

Differential Alcohol Expectancies Based on Type of Alcoholic Beverage Consumed*

ERIC R. PEDERSEN, M.A.,[†] CLAYTON NEIGHBORS, PH.D.,[†] AND MARY E. LARIMER, PH.D.[†]

Department of Psychology, Center for the Study of Health and Risk Behaviors, University of Washington, 1100 NE 45th Street, Suite 300, Box 354944, Seattle, Washington 98195

ABSTRACT. Objective: Expectancies regarding the global effects of alcohol are influential aspects of drinking behavior that can vary by type of beverage consumed. Lacking in the research literature is a thorough investigation of how expected effects and subjective evaluations of specific positive (e.g., increased sociability, relaxation) and specific negative (e.g., impairment, aggression) expectancy effects vary by different types of alcoholic beverages. **Method:** The present between-subjects study used a sample of 498 young adults randomized to complete a measure of alcohol expectancies based on one of three alcohol-type conditions (beer, wine, distilled spirits). Participants also indicated the typical amount consumed of the beverage. Separate multivariate analysis of variance tests were run to determine if differences existed among the three conditions for positive and negative expected effects and subjective evaluations. **Results:** Findings suggested that individuals may expect

different effects from consuming different types of alcoholic beverages. Participants expressed more agreement that wine would have relaxation effects and rated this effect more positively. Participants expressed more disagreement that beer or shots would have effects on sexuality and rated sexuality effects more positively for wine. Participants reported less agreement that wine would have impairing effects, as well as more disagreement that wine would affect risk, aggression, and self-perception. Impairing effects of wine were also viewed less negatively than other condition beverages. **Conclusions:** Findings suggest that individuals may hold different beliefs about the effects of wine, compared with beer and shots of distilled spirits. Research and interventions targeting general alcohol expectancies may miss important between-beverage differences in perceived effects and subjective evaluations regarding alcohol's effects. (*J. Stud. Alcohol Drugs*, 71, 925-929, 2010)

ALCOHOL-EXPECTANCY THEORY suggests that individuals consume alcohol because they believe drinking will lead to a certain effect (e.g., increasing social interaction, relieving tension), and these beliefs have long been suggested to influence individuals' drinking levels (Brown et al., 1980; Fromme et al., 1993; Goldman et al., 1987; Jones et al., 2001). Individuals may expect different types of alcoholic beverages to affect them in different ways and thus may drink different types of beverages when seeking these differential effects. Previous research suggests that individuals perceive differences among varying types of alcoholic beverages regarding the alcohol type's global positive (e.g., alcohol leads to good outcomes) or negative (e.g., alcohol leads to negative outcomes) effects. Studies found individuals reported higher negative expectancies for drinking shots of distilled spirits and higher positive expectancies for beer and wine (Carey and Johnson, 1994; Guarna and Rosenberg, 2000; Lang et al., 1983; Lindman and Lang, 1986).

Although prior research provides a foundation for the study of beverage-specific *global* alcohol expectancies, little

research examines the *specific* positive- and negative-expectancy effects resulting from consuming different types of alcoholic beverages. These include beliefs that alcohol will enhance sociability, reduce tension/stress, increase courage and bravery, enhance and disinhibit sexuality, impair mental and physical behavior, lead to risky or aggressive behavior, and influence feelings of guilt or moodiness (Fromme et al., 1993; Ham et al., 2005). Using a small sample of heavy drinking women in treatment for alcohol problems, Devoulyte and colleagues (2006) found that participants endorsed higher specific positive expectancies (social/sexual, global positive affect, and relaxation) for beer, compared with wine. Although this represents an important first step, a thorough examination of the multiple specific alcohol expectancies of varying types of alcoholic beverages among a larger sample of diverse drinkers is warranted.

