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Alcohol Use and Drinking Motives in Bereaved Undergraduates

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ALCOHOL USE AND DRINKING MOTIVES IN BEREAVED UNDERGRADUATES

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Abstract

This study examined the effect of the experience of a loss on alcohol use and drinking motives in a college sample. Participants for this study were drawn from the "Spit for Science" project (Dick et al., 2014). The sample included 3,013 students (31.8% men, 68.2% women; 44.3% White, 21.1% Black, 19.6% Asian, 6.0% Latinx; mean age = 18.96; 16.2% bereaved) from Virginia Commonwealth University. Data were collected from participants' freshman spring and sophomore spring time points on the Life Events Checklist, Alcohol Consumption items, and Drinking Motives Questionnaire-Revised. Participants who were bereaved between the freshman and sophomore timepoint did not significantly differ in their alcohol consumption, coping drinking motives, or conformity drinking motives compared to their non-bereaved counterparts. Limitations and future directions for research are reviewed.

Alcohol Use and Drinking Motives in Bereaved Undergraduates

Emerging Adulthood

Emerging adulthood is an important stage of identity development that occurs when people are between the ages of 18 and 25. This stage is most commonly thought of as the point between adolescence and adulthood (Arnett, 2000). About 60% of individuals in this stage are in some form of higher education (Arnett, 2004). During this time, emerging adults may live away from home, and experience a new sense of independence, while still have most of the securities they did during adolescence (e.g. parent's helping out paying bills). However, during this period individual's experience a great increase in the amount of changes and instability in their life (e.g. moving away from home, being in a new environment). During this stage, a person is allowed to develop their identity independent of their family and parental scrutiny. This allows them to explore different parts of themselves they otherwise might be unable to do. It is also a time at which individuals are developing their world view and how they perceive themselves in that world (Arnett, 2000).

Jensen (2011) characterized emerging adulthood as possessing five different components. The first is identity explorations in which an individual is faced with hard decisions that will impact the direction their life goes and how they view the world (e.g. beginning to pick a career, being able to vote). Instability is the second characteristic of this period. Since emerging adulthood is an exploratory developmental period it is common for individuals to change their opinions, living situation, romantic relationships, life goals, and educational trajectory just to name a few. The third component is that emerging adulthood is a period between adolescents and adulthood where individuals experience some freedoms and responsibilities, but not others. This may result in individuals during this time to feel in-between life stages and not quite adults.

Fourthly, emerging adulthood is also the beginning phase of many individuals' adult lives. The possibilities during this time seem more open then at previous or later life stages. Lastly, it is a time which people are making a lot of decisions about themselves and their lives that will have a great impact on their future. Due to this, this stage is one of particularly high self-focus and self-involvement (Jensen, 2011).

The lifestyle that comes along with emerging adulthood also comes with a new set of challenges. Separation from parents or guardians is essential for individuals to fully develop their sense of self and world views, but also means that emerging adults have to face new responsibilities and temptations without having parental guidance.

Alcohol Use

Alcohol use and emerging adulthood. Emerging adults use and abuse alcohol and substances at higher rates than any other age groups and those numbers are even higher in college populations (Arnett,2000; Hamdan, Melhem, Porta, Song, and Brent, 2013). Alcohol is a part of college life with 20-30% of college students meeting DSM criteria for alcohol use disorder (Clements, 1999). In a 2004 study by Dawson, Grant, Stinson, and Chou of adults ages 18-29, 73.1% reported drinking in the past year. Of those that endorsed drinking in the past year, 54.3% reported binge drinking in that time frame, 28.9% endorsed binge drinking more than once a month, and 15% endorsed binge drinking more than once a week. Binge drinking is defined as five or more drinks for men and four or more drinks for women within an evening (Wechsler and Nelson, 2001). Substance use during this time has been linked to various negative outcomes including death, injuries, academic problems, and sexual behavioral problems (Stone, Becker, Huber, & Catalano, 2012).

Alcohol use and drinking motives. While measures of alcohol consumption (i.e., quantity and frequency of use) are generally good indicators of substance abuse in a population, research investigating substance use in individuals experiencing life stressors has demonstrated that consumption measurements may not always be the best indicator of abuse. Some research has shown that in populations with additional life stressors, especially those who may experience isolation as a result (e.g. social anxiety, depression, etc.), information about drinking motives may reveal a better picture regarding if, or how, a person is using substances. This holds true in populations where there is a higher incidence of a substance abuse disorder (Terlecki, Ecker, & Buckner, 2014; Villarosa et al., 2014; Clerkin & Barnett, 2012; Buckner, Timpano, Zvolensky, Sachs-Ericsson, & Schmidt, 2008; Boelen & Prigerson, 2007; Stroebe, Schut, & Stroebe, 2003).

Drinking Motives are frequently measured by the Drinking Motives Questionnaire (DMQ; Cooper, 1994) which has four factors which are considered motives for drinking: enhancement, social, coping, and conformity. Enhancement motives refer to the use of alcohol to enhance one's mood or well-being (internal positive reinforcement). Social motives are motives that are based in sociability (i.e. to be sociable, to celebrate)(external positive reinforcement). Coping motives refer to the motivation to drink to lessen or control negative affect (e.g., drinking to decrease the negative emotions attached to stressful life events) (internal negative reinforcement). And lastly, conformity motives for drinking involve drinking to avoid social stigma for not drinking (external negative reinforcement). Of these motives, both enhancement and coping motives have been linked to higher levels of alcohol consumption and negative alcohol related consequences. Coping motives even continue to be related to negative alcohol related consequences when levels of consumption are controlled for (Cooper, 1994; Cooper, Russell, Skinner, & Windle, 1992).

Drinking motives and outcomes. The study of drinking motives has been linked to negative alcohol related consequences in many studies (Cooper, 1994; Cooper, Russell, Skinner, & Windle, 1992). Negative alcohol related consequences include things like getting into fights, missing class or other important events, getting into trouble with authorities, getting injured or injuring someone else, and similar negative outcomes that can occur from alcohol use. Coping, enhancement, and conformity motives have been shown to be predictive of negative alcohol related consequences; social motives have not been linked with increased negative consequences (Cooper, 1994; Cooper, Russell, Skinner, & Windle, 1992).

As discussed above, populations that may experience similar life and social stressors as bereaved populations, have been shown to have different drinking motives and outcomes than general population samples. McDevitt-Murphy, Fields, Monahan, and Bracken (2015) compared drinking motives and outcomes in Veterans that had PTSD compared to those who did not have PTSD. Their findings supported that those with PTSD had elevated coping motive scores. Those who had PTSD and endorsed coping motives were also found to have significantly elevated levels of negative alcohol related consequences.

Research examining the relationship between drinking and social anxiety has provided even more insight into how drinking motives can influence outcomes. In emerging adult populations, those who meet diagnostic criteria for Social Anxiety have often been found to drink less than their non-socially anxious counterparts. However, those with Social Anxiety experience more negative consequences of alcohol use than their non-socially anxious peers. Research has supported that the relationship between social anxiety and negative consequences of alcohol use is mediated by coping and conformity motives (Lewis, Hove, Whiteside, Lee, Kirkeby, Oster-Aaland, Neighbors, & Larimer, 2008).

Drinking motives and gender. In overall college samples, compared to female students, male students use alcohol more frequently and in greater quantities (Clements, 1999; Read, Wood, Davidoff, McLacken, & Campbell, 2002). Male students are also more likely to participate in binge drinking episodes (Wechsler, Dowdall, Davenport, & Castillo, 1995), meet DSM criteria for a substance use disorder (Clements, 1999), and experience more negative alcohol related consequences (Read et al., 2002). While men are more likely to drink to enhance their mood in positive situations, women are more at risk for experiencing negative alcohol related consequences and are more likely to drink to cope or conform (Norberg, Norton, Oliver, & Zvolensky, 2010; Norberg et al., 2011).

Drinking motives and race/ethnicity. Research suggests that there are also differences in levels of coping motives across race and ethnicity. Studies comparing Black and White individuals have found Black individuals report higher levels of coping motives compared to their White counterparts. Moreover, those who report elevated conformity motives are also more likely to experience alcohol-related problems (Gardner, Robertson, Tatch, & Walker, 2018).

Bereavement

College students who are experiencing life stressors are at an increased risk having drinking motivators that elevate their risk of negative consequences of alcohol use (i.e. coping and conformity motives). While many different stressors have been looked at during this developmental period, research has yet to investigate whether or not bereavement influences drinking behaviors or drinking motives.

