 18 to 25 participate in binge drinking episodes (Sarafino & Smith, 2014). College students are more likely to binge drink or be under the influence of alcohol than their non-college peers (Johnson, O'Malley, Bachman, Schulenberg, & Miech, 2016). Studies have found that college students who binge drink are at increased risk of concurrently experiencing or developing alcohol use disorders (Blevins, Abrantes, & Stephens, 2016; Park & Levenson, 2002).

Drug use, though less common than alcohol use, also occurs on college campuses. Common drugs that are used include cannabis, stimulants, hallucinogens, and opioids. For example, daily marijuana use for college students has increased steadily over the last twenty years, with 4.6% of students reporting using marijuana daily in 2015 (Johnson et al., 2016). Though cocaine use dropped steadily over the past decade, cocaine use nearly doubled (from 2.7% to 4.4%) between 2013 and 2014 and remained high in 2015 (Johnson et al., 2016).

These high drinking and drug use rates are associated with negative consequences such as avoidant coping, sexual assault, adverse bodily health effects, and sometimes even death. For example, in 2013, substance use disorders resulted in over 250,000 deaths, with the highest number of deaths resulting from alcohol use disorders and opioid use disorders (Naghavi et al., 2015). Though many students do "grow out of" heavy episodic drinking when they graduate, others can carry forward these habits learned in school and continue to abuse alcohol or drugs if they are not equipped with more adaptive coping skills (Park & Levenson, 2002). In addition, as is apparent in the DSM diagnostic criteria for alcohol and substance use disorders, alcohol and substance use and abuse can lead to addiction both physically and psychologically. In a physical addiction, the body has adjusted to the high consumption of alcohol or drugs due to the fact that

the substances have incorporated themselves into the normal functioning of the body's tissues. In psychological dependence the individual feels compelled to use the substance for the effect it produces. Psychological dependency can occur without physical dependency on a substance (Sarafino & Smith, 2014). Most psychological dependencies arise as a result of negative reinforcement, which allows for an individual to reduce anxiety, depression, anger, and/or stress by using alcohol or drugs, thus increasing the likelihood that the individual will use alcohol or drugs in the future when he or she is experiencing the uncomfortable states.

Drinking and Using Drugs to Cope

Drinking and using drugs to cope is a phenomenon that occurs when people drink or use drugs in order to deal with stressors and/or negative affect experienced in everyday life (Blevins, Abrantes, & Stephens, 2016). Drinking and using drugs to cope can be understood through the *tension-reduction hypothesis*, which states that people drink alcohol or use drugs in order to reduce the tension that they experience in day-to-day life or in order to initiate, inhibit, or modulate negative affect (Watkins, Franz, DiLillo, Gratz, & Messman-Moore, 2015). For example, using substances to cope fully mediated the relationship between post-traumatic stress disorder (PTSD) symptoms and problem drug use in a vulnerable sample of women who had experienced sexual assault (Ullman, Relyea, Peter-Hagene, & Vasquez, 2013). One interpretation of these findings is that the women who used substances to cope lacked healthier or more adaptive ways to manage their stressors.

The highest rates of drinking to cope are seen in college than in any other age group or setting (O'Hara, Armeli, & Tennen, 2014). Numerous students drink or use drugs to "fit in" while celebrating or socializing or to enhance the positive affect that they are already feeling. However, others may be drinking alcohol or using drugs in order to cope with underlying

psychosocial problems (Simons, Wills, & Neal, 2014). Positive alcohol and drug expectancies are correlated to heavier drinking/drug use and more substance abuse problems, which helps to understand the stress-drinking association in college students (Park & Levenson, 2002). In fact, participating in drinking or using drugs to cope behavior places students at higher risk of having drinking and substance use related problems after graduating (O'Hara, Armeli, et al., 2014).

Negative Affect, Stress, and Avoidant Coping

Several risk factors exist in the literature that may increase the likelihood that individuals drink or use drugs to cope.

Negative affect. Negative affect includes depression, anger, and anxiety, which are the most common negative emotions that are felt daily (Armeli, Sullivan, & Tennen, 2015). Depression or sadness is defined "as the presence of sad, empty, or irritable mood, accompanied by somatic and cognitive changes that significantly affect the individual's capacity to function" (APA, 2013, p. 155). Anger is defined "as a strong feeling of displeasure and usually of antagonism" (Anger, n.d.). Anxiety is defined "as anticipation of future threat and vigilance in preparation for future danger and cautious or avoidant behaviors" (APA, 2013, p. 189). Individuals who experience more negative affect report more alcohol consumption and alcohol-related problems (Park & Levenson, 2002; Veilleux, Skinner, Reese, & Shaver, 2014). Specifically, a recent review of 61 studies, found that experiencing depressive symptoms was followed by heavier drinking (Hussong, Ennett, Cox, & Haroon, 2017). Less is known about negative affect and drug use, but the tension-reduction hypothesis suggests that, in order to control negative emotions or to temporarily erase the uncomfortable feelings, individuals may drink or use drugs to cope (O'Hara, Boynton, et al., 2014; Watkins et al., 2015).

Avoidant coping. College-aged individuals experience numerous stressors related to academic pressures, financial needs, concerns about fitting in with peers, and concerns about their future and careers (Ross, Niebling, & Heckert, 1999). Research suggests that increased stress is linked to more substance use. For example, following a stress-induced episode, individuals drank two times more alcohol than those who were not stress-induced. (Park & Levenson, 2002). In addition, individuals can experience general or specific forms of stress. General stressors relate to one's ability to control one's life and handle one's problems. One important type of specific stressor is race-related stress. Race-related stress, including experiences of discrimination and perceived racism, accumulates daily and is thought to cause psychological trauma and emotional distress (Franklin, Boyd-Franklin, & Kelly, 2006).