The present study explored the differential specific positive and negative expectancies that individuals hold for different types of alcoholic beverages. Using a between-subjects randomized design, we sought to determine whether a sample of young adults expected beer, wine, and shots of distilled spirits (i.e., hard alcohol consumed as shots or in mixed drinks) to affect them differently in terms of specific positive (sociability, tension reduction, liquid courage, sexuality) and negative (cognitive and behavioral impairment, risk and aggression, self-perception) effects. We also explored individuals' subjective evaluations of these expectancy effects. In addition, we were interested in whether beverage-specific alcohol expectancies would vary as a function

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[†]Correspondence may be sent to Eric R. Pedersen at the above address or via email at: epeder@u.washington.edu. Clayton Neighbors is with the Department of Psychology, University of Houston, Houston, TX. Mary E. Larimer is with the Department of Psychiatry and Behavioral Sciences, University of Washington, Seattle, WA.

of the amount of the beverage typically consumed. Carey and Johnson (1994) found those with less experience drinking alcohol (i.e., nondrinkers) generally held more negative attitudes about all types of alcohol. Thus, we hypothesized that heavier drinkers would report more agreement regarding the specific effects of all beverage conditions.

Method

Participants

A sample of 498 college students from a large university in the northwestern United States completed the study in exchange for course credit. Participants' mean age was 18.70 ($SD = 1.10$) years, 289 were female (58%), and 88% were first- or second-year students. Fifty-five percent of the sample identified as White, 32% as Asian, 3% as Hispanic/Latino(a), 8% as multiracial, and 2% as "other ethnicities." Approximately 28% reported no drinking over the past 3 months, and those who reported drinking at least once during that time drank a mean of 10.77 ($SD = 9.56$) drinks per week. To determine if perceived alcohol expectancies varied by beverage type, participants were randomized to one of three alcohol-type conditions. Conditions included beer ($n = 163$), wine ($n = 165$), and shots of distilled spirits (including shots in mixed drinks; $n = 170$).

Design and procedure

Anonymous surveys containing questions regarding demographics, alcohol use, and alcohol expectancies were distributed in all Psychology 101 courses. After reading a local Human Subjects Review Board-approved information statement, participants responded to items assessing age, sex, class year, and ethnicity. Typical weekly drinking behavior over the past 3 months was assessed with the Daily Drinking Questionnaire (Collins et al., 1985). Standard drinks were defined as a drink containing 0.50 oz. of ethyl alcohol (12 oz. beer, 4 oz. wine, 1.25-oz. shot of distilled spirits). Participants were asked to indicate how many drinks they typically consumed of their assigned condition beverage and reported whether they had ever tried the beverage before. Finally, participants completed the Comprehensive Effects of Alcohol Questionnaire (CEOA; Fromme et al., 1993), with respect to the beverage condition to which they were randomized. The CEOA asked participants to rate their agreement with 38 statements regarding the effects of alcohol on a 4-point scale (1 = *disagree* to 4 = *agree*), as well as subjective evaluations of the effects on a 5-point scale (1 = *bad*, 3 = *neutral*, 5 = *good*). The CEOA contained four positive-expectancy subscales (sociability [$\alpha = .90$ for perceived effect in the present sample, $\alpha = .92$ for evaluation], tension reduction [$\alpha = .74$, $\alpha = .80$], liquid courage [$\alpha = .78$, $\alpha = .76$], and sexuality [$\alpha = .73$, $\alpha = .78$]) and three negative-expectancy subscales

(cognitive and behavioral impairment [$\alpha = .85$, $\alpha = .88$], risk and aggression [$\alpha = .78$, $\alpha = .72$], and self-perception [$\alpha = .76$, $\alpha = .79$]).

