

Reasons for drinking wine and other beverages – comparison across motives in older adults

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Objectives: Health as a positive reason for drinking wine (eg, antioxidant content) has scant empirical data to inform policy. This study attempted to examine that motive by including health as one of six motives for drinking, along with measures of problem drinking (the Cut-down, Annoyed, Guilty, Eye-opener [CAGE] questionnaire) in an older adult population.

Design: Four drinking motives (enhancement, coping, social, and conformity), plus taste and health were included within a larger national telephone survey on drinking behaviors. We also recorded beverage preference.

Results: In this analysis, 705 participants drank a preferred beverage. Taste was the most highly endorsed motive. Just under one quarter of the sample endorsed health as a positive reason for drinking. After controlling for age, sex, and preferred alcoholic beverage, the internal psychological motives of enhancement and coping predicted CAGE scores, but external motives did not. Believing that alcohol is healthy was a negative predictor of CAGE scores. Our results showed a different pattern to those with younger drinkers reported in previous research. Our older group was less likely to drink for social reasons and internal motives were predictive of CAGE scores.

Conclusion: A motives-based approach to managing problem drinking will need to take account of a wider range of age-related motives. Based on the current data, there is little reason to suspect drinking wine for health reasons is associated with potential problem drinking.

Keywords: drinking behavior, wine and drinking motives, healthy drinking, wine and health

Introduction

There are many reasons that people drink alcoholic beverages and variables such as personality, intention, and motives are among the most studied influences on drinking behavior. In this paper we are interested in a mixed range of motives and seek to relate these to drinking behaviors, including problem drinking, in an adult population, thereby extending the research on motives that has been largely focused on young adult or adolescent groups.

In previous decades, motive models were expressed in terms of positive and negative reinforcement and these terms are still used to explain motives, for example, drinking for social reasons is described in terms of positive reinforcement and drinking to cope in terms of negative reinforcement.¹⁻⁴ The earlier reinforcement models informed Cooper's Drinking Motives model, which in turn informed the development of the Drinking Motives Questionnaire, a questionnaire that describes four proximal motives that precede the decision to drink.⁵⁻⁸ We consider these motives further on the following page. The possibility that health may be a positive motive for drinking has not received research attention in the same way that other motives have. Work on taste as another

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motive has largely been approached from outside a health psychology framework, even though this motive can drive drinking behavior.

Drinking Motives model

The four motives in the Drinking Motives model are social and mood enhancement motives, which are intended to enhance positive states (positive reinforcement), and coping and conformity motives, which are intended to reduce negative states (negative reinforcement).^{5,9} These motives have been differentially related to problem drinking, although not always consistently so.^{10,11} Since much of the research on the Drinking Motives model has used samples of adolescents or young adults, it remains to be seen whether other motives become more salient with increasing age or whether these motives still are drivers of drinking behavior. There is some suggestion that older adults “mature out” of problem drinking, and this is mediated by a change in drinking motives, but there is little information on this. One prospective study reported that coping and enhancement motives in young adults decreased with age.¹² However, the change to problem drinking was not consistently downward.

Hedonic sensory motive

Wine-based research suggests that a hedonic sensory motive, taste, is the main driver of wine-drinking behavior.¹³ It is often noted that young people will prefer sweeter food and drinks.¹⁴ In a taste preference study, younger subjects preferred sweetened pre-mixed drinks, whereas older subjects preferred wine or beer.¹⁵ However, in the Copeland study, the so-called “older” subjects were in the 24–30 age group and therefore still relatively young; furthermore, the sample sizes were small. Taste may be an important motive that varies across age. Related to age, level of experience with alcohol also plays an important role in taste preference, especially for wine drinkers.¹⁶

Health as a positive motive

Public media has reframed the idea of health as a motive for drinking alcohol, especially for older adults. This reframing involves a “positive” view of alcohol which emerged from the so-called “French Paradox” discussed by Renaud and de Lorgeril in the early 1990s. They used the term “French Paradox” to refer to the apparent low rate of coronary heart disease among the French despite high saturated fat consumption.¹⁷ Because wine consumption was seen as common within the French diet and wine contains antioxidants, the possible health benefits of wine became

the focus of much discussion, and this was then followed by a concomitant increase in research on the putative health benefits of beer and spirits (See Yoo et al¹⁸ for a review, especially on wine effects). However, a larger proportion of research remains directed at reducing alcohol consumption due to documented negative health outcomes.^{19–21} Even so, studies indicate that 39%–88% of people (in Western countries) believe alcohol is healthy, with figures highest when asked about wine.^{22,23} Not all researchers accept that alcohol can have health benefits and some overtly warn against accepting this possibility.^{24,25}