Bereavement has been defined as the "objective situation of having lost someone significant through death," (Stroebe, Hansson, Schut, & Stroebe, 2008, p. 4). This is different from concepts of grief, which is the emotional response to bereavement and mourning. This

means that in studies of bereavement, researchers are studying outcomes of the presence of a loss of someone significant. Someone significant can be a variety of individuals; however, most research focuses on familial losses, such as that of a spouse, parent, or child (Hardison, Neimeyer, & Lichstein, 2005; McIntosh, Silver, & Wortman, 1993; Worden, 1996).

Coping with a loss can also cause a disruption to how an individual views and interacts with the world around them. A bereaved individual may question their identity and their sense of self (Nerken, 1993). They may also reevaluate and question how they view the world (Janoff-Bulman, 1992). Individuals who have suffered a loss also sometimes experience feelings of vulnerability or helplessness (Hogan, 1987). They may also withdraw from their social networks, including friends and family (Utz, Carr, Nesse, & Wortman, 2002).

Bereavement in emerging adulthood. The rates of bereavement in emerging adulthood are much higher than some would expect. One study done on college students found that 64.1% of students had lost a loved one in their lifetime. Of those students, 35.1% of losses happened beyond the age of 17. The students in this study also endorsed experiencing the loss of a loved one as the most adverse life event more often than experiencing trauma, divorce of their parents, or academic problems (Smyth, Hockemeyer, Heron, Wonderlich, & Pennebaker, 2008).

Other statistics collected on the incidence of bereavement in undergraduates have found that looking at the last two years, percentages range from approximately 25% (Lagrand, 1985; Varga, 2013) to approximately 40% (Balk, Walker, and Baker, 2010; Currier, Holland, Coleman, & Neimeyer, 2006). Balk, Walker, and Baker (2010) found that 30% of undergraduates had experienced the loss of a loved one in the past one year. Due to these high rates of bereavement, some researchers have taken to referring to emerging adult's grief as a "silent epidemic" (Neimeyer, Laurie, Mehta, Hardison, and Currier, 2008).

Individuals in the developmental stage of emerging adulthood may be even more susceptible to threats to their identity and experiencing social isolation. As discussed above, emerging adulthood can be a time where individuals experience a decrease in social support, especially from their previous primary support network (e.g. family members, friends from home) and as a result may be more vulnerable during this time (Pennebaker, Colder, & Sharp, 1990). Bereaved emerging adults frequently feel isolated from their peers because they are grieving (Schultz, 2007). Emerging adults who have not experienced the loss of a loved one may find it difficult to be supportive or provide comfort to their friend who is grieving. This may result in feelings of sadness, helplessness, or discomfort when they are around their grieving friend (Balk, 1997; Balk. 2001; Vickio, Cavanaugh, & Attig, 1990). Bereaved emerging adults may also view the support their friends provide as negative (Balk, 2001; Balk & Vesta, 1998). During emerging adulthood, peer support typically plays a much larger role, and in many cases become the primary support system for individuals in this stage. A lack of peer support during this time could result in negative outcomes for an individual (Arnett, 2000).

Bereavement and race. Due to systemic factors, Black and/or African American individuals experience shortener life spans and disproportionately experience losses due to homicide (Kochanek et al., 2004; Rosenblatt & Wallace, 2005) However, Black and/or African American communities have shown remarkable resilience to these systemic factors by relying on and providing ingroup support during a time of loss (Boyd-Franklin, 2003; Hines & Boyd-Franklin, 1996). While White individuals typically rely on family support during times of loss, Black/African-American individuals often rely on a social support system, that can include their biological family, but expands to fictive kin (family members who are not related by blood or marriage), friends, and community members (Stack, 1974; Sudarkasa, 1997). While the studies

above did not investigate racial/ethnic differences in emerging adulthood experiences with bereavement, this broader network of social support would likely impact how Black/African American view the quality of social support they receive after experiencing a loss.

Alcohol Use and Bereavement in Emerging Adulthood

Individuals who are bereaved may be at heightened risk of using alcohol to cope with their loss or to feel like they fit in better into their social environment if they are using alcohol. As discussed above, bereaved individuals, especially those in emerging adulthood, may experience feelings of social isolation. On college campuses in particular, drinking may help students feel like they fit in and/or help them cope with the loss.

A study looking at the incidence rate and time of onset of alcohol and substance abuse disorders in bereaved youths (age 13 and older) found that the rates of alcohol and substance abuse disorders were higher and the age of onset was earlier in bereaved youths when compared to their non-bereaved counterparts. While this study investigated youths who are younger than emerging adults, participants had a mean age of 17.6 years old, it may also provide indications of how alcohol and substance abuse may be in college samples (Hamdan, Melhem, Porta, Song, and Brent, 2013).

Alcohol use, bereavement, and gender. Pilling and colleagues (2012) found that levels of substance abuse were higher in males than females in a bereaved sample. The study investigated alcohol use and abuse characteristics in people who had lost a loved one in the past three years. This study used the Alcohol Use Disorders Identification Test (AUDIT) to identify levels of alcohol consumption, symptoms of alcohol dependence, and negative consequences that occurred from alcohol use. Participants in the study included 4457 individuals, 466 of whom were bereaved. The sample was 59.5% female with an average age of 48.5 years old. The results

of this study found that within this sample, bereaved men who had experienced a loss in the last year had significantly elevated levels of dependence symptoms and harmful alcohol use, as measured by the AUDIT, compared to their non-bereaved counterparts. When men who had experienced a loss in the last two years were compared to their non-bereaved counterparts, they experienced significantly elevated levels of all symptomology measured by the AUDIT: hazardous alcohol use, dependence symptoms, and harmful alcohol use. The study found these differences between bereaved and non-bereaved could only be found in men (Pilling, Konkolÿ Thege, Demetrovics, and Kopp, 2012).

Drinking motives and bereavement. Drinking motives may be different in a sample of bereaved individuals. As part of a measurement development study creating a measure of grief and coping in college students, Lord (2015) collected qualitative data, using focus groups, on what bereavement and grief experiences were like for undergraduates. Participants for the focus groups were volunteers from a class about grief and loss offered at a large public university in the Mid-Atlantic. The sample consisted of 17 students, 13 of whom were female. A facilitation guide was created based on techniques developed by Kreuger (1988) and Stewart and Shamadansi (1990). This guide was used by focus-group leaders and divided focus group sessions into two themes: the impact of the loss on participants lives and coping techniques the participates used.

Based on focus group data, Lord (2015) hypothesized that students may use substances to deal with the emotions that they are experiencing because of their loss. Bereaved undergraduates report being drawn to substances because they help distract them or numb them to their feelings and memories of the person they lost. Emerging adults may be particularly at risk for drinking due to coping or conformity motives based on their reports that using substances to cope with

their loss seems "'easy' 'feels normal' and is 'accepted'" and allows them to preserve their image as a "fun" college student (Lord, 2015, p. 53). Participants stated things like "a lot of people turn to alcohol and drugs," "partying and alcohol are easy targets for college students to turn to," "by drinking one can forget about the pain that comes with a loved one's death," and "college students seem to turn to drugs and drinking as a method to cope" to quote a few. The vast majority of participants (79%) indicated that substance abuse was a strategy that came up when discussing how college students cope with the loss of a loved one (Lord, 2015, p 55-56).

Statement of the Problem

The rates of bereavement in emerging adulthood are much higher than some would expect. Smyth and colleagues (2008) found that 64.1% of college students had lost a loved one in their lifetime. Of those students, 35.1% of losses happened after the age of 17, that is, during the time of emerging adulthood. The students in this study also endorsed experiencing the loss of a loved one as the most adverse life event more often than experiencing trauma, divorce of their parents, or academic problems.

Given the frequency of substance use in emerging adulthood, which is higher than in any other age group (Arnett, 2000; Hamdan, Melhem, Porta, Song, and Brent, 2013), concerns over college students use of substances to cope with the loss of a loved one are merited. Previous research on bereaved adolescents showed that their bereaved participants were more likely to report elevated rates of alcohol consumption. Research investigated the impact of other mental health issues, (e.g. social anxiety, PTSD, etc.), found that drinking motives also may be a relevant piece of evaluating changes in drinking behaviors in bereaved undergraduates (Terlecki, Ecker, & Buckner, 2014; Villarosa et al., 2014). Lord (2015) found that bereaved undergraduate students reported using substances to cope with the emotions they experienced because of their

loss while attempting to maintain their social identity as a normative college student (Lord, 2015).

