The Relation of Alcohol Expectancies to Drinking Patterns among Alcoholics: Generalization across Gender and Race*

REX B. KLINE, PH.D.

Department of Psychology, Concordia University, Montreal, Quebec H3G 1M8, Canada

ABSTRACT. Results of laboratory and psychometric research indicate that beliefs about the behavioral effects of alcohol are related to patterns of alcohol use and abuse. These findings also suggest that expectancy-drinking behavior associations are moderated by several variables, such as gender. The purpose of this study was to determine whether the correspondence of alcohol-related expectancies and drinking patterns was different for black and white men and women undergoing residential treatment for alcoholism using a hierarchical multiple regression algorithm. Relatively few gender- or race-specific expectancy-drinking behavior relations were found, and most of these were identified for beliefs that alcohol enhances sexuality and induces relaxation. Expectations that alcohol improves sociability and elevates mood were the best predictors of multiple, negative drinking-related consequences of drinking for all subjects. (J Stud Alcohol 51: 175-182, 1990)

RESULTS of numerous laboratory studies based upon the “balanced-placebo” design indicate that the expectancy that alcohol has been consumed can more strongly affect some types of behavior than actual consumption (Goldman et al., 1987; Marlatt and Rohsenow, 1980; Wilson, 1977, 1987). These findings also indicate that the impact of expectancies is moderated by several variables. For example, expectancy effects on sexual arousal and social anxiety are different for men and women social drinkers (Abrams and Wilson, 1979; Sutker et al., 1982; Wilson and Abrams, 1977; Wilson and Lawson, 1976, 1978). Also, expectancy effects are more powerful on consummatory or social behaviors than on performance of cognitive or motor tasks (e.g., Miller et al., 1978; Rimm et al., 1982).

Recently, several investigators have studied alcohol-related expectancies from a psychometric perspective. The goals of this research include specification of distinct expectancy domains (usually with factor analysis), multidimensional assessment of individual differences in strengths of these beliefs and identification of drinking behavior correlates of specific expectancies. Common expectancies have been identified across diverse adult and adolescent populations, including beliefs that alcohol eases tensions, improves sociability, enhances self-confidence and causes cognitive or psychological deterioration (e.g., Christiansen et al., 1982; Southwick et al., 1981; Wanberg et al., 1977).

Researchers working within the psychometric framework have also sought to identify variables that moderate expectancy effects. For example, some investigators have tried to distinguish expectancies associated with problem drinking, but the content of these “high-risk” beliefs varies across drinking populations. For example, Brown (1985b) reported that the best predictor of problem drinking among college students was belief that alcohol reduces tensions, whereas she also (1985a) reported that disruptive drinking patterns among men and women alcoholics were associated with expectancies of global enhancement and improvement of social assertion. Brown (1985c) also found that the best predictor of posttreatment relapse within a small sample of alcoholic men was the belief that alcohol reduces tension.

Unfortunately, few other systematic attempts to identify variables that moderate expectancy-drinking behavior associations have been reported in the psychometric literature. For example, college men have stronger beliefs that alcohol increases aggression and enhances relaxation, and college women have stronger expectations of social enhancement (Brown et al., 1980; Rohsenow, 1983), but there has been little study of whether drinking behavior correlates of expectancies differ by gender. When considering laboratory findings

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of gender as a moderator variable, identification of gender-specific expectancy-behavior relations is crucial. Race may also moderate the relation of expectancies to drinking patterns (Lex, 1987). For example, blacks may be more likely than whites to expect that alcohol has "warming" or pain-alleviating effects (Department of Alcohol and Drug Programs, 1981). Blacks and whites may also abuse alcohol in different ways. Black alcoholic men are generally older and have longer drinking histories than white alcoholic men, and black alcoholic women are less likely to drink alone, deny their drinking problems and report marital conflict related to their drinking than are white alcoholic women (Corrigan and Anderson, 1982; Ferguson, 1981; Helzer, 1987).

