



Positive alcohol expectancies and injunctive drinking norms in drinking to cope motives and alcohol use among older adults

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ABSTRACT

Background: Studies indicate older adults have increased risk for alcohol-related harms (e.g., risk for falls) that can manifest at lower levels of consumption than younger adults. Specifically, age-related changes in alcohol metabolism, physiology, increased morbidity, and potential interactions with medications to manage chronic conditions increases risk for related harms among older adults.

Purpose: The present study used cross-sectional data to examine the associations between drinking to cope motives and positive alcohol expectancies, and injunctive drinking norms in older adults. We also explored the interaction between drinking to cope, positive expectancies and injunctive drinking norms on alcohol use.

Methods: Adults aged 65 and older ($N = 98$) completed a series of measures assessing drinking to cope motives, positive alcohol expectancies, injunctive drinking norms, and past-month alcohol use.

Results: Positive alcohol expectancies were positively associated with drinking to cope motives. Drinking norms were not associated with coping motives. Moderating effects of expectancies varied on the link between coping motives and alcohol use. Greater endorsement of coping motives was associated with more alcohol consumption but only for those with low expectancies.

Conclusions: Better understanding of the complex interplay between drinking to cope motives, positive expectancies, and injunctive drinking norms of proximal as well as distal referents could foster improvement of clinical assessments to screen for risk factors of alcohol abuse and promote development of more age-salient measures of alcohol expectancies, norms, and motives.

1. Introduction

Alcohol problems among older adults are often not only unrecognized but usually undertreated despite the increasing rates of alcohol misuse and problem drinking (Barry & Blow, 2016). In fact, as the Baby Boom cohort (individuals born in the U.S. between the years 1946 and 1964) moves into later life, they are likely to consume more alcohol than previous generations of older adults (Barry & Blow, 2016). Evidence suggests a U- or J-shaped relationship between alcohol consumption and mortality among older adults; specifically, epidemiologic studies have noted that those who consume no or excessive amounts of alcohol have an increased risk for morbidity and mortality as compared to those who consume moderate amounts (e.g., 1–2 drinks; Ferreira & Weems, 2008). In fact, moderate drinking has been linked to specific health benefits (e.g., reduction in cardiovascular risk factors).

Specifically, age-related changes in metabolizing ethanol, increased risk for alcohol-medication interactions, and physiological changes due

to increased morbidity paired with alcohol use are associated with more rapid cognitive decline, increased risk for Alzheimer's disease, and as well as injuries (e.g., falls) and mortality as the result of gait abnormalities or over-sedation (Ferreira & Weems, 2008; Kim et al., 2012; Lee et al., 2010; Oscar-Berman & Marinković, 2007; Sorock, Chen, Gonzalgo, & Baker, 2006). The negative influence of heavy alcohol use is well established overall and, among older adults, has been implicated in higher incidence of comorbid dementia and heavy use, as well as increased risk for dementia and severe cognitive impairment has been documented among adults aged 65 and older. Less research exists, however, on if or how factors studied extensively in younger adults (e.g., drinking norms) may be related to drinking motives and alcohol consumption in older populations.

Largely, research on alcohol use and misuse has used health behavior models that are based on the theory of stress and coping and social cognitive and learning theories. The theory of stress and coping hypothesizes that alcohol consumption is often a coping response to stress

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and is used to alter negative mood via enhancement of positive affect and/or decreasing negative affect (Wills & Shiffman, 1985). However, in the face of negative affect or chronic stress, using alcohol to cope is generally considered a short term but maladaptive and ineffective mechanism in the long term (Hasking, Lyvers, & Carlopio, 2011). Social cognitive theories (e.g., the Theory of Reasoned Action/Planned Behavior) that have been used to examine alcohol use and misuse suggest that direct determinants of intentions to engage in a behavior include 1) behavioral beliefs, or attitudes toward performing the behavior; 2) normative beliefs (i.e., subjective norms); and 3) perceived behavioral control (Ajzen, 1991; Ajzen & Fishbein, 1980; Montaña & Kasprzyk, 2008). Behavioral beliefs are evaluations of whether performing the behavior is beneficial or negative ('Drinking wine every night is healthy for me. '); while normative beliefs about a behavior are perceptions of approval or disapproval from others for performing said behavior ('My spouse thinks it's okay and healthy to drink wine every night'; Montaña & Kasprzyk, 2008).

