Effects of Alcohol, Expectancies, Sex 
and Social Setting on Locus of Control

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SUMMARY. Compared with subjects who received no alcohol, subjects who received alcohol 
were more internally oriented regarding the belief in a predictable world and more externally 
oriented regarding the belief in a controllable world, two of four factors identified in a 
measure of locus of control.

Recently, the effects of alcohol on a wide variety of behaviors have 
been investigated, and the findings demonstrate the importance of the 
expectancy regarding the beverage’s content (2). This expectancy has been 
shown (3–5) to mediate diverse behaviors, and the social setting in which 
the beverage is consumed has also been shown (6) to have a mediating 
influence.

One variable of some interest regarding alcohol consumption is locus of 
control—the extent to which individuals perceive themselves as controlling 
their own life events and reinforcements. Although Lang et al. (5) 
found no effects of alcohol or expectancies on locus of control, their use of 
a global index—Rotter’s Internal–External Locus of Control Scale (I–E)—is 
questionable. Multidimensional beliefs concerning locus of control may 
be more specific predictors of behavior. Moreover, results are typically 
based on correlational, post-hoc data and are confounded by the effects of 
the treatment program in which subjects participated when tested (7). 
Another problem in assessing the effects of alcohol and expectancies on 
locus of control has been the failure to investigate the responses of men 
and women separately. Not only are men typically more internally 
oriented (8), they may also be influenced differently by alcohol and the 
belief regarding the beverage’s content (4). The present study assesses the 
effects of alcohol, expectancies, sex and social setting on multidimensional 
beliefs concerning locus of control.

Method

Subjects and Experimental Design. The 96 subjects in this study (48 men) had a 
mean age of 19.33 ± 2.08 (SD) years and were undergraduates recruited through

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ability was impaired. About one in five of those having BACs of 0.05% or greater judged themselves incapable of driving safely. Men were, however, readier than women to take risks related to car driving, and their willingness to take such risks was apparently increased by the presence of other men.

There is evidence (11) that use of cannabis impairs driving skills, and that cannabis and alcohol have additive negative effects on such skills. It is thus alarming that one in five patrons reported using cannabis that evening, that persons using cannabis had higher BACs than did nonusers and that combined use of cannabis and alcohol did not increase the perception of risk related to driving.

It is not known how the distribution of BACs recorded at this particular college pub may compare with the distribution recorded at other college pubs, or in other social settings in which college students drink. It is likely that persons at parties at which distilled spirits are consumed have higher BACs, but this remains speculation until BACs are measured in a variety of drinking settings.

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advertisements in a student newspaper. All participated in the study voluntarily, all signed informed consent forms, and all stated that they had previously consumed alcohol, were moderate social drinkers, did not experience any medical, psychiatric or behavioral problems related to the consumption of alcohol, and realized that it might be necessary to drink alcohol during the experiment. After the study, all the subjects received the equivalent of $2.50 for participating and were debriefed, i.e., the experimental manipulation and the results were explained.

A pre- and posttest $2 \times 2 \times 2 \times 2$ (alcohol \times expectancy \times social setting \times sex) factorial design was used with six subjects per cell. Three men and three women were randomly assigned to each of the various experimental conditions.

**Measure.** Collins's (9) version of the r-e scale, which consists of 46 Likert-type items, was administered. Because multidimensional constructs are more specific predictors than are unidimensional constructs (8), and because the social and cultural milieu may influence the factor structure (9), a factor analysis was used to assess the relevant factors. A principal components factor analysis with Varimax rotation yielded 4 acceptable factors: belief in a predictable world (eigenvalue, 5.32), belief in a controllable world (3.07), belief in a politically responsive world (2.99) and belief in a just world (2.53). These factors explained 20.0, 11.5, 11.2 and 9.5%, respectively, of the variance, and replicated previous factor analytic solutions (9).

**Procedure.** In the pretest, each subject, seated alone at a table in a $2 \times 1.5$ m cubicle, completed the Collins version of the r-e scale. For the posttest, which took place 6 weeks later, subjects were required to fast 5 hr and to refrain from drugs or alcohol 24 hr before testing. On arrival at the laboratory, subjects were told that the purpose of the experiment was to study the effects of alcohol on creativity. It was explained that they would be required to drink either alcohol or a nonalcoholic beverage, and then to perform a task to assess creativity (6). Men and women were separated for all subsequent stages of the study, and they again completed the Collins version of the r-e scale. The experimental manipulation paralleled that of previous research (e.g., 4).

Of the 96 subjects, 49 received an alcoholic beverage (0.5 g of 96% ethanol per kg of body weight, mixed with tonic water in a 1:3 ratio) and 48 a nonalcoholic beverage. Three squirts of lime juice were added to all drinks to reduce taste acuity. The administration procedure, the level of alcohol and the ratio of ethanol to tonic water followed previous successful manipulations of expectancy (3–5).

Each subject was required to consume the drink in 15 min either alone or in a group. At the same time he was asked to preview the supposed experimental material, a sheet of 10 cartoons for which he would be required to provide humorous captions (6). After the 15-min period had elapsed, the subject was told that his blood alcohol level would be measured by a Breathalyzer. The apparatus was not a Breathalyzer, however, but a complicated-looking nonfunctioning machine with 2 large dials.