The purpose of this study was to evaluate gender- and race-moderated expectancy-drinking behavior associations among alcoholics. Two different measures of expectancies were administered to black and white men and women undergoing residential treatment for alcoholism. Hierarchical multiple regression was used to identify gender- or race-specific expectancy-drinking behavior relations. "High-risk" expectancy domains (those associated with multiple, negative consequences of excessive drinking) were also identified.

**Method**

**Subjects**

The sample comprised 234 persons, of whom 175 were men (105 black, 70 white) and 59 were women (34 white, 25 black), undergoing residential treatment for alcoholism in five facilities in the midwestern United States. Three of the treatment centers were hospital-based (two public, one private) and two were free-standing facilities (one public, one private). The length of treatment across the 5 facilities ranged from 3 to 4 weeks, and modal patients in all centers had histories of chronic alcohol abuse. Demographic and treatment history (previous outpatient and residential therapy for alcoholism) characteristics of the sample are summarized in Table 1. (Outpatient therapy was defined as consultation with a mental health professional either in a public or private setting.)

The four gender-race groups differed with regard to marital status ($\chi^2 [N = 234] = 31.78$, 12 df, $p < .01$): White female patients were more likely to be widowed, and black female patients were less likely to be married and more likely to be separated than were the male patients. A series of 2 (gender) $\times$ 2 (race) analyses of variance (ANOVA) were conducted (at the .01 level) for the quantitative variables outlined in Table 1. Only two effects were significant: the mean annual income of male patients was higher than that of female patients (men, $13,037$; women, $7,390$), and white patients on the average reported twice as many previous residential treatments for alcoholism as black patients (white, 4.1; black, 1.7).

**Procedure**

The medical and social records of patients were reviewed, and patients who were not primary drug abusers at any time in their lives were recruited by the author. Subject involvement was voluntary, and about 70% of all patients approached agreed to participate. Questionnaires were completed anonymously and were administered (in counterbalanced order) either individually or in group sessions (5–10 patients) by the author. Subjects were informed that they could not receive feedback about their questionnaire responses because of anonymity. Treatment staff did not

**Table 1. Demographic and treatment history characteristics**

<table>
<thead>
<tr>
<th>Variable</th>
<th>Male</th>
<th>Female</th>
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<tr>
<td></td>
<td>White</td>
<td>Black</td>
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<tr>
<td>$n$</td>
<td>70</td>
<td>105</td>
</tr>
<tr>
<td>Marital Status (%)</td>
<td></td>
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</tr>
<tr>
<td>Married</td>
<td>18</td>
<td>29</td>
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<tr>
<td>Divorced</td>
<td>24</td>
<td>14</td>
</tr>
<tr>
<td>Widowed</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Separated</td>
<td>21</td>
<td>18</td>
</tr>
<tr>
<td>Single</td>
<td>35</td>
<td>37</td>
</tr>
<tr>
<td>Age (mean ± SD)</td>
<td>37.4 ± 12.00</td>
<td>35.6 ± 9.7</td>
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<tr>
<td>Education (mean ± SD years)</td>
<td>11.9 ± 2.5</td>
<td>11.5 ± 2.1</td>
</tr>
<tr>
<td>Annual income (mean ± SD $1,000s)</td>
<td>11.8 ± 10.4</td>
<td>13.9 ± 8.7</td>
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<tr>
<td>Previous treatment</td>
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<tr>
<td>(mean ± SD no. of treatments)</td>
<td>3.0 ± 4.0</td>
<td>1.8 ± 1.5</td>
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<tr>
<td>Inpatient</td>
<td>2.1 ± 3.6</td>
<td>2.2 ± 3.7</td>
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participate in data collection, nor were completed questionnaires available to them. Questionnaires were administered after a 2-week residency. Results of previous research with other objective measures such as the MMPI (e.g., Sheppard et al., 1988) indicate that alcohol withdrawal symptoms may temporarily distort reports of inpatient alcoholics for up to 2 weeks after admission. Although this procedure did not guarantee that the self-reports of all patients were unaffected by withdrawal, major symptoms usually abated within 2 weeks (Freund, 1976).

