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Alcohol Use and Drinking Motives among Suddenly Bereaved College Students

Jasmine R. Eddinger, M.S.¹, Tori M. Humiston, B.A.¹, Madison L. Sutton, B.A.¹, Lisa Jobe-Shields, Ph.D.², and Joah L. Williams¹

¹Department of Psychology, University of Missouri – Kansas City, Kansas City, MO

²Department of Psychology, University of Richmond, Richmond, VA

Abstract

Objective: Thousands of Americans grieve the sudden death of a loved one each year. These sudden deaths may be the result of violent deaths, as in the cases of homicide, suicide, or fatal accidents, or may occur as the result of natural causes such as heart attacks or strokes. Sudden loss survivors often experience negative mental health outcomes such as depression, prolonged grief disorder, and posttraumatic stress disorder. Survivors may also misuse alcohol for varied reasons after these losses, which can put them at risk for alcohol-related consequences. Thus, the purpose of this study was to explore associations between psychological distress and alcohol-related outcomes among young adults with a history of sudden loss.

Methods: A sample of 659 young adults completed a series of self-report measures assessing loss history, psychosocial distress, perceived alcohol-related problems, and drinking motives.

Results: Results showed that survivors of sudden, violent losses reported higher rates of past 30-day alcohol use than those who had lost a loved one to a sudden, natural loss or those who reported no loss history. Though there were no statistically significant differences in drinking motives between violent or natural loss survivors, more severe depression symptoms among bereaved individuals were associated with drinking to cope and to conform. Participants experiencing prolonged grief symptoms were also more likely to report drinking to conform.

Conclusions: Bereavement-related distress may influence drinking motives among young adults with a history of sudden loss.

Keywords

sudden death; violent loss; bereavement; drinking motives; alcohol use; PTSD

In the United States, almost 40,000 people die each year by suicide, 38,000 by motor vehicle crashes, and over 16,000 by homicide (Kochanek, Murphy, & Xu, 2015). These deaths are often conceptualized as violent deaths in that they often involve both an element of

Joah L. Williams, Ph.D. (Corresponding Author), 5030 Cherry St., Rm. 310, Kansas City, MO, Office: (816) 235-1066, Fax: (816) 235-1062, williamsjoah@umkc.edu.

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suddenness and violent injuries to the deceased (e.g., Currier, Holland, & Neimeyer, 2006). Thousands more, however, die as a result of sudden, natural deaths resulting from cardiovascular diseases, cancer, and other natural causes. In cases of both violent and natural deaths, the suddenness of the death may be especially problematic for the bereaved in that sudden deaths confer greater risk for the development of bereavement-related psychopathology (Boelen, van den Bout, & van den Hout, 2006; Kaltman & Bonanno, 2003; Kristensen, Weisæth, & Heir, 2012). Though bereaved loved ones often naturally recover from these sudden losses (Bonanno, 2004), many others suffer from long-term mental health issues such as depression, prolonged grief disorder (PGD), and posttraumatic stress disorder (PTSD; Kristensen, Weisæth, & Heir, 2012; Rheingold & Williams, 2015). There is significant comorbidity among these disorders, but each presents unique symptomatology. For example, depression's central features consist of depressed or irritable mood, anhedonia, and fatigue, whereas PTSD is characterized by maladaptive fear responding and symptoms such as intrusive thoughts of the death event, hyperarousal, negative cognitions and mood, and avoidance. Conversely, symptoms of PGD differ from those of PTSD and major depressive disorder in that PGD is generally characterized by separation distress specifically associated with the lost relationship with the deceased loved one (Hibberd, Elwood, & Galovski, 2010).

In addition to suffering from different mental health symptoms related to depression, PGD, and PTSD, individuals grieving the sudden death of a loved one are also at risk for alcohol misuse, perhaps as a method of coping with the grief. For example, in a sample of 43 survivors of the 1995 Oklahoma City bombing, grief symptoms were found to be associated with self-reported increases in drinking after the bombing (Pfefferbaum & Doughty, 2001). Similarly, lifetime exposure to criminal and vehicular homicide was associated with alcohol misuse in a nationally representative sample of 12 to 17-year-olds interviewed as part of the 2005 National Survey of Adolescents (Rheingold, Zinzow, Hawkins, Saunders, & Kilpatrick, 2012). While providing evidence that individuals grieving sudden losses may be at greater risk for alcohol misuse, these studies do not clearly address mechanisms linking the association between sudden loss and alcohol misuse, and, given the dearth of literature in this area, replication of findings is warranted.

