

Summer 2024

Examining the Moderating Effect of Self-Compassion Between Rumination and Alcohol Use

Victoria Forgea Allen

Follow this and additional works at: <https://digitalcommons.georgiasouthern.edu/etd>



Part of the [Clinical Psychology Commons](#)

Recommended Citation

Allen, Victoria Forgea, "Examining the Moderating Effect of Self-Compassion Between Rumination and Alcohol Use" (2024). *Electronic Theses and Dissertations*. 2536.
<https://digitalcommons.georgiasouthern.edu/etd/2536>

This dissertation (open access) is brought to you for free and open access by the Jack N. Averitt College of Graduate Studies at Georgia Southern Commons. It has been accepted for inclusion in Electronic Theses and Dissertations by an authorized administrator of Georgia Southern Commons. For more information, please contact digitalcommons@georgiasouthern.edu.

EXAMINING THE MODERATING EFFECT OF SELF-COMPASSION BETWEEN RUMINATION AND ALCOHOL USE

by

VICTORIA FORGEA ALLEN

(Under the Direction of Ryan Couillou)

ABSTRACT

Abundant research suggests alcohol use among college students as a public health concern (SAMHSA, 2014). Previous studies support rumination, a manner of responding to emotional distress which involves repetitively and passively focusing on the distress, is linked to problematic alcohol use among college students (Oswalt et al., 2020). On the other hand, not all college students who experience rumination engage in problematic alcohol use which suggests the presence of a moderating variable. Due to its emotion regulating abilities and positive associations to well-being, self-compassion may be on factor that affects the relationship between rumination and alcohol use (Diedrich et al., 2014; Neff, 2003). Although self-compassion interventions have positive outcomes, prior studies have not explored the influence self-compassion has on the relationship between these two key variables. Thus, the current study aimed to add valuable insight in the literature by exploring the relationship between rumination and alcohol use and how dimensions of self-compassion may moderate this relationship. A college sample completed self-report measures of these constructs. As hypothesized, results indicated rumination was significantly positively correlated to alcohol use. Further, self-compassion was significantly inversely related to rumination and alcohol use. Moderation analyses revealed two dimensions of self-compassion (i.e., self-kindness and common humanity) did significantly moderate the relationship between rumination and alcohol use. The third dimension (i.e., mindfulness) did not moderate the relationship between rumination and alcohol

use. Between group differences based on rurality and race/ethnicity were further explored and discussed. Other clinical implications and future directions are discussed.

INDEX WORDS: Self-compassion, Alcohol use, Rumination, College students, Problematic Alcohol use

EXAMINING THE MODERATING EFFECT OF SELF-COMPASSION BETWEEN
RUMINATION AND ALCOHOL USE

by

VICTORIA FORGEA ALLEN

B.S., East Tennessee State University, 2017

M. S., Georgia Southern University, 2019

M.S., Georgia Southern University, 2021

A Dissertation Submitted to the Graduate Faculty of Georgia Southern University

in Partial Fulfillment of the Requirements for the Degree

DOCTOR OF PSYCHOLOGY

COLLEGE OF BEHAVIORAL AND SOCIAL SCIENCES

© 2023

VICTORIA FORGEA ALLEN

All Rights Reserved

EXAMINING THE MODERATING EFFECT OF SELF-COMPASSION BETWEEN RUMINATION
AND ALCOHOL USE

by

VICTORIA FORGEA ALLEN

Major Professor: Ryan Couillou
Committee: Jeffrey Klibert
Dorthie Cross

Electronic Version Approved:
May 2023

ACKNOWLEDGMENTS

First, I want to thank my dissertation chair, Ryan Couillou, for his guidance and hard work in mentoring me through this project. Secondly, I want to thank my committee members, Jeff Klibert and Dorthie Cross, for their assistance, patience, and expertise. I am very grateful for your support throughout the development of this project and my career. Lastly, I want to thank the countless supervisors and mentors who have aided in my psychology career.

My time at Georgia Southern has brought me so much joy. I am so thankful for all of the beautiful friendships I have found within this program and that will continue moving forward. To my family, thank you for your support all the way from California. To Mom and Dad, thank you for always supporting my academic pursuits and being my biggest cheerleaders. Your unconditional love allowed me to be brave, independent, and strong. To my husband, Aaron, thank you for always believing in me. Your acts of services and words of affirmation never went unnoticed during the past four years. Leonidas (Leo the cat) and I appreciate you more than you know.

TABLE OF CONTENTS

ACKNOWLEDGMENTS	2
LIST OF TABLES	4
LIST OF FIGURES	5
CHAPTER	
1 Introduction	6
Literature Review	7
Rumination	7
Alcohol Use to Regulate Emotions	9
Rumination and Problematic Drinking Behaviors	11
Self-Compassion: Possible Moderator	13
Rurality	17
Current Study	19
2 METHODOLOGY.....	21
Participants	21
Measures	24
Procedure	26
Analytic Plan.....	27
3 RESULTS	28
Primary Analyses	28
Exploratory Analyses	35
Mean Differences by Rural Group.....	35
Mean Differences by Race/Ethnicity	36
4 DISCUSSION	38
Review of Purpose	38
Correlations	38
Moderated Effects of Self-Compassion	40
Rural Differences	43
Race/Ethnicity Differences	44
Clinical Implications	45
Limitations	47
Future Directions	49
General Conclusions	50
REFERENCES	52
APPENDIX A	67

LIST OF TABLES

Table 1: Demographic Characteristics of the Retained Sample	23
Table 2: Correlation Matrix for the Study's Main Variables	28
Table 3: Regression Statistics Rumination and Self-Kindness on Alcohol Use	29
Table 4: Regression Statistics Rumination and Common Humanity on Alcohol Use	32
Table 5: Regression Statistics Rumination and Mindfulness on Alcohol Use	35
Table 6: Means and Standard Deviations Scores for Rumination, Alcohol Use, and Self- Compassion by Rural Group	36
Table 7: Means and Standard Deviations Scores for Rumination, Alcohol Use, and Self- Compassion by Race/Ethnicity Status	37

LIST OF FIGURES

Figure 1: Simple Slopes Analysis for the Self-Kindness and Rumination Interaction Effect on Alcohol Use	30
Figure 2: Johnson-Neyman Graph Depicting Moderated Effect of Self-Kindness	31
Figure 3: Simple Slopes Analysis for the Common Humanity and Rumination Effect on Alcohol Use	33
Figure 4: Johnson-Neyman Graph Depicting Moderated Effect of Common Humanity	34

CHAPTER 1

INTRODUCTION

It is widely noted that alcohol consumption is a major public health issue for college students. Specifically, 40-60% of undergraduate students are considered to be hazardous drinkers which includes heavy drinking episodes and negative consequences due to their drinking (Goldsmith et al., 2009). A national study revealed that college students in the past 30 days reported: a) 59% endorsed alcohol use; b) 39% endorsed binge drinking (i.e., five or more drinks in the same occasion); and c) 13% reported heavy drinking (i.e., binge drinking on five or more days) (SAMHSA, 2014). The results from this study also demonstrate these rates are significantly higher than peers in the same age category not enrolled in undergraduate courses (SAMHSA, 2014). Due to the high rates and negative consequences of alcohol use, the National Institute of Alcohol Abuse and Alcoholism (2015) has recognized problematic alcohol use as the most important health hazard among college students.

Another major concern for college students is the presence of mental health concerns and negative outcomes due to anxiety and depression (i.e., poor quality of life, poor physical health, lack of psychological well-being, and notable decrease in academics; Oswalt et al., 2020). Specifically, one-third of undergraduate students exhibit significant symptoms of a mental health problem such as depression, anxiety, or suicidality (Eisenberg et al., 2013). Anxiety and depression symptoms are the most commonly reported concerns of college students, and rumination is a transdiagnostic process that is commonly noted in both diagnoses. Moreover, engaging in rumination is associated with problematic drinking behaviors (2020). Importantly, college students reported experiencing negative affect, rumination, before the initiation of alcohol use (Demb & Campbell, 2009). Thus, the negative affect college students are

experiencing is followed by increased alcohol consumption in order to escape from negative emotions (Meinzer et al., 2021).

On the other hand, not all college students who experience rumination engage in problematic alcohol use which suggests the presence of a moderating variable. Due to its emotion regulating abilities and positive association to well-being, self-compassion may be one factor that affects the relationship between rumination and problematic alcohol use (Diedrich et al., 2014; Neff, 2003). Research has not examined rumination, problematic alcohol use, and self-compassion among college students and the relationship between these variables. The clinical implications of furthering research with these variables could be supportive of focusing on self-compassion interventions among college students to reduce alcohol consumptions who endorse high levels of ruminative thought patterns.

Literature Review

Rumination

Emotional distress may lead to negative thinking patterns like rumination in response to stressors. Nolen-Hoeksema (1987, 1991) conceptualizes rumination from the response styles theory indicating rumination is the manner of responding to emotional distress while in a depressed mood which involves repetitively and passively focusing on the distress, symptoms of distress, and consequences of distress. Early research indicated ruminative thought processes interfere with attention, concentration, and initiation of goal-directed behaviors (1987). Individuals experiencing rumination are more likely to remain stagnant in their environment and less likely to engage in problem-solving behaviors (Nolen-Hoeksema, 2008). Nolen-Hoeksema (2008) has linked rumination with hopelessness, pessimism, self-criticism, low mastery, dependency, and neuroticism. Additionally, ruminative thought patterns appear to negatively

impact social support networks, problem-solving skills, and engagement with pleasurable activities.

The response styles theory originally posited rumination as a cognitive process only occurring in a depressed mood; however, rumination is now conceptualized as a transdiagnostic process (Ehring & Watkins, 2008; Nolen-Hoeksema & Watkins, 2011). Rumination is associated with depressive and anxiety-related symptoms and has been shown to be linked to overall negative affect across 100 studies (Thomsen, 2006). In a meta-analysis, rumination was strongly associated with general psychopathology (i.e., internalizing and externalizing disorders), and the presence of ruminative thought patterns was linked to negative outcomes (Aldao, et al., 2010; McLaughlin et al., 2014). Engaging in ruminative thought processes was predictive of substance use, alcohol use, anxiety, depression, and eating disorders (2010). In a recent meta-analysis, rumination was negatively associated with general well-being (Kraiss et al., 2010). Due to rumination's transdiagnostic nature, engagement with ruminative thoughts appears across multiple domains and affects overall functioning.

College students report experiencing anxiety and depression at high rates, but do not always seek mental health treatment to alleviate these symptoms (Lipson et al., 2021). Due to the multitude of stressors college students experience, repetitive thinking patterns are present even in the absence of diagnosed mood disorders demonstrating college students without anxiety or depression may be engaging in rumination (Asici et al. 2020). Overall, rumination was linked to negative affect among college students (2010). Sorid et al. (2021) conducted a study and noted higher levels of rumination in college students experiencing anxiety symptoms was linked to increased substance use.

Rumination is a cognitive strategy linked to negative outcomes, psychopathology, and substance use. The scope of people experiencing rumination is large; however, the breadth of research focusing on rumination linked to alcohol use is limited. Due to the impact of rumination on well-being and high presence of alcohol use among college students, research should further examine rumination and alcohol use in college while discovering interventions to mitigate this relationship.

Alcohol Use to Regulate Emotions

Problematic alcohol use is defined as “heavy drinking, or drinking that is accompanied by unpleasant consequences” (O’ Malley, 2004, p.1). This broad definition encompasses varying alcohol consumption levels (e.g., heavy drinking, binge drinking) and consequences (e.g., interpersonal, health-related, societal, etc.) to capture alcohol misuse. Within research studies, problematic alcohol use is typically captured by scores that reach the hazardous alcohol use cutoff score on the Alcohol Use Identification Test (AUDIT; Barbor, 2001). Overall, the inclusive definition of problematic alcohol use allows researchers to further examine a wide-array of alcohol-related behaviors and consequences.

Past research has commonly associated emotion regulation deficits to alcohol use concerns (Weiss et al., 2015). Research supports individuals commonly using alcohol to cope with emotional distress; however, the attempt to minimize the distress will exacerbate the emotional distress while reinforcing maladaptive coping strategies (Wills & Shiffman, 1985; Goldsmith et al., 2009). Negative affect (e.g., anxiety, sadness, anger, etc.) can serve as a motivator to attempt, behaviorally or cognitively, to alleviate and eliminate the source of these aversive negative effects (Carver & Scheier, 1990). The act of reducing negative affect is a

commonly cited reason for initial and repetitive use among individuals who consume alcohol (Khantzian, 2003; Sher & Levenson, 1982).

The process of avoiding negative affect as a coping strategy is linked to repeated future alcohol use (Weiss et al., 2021). The ineffectiveness of drinking as a coping strategy has been linked to exacerbate levels in distress and resulting in social and affect difficulties (Armeli et al., 2018). Drinking to cope with negative affect is linked to various negative consequences like engaging in risky behaviors and academic/occupational problems (Wyckoff et al., 2021). In vivo studies have demonstrated the induction of negative affective states lead to alcohol cravings and the consumption of alcohol (Amlung & Mackillop, 2014). The most striking concern is that engaging in alcohol use as a coping mechanism is linked to the risk of developing alcohol use disorder (Beseler et al., 2008).