Stress. Those who know how to deal with stress adaptively are less likely to use alcohol and drugs to cope with their emotions (Rivers et al., 2013). "Third-wave" cognitive-behavioral theorists posit "that mental health and behavioral effectiveness are influenced more by how people relate to their thoughts and feelings than by their form, for example how negative they are" (Bond et al., 2011, p. 677). These theorists identify psychological flexibility as a core coping skill, which is defined as the "ability to fully contact the present moment and the thoughts and feelings it contains without needless defense" (Bond et al., 2011, p. 678). Individuals who lack psychological flexibility attempt to escape undergoing any unwanted internal events by decreasing their contact with the present. Instead, these individuals participate in avoidant coping, to avoid dealing with a stressor in order to protect themselves from psychological damage (Ehrenberg, Armeli, Howland, & Tennen, 2016). This construct, called experiential avoidance, includes drinking and using drugs to cope. If an individual lacks the skills to manage negative feelings or stress, and instead drinks or uses drugs to cope, this coping method can

contribute to a cycle that leads to alcohol and drug abuse due to the fact that drinking and using drugs to cope does not allow an individual to learn and practice more adaptive coping skills.

Gender Effect: The Female Perspective

In general, men consume more alcohol than women, including engaging more frequently in binge drinking (Wilsnack, Wilsnack, Kristjanson, Vogeltanz-Holm, & Gmel, 2009). On average, 9.3% of men report binge drinking, while only 3.2% of women report binge drinking (SAMHSA, 2014). For young adults ages 18-25, 65.3% of men said that they are current drinkers and 57.1% of women were current drinkers (SAMHSA, 2014). At least 30% of women engage in binge drinking with 20% of those women also experiencing some form of sexual assault during their time at college (Gilmore & Bountress, 2016). In addition, women who experience sexual assault or any trauma are more likely to engage in alcohol use than those who do not (Kachadourian, Pilver, & Potenza, 2014; Ullman et al., 2013). One interpretation of this relationship is that these women are trying to cope with the negative affect associated with trauma by drinking. This cycle unfortunately increases the probability that these vulnerable women will be in hazardous drinking situations and could be re-traumatized (Kachadourian et al., 2014). Though gender differences in using drugs to cope are less well researched, it is probable that a similar pattern may emerge.

Race Effect: The People of Color Perspective

In general, people of color drink less than their European American counterparts, though people of color show an increase in drinking as they transition from adolescence to adulthood (Gilmore & Bountress, 2016). According to SAMHSA (2014), of the population that is considered to be heavy drinkers, 7.1% are non-Hispanic white, 4.5% African American, 9.2% American Indian or Alaska Native, 4.6% Native Hawaiian or Other Pacific Islander, 2.0% Asian,

and 5.1% Hispanic. Even though base rates of drinking are lower for people of color, people of color are more likely to report coping motives for alcohol use than white individuals (Bradizza, Reifman, & Barnes, 1999). This finding is potentially due to the daily stressors that people of color face such as social disadvantage, racism, and unfair treatment (O'Hara, Boynton, et al., 2014). For example, in a study conducted by O'Hara, Boynton, et al. (2014), 2,438 drinking episodes were recorded from college-aged students enrolled in a historically black college. Out of the 2,438 episodes, 46% were associated with coping motives, 70% with social motives, and 85% with enhancement motives (see Table 2). The students in the study were allowed to pick more than one drinking motive, hence the percentage being over 100%. Daily stressors related to discrimination also could help explain why people of color are at increased risk for alcohol related consequences compared to whites (O'Hara, Boynton, et al., 2014). In O'Hara, Boynton, et al.'s (2014) study, a total of 498 students were included in the sample size. Over half reported instances of nonsocial drinking and 74 reported at least one nonsocial binge-drinking episode.

The Current Study

The purpose of the current study is to evaluate the associations between demographic characteristics and risk factors for drinking and using drugs to cope, which include gender, race, negative affect (depression, anxiety, and anger), perceived general and race-specific stress, experiential avoidance, and alcohol and substance use. The secondary purpose of this study is to evaluate these relationships by gender and racial minority status.

Hypothesis 1. Demographic characteristics of gender and race will be associated with alcohol and drug use.

a. Men will display more alcohol and drug use than women.

b. Whites will display more alcohol and drug use than people of color.

Hypothesis 2. Those who experience more negative affect, more stress, and more avoidance are hypothesized to use more substances.

a. Participants with more self-reported depressive symptoms, anxiety symptoms, and anger will report more frequent use of alcohol and/or drugs. Relationships between each aspect of negative affect and alcohol and drug use will be evaluated separately.
b. Participants who report higher levels of general or race-specific stress will report more frequent use of alcohol and/or drugs. Relationships between each aspect of stress and alcohol and drug use will be evaluated separately.
c. Participants who endorse higher levels of avoidant coping will report more frequent use of alcohol and/or drugs.

Hypothesis 3. I also hypothesize that women and people of color will engage in more drinking and drug use than men and white individuals, in the context of elevated negative affect, stress, and avoidance.

a. All participants will report more frequent use of alcohol and/or drugs in the context of more depressive symptoms, anxiety symptoms, and anger, but the relationship between the two constructs will be stronger for women than men and for people of color than whites. Interactions in the relationship between each aspect of negative affect and alcohol and drug use by demographic characteristic will be evaluated separately.
b. All participants will report more recurrent use of alcohol and/or drugs in the context of more stress, both general and race specific, but the correlation between the two constructs will be stronger for women than men and for people of color than whites.