Cooper, Russell, and George's (1988) Stressor-Vulnerability Model of Alcohol Consumption is derived from social learning theory and incorporates concepts and principles of theory of stress and coping as well as social cognitive theory conceptualizes alcohol use as strategy to regulate both positive and negative affect. The model asserts that that individuals with limited coping skills, who rely on avoidance coping strategies (e.g., drinking to cope), and stronger beliefs that positive outcomes will result from consuming alcohol (e.g., feeling more relaxed) are likely to drink more heavily (Cooper et al., 1988; Cooper, Frone, Russell, & Mudar, 1995; Woodhead, Cronkite, Moos, & Timko, 2014). There is evidence that drinking to cope motives, in particular, influence heavy alcohol use and abuse. Findings among community-dwelling rural Australian samples and U.S. retirement community residents have found that drinking to cope motives were associated with greater or heavier consumption (Gilson et al., 2013; Gilson, Bryant, & Judd, 2017; Sacco et al., 2015).

Similarly, studies have found that alcohol outcome expectancies, specifically higher positive outcome expectancies, are associated with elevated alcohol consumption and risky drinking (Armeli et al., 2000; Leigh & Stacy, 1993); furthermore, these associations may vary by age. Nicolai, Moshagen, and Demmel (2012) investigated the association between alcohol outcome expectancies and alcohol use in a national probability sample of community-dwelling adults in Germany adults aged 18 to 59 years old using data from the Epidemiological Survey of Substance Abuse. The authors found that, overall, alcohol outcome expectancies were less endorsed with older age. Higher expectancies about negative outcomes from drinking were also found to be more strongly related to quantity and frequency of drinking than positive expectancies in older than younger age groups. Specifically, negative alcohol outcome expectancies related to impairment were negatively associated with quantity and frequency of drinking among respondents older than 23 years of age (Nicolai et al., 2012). This study did not however include data from adults older than age 59.

A further study, using data from 6823 adults aged 18 to 64 in the 2009 German Epidemiological Survey of Substance Abuse study, found that among adults aged 25 to 44 years old, as well as in adults aged 45 and above, tension reduction was positively associated with average alcohol intake, but social enhancement was not associated with use for adults 25 and older (Pabst, Kraus, Piontek, Mueller, & Demmel, 2014). However, there remains a dearth of literature to address how alcohol expectancies and drinking norms may play a role in drinking to cope motives and, consequently, alcohol use in older adults, specifically those older than 64 years of age. While there is evidence to suggest that among college students drinking to cope may be viewed as normative, little is known about older populations (Rice & Van Arsdale, 2010).

The present study was developed in consideration of the previously presented literature, which demonstrates that alcohol use is multi-determined and may occur more or less in the presence of specific psychological characteristics in older adults (e.g., positive alcohol outcome

expectancies). The goals of the present study were to 1) examine the associations between drinking to cope motives, positive alcohol expectancies, and injunctive drinking norms and 2) explore the interaction between positive alcohol expectancies, injunctive drinking norms, and drinking to cope motives on alcohol use. We hypothesized that:

1. Positive alcohol expectancies will be positively associated with drinking to cope motives.
2. Injunctive drinking norms (i.e., perceived approval of drinking behaviors), particularly among friends or a spouse/partner, will be positively associated with drinking to cope motives.
3. Positive alcohol outcome expectancies and injunctive drinking norms will moderate the associations between drinking to cope motives with alcohol use.

2. Methods

2.1. Participants

All study procedures were approved by the Institutional Research Board. Participants were older adults aged 65 and older ($N = 98$; 70 females) with ages ranging from 65 to 93, with a mean age of 73.04 years ($SE = 0.71$). The current sample consisted largely of non-Hispanic Whites (93.9%) with the remaining being non-Hispanic Black/African Americans (5.1%) and Asian/Asian American (1.0%). A little over half of the sample reported being married or living with a partner (57.1%). Most of the sample was well educated, completing a college (4-year degree; 28.6%) or graduate/professional degree (50.0%). Approximately 90.8% considered themselves to be retired. Participants were recruited primarily through university-affiliated research volunteer websites and through community bulletin boards.

Eligibility criteria included being 65 years of age or older and had consumed alcohol in the past month. Given that research suggests that depressed individuals and those with elevated depressive symptoms have enhanced recall of negative memories (Christensen, Carney, & Segal, 2006). To reduce issues of negative recall bias, potential participants were excluded if they had scores > 4 , as measured by the 8-item Center for Epidemiological Studies Depression Scale (CES-D-8; Radloff, 1977; Steffick, 2000). Of the 131 potential participants screened, 7 were not included due to not meeting age inclusion requirements, 2 did not consume alcohol in the past 30 days, 18 individuals were excluded ($n = 16$ had CES-D score > 4 ; $n = 2$ reported diagnosis of significant cognitive impairment), and 6 did not follow-up with research team to the complete study.