Aim of the Present Study

Alcohol consumption. The current study sought to address gaps in the literature by investigating how alcohol may be used differently by undergraduates after experiencing a loss. Previous research has found that individuals who are recently bereaved are at a higher risk of substance abuse (Boelen & Prigerson, 2007; Stroebe, Schut, & Stroebe, 2003; Prigerson, Bierhals, Kasl, Reynolds, Shear, and Day, 1997; Yalom & Vinogradov, 1988). Moreover, emerging adults who are faced with adversity have been shown to consume larger amounts of alcohol than their peers (Read, Griffin, Wardell, and Ouimette, 2014). The current study aimed to build upon these findings by examining how alcohol consumption changes after the experience of a loss when comparing a bereaved group to a non-bereaved group of undergraduate students.

In overall college samples, male students have been found to use alcohol more frequently and in greater quantities relative to female students (Clements, 1999; Read, Wood, Davidoff, McLacken, & Campbell, 2002). The current study aimed to examine this effect in the current sample. The current study also aimed to investigate if men who are bereaved experience a greater increase in alcohol consumption than bereaved women and their non-bereaved peers.

Previous research has demonstrated that for those who have experienced life stressors, alcohol consumption may not be the only reliable indication of alcohol abuse. In these populations, when individuals' motivations for drinking shift towards coping with negative emotions or trying to fit in with their peers, they experience greater abuse potential and negative outcomes (Terlecki, Ecker, & Buckner, 2014; Clerkin & Barnett, 2012). This previous research

has predominately been conducted on individuals who experience depression, anxiety, or trauma. The current study aimed investigate if motives for drinking change in emerging adults who are bereaved.

Drinking motives: coping. Coping drinking motives are described as a motivation to drink to suppress negative emotions (internal negative reinforcement). The current study aimed to investigate if emerging adults report an increase in coping drinking motives after they experience a loss. The present study also sought to investigate if gender plays a role in this effect in bereaved populations, as previous research has supported that women are more likely to consume alcohol to cope (Norberg et al., 2011). Previous research indicates that Black or African American individuals experience higher levels of coping motives compared to their White counterparts (Gardner et al., 2018). Other research suggests that the collectivist culture in African American/Black community may serve as a protective factor from feelings of isolation. Thus, the isolation reported by emerging adults in focus groups that influenced their decision to drink to cope with their negative emotions may be mitigated in Black students (Boyd-Franklin, 2003; Hines & Boyd-Franklin, 1996). The present study examined this relationship by investigating the change in coping motives between White and Black participants post-bereavement when controlling for their levels of coping motives pre-bereavement, and comparing that change to a non-bereaved sample.

Coping motives have also been shown to positively correlate with alcohol consumption (Cooper, 1994; Cooper, Russell, Skinner, & Windle, 1992), and coping motives have been found to mediate the relationship between alcohol consumption and several mental health issues (i.e., depression, anxiety; Buckner & Heimberg, 2010; Terlecki & Buckner, 2015).The present study sought to investigate what role loss plays in the relationship between coping motives and

consumption. Specifically, if an increase in coping motives in those who have experienced a loss mediates the relationship between alcohol consumption prior to experiencing a loss and alcohol consumption post-loss.

Drinking motives: conformity. Another drinking motive of interest to the present study was conformity motives (external negative reinforcement). In the qualitative study conducted by Lord (2015), bereaved emerging adults cited using alcohol after a loss because it's "'easy' 'feels normal' and is 'accepted'" and allows them to preserve their image as a "fun" college student. The current study aimed to investigate if emerging adults report a higher conformity motives after experiencing a loss. The present study also investigated if gender plays a role in this effect in bereaved populations, as previous research has supported that women are more likely to consume alcohol due to conformity motives (Norberg et al., 2011).

Methods

Participants

Secondary data analyses was conducted on a previously existing data set collected as part of the "Spit for Science" project (Dick et al., 2014). The original sample included 9,891 undergraduate students from a large, urban, public university in the mid-Atlantic region of the United States. The participants of this original sample were 61.1% women and 38.2% men; 49.3% White, 18.9% African America or Black, 16.3% Asian, and 15.5% other. The average age of participants when they began the survey (in their Freshman year) was 18.5 years old (range = 18 to 26).

Only a subset of the original sample participants was included in this study. Participants were first eliminated for not responding to the survey at the Freshman Spring timepoint (T1) and the Sophomore Spring timepoint (T2) to the item "Has someone close to you passed away?",

leaving a sample of 4,203 participants. For this study, all participants needed to be non-bereaved at T1, after eliminating those who reported experiencing a loss at T1, 3,526 participants were left. Since both the alcohol us items and the Drinking Motives Questionnaire-Revised were critical for this study, any participants who did not respond to these questionnaires were eliminated, leaving 3,013 participants. These participants were then divided into two groups: one group which also reported not being bereaved at T2 (N = 2,525) and one group that did report being bereaved at T2 (N = 488).

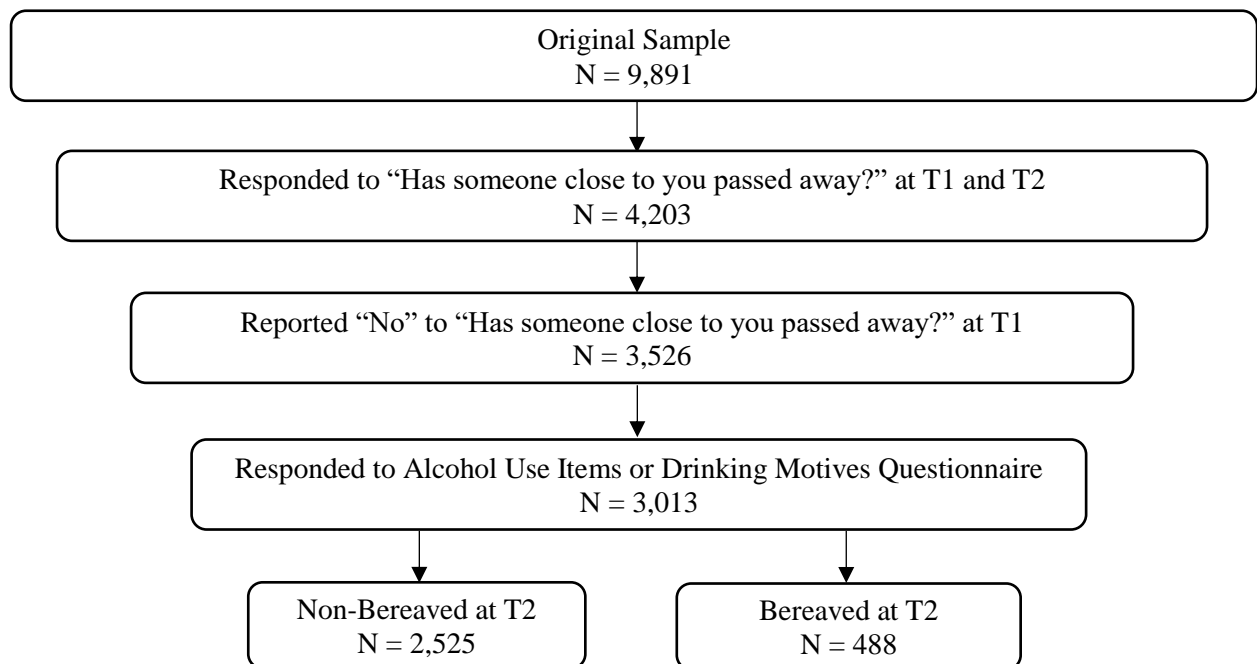*Figure 1.* Schematic of participant selection.

The final sample (N=3,013) for this study were 31.8% men and 68.2% women. Participants were also 44.3% White, 21.1% African American / Black, 19.6% Asian, 6.0% Latinx / Hispanic, 6.0% More than one race, and 1.1% Native Alaskan / American Indian / Native Hawaiian / Other Pacific Islander. The average age of participants at T1 was 18.96 years old (range = 18 to 26).

Not all participants who responded to either the Drinking Motives Questionnaire or Alcohol Use items responded to all items at both T1 and T2. Because of these, sample sizes for each analysis may vary from the complete sample size of 3,013. Sample sizes will be indicated in all data tables (see Table 5, Table 6, Table 7, and Table 8).

Measures

Demographics. Survey participants were asked to report on their age, sex, and race/ethnicity at T1 at which they completed the survey. A copy of this measure can be found in Appendix A.