Problematic alcohol use is a major concern across college campuses; however, despite persistent efforts to reduce drinking-related behaviors, college students are continuing to engage in alcohol use (2020). Among college students, this association between negative affective experiences and problematic alcohol use exists and is considered to be a stronger relationship during this period of life (Littlefield et al., 2010). For example, in a qualitative study examining reasons for drinking among college students with depressive symptoms, the participants indicated short-term relief in depressive symptoms, numbing to emotional experiences, and increase in positive affect (Couture et al., 2021). Negative affect has predictive validity; as such, higher levels of depressive symptoms in college students were predictive of drinking to cope strategies (Kenney et al., 2015). Another study noted college students with anxious-related symptoms engaged in higher quantities of alcohol use compared to peers without anxiety (Mulligan et al., 2016). While college students may experience the initiation of drinking to cope

in college, the initiation of drinking to cope is also related to alcohol-related concerns after graduation (Demb & Campbell, 2009).

Following the drink to cope model, college students reported engaging in alcohol use to alleviate negative affective states; however, they reported feeling higher levels of negative emotions following drinking episodes (Armeli et al., 2018). Another study noted individuals with higher levels of drinking to cope motivation were more likely to report feeling worse after consuming their first drink in real-time (Piasecki et al., 2014). Following, Gorka and colleagues (2017) demonstrated college students who were higher in drinking to cope motivation reported an ineffectiveness of alcohol as a mood-altering coping strategy. Thus, these studies support how college students may seek alcohol as a coping mechanism to deal with negative emotions; however, alcohol consumption as a coping strategy has been proven to be an ineffective coping mechanism to alleviate negative emotional states.

Drinking to cope with negative emotional states may play an important role in young adults who are enrolled in college courses in causing or maintaining alcohol misuse (Shaver et al., 2013). This coping strategy may bring temporary relief, but the negative reinforcement of alcohol misuse can lead to detrimental effects. Drinking to cope in college may appear to be a concern only for college students while enrolled in courses; however, the initiation of drinking to cope in this age period is strongly linked to problematic drinking behaviors 5 and 10 years after graduation (Armeli et al., 2018).

Rumination and Problematic Drinking Behaviors

Internal symptoms, like rumination, have been associated with higher frequency of alcohol use (Stapinski et al., 2016). Specifically, rumination is considered to be a risk factor for alcohol use and misuse (Ciesla et al., 2011). As rumination is viewed as a transdiagnostic

process, individuals with alcohol use disorder are 20% more likely to have an additional comorbid diagnosis of anxiety or depression (Mollaahmetoglu et al., 2021). Further, individuals with anxiety or depression diagnoses are four times more likely to develop alcohol dependence compared to individuals without the presence of anxiety or depression diagnoses (Boschloo et al., 2011). Additionally, in a longitudinal study conducted by Dixit and Crum (2000), the onset of alcohol use was subsequent to depressive symptoms demonstrating alcohol use may have been initiated to cope with symptoms related to depression.

The frontier study linking rumination and alcohol use demonstrated that men and women who engage in ruminative thought patterns self-reported higher levels of alcohol consumption in a community, ethnic diverse longitudinal study (Nolen-Hoeksema & Harrell, 2002). Specifically, these researchers indicated the participants within the study reported drinking to cope with the emotional distress they were experiencing (Nolen-Hoeksema & Harrell, 2002). Following this study, researchers have continually established the relationship between rumination and alcohol use. In a sample comparing patients with alcohol misuse and social drinkers, patients with alcohol dependence were significantly higher in ruminative thought processes (Devynck et al., 2017). Caselli and colleagues (2010) noted levels of rumination predicted later quantities of alcohol use post 3 and 6 months of the study. Specifically, higher levels of rumination were linked with higher quantities of alcohol (2010).

Among college students, Ciesla and colleagues (2011) found that college students who engaged in ruminative thought processes were related to an increase in alcohol consumption and binge drinking. Within this study, rumination oriented towards aggressive thoughts was related to increased weekly drinking. The researchers suggested participants in this study may engage in alcohol use to alleviate the chronic, repetitive thought process that may be causing negative

emotional affect (2011). Bravo et al. (2017) indicated college students who were engaging in alcohol use self-reported higher levels of ruminative thinking, and this finding was also replicated among college students in three different countries (i.e., United States, Spain, and Argentina; Bravo et al., 2018).

Following the drinking to cope method, Mollaahmetoglu and colleagues (2021) supported individuals with alcohol misuse reported a reduction in negative affect, specifically rumination, after engaging in alcohol use. However, as predicted, an increase in rumination was present once the individuals reported sobriety from the alcohol use. This is suggestive of using substances to provide a temporary relief or numbing from negative affect (i.e., rumination; Memedovic et al., 2019). Thus, it is important to consider potential targets for individuals engaging in problematic alcohol use who are also reporting ruminative thought processes. Due to the self-critical nature of rumination, the warm and accepting concept of self-compassion could prove to be a helpful intervention between rumination and harmful drinking behaviors in college students who are exhibiting risky behaviors.

Self-Compassion: Possible Moderator

Among college students who engage in alcohol use, research supports they are likely to seek services for their alcohol use concerns when comorbid mental health concerns (i.e., mood fluctuations, anxiety) are present (Capron et al., 2018). Further, levels of rumination and drinking consumption are positively associated among college students (Wolitzky-Taylor et al., 2021). As a result, college students may benefit from treatment programs designed to reduce their harmful drinking behaviors through a brief, low-cost treatment that can be delivered by mental health professionals on college campuses. Based on Kelly et al. 's (2010) finding that self-compassion

can serve as a buffer to emotional distress, one possible factor influencing the relationship between rumination and problematic alcohol use is self-compassion.

According to Neff (2003), self-compassion involves openness to personal suffering while holding a kind, nonjudgmental lens coupled with a desire to alleviate this suffering. Moreover, self-compassion requires that individuals do not harshly criticize themselves over unmet standards. For example, during difficult times, self-compassion will allow individuals to internally contemplate “this is really hard right now. How can I care for myself in this moment?” (Neff, 2022, p. 1). The experience of self-compassion can allow individuals to foster positive emotions with the purpose of coping. Self-compassion contains three facets (i.e., self-kindness, common humanity, and mindfulness). Self-kindness is the ability to be warm and accepting during suffering. Common humanity is the ability to examine one’s experiences as part of human nature. Finally, mindfulness is the ability to emotionally experiencing difficult emotions while not letting the emotions (Neff, 2012)

In general, self-compassion has a multitude of benefits that extend over various domains. Self-compassion is associated with greater life satisfaction, emotional intelligence, social connectedness, and mastery of goals (Neff & Vonk, 2009). Contrastingly, self-compassion is also associated with lower levels of self-criticism, depression, anxiety, thought suppression, perfectionism, and disordered eating behaviors in clinical and non-clinical populations (Golden et al., 2021; Neff & Vonk, 2009). Among adolescents and adults, self-compassion appears to minimize the effect of physical and emotional stress, alleviate chronic pain symptoms, decrease self-injurious behaviors, and improve sleep quality (Bluth & Neff, 2018). In a meta-analysis and repeatedly in research, self-compassion is associated with well-being (Golden et al., 2021; Zessin

et al., 2015). The overall positive benefits of self-compassion in clinical and non-clinical populations demonstrate the utility of self-compassion as a psychological concept.

Self-compassion has emotion regulating abilities (Diedrich et al., 2014; Inwood & Ferrari, 2018) and promotes psychological well-being (Neff, 2003). Neff (2011) demonstrated self-compassion was a significant positive predictor for well-being and a meta-analysis confirms self-compassion and well-being are associated (Zessin et al., 2015). In a study with adolescents who were cancer survivors, a self-compassion intervention was conducted over the course of eight weeks and the training led to an increase in self-compassion and well-being (Bluth et al., 2016). Additionally, self-compassion interventions (e.g., self-compassionate imagery and self-talk) reduced daily cigarette smoking compared to other participants who were self-monitoring which was previously used as the gold standard in reducing cigarette usage. This study was an extension of self-regulation research that states self-regulation is an active, conscious process where an individual puts forth cognitive energy to replace a “natural response or behavior” with more helpful and intentional behaviors that are consistent with intended goals (Baumeister and Vohs, 2016). Within self-regulation, individuals may demonstrate different internal dialogues (i.e., harsh or compassionate). Thus, Adams and Leary (2007) supported how self-compassionate strategies improve self-regulation behaviors among individuals struggling with emotion regulation deficits.

Self-Compassion and Rumination. Overall, individuals experiencing general mental health concerns have difficulty fostering self-compassion; however, when the ability to foster self-compassion is occurring, self-compassion is commonly associated with decreased psychopathology (Thomason & Moghaddam, 2021; MacBeth & Gumley, 2012). Self-compassion has demonstrated positive outcomes over a wide-range of clinical disorders (i.e.,

depression, social anxiety disorder, eating disorders, dementia, and personality disorders; Germer & Neff, 2019) and compassion-focused therapies significantly alleviated psychological distress compared to control groups (2021). Specifically, self-compassion interventions in a non-clinical population demonstrated strong effect sizes in reducing rumination (Ferrari et al., 2019).

Self-compassion and rumination's inverse relationship is a newly established focus in literature examining how components of mental health and self-kindness are related with each other and other variables (Neff & Vonk, 2009; Reas, 2010). Rumination is a maladaptive thought pattern and self-compassion is believed to bolster a healthier and adaptive style of thinking (Ferrari et al., 2019). Thus, self-compassion interventions target changes in the cognitive patterns. If high levels of ruminative thought process are present, it should be theorized lower levels of self-compassion should exist. Consequently, if lower levels of ruminative thought process are present, higher self-compassionate abilities will be present. Thus, more exploratory analyses examining the role self-compassion entails in ruminative thought processes are imperative to investigate for non-clinical and clinical populations (Svendsen et al., 2017).

Self-Compassion and Problematic Alcohol Use. Due to the concern of alcohol-related consequences (e.g., social, legal, health, etc.), several studies have established that there is an inverse relationship between self-compassion and alcohol use and evidence is suggesting that self-compassion may be a helpful target for treatment (Phelps et al., 2018). Overall, Vettese et al.'s (2011) results support that self-compassion predicted emotion dysregulation which is a known risk factor for substance use disorders. In a community sample pilot study, lower levels of self-compassion were considered in the at-risk category for general substance use. In treatment seeking individuals with a substance use disorder, Brooks et al. (2012) demonstrated that an increase in self-kindness was related to reduced alcohol use after a 15-week follow up.

Moreover, self-compassion weakened the relationship between trauma symptoms and alcohol misuse among treatment-seeking veterans (Ferrari et al., 2019).

Specifically, among college students, alcohol use was negatively related to self-compassion (Wisener & Khoury, 2020). In a study examining 300 college students, alcohol use was negatively correlated with self-esteem, self-compassion, and psychological symptoms. However, despite several findings pointing to an inverse relationship, Ellingwood et al.'s (2019) findings demonstrated college-aged binge drinkers had higher levels of self-compassion. Thus, research identifying the existence between self-compassion and harmful drinking behaviors appears to be mixed allowing for further research to solidify evidence.

While established evidence suggests self-compassion may serve as a protective factor for problematic alcohol use, a large amount of the evidence is focused on drug and alcohol among community samples. Moreover, research involving college students has mixed findings compared to community samples. Thus, it would be helpful to examine alcohol use specifically among college students and explore if other factors (i.e., gender, rurality) may affect this relationship.

Rurality

To this date, no current research has examined differences in rates of rumination, problematic alcohol use, and self-compassion among college students in rural areas in the United States despite the importance of furthering research and trends in rural communities (Nicholson, 2008). Rural areas are lacking access and accessibility to mental health services and substance use treatment facilities compared to urban counterparts; thus, rurality could be exacerbating rumination and/or problematic alcohol use (Selby-Nelson et al., 2018).

A rural area has multiple definitions which all vary based on population size, population density, and/or economic factors (Smalley et al., 2010). Despite the variety of definitions for rurality, rural communities have prevalence trends across the United States. Specifically, rural communities experience several barriers to accessing mental health services (e.g., stigma of mental health, lack of specialized services, concerns related to confidentiality, cost of care, travel distance to clinics; 2008). College students in rural communities may experience these same barriers and additionally note isolation as a barrier for seeking services (Walker & Raval, 2017).

When examining rurality and its impact on rumination, problematic alcohol use, and self-compassion, several notable trends appear. For rumination, research demonstrates mixed findings if urban or rural residents have higher prevalence rates of mental health concerns (Tarlow et al., 2020). Further, a study examining rumination did not find a significant difference in self-reported rates of rumination (Thorsteinsson et al., 2013). This study could aid in distinguishing differences between rural and urban populations and their symptomatology.

Regarding alcohol consumption, research has mixed findings associated with whether urban or rural counterparts engage in alcohol use at similar or different rates (Dixon & Chartier, 2016). However, one study noted rural, college students engaged in binge drinking behaviors at higher rates compared to urban, college students (Haardörfer et al., 2021). Due to the mixed findings, further research examining problematic alcohol use among rural college students could be useful in determining the use of interventions.

In regard to self-compassion, rural trends are a notably under-researched topic. Phelps et al. (2018) associated a facet of self-compassion (i.e., common humanity) with individuals experiencing isolation. As seen in rural communities, rural individuals self-report feeling isolated (Tarlow et al., 2020). Contrastingly, Walker and Raval (2017) conducted a qualitative study with

rural, college students, and they noted a sense of community among this population. Thus, furthering research among rural college students could provide useful insight into which dimensions are most valuable to this population. Consequently, it is important to explore whether rumination, problematic alcohol use, and self-compassion differ among college students based on rurality.