2.2. Measures

2.2.1. Alcohol use

The Daily Drinking Questionnaire (DDQ) assessed number of drinks during a typical week over the past month ($\alpha = 0.963$; Collins, Parks, & Marlatt, 1985). Heavy drinking was determined using the American Geriatrics Society (2003) and National Institutes of Alcohol Abuse and Alcoholism (NIAAA, n.d.) guidelines for those 65 aged and older. Using the DDQ, we created three variables to assess average number of drinks a day, frequency of drinking, and number of heavy drinking days a week. First, to calculate typical drinking quantity consumed a day, the total number of drinks consumed in a given week was divided by 7 days. For the frequency of drinking days, number of days participants reported consuming at least one drink was summed. For the latter, any days in which participants reported more than three drinks on a given day were considered to be heavy drinking days and summed. Anyone who reported consuming ≥ 3 drinks on any given day or consumed > 7 drinks in a given week were considered 'heavy drinkers.'

2.2.2. Drinking to cope motives

The 5-item drinking to cope motives subscale of the revised

Drinking Motives Questionnaire (DMQ-R) was used to assess drinking to cope. This measure has respondents report how frequently their drinking is motivated by managing or coping with negative emotions (Cooper, 1994). For example, "You drink... to cheer up when you are in a bad mood." Item responses were answered on a 5-point Likert scale, ranging from 0 = *almost never/never* to 4 = *almost always/always*. The mean of the items was used to create a composite score with higher scores indicating greater endorsement of drinking to cope motives. The DMQ coping subscales have been determined to have acceptable validity in older adults (Gilson et al., 2013). Internal consistency for the present sample was deemed, $\alpha = 0.792$.

2.2.3. Alcohol expectancies

In this study we were particularly interested in positive outcome expectancies. The 11 positive items from Leigh and Stacy's (1993, 2004) 21-item alcohol expectancies scale was used to assess expectations that positive effects of drinking would occur. Item responses ranged from 0 = *very unlikely* to 3 = *very likely* with inter-item correlations ranging from $r_s = 0.18$ – 0.62 with p -values ranging between < 0.001 and 0.046 . A composite score was created by summing the 11 items with higher scores indicating more endorsement of positive outcome expectancies. Good internal consistency was observed in this sample with a Cronbach's α of 0.867 .

2.2.4. Injunctive drinking norms

Baer's (1994) injunctive drinking norms items assessed perceived approval of four specific alcohol-related behaviors including drinking every day, every weekend, driving after drinking, and drinking enough to pass out. The current study adapted the items (perceived approval of drinking every day, every weekend, driving after drinking, and drinking enough to pass out) to be applicable when assessed in an older adult population; thus, the four reference groups included the typical older adult, the typical same-sex older adult, their friends, and their spouse or partner, if applicable. Response options were based on a 7-point Likert scale ($-3 =$ *strong disapproval* to $3 =$ *strong approval*).

Given that we adapted this scale to a new population (older adults), reliability analyses were performed by reference group. Due to little to no variance in the 'drank enough to pass out' variable and poor reliability of the 'driving after drinking' variable, these two items were dropped from all reference groups. The original adapted scales for the typical older adult, typical same-sex older adult, friends, and spouse/partner reference groups' reliabilities increased from alphas of 0.711 , 0.752 , 0.710 , and 0.705 to alphas of 0.756 , 0.820 , 0.870 , 0.842 , respectively. This improved internal consistency for all reference group subscale with reliability ranging from acceptable to good. Scores for each reference group were taken as the mean of the two corresponding items (drinking every day and every weekend) with inter-item correlations ranging from $r_s = 0.63$ – 0.78 . Higher scores indicate more perceived approval of these drinking behaviors by a given reference group.

2.2.5. Covariates

Covariates consisted of demographic and health characteristics that may impact use of alcohol in older populations. Demographic covariates included age and sex (0 = female, 1 male). Health covariates included number of chronic health conditions measured by an item asking, "Has a doctor ever told you that you had any of the following?" participants were asked to check all that applied with choices including high blood pressure/hypertension, diabetes, chronic lung disease (such as chronic bronchitis or emphysema), heart conditions (such as coronary heart disease, angina, congestive heart failure), and arthritis/rheumatism. Number of possible chronic conditions could range from 0 to 5. Finally, we asked participants to report number of prescription and over-the-counter medications currently being taken.