Life Events Checklist. The Life Events Checklist (Gray et al., 2004) was used to determine which participants from the dataset would be included the bereaved and non-bereaved groups in the current study. Specifically, the checklist item "Has someone close to you passed away" was analyzed so that participants who responded they had never experienced a loss at T1 and whether or not they had experienced a loss in the past 12 months at T2 were included in the bereaved group. Participants who answered they had not experienced a loss T1 and T2 were included in the non-bereaved group. A copy of this measure can be found in Appendix B.

Alcohol Consumption. Participants were asked about the frequency and quantity of their alcohol use. Each item was collected categorically. For the frequency item "How often do you have a drink containing alcohol?", participants were given the options of "never," "monthly or less," "2-4 times a month," "2-3 times a week," and "4 or more times a week." For the quantity item "How many drinks containing alcohol do you have on a typical day when you are drinking?", participants were given the options of "1 or 2," "3 or 4," "5 or 7," "7, 8, or 9," and "10 or more." These items were combined in analysis to for the variable "alcohol consumption" which has 4 categories abstainer (0 drinks), light drinker (1 to 13 drinks per month), moderate

drinker (4 to 14 drinks per week), and heavy drinker (2+ drinks per day) (Dufour, 1999). A copy of this measure can be found in Appendix C.

Drinking Motives Questionnaire-Revised. Drinking motives were assessed with the Drinking Motivations Questionnaire-Revised (Cooper, 1994). This scale is broken into four subscales reported by Cooper (1994): Social Drinking ($\alpha = 0.88$, to improve sociability), Conformity Drinking ($\alpha = 0.89$, to fit in with a group), Drinking to Cope ($\alpha = 0.89$, to cheer up or gain confidence), and Drinking to Enhance ($\alpha = 0.85$, because drinking is fun or gives a high). Each item was rated on a Likert-type scale anchored with 1 (Strongly Agree) and 4 (Strongly Disagree). Items were reverse scored and averaged so that higher scores represent greater motivation for the subscale construct. A copy of this measure can be found in Appendix D.

Depression. Depression was measured using the subscale of the Symptom Checklist-90 (Derogatis et al., 1973), a self-report measure used in research and clinical settings to assess psychological symptoms. The depression subscale ($\alpha = 0.89$) consists of 4 items which ask participants to report their symptoms over the last month. Each item is rated on a 5-point Likert scale: "not at all" (1), "a little bit" (2), "moderately" (3), "quite a bit" (4), and "extremely" (5). Participant responses were summed for a continuous score.

Procedure

Data used for this study came from an existing data set collected as part of the "Spit for Science" project. "Spit for Science" is a large-scale longitudinal study investigating the development and outcomes of substance use and mental/emotional health in college students. This study is currently ongoing and is being conducted at a large public university in the Mid-Atlantic. All incoming freshman are contacted before the start of their first semester with information about the study and an invitation to participate. Students who enrolled to participate

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were sent a link to an online survey which included a consent form and initial survey which inquired about their pre-college experiences. Students were paid $10 for participating in the study and were given a "Spit for Science" t-shirt. Freshman who did not sign up for the study were invited again in the spring semester of their first year. Students who decided to participate at this time were given the same consent with a slightly abbreviated initial survey. Participants who enrolled before entering college were given a follow-up survey at the freshman year, spring semester timepoint (Dick et al., 2014).

Follow-up data is collected on each cohort annually during the spring, including post-graduation surveys. Study data is collected and managed using REDCap (Research Electronic Data Capture), a secure, web-based application that is intended to support data collection and storage for research studies. REDCap provides: (1) an intuitive interface for validated data entry; (2) audit trails for tracking data manipulation and export procedures; (3) automated export procedures for seamless data downloads to common statistical packages; and (4) procedures for importing data from external sources (Dick et al., 2014). All analyses were conducted using IBM SPSS Statistics 24.

Results

Prevalence of Bereavement in the Sample

Preliminary data analyses were conducted on the sample to investigate how well the dataset mirrored other research conducted on bereaved samples. Looking at the original dataset, from which the participants included in this study were taken, 18.1% percent of students report experiencing a loss in the last twelve months (Table 1). This is lower than another study conducted by Balk, Walker, and Baker (2010) which found 30% of their sample reported being bereaved in the last year. Looking at the last 24 months, or 2 years, of those that responded in the

original sample, 30.3% of students reported experiencing a loss (Table 2). This figure is similar

to previous research, which range from 25% (Lagrand, 1985; Varga, 2013) to 40% (Balk,

Walker, and Baker, 2010; Currier, Holland, Coleman, & Neimeyer, 2006).

Table 1
Rates of Bereavement Over Last 1 Year

	Year 1		Year 2		Year 3		Year 4	
	N	%	N	%	N	%	N	%
Bereaved in Last 1 Year	1231	16.6	905	19.3	678	18.3	454	19.5
Not Bereaved in Last 1 Year	6173	83.4	3781	80.7	3032	81.7	1878	80.5

Table 2
Rates of Bereavement Over Last 2 Years

	Year 2		Year 3		Year 4	
	N	%	N	%	N	%
Bereaved in Last 2 Years	1261	30.0	922	30.5	559	30.9
Not Bereaved in Last 2 Years	2942	70.0	2099	69.5	1252	69.1

Descriptive Statistics

Prior to hypothesis testing, tests for skewness and kurtosis were conducted to test for

normal univariate distribution. Overall, most variables were normally distributed, with the

exception of the conformity drinking motive at T1 and T2 which was skewed (-2.10 and -2.51,

respectively) and kurtotic (4.01 and 6.38, respectively) (Table 3). Data transformation (i.e., using

square root, log, inverse, categorical quartiles) was not successful in reducing this effect due to

the ceiling effect in the sample. Also prior to hypothesis testing the pattern correlations between

study variables were tested. The patterns were general as expected and consistent with other

studies using these measures (Harbke, Laurent, & Catanzaro, 2017).

Table 3
Tests for Normality

Variable	Min	Max	Mean	SD	Skewness	Kurtosis
Alcohol Consumption (T1)	0.00	3.00	1.46	0.70	0.94	-0.06
Alcohol Consumption (T2)	1.00	3.00	1.52	0.73	0.93	-0.64
Coping Motives (T1)	1.00	4.00	3.26	0.89	-0.87	-0.44
Coping Motives (T2)	1.00	4.00	2.91	0.89	-0.19	-0.96
Conformity Motives (T1)	1.00	4.00	3.67	0.60	-2.10	4.010

	Min	Max	Mean	SD	Skewness	Kurtosis
Conformity Motives (T2)	1.00	4.00	3.76	0.52	-2.51	6.38
Depression (T1)	4.00	20.00	9.59	3.81	0.64	-0.22
Depression (T2)	4.00	20.00	9.56	4.00	0.59	-0.42

Table 4

Correlations Between Study Variables

	1	2	3	4	5	6
1 Alcohol Consumption (T1)		.536**	-.217**	-.180**	.014	.013
2 Alcohol Consumption (T2)	.536**		-.166**	-.167**	.048*	.024
3 Coping Motives (T1)	-.217**	-.166**		.405**	.232**	.091**
4 Coping Motives (T2)	-.180**	-.167**	.405**		.044	.158**
5 Conformity Motives (T1)	.014	.048*	.232**	.044		.394**
6 Conformity Motives (T2)	.013	.024	.091**	.158**	.394**	

*Note: **Correlation is significant at the 0.01 level, *Correlation is significant at the 0.05 level.*

Alcohol Consumption

To address the hypothesis that bereavement status and gender would be related to the level of alcohol consumption, a 2x2x2 repeated measures analysis of variance was conducted to compare the effect of bereavement and gender on the amount of alcohol consumed. Time was the within-subjects factor (consumption at T1 vs. consumption at T2), with the two grouping variables, bereavement status and gender, as between-subjects factors (bereaved group vs. non-bereaved group; men vs. women). A significant main effect for time was found, such that regardless of bereavement status and gender, reported alcohol consumption went up across time, $F (1, 2178) = 12.071$, $p = 0.001$ (Table 5). A significant main effect was found for gender, such that overall, men drink more than women ($F (1, 2178) = 77.058$, $p = 0.032$) (Table 5). However, no significant main effect was found for bereavement on alcohol consumption, $F (1, 2178) = 2.880$, $p = 0.090$ (Table 5).