Current Study

The overarching purpose of the current study is to further our understanding between the relationship of rumination and problematic alcohol use while considering how self-compassion can be a possible mechanism to this relationship. Specifically, self-compassion can moderate the relationship between rumination and problematic alcohol use. It is important to identify if self-compassion can be a potential target for treatment among college students who are experiencing concerns with rumination and harmful drinking behaviors.

Hypotheses.

Hypothesis 1. Rumination will be positively related to problematic alcohol use among college students.

Hypothesis 2. Self-compassion and self-compassion dimensions (self-kindness, common humanity, mindfulness) will be negatively related to rumination and problematic alcohol use.

Hypothesis 3a. In model 1, self-kindness will moderate the relationship between rumination and problematic alcohol use among college students. Specifically, self-kindness will weaken the relationship between rumination and problematic alcohol use.

Hypothesis 3b. In model 2, mindfulness will moderate the relationship between rumination and problematic alcohol use among college students. Specifically, mindfulness will weaken the relationship between rumination and problematic alcohol use.

Hypothesis 3c. In model 3, common humanity will moderate the relationship between rumination and problematic alcohol use among college students. Specifically, common humanity will weaken the relationship between rumination and problematic alcohol use.

Exploratory aim. Exploratory analyses will evaluate whether rumination, problematic alcohol use, and self-compassion differ among college students based on rurality and race/ethnicity. This will be analyzed by using a series of MANOVAs.

CHAPTER 2

METHODOLOGY

Participants

Participants in the current study consisted of students who were currently enrolled in Psychology courses at Georgia Southern University recruited through SONA. A total of 521 individuals participated in the study. In terms of inclusion criteria, participants were 18 years or older. The student sample was used to examine problematic alcohol use among college students and how rumination and self-compassion were involved. Students were from varying socioeconomic statuses, rural vs. urban residencies, and gender identities.

To estimate the sample size needed to detect hypothesized effects, power analyses were conducted using Cohen's (1988) guidelines for effect sizes in conjunction with G*Power Version 3.0 (Faul et al., 2009). Specifically, G*Power is a computer software program designed to compute necessary sample size. As a result of these analyses, 521 participants were recruited to ensure adequate power for the proposed analyses. However, the final analyzed data set consisted of 426 participants. Specifically, 28 participants were excluded from the final data set due to inaccurately responding to at least one of the two quality check questions. Moreover, 67 participants were excluded due to incomplete survey responses (i.e., less than 90% completed). For participants who were missing items (i.e., less than 10%), a within subject mean replacement strategy was conducted.

Participants ranged in age from 18 to 42 and the average age of the sample was 19.31 ($SD = 2.57$) years. In response to the gender prompt, 330 (77.5%) participants identified as women, 85 (20%) participants identified as men, 7 (1.6%) participants identified as non-binary, and one (.2%) participant identified as a transgender man. Additional reported demographic

characteristics for the participants, including race/ethnicity, university classification, rural status, Greek life involvement, and mother and father highest level of education, are noted in Table 1.

Table 1*Demographic Characteristics of the Retained Sample*

Variable	Frequency	Percentage
<i>Race/Ethnicity</i>		
American Indian or Alaskan Native	1	.2%
Asian, Asian American, or Pacific Islander	7	1.7%
Black or African American	102	24.2%
Hispanic, Latino, or Latin Origin	15	3.6%
Multiracial/Multiethnic	46	10.9%
White	251	59.5%
<i>Gender Identity</i>		
Woman	326	77.3%
Man	85	20.1%
Transgender man	1	.2%
Non-binary/non-confirming	7	1.7%
<i>University Classification</i>		
Freshman undergraduate	219	51.9%
Sophomore undergraduate	135	32%
Junior undergraduate	43	10.2%
Senior undergraduate	20	4.7%
Other	5	1.2%
<i>Geographic Description of Current City</i>		
Rural	196	46.4%
Non-Rural	226	53.6%
<i>Greek Life</i>		
Yes	80	19%
No	341	80.8%
Prefer not to disclose	1	.2%
<i>Mother's highest level of education</i>		
Did not attend high school	3	.7%
Attended high school	18	4.3%
Completed high school	64	15.2%
Attended college	71	16.8%
Completed two-year college degree	49	11.6%
Completed four-year college degree	121	28.7%
Attended graduate or professional school	10	2.4%
Completed graduate or professional degree	73	17.3%
Not sure	12	2.8%
<i>Father's highest level of education</i>		
Did not attend high school	7	1.7%
Attended high school	30	7.1%
Completed high school	81	19.2%
Attended college	61	14.5%
Completed two-year college degree	26	6.2%
Completed four-year college degree	110	26.1%
Attended graduate or professional school	6	1.4%
Completed graduate or professional degree	63	14.9%
Not sure	30	7.1%

Measures

Demographics Form

Demographic questions were included to gather information about the characteristics of the sample. The following information was collected from the student sample: participant's age, gender, sexual orientation, race/ethnicity, socioeconomic status, and rurality. Specifically, rurality was assessed by using a self-reported scaled question where the participants rated how rural their hometown is with 1 being extremely rural and 10 being extremely urban.

Ruminative Responses Scale (RRS)

The RRS (Treynor, Gonzalez, & Nolen-Hoeksema, 2003) is a 10-item self-report questionnaire quantitatively measuring ruminative thoughts on a 4-point Likert scale ranging from 1 (almost never) to 4 (almost always) when they are experiencing a low mood. This measure consists of two factors: brooding and reflection. Brooding in this context is defined as passive comparison to one's current circumstances with unachieved ideals and is considered to be a pathological form of rumination (Mollaahmetoglu et al., 2021). Contrastingly, reflection consists of managing symptoms with a focus on problem-solving which is considered to be an adaptive coping strategy. Sample items include "think about a recent situation, wishing it had gone better" and "think 'why can't I handle things better.'" A higher score on the scale demonstrates higher perceived levels of rumination. Regarding scoring for this current study, the final score was obtained by calculating the sum of the 10 items. For the overall total score, good internal consistency ($\alpha = .82$) is supported and validated among a variety of samples including students (Kambara, Ogata, & Kira, 2019). In the current study, the RRS had good internal consistency ($\alpha = .85$).

Alcohol Use Disorders Identification Test (AUDIT)

The AUDIT (Saunders, 1993) is a self-report questionnaire used to detect harmful drinking behaviors over the past year. The measure consists of 10 items assessing hazardous alcohol use (i.e., frequency of drinking, typical quantity, and frequency of heavy drinking), dependence symptoms (i.e., impaired control over drinking, increased salience of drinking, and morning drinking), and harmful alcohol use (i.e., guilt after drinking, blackouts, alcohol-related injuries, and others concerned about drinking (Barbor et al., 2001). Each item is on a scale from 0-4 with an overall range of 0-40. The total score is found by adding up the scores on the 10 items. A total score of 8 or higher is considered as indicative of hazardous alcohol use. In regards to college students, research suggests a cutoff score of 7 or higher for males and 5 or higher for females (DeMartini & Carey, 2012; Meinzer et al., 2021; Hagman, 2016). The AUDIT is considered to be the gold standard in research and has been well-validated in various samples including college students (Villarosa-Hurlocker et al., 2020). The AUDIT possesses good internal consistency ($\alpha = .81$; Roys et al., 2020). In the current study, the AUDIT demonstrated good internal consistency ($\alpha = .85$). Further, 31.8% of participants would be considered hazardous drinkers according to their cut-off score.

Self-Compassion Scale (SCS)

The SCS (Neff, 2003) is a 26-item self-report measure assessing how kindly individuals treat themselves. The items are on a 5-point Likert scale from 1 (almost never) to 5 (almost always). The SCS comprises six total subscales which includes three positive (i.e., self-kindness, mindfulness, common humanity) and three negative (i.e., self-judgment, isolation, or overidentification with feelings) subscales. A higher score on the questionnaire signifies a greater capability to act with self-compassion towards yourself. For each subtest a sum score is

computed. For the current study, subscale scores were used for analyses. The SCS total score possesses high internal consistency among college students ($\alpha = .94$); moreover, the subscales support good internal consistency ($\alpha = .70-.88$) (Ko et al., 2018; Shebuski, Bowie, & Ashby, 2020). Further, Neff (2003) demonstrated excellent test re-test reliability after three weeks ($r = .93$). In the current study, the SCS total scores demonstrated high internal consistency ($\alpha = .91$) with each subscale also demonstrating good internal consistency (i.e, self-kindness, $\alpha = .85$; common humanity, $\alpha = .71$; and mindfulness, $\alpha = .76$).

Procedure

Participants from Georgia Southern University were recruited through an online recruitment system, SONA, and psychology courses by instructors offering extra credit for involvement. When the participants started the study, participants were directed to a Qualtrics survey link. Participants read an electronic informed consent and those who wished to continue with the survey demonstrated consent by clicking “I give my consent to participate.” Individuals could voluntarily choose not to participate and clicked on “I do not give my consent to participate.” The study would automatically end.

First, individuals who gave their consent to participate were asked demographic questions (e.g., age, classification, etc.) followed by a randomized list of self-reported measures (i.e., rumination, alcohol use, self-compassion). Once the participants completed the surveys, participants were debriefed about the nature and purpose of the study. Information and resources were given regarding free or low-cost mental health services. Credit for each participant was given based on the professor’s responsibility in their courses.

Analytic Plan

Primary Analyses

Bivariate correlations were conducted to determine whether a) rumination is positively related to problematic alcohol use (hypothesis 1) and b) whether self-compassion dimensions are inversely related to rumination and problematic alcohol use (hypothesis 2). Additionally, if self-compassion dimensions are inversely related to rumination and problematic alcohol use, there will be an indication that higher expressions of self-compassion are associated with lower levels of rumination and problematic alcohol use. Additionally, three separate moderation analyses were conducted using PROCESS MACRO (Darlington & Hayes, 2016). Within these models, rumination served as the focal predictor, alcohol use served as the outcome variable, and self-compassion and the dimensions of self-compassion (i.e., self-kindness, common humanity, mindfulness) served as the moderator. When the analyses revealed self-compassion or self-compassion dimensions significantly moderated the relationship between rumination and problematic alcohol use, further analyses were conducted to examine the point and degree of moderation. Specifically, a simple slope analysis was conducted to determine how the relationship between rumination and problematic alcohol use vary at different levels of the moderating variable. Further, a Johnson Neyman technique was used to determine any offsetting points, whereby the relationship between rumination and alcohol use was offset or nullified.

Exploratory Analysis. In order to evaluate rural, race/ethnicity, and specific differences on the study's main variables, a series of MANOVAs were utilized. Specifically, whether participants differed in rumination, alcohol use, and self-compassion differed by rurality and race/ethnicity was conducted.

CHAPTER 3

RESULTS

Primary Analyses***Bivariate Correlations***

The current study examined bivariate correlations among the study's main variables, including rumination, alcohol use, and the three self-compassion subscales (i.e., self-kindness, common humanity, and mindfulness). See Table 2 for correlation coefficients. As expected, the relationship between rumination and alcohol use was significantly correlated in the positive direction ($r = .21, p < .01$). Additionally, self-kindness ($r = -.18, p < .01$), common humanity ($r = -.16, p < .01$), and mindfulness ($r = -.13, p < .01$) were significantly correlated in the negative direction with alcohol use. Moreover, rumination was inversely correlated with self-kindness ($r = -.45, p < .01$), common humanity ($r = -.43, p < .01$), and mindfulness ($r = -.44, p < .01$). These correlations were in the expected direction and consistent with the study's hypotheses.

Table 2

Correlation Matrix for the Study's Main Variables

Variables	1	2	3	4	5
1. Rumination	--				
2. Alcohol Use	.21*	--			
3. Self-Kindness	-.45*	-.18*	--		
4. Common Humanity	-.43*	-.16*	.69*	--	
5. Mindfulness	-.44*	-.13*	.75*	.67*	--

Note: *Correlations significant at the .01 level

Self-Kindness

To understand the degree to which a facet of self-compassion (i.e., self-kindness) moderates the relationship between rumination and alcohol use, a moderated model was analyzed using the PROCESS macro (Model 1; Darlington & Hayes, 2016). In the regression model, rumination served as the focal predictor, self-kindness as the moderator, and alcohol use as the outcome variable. Regression statistics are presented in Table 3. In total, the main and interactive effects accounted for 25% of the variance in alcohol use, $F(3, 418) = 9.62, p < .01$. Within the model, the main effect for rumination was significant ($b = .14, p < .01$). Further, the main effect for self-kindness ($b = -.08, p < .05$) was significant. At a multivariate level, the rumination x self-kindness interaction ($b = -.01, p < .05$) was significant. In total, these patterns of scores suggest self-kindness does moderate the relationship between rumination and alcohol use in a sample of college students. To deconstruct the significant two-way interaction between rumination and self-kindness further, a simple slopes analysis and the Johnson-Neyman technique were analyzed. Conditional effects are depicted in Figures 1 and 2.

Table 3

Regression Statistics Rumination and Self-Kindness on Alcohol Use

Variable	b	Std. Error	t	p	LLCI	ULCI
Constant	4.14	.28	14.79	.00	3.59	4.69
Rumination	.14	.04	3.18	.00	.05	.23
Self-Kindness	-.08	.04	-2.17	.03	-.15	-.01
Interaction Effect	-.01	.00	-2.10	.04	-.02	.00

In Figure 1, the relationship between rumination and alcohol use is depicted through simple slopes analysis as a function of different levels of self-kindness. Results indicate that at

higher levels of self-kindness, the relationship between rumination and alcohol use weakens. Importantly, the relationship completely dissolves at higher levels of self-kindness (Panel 4 of Figure 1). Alternatively, at low levels of self-kindness, this relationship strengthens. In Figure 2, the moderated effect of self-kindness is depicted through the Johnson-Neyman graph. Results indicated a significant and negative relationship between rumination and alcohol use for 73.93% of the sample. Consistent with this pattern, the Johnson-Neyman graph indicated (denoted by the black vertical line) that the relationship between rumination and alcohol use discontinues at an average item score of 32.95 on non-acceptance of emotional responses measure.