2.3. Analytic strategy

There were some outliers observed for the alcohol use variables. All items were adjusted for outliers using procedures outlined by Tabachnick and Fidell (2013) in which values that fell outside of ± 3.29 standard deviations from the mean were adjusted to equal the value to 3.29 deviations from the mean. Missing responses were minimal ($< 5\%$ on any variable) and were addressed by multiple imputation in AMOS 24 with maximum likelihood estimation (MLE) using 5 imputation datasets. In this model, key analytic variables (i.e., positive alcohol expectancies, injunctive drinking norms, drinking to cope, and alcohol use variables) were included in the model and allowed to be uncorrelated with one another (Arbuckle, 2016). This allowed for data to be imputed based on observed variables only without specifying relationships. However, spouse/partner drinking norms variable was the exception given that there was planned missingness due to the expectation of some participants being without a spouse or partner.

The goals of the present study were to: 1) explore the association between drinking to cope motives and positive alcohol outcome expectancies and injunctive drinking norms and 2) to determine whether positive expectancies and drinking norms moderated the associations between coping motives and alcohol use among older drinkers. All analyses were conducted in SPSS 24 (Arbuckle, 2016). First, two multiple linear regression models were examined to determine whether 1) positive alcohol outcome expectancies and injunctive drinking norms excluding the spouse/partner reference group and 2) expectancies and drinking norms of a spouse/partner were associated with drinking to cope motives while controlling for covariates. For the first model, drinking to cope motives were regressed on to positive alcohol outcome expectancies and injunctive drinking norms of peer and friends reference groups. For the second model, motives were regressed onto positive expectancies and drinking norms of a spouse/partner for those who had reported being married or partnered.

Next, regression analyses were conducted to determine whether there was a moderated effect of positive alcohol expectancies and injunctive drinking norms on the association between drinking to cope and alcohol use. Alcohol variables were non-normally distributed and, in some cases, over-dispersed despite transformations to address kurtosis. Generalized linear modeling (GLM) using a Poisson distribution was identified as an appropriate analytic approach for the data (Neal & Simons, 2007). To examine potential interactions, variables determined to be significantly associated with drinking to cope motives in linear regression models discussed above were examined as potential moderators on the association between coping motives and alcohol use. To that end, drinking to cope motives and potential moderators were mean-centered and used to create interaction terms. Poisson regressions were employed to examine three models. First, drinking quantity was regressed onto mean-centered drinking to motives, moderator variables, and computed interaction terms. Second, drinking frequency was regressed onto mean-centered drinking to motives, moderator variables, and computed interaction terms. Lastly, heavy drinking frequency was regressed onto mean-centered drinking to motives, moderator variables, and computed interaction terms. All Poisson regression analyses also controlled for covariates. All descriptives and analyses were conducted using SPSS 24 (Arbuckle, 2016).

3. Results

3.1. Sample descriptives

A summary of descriptives for key analytic variables is displayed in Table 1. The sample consisted of 98 adults aged 65 and older with a mean age of 73.04 years ($SE = 0.71$). The sample had an average of 1.33 ($SE = 0.07$) chronic health conditions and, on average, regularly took 3.64 ($SE = 0.32$) over-the-counter or prescription medications. Over the past month, the sample consumed a mean 0.85 drinks

Table 1
Demographics, health characteristics, and descriptives for analytic variables ($N = 98$).

	Mean (SE) or %
Age (range 65 to 93 years)	73.04 (0.71)
Female (%)	71.4
Number of chronic health conditions (range 0 to 4)	1.33 (0.07)
Number of medications taking (range 0 to 17)	3.64 (0.32)
Drinking to cope motives (range 0 to 6)	1.17 (0.16)
Positive alcohol expectancies (range 0 to 25)	14.03 (0.59)
Injunctive drinking norms (range -3 to 3)	
Older adult	-0.18 (0.09)
Same-sex older adult	-0.23 (0.10)
Friends	-0.09 (0.11)
Spouse/partner ^a	-0.36 (0.14)
Alcohol use	
Weekly drinking quantity (range 1 to 58 drinks)	6.33 (0.72)
Weekly drinking frequency (range 0 to 7 days)	4.10 (0.34)
Heavy drinking (%)	43.9
Heavy drinking frequency (range 0 to 7 days)	1.40 (0.23)

^a 57.1% were married or living with a partner.