A time by gender interaction was observed, indicating that while both men and women's alcohol consumption increased across time, this effect was accentuated in men $F (1, 2178) = 4.33$, $p = 0.038$ (Table 5). Not surprisingly, the bereavement by gender interaction was also

significant F (1, 2178) = 4.60 p = 0.032 (Table 5). No significant effect on alcohol consumption

was found between the bereaved and non-bereaved group across time, F (1, 2178) = 0.162, p =

0.687 (Table 5, Figure 2). The three-way interaction for time, bereavement status, and gender

was not significant, F (1, 2178) = 0.001, p = 0.976 (Table 5, Figure 3). Because of the apparent

differences between bereaved and non-bereaved men at T1 (illustrated in Figure 3), an

independent samples t-test was conducted to compare baseline differences. Bereaved (M = 1.75,

SD = 0.76) and non-bereaved (M = 1.61, SD = 0.75) men's alcohol consumption at baseline was

significantly different, t(156.61) = -2.00, p = 0.047.

Table 5
Reported Alcohol Consumption

	Timepoint 1		Timepoint 2		Total	
	Mean	SD	Mean	SD	Mean	SD
Bereaved						
Men (N = 110)	1.75	0.76	1.87	0.85	1.81	0.70
Women (N = 255)	1.37	0.67	1.41	0.66	1.39	0.57
Total (N = 365)	**1.48**	0.72	**1.55**	0.75	1.52	0.64
Non-Bereaved						
Men (N = 557)	1.61	0.75	1.72	0.80	1.66	0.69
Women (N = 1261)	1.40	0.66	1.42	0.67	1.41	0.57
Total (N=1818)	**1.46**	0.69	**1.51**	0.72	1.48	0.62
Total						
Men (N = 667)	1.63	0.75	1.74	0.81	1.69	0.69
Women (N = 1516)	1.39	0.66	1.42	0.67	1.41	0.57
Total (N = 2183)	1.46	0.70	1.52	0.73	1.49	0.63

Alcohol Consumption and Bereavement

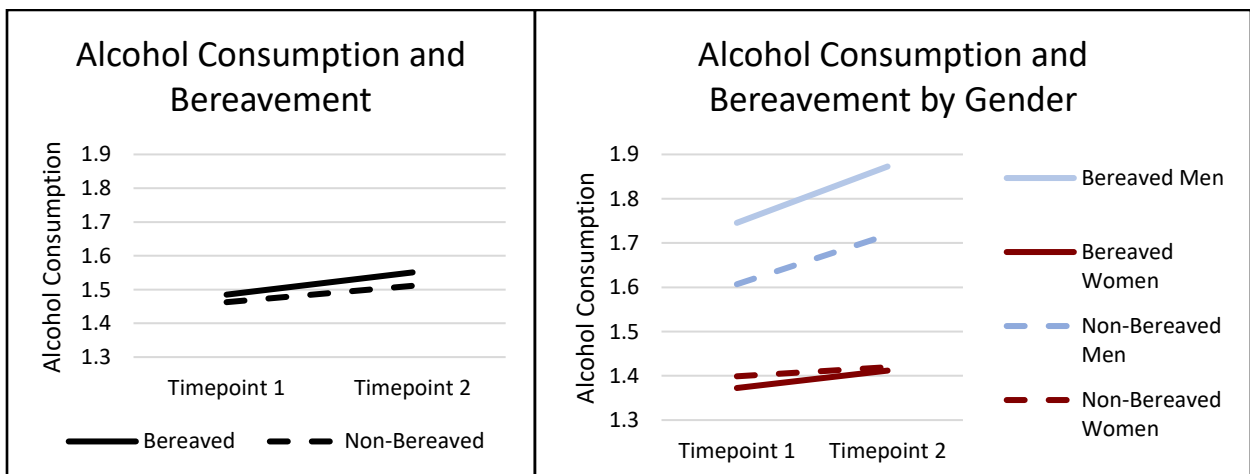Alcohol Consumption and Bereavement by Gender

Figure 2. Alcohol consumption and bereavement graph

Figure 3. Alcohol consumption and bereavement by gender graph

Due to the significant main effect for time found in the current sample, researchers did an exploratory 4x2 repeated measures analysis of variance was conducted to compare alcohol consumption on over all four years of college (additional timepoints were collected in the original dataset). Time was the within-subjects factor (consumption at T1 vs. T2 vs. T3 vs. T4), with gender as a between-subjects factors (men vs. women). A significant main effect for time was found, such that regardless of gender, reported alcohol consumption went up across time, $F (1, 1014) = 6.98$, $p = 0.008$ (Table 6, Figure 4). A significant main effect was found for gender, such that overall, men drink more than women ($F (1, 1014) = 42.66$, $p < 0.001$) (Table 6, Figure 4). No significant time by gender interaction was observed, $F (1, 1014) = 1.42$, $p = 0.241$ (Table 6, Figure 4).

Table 6
Reported Alcohol Consumption

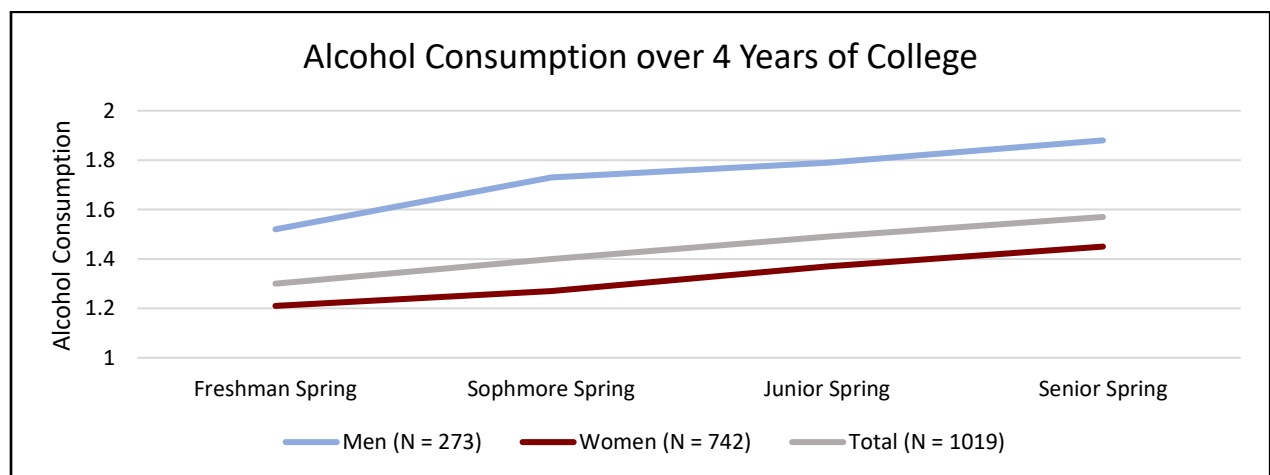|	Timepoint 1		Timepoint 2		Timepoint 3		Timepoint 4		Total	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD
Men (N = 273)	1.52	0.92	1.73	0.92	1.79	0.87	1.88	0.88	1.73	0.55
Women (N = 742)	1.21	0.75	1.27	0.73	1.37	0.72	1.45	0.68	1.33	0.72
Total (N = 1019)	**1.30**	0.82	**1.40**	0.81	**1.49**	0.79	**1.57**	0.76	1.44	0.62

Figure 4. Alcohol consumption over four years of college by gender

Drinking Motives: Coping

To address the hypothesis that bereavement status and gender would be related to the level of coping motives, a 2x2x2 repeated measures analysis of variance was conducted to compare the effect of bereavement and gender on the amount of coping motives for drinking reported. Time was considered the within-subjects factor (coping at T1 vs. coping at T2), with the two grouping variables, bereavement status and gender, as between-subjects factors (bereaved group vs. non-bereaved group; men vs. women). A significant main effect for time was found, such that regardless of bereavement status and gender, reported coping motives went down across time, $F (1, 1080) = 64.23$, $p < 0.001$ (Table 7). A significant main effect was found for bereavement on coping motives, such that the bereaved group reported drinking to cope less than the non-bereaved group, $F (1, 1080) = 7.753$, $p = 0.005$ (Table 7). No significant main effect was found for gender ($F (1, 1080) = 0.004$, $p = 0.950$) (Table 7).

The interactions between time and gender, $F (1, 1080) = 0.151$, $p = 0.697$, bereavement and gender, $F (1, 1080) = 0.993$, $p = 0.334$, and bereavement and time, $F (1, 1080) = 0.117$, $p = 0.733$ were all not significant (Table 7, Figure 5). The three-way interaction for time, bereavement status, and gender was also not significant, $F (1, 1080) = 0.536$, $p = 0.464$ (Table 7, Figure 6).