Figure 1

Simple Slopes Analysis for the Self-Kindness and Rumination Interaction Effect on Alcohol Use

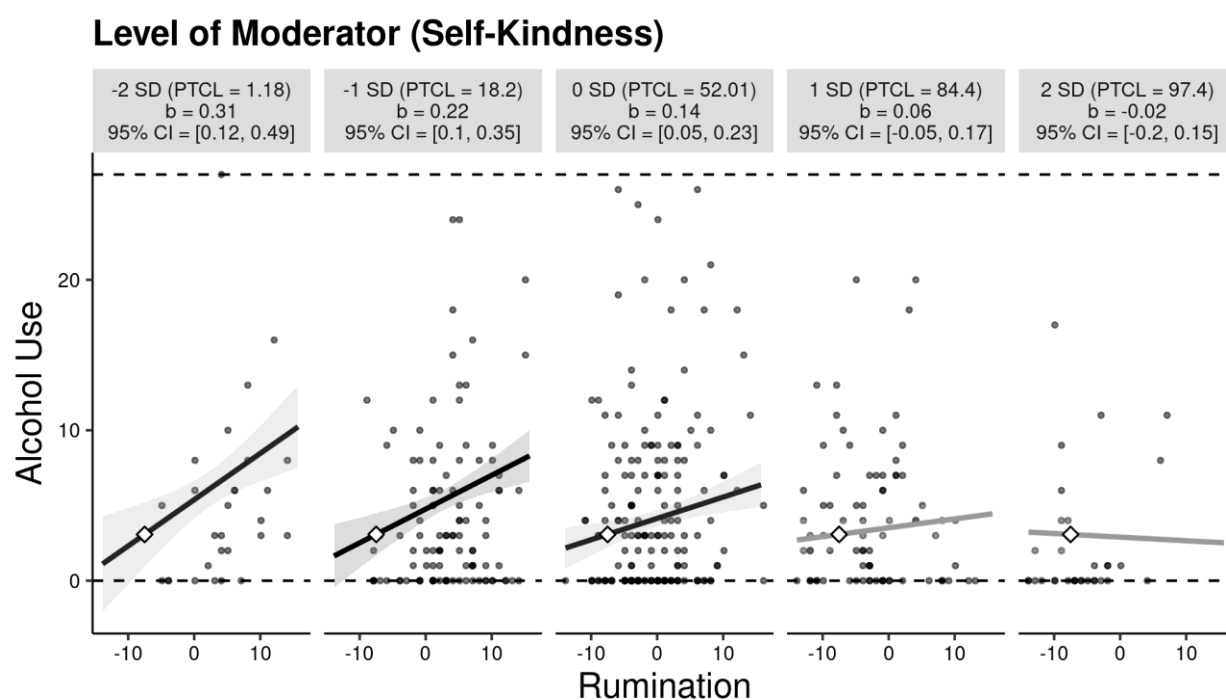
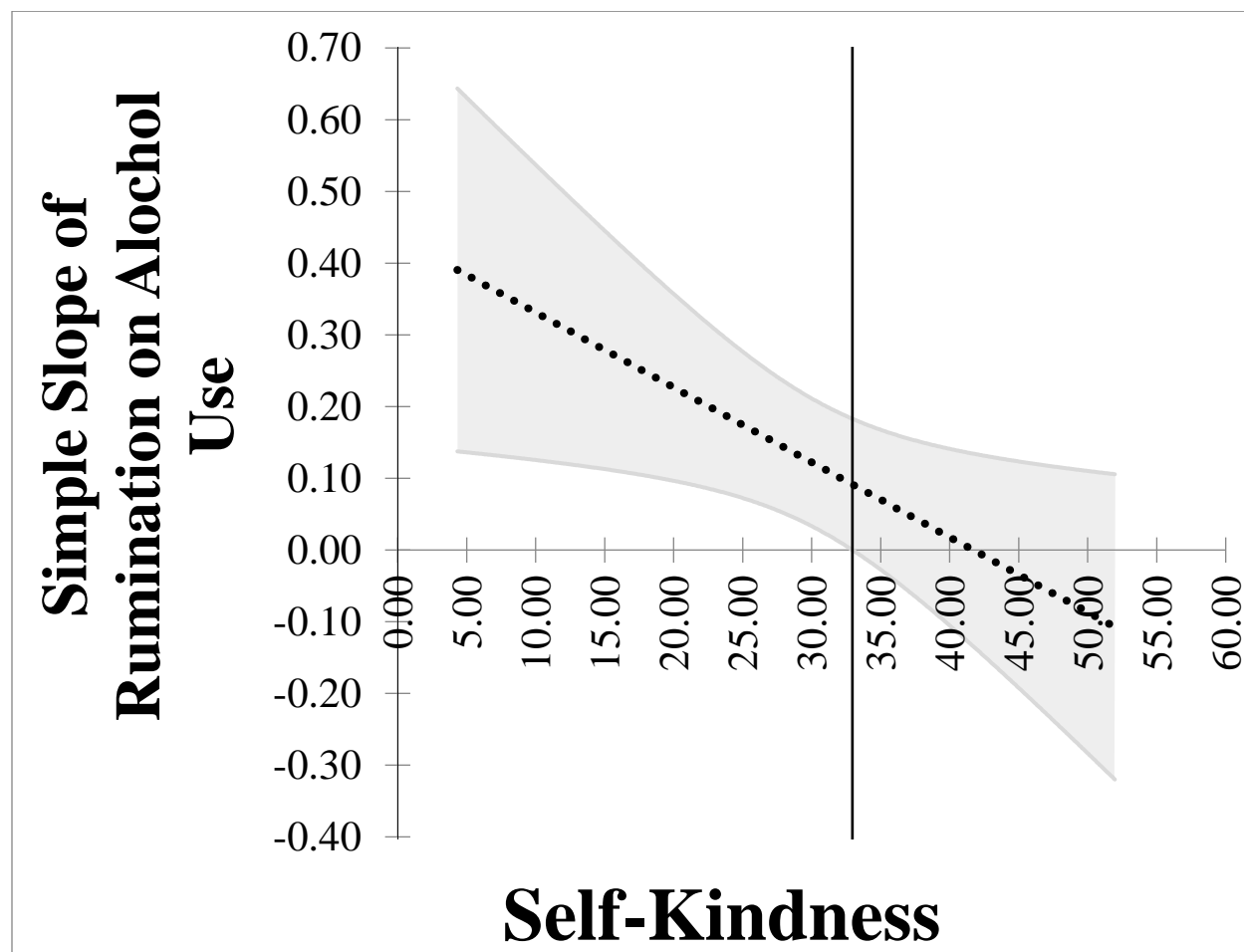


Figure 2

Johnson-Neyman Graph Depicting Moderated Effect of Self-Kindness



Common Humanity

The PROCESS moderated model was repeated with rumination serving as the focal predictor, common humanity as the moderator, and alcohol use as the outcome variable. Regression statistics are presented in Table 4. In total, the main and interactive effects accounted for 25% of the variance in alcohol use, $F(3, 418) = 9.54, p < .01$. Within the model, the main effect for rumination was significant ($b = .15, p < .01$), whereas the main effect for common humanity ($b = .12, p = .09$) was not significant. At a multivariate level, the rumination x common humanity interaction ($b = -.02, p < .05$) was significant. In total, these patterns of scores suggest that common humanity does moderate the relationship between rumination and alcohol use in a sample of college students. To deconstruct the significant two-way interaction between rumination and common humanity further, a simple slopes analysis and the Johnson-Neyman technique were analyzed. Conditional effects are depicted in Figures 3 and 4.

Table 4

Regression Statistics Rumination and Common Humanity on Alcohol Use

Variable	b	Std. Error	t	p	LLCI	ULCI
Constant	4.11	.28	14.83	.00	3.57	4.66
Rumination	.16	.04	3.60	.00	.07	.25
Common Humanity	-.08	.05	-1.69	.09	-.18	.01
Interaction Effect	-.02	.01	-2.46	.01	-.03	.00

In Figure 3, the relationship between rumination and alcohol use is depicted through simple slopes analysis as a function of different levels of common humanity. Results indicate that at higher levels of common humanity, the relationship between rumination and alcohol use weakens. Importantly, the relationship completely dissolves at higher levels of common

humanity (Panel 4 of Figure 3). Alternatively, at low levels of common humanity, this relationship strengthens. In Figure 4, the moderated effect of common humanity is depicted through the Johnson-Neyman graph. Results indicated a significant and negative relationship between rumination and alcohol use for 75.83% of the sample. Consistent with this pattern, the Johnson-Neyman graph indicated (denoted by the black vertical line) that the relationship between rumination and alcohol use discontinues at an average item score of 26.87 on common humanity responses measure.

Figure 3

Simple Slopes Analysis for the Common Humanity and Rumination Effect on Alcohol Use

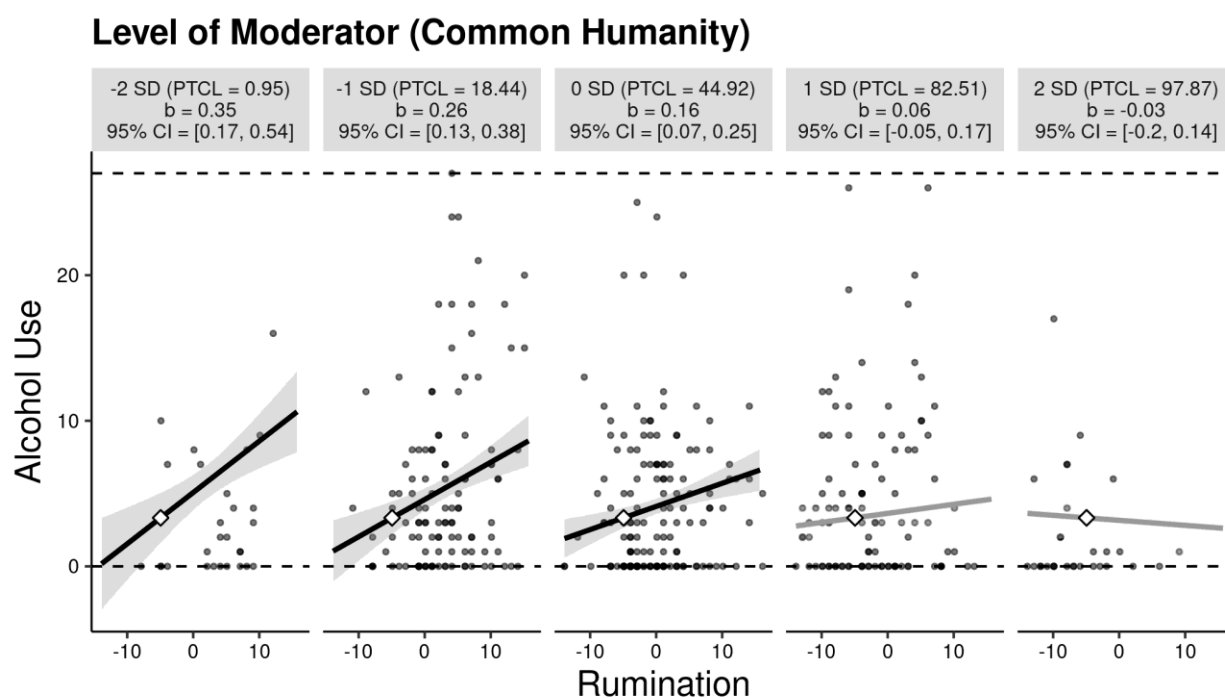
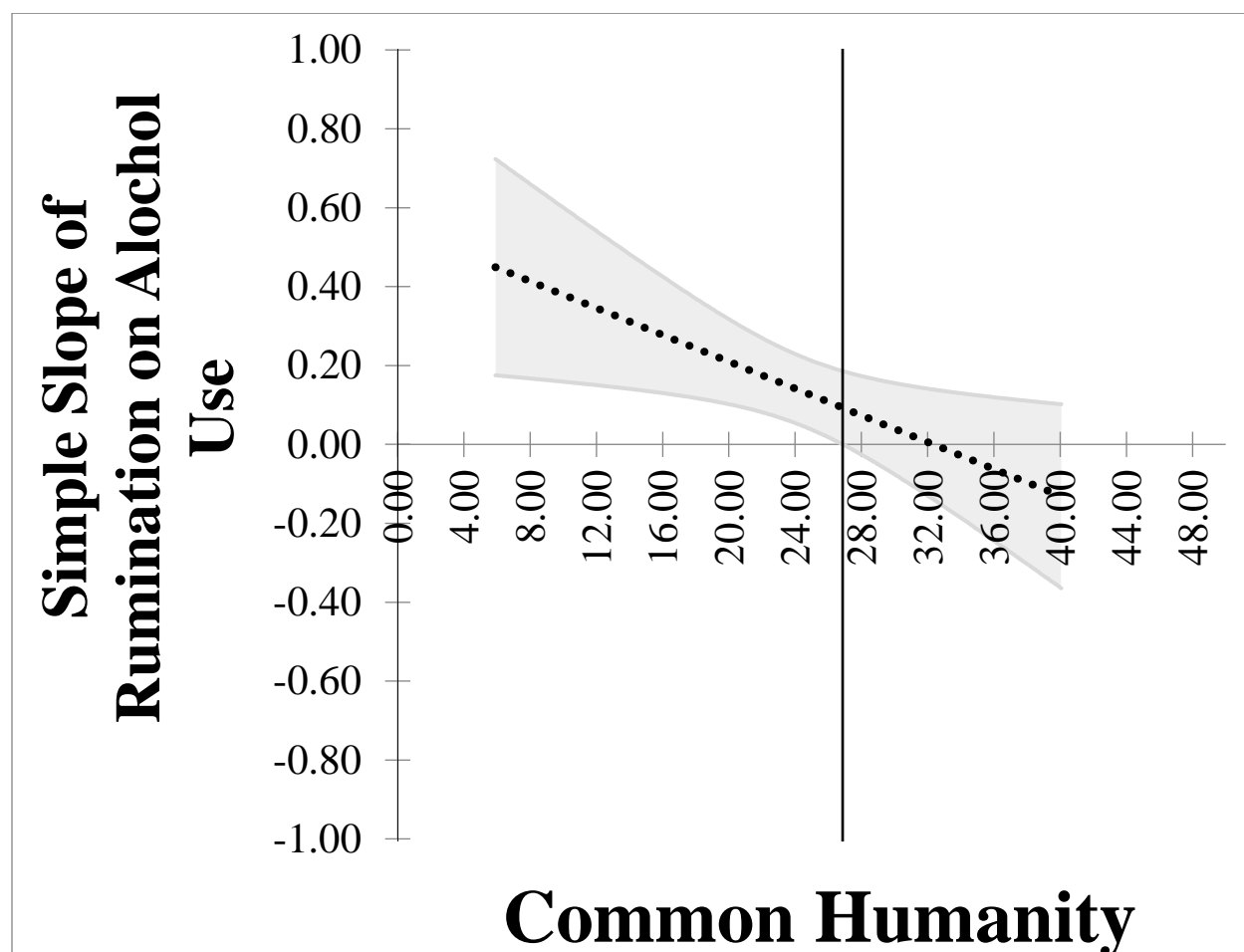