Several mechanisms may at least partly explain the association between sudden loss and alcohol misuse. Given that sudden violent and sudden natural losses increase risk for a number of bereavement-related mental health problems, experiencing more severe bereavement-related distress may serve to increase risk for subsequent substance misuse (e.g., Pfefferbaum & Doughty, 2001). In other words, trauma-exposed individuals such as those grieving sudden losses may be motivated to drink alcohol to cope with loss-related emotional distress, consistent with the self-medication hypothesis (Khantzian, 1985). Common drinking motives (Cooper, Russell, Skinner, & Windle, 1992) include social motives (e.g. drinking to celebrate or due to social custom), enhancement motives (e.g. drinking for fun or because it feels good), and coping motives (e.g. drinking to feel less stressed or to forget about worries). While drinking motives among young adult samples more generally suggest that this cohort is most likely to drink for social and enhancement motives (Kuntsche, Knibbe, Gmel, & Engels, 2005), those with more serious mood and anxiety symptoms may be more likely to endorse coping motives (Kassel, Jackson, &

Unrod, 2000). Indeed, Vujanovic and Zvolensky (2011) examined drinking in a community-based sample of individuals who had experienced a Criterion A traumatic event (APA, 2000) and noted that coping motives correlated with PTSD severity.

Because young adulthood is a developmental period associated with increased risk for alcohol misuse (Schulenberg & Maggs, 2002), it is especially important for researchers to better understand the impact of sudden loss on alcohol misuse at this critical stage and further explore the mechanisms linking sudden loss and alcohol misuse. Tragically, losing a family member or friend as a young adult is a common experience. As many as 60% of undergraduates have experienced the loss of a friend and approximately one-third experienced the death of an immediate family member within a 24-month period (Herberman, Mash, Fullerton, and Ursano, 2013).

Therefore, we sought to address two primary aims with this study. First, we sought to address whether surviving a sudden, violent loss is associated with a different pattern of alcohol use and drinking motives than surviving other sudden losses and/or no history of sudden loss. Second, we sought to explore whether bereavement-related mental health symptoms are associated with motives for drinking among those individuals with a history of sudden violent and non-violent losses. We hypothesize that (1) individuals bereaved by sudden, violent death will endorse higher rates of alcohol use than individuals bereaved by sudden, but natural, loss and individuals with no history of sudden loss. We also hypothesize that (2) individuals bereaved by sudden, violent death will endorse a different pattern of drinking motives and more perceived problems associated with their alcohol use compared to individuals bereaved by sudden, natural loss and individuals with no history of sudden loss. Lastly, we hypothesize that (3) serious emotional distress in the form of depression, PTSD, and PGD symptoms will be associated with alcohol-related problems and drinking motives among those students with a history of sudden loss.

Method

Participants and Procedures

Data for this study were collected as part of a larger project developed to assess the prevalence of exposure to potentially traumatic events and associations between event characteristics and trauma-related mental health problems during the emerging adulthood period. Participants were recruited from two universities located in the Midwest and Mid-Atlantic regions of the United States. Participants at both participating universities were recruited from the Psychology subject pool systems (SONA system), and surveys were completed online using REDCap, a secure, HIPAA compliant, web-based application for data collection (Harris et al., 2009). Participants completed the study during one session, which took approximately 45 minutes to complete on average. Before engaging in the study, all participants received information outlining their potential role in the study including that their participation was voluntary. After reading the study outline, they were prompted by the survey to indicate their willingness to participate and were only asked to proceed if they indicated that they consented. Participants across both sites received research credit for participating in the survey, and all study materials and procedures were approved by the

University of Missouri – Kansas City and University of Richmond Institutional Review Boards.

