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PTSD Symptoms and Alcohol-Related Outcomes in College Students: The Mediating Role of Positive and Negative Coping Styles

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PTSD Symptoms and Alcohol-Related Outcomes in College Students: The Mediating Role of Positive and Negative Coping Styles

by

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Abstract

This study evaluated the mediating role of coping styles (problem-solving and avoidance coping) on the relationship between posttraumatic stress disorder (PTSD) symptoms and alcohol outcomes (i.e. hazardous drinking and alcohol-related negative consequences [ARNC]). A national sample of 672 traditional age (i.e. 18-25 years old; $M = 22.35$, $SD = 1.97$) college students who reported alcohol consumption in the past month were recruited via Amazon's Mechanical Turk website. Participants were 55.1% male and 60.9% White, and they completed measures of PTSD symptoms, coping styles, hazardous drinking, and ARNC. Problem-solving coping (an adaptive form of coping) mediated the positive relationship between PTSD symptoms and hazardous drinking such that PTSD symptoms were negatively associated with problem-solving coping, which was negatively associated with hazardous drinking. Avoidance coping mediated the positive relationship between PTSD symptoms and ARNC through a positive association between PTSD symptoms and avoidance coping. These novel findings highlight the importance of adaptive coping styles as a protective factor for college students experiencing co-occurring PTSD symptoms and harmful alcohol use.

Key Words: coping styles, traumatic stress, alcohol-related negative consequences, hazardous drinking, college students

Dedication

Mom, Dad, Mallory, and Ray:

Thank you for tirelessly supporting me in my academic endeavors.

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List of Abbreviations

ARNC	Alcohol-Related Negative Consequences
AUDIT-US	Alcohol Use Disorders Identification Test – United States
BYAACQ	Brief Young Adult Alcohol Consequences Questionnaire
CI	Confidence Interval
CSI	Coping Strategy Indicator
LEC-5	Life Events Checklist for DSM-5
LSI	Long String Index
M	Mean
PCL-5	Posttraumatic Stress Disorder Checklist for DSM-5
PTSD	Posttraumatic Stress Disorder
SD	Standard Deviation

Introduction

College student drinking is of particular interest in the field of alcohol research given 79% of college students report annual alcohol consumption (Schulenberg et al., 2017). Hazardous drinking (which includes heavy episodic drinking) is fairly common in the college environment, as 43% of college males and 32% of college females report consuming five or more drinks in less than two hours, consistent with binge drinking rates (4+ drinks for women and 5+ drinks for men in 2 hours; Johnston et al., 2012; National Institute of Alcohol Abuse and Alcoholism, 2004). Drinking at these levels can increase one's risk of experiencing alcohol-related negative consequences (ARNC) such as (but not limited to) falling behind in school, having unprotected/unplanned sex, getting injured, or even dying (White & Hingson, 2013). In fact, it is estimated that 1,825 college students die each year from alcohol-related unintentional injuries (Hingson et al., 2009).

Posttraumatic Stress

The experience of posttraumatic stress, which includes symptoms such as trouble sleeping, flashbacks, and feelings of detachment (American Psychiatric Association, 2013) is also prevalent in the college setting, as up to 85% of undergraduate students report experiencing a Criterion A traumatic event (i.e. a specific type of stressful event that is required to meet *DSM-5* criteria for posttraumatic stress disorder; Frazier et al., 2009). Furthermore, in a large sample of two American universities, 9% of students met full criteria for posttraumatic stress disorder (PTSD; Read et al., 2011), which is especially relevant when compared to the 6.1% lifetime prevalence rate of PTSD in U.S. adults (Goldstein et al., 2016). In general, alcohol use in the college environment can put individuals at a higher risk for trauma exposure, especially sexual assault (Bedard-

Gilligan et al., 2011). Further, individuals with posttraumatic stress disorder (PTSD) symptoms often experience more ARNC when compared to their peers (Tripp et al., 2015). Moreover, alcohol use disorder, which involves heavy drinking, commonly coexists with PTSD (Debell et al., 2014). Therefore, some college students may be at a particularly high risk of experiencing ARNC because of the pervasiveness of posttraumatic stress and hazardous drinking in the college setting.