**Measures**

**Alcohol expectancies and drinking patterns.** The adult form of the Alcohol Expectancy Questionnaire (AEQ); (Brown et al., 1987a), a measure of beliefs about the behavioral effects of alcohol, was used in this study. The AEQ has six scales, including (with numbers of items) Scale 1, Global Changes (22); Scale 2, Sexual Enhancement (7); Scale 3, Physical and Social Pleasure (8); Scale 4, Social Assertion (8); and Scale 5, Relaxation and Tension Reduction (8). The original version of Scale 6 (Arousal and Aggression) had only two items (Brown et al., 1980), but five more items were added to this scale to increase its reliability (Brown et al., 1987a). Because the AEQ protocols of many subjects in this study were scored prior to this modification of Scale 6, scores on the revised scale (6a) were not available. An adolescent (age-range 12-19 years) version of the AEQ has also been constructed (Brown et al., 1987a).

Internal consistency coefficients of AEQ scales range from .72 to .92 (average = .84) within a sample of nonproblem-drinking adults (Brown et al., 1987a), and 1- and 2-month test-retest scale reliabilities range from, respectively, .48 to .72 (average = .64) and .47 to .76 (average = .66) among college students (Brown et al., 1987a). High scores indicate stronger belief that the behavioral effects of alcohol are beneficial, and they are positively related to drinking quantity, frequency of alcohol-related negative consequences and problem-drinking status (e.g., Brown, 1985a,b,c; Brown et al., 1980, 1985, 1987a,b; Christiansen et al., 1985; Kline et al., 1987; Mann et al., 1987; Zarantonello, 1986).

The Alcohol Use Inventory (AUI) (Wanberg et al., 1977) is a 147-item, multiple-choice questionnaire of drinking patterns, expectancies and negative consequences of drinking. The AUI has 22 scales (1 general screening, 5 broad-band and 16 narrow-band) that were constructed with factor analysis. The screening and broad-band scales reflect global drinking styles and share many items with the narrow-band scales, which reflect more specific drinking behavior. For these reasons, only scores from the AUI narrow-band scales were used in data analyses.

Three AUI narrow-band scales reflect expectations of benefit from alcohol and include Scale 1, Social Benefit Drinking (9); Scale 2, Mental Benefit Drinking (5); and Scale 7, Drink to Change Mood (7); high scores indicate stronger beliefs. The other narrow-band scales reflect drinking patterns or negative consequences, and include Scale 3, Gregarious versus Solitary Drinking (9); Scale 4, Obsessive-Compulsive Drinking (7); Scale 5, Continuous, Sustained Drinking (8); Scale 6, Post-Drinking Worry, Fear, and Guilt (9); Scale 8, External Support to Stop Drinking (7); Scale 9, Loss of Behavior Control (10); Scale 10, Social-Role Maladaptation (8); Scale 11, Psychosensory Withdrawal (6); Scale 12, Psychophysical Withdrawal (6); Scale 13, Naloxone Withdrawal (4); and Scale 14, Quantity of Alcohol Used (3). High scores indicate drinking with others rather than alone (Scale 3); compulsion to drink (Scale 4); continuous rather than binge drinking (Scale 5); remorse about drinking (Scale 6); previous treatment for drinking problems (Scale 8); loss of control when drinking (Scale 9); degree of social disruption (e.g., job loss, family disruption) due to drinking (Scale 10); perceptual withdrawal symptoms (e.g., hallucinations) (Scale 11); physical withdrawal symptoms (e.g., tremors) (Scale 12); use of drugs other than alcohol (Scale 13); and quantity of drinking (Scale 14). Two other narrow-band scales—Drinking Followed Marital Problems and Drinking Provokes Marital Problems—were not administered because fewer than half of all subjects in this study were married.