Results

Analytic plan

A one-way analysis of variance (ANOVA) with typical drinks per week as the dependent variable and beverage condition (beer, wine, shots of distilled spirits) as the independent variable determined drinking did not differ by condition. However, an ANOVA with condition and typical amount consumed of condition beverage, $F(2, 471) = 14.79$, $p < .001$, revealed that participants in the wine condition reported drinking fewer drinks per typical wine drinking occasion, compared with participants in the beer condition, $t(311) = 4.87$, $p < .001$, and shots of distilled spirits condition, $t(309) = 4.60$, $p < .001$. A Kruskal-Wallis test revealed the percentages of individuals never trying their condition's beverage varied by condition, $\chi^2(2, n = 494) = 7.96$, $p < .05$. Twenty-five percent of participants in the beer condition reported never trying beer, whereas 40% and 34% of those in the wine and shots of distilled spirits conditions, respectively, reported never trying their beverage. Demographics did not differ by condition. To test whether expectancies varied by beverage type, we ran separate multivariate analysis of variance (MANOVA) tests with (a) the four positive alcohol expectancies and (b) the three negative alcohol expectancies. Condition was entered as the fixed factor in both analyses. Typical amount consumed of the condition beverage was entered as a covariate. Because of the positive skew and less-than-adequate kurtosis of this variable (skew = 2, kurtosis = 5), typical drinking was transformed by adding a constant of 1 and then taking the square root (skew = 1, kurtosis = 0.8). Two models were run for (a) expected effects and (b) subjective evaluations. Means and standard deviations by condition and expectancy subscale are found in Table 1.

Expected effects

Positive expectancies. As expected, there was an overall main effect for typical amount of condition beverage consumed, Wilk's $\Lambda = 0.88$, $F(4, 427) = 14.19$, $p < .001$. Between-subjects tests revealed significant effects for sociability, $F(1, 430) = 52.29$, $p < .001$, tension reduction, $F(1, 430) = 20.96$, $p < .001$, liquid courage, $F(1, 430) = 9.83$, $p < .01$, and sexuality, $F(1, 430) = 16.81$, $p < .001$, such that those who drank more of the condition beverage reported more agreement with the positive-expectancy effects. There was also an overall main effect for condition on positive expectancies of alcohol, Wilk's $\Lambda = 0.87$, $F(8, 854) = 7.44$, $p < .001$, demonstrating that positive expectancies varied as a function of beverage type. Between-subjects tests revealed

TABLE 1. Mean scores and standard deviations by condition for expectancy subscales of the Comprehensive Effects of Alcohol Questionnaire

Variable	Beer		Wine		Shots of distilled spirits	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
Positive expectancies						
Sociability						
Expected effects	3.03 ^a	0.70	2.82 ^a	0.68	3.00 ^a	0.77
Subjective evaluations	3.56 ^a	0.93	3.44 ^a	0.79	3.40 ^a	0.97
Tension reduction						
Expected effects	2.28 ^a	0.72	2.57 ^b	0.78	2.12 ^a	0.77
Subjective evaluations	3.24 ^{a,b}	0.97	3.39 ^b	0.90	3.08 ^a	0.87
Liquid courage						
Expected effects	2.23 ^a	0.70	2.19 ^a	0.64	2.28 ^a	0.70
Subjective evaluations	2.72 ^a	0.79	2.86 ^a	0.76	2.69 ^a	0.88
Sexuality						
Expected effects	2.08 ^a	0.74	2.19 ^b	0.73	2.09 ^a	0.73
Subjective evaluations	2.85 ^a	0.98	3.11 ^b	0.88	2.83 ^a	0.92
Negative expectancies						
Cognitive and behavioral impairment						
Expected effects	2.74 ^a	0.62	2.55 ^b	0.71	2.81 ^a	0.71
Subjective evaluations	1.79 ^a	0.66	1.91 ^b	0.67	1.77 ^a	0.67
Risk and aggression						
Expected effects	2.27 ^{a,b}	0.68	2.10 ^b	0.66	2.34 ^a	0.71
Subjective evaluations	2.14 ^a	0.75	2.30 ^a	0.65	2.25 ^a	0.76
Self-perception						
Expected effects	1.92 ^{a,b}	0.70	1.85 ^b	0.69	2.02 ^a	0.79
Subjective evaluations	1.73 ^a	0.78	1.91 ^a	0.79	1.87 ^a	0.80

Notes: Response options for the expected effects component are 1 = *disagree* to 4 = *agree*. Response options for the subjective evaluations component are 1 = *bad* to 3 = *neutral* to 5 = *good*. Different letter superscripts within expectancy subscales indicate a significant difference between conditions.