In an effort to aid individuals experiencing comorbid alcohol problems and PTSD symptoms, researchers have attempted to explain the link between PTSD symptoms and harmful drinking. The self-medication hypothesis has received considerable support in the literature and posits that individuals with psychiatric disorders may use substances to relieve psychological distress (Khantzian, 2003; Maisto et al., 2012). When applied to PTSD, the self-medication hypothesis suggests that individuals may use substances to cope with trauma symptoms. For instance, Simpson and colleagues (2014) found that as PTSD symptom severity increased, drinking increased at a greater rate among individuals high in coping drinking motives compared to individuals low in coping drinking motives. Thus, there is a need to better understand why some individuals with PTSD symptoms, but not others, use alcohol at greater rates and endorse higher coping drinking motives. One’s coping style may provide a potential explanation.

Coping Styles

Coping styles are the actions individuals take to alleviate their emotional pain and/or stress (Amirkhan, 1990). These styles can either be beneficial (positive coping styles – e.g., problem-solving coping) or detrimental (negative coping styles – e.g., avoidance coping) to the individual (Amirkhan, 1990). While problem-solving coping

involves planning and implementing steps to solve a problem, avoidance coping involves isolating one's self from others and ignoring problems. Researchers have established that coping styles are related to PTSD symptoms and alcohol use. For example, Cooper and colleagues (1992) found that stressors were highly predictive of alcohol use and drinking problems for men who utilized avoidant forms of coping; this effect was not observed for men who used more adaptive coping styles. This suggests that avoidant coping may be a risk factor for harmful drinking. Coping styles also tend to predict PTSD symptom severity, such that individuals who reported increases in active coping (i.e. problem-solving coping) and decreases in avoidant coping during treatment for PTSD were discharged with lower PTSD symptom severity than recorded at intake (Boden et al., 2012). Furthermore, coping styles appear to moderate the association between PTSD symptom severity and alcohol outcomes, such that the positive association between PTSD symptoms and alcohol outcomes was strongest when levels of active coping were low and levels of avoidant coping were elevated (Grosso et al., 2014).

These findings suggest that individuals using avoidant coping styles may be resorting to self-medication (e.g., using alcohol) rather than actively addressing their PTSD symptoms. In fact, individuals reporting higher levels of avoidant coping reported not only more alcohol use, but also the experience of more negative life events and negative affect when compared to those endorsing higher levels of active coping (Siodmok et al., 2013). This phenomenon demonstrates the potentially pervasive impact of coping styles on one's life. These findings could also point to coping styles functioning as a mediator for various associations, such as the association between PTSD symptoms and alcohol-related outcomes. Essentially, if one is unable to use active,

effective coping strategies (e.g. problem-solving) to address PTSD symptoms, they may resort to avoidant, detrimental methods of coping, such as alcohol use.

Current Study

The current study explores the possible role of coping styles as a mediator in the relationship between PTSD symptoms and alcohol outcomes (i.e. hazardous drinking and ARNC). Further understanding the mediating role of coping styles will address a gap in the research regarding coping styles' roles in helping to explain the relationship between PTSD symptoms and alcohol outcomes. Because coping styles appear to shape alcohol outcomes and PTSD symptom severity independently, we have reason to believe that the three factors could be interrelated. We base our study on prior research in which coping styles served as a moderator for the association between PTSD symptom severity and alcohol outcomes (Grosso et al., 2014) and on the high comorbidity of PTSD and alcohol use disorder (Debell et al., 2014). We predict that coping styles will mediate the relationships between PTSD symptoms and alcohol outcomes. Specifically, we predict that the positive associations PTSD symptom severity has with hazardous drinking and ARNC will be explained by greater use of avoidance coping and less use of problem-solving coping.

Method

Participants

The current study used a national sample of 672 traditional age (i.e. 18 to 25 years old; $M = 22.35$, $SD = 1.97$) college students (55.1% male). As seen in Table 1, most participants were White (60.9%), followed by Asian American (17.2%), African American/Black (9.6%), Native American (3.7%), Multiracial (3.1%), Other (3.1%),

Middle Eastern American (1.6%), and Eastern Indian American (0.8%). The sample consisted of freshmen (10.4%), sophomores (15.8%), juniors (34.1%), and seniors (39.6%).