Table 7
Reported Coping Motives

	Timepoint 1		Timepoint 2		Total	
	Mean	SD	Mean	SD	Mean	SD
Bereaved						
Men (N = 46)	3.11	0.86	2.67	0.96	2.89	0.74
Women (N = 116)	3.13	0.97	2.80	0.97	2.96	0.82
Total (N = 162)	**3.12**	0.93	**2.76**	0.97	2.94	0.79
Non-Bereaved						
Men (N = 284)	3.32	0.85	2.99	0.86	3.15	0.69
Women (N = 639)	3.27	0.89	2.91	0.88	3.09	0.75
Total (N=923)	**3.29**	0.88	**2.93**	0.88	3.11	0.74

Total

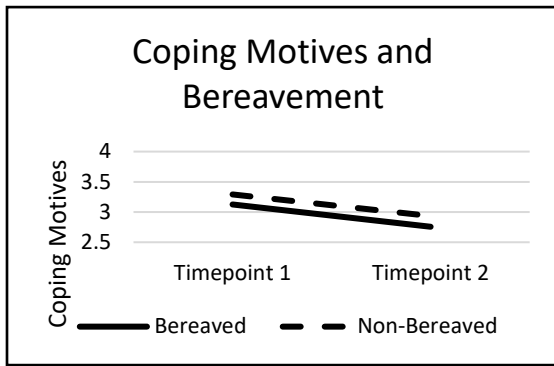|						
Men (N = 330)	3.29	0.86	2.94	0.88	3.12	0.70
Women (N = 755)	3.25	0.90	2.89	0.90	3.07	0.76
Total (N = 1085)	3.26	0.89	2.91	0.89	3.09	0.47

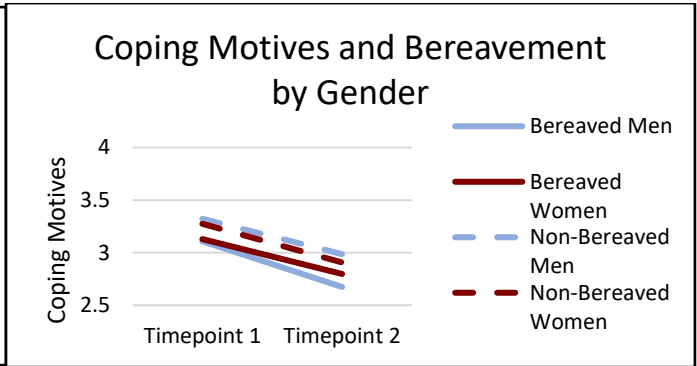*Figure 5.* Coping motives and bereavement graph

Figure 6. Coping motives and bereavement by gender graph

A 2x2x2 repeated measures analysis of variance was conducted to address the hypothesis that White individuals would have a larger increase in coping motives scores after the experience of a loss compared to Black individuals. Time was the within-subjects factor (consumption at T1 vs. consumption at T2), with the two grouping variables, bereavement status and race, as between-subjects factors (bereaved group vs. non-bereaved group; Black vs. White). A significant main effect for time was found, such that regardless of bereavement status and race, reported coping motives went down across time, $F(1, 774) = 28.71$, $p < .001$ (Table 8). A significant main effect was found for bereavement on coping motives, such that the bereaved group reported drinking to cope less than the non-bereaved group $F(1, 774) = 7.40$, $p = 0.007$ (Table 8). No significant main effect was found for race ($F(1, 774) = 0.219$, $p = 0.640$) (Table 8).

The interactions between time and race, $F(1, 774) = 3.46$, $p = 0.063$, bereavement and race, $F(1, 1061) = 2.26$, $p = 0.134$, and bereavement and time, $F(1, 774) = 0.31$, $p = 0.581$ were

all not significant (Table 8, Figure 5). The three-way interaction for time, bereavement status, and race was also not significant, $F(1, 774) = 1.92$, $p = 0.166$ (Table 8, Figure 7).

Table 8
Reported Coping Motives

|	Timepoint 1		Timepoint 2		Total	
	Mean	SD	Mean	SD	Mean	SD
Bereaved						
Black (N = 28)	2.93	1.13	2.84	0.96	2.88	0.84
White (N = 91)	3.20	0.85	2.74	0.96	2.97	0.79
Total (N = 160)	**3.13**	0.93	**2.76**	0.97	2.94	0.79
Non-Bereaved						
Black (N = 183)	3.40	0.86	3.09	0.85	3.25	0.69
White (N = 477)	3.26	0.88	2.89	0.88	3.01	0.73
Total (N = 917)	**3.29**	0.88	**2.93**	0.88	3.11	0.74
Total						
Black (N = 211)	3.34	0.91	3.06	0.86	3.20	0.72
White (N = 568)	3.25	0.89	2.87	0.89	3.06	0.74
Total (N = 1077)	3.27	0.89	2.91	0.89	3.09	0.75
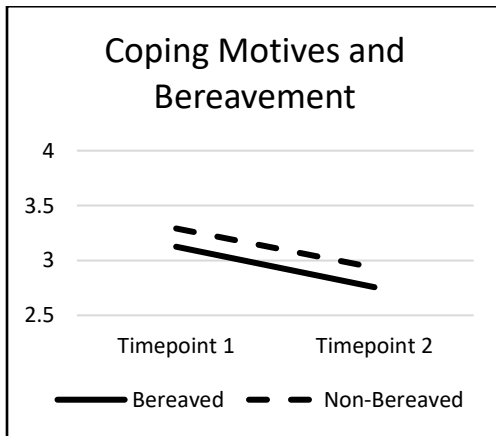
Figure 5. Coping motives and bereavement graph
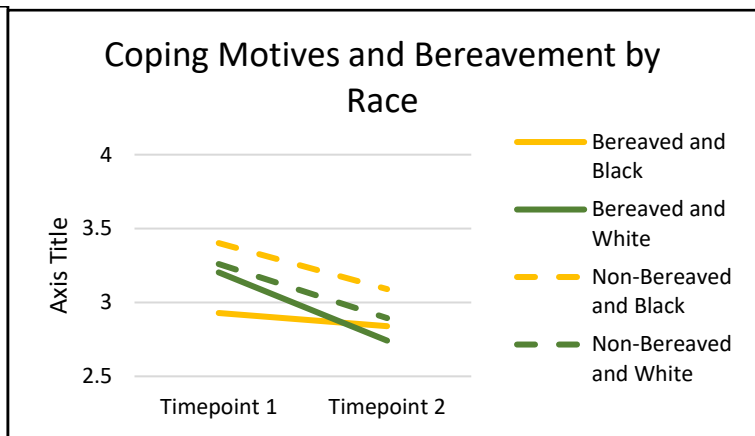
Figure 7. Coping motives and bereavement by race graph

A mediation analysis was conducted to address the hypothesis that coping motives would mediate the relationship from alcohol consumption at T1 and alcohol consumption at T2 in the bereaved group (see Figure 7). Researchers also hypothesized that coping motives would mediate the relationship between the change in alcohol consumption in the bereaved group from T1 to T2. To investigate if coping motives mediated the relationship between alcohol

consumption and the experience of a loss (such that the presence of coping motives at T2 significantly accounted for the variations in consumption quantities when comparing T1 to T2 in the bereavement group) a mediation analysis was conducted using the Baron and Kenny (1986) method for testing mediation. First, alcohol consumption at T1 was found to predict alcohol consumption at T2, $\beta = .56$, $p < .001$. Next, alcohol consumption at T1 failed to significantly predict coping motives at T2, $\beta = -0.18$, $p = .081$. When both alcohol consumption at T1 and coping motives at T2 were entered into a third model, the relation between coping motives at T2 and alcohol consumption at T2 was significant, $\beta = -0.12$, $p = .03$, and the relation of alcohol consumption at T1 to alcohol consumption at T2 was also significant, $\beta = .57$, $p < .001$. However, as the relationship between alcohol consumption at T1 and coping motives at T2 was not significant researchers could not conclude that coping motives at T2 mediated the effect of alcohol use at T1 to T2 (see Figure 8).
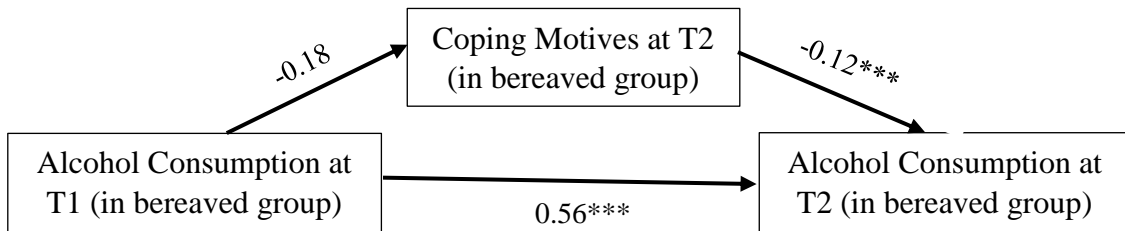

Figure 8. Mediation of coping motives on the relationship between the change in alcohol consumption in the bereaved group from T1 to T2.