In all, 805 students began the survey, of whom 659 had valid loss and alcohol screening data. Of these 659 students with valid responses on variables of interest, 393 participants endorsed drinking within the past 30 days. Of those participants who endorsed past 30 day drinking, 197 reported no loss and 196 participants reported experiencing a sudden loss with some reporting multiple losses. Of the individuals with multiple losses, 120 identified a violent death as their worst loss, and 76 identified a natural loss as their worst loss. Of the 393 participants who endorsed drinking in the past 30 days, the participants were predominantly women (281, 71.5%) and white (293, 74.6%). The remaining sample was 8.9% ($n = 35$) Asian and 11.7% ($n = 46$) Black. Also, 9.9% ($n = 39$) of the overall sample identified as Hispanic. The average age of the sample was 20.54 ($SD = 3.65$). See Table 1 for demographic, mental health and alcohol variable mean data for the full sample, the total loss sample, and the loss sample who screened positive for drinking in the last 30 days.

Measures

National Stressful Events Survey (NSES).—The NSES (Kilpatrick et al., 2011) was used to assess loss history. It is a self-administered survey containing 25 closed-ended questions evaluating potentially traumatic experiences. Six questions on the NSES were used to determine participant loss history. Five questions assess sudden, violent losses, including homicide (“Has a close family member or close friend of yours ever been murdered or killed by a drunk driver?”), suicide and drug overdose (“Has a close family member or close friend of yours ever committed suicide or died from an overdose of alcohol or drugs?”), fatal accidents (“Has a close family member or close friend of yours ever been killed in a plane crash, car wreck, fire, or other accident?”), war and/or terrorism-related deaths (“Has a close family member or friend of yours ever been killed in a war, riot, or terrorist attack?”), and disaster-related deaths (“Has a close family member or friend of yours ever been killed by a natural disaster such as an earthquake or hurricane?”). One question assesses sudden, natural death (“Has a close family member or close friend of yours ever died suddenly and unexpectedly due to a heart attack, stroke, or cancer?”). If the participant endorsed experiencing both violent and sudden natural losses, they were prompted to indicate whether the worst experience or most stressful loss was a natural or violent death.

Drinking Motives Questionnaire-Revised (DMQ-R).—The DMQ-R (Cooper, 1992) contains twenty items ranging from 1 (Almost never/never) to 5 (Almost always/always). The scale measures four drinking motives: social (e.g., drinking to be sociable), coping (e.g., drinking to forget one’s problems), enhancement (e.g., drinking because one likes the feeling), and conformity (e.g., drinking because friends pressure one to drink). The DMQ-R has shown good psychometric properties in other samples of college students (e.g., Grant, Stewart, O’Connor, Blackwell, & Conrod, 2007), and demonstrated good to excellent internal consistency in the present sample (subscale alphas range from .81 to .90).

PROMIS Alcohol Short Form.—The PROMIS Alcohol Short Form (Pilkonis et al., 2015) assesses respondents' attitudes towards their alcohol use over the past thirty days. This measure includes an initial screening question asking whether or not respondents have consumed any alcohol in the past thirty days. Participants responding “yes” to this initial screening question are then prompted to answer seven Likert-style items ranging from 1 (never) to 5 (almost always) to assess their drinking behavior, including drinking patterns (e.g., “I drank too much,” “I drank more than planned”), cue-based drinking, cravings, and actions taken to control drinking (e.g., “It was difficult for me to stop after one or two drinks”). In the present study, the measure had excellent internal consistency ($\alpha = .92$).

Prolonged Grief-13 (PG-13).—The PG-13 (Prigerson & Maciejewski, 2006) was used to evaluate past month PGD symptoms. Each symptom is assessed on a five-point scale, with higher scores representing more severe grief symptomatology. Items can be summed to create an overall symptom severity score, ranging from 0-65, or used to identify individuals meeting diagnostic criteria for PGD. In the present study, the measure had excellent internal consistency ($\alpha = .91$).

PTSD Checklist 5 (PCL-5).—The PCL-5 (Weathers et al., 2013) was used to measure PTSD symptoms. Participants answered 20 self-report items that evaluate PTSD symptoms within the last month; items are rated from 0 indicating that they have not been bothered by the symptoms to 4 indicating they have been extremely bothered by the symptoms. Each item in the questionnaire corresponds with *DSM-5* PTSD symptom criteria (Blevins, Weathers, Davis, Witte, & Domino, 2016). In the present study, the measure had excellent internal consistency ($\alpha = .95$).