($SE = 0.07$) a day, 6.33 ($SE = 0.72$) drinks a week, and drank 4.10 days a week ($SE = 0.24$) on average with 32.7% drinking 7 days a week. Approximately 43.9% engaged in heavy drinking on an average of 1.40 days ($SE = 0.23$).

The mean for drinking to cope motives was 1.17 ($SE = 0.16$) with approximately 45.2% endorsing one or drinking to cope motives (see Table 1). The mean for positive alcohol expectancies 14.03 ($SE = 0.59$). Means for injunctive drinking norms were -0.18 ($SE = 0.09$), -0.23 ($SE = 0.10$), -0.09 ($SE = 0.11$), and -0.36 ($SE = 0.14$) for the typical older adult, same-sex peers, friends, and spouse/partner referents, respectively.

3.2. Multiple linear regressions for drinking to cope motives

First, we examined whether there was a significant association between positive expectancies, injunctive drinking norms (excluding the spouse/partner referents) and drinking to cope motives when controlling for age, sex, health conditions, and number of medications taken (see Table 2). Higher positive alcohol outcome expectancies were associated with greater endorsement of drinking to cope motives, $b = 0.11$, $SE = 0.03$, $p < .001$, 95% CI: [0.05, 0.16]. However, injunctive drinking norms were not associated with drinking to cope

Table 2
Multiple regressions of drinking to cope motives regressed onto positive alcohol outcome expectancies and injunctive drinking norms.

	<i>b</i>	<i>SE</i>	95% CI	<i>p</i> -Value
Model 1				
Positive expectancies	0.11	0.03	[0.05, 0.16]	< 0.001
Peer drinking norms	0.25	0.33	[-0.39, 0.83]	0.449
Same-sex peer drinking norms	-0.55	0.36	[-1.26, 0.16]	0.130
Friends' drinking norms	0.18	0.33	[-0.44, 0.80]	0.565
Age	0.001	0.02	[-0.04, 0.05]	0.954
Male sex	0.48	0.35	[-0.21, 1.17]	0.174
Chronic health conditions	0.08	0.26	[-0.43, 0.59]	0.763
Number of medications	-0.06	0.06	[-0.17, 0.06]	0.346
Model 2				
Positive expectancies	0.10	0.04	[0.03, 0.17]	0.008
Spouse/partner's drinking norms ^a	-0.11	0.21	[-0.53, 0.30]	0.592
Age	0.04	0.04	[-0.04, 0.11]	0.317
Male sex	0.36	0.45	[-0.53, 1.24]	0.433
Chronic health conditions	-0.11	0.35	[-0.80, 0.59]	0.766
Number of medications	-0.04	0.08	[-0.20, 0.11]	0.591

Note. For ease of identification, significant results are bolded.

^a Only included those married or living with a partner ($N = 55$).

motives.

3.3. Poisson regression models

3.3.1. Drinking quantity

There were significant positive main effects for drinking to cope motives on number of drinks consumed in a typical week (see Table 3). That is, for every one-unit increase in coping motives, there was an increase in the expected number of drinks consumed a week.

There was also a significant interaction between for coping motives and positive expectancies, $b = -0.014$, $p < .001$. Simple slopes analysis showed that those with low positive alcohol expectancies and high coping motives higher expected number of drinks consumed a week compared to those with high expectancies and high motives. However, when coping motives were low, there was no difference between those with low and high positive alcohol expectancies (Fig. 1).

3.3.2. Frequency of drinking

As shown in Table 3, there were marginally significant main effects of drinking to cope motives on number of drinking days a week, such that higher endorsement of coping motives was associated with a greater expected number of drinking days a week. There were no significant main effects of positive expectancies.

3.3.3. Heavy drinking frequency

There were significant positive main effects for drinking to cope motives on heavy, or risky, drinking frequency; that is, higher coping motives and same-sex norms were associated with more expected heavy drinking days (see Table 3). There were also significant interactions between positive alcohol expectancies and drinking to cope motives ($b = -0.02$, $p = .004$; Fig. 2). Low drinking to cope motives and high positive alcohol outcome expectancies was associated with greater expected number of heavy drinking days than low motives and expectancies (Fig. 2). Conversely, having high coping motives and low expectancies was associated with greater number of heavy drinking days than high motives and high positive alcohol expectancies.

4. Discussion

Unhealthy drinking causes more physical and mental health problems in older adults than younger (e.g., decreased functioning of the kidneys and liver due to aging compounded by alcohol use; Hunter & Gillen, 2006; St. John, Snow, & Tyas, 2010). Additionally, older adults tend to take multiple over-the-counter and prescription medications to manage chronic health conditions which may interact adversely with alcohol (Hunter & Gillen, 2006). Until recently (e.g., Leigh & Stacy, 2004; Sacco et al., 2015), application of social cognitive and learning principles determined to be significant contributors to alcohol use and misuse have largely focused on younger populations.