Drinking Motives: Conformity

To address the hypothesis that bereavement status and gender would be related to the level of conformity drinking motives, a 2x2x2 repeated measures analysis of variance was conducted to compare the effect of bereavement and gender on the amount of conformity motives reported. Time was considered the within-subjects factor (conformity at T1 vs.

conformity at T2), with the two grouping variables, bereavement status and gender, as between-subjects factors (bereaved group vs. non-bereaved group; men vs. women). A significant main effect for time was found, such that regardless of bereavement status and gender, reported conformity motives went up across time, $F (1, 1091) = 7.037$, $p = 0.008$ (Table 9). A significant main effect for gender was found, such that women reported higher levels of conformity motives than men ($F (1, 1091) = 6.173$, $p = 0.013$) (Table 9). No significant main effect was found for bereavement on conformity motives, $F (1, 1091) = 0.753$, $p = 0.386$ (Table 9).

The interactions between time and gender, $F (1, 1091) = 1.775$, $p = 0.183$, bereavement and gender, $F (1, 1091) = 0.132$, $p = 0.716$, and bereavement and time, $F (1, 1091) = 0.650$, $p = 0.420$, were all not significant (Table 9, Figure 9). The three-way interaction for time, bereavement status, and gender was also not significant, $F (1, 1091) = 0.102$, $p = 0.749$ (Table 9, Figure 10).

Table 9
Reported Conformity Motives

|	Timepoint 1		Timepoint 2		Total	
	Mean	SD	Mean	SD	Mean	SD
Bereaved						
Men (N = 46)	3.55	0.62	3.65	0.69	3.60	0.51
Women (N = 118)	3.72	0.59	3.73	0.64	3.73	0.52
Total (N = 164)	**3.67**	0.61	**3.71**	0.66	3.69	0.52
Non-Bereaved						
Men (N = 293)	3.59	0.68	3.72	0.52	3.66	0.51
Women (N = 639)	3.71	0.55	3.78	0.48	3.75	0.43
Total (N = 932)	**3.67**	0.60	**3.76**	0.49	3.72	0.46
Total						
Men (N = 339)	3.59	0.67	3.71	0.54	3.65	0.51
Women (N = 757)	3.71	0.56	3.78	0.51	3.74	0.45
Total (N = 1096)	**3.67**	0.60	**3.76**	0.52	3.71	0.47
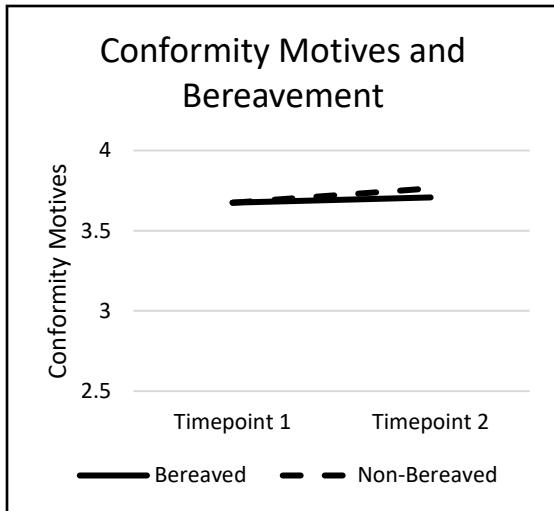
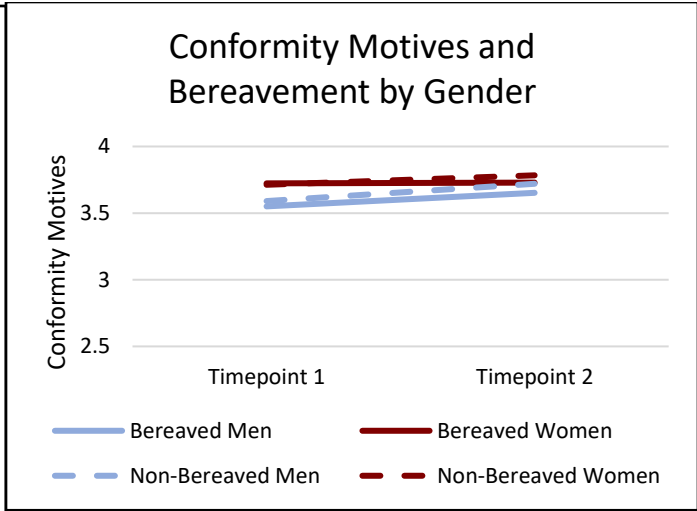*Figure 9.* Conformity motives and bereavement graph

Figure 10. Conformity motives and bereavement by gender graph

Exploratory Analysis: Depression

To address that bereavement status was related to the level of depression, a 2x2 repeated measures analysis of variance was conducted to compare the effect of bereavement on depression. Time was considered the within-subjects factor (depression at T1 vs. depression at T2), with bereavement as the between-subjects factors (bereaved group vs. non-bereaved group). No significant main effect for time was found, such that regardless of bereavement status, reported depression did not significantly change across time, $F (1, 2936) = 1.986$, $p = .159$ (Table 10). No significant main effect was found for bereavement on depression, $F (1, 2936) = 0.630$, $p = 0.427$; however, a significant interaction was found between bereavement and time on bereavement scores, $F (1, 2936) = 6.397$, $p = 0.011$. Figure 11 illustrates the differential slopes between bereaved and non-bereaved groups depression scores.

Table 10
Depression Scores

	Timepoint 1		Timepoint 2		Total	
	Mean	SD	Mean	SD	Mean	SD
Bereaved (N = 473)	9.51	3.77	9.87	4.00	9.69	3.38
Non-Bereaved (N = 2466)	9.61	3.82	9.50	4.00	9.55	3.41
Total (N = 2939)	**9.59**	3.81	**9.56**	4.00	9.58	3.40

Figure 11. Depression scores and bereavement graph

Discussion

The purpose of this study was to investigate the relationship between bereavement and alcohol use among college students. Previous research on the effects of stressors on alcohol consumption have had mixed results, and no previous studies have looked at the effect of bereavement in an undergraduate sample on alcohol consumption. Researchers hypothesized that alcohol consumption would increase after the experience of bereavement. This hypothesis was not supported. While there was a significant increase in reported drinking between T1 and T2, bereavement did not exacerbate this increase. Similarly, the prediction that men who experienced a loss would report the greatest increase in alcohol consumption was not supported.

Consistent with previous research men reported higher rates of alcohol consumption than women regardless of time (Clements, 1999; Read, Wood, Davidoff, McLacken, & Campbell, 2002)). And in addition to an overall significant increase in consumption from T1 to T2, men also reported a greater increase in alcohol consumption from T1 to T2 than women. Research on changes in levels of alcohol consumption throughout college has been very scarce, with very few studies investigating longitudinal changes in alcohol consumption. While previous research has not found an increase in alcohol consumption over time, many of the current longitudinal studies using alcohol consumption as a variable collect data in much shorter periods (i.e., 3 to 6 months) than the current study (Berenz, Cho, Overstreet, Kendler, Amstadter, et al., 2015; Cho, Llaneza,

Adkins, Cooke, Kendler, et al., 2015; Jorstad-Stein, Heimberg, Drabick, Ellman, Giovanetti et al., 2014). Men in the bereaved group also reported significantly higher rates of alcohol consumption regardless of time.

This finding that alcohol consumption did not change due to the experience of a loss may be related to previous research on undergraduate students with mental health concerns. Several studies have found that for students struggling with their mental health, frequency and quantity based alcohol use measure are not an accurate way of measuring changes in alcohol use behaviors, but changes alcohol use motives are able to shed a greater light on the shift in alcohol use changes and outcomes (Terlecki, Ecker, & Buckner, 2014; Villarosa et al., 2014; Clerkin & Barnett, 2012; Buckner, Timpano, Zvolensky, Sachs-Ericsson, & Schmidt, 2008; Boelen & Prigerson, 2007; Stroebe, Schut, & Stroebe, 2003). Specifically, researchers in the present study hypothesized that coping motives would be elevated after the experience of bereavement. However, this hypothesis was not supported. In fact, researchers found that, there was a significant decrease in coping motives across time for both bereaved and non-bereaved groups. This contradicts previous research where bereaved undergraduates reported that they often use alcohol to distract themselves or numb their feelings about their loss (i.e., coping motives) (Lord, 2015). To date there have not been any studies looking at changes in coping motives across time throughout college. However, several studies on life adjustment to college have found that students report difficulty adjusting to college and being away from family (Baker & Others, 1985). It is possible that at T1, when students are freshman, they are drinking to cope due to adjustment stress, and during their sophomore year are no longer experiencing these stressors.