Table 1

Participant Demographic Characteristics (n = 672)

Demographic	N	%	*Demographic*	N	%
Racial/ethnic Identity			Type of University		
African American	49	10%	Public/state	439	66%
Asian American	88	17%	Private	185	28%
Eastern Indian American	4	1%	Liberal Arts College	35	5%
Middle Eastern American	8	2%	Religious Affiliated	7	1%
Multiracial	16	3%	Greek Status		
Native American	19	4%	Yes	285	43%
White (non-Hispanic)	312	61%	No	384	57%
Other	16	3%	Size of School (number of students)		
Region of U.S.			Less than 2,000	59	9%
Northeast	151	23%	2,000 – 5,000	135	20%
Southeast	53	8%	5,000 – 10,000	154	23%
Southwest	102	15%	10,000 – 15,000	100	15%
South Atlantic	103	15%	15,000 – 20,000	87	13%
Midwest	140	21%	20,000 – 30,000	62	9%
West	122	14%	More than 30,000	75	11%
Military Affiliation			Marijuana Use		
Unaffiliated	534	80%	Yes	382	57%
Active Duty	73	11%	No	285	43%
Reserves	47	7%	Gender		
Veteran	17	3%	Male	370	55%
			Female	301	45%

Note. Percent values are rounded to the nearest whole number.

Data were collected via Amazon's Mechanical Turk (MTurk) website, which allows participants to receive monetary compensation for participation in research surveys. Obtaining a national sample via MTurk has been shown to be reliable (Buhrmester et al., 2011) and provides several benefits over a regional sample, such as increased racial and geographical diversity for greater generalizability of study results.

Participants who met screening criteria (i.e. 18 to 25 years old, physically attending college on campus in the United States, past 30-day alcohol consumption) were directed to a secure online survey system (Qualtrics) and electronically provided Institutional Review Board-approved informed consent. Next, participants completed a demographic questionnaire followed by the study measures presented randomly to minimize order effects. Participants who met study criteria were awarded 50 cents for completing the survey completely and accurately; compensation was also contingent upon correct answers to two validity questions. The validity questions (e.g., "select 0 for this item") were embedded in the survey to assess participant attention, and 246 participants were removed for failing one or both of the validity checks. We also excluded 150 participants who exceeded a long string index (LSI) of nine (i.e. responding invariantly to 10+ consecutive items) on the AUDIT-US or CSI based on recommendations from DeSimone and Harm (2018). Additionally, 48 participants were excluded for responding faster than 95% of the sample (Meade & Craig, 2012). Only participants who reported experiencing a potentially traumatic event were included in the final analyses.

Measures

PTSD symptoms. The 20-item Posttraumatic Stress Disorder Checklist for DSM-5 (PCL-5) was used to assess PTSD symptom severity (Weathers et al., 2013). Participants indicated how much they have experienced PTSD symptoms such as "How much in the past month were you bothered by repeated, disturbing, and unwanted memories of the stressful experience?" on a five-point response scale ranging from "not at all" (0) to "extremely" (4) (Blevins et al., 2015). Total scores on the PCL-5 can range

from 0 to 80 with scores of 33 or higher indicating that the individual may meet preliminary screening criteria for PTSD (Blevins et al., 2015). As part of the PCL-5, The Life Events Checklist for DSM-5 (LEC-5) was also administered to ensure participants were reporting trauma symptoms related to a specific Criterion A traumatic event. Past research has established evidence of test-retest reliability, discriminant validity, and convergent validity of the PCL-5 with college students (Blevins et al., 2015; Jordan et al., 2019), and internal consistency in this study was strong ($\alpha = .97$).

Hazardous drinking. The 10-item Alcohol Use Disorders Identification Test – United States (AUDIT-US) was used to assess hazardous drinking (Centers for Disease Control and Prevention [CDC], 2014; Babor et al., 2016). The first three items measure consumption on a scale of zero to six and ask questions such as “How many drinks containing alcohol do you have on a typical day you are drinking?” The remaining items measure problems associated with hazardous alcohol use on a scale of zero to four and include items such as, “How often during the past year have you failed to do what was expected of you because of drinking?” Total scores range from 0 to 46 with higher scores representing more hazardous drinking. Madson and colleagues (2019) found that the AUDIT-US has utility in identifying at-risk college student drinkers. Internal consistency in this study was strong ($\alpha = .90$).

Alcohol-related negative consequences. The 24-item Brief Young Adult Alcohol Consequences Questionnaire (BYAACQ) measured alcohol-related negative consequences (Kahler et al., 2005). Participants selected “yes” (1) or “no” (0) to indicate whether they had experienced each consequence such as “I have passed out from drinking,” or “I have taken foolish risks when I have been drinking.” Total scores can

range from 0 to 24 with higher scores indicating a higher incidence of ARNC in the past month. Past research has established evidence of test–retest reliability, convergent validity, and discriminant validity of the BYAACQ in the college environment (Kahler et al., 2008), and the BYAACQ had strong reliability in this study (α = .91).