In the present study, we found that positive expectancies but not injunctive drinking norms were associated with drinking to cope motives. We also note that the findings provide support for the significant relationship between motives to drink to regulate negative emotion and alcohol use, specifically in terms of quantity and heavy drinking. Lastly, we highlight the importance of considering the moderating effects of drinking to cope motives on the links between positive alcohol outcome expectancies, injunctive drinking norms, and alcohol use outcomes in older adults. There is a need to consider the age-related differences in expectancies and norms among older adults and how these constructs distinctly influence alcohol use based on endorsement of drinking to cope motives.

4.1. Associations between positive expectancies, injunctive drinking norms, and drinking to cope motives

As hypothesized, positive alcohol outcome expectancies were

Table 3

Generalized linear model for weekly drinking quantity, frequency, and heavy drinking frequency on drinking to cope motives and positive expectancies among adults aged 65 and older ($N = 98$).

Criterion	Predictor	<i>b</i>	<i>SE</i>	95% CI	<i>p</i> -Value
Drinking quantity	Positive expectancies	−0.01	0.01	[−0.02, 0.01]	0.364
	Coping motives	0.28	0.02	[0.17, 0.27]	< 0.001
	Age	0.01	0.01	[−0.01, 0.02]	0.297
	Male sex	0.11	0.09	[−0.07, 0.29]	0.230
	Chronic health conditions	− 0.37	0.08	[−0.53, −0.21]	< 0.001
	Number of medications	0.03	0.02	[0.00, 0.06]	0.085
Drinking frequency	Positive expectancies*coping motives	− 0.01	0.004	[−0.02, −0.01]	< 0.001
	Positive expectancies	−0.003	0.01	[−0.02, 0.02]	0.765
	Coping motives	0.07	0.04	[0.00, 0.22]	0.051
	Age	0.01	0.01	[0.00, 0.03]	0.063
	Male sex	0.08	0.11	[−0.14, 0.30]	0.473
	Chronic health conditions	−0.17	0.10	[−0.36, 0.02]	0.078
Heavy drinking frequency	Number of medications	−0.01	0.02	[−0.05, 0.03]	0.580
	Positive expectancies*coping motives	−0.01	0.06	[−0.20, 0.00]	0.079
	Positive expectancies	0.03	0.02	[0.00, 0.07]	0.069
	Coping motives	0.23	0.05	[0.13, 0.33]	< 0.001
	Age	0.01	0.01	[−0.02, 0.03]	0.641
	Male sex	0.57	0.19	[0.21, 0.93]	0.002
	Chronic health conditions	− 0.67	0.19	[−1.05, −0.29]	< 0.001
	Number of medications	0.07	0.03	[0.01, 0.13]	0.024
	Positive expectancies*coping motives	− 0.02	0.01	[−0.04, −0.01]	0.004

Note. For ease of identification, significant results are bolded. *SE* = Standard error; *CI* = Confidence interval.

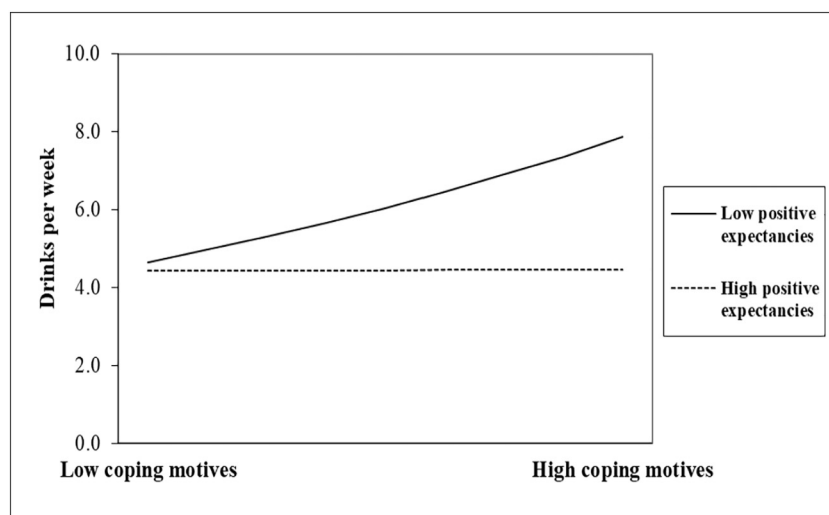


Fig. 1. Simple slopes of drinking to cope motives and expected number of drinks consumed in a typical week for +1 *SD* and −1 *SD* of mean positive alcohol outcome expectancies.