Figure 4

Johnson-Neyman Graph Depicting Moderated Effect of Common Humanity



Mindfulness

The PROCESS moderated model was repeated with rumination serving as the focal predictor, mindfulness as the moderator, and alcohol use as the outcome variable. Regression statistics are presented in Table 5. In total, the main and interactive effects accounted for 22% of the variance in alcohol use, $F(3, 418) = 7.76, p < .01$. Within the model, the main effect for rumination was significant ($b = .16, p < .01$). The main effect for mindfulness ($b = -.05, p = .31$) was not significant. At a multivariate level, the rumination x mindfulness interaction ($b = -.01, p = .11$) was not significant. Given this pattern of findings, mindfulness did not moderate the relationship between rumination and alcohol use in a sample of college students.

Table 5

Regression Statistics Rumination and Mindfulness on Alcohol Use

Variable	b	Std. Error	t	p	LLCI	ULCI
Constant	4.21	.28	15.08	.00	3.66	4.76
Rumination	.16	.04	3.66	.00	.08	.25
Mindfulness	-.05	.05	-1.02	.31	-.15	.05
Interaction Effect	-.01	.00	-1.60	.11	-.02	.00

Exploratory Analyses

Mean Differences by Rural Groups

A MANOVA was used to evaluate potential rural differences (rural vs. non-rural) in the study variables (i.e., rumination, alcohol use, and facets self-compassion). The MANOVA revealed a non-significant overall effect for current rural status, $F(5, 416) = .88, p > .05, \eta^2 = .01$. Follow-up ANOVAs did not yield any significant findings across the main variables. Table 6 depicts the means and standard deviations for each variable by rural group. Overall, these results

suggest that individuals with rural hometowns have similar reported scores on measures related to rumination, alcohol use, and self-compassion as compared to those with non-rural hometowns.

Table 6

Means and Standard Deviations Scores for Rumination, Alcohol Use, and Self-Compassion by Rural Group

	Rural Group (<i>n</i> = 196)	Non-Rural Group (<i>n</i> = 226)	<i>F</i>	<i>p</i>	<i>Partial</i> η^2
Alcohol Use			.21	.65	<.01
Mean	4.51	4.27			
Standard Deviation	5.30	5.50			
Rumination			.817	.37	<.01
Mean	23.59	24.15			
Standard Deviation	6.78	6.14			
Self-Compassion (i.e., Self-Kindness)			.04	.84	.01
Mean	28.06	28.22			
Standard Deviation	8.22	7.70			
Self-Compassion (i.e., Common Humanity)			.35	.55	<.01
Mean	22.81	23.14			
Standard Deviation	5.82	5.59			
Self-Compassion (i.e., Mindfulness)			.53	.47	<.01
Mean	23.92	23.51			
Standard Deviation	5.59	5.88			

Mean Differences by Race/Ethnicity

A MANOVA was used to evaluate potential race/ethnicity differences (white vs. Persons of Color [POC]) in the study variables (i.e., rumination, alcohol use, and facets of self-compassion). The MANOVA revealed a significant multivariate effect for current race/ethnicity status, $F(5, 416) = 8.81, p > .01, \eta^2 = .10$. Table 7 depicts the means and standard deviations for each variable by rural group. Follow-up ANOVAs yielded significant and non-significant findings. Results reported ethnic identity differences in reports of alcohol use, $F(1, 420) = 23.54, p > .01, \eta^2 = .05$, as well as self-kindness, $F(1, 420) = 9.22, p > .01, \eta^2 = .02$. Results reported

ethnic identity differences of rumination did not exist, $F(1, 420) = .21, p = .65, \eta^2 = .00$.

Further, results did not report ethnic identity differences of common humanity, $F(1, 420) = .03, p = .86, \eta^2 = .00$, and mindfulness, $F(1, 420) = 3.34, p = .07, \eta^2 = .00$. Overall, these results suggest that individuals identifying as white have reported higher levels of alcohol use compared to individuals within the POC community. Further, these results suggest that individuals identifying within the POC community have reported higher levels of self-kindness compared to individuals who identify as white. These results also suggest that individuals who identify as white have similar reported scores on measures related to rumination, common humanity, and mindfulness as compared to those within the POC community.

Table 7

Means and Standard Deviations Scores for Rumination, Alcohol Use, and Self-Compassion by Race/Ethnicity Status

	White (<i>n</i> = 250)	POC (<i>n</i> = 172)	<i>F</i>	<i>p</i>	<i>Partial</i> η^2
Alcohol Use			23.51	.00	.05
Mean	5.41	2.89			
Standard Deviation	5.73	4.50			
Rumination			.21	.65	.00
Mean	23.77	24.06			
Standard Deviation	6.63	6.16			
Self-Compassion (i.e., Self-Kindness)			9.22	.00	.02
Mean	27.18	29.55			
Standard Deviation	7.11	8.85			
Self-Compassion (i.e., Common Humanity)			.03	.86	.00
Mean	22.95	23.05			
Standard Deviation	5.37	6.16			
Self-Compassion (i.e., Mindfulness)			3.34	.07	.00
Mean	23.28	24.31			
Standard Deviation	6.61	5.75			

CHAPTER 4

DISCUSSION

Review of Purpose

The purpose of the current study was to investigate the role of self-compassion in the relationship between rumination and alcohol use in a population sample of college students. Specifically, I evaluated the extent to which self-kindness, common humanity, and mindfulness buffer the relationship between rumination and alcohol use. The intention of this evaluation was to determine whether specific dimensions of self-compassion have the ability to serve as protective factors for problematic drinking. By doing so, I hoped to provide useful information for mental health professions who provide treatment to college students experiencing rumination and problematic alcohol use. The current study aimed to answer the following questions: (a) Is rumination significantly related to problematic alcohol use among college students? (b) Are self-compassion dimensions inversely related to rumination and problematic alcohol use among college students? (c) Do the three dimensions of self-compassion moderate the relationship between self-compassion and problematic alcohol use?

Correlations

Rumination and Alcohol Use

As expected from hypothesis one, a significant, positive relationship was found between rumination and alcohol use which set the foundation for the moderation model. This relationship was consistent with the way in which rumination and alcohol use is conceptualized in the literature (Nolen-Hoeksema & Harrell, 2002; Ciesla et al., 2011). Specifically, on average, participants who reported experiencing high levels of rumination also reported higher levels of alcohol use. This positive relationship suggests the need for research to further explore and

deconstruct the relationship between rumination and problematic alcohol use. For example, exploring the influence of drinking motives on the relationship between rumination and alcohol use may help researchers and clinicians better understand whether specific drinking motives (e.g., conformity) aid in explaining why this relationship is observed. Additionally, due to the cross-sectional nature of this study, there are limitations to the conclusions that can be drawn about the stability and nature of this relationship. Future studies could examine the influence of rumination on alcohol use using a longitudinal design. A longitudinal design could aid in determining whether rumination is a stable risk factor for problematic drinking across the lifespan.

Dimensions of Self-Compassion and Alcohol Use

Consistent with the study's hypothesis 2, alcohol use was inversely correlated to all dimensions of self-compassion (i.e., self-kindness, common humanity, and mindfulness). Specifically, participants, on average, who reported experiencing lower levels of self-compassion also reported higher levels of alcohol use. This finding was consistent with previous research noting a significant relationship between these constructs (Wisener & Khoury, 2020). This relationship highlights the need for research to further explore and deconstruct the inverse relationship between alcohol use and self-compassion. For instance, future research could explore variables that may strengthen the effects of self-compassion to lower engagement in problematic alcohol use. For example, exploring the influence of openness to experiences or savoring (i.e., generation, sustainment, and enhancement of positive emotions) on the relationship between alcohol use and self-compassion may help researchers and clinicians better understand the processes that underlies this relationship. Specifically, literature supports savoring as a beneficial psychological concept that increases overall life satisfaction and experiences of

happiness (Hurley & Kwon, 2013; Jose et al., 2012). Due to savoring's benefits on other emotion regulation concerns, further exploring this relationship could aid in further assessing this relationship. Additionally, most research on self-compassion and substance use examine substance use broadly in community samples. Thus, research should continue to explore self-compassion and specific types of substances to gain valuable insight. For example, researchers could examine how the relationship between self-compassion and cannabis use. This finding uniquely adds to the literature that self-compassion and alcohol use has been found to be negatively correlated among college students.

Dimensions of Self-Compassion and Rumination

Consistent with the established literature and the current study's hypotheses, rumination was significantly and inversely correlated to all dimensions of self-compassion (i.e., self-kindness, common humanity, and mindfulness). Specifically, participants, on average, who reported high levels of rumination also reported low levels of self-compassion. This inverse relationship is supported by previous researching findings (Svendsen et al., 2017) and compassion-focused therapies have demonstrated a decrease in rumination over the course of treatment (Ferrari et al., 2019). Consequently, this study provides additional support for the inverse nature of this relationship. Moving forward, researchers could continue to examine how self-compassion relates to different domains of rumination (i.e., brooding and reflection).

Moderated Effects of Self-Compassion Dimensions

In line with the overarching purpose of the present study, the interactions between college students' experiences of rumination and dimensions of self-compassion were examined to account for variation in alcohol use scores. It is important to note that the moderated model was analyzed with each subscale of self-compassion. Results revealed significant interaction effects

for two models (i.e., self-kindness and common humanity) which supported hypothesis 3a and 3b. This suggests self-kindness and common humanity buffers the relationship between rumination and alcohol use. These findings are largely consistent with literature noting self-compassion as particularly efficient in decreasing ruminative thought patterns (Svendsen et al., 2017) and alcohol use (Wisener & Khoury, 2020) as separate variables.

Further, results revealed a non-significant interaction effect for mindfulness which did not support hypothesis 3c. This suggests mindfulness does not moderate the relationship between rumination and alcohol use. The current study is the first study to examine the study's main variables in this manner; however, the study's hypothesis supported that all three dimensions would moderate the relationship between rumination and alcohol use due to the overall ability of self-compassion to minimize ruminative thought patterns (Svendsen et al., 2017) and alcohol use (Wisener & Khoury, 2020) as sperate variables.

The findings demonstrate self-kindness and common humanity may have the capacity to buffer against the effects of rumination on alcohol use with college students. These key findings were consistent with established literature conceptualizing self-compassion as a protective factor (Kelly et al., 2010). As a result, the ability to be warm and accepting during suffering, self-kindness, and the ability to examine one's experiences as part of human nature, common humanity, may be possible candidates as protective factors against alcohol use in college students who ruminate (Neff, 2012). Due to the small effect size, more experimental research should be conducted to further stabilize these findings. Specifically, further examination of self-kindness and common humanity among college students through longitudinal and experimental designs would likely be fruitful in advancing this line of study. For instance, college campuses could utilize self-kindness and common humanity interventions to evaluate whether different

self-kindness and common humanity interventions can mitigate rumination and reduce engagement in alcohol use over the course of 3, 6, and 12 months will be key in solidifying different dimensions of self-compassion as a protective factor.