Andreasson argued for “more caution and more critical appraisal” before the claims of the health affordance of moderate consumption can be accepted.²⁶ Reflecting a perceived need for reappraisal, The National Medical Health and Research Council of Australia changed its guidelines from *Australian Alcohol Guidelines, Health Risks and Benefits* in 2001 to *Australian Guidelines to Reduce Health Risks from Drinking Alcohol* in 2009.²⁷ Notwithstanding the negative assessments, the Australian Government’s National Alcohol Strategy 2006–2011 states that “the health impacts of alcohol [...] are not all negative and include health benefits for some individuals if consumed at low levels.”²⁸ A recent review has demonstrated a preponderance of evidence from various types of studies indicating some level of wine consumption can enhance health.¹⁸ That conclusion is based on the various health promoting substances, including pure alcohol, polyphenols, and antioxidants, in wine. Given the scope to relate wine, and possibly other alcoholic beverages, to positive health changes, it is likely that both further chemical and behavioral information in this area will influence future social policy on alcohol consumption. At the moment, there is virtually no information on whether people who believe alcohol is healthy use this as a motive for drinking, apart from our initial research.²⁹

Motives and consumption levels

In contrast to the “healthy-level-of-consumption” view discussed above, social policy usually focuses on strategies to lower levels of alcohol consumption in order to reduce health and behavioral problems associated with overconsumption. The term “new temperance movement” is used to summarize the effect of such policy and to explain why, in the face of the French Paradox, alcohol consumption appears to have fallen in France³⁰ and Quebec.³¹ In contrast, wine consumption has increased in other countries as part of an alleged “wine as lifestyle” change.³² Perception that a product is healthy can lead to overconsumption and reduced guilt about consumption

levels.^{33–35} The question thus is raised: will perceived health benefits be associated with overconsumption of wine in the same way? The type of beverage consumed (eg, wine) may be important in understanding reasons why many people continue to drink despite public health messages and evidence of alcohol-induced health and behavioral problems.

Hedonic and “positive” health motives have not been considered in the same context as the four psychological motives in drinking research. The inclusion of these motives will help us understand not only why people drink, but which motives, both positive and negative, put adults most at risk for problem drinking. Many articles review the harmful effects of alcohol, and we feel it is important to acknowledge that literature here. However, it is not the purpose of this paper to review those articles, which have been well covered by others.^{36–38} Similarly, there is a large number of papers evaluating the putative evidence for “positive” effects of alcohol.^{39,40} In this paper, therefore, we investigate a range of motives in male and female older adult drinkers across different preferred beverages, and consider the relationship of those variables to potential problem drinking.

Method

The research on motives was embedded in a larger study using a national phone survey method. A large research company conducted the survey. A representative sample of the Australian population was sought through the use of quotas across primary demographics of age, sex, income, state, and postcode. Phone interviews were conducted during a range of times of day to ensure a wide representativeness of respondents. Participants were told the research study was on alcoholic beverages, and responses were collected to a variety of questions related to alcohol preference, usage patterns, and other factors related to drinking. All respondents needed to be at least 18 years of age in order to participate.²⁹

The interview took between 20 and 25 minutes to complete. For the purposes of the present paper, we included items on adult drinkers’ motives for drinking, including health and taste motives, and items on potential problem drinking (using the Cut-down, Annoyed, Guilty, Eye-opener [CAGE] questionnaire). This study was approved by the Charles Sturt University Ethics in Human Research Committee and conforms to the provisions of the Declaration of Helsinki.

Variables

For this paper, we report on reasons for drinking that, where appropriate, reflect terminology in Cooper’s Drinking Motives model, which regards the use of alcohol as driven by the desire

to reduce negative feelings or to increase positive feelings, and is either internally or externally driven.⁵ However, rather than using the full Cooper Drinking Motives Scale or Questionnaire, we used single items to assess those and other motives. While this limits the extent of comparison of results, we note that others have used single or small numbers of motive items, when included as part of a larger study as we have.¹² For the purposes of this paper, we were interested in reasons for drinking in terms of responses to the items in Table 1. Thus, people were asked their level of agreement with items such as “I drink (preferred beverage) because it makes me more outgoing.” Responses were rated on a 5-point Likert scale ranging from “strongly disagree” (1) to “strongly agree” (5). Table 1 presents the questions we asked.