PROMIS Depression Scale-Short Form.—The PROMIS Depression Scale-Short Form (Cella et al., 2010; Pilkonis et al., 2011) was used to measure depression symptoms. Participants answered eight questions regarding their symptoms over the past seven days based on a Likert scale where 0 corresponds to “never” and 5 indicates “always.” Example items include “I felt sad,” “I felt helpless,” and “I felt like a failure.” In the present study, the measure had excellent internal consistency ($\alpha = .94$).

Data Analysis

Prior to conducting analyses, the distributional properties of the data were examined and outliers were corrected using recommendations outlined by Tabachnick and Fidell (2007). Bivariate correlations and one-way ANOVAs were used to examine associations between demographic factors, mental health variables, and alcohol-related problems and motives in individuals who had been bereaved by a sudden natural loss, a violent loss, or who had no history of loss (hypotheses 1 & 2). A series of ANOVAs were conducted to explore the relationship between depression, PTSD, and PGD scores with alcohol-related problems and drinking motives (i.e. social, coping, enhancement, and conformity). We controlled for type 1 error using the Bonferroni correction. A series of linear regression analyses were used to explore the association between depression, PTSD, and PGD and alcohol-related problems and drinking motives among those students with a history of sudden loss after controlling for

loss type (i.e., violent vs. sudden, natural death) and factors that were correlated with each outcome variable in bivariate analyses (hypothesis 3).

Results

Descriptive Statistics

Of the 659 participants with valid loss and alcohol use data, 310 (47.0%) reported a history of sudden loss at some point during their lifetime. In terms of violent losses, 56 (8.5%) participants lost a loved one to murder (including alcohol-related vehicular homicides), 120 (18.2%) to suicide, 114 (17.3%) to a motor vehicle crash or other accident, 15 (2.3%) to war, riot, or terrorist attack, and five to a natural disaster. For sudden, natural loss, 200 (30.4%) participants reported suddenly losing a loved one to stroke, heart attack, or cancer. Of the 136 participants who reported experiencing both a sudden natural and violent loss, 75 (55.1%) reported violent loss as the worse event and 61 (44.9%) reported the natural loss as the worse event. For purposes of this study, participants with a history of multiple losses were considered violent loss or sudden, natural loss survivors based on which death they identified as the worst or most stressful. Descriptive statistics are presented in Table 1. To explore Hypothesis 1, we compared individuals with no history of sudden loss (53.0%; $n = 349$), those with a history of violent loss (25.9%; $n = 171$), and those with a history of sudden, natural loss (21.1%; $n = 139$) on the initial screening question on the PROMIS Alcohol Short Form using the full sample of 659 respondents with valid alcohol use and loss data. Results indicated that participants who had lost a loved one violently were more likely to report that they consumed alcohol in the past 30 days (70.2%) compared to the natural loss (56.7%) and no loss (56.4%) groups, $\chi^2(2, N = 659) = 10.79, p < .01$. Next, to address Hypothesis 2, we compared past month drinkers with no loss, a history of sudden, natural loss, and a history of sudden, violent loss on each of our primary variables of interest using only the subset of 393 participants who reported any past month drinking. There were no statistically significant differences across groups on measures of alcohol use or drinking motives (Table 2). Only those participants who endorsed past month drinking were included in subsequent analyses.

Associations Between Demographic, Mental Health, and Alcohol Use Variables

Associations between emotional distress and alcohol use variables among the subsample of young adults with a history of sudden loss and past month alcohol use ($n = 196$) are presented in Table 3. These associations were used to identify relevant variables for inclusion in multivariate models. Overall, the associations suggest statistically significant relationships between the demographic variables age, gender, and ethnicity with alcohol and distress symptoms. Also, alcohol use was significantly associated with all distress symptoms; however, drinking motives varied across the different distress symptoms. PTSD and depression were significantly associated with coping, enhancement, and conformity motives, but not social motives. PGD was only significantly associated with coping and conformity. These significant associations were entered into the following regression models to test Hypothesis 3.