Interactions in the relationship between each aspect of stress and alcohol and drug use by demographic characteristic will be assessed separately.

c. All participants will report more repeated use of alcohol and/or drugs in the context of more avoidant coping but the association between the two constructs will be stronger for women than men and for people of color than whites. Interactions in the relationship between avoidant coping and alcohol and drug use by demographic characteristic will be examined separately.

Method

Participants

There were a total of 360 participants in the study. The participants of this study were undergraduate students drawn from two mid-sized Universities. One is a located in a suburb of a large Midwestern city (n = 159), and the other is located in a mid-sized Southeastern city (n = 201). Out of this sample, 291 were female (81%). The mean age of the subjects was 21 years. The racial demographics are as follows: 82% White, 4% African-American, 4% Hispanic, 7% Asian, 1% Native Hawaiian/Pacific Islander, 1% American Indian/Alaska Native, and 4% identified as other. Participants were able to select more than one race/ethnicity, which is why the percentage total is greater than 100%.

Procedure

Participants completed the surveys used in this study at one timepoint. Participants completed the surveys online using SurveyMonkey.com and Qualtrics.com. Participants who completed this survey received extra credit in their psychology courses for their participation. Participants were informed of their contribution to the study and provided consent. The institutional review boards at each of the universities approved this study.

Measures

Demographics. Gender and race were collected in a demographics questionnaire. In this sample, the people of color category consists of participants who endorsed any racial category other than white or who endorsed being Hispanic or Latino. Gender was coded as 0 for female and 1 for male. The people of color variable was coded 0 for white and 1 for people of color.

Alcohol and substance use. Because of protocol differences between the two studies, two measures were used to evaluate alcohol and drug use. First, the Alcohol Use Disorders Identification Test (AUDIT) is a measure that evaluates symptoms of hazardous or harmful alcohol consumption (Saunders, Aasland, Babor, De La Fuente, & Grant, 1993). The measure evaluates consumption and frequency of intoxication with drinking behavior and adverse consequences due to consumption. As such, it can serve as an early detector for alcohol abuse. The AUDIT is a 10-item scale, on which respondents used a scale of 0 to 4 where a lower score is more favorable. Example items include "How often do you have a drink containing alcohol?" and "How often during the last year have you failed to do what was normally expected from you because of drinking?" The higher the score out of a summed total of 40, the more likely one is participating in hazardous or harmful alcohol use. The measure is considered reliable because of the focus on frequency and not yes or no answers and its scores have demonstrated cross-cultural validity (Saunders et al., 1993) In this sample, the Cronbach's alpha was .71. Second, the Brief COPE is a 28-item measure that evaluates 14 types of coping (Carver, 1997). In the current study, two items out of the twenty-eight were used to evaluate coping by using substances. The items included "I use alcohol or other drugs to make myself feel better" and "I use alcohol or other drugs to help me get through it." Respondents responded on a Likert scale from 0 (not at all true) to 10 (completely true), with lower scores indicating less drinking and drug use. The sum of

the two items was used. Scores on the Brief COPE have demonstrated reliability and validity, especially in college samples (Carver, 1997; Pritchard, Wilson, & Yamnitz, 2007). Internal reliability in the current sample was adequate, $r_{s\text{-}b} = .86$. In order to combine the two measures, the two summary scores from the AUDIT and Brief COPE were converted to *z*-scores.

Negative affect. The Depression Anxiety Stress Scales (DASS) were used to evaluate depression and anxiety (Lovibond & Lovibond, 1995). The DASS is a 14-item scale, on which participants responded to a rating system of 0 (not at all true) to 10 (completely true). Example items include "I found it difficult to work up the initiative to do things" and "I felt that I was close to panic." Separate subscales were calculated for depression and anxiety by summing subscale items. Higher summed scores indicate more depression and anxiety. The PROMIS Anger is an eight-item measure that evaluates anger (Pilkonis et al., 2011). Example items include "I felt angry" and "I was irritated more than people knew." In the current study, the PROMIS Anger used the same rating scale as the DASS, with higher summed scores indicating more anger. For both scales, participants were asked to report their feelings in the last seven days. Scores from both the DASS and the PROMIS Anger have demonstrated reliability and validity (Henry & Crawford, 2005; Stone, Broderick, Junghaenel, Schneider, & Schwartz, 2016). In the current study, the DASS had a Cronbach's alpha of .89 and the PROMIS Anger had a Cronbach's alpha of .91.

Stress. General stress was evaluated by the Perceived Stress Scale (PSS; Cohen, Kamarck, & Mermelstein, 1983; Cohen & Williamson, 1988). This four-item measure uses a rating scale from 0 (not at all true) to 10 (completely true) in the current study and includes items such as "In the last month, how often have you felt that you were unable to control the important things in your life?" Scores were summed; higher scores indicated higher levels of stress. The

PSS is associated with acceptable psychometric properties (Lee, 2012). The Cronbach's alpha in the current sample was.78. Race-related stress was evaluated by one item, "Thinking over your whole life, how often have you been treated unfairly or badly because of your race or ethnicity?" (Gee, 2002). The item was rated on a 0 (not at all true) to 10 (completely true) point scale. Higher scores are less favorable. This single-item measure has shown validity in several large studies (e.g., Soto, Dawson-Andoh, & BeLue, 2011). Both stress scales were collected for the Southeastern sample only.