To assess potential problem drinking, we used the CAGE questionnaire originally developed by Ewing and Rouse in 1970, cited in O’Brien.⁴¹ The CAGE is based on four questions asking participants if they have ever felt the need to cut down drinking, been annoyed by others criticisms of their drinking, felt guilty about their drinking, or felt they needed a drink first thing in the morning to steady their nerves or get rid of a hangover. Responses are yes–no, with a yes as 1, and a possible range of scores from 0 to 4. There is some debate about the CAGE’s tendency towards false positives,^{31,42} but Etter found that high positive rates were reduced when the CAGE was presented at the end of a questionnaire or interview in a nonclinical population.⁴³ We therefore presented our CAGE items at the end of the interview, and, given the modest length of the entire interview, it is unlikely this measure was systematically affected by fatigue effects. While it is likely that false positives do not meet the definition for “alcoholism,” there could be subjects in our sample who could be characterized as “problem” drinkers. We do not, however, suggest we have measured diagnostic characteristics of alcoholism in this study.

We categorized participants into subgroups according to whether they drank one beverage (wine, beer, spirits, and premixed drinks) 90 percent or more of the time. Capping consumption at 90 percent allowed for occasional deviations

Table 1 Interview items for drinking motives

Type of motive	Motive label	“I drink [beverage] because”
Internal positive	Enhancement	“It makes me feel good”
Internal negative	Coping	“It reduces my level of anxiety”
External positive	Social	“It makes me more outgoing”
External negative	Conformity	“Most of my friends drink it”
Hedonic	Taste	“I like the taste”
Health	Health	“I believe it is healthy for me”

from just one category of drinking. For example, a person who prefers beer may drink wine at a social occasion, and a wine drinker may have a beer at a barbecue occasionally. Ninety percent is an arbitrary cut-off. We compared the results with other cut-offs and did not obtain any systematically different results.

The specific research questions tested were:

1. To what extent do adult drinkers agree they drink because of the six motives presented: to feel good, to reduce anxiety, to make them more outgoing, to fit in with friends, because they like the taste, and because it is healthy for them? These motives are described in Table 1.
2. To what extent do CAGE scores (used to measure potential problem drinking) vary across motives scores?
3. To what extent do CAGE scores vary according to preferred beverage?
4. After controlling for age and sex, what unique contributions do preferred beverage and motives make to predicting CAGE scores?

Sample characteristics

We interviewed 1229 participants in Australia. The mean age was 50.13 years, standard deviation 16.14. Fifty-five percent of our sample was female. In the subsample of drinkers with a preferred beverage, 67% were wine drinkers. Women were more likely to drink wine than beer, but men were similarly represented across wine and beer categories. Almost half the sample was not considered to have a preferred beverage, according to our criteria. Our sample size in individual analyses below varies between 577 and 725 depending on the sub-groups under consideration. Disposable income may influence drinking preferences and ability to purchase types of alcohol. However, because income was highly correlated with age in our sample, we do not report on income further.

Results

Reasons for drinking

“Taste” was the highest endorsed reason for drinking, with 86% of the participants agreeing or strongly agreeing with this item. This pattern was found across all beverage types. Other common motives were “drinking to cope” (reduce anxiety) and to “enhance well-being” (feel good). Information on the responses to motive items is summarized in Figure 1.

Relationship between motive for drinking and problem drinking

The distribution of responses on the motives items showed a small skew, which does not threaten the analyses with

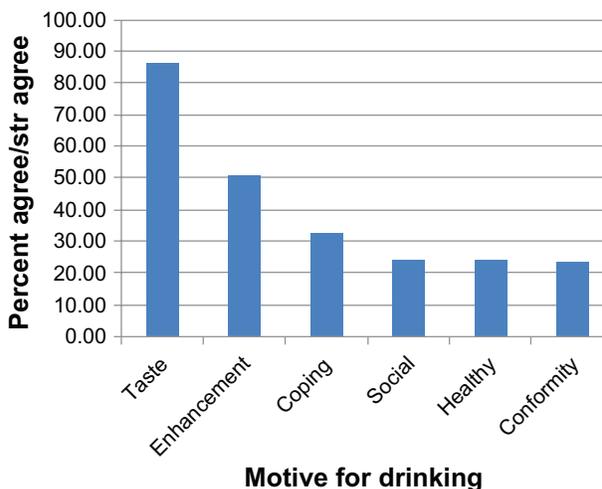


Figure 1 Frequencies agreeing and strongly (str) agreeing with motives.