The expectancy manipulation was highly significant ($F = 41.95, 1/94$ df, $p < .041$). Subjects who expected alcohol estimated that they had consumed more (a mean of 1.75 oz of absolute alcohol) than did those who did not expect alcohol (mean, 0.58 oz), regardless of the content of the beverage.

**Results**

Results were analyzed by four separate univariate $2 \times 2 \times 2 \times 2$ analyses of variance. The Varimax rotation yielded orthogonal factors, i.e.,

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8 For detailed results of the factor analyses order NAPS Document No. 03861 from NAPS, c/o Microfiche Publications, P.O. Box 3513, Grand Central Station, New York, N.Y. 10163; remit with order $4 for microfiche copy or $7.75 for full-size photocopy.
there was no relationship between the four dependent variables. In all analyses, pretest–posttest change scores were used.

Mean pretest–posttest change scores showed that subjects who had received alcohol were more internally oriented regarding belief in a predictable world (−1.19) than were those who had not received alcohol (2.33; $F = 5.53, 1/94$ df, $p < .005$). Subjects who had received alcohol, however, were more externally oriented (0.75) than those who had not (−1.33) in terms of belief in a controllable world ($F = 5.90, 1/94$ df, $p < .005$). Concerning belief in a just world, the expectancy × alcohol × sex ($F = 6.21, 1/80$ df, $p < .005$) and expectancy × alcohol × social setting ($F = 5.49, 1/80$ df, $p < .005$) interactions were significant (Figure 1). None of the other main effects or interactions on any of the four dependent variables were significant.

**DISCUSSION**

Subjects who had received alcohol perceived the world as being more predictable and less controllable after drinking. These two beliefs are not incompatible; the world may be viewed as more predictable in that it is reliably expected to be less controllable after alcohol consumption. The belief in a politically responsive world was not influenced by the experimental manipulation. Political beliefs may be too entrenched to be modified readily. Moreover, observation suggests that the prime effect of social setting and alcohol (or the expectancy thereof) on political beliefs may be to enhance vociferousness.

The present study yielded two 3-way interactions on the factor of belief in a just world (see Figure 1). Men who expected and received alcohol were more internally oriented than men who expected but did not receive alcohol. Perhaps specific attributions regarding the effects of alcohol were triggered by the expectancy of receiving it. Consumption would then provide bodily symptoms consistent with expectations, and the world would be perceived as just. When alcohol was expected but not received, expectations were not met, possibly resulting in a perception of the world as unjust. When men did not expect yet received alcohol, they were more externally oriented than those who neither expected nor received alcohol. Those in the latter condition may have experienced a consistency in attribution. Neither anticipated nor physiological arousal occurred. However, those receiving but not expecting alcohol may have experienced a state of unexplained physiological arousal or plasticity, and an external attribution may explain this sensation.

Women who expected and received alcohol were more externally oriented than those who expected but did not receive it—the reverse of the reaction of men under the same conditions. Cultural and social influences may account for this difference. Women may be cautioned about the dangers of consuming alcohol, which might cause them to relax their inhibitions and lose control of their behavior. Thus, women may associate alcohol intake and unjust deeds (real or imagined) against women. It appears that both physiological arousal and an expectation of receiving alcohol were necessary to produce such attributional changes. Plasticity
seemed necessary though insufficient in this case. However, when women did not expect alcohol, there was no difference in their belief in the justness of the world, whether or not they received alcohol. Here, expectancy superseded physiological sensations, and attributional changes did not occur. When alcohol was not consumed, women showed little difference in their beliefs concerning locus of control.

The present study provides evidence of the influence of social factors on behavior subsequent to alcohol consumption. The attributions of isolated subjects differed from those of subjects in a group (Figure 1). When isolated subjects expected and received alcohol, they were more internally oriented than were those in the same social condition who expected but did not receive alcohol. The former may have experienced a consistency, the latter an inconsistency because their labeled state of arousal did not match their learned expectation of drinking consequences. The world was thus viewed as unjust. Furthermore, when subjects who did not expect to receive alcohol received it, they were more externally oriented than were those who neither expected nor received alcohol. Again, the latter may have experienced a consistency whereas the former may have attributed their state of unexplained physiological arousal to external causes.

When subjects in a group situation expected and received alcohol, they were more externally oriented than those who expected but did not receive it. Both physiological arousal and the expectation of receiving alcohol were necessary to produce attributional changes. When subjects in a group situation did not expect alcohol, however, there was no difference
in their perception of the justness of the world, whether or not they received alcohol. Here, expectancy superseded physiological arousal. Finally, when alcohol was not consumed, subjects in a group situation tended to show little difference in their locus of control.

A number of implications are evident. First, cognitive and social factors influence drinking-related behavior, their interaction extending beyond the expectancy effect demonstrated in previous research. Second, there are marked sex differences in behavior subsequent to alcohol consumption and the manipulation of the expectancy of alcohol consumption. Third, a multi- rather than a unidimensional approach to locus of control is superior in terms of predicting behavior. Finally, future research should replicate the present study with a larger sample, examine the behavior of alcoholics as well as that of moderate and heavy social drinkers, and experimentally manipulate the level of alcohol consumed.

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