Avoidant coping. The Acceptance and Action Questionnaire-II (AAQ-II; Bond et al., 2011) measures how people relate to their thoughts and feelings such as negative evaluations of feelings and avoidance of thoughts and feelings. The AAQ-II is a 10-item scale, which uses items such as "I worry about not being able to control my worries and feelings" and "It's OK if I remember something unpleasant" (reverse coded). Participants rated the items on a scale of 1 (not at all true) to 10 (completely true). The items were then summed, with higher scores indicating more avoidant coping. The AAQ-II measures experiential avoidance in general and not during a specific time period. The AAQ-II has psychometric properties that, in comparison to its predecessor the AAQ-I, are stronger and more stable across different groups such as university students, those who were seeking outpatient psychological care, and employees of a United Kingdom bank (Bond et al., 2011). The avoidant coping scale was collected for the Midwestern sample only. The AAQ-II was associated with a Cronbach's alpha of .87 in the current sample.

Analytic approach. All analyses were conducted using SPSS Version 19. In order to test the first and second sets of hypotheses, I evaluated the bivariate relationships using Pearson product-moment correlations between gender, race, negative affect (depression, anxiety, anger),

perceived general and race-specific stress, experiential avoidance and the dependent variable alcohol and substance use. Eight separate correlations were evaluated. Then, I used moderation in multiple regressions to evaluate whether women and people of color were more likely to use substances in the context of increased negative affect, stress, and avoidant coping. Specifically, I created interaction terms between the gender/people of color variables and the negative affect, stress, and avoidant coping variables, resulting in a total of 12 interaction terms. Then, I evaluated each relationship in a separate multiple regression.

Results

Descriptive Statistics

Table 3 contains the bivariate correlations of the variables. It was found that the independent variables of the study were correlated with one another. For example depression was positively correlated with anxiety, anger, general stress, and avoidant coping. Anxiety was also correlated with anger, general stress, and avoidant coping. Correlations were also found between anger, general stress, race stress, and avoidant coping. General stress also positively correlated with race stress.

Hypothesis 1

There was no significant relationship found in relation to gender and alcohol and drug use. In this sample, people of color consumed less alcohol than their white counterparts, in line with my hypothesis.

Hypothesis 2

Participants who reported more depressive symptoms, anxiety symptoms, and anger reported more alcohol and drug use. Also as hypothesized, students who experienced higher

levels of general stress reported more alcohol and drug use (see Table 3). Contrary to the hypothesis, no relationship was found between alcohol use and race stress. Similarly, no relationship was found between avoidant coping and alcohol and drug use.

Hypothesis 3

Gender significantly moderated the relationship between race-specific stress and using alcohol and drugs to cope, b = -.28, *se* = .21, *p* = .02. Specifically, and in contradiction of my hypothesis, men experience higher alcohol and drug consumption in the context of increased race specific stress than women (see Figure 1). Also contrary to hypotheses, none of the other interaction effects were statistically significant.

Discussion

The purpose of this study was to assess the relationships between demographics characteristics and risk factors for drinking and drug use to cope, which are gender, race, depression, anxiety, anger, stress (both general and race-specific), avoidant coping, and substance use. This study also evaluated gender and race as moderators of the relationships between the risk factors and drinking and using drugs to cope. This study's hypotheses were partially supported.

In support of my first hypothesis, people of color do consume less alcohol and drugs than whites. The findings of this study fall in line with current research on race and alcohol and drug consumption. Contrary to hypotheses, no support was found for different levels of use between men and women. The direction of the relationship was as anticipated, with men reporting more alcohol and drug use than women. However, the lack of statistically significant findings could be due in part to the relatively small number of male participants in the sample.

In support of my second hypothesis, college students who reported a higher occurrence of negative affect engaged in more drinking and drug use. Specifically, those who experienced more depressive symptoms, anxiety symptoms, and anger in turn participated in more alcohol and drug use behavior. This relationship is consistent with previous research, which found that negative affect is highly correlated with increased alcohol use (Park & Levenson, 2002; Veilleux et al., 2014). I also found, as hypothesized, that increased stress is correlated to more alcohol and drug use. This finding corroborates previous research stating that experiencing any kind of stress is associated with increased consumption of alcohol (O'Hara, Armeli, et al., 2014; Rivers et al., 2013).

Though there is research suggesting that people of color may experience more drinking to cope behavior as a result of dealing with the discrimination that comes along with having minority status (O'Hara, Boynton, et al., 2014), even in the context of less drinking in general than their white peers, we were unable to support the correlation between race-stress and drinking and drug use in the current study. Also contrary to expectations, no support was found for the interaction between race and race-related stress in predicting alcohol and drug use. People of color in the current study did report significantly more race-related stress than whites (see Table 3). In line with the literature, they also reported less alcohol and drug use overall (O'Hara, Boynton, et al., 2014). O'Hara, Boynton et al. (2014) speculated that race-related stress was the driving force behind the use of coping motives to drink in the mostly Black college population in the sample, but they did not test this hypothesis. O'Hara and colleagues also did not compare their findings with a white group of college students. The analyses in this study focused on comparing people of color and whites. It is possible that being a person of color is a protective factor for drinking and using drugs to cope, even in the context of stressors such as

discrimination. In addition, the data were collected at predominantly white universities, with little variation in the ethnic population. Specifically, the current sample only included 37 individuals of color, and they identified as many different races and ethnicities. A sample with a larger subpopulation of a specific racial or ethnic group might draw different conclusions, including, for example, that people of color do in fact experience higher levels of drinking and using drugs to cope than whites.