Interestingly, it is unknown why the self-compassion dimension of mindfulness (i.e., the ability to emotionally experiencing difficult emotions while not letting the emotions) did not moderate the relationship between rumination and alcohol use. One possible reason for this finding is the lack of a consistent connection between mindfulness and problematic alcohol use. Some research demonstrates mindfulness was negatively associated with alcohol use (Bramm et al., 2013; Christopher et al., 2012), while other research supports mindfulness was not related or was positively related to alcohol use (Brooks et al., 2012, Shorey et al., 2014). Further, a study found that mindfulness was negatively associated with problematic alcohol use, but not with the quantity or duration of alcohol use (Karyadi & Cyders, 2015). These studies note that mindfulness is a complex and multifaceted variable. It is unknown whether some aspects of mindfulness may protect against alcohol use, while other aspects may inadvertently promote it. Future research is needed to disentangle these pathways. Additionally, mindfulness is a somewhat abstract concept which can make it difficult to discern the meaning from the Self-Compassion Scale items intended to represent this abstract idea. Given the abstract nature of mindfulness, researchers might design studies that measure mindfulness in several ways (i.e., self-report, observable, behavioral) to more accurately measure mindfulness. For example, mindfulness could be assessed through behavioral observation of mindfulness within a laboratory setting and compared to research participants' subjective description of their own mindfulness in scenarios. Overall, using a different method of measuring for mindfulness may clarify the findings listed above.

Rural Differences

An exploratory MANOVA was conducted to determine rural differences in the study's main variables. The results revealed non-significant effects between rural and non-rural participants for all variables. The results demonstrate that rural and non-rural college students have similar presentations with rumination, alcohol use, and dimensions of self-compassion. Regarding rumination, previous literature suggests a ruminative thought process occurs at similar rates between rural and urban individuals (Thorsteinsson et al., 2013). Thus, this non-significant finding is aligned with what literature demonstrates. For alcohol use, previous literature demonstrates mixed findings comparing rural and non-urban college students (Dixon & Chartier, 2016; Haardörfer et al., 2021). The current results demonstrate rural and non-rural college students engage in alcohol use at similar levels. While rural communities do appear to face unique challenges like lack of access to care, stigma, concerns related to confidentiality, cost of care, travel distance to clinics, the results from this current study suggest these barriers are not exacerbating rumination and alcohol use (Nicholson, 2008). Since self-compassion is a notably understudied topic within rurality, the results will add valuable benefit to the topic of self-compassion by demonstrating no significant differences exist between rural and non-rural college students.

Although no significant findings are observed, it is worth noting that the study's participants currently reside in a mid-size college town that is not considered rural. Consequently, all respondents had the same access to mental health resources and medical care which could weaken differences between rural and non-rural college students. Moving forward, researchers should evaluate differences in the study's main variables with a more defined sample of rural vs. non-rural college students.

Race/Ethnicity Differences

An exploratory MANOVA was conducted to determine differences in the study's main variables between individuals who self-identified as White or POC. The MANOVA demonstrated mixed findings. The results revealed non-significant effects between White individuals and POC for rumination, common humanity and mindfulness. The results demonstrate that White and POC college students have similar presentations with rumination, common humanity, and mindfulness. The results also demonstrated significant effects between White individuals and POC for alcohol use and self-kindness.

Alcohol Use

Research demonstrates alcohol use differences between White and ethnic minorities. Specifically, white college students appear to be drink more frequently and in larger quantities compared to college students identifying with a minority status (Peralta & Steele, 2009; Dennhardt & Murphy, 2011). Previous literature supports the significant finding in the current study stating White college students engage in problematic alcohol use at higher rates compared to POC. It is important to note the effect size is small. Further research should more closely examine the differences between specific race/ethnic groups to make further conclusions.

Rumination

Previous research examining race/ethnic groups differences among college students who engage in ruminative thought processes demonstrates people who identify within a minority group report higher level of rumination. Literature demonstrates minority groups engage in more rumination compared to White individuals due to higher levels of minority stress (Miranda, et al., 2013; Hill & Hoggard, 2018). Despite these previous findings, the current study demonstrates rumination is experienced similarly between White and POC college students.

Self-Compassion

Regarding self-compassion, research examining general ethnic differences is a notably under researched topic. One study demonstrated differences between overall self-compassion between American and Asian college students (Neff, 2008). Specifically, Asian college students demonstrated greater levels of self-compassion compared to American college students.

However, these differences can be accounted for the societal differences between Western and Eastern cultures (2008). Further, one study noted Asian Americans who reported higher levels of discrimination had higher levels of self-kindness (Liu, et al., 2020). The authors from this study suggested minority groups may possess higher levels of self-kindness to cope with the racial discrimination they experience within American society. Although the effect size for significant relationship between self-kindness may be small, it is important to note within the current study. The results from this study will help further explore racial differences within dimensions of self-compassion.

Clinical Implications

In terms of practical benefits, this study's findings warrant some considerations as service providers and college campus aim to reduce alcohol misuse. Specifically, given the high levels of alcohol use on college campuses, some clinicians may benefit from further exploring self-kindness and common humanity practices to help aid efforts to decrease harmful drinking behaviors among college students also co-presenting with rumination. Self-compassion psychoeducation and interventions can bolster strength-based skills among college students and these skills can hopefully translate to minimizing other emotion-regulation deficits (Adams & Leary, 2007).

Because of the Johnson-Neyman technique employed in data analyses, specific offsetting points for self-kindness and common humanity were identified. These thresholds, calculated for each significant moderator, can be practically applied in clinical settings in work with college students self-reporting rumination to determine if self-kindness and common humanity are present to a great enough degree to buffer against alcohol use. For instance, when using interventions designed to increase self-kindness, clinicians may work to track the degree which clients are growing in this skill over treatment. When clients obtain a self-kindness score above 33 on the Self-Compassion Scale (SCS), clinicians should expect to see a corresponding decrease in alcohol use. This is because 32.95 is the point at which the relationship between rumination and alcohol use breaks down for this construct. This can be a useful benchmark in tracking individuals' progress over the course of treatment and can be used in determining when it is appropriate to consider termination of services. The same principle applies for common humanity.

While these findings offer valuable insight for clinicians, they do not establish enough evidence to build a full treatment model for alcohol use in college students who are engaging in ruminative thought patterns. As a result, self-kindness and common humanity should not be used as the sole, or even primary means, of approaching alcohol use in college students. This requires a more holistic approach including access to mental health resources, psychoeducation interventions, and addiction recovery community resources. However, these findings will be of practical use to college counseling centers and college campuses utilizing prevention and treatment interventions for alcohol use. Self-kindness and common humanity can be utilized and strengthened alongside any treatment modality which makes it a great benefit.

Limitations

Methodological Concerns

The present study has several notable limitations. The first concerns the methods used to assess the study's main variables (i.e., rumination, alcohol use, and self-compassion). These variables utilized self-report and were delivered online. Limitations of self-report measures susceptibility to social desirability, biased responses, and demand characteristics (Mitchell & Jolley, 2007). These concerns may have influenced the accuracy of the study results. For example, individuals may have underreported instances of rumination and alcohol use due to privacy and confidentiality concerns. Additionally, individuals may have overreported levels of self-compassion due to social desirability bias. Thus, individuals may have minimized their experiences to rumination and alcohol use and maximized their experiences with self-compassion which may have negatively impacted the data and the strength of the relationships among the study's main variables. Furthermore, due to the nature of online data collection, 95 participants responses were excluded from the final data set due to incomplete responses or failed validity checks. Online data collection with self-report measures has higher rates of incomplete data or failed validity checks due to salience of content to participant and presentation of questions (Fan & Yan, 2010). In the future, it would be valuable to use observable measures of rumination and alcohol use to increase the accuracy of the findings. For example, some researchers observe rumination within the lab by assessing participants' verbal behavior (Kennedy et al., 2022).

Additionally, regarding the study's exploratory aims, two separate MANOVAs were conducted to examine rural status and race/ethnicity differences. This type of analysis to explore these differences increased Type I error meaning it increased the possibility of finding a false

positive within these aims. Lastly, the overall design and data collection process for the study was a general limitation. Specifically, the design and data were correlational and cross-sectional. This type of design does not allow for inferences about causation. Consequently, a better understanding of the relationship between the study's variables may be achieved through an experimental manner. For example, a researchers might include a self-compassion intervention (i.e., self-kindness exercise) to a sample of college students who do and do not report experiences of rumination. Following, the researcher would measure amounts of alcohol use at pre-intervention and longitudinally across time to further clarify the casual nature of these relationships.

College Students

Though the participants of the study were relatively diverse in terms of race/ethnicity, gender, rurality, and sexual orientation, a notable limitation of this study includes the recruitment process. Specifically, participants were recruited through SONA meaning all participants were current college students. College students appears to be less representative than the general community and results may not be generalizable to the other populations (Peterson & Merunka, 2014). Despite the methodological concerns within utilizing college students, research regarding alcohol use demonstrate alcohol use peaks within this age (Goldsmith et al., 2009). Thus, the current study aimed to utilize this age group to aid in prevention and treatment for colleges. However, the findings from this study may only be limited to college students and may not apply to the general population which would not allow for the results to generalize to a more representative sample.

Future Directions

First, this study highlighted there was a significant and positive relationship between rumination and alcohol use. Future research should examine this relationship and employ experimental methods to determine if certain interventions will be more effective in decreasing this relationship. Due to the high rates of rumination and alcohol use, this area of research needs to be further developed. Further, rumination and self-compassion were significantly correlated in the negative direction. In the future, researchers should examine a diverse community sample to evaluate if this relationship generalizes in a more broad, representative sample. College students do experience unique stressors during their emerging adulthood which appeared to lead to high self-reported levels of ruminative thought patterns within this sample; thus, this finding highlights the need for interventions focused on cultivating positive psychological resources for college students who present with rumination concerns.

As expected, two dimensions (i.e., self-kindness and common humanity) of self-compassion did moderate the relationship between rumination and alcohol use. These findings suggest notable importance in exploring this relationship. Specifically, researchers should use experimental and longitudinal methods to evaluate if these two dimensions can be employed as a stable moderator. If this holds true, clinicians could seek self-kindness and common humanity interventions within college campuses to aid in decreasing alcohol use among college students presenting with rumination concerns. Furthermore, contrary to expectation, one dimension of self-compassion (i.e., mindfulness) did not moderate the relationship between rumination and alcohol use. This finding suggests that mindfulness may not be a useful clinical tool to target alcohol use among college students experiencing rumination. Consequently, future research

should assess reasonings to why mindfulness may not moderate this relationship among college students.

Moreover, established literature demonstrates mixed findings comparing rural and urban individuals and their experiences with rumination (Tarlow et al., 2020; Thorsteinsson et al., 2013) and alcohol use (Haardörfer et al., 2021; Dixon & Chartier, 2016). The current study highlighted rural and non-rural individuals engage in rumination and alcohol use at similar rates. It also noted rural and non-rural college students possess similar levels of self-compassion. As a result, it is important for future research to examine what other cultural factors are minimizing geographic location effects. Additionally, exploratory analyses highlighted White college students engage in problematic alcohol use at higher levels compared to Persons of Color (POC) enrolled in college courses. Due to the small effect size, it would be important for future researchers to assess what variables increase alcohol use among White college students. Within the same exploratory analyses, the findings support POC enrolled in college courses self-reported higher rates of self-kindness compared to White college students. As a result, researchers should further evaluate the impacts of a minority status on self-compassion. Overall, more experimental research is needed to determine effective ways of minimizing negative consequences of rumination.

General Conclusions

The purpose of the current study was to identify unique mechanisms that contribute to a more complete understanding of the relationship between rumination and alcohol use in college students. This study utilized a cross-sectional and correlational design to evaluate self-compassion as a moderator in the relationship between rumination and alcohol use in college students. The findings advance the current body of literature in several notable ways. First, the

study found there was a positive and significant relationship between rumination and alcohol use. Second, the study found two dimensions of self-compassion (i.e., self-kindness and common humanity) did moderate the relationship between rumination and alcohol use. This highlights a need for clinical implications of fostering self-kindness and common humanity with college students experiencing rumination and problematic alcohol use.

REFERENCES

- Adams, C. E., & Leary, M. R. (2007). Promoting self-compassionate attitudes toward eating among restrictive and guilty eaters. *Journal of Social and Clinical Psychology, 26*(10), 1120–1144.
- Aldao, A., Nolen-Hoeksema, S., & Schweizer, S. (2010). Emotion-regulation strategies across psychopathology: A meta-analytic review. *Clinical Psychology Review, 30*(2), 217–237. <https://doi.org/10.1016/j.cpr.2009.11.004>
- American College Health Association. (ACHA). (2016). *Spring 2016 Reference Group Executive Summary*. www.acha.org
- Amlung, M. & MacKillop, J. (2014). Understanding the effects of stress and alcohol cues on motivation for alcohol via behavioral economics. *Alcoholism: Clinical and Experimental Research, 38*, 1780–1789. 10.1111/acer.12423
- Armeli, S., Covault, J., & Tennen, H. (2018). Long-term changes in the effects of episode-specific drinking to cope motivation on daily well-being. *Psychology of Addictive Behaviors, 32*(7), 715–726. <https://doi.org/10.1037/adb0000409.supp>
- Asici, E., Arslan, Ü., & Uygur, S. S. (2020). Positive and negative affect in university students: The predictive roles of rumination, mindfulness and demographic variables. *New Waves-Educational Research and Development Journal, 23*(2), 1–21.
- Barbor, T., F., Higgins-Biddle, J.C., Saunders, J.B., & Monteiro, M. G. (2001). The alcohol use disorders identification test: Guidelines for use in primary care. *World Health Organization*.
- Beseler, C. L., Aharonovich, E., Keyes, K. M., & Hasin, D. S. (2008). Adult transition from at-risk drinking to alcohol dependence: the relationship of family history and drinking

motives. *Alcoholism, Clinical and Experimental Research*, 32(4), 607–616.