Regression Analyses

A series of forced entry regression analyses were used to examine the unique associations between emotional distress variables and alcohol use variables among sudden loss survivors who endorsed past month alcohol use (see Table 4). Results suggest that depression severity was uniquely associated with greater endorsement of coping motives among young adults with a history of sudden loss, $\beta = .28$, $t(167) = 2.93$, $p = .004$. Age, however, was the only variable uniquely associated with enhancement motives such that younger age is associated with greater endorsement of enhancement motives, $\beta = -.18$, $t(164) = -2.39$, $p = .02$. Both depression, $\beta = .24$, $t(165) = 2.44$, $p = .02$, and PGD, $\beta = .20$, $t(165) = 2.36$, $p = .02$, were associated with conformity motives. There were no statistically significant correlations for the social drinking scale, so no model was built for this variable. Also, no variables were uniquely associated with alcohol use as measured by the PROMIS Alcohol Short Form scale.

Discussion

The death of a loved one is a nearly universal experience, but this experience can be profoundly devastating when the death is sudden and unexpected. The sudden death of a loved one, particularly sudden, violent death, may increase risk of alcohol use. Despite increased frequency of use among violent loss survivors, there was no apparent difference in pattern of alcohol use or motives for use. Bereavement-related symptoms, rather than loss itself, are associated with motives for drinking, with different symptoms showing stronger associations with certain drinking motives and not others.

Over 70% of participants who reported historically losing a friend or loved one in a sudden, violent death reported drinking alcohol in the past 30 days. By comparison, the national prevalence of past month alcohol use among college students more generally is approximately 58% (Substance Abuse and Mental Health Services Administration, 2015), suggesting that bereavement due to violent loss may increase risk for alcohol use among young adults. For both the sudden violent and natural loss groups, though, mean scores on the PROMIS Alcohol Use measure are just slightly above average but still well within one standard deviation of the calibration sample mean (PROMIS Group, 2014), suggesting that our sample does not represent an especially severe subset of drinkers. Thus, future studies should examine whether the experience of sudden loss, and sudden, violent loss in particular, is associated with more severe patterns of alcohol use among samples of heavier drinkers.

Consistent with previous college student literature (e.g., Blevins et al., 2016; Byllesby, Charack, Durham, Wang, & Elhai, 2016; Eddinger & McDevitt-Murphy, 2017; Maccallum, Sawday, Rinck, & Bryant, 2015), scores on our mental health outcome measures also suggest that respondents were, on average, experiencing subclinical levels of distress on all outcomes. That said, it is possible that we did not fully capture the relationship between symptoms of distress and alcohol use. However, despite subclinical levels of distress symptoms in our sample, alcohol still seemed to play a significant role for sufferers of loss.

Our results further suggest that as young adults grieving the sudden death of a loved one experience more severe bereavement-related distress, they may also start to endorse more specific motives for drinking. Specifically, more severe depression symptoms were uniquely associated with coping motives after adjusting for PTSD and PGD symptoms. Although distinct from acute and prolonged grief, evidence clearly demonstrates that depression is one of several complications in bereavement that can occur resultant to sudden, unexpected loss (e.g., McDevitt-Murphy, Neimeyer, Burke, Williams, & Lawson, 2012; Rheingold & Williams, 2015). Self-medication models of trauma exposure and substance use (Khantzian, 1985) suggest that individuals will consume alcohol to cope with distress, and, in line with self-medication models, our findings revealed that sudden loss survivors with more severe depression endorsed more coping motives. Of course, the onset of depressive symptoms could have preceded the sudden death for many respondents, and future studies are needed to fully understand whether grief-specific depressive reactions (or at least depression exacerbated by sudden loss) is uniquely associated with coping motives among sudden loss survivors. Both depression and PGD symptoms were uniquely associated with conformity motives after adjusting for PTSD symptoms. While several factors may explain the association between depression, PGD symptoms, and conformity motives, researchers have long noted that both depression and PGD symptoms are associated with insecure attachment styles (e.g., Kadir & Bifulco, 2013; Schenck, Eberle, & Rings, 2016) characterized by greater willingness to engage in perceived pro-group actions (Ferenczi, Marshall, Lefringhausen, & Bejanyan, 2016). Therefore, young adults with more serious forms of bereavement-related distress in the form of depression and PGD symptoms may be more likely to engage in maladaptive behaviors seen as desirable by peers than those without more serious grief-related symptoms. Sudden deaths, and sudden, violent deaths in particular, also carry a great deal of stigma (e.g., Armour, 2007), and more distressed survivors may be more likely to drink to conform with perceived peer norms, especially if survivors already see themselves differently from others as a result of having survived a highly stigmatized death. Whether conformity motives are linked to insecure attachment styles or perceived stigma associated with the death among these more distressed loss survivors, though, are questions warranting further investigation.