Despite the research that has linked avoidant coping and alcohol and drug use that drinking or using drugs is a form of avoidant coping (Ehrenberg et al., 2016), no correlational relationship was found in the current study. This is odd because relationships were found between alcohol and substance use, depression, anxiety, and anger, all of which individually related in predictable ways with avoidant coping. One reason why this study may not have found evidence to support this hypothesis is that avoidant coping was only measured at only one university, limiting the sample size to detect a significant effect. In addition, the AAQ-II is a relatively broad measure that evaluates whether an individual views his or her own painful feelings, worries, and memories as challenging or uncontrollable. A more targeted measure focused on the use of avoidance behaviors, such as watching TV or going for a walk, may have related more meaningfully to the constructs evaluated in this study.

In addition and unsurprisingly, the risk factors for drinking and using drugs to cope were related to one another. For instance a person who experiences race-related stress also experiences high levels of anger.

Contrary to my hypotheses and to prior work, gender did not generally moderate the relationships between the risk factors for drinking and using drugs to cope and substance use (Gilmore & Bountress, 2016; Kachadourian et al., 2014; O'Hara et al., 2014). One significant

interaction was found between race-related stress and gender. Unlike my hypothesis that women would display drinking and drug use behavior in the context of this stressor, the opposite was actually found. Men in fact displayed more substance use behavior when faced with race-stress/perceived discrimination. Men may be less likely to communicate their emotions, instead finding other outlets, such as alcohol and drug use (Park & Levenson, 2002). Despite not finding the expected relationship between alcohol consumption and gender, I did find that men drink and use drugs more than women in relation to race-stress. This indicates that men do in fact consume more alcohol and drugs then women, at least in certain situations. Current research on gender differences has varied from study to study. For example, in a study conducted by Foster et al. (2014), the authors found that men consume more alcohol when they are experiencing depressive symptoms. In contrast, Kenney, Jones, and Barnett (2015) found that more alcohol consumption is seen in women when evaluating coping motives than in men. Future research is needed to understand the true relationship between gender and drinking to cope, such as whether specific, different risk factors for drinking and using drugs to cope are expressed in men and women.

Limitations and Directions for Future Research

Unfortunately, the current study has several limitations. The first set of limitations relate to measurement issues. First, drinking to cope is a motive of drinking. It is not the only motivation for alcohol intake, and people may drink for many other reasons. In the current study, I did not specifically evaluate drinking to cope in both samples. Instead, I only examined levels of alcohol and drug consumption in relation to my independent variables. In order to circumvent the lack of drinking motivation in future research, the measures need to be the same across the full sample and they also need to include coping motives along with substance use. Second, the AAQ-II and the stress measures each only represented half of the sample, resulting in a smaller

sample size for these analyses. With larger samples, power is increased, which allows for smaller effects to be detected. In addition, only two items of the Brief COPE were used to determine substance use. A more comprehensive measure could further increase the validity of the construct, such as having a measure that focuses on drug use and coping. Although drinking and using drugs to cope is particularly prevalent in college aged adults who are enrolled in college (Johnson et al., 2016), 18 to 25 year-olds who are in the workforce also face these challenges. This study focused on college students; future work should investigate these relationships in a broader sample of young adults. Lastly, as mentioned above, the subsample of people of color was small and we were not able to distinguish between different racial and ethnic groups, who have different experiences with the risk factors and with drinking and using drugs to cope (Broman, 2005). In order to ensure generalizability of the findings, the sample recruited for future research in this area should include students from a variety of colleges, such as historically black colleges and predominately white universities, as well as equal numbers of men and women.

Clinical Applications

Overall, the findings from this study align with previous literature in some ways, while contradicting the literature in others. These contradictory or null findings suggest that these relationships require future study within the college population. During the transitional period from adolescence into adulthood, most young adults have trouble finding the appropriate outlets to deal with any uncomfortable feelings. This problem may be even more prevalent in a college population, because of the added pressures that stem from attending a university, such as schoolwork, fitting in, and financial responsibilities. When college students lack healthy and adaptive coping skills, they may participate in harmful behavior such as drinking or using drugs

to cope. In order to prevent this problem, students entering college must be given the proper tools, such as learning who to contact on campus when they are at unease, engaging in alcohol and drug education, and learning different and healthy methods of coping. Particular attention must be paid to differences in race and gender populations, previous literature does suggest that whites and people of color and also males and females experience drinking to cope differently, though findings are inconsistent. Attention to subgroup differences will allow researchers to create distinctive and tailored interventions that consider one's racial upbringing and the discrimination that people of color and women face.

Young adults ages 18 to 25 experience high rates of suicidal ideation and more attempts than any other age group (Gonzalez & Hewell, 2012). Many of these young people are in college. Theorists who study suicides have suggested that alcohol is used, by college aged students, in order to escape the "painful self-awareness" that is associated with suicide contemplation (Gonzalez & Hewell, 2012, p. 994). Drinking to cope is a significant correlate linked with severity of suicidal ideation, alcohol use (drinking just to drink), when controlled for depression (Gonzalez & Hewell, 2012). Specifically, suicidal ideation accounted for 27% of the variance in drinking to cope, which was higher than depression, hopelessness, impulsivity, negative mood regulation, and coping skills (Gonzalez & Hewell, 2012). Given these findings, colleges can help to address this issue by lessening the stigma on mental health. Activities that can set this norm include sending out wellness newsletters, having mental health fairs, and hosting educational activities around campus about mental health, substance use, and suicidality. Efforts like these help students know that there is help available at all times.

If the stigma of mental health is removed or lessened, students will feel that it is okay to ask for help. In their search for help, students can in turn learn healthy coping skills that will

decrease the likelihood that they engage in behaviors that can damage them both in mind and body. Drinking to cope is an occurrence that can be reduced or eliminated when the necessary steps are taken in order to eliminate it, such as creating interventions that teach young adults who are dealing with negative affect, stress, and avoidant coping other ways that do not involve alcohol or drug use. Drinking to cope must be understood and addressed in order to reduce its negative health impacts on young people.