large samples. One exception was the pattern of scores on the taste motive, which was highly skewed towards agreement. For the initial ANOVA tests, the motives data were recoded to form two groups, those who strongly disagreed or disagreed with the motive were included in the first group, and those who strongly agreed or agreed were included in the second group. Neutral responders were excluded in this part of the analysis. ANOVAs were performed using the disagree and agree subgroups, with the CAGE scores as the dependent variable. CAGE scores differed significantly across two internal motives, “enhance” (feel good) and “coping” (reduce anxiety) ($F[1, 576] = 21.383, P < 0.001$; $F[1, 576] = 36.968, P < 0.001$). In both these instances, higher levels of endorsement of these motives were associated with higher CAGE scores. CAGE scores also differed across the first external “social” motive (more outgoing) ($F[1, 576] = 22.679, P < 0.001$). CAGE scores did not differ across the second external motive (conforming to friends’ patterns).

Of the two additional motives in this study, “taste” was not related to CAGE, and “health” was negatively related, such that those who agreed they drink for health reasons scored lower on the CAGE ($F[1, 576] = 4.418, P < 0.036$). The differences in means, although significant, were small and the CAGE scores were not high, which was expected given this was not a clinical sample (Table 2).

Relationship between preferred beverage and problem drinking

There was a significant difference in CAGE scores across different beverage groups ($F[3, 724] = 4.817, P < 0.003$). Post hoc tests revealed CAGE scores were significantly different across wine and beer drinkers ($P < 0.004$) as illustrated in Figure 2.

Table 2 CAGE scores (sum) means and standard errors, across motives for drinking

	Motive for drinking					
	Enhance	Coping	Social	Conformity	Taste	Health
Disagree with motive	0.40 (0.05)	0.43 (0.04)	0.48 (0.04)	0.59 (0.04)	0.58 (0.17)	0.66 (0.05)
Agree with motive	0.76 (0.05)	0.90 (0.04)	0.88 (0.08)	0.56 (0.07)	0.63 (0.04)	0.48 (0.07)
Significance	$P = 0.001$	$P = 0.001$	$P = 0.001$	$P = 0.397$	$P = 0.776$	$P = 0.036$

Abbreviation: CAGE, Cut-down, Annoyed, Guilty, Eye-opener.

The spirit drinkers and the mixed-drink (ready-to-drink) drinkers made up small subgroups with wide variance, and they are not included in further analysis by beverage below.

Age

Although younger participants tended to score higher on the CAGE, the difference in means due to age was small (0.21) and did not reach significance ($P = 0.052$).

Regression analysis of drinking motives on problem drinking

Given beer drinkers were most at risk of problem drinking in our sample, we controlled for preferred beverage type (wine or beer) in the regression analysis of CAGE scores and motives for drinking. We also examined the contribution of motives and preferred beverage independently of age and sex. Using a hierarchical regression analysis, therefore, we entered age and sex first into the regression analysis, beverage second, and motives third. The results are presented in Table 3.

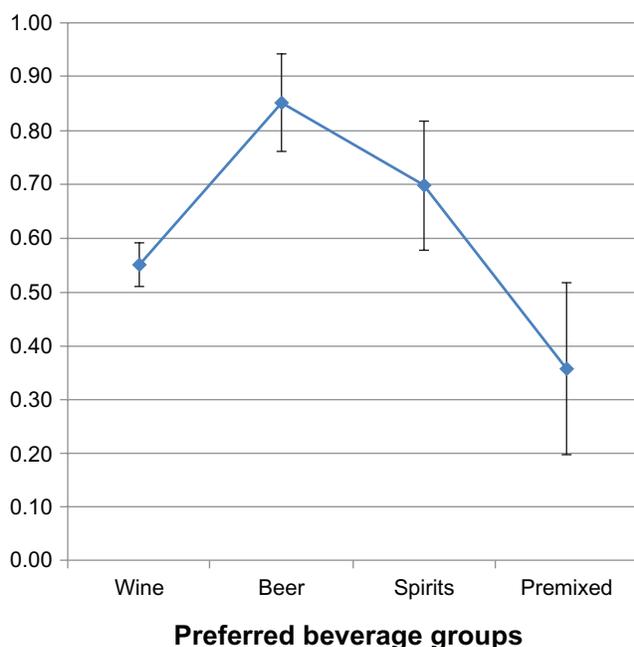


Figure 2 Mean and standard errors for CAGE scores across preferred beverage groups.

Abbreviation: CAGE, Cut-down, Annoyed, Guilty, Eye-opener.