positively associated with drinking to cope motives. This finding mirrors those of previous work that have demonstrated that higher positive alcohol outcome expectancies may be associated with greater endorsement of drinking to cope motives among younger adults (Carrigan, Ham, Thomas, & Randall, 2009; Peirce, Frone, Russell, & Cooper, 1996; Rice & Van Arsdale, 2010). The present findings are also partially supported by the Stressor-Vulnerability Model of Alcohol Consumption that posits individuals with stronger beliefs concerning alcohol's positive outcomes (e.g., tension reduction) is a significant independent predictor of drinking to cope motives (Cooper, 1994; Cooper et al., 1988). To our knowledge, this is one of the first studies examining the association between positive expectancies and drinking to cope motives in later life drinkers. However, some studies have found that salience of expectancies overall decreased with age (Nicolai et al., 2012). Other research has documented positive alcohol outcome expectancies are not associated with overall alcohol use among older adults (Leigh & Stacy, 2004). Conversely, Sacco et al. (2015) found that greater drinking to cope motives and greater number of drinks a day; similarly, greater endorsement of drinking to cope motives has been

found to be associated with drinking problems (Gilson et al., 2013). It may be that, like drinking motives (e.g., Sacco et al., 2015), expectancies are more salient than others in terms of drinking to cope motives among older adults. Additional research is needed to better understand how expectancies affect motives and subsequent alcohol use.

Contrary to what was hypothesized, injunctive drinking norms were not associated with drinking to cope motives. While there is no current literature on older adults addressing injunctive drinking norms with regards to drinking to cope motives, there are a few possible explanations for these findings. It has been suggested similar to drinking behaviors, drinking to cope motives are more highly affected by close referents (e.g., people who share a peer group) as compared to more general referents (e.g., people who share an age group; Blanton, Köblitz, & McCaul, 2008; Neighbors et al., 2008). However, one would then assume that the injunctive norms of a spouse or romantic partner might affect motives, which was not found in the present study. It is possible that some reference groups might be represented by multiple people (e.g., friends) as compared to those groups representing

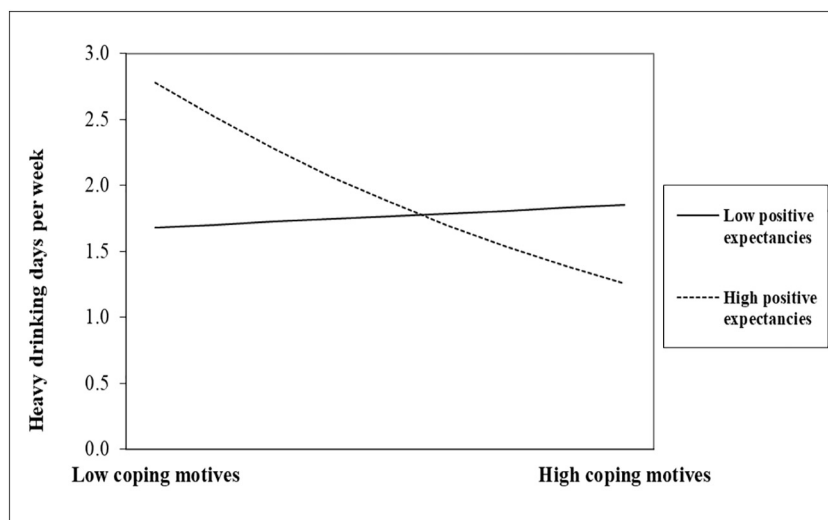


Fig. 2. Simple slopes of drinking to cope motives and expected number of heavy drinking days a week for +1 SD and -1 SD of mean positive alcohol outcome expectancies.

individuals (e.g., typical older adult; Dunleavy, 2008). The reference groups were not necessarily equivalent or mutually exclusive. For example, a spouse or partner may have been used as the typical adult 65 and older referent in addition to the spouse/partner referent and, therefore, counted twice. This may be particularly true among older populations who have smaller social networks and less frequent contact with acquaintances and close friends (Carstensen, 1992, 1995) and, thus, more vague conceptualizations of general peer groups. Future work should examine a broader array of referents (e.g., acquaintances vs. close friends, other relatives) and possible moderators (e.g., relationship quality) to better understand these associations.