The clinical implications for our findings suggest that the assessment of alcohol use and reasons for drinking should be part of routine clinical practice when working with suddenly bereaved young adults. Connecting loss survivors, particularly violent loss survivors, to early interventions with psychoeducation about alcohol may prevent survivors from initiating the use of alcohol and reduce risk of subsequent problem drinking patterns. Our results also suggest that this information may be especially valuable in survivors still experiencing higher levels of distress such as depression and PGD.

Our study provides important clarifying information about the nature of alcohol use in survivors of sudden loss, but has notable limitations. On average, scores on the PROMIS Alcohol Short Form indicate that our sample was not engaging in clinically-relevant, at-risk levels of alcohol use, which may have restricted the range of our results. Also, our data was cross-sectional and based on self-report, and, because of the cross-sectional nature of the data, we cannot fully disentangle the direction of the effects discussed herein. That is, the association between psychological distress and drinking motives is likely bi-directional, and

longitudinal designs are needed to fully understand whether distress variables predict drinking motives in bereaved populations. Moreover, PTSD and depressive symptoms may, of course, be associated with factors other than just surviving the sudden death of a loved one, and studies using more rigorous clinical interview methods are needed to more clearly elucidate the extent to which these symptoms (and their association with alcohol use and drinking motives) are primarily associated with surviving a sudden death. We were also limited in our assessment of alcohol misuse in that our primary measure of alcohol use was the PROMIS Alcohol Short Form. Notably, this scale does not allow us to compute indices of frequency or intensity of alcohol misuse, and future studies with loss survivors may want to explore whether sudden loss increases risk for different patterns of alcohol misuse in the form of frequency and intensity. The PROMIS Alcohol measure has also been criticized recently for its ability to identify individuals at risk for alcohol misuse (e.g., Gibbons et al., 2016), and thus future studies assessing alcohol misuse among violent loss survivors may want to include additional measures of alcohol misuse and alcohol-related consequences to more fully understand the extent of alcohol misuse among sudden loss survivors.

Despite the limitations within our investigation, this study makes an important contribution to the alcohol and bereavement literature by investigating alcohol use and drinking motives in a large sample of individuals with a history of sudden, unexpected loss. Sudden loss may trigger long-term mental health issues such as depression, PGD, and PTSD (Kristensen, Weisæth, & Heir, 2012; Rheingold & Williams, 2015) and, as illustrated throughout this paper, alcohol misuse may be an important part of this clinical profile for suddenly bereaved young adults. By identifying factors associated with various drinking motives among bereaved young adults, researchers and clinicians may be better able to develop targeted interventions aimed at improving outcomes. This study also suggests directions for future studies related to the role of alcohol severity as well as conformity-based drinking patterns. Because sudden loss can complicate the grieving process, it is critical that future studies continue this work to better understand the needs of sudden loss survivors.

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Table 1.

Sample Demographics and Mean Scores on Outcome Measures

Variable	Full Sample <i>N</i> = 659 <i>M</i> (<i>SD</i>)	Positive Drinking Screen / No Loss <i>n</i> = 197 <i>M</i> (<i>SD</i>)	Positive Drinking Screen / Sudden Loss <i>n</i> = 196 <i>M</i> (<i>SD</i>)
Mean Age	20.38 (3.62)	20.54 (3.65)	21.07 (4.55)
Gender			
Men	183 (27.8%)	53 (26.9%)	59 (30.1%)
Women	476 (72.2%)	144 (71.5%)	137 (69.9%)
PTSD	24.43 (18.10)	26.42 (18.21)	25.20 (18.04)
Depression	50.05 (9.87)	49.72 (9.35)	50.23 (9.75)
PGD	18.11 (7.31)	-	17.72 (7.19)

Note. PTSD scores based on PCL-5, Depression scores based on PROMIS Depression Scale, PGD scores based on PG-13. Cell sizes vary slightly due to missing data. Only participants with a loss history responded to items on the PGD.