Internal consistency coefficients of AUI narrow-band scales range from .40 to .87 (average = .70); 1-week test-retest reliability coefficients range from .54 to .89 (average = .80); and scale intercorrelations range from .13 to .59 (average = .26) among inpatient alcoholics (Wanberg et al., 1977). Skinner and Allen (1983) reported similar internal consistency values for outpatient alcoholics. AUI narrow-band scales have been found to discriminate among repeat-admission inpatient, first-admission inpatient and outpatient alcoholics, as well as between alcoholics who were either abstinent or drinking 6 months after treatment (Wanberg et al., 1977). Skinner and Allen (1983) reported that narrow-band scales had negligible correlations with measures of denial and random response sets. Kline and Snyder (1985) and Snyder et al. (1985) reported significant relations among several narrow-band scales and MMPI standard profile and alcohol- or drugscreening scales among inpatient alcoholics.

**Validity scales.** Since neither the AEQ nor AUI have scales that assess informant response set, the three validity scales from the Minnesota Multiphasic Personality Inventory (MMPI) (Hathaway and McKinley, 1951)—L, F and K—were also administered. High scores on L or K indicate denial of problems, while
high scores on F suggest random responding, exaggeration of current problems or presence of infrequent problems. Because interpretation of MMPI validity scales is usually based upon their relative rather than absolute elevations (e.g., Lachar, 1974), patterns of L, F and K scores of all subjects were classified as being "normal" (T < 70 for L, F and K), "infrequent" (T ≥ 70 for F, but T < 70 for L and K), "defensive" (T ≥ 70 for L or K, but T < 70 for F), or "multiple-elevation" (T ≥ 70 for L, F and K). A majority (66%) of the subjects had "normal" patterns, 30% had "infrequent" configurations and only 4% had "defensive" or "multiple-elevation" patterns.

Statistical analyses

The status of gender or race as moderator variables of expectancy-drinking behavior relations was confounded with differences in income (men > women) and number of previous residential treatments (whites > blacks) among the subjects of this study. Accordingly, AEQ and AUI score variance due to differences in income and previous residential treatments was partialled-out using multiple regression, and all analyses that involved gender or race as independent variables were conducted using income- and residential treatment-corrected residual scores.

Hierarchical multiple regression was used to evaluate whether gender or race moderated expectancy-behavior relations and was conducted (at the .01 level) for each combination of expectancy and drinking pattern scales (8 × 11 = 88 regressions). AEQ or AUI expectancy scale scores were entered as predictors of AUI drinking pattern scale scores at Step 1. (The resulting multiple correlation was simply a bivariate Pearson correlation.) Gender and race were entered as predictors at Step 2, and Expectancy × Gender and Expectancy × Race interaction terms were entered at Step 3. These interaction terms indicated whether expectancy-behavior relations were different for men and women or blacks and whites (Cohen and Cohen, 1975; Wiggins, 1973).

If the results of significance tests for both interaction terms were nil, the Pearson expectancy-drinking pattern scale correlation based upon the entire sample was recorded. If either or both interaction terms were significant, separate Pearson correlations were calculated for the appropriate subjects groups. For example, a significant Expectancy × Gender interaction resulted in computation of bivariate correlations for men and women. Correlations that were significant within gender or race groups were recorded.

Results

Intercorrelation of expectancy and validity scales. Correlations among AEQ and AUI expectancy scales are presented in Table 2. The mean intercorrelation among AEQ scales (.61; range = .45-.78) was higher than for AUI scales (.46; range = .32-.64). Intercorrelations among AEQ and AUI expectancy scales ranged from .28 to .65 (mean = .46), and the highest value was obtained for two scales that assess expectation of social enhancement (AEQ Scale 4, AUI Scale 1).