Coping styles. The 33-item Coping Strategy Indicator (CSI; Amirkhan, 1990) was used to assess coping styles as past research suggests the CSI has evidence of generalizability across populations, cultures, and individual situations (Desmond et al., 2006). Participants indicated the extent to which they used a particular coping strategy on a three-point scale ranging from "not at all" (1) to "a lot" (3). For the present study, we utilized the problem-solving subscale (11 items; e.g., "Tried to carefully plan a course of action rather than acting on impulse," and "Set some goals for yourself to deal with the situation" α = .89) and the avoidance subscale (11 items; e.g., "Tried to distract yourself from the problem," and "Daydreamed about better times" α = .84). The sum of each set of 11 items produced subscale scores ranging from 11 to 33 each; higher scores in a particular category indicate an individual's preferred coping style.

Results

A list of traumatic events experienced by participants is presented in Table 2. Means, standard deviations, and intercorrelations for all measures are presented in Table 3. Over half (i.e. 53.7%) of the sample met the clinical cutoff (i.e. score of 33) on the PCL-5 indicating a potential diagnosis of PTSD (Blevins et al., 2015). PTSD symptoms were positively associated with hazardous drinking, ARNC, and avoidance coping but negatively associated with problem-solving coping. Problem-solving coping was negatively correlated with hazardous drinking, and avoidance coping was positively

correlated with ARNC. Problem-solving and avoidance coping were positively correlated. Finally, hazardous drinking and ARNC were positively associated.

Table 2

Traumatic Events (LEC) Experienced (n = 672)

Event Experienced	N	%
Any other very stressful event or experience	134	20%
Sexual Assault	79	12%
Transportation accident	68	10%
Physical assault	56	8%
Natural disaster	52	8%
Life-threatening illness or injury	51	8%
Sudden accidental death	34	5%
Serious accident at work, home, or during recreational activity	33	5%
Severe human suffering	31	5%
Fire or explosion	26	4%
Other unwanted or uncomfortable sexual experience	26	4%
Sudden violent death	22	3%
Assault with a weapon	17	3%
Serious injury, harm, or death you caused to someone else	17	3%
Exposure to toxic substance	14	2%
Combat or exposure to a war-zone	10	2%
Captivity	2	0%

Note. Percent values are rounded to the nearest whole number.

Hazardous Drinking

Structural equation modeling (SEM) in MPlus Version 8.3 (Meyers et al., 2006; Muthén & Muthén, 2012) was used to test the degree to which coping styles mediated the relationships between PTSD symptoms and alcohol outcomes (Illustration 1). A main effect was found for PTSD symptoms on hazardous drinking (c = .54, 95% CI [.49, .60]). There was a full mediation when coping styles were included in the model (c^1 = .01, 95%

CI [-.01, .03]), as there was no longer a significant association between PTSD symptoms and hazardous drinking when the mediators were included.

Table 3

Overall Means, Standard Deviations, and Intercorrelations (n = 672)

Scale	1	2	3	4	5
1. PCL-5	-				
2. Problem-solving	-.14***	-			
3. Avoidance	.09*	.52***	-		
4. AUDIT-US	.54***	-.21***		-	
5. BYAACQ	.34***		.08*	.60***	-
Mean	33.58	24.48	23.65	16.72	11.34
SD	20.54	5.33	5.02	9.87	6.48

Note. Only significant correlations are reported. *** = p < .001, ** = p < .01, * = p < .05 PCL-5 = PTSD symptoms, AUDIT-US = Hazardous drinking, BYAACQ = Alcohol-related negative consequences (ARNC)

Specifically, problem-solving coping mediated the relationship between PTSD symptoms and hazardous drinking (β = .01, 95% CI [.004, .030]) such that there were significant negative relationships from PTSD symptoms to problem-solving coping (β = -.14, *p* = .001) and from problem-solving coping to hazardous drinking (β = -.10, *p* = .006). However, avoidance coping did not mediate the relationship between PTSD symptoms and hazardous drinking (β = -.01, 95% CI [-.02, .00]). Although PTSD symptoms did significantly predict avoidance coping (β = .09, *p* = .025), the relationship between avoidance coping and hazardous drinking was only approaching significant (β = -.07, *p* = .051). All paths in the mediation model were accounted for; thus, global fit statistics are not reported as the model is just-identified.