As indicated in Table 3, sex and age each made an independent contribution to the CAGE scores, such that males were more likely to have higher CAGE scores, and younger participants also more likely to have higher scores. Although the latter effect was significant it was not a large effect. Beverage type did not predict CAGE scores when motives and sex were in the regression equation. The two internal motives significantly predicted CAGE scores, but the two external motives did not. Further, the health motive was inversely related to CAGE scores. Thus, those who drink because it is healthy for them score lower on the CAGE. Taste was unrelated to CAGE scores. The motive data accounted for the larger part of the variance in CAGE scores.

Drinking because it contains alcohol

People with potential problem drinking rely on the alcohol content for the sensations they seek from drinking. At the same time,

Table 3 Regression outcome for the effect of motives and beverage on CAGE scores, controlling for age and sex

Model	Unstandardized coefficients		Standardized coefficients		
	B	SE B	β	t	P
Constant	0.632	0.356		1.775	0.076
Sex*	-0.220	0.085	-0.118	-2.601	0.010
Age	-0.005	0.002	-0.080	-2.022	0.044
Preferred beverage	0.125	0.100	0.057	1.247	0.213
Enhancement (It makes me feel good)	0.072	0.032	0.100	2.246	0.025
Coping (It reduces my level of anxiety)	0.157	0.034	0.226	4.649	0.000
Social (It makes me more outgoing)	0.038	0.037	0.051	1.023	0.307
Conformity (Most of my friends drink it)	-0.024	0.029	-0.035	-0.846	0.398
I like the taste	0.002	0.044	0.002	0.041	0.967
I believe that it is healthy for me	-0.106	0.030	-0.148	-3.580	0.000

Notes: Dependent variable: CAGE sum, $R^2 = 0.13$. *1 = male, 2 = female.

Abbreviation: CAGE, Cut-down, Annoyed, Guilty, Eye-opener.

alcohol adds a sensory dimension to the hedonic experience, akin in some ways to the taste dimension. In another part of our larger research project (related to taste preferences) we asked participants whether they drank because of the alcohol content. To examine the relationship of “drinking because it contains alcohol” to our problem drinking results, we included responses to that item (“I drink because it contains alcohol”) in a second multiple regression entering the same variables as presented in Table 3, but now entering the “alcohol” variable at a new final step. In this second regression, the results were similar to those in Table 3, except that “drinking to feel good” which previously contributed to predicting the CAGE scores, did not add an independent contribution once the “drinking because it contains alcohol” item was added to the regression. On the other hand, the effects of drinking “to cope” and because “it is healthy” predicted CAGE scores independently of the “alcohol” item.

Discussion

The present results on an adult cohort of drinkers broadly replicate and extend the results reported for younger drinkers – but with some important differences. The younger group is the same age group on which the four motives in the Cooper model have been developed.^{5,44} With the addition of “taste” and “health” motives, we can restate that the four motives of the drinking motives model are not the only reasons for drinking. “Taste” was the motive with greatest endorsement in this study, with 86% agreeing or strongly agreeing with this item. Of the Cooper drinking motives, participants endorsed the enhancement motive more than the other three motives of coping, social, and conformity motives, which were endorsed in that order. “Health” was endorsed by 24% of the sample. Although this was low compared with some of the other endorsed motives, this result shows that health is a motive for a large minority of drinkers.

Studies using younger participants have consistently reported that social motives are given the highest endorsement.^{45,46} Social motives in young adults have been associated with binge drinking and thus are considered a predictor of risky drinking problems.^{47,48} Although our results on enhancement differed from studies on younger samples, we found no meaningful or large differences across age within this study on motives, but the youngest participant in our study was 18 years whereas in other studies participants are often younger than 18, and the mean age can be as low as 15 years.⁴⁶ Thus our young participants are both a much smaller proportion of our sample and are older than the young

samples of other studies. Recall the mean age in this study was 50.13 years.

Conclusion

In summary, our results show that drinking to change internal states (whether positive or negative) puts people more at risk for problem drinking as measured on the CAGE, compared with drinking for external reasons (whether positive or negative). Our regression analysis showed that the relationship between internal motives and problem drinking occurred independently of age, preferred beverage, and, to some extent, sex. Such outcomes are correlational in nature, not causal, which is a necessary limitation in this type of study. Our results must also remain limited by the nature of our sample, namely those willing to participate in a telephone interview. Nevertheless, these results may help inform strategies to manage behavioral self-regulation of drinking across a wider age group than previously suggested by the drinking motives literature.