<https://doi.org/10.1111/j.1530-0277.2008.00619.x>

Bluth, K., & Neff, K. D. (2018). New frontiers in understanding the benefits of self-compassion. *Self & Identity*, 17(6), 605–608.

<https://doi.org/10.1080/15298868.2018.1508494>

Bluth, K., Gaylord, S. A., Campo, R. A., Mullarkey, M., & Hobbs, L. (2016). Making friends with yourself: A mixed methods pilot study of a mindful self-compassion program for adolescents. *Mindfulness*, 7(2), 479–492.

Boschloo, L., Vogelzangs, N., Smit, J. H., Van den Brink, W., Veltman, D. J., Beekman, A. T. F., & Penninx, B. W. J. H. (2011). Comorbidity and risk indicators for alcohol use disorders among persons with anxiety and/or depressive disorders: Findings from the Netherlands study of depression and anxiety (NESDA). *Journal of Affective Disorders*, 131(1–3), 233–242. <https://doi.org/10.1016/j.jad.2010.12.014>

Bramm, S. M., Cohn, A. M., & Hagman, B. T. (2013). Can preoccupation with alcohol override the protective properties of mindful awareness on problematic drinking? *Addictive Disorders and Their Treatment*, 12, 19–27.

Bravo, A. J., Pearson, M. R., & Henson, J. M. (2017). Drinking to cope with depressive symptoms and ruminative thinking: A multiple mediation model among college students. *Substance Use & Misuse*, 52(1), 52–62.

Bravo, A. J., Pilatti, A., Pearson, M. R., Mezquita, L., Ibáñez, M. I., & Ortet, G. (2018). Depressive symptoms, ruminative thinking, drinking motives, and alcohol outcomes: A multiple mediation model among college students in three countries. *Addictive Behaviors*, 76, 319–327. <https://doi.org/10.1016/j.addbeh.2017.08.028>

- Brooks, M., Kay-Lambkin, F., Bowman, J., & Childs, S. (2012). Self-compassion amongst clients with problematic alcohol use. *Mindfulness*, 3(4), 308–317.
<https://doi.org/10.1007/s12671-012-0106-5>
- Capron, D. W., Bauer, B. W., Madson, M. B., & Schmidt, N. B. (2018). Treatment seeking among college students with comorbid hazardous drinking and elevated mood/anxiety symptoms. *Substance Use & Misuse*, 53(6), 1041–1050.
- Carver, C., & Scheier, M. (1990). Origins and functions of positive and negative affect: A control-process view. *Psychological Review*, 19, 19–35. <https://doi.org/10.1037/0033-295X.97.1.19>
- Christopher, M., Ramsey, M., & Antick, J. (2012). The role of dispositional mindfulness in mitigating the impact of stress and impulsivity on alcohol-related problems. *Addiction Research and Theory*, 21, 429–434.
- Ciesla, J. A., Dickson, K. S., Anderson, N. L., & Neal, D. J. (2011). Negative repetitive thought and college drinking: Angry rumination, depressive rumination, co-rumination, and worry. *Cognitive Therapy and Research*, 35, 142–150. doi:10.1007/s10608-011-9355-1
- Couture, M., Pearson, R., Halloran, J., Stewart, S. H., & Couture, M. E. (2020). A qualitative study of the perceived effects of alcohol on depressive symptoms among undergraduates who drink to cope with depression. *Drug & Alcohol Review*, 39(2), 180–188.
- DeMartini, K. S., & Carey, K. B. (2012). Optimizing the use of the AUDIT for alcohol screening in college students. *Psychological Assessment*, 24(4), 954–963.
<https://doi.org/10.1037/a0028519>

- Demb, A., & Campbell, C. M. (2009). A new lens for identifying potential adult persistent problem drinkers during college. *Journal of College Student Development*, 50(1), 1–18. <https://doi.org/10.1353/csd.0.0048>
- Dennhardt, A. A., & Murphy, J. G. (2011). Associations between depression, distress tolerance, delay discounting, and alcohol-related problems in European American and African American college students. *Psychology of Addictive Behaviors*, 25(4), 595–604. doi:10.1037/a0025807
- Diedrich, A., Grant, M., Hofmann, S. G., Hiller, W., & Berking, M. (2014). Self-compassion as an emotion regulation strategy in major depressive disorder. *Behaviour Research and Therapy*, 58, 43–51. <https://doi.org/10.1016/j.brat.2014.05.006>
- Dixit, A. R., & Crum, R. M. (2000). Prospective study of depression and the risk of heavy alcohol use in women. *The American Journal of Psychiatry*, 157(5), 751–758
- Devynck, F., Kornacka, M., Sgard, F., & Douilliez, C. (2017). Repetitive thinking in alcohol-dependent patients. *Substance Use & Misuse*, 52(1), 108–118.
- Ehring, T., & Watkins, E. R. (2008). Repetitive negative thinking as a transdiagnostic process. *International Journal of Cognitive Therapy*, 1(3), 192–205.
- Eisenberg, D., Hunt, J., & Speer, N. (2013). Mental health in American colleges and universities: Variation across student subgroups and across campuses. *Journal of Nervous and Mental Disease*, 201(1), 60–67. <https://doi.org/10.1097/NMD.0b013e31827ab077>
- Ellingwood, L., Espinoza, M.-A., Acevedo, M., & Olson, L. E. (2019). College student drinkers have higher self-compassion scores than nondrinkers. *International Journal of Mental Health & Addiction*, 17(3), 658–666. <https://doi.org/10.1007/s11469-018-9919-3>

- Fan, W., & Yan, Z. (2010). Factors affecting response rates of web survey: A systematic review. *Computers in Human Behavior*, 26, 132-139. doi: 10.1016/j.chb.2009.10.015
- Ferrari, M., Hunt, C., Harrysunker, A., Abbott, M. J., Beath, A. P., & Einstein, D. A. (2019). Self-compassion interventions and psychosocial outcomes: a meta-analysis of RCTs. *Mindfulness*, 10(8), 1455–1473. <https://doi.org/10.1007/s12671-019-01134-6>
- Germer, C., & Neff, K. (2019). Teaching the mindful self-compassion program : A guide for professionals. *Guilford Publications*.
- Golden, H. L., Vosper, J., Kingston, J., & Ellett, L. (2021). The impact of mindfulness-based programs on self-Compassion in nonclinical populations: A systematic review and meta-analysis. *Mindfulness*, 12(1), 29–52. <https://doi.org/10.1007/s12671-020-01501-8>
- Goldsmith, A. A., Tran, G. Q., Smith, J. P., & Howe, S. R. (2009). Alcohol expectancies and drinking motives in college drinkers: Mediating effects on the relationship between generalized anxiety and heavy drinking in negative-affect situations. *Addictive Behaviors*, 34(6), 505–513. <https://doi.org/10.1016/j.addbeh.2009.01.003>
- Gorka, S. M., Ali, B., & Daughters, S. B. (2012). The role of distress tolerance in the relationship between depressive symptoms and problematic alcohol use. *Psychology of addictive behaviors : journal of the Society of Psychologists in Addictive Behaviors*, 26(3), 621–626. <https://doi.org/10.1037/a0026386>
- Gorka, S. M., Hedeker, D., Piasecki, T. M., & Mermelstein, R. (2017). Impact of alcohol use motives and internalizing symptoms on mood changes in response to drinking: An ecological momentary assessment investigation. *Drug and Alcohol Dependence*, 173, 31–38. <https://doi.org/10.1016/j.drugalcdep.2016.12.012>

- Hagman, B. T. (2016). Performance of the AUDIT in detecting DSM-5 alcohol use disorders in college students. *Substance Use & Misuse*, 51(11), 1521–1528.
- Hill, L. K., & Hoggard, L. S. (2018). Active coping moderates associations among race-related stress, rumination, and depressive symptoms in emerging adult African American women. *Development and Psychopathology*, 30(5), 1817–1835.
<https://doi.org/10.1017/S0954579418001268>
- Hurley, D. B., & Kwon, P. (2013). Savoring helps most when you have little: Interaction 70 between savoring the moment and uplifts on positive affect and satisfaction with life. *Journal of Happiness Studies*, 14(4), 1261-1271. <http://dx.doi.org/10.1007/s10902-012-9377-8>
- Inwood, E., & Ferrari, M. (2018). Mechanisms of change in the relationship between self-compassion, emotion regulation, and mental Health: A systematic review. *Applied Psychology: Health & Well-Being*, 10(2), 215–235. <https://doi.org/10.1111/aphw.12127>
- Jose, P. E., Lim, B. T., & Bryant, F. B. (2012). Does savoring increase happiness? A daily diary study. *The Journal of Positive Psychology*, 7(3), 176-187.
<http://dx.doi.org/10.1080/17439760.2012.671345>
- Kambara, K., Ogata, A., & Kira, Y. (2019). Effects of rumination processing modes on the tendency to avoid failure. *Current Psychology*, 38(5), 1204.
<https://doi.org/10.1007/s12144-017-9655-z>
- Karyadi, K.A., Cyders, M.A. (2015). Elucidating the association between trait mindfulness and alcohol use behaviors among college students. *Mindfulness*, 6, 1242–1249.
<https://doi.org/10.1007/s12671-015-0386-7>

- Kelly, A. C., Zuroff, D. C., Foa, C. L., & Gilbert, P. (2010). Who benefits from training in self-compassionate self-regulation? A study of smoking reduction. *Journal of Social and Clinical Psychology, 29*(7), 727–755.
- Kennedy, J. C., Dunlop, B. W., Craighead, L. W., Nemeroff, C. B., Mayberg, H. S., & Craighead, W. E. (2022). Assessing in-session rumination and its effects on CBT for depression. *Behavior Research and Therapy, 159*, 1-10.
<https://doi.org/10.1016/j.brat.2022.104209>
- Kenney, S., Jones, R. N., & Barnett, N. P. (2015). Gender differences in the effect of depressive symptoms on prospective alcohol expectancies, coping motives, and alcohol outcomes in the first source of college. *Journal of Youth and Adolescence, 44*, 1884–1897.
[doi:10.1007/s10964-015-0311-3](https://doi.org/10.1007/s10964-015-0311-3)
- Khantzian, E. J. (2003). The self-medication hypothesis revisited: The dually diagnosed patient. *Primary Psychiatry, 10*(9), 47-54.
- Ko, C. M., Grace, F., Chavez, G. N., Grimley, S. J., Dalrymple, E. R., & Olson, L. E. (2018). Effect of seminar on compassion on student self-compassion, mindfulness and well-being: A randomized controlled trial. *Journal of American College Health, 66*(7), 537–545.
- Kraiss, J. T., Klooster, P. M., Moskowitz, J. T., & Bohlmeijer, E. T. (2020). The relationship between emotion regulation and well-being in patients with mental disorders: A meta-analysis. *Comprehensive Psychiatry, 102*.
<https://doi.org/10.1016/j.comppsy.2020.152189>

- Littlefield, A. K., Sher, K. J., & Wood, P. K. (2010). Do changes in drinking motives mediate the relation between personality change and “maturing out” of problem drinking? *Journal of Abnormal Psychology, 119*, 93–105. <http://dx.doi.org/10.1037/a0017512>
- Liu, S., Li, C. I., Wang, C., Wei, M., & Ko, S. (2020). Self-compassion and social connectedness buffering racial discrimination on depression among Asian Americans. *Mindfulness, 11*(3), 672–682
- MacBeth, A., & Gumley, A. (2012). Exploring compassion: A meta-analysis of the association between self-compassion and psychopathology. *Clinical Psychology Review, 32*(6), 545–552. <https://doi.org/10.1016/j.cpr.2012.06.003>
- McLaughlin, K. A., Aldao, A., Wisco, B. E., & Hilt, L. M. (2014). Rumination as a transdiagnostic factor underlying transitions between internalizing symptoms and aggressive behavior in early adolescents. *Journal of Abnormal Psychology, 123*(1), 13–23. <https://doi.org/10.1037/a0035358.supp>
- Meinzer, M. C., Oddo, L. E., Vasko, J. M., Murphy, J. G., Iwamoto, D., Lejuez, C. W., & Chronis-Tuscano, A. (2021). Motivational interviewing plus behavioral activation for alcohol misuse in college students with ADHD. *Psychology of Addictive Behaviors, 35*(7), 803–816. <https://doi.org/10.1037/adb0000663>
- Memedovic, S., Slade, T., Ross, J., Darke, S., Mills, K. L., Marel, C., Burns, L., Lynskey, M., & Teesson, M. (2019). Rumination and problematic substance use among individuals with a long-term history of illicit drug use. *Drug and Alcohol Dependence, 203*, 44–50. <https://doi.org/10.1016/j.drugalcdep.2019.05.028>
- Miranda, R., Polanco-Roman, L., Tsypes, A., & Valderrama, J. (2013). Perceived discrimination, ruminative subtypes, and risk for depressive symptoms in emerging adulthood. Cultural