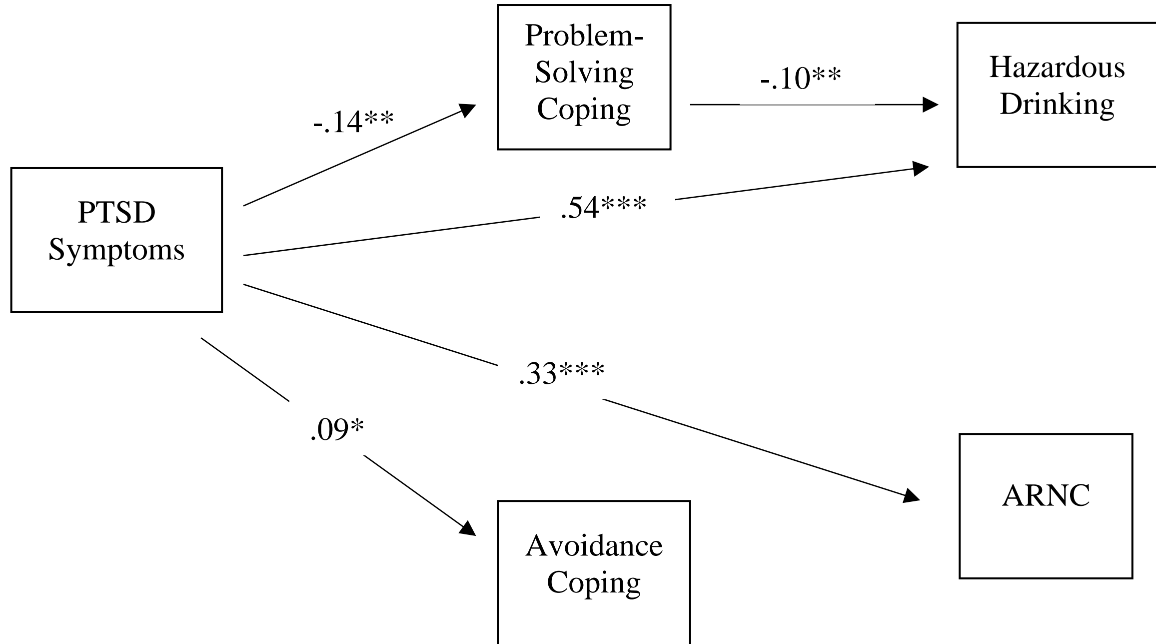
Alcohol-Related Negative Consequences

A main effect was found for PTSD symptoms on ARNC (*c* = .34, 95% CI [.27, .41]). There was a full mediation when coping styles were included in the model (c^1 =

.01, 95% CI [-.003, .036]), such that there was no longer a significant association between PTSD symptoms and ARNC when including the mediators.

Illustration 1

Significant Paths within Mediation Model



Note. *** = p < .001, ** = p < .01, * = p < .05
ARNC = Alcohol-related negative consequences.

Avoidance coping mediated the relationship between PTSD symptoms and ARNC (β = .01, 95% CI [.000, .022]) such that PTSD symptoms significantly predicted avoidance coping (β = .09, *p* = .025); however, the relationship between avoidance coping and ARNC was only approaching significant (β = .08, *p* = .052). In contrast, problem-solving coping did not mediate the relationship between PTSD symptoms and ARNC (β = .01, 95% CI [-.004, .023]). While there was a significant negative relationship from PTSD symptoms to problem-solving coping (β = -.14, *p* = .001), there was not a significant path from problem-solving coping to ARNC (β = -.05, *p* = .24).

Discussion

The present study examined problem-solving and avoidance coping as mediators in the relationships between PTSD symptoms and alcohol outcomes (i.e. hazardous drinking and ARNC). As hypothesized, PTSD symptoms were positively correlated with avoidance coping but negatively correlated with problem-solving coping. These results are consistent with past research and provide additional support for findings like those by Boden and colleagues (2012), in which increases in active forms of coping and decreases in avoidant forms of coping led to decreased PTSD symptom severity. Problem-solving coping was also negatively associated with hazardous drinking, consistent with study predictions. Contrary to the study hypothesis, avoidance coping was not associated with increased hazardous drinking; however, we found that avoidance coping was positively related to ARNC, which may help to explain Cooper and colleagues' (1992) findings in which stressors were predictive of drinking problems for men who used avoidant forms of coping. Our results are also consistent with previous studies that have found associations between PTSD symptoms and increased ARNC (Jordan et al., 2019; Tripp et al., 2015).