Table 2.

ANOVAs Comparing Loss Types Across Alcohol Variables

Alcohol Variables	No Loss <i>n</i> = 197 <i>M</i> (<i>SD</i>)	Violent Loss <i>n</i> = 120 <i>M</i> (<i>SD</i>)	Natural Loss <i>n</i> = 76 <i>M</i> (<i>SD</i>)	<i>F</i> (<i>df</i>)
PROMIS Alcohol Total Score	53.89 (10.62)	54.17 (10.04)	54.03 (13.32)	.03 (2)
Social Motive	16.72 (5.98)	16.33 (5.67)	16.20 (5.83)	.29 (2)
Enhancement Motive	14.24 (5.75)	13.22 (5.14)	13.80 (6.00)	1.18 (2)
Coping Motive	10.94 (5.16)	10.92 (4.83)	10.80 (6.02)	.02 (2)
Conformity Motive	8.23 (4.45)	7.91 (3.78)	8.00 (4.28)	.23 (2)

Note. Cell sizes vary slightly due to missing data.

Table 3.

Correlations Between Demographic, Mental Health, and Alcohol Variables

	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1. Gender														
2. Age	0.04													
3. Asian	0.00	-.11*												
4. Black	0.02	-0.01	-.11*											
5. White	0.04	0.05	-.41**	-.51**										
6. Hispanic	-0.01	-0.01	-0.08	-0.07	-.23**									
7. PTSD	0.03	-0.08	0.06	.13*	-.12*	0.03								
8. Depression	0.08	-0.1	.12*	.10*	-0.1	0.02	.71**							
9. PGD	.15*	-0.03	0.01	0.1	-0.07	0.03	.49**	.41**						
10. PROMIS Alcohol	-.15**	-0.07	-0.01	-0.09	0.06	0.09	.25**	.18**	.18*					
11. Social	0.00	-.16**	-0.07	-0.06	.13*	-0.03	0.1	0.1	0.09	.38**				
12. Coping	0.03	-0.07	0	0.02	0.01	0.01	.38**	.37**	.26**	.56**	.56**			
13. Enhancement	-0.04	-.16**	-0.05	-0.01	.10*	-0.02	.15**	.14**	0.09	.46**	.75**	.56**		
14. Conformity	-0.1	-.11*	0.00	-0.02	0.07	-0.07	.27**	.22**	.25**	.40**	.42**	.50**	.35**	

Note.

*
p .05**
p .01.

Table 4.

Regression Analyses Modeling Associations Between Distress Variables and Alcohol Outcomes

Variable	β	SE	t	95% CI
PROMIS Alcohol (<i>n</i> = 173)				
Gender	-.14	1.83	-1.84	[-6.98, .24]
PTSD	.18	.07	1.68	[-.02, .25]
Depression	.07	.12	.65	[-.16, .31]
PGD	.11	.13	1.26	[-.10, .43]
Loss type	-.03	1.73	-.36	[-4.042, 2.79]
Coping (<i>n</i> = 171)				
PTSD	.13	.30	1.33	[-.02, .10]
Depression	.28	.05	2.93*	[.50, .26]
PGD	.10	.06	1.23	[-.04, .19]
Loss type	-.05	.76	-.76	[-2.09, .92]
Enhancement (<i>n</i> = 170)				
PTSD	.18	.03	1.61	[-.01, .12]
Depression	.01	.06	.13	[-.11, .12]
PGD	.05	.06	.53	[-.09, .16]
White vs Non-white	.02	1.00	.27	[-1.69, 2.22]
Age	-.18	.09	-2.39*	[-.38, -.04]
Loss type	.01	.84	.07	[-1.60, 1.72]
Conformity (<i>n</i> = 170)				
PTSD	.003	.02	.03	[-.05, .05]
Depression	.24	.04	2.44*	[.02, .19]
PGD	.20	.05	2.36*	[.02, .21]
Age	-.09	.06	-1.27	[-.21, .05]
Loss type	<.001	.61	-.004	[-1.20, 1.20]

*Note.**
p .05.