4.2. Drinking to cope motives as a moderator of alcohol use

As hypothesized, drinking to cope motives moderated the associations between positive expectancies and injunctive drinking norms and alcohol use; however, they differed by drinking behavior. Similar to previous work demonstrating that greater endorsement of coping motives was associated with greater amount of alcohol consumed on a given day for older continuing care residents (Sacco et al., 2015), there was a significant positive main effect of drinking to cope motives on drinking quantity. Specifically, individuals who reported lower endorsement of drinking to cope motives and higher positive alcohol outcome expectancies drank with greater quantities of alcohol in a typical week compared to those who had low expectancies. Conversely, those who endorsed higher coping motives and higher positive expectancies reported drinking lower quantities of alcohol than individuals who reported low positive expectancies motives. This pattern held for frequency of drinking and, partially, for frequency of heavy drinking. For heavy drinking frequency, there were however no differences between low and high levels of expectancies among those with high drinking to cope motives. This suggests that even when drinking to cope motives are low, high positive expectancies may impact amount of alcohol consumed. To our knowledge, there is currently no literature on how positive expectancies and drinking to cope motives interact to impact alcohol use. It may be that overall beliefs about the positive effects of alcohol might not matter as much when drinking to cope motives are high. That is, motives may be more salient than expectancies. More work is needed to better understand the mechanism by which drinking to cope motives interact with expectancies to affect alcohol use and related consequences.

The present study has implications more broadly for future research and, potentially, for the development and implementation of

prevention and intervention programs. Most literature on the relationship between psychological risk factors (i.e., alcohol outcome expectancies, drinking norms, drinking to cope) and risky drinking has focused on populations younger than age 65 and considerably less is known about adults in later life. Despite the increased consequences of alcohol use in this population, much of the existing research on drinking to cope motives focuses on whether older adults endorse them while leaving the why (e.g., because of anxiety) and when questions (e.g., only engaging in heavy drinking to deal with negative mood under the encouragement of close friends) largely unexplored.

4.3. Strengths and limitations

Although the present study has strengths, it is not without limitations. The study used a cross-sectional design so causal inferences cannot be drawn. Future inclusion of longitudinal assessment will allow examination of these dynamic processes of inter- and intra-individual shifts and differences in drinking to cope motives, positive alcohol expectancies, and drinking norms and how their variations may be related to heavy and binge drinking.

The participants of the current sample were mostly homogenous in terms of race and ethnicity (96.9% non-Hispanic White). It is important to note that in a nationally representative sample including older populations, Native Americans, African Americans, and Latinos have lower rates of drinking as compared to non-Hispanic Whites (Sacco, Bucholz, & Spitznagel, 2009). The participants of the current study were also well educated (78.6% college educated or higher), while nationally representative older adult samples show college or higher levels of education at approximately 51% (Sacco et al., 2009). However, the current sample resembled that of nationally representative samples of older current drinkers in terms of education (e.g., Blazer & Wu, 2009). Similarly, rates of heavy drinking were relatively high at roughly 43.9%. A cross-sectional study using data from the 2010 Behavioral Risk Factor Surveillance System found rates of heavy episodic drinking among adults aged 65 and older to be 3.8 (Kanny, Liu, Brewer, Garvin, & Balluz, 2012).

5. Conclusions

In summary, the findings suggest that the importance of positive alcohol expectancies and injunctive drinking norms in drinking to cope motives as well as the association between coping motives and drinking behaviors. Furthermore, drinking to cope motives may be of particular

importance for not only heavy drinking behaviors but also in terms of overall quantity and number of drinking days.

Despite the increased consequences of alcohol use in this population, much of the existing research on drinking to cope motives focuses on whether older adults endorse them while leaving the why (e.g., because friends approve of drinking to alleviate negative affect) and when questions (e.g., only engaging in risky drinking when friends encourage drinking to cope) largely unexplored. A better understanding of the role of drinking to cope would allow for improvement of clinical assessments of alcohol abuse; development of more of age-salient and comprehensive measures of drinking norms, alcohol expectancies, and drinking to cope motives tailed to older samples. In turn, providing clinicians with the tools necessary to screen and address the increasing alcohol- and psychoactive medication-related issues expected in the growing older adult population has the potential to improve outcomes and the aging experience. Future research using samples of older adults that are larger and more diverse and more intensive assessments of positive alcohol expectancies and drinking norms but also individual differences (e.g., stress reactivity) will facilitate further understanding of drinking to cope and its relationship to alcohol use behaviors in this population.

Declaration of Competing Interest

No conflicts declared.

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