Previous research also found that women and minority individuals are more likely to report drinking for coping motives compared to White men (Gardner, Robertson, Tatch, &

Walker, 2018; Norberg, et al., 2010; Norberg et al., 2011). When looking at gender or race, no significant main effects or interactions were observed. This finding contradicts previous research that found women report higher levels of coping motives compared to men and that Black individuals report higher levels of coping motives compared to White individuals (Gardner, Robertson, Tatch, & Walker, 2018; Norberg, Norton, Oliver, & Zvolensky, 2010; Norberg et al., 2011).

Lastly, related to coping motives, researchers hypothesized that coping motives would mediate, or further explain, the relationship between alcohol consumption before and after the experience of bereavement. This hypothesis was not supported as alcohol consumption at T1 did not have a significant relationship with coping motives at T2 in bereaved participants. This finding is consistent with the previous findings in this study, as bereavement did not have a significant impact on alcohol consumption or coping motives.

In addition to investigating changes in coping motives, researchers in the present study also hypothesized that conformity motives would be elevated after the experience of bereavement. This was because undergraduates in a focus group conducted by Lord (2015) reported that they often use alcohol to appear normal and fun. The hypothesis that bereaved undergraduates would report higher levels of conformity motives was not supported. While conformity motives went up across time for both groups, this effect was not exacerbated by the experience of a loss. However, as there was a ceiling effect on this variable that affected the data's distribution any increase in conformity motives would have been difficult to capture. It was also hypothesized that women would have higher levels of conformity motives overall, and that bereaved women would report the greatest level of conformity motives. While, aligning with previous research, women reported higher levels of conformity motives than men regardless of

time or bereavement status (Norberg, Norton, Oliver, & Zvolensky, 2010; Norberg et al., 2011), the prediction that women who experienced a loss would report the greatest increase in conformity motives was not supported. This aligns with the results above, that overall, the experience of bereavement did not affect conformity motives.

Researchers also conducted exploratory analysis investigating the relationship of depression and bereavement. The results supported an interaction between depression and the experience of bereavement, such that the bereaved group showed an increase in depression scores across time that the non-bereaved group did not. While this finding was not surprising, given the symptoms of grief and depression can be similar for a period after the loss (Hogan, 1987; Utz, Carr, Nesse, & Wortman, 2002), this finding supports the use of T2 as a post-bereavement timepoint where participants may still be experiencing the loss emotionally.

Many of the non-significant findings in the present study could possibly be explained by researchers not being able to capture important nuances of bereavement due to the use of secondary data for the current study. Several details related to the bereavement experience of the participants that could have been relevant to the present study were unknown (i.e., how long ago the loss occurred, closeness to the deceased, and suddenness of the loss). Time since the experience of the loss may have been a particularly relevant question to the study as changes in drinking motives to cope or conform may exist temporarily but are not sustained for months after the loss. While grief may affect an individual for an extended period of time, the pressure a college student feels to seem fun and normal after a loss may only last for a few weeks.

Alternatively, it is possible that significant results could not be detected because of attrition of participants who were most effected by a loss. Students who currently are struggling to cope with the loss of a loved one may have temporarily withdrawn from school or failed to

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complete their follow up survey. Lord's (2015) focus group participants who reported changes in motivations and use of alcohol after the experience of a loss, were predominately students who had experienced a loss 2 or more years ago. When discussing their experiences at the time of their loss, students also reported dropping classes, taking time off from school, and difficulty keeping track of tasks, all of which could have affected attrition for those struggling the most with grief. Previous quantitative research has also found that bereaved undergraduates have a higher risk of dropping out and poor academic performance (Balk 2001; Balk & Vesta, 1998).

Lastly, the results of these study could be accurate and undergraduates drinking behaviors may not be greatly affected by the experience of a loss. College culture around drinking is based in social connection and enjoyment (Osberg, Insana, Eggert, & Billingsley, 2011). While bereaved students may go out with the intention of pushing themselves to appear fun and normal to their friends, they may do this less frequently than they would have prior to the experience of a loss. And once they are out, they may make difference choices around their alcohol use (i.e., drinking less if they were not in the mood to go out in the first place).

Future research should attempt to further clarify what differences, if any, in alcohol use behaviors between bereaved and non-bereaved undergraduates. Specifically, administering additional tools, such as the GCOPE (a measure of grief coping), and collecting more information about the loss may help reveal answers to the research questions investigated by this study. Research with more frequently occurring timepoints may also be able to answer questions about how drinking motives shift after a loss over time. Additionally, gathering qualitative data may allow researchers to shed light on when and why any shifts in alcohol use occur in bereaved undergraduates.

In regards to alcohol consumption and drinking motives, this study found some novel findings that were not explained by the current research. Specifically, future research should investigate longitudinal changes in alcohol consumption and drinking motives throughout college and why these changes may occur. In the present study, coping motives from timepoint 1 to 2 significantly declined. Further investigation could reveal whether this decrease is found in other college samples and why it may occur.

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Appendix A

Demographics Questionnaire

Age: _____

Sex: □ Male
      □ Female
      □ I choose not to answer

Which one of these groups best describes you?
      □ American Indian/Native American
      □ Asian
      □ African American/Black
      □ Hispanic/Latino
      □ More than one race
      □ Native Hawaiian/Pacific Islander
      □ Unknown/I choose not to answer
      □ White

Appendix B

Life Events Checklist

Measure as administered at Timepoint 1:
Listed below are a number of difficult or stressful things that sometimes happen to people. For each event check one or more of the boxes to indicate if the event happened to you.

Someone close to you passed away:
 □ No
 □ Yes
 □ I choose not to answer

Measure as administered at Timepoint 2:
Listed below are a number of difficult or stressful things that sometimes happen to people. For each event check one or more of the boxes to indicate if the event happened to you.

Someone close to you passed away in the past 12 months
 □ No
 □ Yes
 □ I choose not to answer

Appendix C

Alcohol Consumption

How often do you have a drink containing alcohol?
  □ Never
  □ Monthly or less
  □ 2 to 4 times a month
  □ 2 to 3 times a week
  □ 4 or more times a week
  □ I choose not to answer

How many drinks containing alcohol do you have on a typical day when you are drinking?
  □ 1 or 2
  □ 3 or 4
  □ 5 to 7
  □ 7 to 9
  □ 10 or more
  □ I choose not to answer

Appendix D

Drinking Motives

Here are some statements people have made about why they drink. How important would you say that each of the following is to you as a reason for drinking?

	Strongly Agree	Slightly Agree	Slightly Disagree	Strongly Disagree
To forget my worries				
Because my friends pressure me to drink				
Because it helps me enjoy a party				
It helps me when I feel depressed or nervous				
To be sociable				
To cheer myself up when I feel depressed or nervous				
Because I like the feeling				
So that others won't kid me about not drinking				
Because it's exciting				
To get high				
It makes social gatherings more fun				
To get in with a group I like				
It gives me a pleasant feeling				
It improves parties and celebrations				
I feel more self-confident and sure of myself				
To celebrate a special occasion with friends				
To forget about my problems				
It's fun				
To be liked				
So I won't feel left out				

Appendix E

Drinking Motives Questionnaire by Motive

Social Motives:
       Because it helps me enjoy a party
       It makes social gatherings more fun
       It improves parties and celebrations
       To celebrate a special occasion with friends

Coping Motives:
       It helps me when I feel depressed or nervous
       To cheer myself up when I feel depressed or nervous

Enhancement Motives:
       Because I like the feeling
       It gives me a pleasant feeling
       It's fun

Conformity Motives:
       So that others won't kid me about not drinking
       To get in with a group I like
       To be liked

Not included on any of the 4 factors:
       Because it's exciting
       Because my friends pressure me to drink
       I feel more self-confident and sure of myself
       So I won't feel left out
       To be sociable
       To forget about my problems
       To forget my worries
       To get high

Appendix F

Symptom Checklist-90: Depression

The next questions ask about some problems and feelings which people sometimes have. Please give the answer which best describes how much discomfort that problem has caused you during the last 30 days, including today.

	Not at all	A little Bit	Moderately	Quite a bit	Extremely
Feeling blue					
Worrying too much about things					
Feeling no interest in things					
Feeling hopeless about the future					