As predicted, coping styles did serve as mediators in the relationships between PTSD symptoms and alcohol outcomes. Interestingly, a unique relationship emerged between problem-solving coping and hazardous drinking and between avoidance coping and ARNC. Consistent with our hypothesis, problem-solving coping mediated the relationship between PTSD symptoms and hazardous drinking (i.e. increased PTSD symptoms were associated with less problem-solving coping which in turn was associated with more hazardous drinking). Fitting with the self-medication hypothesis,

individuals in this study with lower levels of active coping styles and greater PTSD symptoms reported more hazardous alcohol consumption, while this pattern appeared the opposite for individuals who reported higher active coping. One explanation for these results is that people engaging in more hazardous drinking may be doing so to cope with their negative affect. This rationale is supported by Yeater and colleagues (2010), who showed that drinking to cope mediated the relationship between PTSD symptoms and alcohol use. Perhaps low levels of problem-solving coping are a risk factor for drinking to cope (as PTSD symptoms and other problems are not being addressed); these associations between coping styles and coping drinking motives should be investigated further.

Problem-solving coping emerged as a potential protective factor in this study, as it was associated with lower PTSD symptoms and lower levels of hazardous drinking. Perhaps, those with healthier, more adaptive coping styles (like problem-solving coping) are better equipped to deal with trauma symptoms and therefore less likely to drink hazardously in attempt to mitigate PTSD symptoms. However, we cannot rule out the potential for problem-solving coping to be related to inherent personality traits, like conscientiousness, which may help an individual address their problems more efficiently and effectively. Further, traits such as conscientiousness have been associated with lower rates of alcohol consumption (Cook et al., 1998). Nevertheless, results indicate that active coping styles, like problem-solving coping, may be especially promising for those with comorbid trauma symptoms and alcohol-related problems.

As predicted, avoidance coping mediated the relationship between PTSD symptoms and ARNC (i.e. PTSD symptoms positively associated with avoidance

coping). The overall mediation is consistent with previously reviewed studies in which PTSD symptoms and avoidant forms of coping were associated with increased ARNC (e.g., Cooper et al., 1992; Tripp et al., 2015). Alcohol may be attractive to individuals with avoidant coping styles because of the perception that it helps one avoid posttraumatic stress symptomatology such as heightened negative affect. Problems may seem to temporarily disappear while the individual is intoxicated, as alcohol provides a physiological pathway to forgetting and avoidance. Further, one reason this mediation emerged with ARNC, but not hazardous drinking (as hypothesized), may be that those who engage in avoidance coping are drinking at a steady, but not necessarily hazardous, rates to avoid addressing their trauma-related symptoms. Avoidance coping is related to self-isolation (Amirkhan, 1990); therefore, the individual may be drinking alone to cope and may not be reaching more hazardous levels of drinking that might occur in a social setting (e.g., playing drinking games, keeping up with others' drinking behaviors). However, the risk factors of self-medication through avoidance coping are still present in the resulting ARNC, as individuals do not have to engage in hazardous drinking to still experience ARNC.

Implications

This study has several implications for the treatment of students with co-occurring PTSD symptoms and problematic alcohol use. Most notably, it highlights the importance of individuals using healthy, adaptive coping strategies to manage trauma symptoms. Clinicians working with college students should assess and identify clients' avoidant coping patterns and teach alternative coping strategies through treatment to help reduce drinking to cope, hazardous drinking, and ARNC. Because avoidance coping seems to

partially help explain the link between PTSD symptoms and ARNC, it is important for clinicians to help clients develop more adaptive coping styles like problem-solving coping, which is associated with decreased PTSD symptoms and decreased hazardous drinking. Finally, if clinicians can help clients apply an active coping approach to other non-trauma related problems that they encounter, this may effectively result in increases in general quality of life.