- Diversity and Ethnic Minority Psychol, 19, 395–403.
doi:10.1037/a0033504CrossRefGoogle ScholarPubMedOpenURL queryOpenURL query
- Mitchell, M.L., & Jolley, J. M. (2007). *Research design explained*. Belmont, CA: Thomson Wadsworth.
- Mulligan, E. J., George, A. M., & Brown, P. M. (2016). Social anxiety and drinking game participation among university students: the moderating role of drinking to cope. *American Journal of Drug & Alcohol Abuse*, 42(6), 726–734.
- Mollaahmetoglu, O. M., Palmer, E., Maschauer, E., Nolan, M. C., Stevens, T., Carlyle, M., Hardy, L., Watkins, E. R., & Morgan, C. J. A. (2021). The acute effects of alcohol on state rumination in the laboratory. *Psychopharmacology*, 238(6), 1671–1686.
<https://doi.org/10.1007/s00213-021-05802-1>
- National Institute on Alcohol Abuse and Alcoholism. (2015). *College drinking*.
<http://pubs.niaaa.nih.gov/publications/CollegeFactSheet/Collegefactsheet.pdf>
- Neff, K.D. (2003). Self-compassion: An alternative conceptualization of a healthy attitude toward oneself. *Self and Identity*, 2(2), 85. <https://doi.org/10.1080/15298860309032>
- Neff, K. D. (2003). The development and validation of a scale to measure self-compassion. *Self and Identity*, 2(3), 223–250. doi: 10.1080/15298860309027
- Neff, K. D., Pisitsungkagarn, K., & Hsieh, Y.-P. (2008). Self-compassion and self-construal in the United States, Thailand, and Taiwan. *Journal of Cross-Cultural Psychology*, 39(3), 267–285. doi: 10.1177/0022022108314544.
- Neff, K. D. (2011). Self-compassion, self-esteem, and well-being. *Social and Personality Psychology Compass*, 5(1), 1–12. <https://doi.org/10.1111/j.1751-9004.2010.00330.x>

- Neff, K. D. (2012). The science of self-compassion. In C. Germer & R. Siegel (Eds.), *Compassion and Wisdom in Psychotherapy*, pp. 79-92. Guilford Press.
- Neff, K. D., & Vonk, R. (2009). Self-compassion versus global self-Esteem: Two different ways of relating to oneself. *Journal of Personality*, 77(1), 23–50.
<https://doi.org/10.1111/j.1467-6494.2008.00537.x>
- Neff, K., & Germer, C. (2022). The role of self-compassion in psychotherapy. *World Psychiatry: Official Journal of the World Psychiatric Association*, 21(1), 58–59.
<https://doi.org/10.1002/wps.20925>
- Nolen-Hoeksema, S. (1987). Sex differences in unipolar depression: evidence and theory. *Psychological Bulletin*, 101(2), 259–282.
- Nolen-Hoeksema, S. (1991). Responses to depression and their effects on the duration of depressive episodes. *Journal of Abnormal Psychology*, 100, 569–582.
- Nolen-Hoeksema, S., & Harrell, Z. A. (2002). Rumination, depression, and alcohol use: Tests of gender differences. *Journal of Cognitive Psychotherapy*, 16(4), 391–404.
- Nolen-Hoeksema, S., & Watkins, E. R. (2011). A Heuristic for developing transdiagnostic models of psychopathology: Explaining multifinality and divergent trajectories. *Perspectives on Psychological Science*, 6(6), 589–609.
<https://doi.org/10.1177/1745691611419672>
- O' Malley, P. M. (2004). Maturing out of problematic alcohol use. *Alcohol Research & Health: The Journal of the National Institute on Alcohol Abuse and Alcoholism*, 28(4), 202–204.
- Oswalt, S. B., Lederer, A. M., Chestnut-Steich, K., Day, C., Halbritter, A., & Ortiz, D. (2020). Trends in college students' mental health diagnoses and utilization of services, 2009–

2015. *Journal of American College Health*, 68(1), 41–51.
<https://doi.org/10.1080/07448481.2018.1515748>
- Per, M., Schmelefske, E., Brophy, K., Austin, S. B., & Khoury, B. (2022). Mindfulness, self-compassion, self-injury, and suicidal thoughts and behaviors: A correlational meta-analysis. *Mindfulness*, 1–22. <https://doi.org/10.1007/s12671-021-01815-1>
- Peralta, R. L., & Steele, J. L. (2009). On drinking styles and race: A consideration of the socio-structural determinants of alcohol use behavior. *Journal of Ethnicity in Substance Abuse*, 8(2), 146–162. <https://doi.org/10.1080/15332640902897024>
- Peterson, R. A., & Merunka, D. R. (2014). Convenience samples of college students and research reproducibility. *Journal of Business Research*, 67, 1035-1041.
<http://dx.doi.org/10.1016/j.jbusres.2013.08.010>
- Piasecki, T. M., Cooper, M. L., Wood, P. K., Sher, K. J., Shiffman, S., & Heath, A. C. (2014). Dispositional drinking motives: Associations with appraised alcohol effects and alcohol consumption in an ecological momentary assessment investigation. *Psychological Assessment*, 26(2), 363–369.
- Phelps, C. L., Paniagua, S. M., Willcockson, I. U., & Potter, J. S. (2018). The relationship between self-compassion and the risk for substance use disorder. *Drug and Alcohol Dependence*, 183, 78–81. <https://doi.org/10.1016/j.drugalcdep.2017.10.026>
- Roys, M. R., Peltier, M. R., Stewart, S. A., Waters, A. F., Waldo, K. M., & Copeland, A. L. (2020). The association between problematic alcohol use, risk perceptions, and e-cigarette use. *American Journal of Drug & Alcohol Abuse*, 46(2), 224–231.

- Saunders, J.B. (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. 10.1111/j.1360-0443.1993.tb02093.x
- Selby-Nelson, E. M., Bradley, J. M., Schiefer, R. A., & Hoover-Thompson, A. (2018). Primary care integration in rural areas: A community-focused approach. *Families, Systems, & Health*, 36(4), 528–534. <https://doi.org/10.1037/fsh0000352>
- Shaver, J. A., Veilleux, J. C., & Ham, L. S. (2013). Meta-emotions as predictors of drinking to cope: A comparison of competing models. *Psychology of Addictive Behaviors*, 27(4), 1019–1026. <https://doi.org/10.1037/a0033999>
- Shebuski, K., Bowie, J., & Ashby, J. S. (2020). Self-compassion, trait resilience, and trauma exposure in undergraduate students. *Journal of College Counseling*, 23(1), 2–14. <https://doi.org/10.1002/jocc.12145>
- Sher, K., & Levenson, R. (1982). Risk for alcoholism and individual differences in the stress response dampening effect of alcohol. *Journal of Abnormal Psychology*, 91, 350–367. <https://doi.org/10.1037/0021-843X.91.5.350>
- Shorey, R. C., Brasfield, H., Anderson, S., & Stuart, G. L. (2014). The relation between trait mindfulness and early maladaptive schemas in men seeking substance use treatment. *Mindfulness*, 1–8.
- Smalley, K. B., Yancey, C. T., Warren, J. C., Naufel, K., Ryan, R., & Pugh, J. L. (2010). Rural mental health and psychological treatment: a review for practitioners. *Journal of Clinical Psychology*, 66(5), 479–489. <https://doi.org/10.1002/jclp.20688>

- Sorid, S. D., Wedell, E., Herchenroeder, L., & Bravo, A. J. (2021). Anxiety symptoms and alcohol-related problems among college students: A moderated-mediation model of rumination and emotion dysregulation. *Substance Use & Misuse*, 56(4), 471–478.
- Stapinski, L.A., Montgomery, A.A., & Araya, R. (2016). Anxiety, depression and risk of cannabis use: Examining the internalizing pathway to use among Chilean adolescents. *Drug and Alcohol Dependence*, 166, 109-115.
<http://dx.doi.org/10.1016/j.drugalcdep.2016.06.032>
- Substance Abuse and Mental Health Services Administration. Results from the 2013 national survey on drug use and health: summary of national findings. Rockville, MD: *Substance Abuse and Mental Health Services Administration*; 2014.
- Svendsen, J. L., Kvernenes, K. V., Wiker, A. S., & Dundas, I. (2017). Mechanisms of mindfulness: Rumination and self-compassion. *Nordic Psychology*, 69(2), 71–82.
<https://doi.org/10.1080/19012276.2016.1171730>
- Tarlow, K. R., McCord, C. E., Du, Y., Hammett, J., & Wills, T. (2020). Rural mental health service utilization in a Texas telepsychology clinic. *Journal of Clinical Psychology*, 76(6), 1004–1014. <https://doi.org/10.1002/jclp.22903>
- Thomason, S., & Moghaddam, N. (2021). Compassion-focused therapies for self-esteem: A systematic review and meta-analysis. *Psychology and Psychotherapy: Theory, Research and Practice*, 94(3), 737. <https://doi.org/10.1111/papt.12319>
- Thomsen, D. K. (2006). The association between rumination and negative affect: A review. *Cognition and Emotion*, 20(8), 1216–1235.

- Thorsteinsson, E.B., Ryan, S.M., & Sveinbjornsdottir, S. (2013). The mediating effects of social support and coping on the stress-depression relationship in rural and urban adolescents. *Journal of Depression*, 2(1), 1-6. <http://dx.doi.org/10.4236/ojd.2013.21001>
- Treynor, W., Gonzalez, R., & Noel-Hoeksema, S. (2003). Rumination reconsidered: A psychometric analysis. *Cognitive Therapy and Research*, 27 (3), 247-259.
- Vettese, L. C., Dyer, C. E., Li, W. L., & Wekerle, C. (2011). Does self-compassion mitigate the association between childhood maltreatment and later emotion regulation difficulties? A preliminary investigation. *International Journal of Mental Health and Addiction*, 9(5), 480–491. <https://doi.org/10.1007/s11469-011-9340-7>
- Villarosa-Hurlocker, M. C., Schutts, J. W., Madson, M. B., Jordan, H. R., Whitley, R. B., & Mohn, R. C. (2020). Screening for alcohol use disorders in college student drinkers with the AUDIT and the USAUDIT: a receiver operating characteristic curve analysis. *American Journal of Drug & Alcohol Abuse*, 46(5), 531–545.
- Vohs, K. D., & Baumeister, R. F. (2016). *Handbook of self-regulation: research, theory, and applications (Third edition.)*. The Guilford Press.
- Walker, B. L., & Raval, V. V. (2017). College students from rural hometowns report experiences of psychological sense of community and isolation. *Journal of Rural Mental Health*, 41(1), 66–79. <https://doi.org/10.1037/rmh0000059.supp>
- Weiss, N. H., Hogan, J., Brem, M., Massa, A. A., Kirby, C. M., & Flanagan, J. C. (2021). Advancing our understanding of the intersection between emotion regulation and alcohol and drug use problems: Dyadic analysis in couples with intimate partner violence and alcohol use disorder. *Drug and Alcohol Dependence*, 228. <https://doi.org/10.1016/j.drugalcdep.2021.109066>

- Wills, T. A., & Shiffman, S. (1985). Coping and substance use: A conceptual framework. In S. Shiffman & T. A. Wills (Eds.), *Coping and Substance Use*, pp. 3-24. Academic Press.
- Wisener, M., & Khoury, B. (2020). Mindfulness facets, self-compassion, and drinking to cope: How do associations differ by gender in undergraduates with harmful alcohol consumption? *Journal of American College Health*, 1-9.
<https://doi.org/10.1080/07448481.2020.1818758>
- Wolitzky-Taylor, K., Sewart, A., Zinbarg, R., Mineka, & Craske, M.G. (2021). Rumination and worry as putative mediators explaining the association between emotional disorders and alcohol use disorder in a longitudinal study. *Addictive Behaviors*, 119.
<https://doi.org/10.1016/j.addbeh.2021.106915>
- Wyckoff, A. M., Carpenter, R. W., Hepp, J., Piasecki, T. M., & Trull, T. J. (2021). Real-time reports of drinking to cope: Associations with subjective relief from alcohol and changes in negative affect. *Journal of Abnormal Psychology*, 130(6), 641–650.
<https://doi.org/10.1037/abn0000684.supp>
- Zessin, U., Dickhauser, O., & Garbade, S. (2015). The relationship between self-compassion and well-being: a meta-analysis. *Applied Psychology: Health and Wellbeing*, 7(3), 340–364.
<https://doi.org/10.1111/aphw.12051>.

APPENDIX A
DEOMGRAPHICS SURVEY

How old are you? (Fill in)___

How would you describe your racial/ethnic background? Check all that apply.

American Indian or Alaskan Native
Asian, Asian American, or Pacific Islander
Black or African American
Hispanic, Latino, or Latin Origin
Middle Eastern or North African
Multiracial/multiethnic
White
Other: _____
Prefer not to say

To which gender do you most identify?

woman
man
transgender man
transgender woman
non-binary/non-conforming
prefer not to disclose
prefer to self-disclose [fill-in]

What is your current university classification?

Freshman Undergraduate
Sophomore Undergraduate
Junior Undergraduate
Senior Undergraduate
Other

Are you currently or have been involved with a fraternity or sorority?

Yes
No
Prefer to not disclose

What is your mother's highest level of education?

Did not attend high school
Attended high school
Completed high school (or earned certificate of high school equivalency, GED)
Attended college
Completed two-year college degree
Completed four-year college degree

Attended graduate or professional school
Completed graduate or professional degree
Not sure
Not applicable

What is your father's highest level of education?

Did not attend high school
Attended high school
Completed high school (or earned certificate of high school equivalency, GED)
Attended college
Completed two-year college degree
Completed four-year college degree
Attended graduate or professional school
Completed graduate or professional degree
Not sure
Not applicable

On a scale from 1-10 with 1 being *very rural* and 10 being *very urban*, how would you rate your hometown?