References

American Psychiatric Association. (2013). *Diagnostic and statistical manual of mental disorders (5th ed.)*. Arlington, VA: American Psychiatric Publishing.

Anger. (n.d.). *In Merriam-Webster's online dictionary*. Retrieved from https://www.merriam-webster.com/dictionary/anger

Armeli, S., Sullivan, T. P., & Tennen, H. (2015). Drinking to cope motivation as a prospective predictor of negative affect. *Journal of Studies on Alcohol and Drugs*, *76*(4), 578–584. doi:10.15288/jsad.2015.76.578

Blevins, C. E., Abrantes, A. M., & Stephens, R. S. (2016). Motivational pathways from antecedents of alcohol use to consequences: A structural model of using alcohol to cope with negative affect. *The American Journal of Drug and Alcohol Abuse*, *42*(4), 395–403. doi:10.3109/00952990.2016.1141915

Bond, F. W., Hayes, S. C., Baer, R. A., Carpenter, K. M., Guenole, N., Orcutt, H. K., . . . Zettle, R. D. (2011). Preliminary psychometric properties of the Acceptance and Action Questionnaire–II: A revised measure of psychological inflexibility and experiential avoidance. *Behavior Therapy, 42*(4), 676-688. doi:10.1016/j.beth.2011.03.007

Bradizza, C. M., Reifman, A., & Barnes, G. M. (1999). Social and coping reasons for drinking: Predicting alcohol misuse in adolescents. *Journal of Studies on Alcohol, 60,* 491–499.

Broman, C.L. (2005). Stress, race, and substance use in college. *College Student Journal, 39(2),* 340-352.

Carver, C. S. (1997). You want to measure coping but your protocol is too long: Consider the Brief COPE. *International Journal of Behavioral Medicine*, *4*(1), 92-100.

Cohen, S., Kamarck, T., Mermelstein, R. (1983). A global measure of perceived stress. *Journal of Health and Social Behavior*, *24*, 385-396.

Cohen, S., & Williamson, G. (1988). Perceived stress in a probability sample of the United States. In S. Spacapam & S. Oskamp (Eds.), *The social psychology of health: Claremont Symposium on applied social psychology.* Newbury Park, CA: Sage.

Ehrenberg, E., Armeli, S., Howland, M., & Tennen, H. (2016). A daily process examination of episode-specific drinking to cope motivation among college students. *Addictive Behaviors*, *57*, 69–75. doi:10.1016/j.addbeh.2016.02.003

Foster, D., Young, C., Steers, M., Quist, M., Bryan, J., & Neighbors, C. (2014). Tears in your beer: Gender differences in coping drinking motives, depressive symptoms and drinking. *International Journal of Mental Health & Addiction, 12(6),* 730-746. doi:10.1007/s11469-014-9504-3

Franklin, A. J., Boyd-Franklin, N., & Kelly, S. (2006). Racism and invisibility: Race-related stress, emotional abuse and psychological trauma for people of color. *Journal of Emotional Abuse*, *6*(2-3), 9-30.

Gee, G. C. (2002). A multilevel analysis of the relationship between institutional and individual racial discrimination and health status. *American Journal of Public Health*, *92*(4), 615-623.

Gilmore, A. K., & Bountress, K. E. (2016). Reducing drinking to cope among heavy episodic drinking college women: Secondary outcomes of a web-based combined alcohol use

and sexual assault risk reduction intervention. *Addictive Behaviors*, *61*, 104–111. doi:10.1016/j.addbeh.2016.05.007

Gonzalez, V. M., & Hewell, V. M. (2012). Suicidal ideation and drinking to cope among college binge drinkers. *Addictive Behaviors*, *37*(8), 994–997. doi:10.1016/j.addbeh.2012.03.027

Henry, J. D., & Crawford, J. R. (2005). The short‐form version of the Depression Anxiety Stress Scales (DASS‐21): Construct validity and normative data in a large non‐clinical sample. *British Journal of Clinical Psychology*, *44*(2), 227-239.

Hussong, A. M., Ennett, S. T., Cox, M. J., & Haroon, M. (2017). A systematic review of the unique prospective association of negative affect symptoms and adolescent substance use controlling for externalizing symptoms. *Psychology of Addictive Behaviors*, *31*(2), 137-147.

Johnson, L. D., O'Malley, P. M., Bachman, J. G., Schulenberg, J.E., & Miech, R. A. (2016). *Monitoring the Future National Survey Results on Drug Use, 1975-2014: Volume 2, College students and adults ages 19-55.* Ann Arbor, MI: Institute for Social Research, The University of Michigan.

Kachadourian, L. K., Pilver, C. E., & Potenza, M. N. (2014). Trauma, PTSD, and binge and hazardous drinking among women and men: Findings from a national study. *Journal of Psychiatric Research*, *55*, 35-43.

Kenney, S., Jones, R., & Barnett, N. (2015). Gender differences in the effect of depressive symptoms on prospective alcohol expectancies, coping motives, and alcohol outcomes in the first year of college. *Journal of Youth & Adolescence, 44(10),* 1884-1897. doi:10.1007/s10964-015-011-3

Lee, E. H. (2012). Review of the psychometric evidence of the perceived stress scale. *Asian Nursing Research*, *6*(4), 121-127.

Lovibond, P. F., & Lovibond, S. H. (1995). The structure of negative emotional states: Comparison of the Depression Anxiety Stress Scales (DASS) with the Beck Depression and Anxiety Inventories. *Behaviour Research and Therapy*, *33(3)*, 335-343.