The present results also extend the current motives literature with the information on taste and health as positive motives. “Taste,” a pleasure or hedonic motive, was rated highest in the list of six motives in this study. Taste was not associated with problem drinking. In younger populations there are concerns that taste is being altered in alcoholic beverages in ways where the intention is to encourage new drinkers or increased drinking, for example through increasing sweetness in ready-to-drink products.¹⁵ Hence the impact of the taste motive may vary across age in a specially targeted sample.

Older participants demonstrated greater levels of agreement with the health motive, which is not surprising given that the putative health “benefits” of wine in particular largely relate to cardiovascular disorders. Drinking because it is healthy was negatively associated with the CAGE scores in the regression analysis, supporting the idea that people who drink with a positive approach to health do not overindulge. Age, therefore, predicts a healthier approach to alcohol consumption beyond the “maturing out” phenomenon associated with the Drinking Motives Model.¹² This result needs replication across other samples and communities, especially since it is possible that the low scores on the CAGE is an artifact of the wording of the “need to cut down” and “guilty” items. That is, if participants agree they are drinking because it is healthy for them, they may be less likely to report feeling guilty or the need to cut down on their drinking because they believe it is healthy, rather than relating the items to the amount they are drinking. This may be circular

reasoning, or a way of denying guilt. We did not see a pattern on those items in this study to support this speculation, but more research with a specific design may be able to test the possible confound between items dealing with guilt and those dealing with drinking for health reasons.

Food-based research has shown that people consume more food and experience less guilt when they believe what they are eating is healthy for them.^{33–35} Those who drink alcohol because it is healthy for them drink more frequently but they do not consume more in terms of the average volume over time.²⁹ Recent research suggests that wine and food scientists are treating the future of alcohol as a functional food seriously and one review concludes that wine should be considered a functional food because it meets all the criteria for such (conventional food form, good taste, convenience, disease prevention, and competitive price),⁴⁰ albeit with some necessary changes to current product offerings. If further research is similarly consistent on the health benefits of alcohol, we may need to reexamine our conclusions about those who “drink because it is healthy” in terms of the potential for overconsumption as a result of this belief. At the moment, though, it seems that there is no need for concern regarding people who take on board the “health value of alcohol” message.

The results on “drinking because of the alcohol content” raise an important consideration regarding the nature of “alcohol” as a motive for drinking. In the present results, drinking because of the alcohol content was related to the CAGE scores, and accounted for the internal motive “drinking to feel good” but not “drinking to control anxiety.” Drinking to get drunk, which is the effect of the overconsumption of alcohol, has been reported as a frequent motive for drinking in younger samples.⁴⁶

The alcohol content of a beverage can also relate to the taste motive. For example, the initial heat sensation of alcohol is seen as a positive aspect of alcoholic beverages when in balance,⁴⁹ and thus a reason for drinking them. Liking this heat character is not the same as “drinking to get drunk.” The positive hedonic “heat” quality of alcohol may be important in future research, especially research seeking to remove some alcohol content from beverages without compromising mouth-feel. In the present study, drinking because of the alcohol was negatively correlated with drinking because of the taste, suggesting the present participants were not considering alcohol in terms of a pleasurable taste-related effect. Future research will need to distinguish drinking alcohol because of this pleasurable physiological effect from drinking alcohol as a means to get drunk, given the serious social and

personal consequences of the latter as a motive for drinking. Drinking for health reasons was not associated with risk of overconsumption in our sample, although this motive also warrants monitoring in future research as the information on the health benefits of alcohol and the relationship to drinking becomes more established in health psychology research.

Disclosure

The authors report no conflicts of interest in this work.