a significant difference among conditions for the tension-reduction-expectancy subscale, $F(2, 430) = 18.89, p < .001$, and sexuality, $F(2, 430) = 3.28, p < .05$. To determine for which beverages this expectancy differed, we regressed the transformed typical amount consumed of condition beverage on each of the four positive-expectancy subscales and obtained the unstandardized residuals of each expectancy. This represented the effect of condition on expectancies after removing the influence of typical drinking of the condition beverage. These residuals were then entered into the overall MANOVA with condition as the fixed factor. Follow-up pairwise comparisons with a Bonferroni adjustment revealed that participants in the wine condition reported more agreement that wine would have tension-reducing effects than those in the beer and shots of distilled spirits conditions, $t(284) = 4.17, p < .001$, and $t(281) = 5.82, p < .001$, respectively. Those in the beer and shots of distilled spirits conditions reported more disagreement that these beverages would have sexuality effects, compared with wine, $t(284) = 2.05, p < .05$, and $t(281) = 2.05, p < .05$, respectively.

Negative expectancies. There was an overall main effect for typical amount of beverage consumed, Wilk's $\Lambda = 0.96, F(3, 428) = 3.06, p < .001$. Between-subjects tests revealed significant differences for cognitive and behavioral impairment, $F(1, 430) = 15.32, p < .001$, and self-perception, $F(1, 430) = 23.13, p < .001$. There was also a main effect of condition on negative expectancies of alcohol, Wilk's $\Lambda = 0.96,$

$F(6, 856) = 3.09, p < .01$. Between-subjects tests revealed a significant difference among conditions for the cognitive and behavioral impairment subscale, $F(2, 430) = 8.75, p < .001$, the risk and aggression subscale, $F(2, 430) = 4.08, p < .05$, and the self-perception subscale, $F(2, 430) = 4.53, p < .05$. Using the process of gaining the residuals as described above, follow-up pairwise comparisons using a Bonferroni adjustment revealed that participants endorsed less agreement that wine would have impairment effects, compared with those in the beer condition, $t(284) = 3.09, p < .01$, and shots of distilled spirits condition, $t(281) = 3.89, p < .001$. Those in the wine condition reported more disagreement that wine would have risk and aggression effects, compared with those in the shots of distilled spirits condition, $t(281) = 2.75, p < .01$. Those in the wine condition endorsed more disagreement that wine would lead to feelings of guilt, moodiness, and self-criticism, compared with those in the shots of distilled spirits condition, $t(281) = 2.87, p < .01$.

Subjective evaluation

Positive expectancies. There was an overall main effect for typical amount of condition beverage consumed, Wilk's $\Lambda = 0.89, F(4, 408) = 12.18, p < .001$, with significant between-subjects effects for sociability, $F(1, 411) = 36.86, p < .001$, tension reduction, $F(1, 411) = 16.55, p < .01$, liquid courage, $F(1, 411) = 4.15, p < .05$, and sexuality, $F(1, 411)$

= 28.02, $p < .001$. There was also an overall main effect for condition on evaluation of positive expectancies, Wilk's $\Lambda = 0.93$, $F(8, 816) = 3.76$, $p < .001$, with significant between-subjects effects for tension reduction, $F(2, 411) = 6.43$, $p < .01$, and sexuality, $F(2, 411) = 8.27$, $p < .001$. Follow-up pairwise comparisons with a Bonferroni adjustment after the influence of typical amount consumed was removed revealed that participants in the wine condition rated the tension-reducing effects of wine more positively than those in the shots of distilled spirits condition, $t(269) = 3.46$, $p < .01$. Those in the wine condition also evaluated wine's perceived effects on sexuality more positively than both those in the beer and shots of distilled spirits conditions, $t(272) = 3.47$, $p < .01$, and $t(269) = 3.47$, $p < .01$, respectively.