Limitations

While this study has many strengths, limitations should be acknowledged when interpreting the study results. First, this study used a cross-sectional design, which does not allow for causal claims. We also utilized self-report to assess PTSD symptoms, coping styles, and alcohol outcomes; thus, participant memory (i.e. accurate recall) and willingness to share potentially difficult information could affect validity of responses. Additionally, our measurement of hazardous drinking with the AUDIT-US includes items that assess a limited number of ARNC, which could have affected the results; utilizing only the consumption subscale of the AUDIT may have provided better differentiation between the study variables. We also chose a measure of coping styles in which some items could have been misinterpreted by participants. For example, on the avoidance subscale, participants are asked if they “watched more television than usual.” This may not translate to present-day college students who watch shows online versus on television, play video games, or visit social media sites for entertainment and coping. Finally, this study was part of a larger investigation of college student health behaviors, so we did not assess coping within the specific context of PTSD symptoms. Therefore,

participants may have responded differently if asked specifically about their coping approaches in the context of their traumatic stress symptoms.

Future Directions

Our results also highlight different avenues for further investigation. It might be beneficial to incorporate longitudinal designs such as weekly diary designs or ecological momentary assessment. Similarly, future investigation of coping styles may want to use various measures of assessing coping or look to design surveys that integrate more modern styles of coping (e.g., gaming, online program viewing). Replications of this study with additional and more diverse samples (e.g., race) would be valuable. Further, as we included all students who reported PTSD symptoms and alcohol use, it might be important to study subsets of these groups such as students above the cutoff score for a potential PTSD diagnosis or students at risk for future alcohol problems. It might also be valuable to explore the role of harm reduction strategies, such as alcohol protective behavioral strategies, in relation to coping styles for college students with PTSD symptoms (Jordan et al., 2019). Eventually, it might be valuable to study alcohol prevention and intervention efforts that seek to integrate training in adaptive coping styles and harm reduction. Finally, given the increase in cannabis use among college students (e.g., Schulenberg et al., 2019), it would be important to explore coping styles related to PTSD symptoms in the context of cannabis use or alcohol and cannabis co-use.

Conclusions

This study uniquely advances the literature by demonstrating the roles of problem-solving (adaptive) and avoidance (maladaptive) coping styles in the relationships PTSD symptoms have with alcohol outcomes. In particular, the findings

emphasized the protective value of adaptive coping styles for those with PTSD symptoms and comorbid hazardous drinking, as well as the potential risk for greater ARNC for those with PTSD symptoms using maladaptive coping styles.

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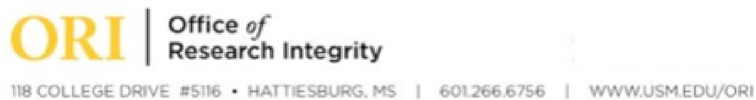
Appendix



NOTICE OF INSTITUTIONAL REVIEW BOARD ACTION

The project below has been reviewed by The University of Southern Mississippi Institutional Review Board in accordance with Federal Drug Administration regulations (21 CFR 26, 111), Department of Health and Human Services regulations (45 CFR Part 46), and University Policy to ensure:

- The risks to subjects are minimized and reasonable in relation to the anticipated benefits.
- The selection of subjects is equitable.
- Informed consent is adequate and appropriately documented.
- Where appropriate, the research plan makes adequate provisions for monitoring the data collected to ensure the safety of the subjects.
- Where appropriate, there are adequate provisions to protect the privacy of subjects and to maintain the confidentiality of all data.
- Appropriate additional safeguards have been included to protect vulnerable subjects.
- Any unanticipated, serious, or continuing problems encountered involving risks to subjects must be reported immediately. Problems should be reported to ORI via the Incident template on Cayuse IRB.
- The period of approval is twelve months. An application for renewal must be submitted for projects exceeding twelve months.

PROTOCOL NUMBER: IRB-18-182
PROJECT TITLE: PTSD Symptoms and Alcohol-Related Outcomes: The Mediating Role of Positive and Negative Coping Styles
SCHOOL/PROGRAM: School of Psychology, Psychology
RESEARCHER(S): Tatum Freeman, Michael Madson

IRB COMMITTEE ACTION: Approved
CATEGORY: Expedited

7. Research on individual or group characteristics or behavior (including, but not limited to, research on perception, cognition, motivation, identity, language, communication, cultural beliefs or practices, and social behavior) or research employing survey, interview, oral history, focus group, program evaluation, human factors evaluation, or quality assurance methodologies.

PERIOD OF APPROVAL: January 23, 2019 to January 23, 2020

Donald Sacco Jr.

Donald Sacco, Ph.D.
Institutional Review Board Chairperson