References

1. Austin JL, Smith JE. Drinking for negative reinforcement: the semantic priming of alcohol concepts. *Addict Behav.* 2008;33(12):1572–1580.
2. DeMartini KS, Carey KB. The role of anxiety sensitivity and drinking motives in predicting alcohol use: a critical review. *Clin Psychol Rev.* 2011;31(1):169–177.
3. Levy B, Earleywine M. Discriminating reinforcement expectancies for studying from future time perspective in the prediction of drinking problems. *Addict Behav.* 2004;29(1):181–190.
4. Farber PD, Khavari KA, Douglass FM 4th. A factor analytic study of reasons for drinking: empirical validation of positive and negative reinforcement dimensions. *J Consult Clin Psychol.* 1980;48(6):780–781.
5. Cooper ML. Motivations for alcohol use among adolescents: development and validation of a four-factor model. *Psychol Assess.* 1994;6(2):117–128.
6. Cox WM, Klinger E. A motivational model of alcohol use. *J Abnorm Psychol.* 1988;97(2):168–180.
7. Cox WM, Klinger E. Incentive motivation, affective change, and alcohol use: A model. In: Cox WM, editor. *Why People Drink: Parameters of Alcohol as a Reinforcer.* New York: Gardner Press; 1990.
8. Kuntsche E, Knibbe R, Gmel G, Engels R. Why do young people drink? A review of drinking motives. *Clin Psychol Rev.* 2005;25(7):841–861.
9. Cooper ML, Russell M, Skinner JB, Frone MR, Mudar P. Stress and alcohol use: moderating effects of gender, coping, and alcohol expectancies. *J Abnorm Psychol.* 1992;101(1):139–152.
10. Moran CC, Saliba AJ. Anxiety and self-medication with alcohol. In: Preedy VR, Watson RR, Martin CR, editors. *Handbook of Behavior, Food and Nutrition.* New York: Springer; 2011:3061–3076.
11. Goldstein AL, Flett GL. Personality, alcohol use, and drinking motives: a comparison of independent and combined internal drinking motives groups. *Behav Modif.* 2009;33(2):182–198.
12. Littlefield AK, Sher KJ, Wood PK. Do changes in drinking motives mediate the relation between personality change and “maturing out” of problem drinking? *J Abnorm Psychol.* 2010;119(1):93–105.
13. Charters S, Pettigrew S. Why do people drink wine? A consumer-focused exploration. *J Food Prod Market.* 2008;14(3):13–32.
14. Coldwell SE, Oswald TK, Reed DR. A marker of growth differs between adolescents with high vs low sugar preference. *Physiol Behav.* 2009;96(4–5):574–580.
15. Copeland J, Gates P, Stephenson D, Dillon P. *Young People and Alcohol: Taste Perceptions, Attitudes and Experiences.* NDARC Technical Report No 241. Sydney: National Drug and Alcohol Research Centre; 2006.
16. Blackman J, Saliba AJ, Schmidtke L. Sweetness acceptance of novices, experienced consumers and winemakers in Hunter Valley Semillon wines. *Food Qual Prefer.* 2010;21(7):679–683.
17. Renaud S, de Lorgeril M. Wine, alcohol, platelets, and the French paradox for coronary heart disease. *Lancet.* 1992;339(8808):1523–1526.
18. Yoo YJ, Saliba AJ, Prenzler PD. Should red wine be considered a functional food? *Compr Rev Food Sci Food Saf.* 2010;9(5):530–551.