Negative expectancies. There was an overall main effect for typical amount of condition beverage consumed, Wilk's $\Lambda = 0.93$, $F(3, 410) = 10.20$, $p < .001$, with significant between-subjects effects for impairment, $F(1, 412) = 12.65$, $p < .001$, and risk and aggression, $F(1, 412) = 8.13$, $p < .01$. There was also an overall main effect for condition on evaluation of negative expectancies, Wilk's $\Lambda = 0.97$, $F(6, 820) = 2.38$, $p < .05$, with a significant between-subjects effect for cognitive and behavioral impairment, $F(2, 412) = 3.66$, $p < .05$. Follow-up tests with the influence of typical amount consumed removed revealed that participants in the beer and shots of distilled spirits conditions rated the impairing effects of these beverages more negatively than those in the wine condition, $t(272) = 2.24$, $p < .05$ for beer, and $t(270) = 2.33$, $p < .05$ for shots of distilled spirits.

Discussion

Results suggested that individuals may believe different alcoholic beverages have different specific positive and negative effects. In general, participants who reported heavier drinking levels of the condition beverage expressed more agreement that the beverage would have specific positive and negative effects and rated these effects more positively than lighter drinkers. These results are consistent with prior work finding more experience with drinking is associated with higher positive expectancies, and heavier drinkers view the negative effects of alcohol as less severe than lighter drinkers (Carey and Johnson, 1994; Williams and Ricciardelli, 1996). After controlling for typical amount of the beverage consumed, participants reported more agreement that wine would have tension-reducing effects, compared with beer and shots of distilled spirits. This tension-reducing effect of wine was rated more positively than in the shots of distilled spirits condition. Participants disagreed less that wine would affect enhanced and disinhibited sexuality and rated this more positively than those in other conditions. Regarding negative expectancies, participants expressed less agreement that wine would lead to impairments in cognitive and behavioral functioning and rated these impairing effects of wine

less negatively than those in the beer and shots of distilled spirits condition. Compared with shots of distilled spirits, participants reported more disagreement that wine would have effects on risky behavior and aggression and lead to feelings of guilt, moodiness, and self-criticism.

Differences between conditions were generally evident between wine and other beverages. Because of perceptions that wine leads to less severe negative effects, young people may be more likely to consume wine and wine coolers and may be less likely to adequately consider the potential for negative consequences from these beverages. Concerns regarding wine use are amplified by research that young adult college students overestimate "one standard drink" of wine by nearly 75%; on average estimating a glass of wine to be 7 oz. (White et al., 2005). Taken with findings that individuals may drink wine for more coping/tension-reducing effects, the combination of fewer negative expectancies and limited knowledge of quantities could lead to risk. In addition, the relatively low means reported by participants in the three conditions for the risk, aggression, and self-perception negative expectancies revealed that participants generally "disagreed" that each of the beverages would lead to these negative effects. Young people in particular may even view traditionally assumed negative consequences (e.g., blacking out, embarrassing oneself, impulsive sexual activity) as neutral or positive, and modest ratings of these "negative expectancies" can relate to actual drinking behavior (Mallet et al., 2008).

Limitations exist in the study. Young adults attending college may differ in alcohol consumption rates or outcome expectancies from non-college-attending peers (e.g., Slutske, 2005; Slutske et al., 2004), and this research may not be generalizable to other groups of younger and older adults. More data regarding the drinking history of the sample or consequences experienced would have provided more detail to help generalize these findings to other groups of young adults. The shots of distilled spirits condition included both straight distilled spirits (i.e., shots) and distilled spirits included in mixed drinks. Previous research suggests individuals may perceive straight distilled spirits to be more potent than other beverages (including mixed drinks; Carey and Johnson, 1994), and the effects of the distilled-spirits condition on negative expectancies may have differed if mixed drinks were assessed separately or if perceived potency was controlled for. Other specific beverages young adults may drink (e.g., wine coolers, malt liquor) were not assessed and would be important to examine in future work.

In sum, this research suggests that some positive and negative outcome expectancies may be beverage-specific, with different types of beverages expected to result in different types of outcomes. Research studies that use generic alcohol terms instead of specific beverage-type terms may miss important information regarding individuals' perceived effects of different types of alcohol. Clinically, brief inter-

ventions that target preferred specific alcohol types (e.g., Werch et al., 2005) may benefit from including discussions of the differential specific positive and negative perceived effects of different alcoholic beverages for youth at all levels of drinking.

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