Naghavi, M., Wang, H., Lozano, R., Davis, A., Liang, X., Zhou, M., ... & Aziz, M. I. A. (2015). Global, regional, and national age-sex specific all-cause and cause-specific mortality for 240 causes of death, 1990-2013: A systematic analysis for the Global Burden of Disease Study 2013. *Lancet*, *385*(9963), 117-171.

O'Hara, R. E., Armeli, S., & Tennen, H. (2014). Drinking-to-cope motivation and negative mood-drinking contingencies in a daily diary study of college students. *Journal of Studies on Alcohol and Drugs, 75(4),* 606-614.

O'Hara, R. E., Boynton, M. H., Scott, D. M., Armeli, S., Tennen, H., Williams, C., & Covault, J. (2014). Drinking to cope among African American college students: An assessment of episode-specific motives. *Psychology of Addictive Behaviors*, *28*(3), 671–681. doi:10.1037/a0036303

Park, C. L., & Levenson, M. R. (2002). Drinking to cope among college students: Prevalence, problems and coping processes. *Journal of Studies on Alcohol*, *63*(4), 486–497. doi:10.15288/jsa.2002.63.486

Pilkonis, P. A., Choi, S. W., Reise, S. P., Stover, A. M., Riley, W. T., & Cella, D. (2011). Item Banks for Measuring Emotional Distress From the Patient-Reported Outcomes

Measurement Information System (PROMIS(R)): Depression, Anxiety, and Anger. *Assessment,18*(3), 263-283. doi:10.1177/1073191111411667

Pritchard, M. E., Wilson, G. S., & Yamnitz, B. (2007). What predicts adjustment among college students? A longitudinal panel study. *Journal of American College Health*, *56*(1), 15-22.

Rivers, S. E., Brackett, M. A., Omori, M., Sickler, C., Bertoli, M. C., & Salovey, P. (2013). Emotion skills as a protective factor for risky behaviors among college students. *Journal of College Student Development*, *54*(2), 172-183.

Ross, S. E., Niebling, B. C., & Heckert, T. M. (1999). Sources of stress among college students. *Social Psychology*, *61*(5), 841-846.

Sarafino, E. P., & Smith, T. W. (2014). *Health psychology: Biopsychosocial interactions* (8th ed.). Hoboken, NJ: John Wiley & Sons.

Saunders, J. B., Aasland, O. G., Babor, T. F., De la Fuente, J. R., & Grant, M. (1993). Development of the Alcohol Use Disorders Identification Test (AUDIT): WHO Collaborative Project on Early Detection of Persons with Harmful Alcohol Consumption II. *Addiction,88*(6),791-804. doi:10.1111/j.1360-0443.1993.tb02093.x

Simons, J. S., Wills, T. A., & Neal, D. J. (2014). The many faces of affect: A multilevel model of drinking frequency/quantity and alcohol dependence symptoms among young adults. *Journal of Abnormal Psychology*, *123*(3), 676–694. doi:10.1037/a0036926

Soto, J. A., Dawson-Andoh, N. A., & BeLue, R. (2011). The relationship between perceived discrimination and generalized anxiety disorder among African Americans, Afro Caribbeans, and non-Hispanic Whites. *Journal of Anxiety Disorders*, *25*(2), 258-265.

Stone, A. A., Broderick, J. E., Junghaenel, D. U., Schneider, S., & Schwartz, J. E. (2016). PROMIS fatigue, pain intensity, pain interference, pain behavior, physical function, depression, anxiety, and anger scales demonstrate ecological validity. *Journal of Clinical Epidemiology*, *74*, 194-206.

Substance Abuse and Mental Health Services Administration, *Results from the 2013 National Survey on Drug Use and Health: Summary of National Findings*, NSDUH Series H-48, HHS Publication No. (SMA) 14-4863. Rockville, MD: Substance Abuse and Mental Health Services Administration, 2014.

Ullman, S. E., Relyea, M., Peter-Hagene, L., & Vasquez, A. L. (2013). Trauma histories, substance use coping, PTSD, and problem substance use among sexual assault victims. *Addictive Behaviors*, *38*(6), 2219-2223.

Veilleux, J. C., Skinner, K. D., Reese, E. D., & Shaver, J. A. (2014). Negative affect intensity influences drinking to cope through facets of emotion dysregulation. *Personality and Individual Differences*, *59*, 96-101.

Watkins, L. E., Franz, M. R., DiLillo, D., Gratz, K. L., & Messman-Moore, T. L. (2015). Does drinking to cope explain links between emotion-driven impulse control difficulties and hazardous drinking? A longitudinal test. *Psychology of Addictive Behaviors*, *29*(4), 875–884. doi:10.1037/adb0000127

Wilsnack, R. W., Wilsnack, S. C., Kristjanson, A. F., Vogeltanz-Holm, N. D., & Gmel, G. (2009). Gender and alcohol consumption: patterns from the multinational GENACIS

project. *Addiction (Abingdon, England)*, *104*(9), 1487–1500.

http://doi.org/10.1111/j.1360-0443.2009.02696.x

Table 1

DSM-5 Criteria for Alcohol Use Disorder

A. A problematic pattern of alcohol use leading to clinically significant impairment or distress, as manifested by at least two following, occurring within a 12-month period:

1. Alcohol is often taken in larger amounts or over a longer period than was intended.
2. There is a persistent desire or unsuccessful efforts to cut down or control alcohol use.
3. A great deal of time is spent in activities necessary to obtain alcohol, use alcohol, or recover from its effects.
4. Craving, or a strong desire or urge to use alcohol.
5. Recurrent alcohol use resulting in a failure to fulfill major role obligations at work, school, or home.
6. Continued alcohol use despite having persistent or recurrent social or interpersonal problems caused or exacerbated by the effects of alcohol.
7. Important social, occupational, or recreational activities are given up or reduced because of alcohol use.
8. Recurrent alcohol use in situation in which it is physically hazardous.
9. Alcohol use is continued despite knowledge of having a persistent or recurrent physical or psychological problem that is likely to have been caused or exacerbated by alcohol.
10. Tolerance, as defined by either of the following:
    a. A need for markedly increased amounts of alcohol to achieve intoxication or desired effect
    b. A markedly diminished effect with continued use of the same amount of alcohol.
11. Withdrawal, as manifested by either of the following:
    a. The characteristic withdrawal syndrome for alcohol.
    b. Alcohol (or closely related substance, such as benzodiazepine) is taken to relive or avoid withdrawal symptoms.

Table 2

Drinking Motive Questionnaire-Revised from O'Hara, Boynton, et al. 2014 Study

LAST NIGHT I DRANK… (0= no; 1= somewhat; 2= definitely)
Episode-specific Coping Motives
C1 … to feel more confident or sure of myself
C2 … because I was angry
C3 … to feel less insecure
C4 … to forget ongoing problems or worries
C5 … to feel less depressed
C6 … to feel less nervous
C7… to cheer up
Episode-specific Enhancement Motives
E1… because I like the pleasant feeling
E2… to have fun
Episode-specific Social Motives
S1… to make party or gathering more fun
S2… to improve party or gathering

Table 3

Correlations between Study Variables

Variable	1	2	3	4	5	6	7	8	9	10
1. Gender (M = .19, SD = .39)	-									
2. Person of Color (M = .18, SD = .38)	.02	-								
3. Alcohol and Drug Use (M = 0, SD = 1)	.08	-.22**	-							
4. Depression (M = 14.07, SD = 15.21)	.01	.02	.24**	-						
5. Anxiety (M = 16.56, SD = 14.56)	.01	-.06	.18**	.59**	-					
6. Anger (M = 27.27, SD = 19.74)	-.13*	-.01	.21**	.53**	.46**	-				
7. General Stress (M = 15.14, SD = 7.51)	-.05	.05	.30**	.67**	.53**	.48**	-			
8. Perceived Discrimination (M = 1.38, SD = 1.72)	-.07	.46**	-.01	.13	.11	.17*	.19**	-		
9. Experiential Avoidance (M = 29.95, SD = 18.45)	-.05	-.07	.07	.68**	.45**	.40**	c	c	-	
10. Age (M = 21.02, SD = 4.69)	-.14**	.01	-.07	-.01	-.10	.12*	.08	.04	-.01	-

Note. c is for variables that were not collected in both samples and cannot be computed. The alcohol and drug use variable was standardized, resulting in a mean of 0 and a standard deviation of 1. *$p < .05$. ** $p < .01$.

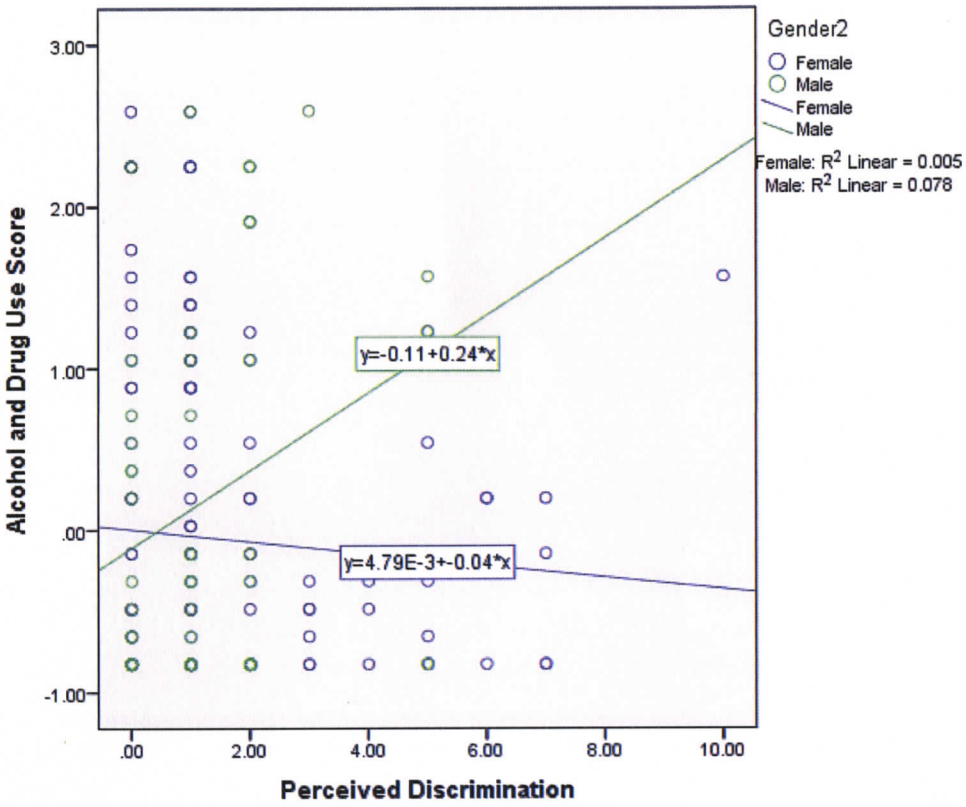

Figure 1. Gender x race stress interaction showing that males participate in more alcohol and drug use in relation to increased race-related stress than females.