19. Adamson SJ, Sellman JD, Frampton CM. Patient predictors of alcohol treatment outcome: a systematic review. *J Subst Abuse Treat.* 2009;36(1):75–86.
20. Calabria B, Shakeshaft AP, Havard A. A systematic and methodological review of interventions for young people experiencing alcohol-related harm. *Addiction.* 2011;106(8):1406–1418.
21. Ritter A, Cameron J. A review of the efficacy and effectiveness of harm reduction strategies for alcohol, tobacco and illicit drugs. *Drug Alcohol Rev.* 2006;25(6):611–624.
22. Hall W. Changes in the public perceptions of the health benefits of alcohol use, 1989 to 1994. *Aust N Z J Public Health.* 1996;20(1):93–95.
23. Smart RG, Ogbourne AC. Beliefs about the cardiovascular benefits of drinking wine in the adult population of Ontario. *Am J Drug Alcohol Abuse.* 2002;28(2):371–378.
24. Baumberg B, Anderson P. The European Strategy on alcohol: A landmark and a lesson. *Alcohol Alcohol.* 2007;42(1):1–2.
25. Connor J. The health benefits of alcohol: yeah right. *N Z Med J.* 2005;118(1216):U1499.
26. Andreasson S. The health benefits of moderate consumption called into question. *Addict Res Theory.* 2007;15(1):3–33.
27. Alcohol Consumption in Australia: A Snapshot [webpage on the Internet]. National health and medical research council guidelines for consumption of alcohol. Canberra: Australian Bureau of Statistics; [updated May 17, 2012; cited July 10, 2012]. Available from: <http://www.abs.gov.au/ausstats/abs@.nsf/Lookup/4832.0.55.001main+features32007-08>. Accessed June 7, 2012.
28. *National Alcohol Strategy 2006–2009*. Ministerial Council on Drug Strategy; 2006. Available from: [http://www.alcohol.gov.au/internet/alcohol/publishing.nsf/Content/B83AD1F91AA632ADCA25718E0081F1C3/\\$File/nas-06-09.pdf](http://www.alcohol.gov.au/internet/alcohol/publishing.nsf/Content/B83AD1F91AA632ADCA25718E0081F1C3/$File/nas-06-09.pdf). Accessed July 30, 2012.
29. Saliba AJ, Moran CC. The influence of perceived healthiness on wine consumption patterns. *Food Qual Prefer.* 2010;21(7):692–696.
30. Messiah A, Encrenaz G, Saphinho D, Gilbert F, Carmona E, Kovess-Masféty V. Paradoxical increase of positive answers to the Cut-down, Annoyed, Guilt, Eye-opener (CAGE) questionnaire during a period of decreasing alcohol consumption: results from two population-based surveys in Ile-de-France, 1991 and 2005. *Addiction.* 2008;103(4):598–603.
31. Bisson J, Nadeau L, Demers A. The validity of the CAGE scale to screen for heavy drinking and drinking problems in a general population survey. *Addiction.* 1999;94(5):715–722.
32. Ritchie C. Beyond drinking: the role of wine in the life of the UK consumer. *Int J Consum Stud.* 2007;31(5):534–540.
33. Geyskens K, Pandelaere M, Dewitte S, Warlop L. The backdoor to overconsumption: the effect of associating ‘low-fat’ food with health references. *Mark Public Policy Conf Proc.* 2007;26(2):118–125.
34. Provencher V, Polivy J, Herman CP. Perceived healthiness of food. If it’s healthy, you can eat more! *Appetite.* 2009;52(2):340–344.
35. Wansick B, Cheney MM, Chan N. Exploring comfort food preferences across age and gender. *Physiol Behav.* 2003;79(4–5):739–747.
36. Hahn RA, Middleton JC, Elder R, et al. Effects of alcohol retail privatization on excessive alcohol consumption and related harms: a community guide systematic review. *Am J Prev Med.* 2012;42(4):418–427.
37. McCambridge J, McAlaney J, Rowe R. Adult consequences of late adolescent alcohol consumption: a systematic review of cohort studies. *PLoS Med.* 2011;8(2):e1000413.
38. Tobin C, Moodie AR, Livingstone C. A review of public opinion towards alcohol controls in Australia. *BMC Public Health.* 2011;11:58.
39. Costanzo S, Di Castelnuovo A, Donati MB, Iacoviello L, de Gaetano G. Alcohol consumption in relation to vascular and total mortality in patients with diabetes, hypertension or history of cardiovascular disease: A meta-analysis. *J Wine Res.* 2011;22(2):119–122.
40. Yoo YJ, Prenzler PD, Saliba AJ, Ryan D. Assessment of some Australian red wines for price, phenolic content, antioxidant activity, and vintage in relation to functional food prospects. *J Food Sci.* 2011;76(9):C1355–C1364.
41. O’Brien CP. The CAGE questionnaire for detection of alcoholism: a remarkably useful but simple tool. *JAMA.* 2008;300(17):2054–2060.
42. Koppes LL, Twisk JW, Snel J, Van Mechelen W, Kemper HC. Comparison of short questionnaires on alcohol drinking behavior in a nonclinical population of 36-year-old men and women. *Subst Use Misuse.* 2004;39(7):1041–1060.
43. Etter JF. Asking about quantity and frequency of alcohol consumption before asking the CAGE questions produces lower ratings on the CAGE test. *Drug Alcohol Depend.* 2004;74(2):211–214.
44. Cooper ML, Russell M, Skinner JB, Windle M. Development and validation of a three-dimensional measure of drinking motives. *Psychol Assess.* 1992;4(2):123–132.
45. Kuntsche E, Stewart SH, Cooper ML. How stable is the motive-alcohol use link? A cross-national validation of the Drinking Motives Questionnaire Revised among adolescents from Switzerland, Canada, and the United States. *J Stud Alcohol Drugs.* 2008;69(3):388–396.
46. Kuntsche E, Stewart SH. Why my classmates drink: drinking motives of classroom peers as predictors of individual drinking motives and alcohol use in adolescence – a mediational model. *J Health Psychol.* 2009;14(4):536–546.
47. Crutzen R, Knibbe RA, Mysyuk Y. Unravelling the role of drinking motives in the relationship between stress and alcohol use and its related problems. *Ment Health Subst Use.* 2010;3(1):38–46.
48. Grant VV, Stewart SH, O’Connor RM, Blackwell E, Conrod PJ. Psychometric evaluation of the five-factor Modified Drinking Motives Questionnaire – Revised in undergraduates. *Addict Behav.* 2007;32(11):2611–2632.
49. Gawel R, Oberholster A, Francis IL. The “Mouth-feel Wheel”: A tool for describing the mouth-feel character of red wine. *AJGWR.* 2000;6:203–207.

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