Correlations among the MMPI validity scales that reflect denial (L and K) and expectancy scales were generally low and negative (L: mean = -.08 for AEQ; mean = -.15 for AUI; K: mean = -.12 for AEQ; mean = -.20 for AUI). Thus, high AEQ/AUI scores are (weakly) associated with low levels of denial. In

<table>
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<th>Table 2. Intercorrelation of expectancy and MMPI validity scales</th>
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<td><strong>Variable</strong></td>
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<tr>
<td></td>
</tr>
<tr>
<td>AEQ</td>
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<tr>
<td>1: Global changes</td>
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<tr>
<td>2: Sexual enhancement</td>
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<tr>
<td>3: Physical/social pleasure</td>
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<td>4: Social assertion</td>
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<td>5: Relaxation and tension reduction</td>
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<td>AUI</td>
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<tr>
<td>1: Social benefit</td>
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<td>2: Mental benefit</td>
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<td>7: Mood</td>
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<tr>
<td>MMPI</td>
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<tr>
<td>L</td>
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<td>F</td>
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<td>K</td>
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Note: Decimals omitted.
contrast, correlations among MMPI Scale F and the expectancy scales were positive and somewhat higher (mean = .19 for AEQ; mean = .27 for AUI). This finding was expected since F in part reflects willingness to report difficulties, but these correlations are not so high as to suggest that subjects' AEQ and AUI responses are seriously distorted by random or exaggeration response sets. Correlations of L, F, and K with AUI drinking pattern Scales 3-6 and 8-14 were of comparable magnitude (mean coefficients: L, -.16; F, .17; K, -.18).

Separate multivariate analyses of variance (MANOVA) were conducted at the .01 level for subjects with "normal" or "infrequent" MMPI validity scale patterns to compare their mean scores across, respectively, AEQ expectancy, AUI expectancy and AUI drinking pattern scales. (There were too few subjects with "defensive" or "multiple-elevation" patterns to be included in these analyses). All three MANOVAs were nonsignificant, indicating that AEQ and AUI mean scores were not strongly related to MMPI validity scale configuration.

**Gender and race expectancy differences.** Separate 2 (gender) x 2 (race) MANOVAs were conducted for AEQ and AUI expectancy scales to compare mean scores across the four gender-race groups. The multivariate main effect of race for the AUI scales was the only significant result (Wilks's lambda = .925, $F = 3.74$, 3/139 df, $p < .01$). Results of univariate 2 x 2 ANOVAS conducted for each AUI expectancy scale indicated one significant race main effect (Scale 7, Drink to Change Mood; $F = 9.76$, 1/141 df, $p < .01$). The magnitude of this effect, however, was small. The mean T score for blacks was 47 and the mean score for whites was 52; the value of the estimated omega-squared statistic (which indicates proportion of variance explained by race) for this difference was only .05.

**Moderator variable analyses.** A total of nine expectancy-drinking pattern scale associations were sex-specific (6 for men, 3 for women) and 3 were race-specific (1 for whites, 2 for blacks); all of these interaction effects involved AEQ scales. These gender- and race-specific correlations are reported in Table 3. The other coefficients presented in this table are those for which both gender and race interaction effects were nonsignificant and were derived based upon the entire sample ($N = 234$).

Among women, the beliefs that alcohol enhances sexuality and relaxation were uniquely associated with social rather than solitary drinking; expectation of sexual enhancement was also related to continuous rather than intermittent drinking. Among men, extent of previous treatment for alcohol abuse was uniquely related to several expectancies, including belief that alcohol globally transforms all experiences and specifically enhances sexuality, sociability, relaxation and physical pleasure. In contrast to the case among women, belief among men that alcohol can induce relaxation was uniquely related to perceptual withdrawal symptoms due to alcohol abuse. Only one expectancy-behavior association was unique to white alcoholics: high expectancy of sexual enhancement was related to loss of behavioral control while drinking. The belief that alcohol alleviates tension was correlated with preoccupation with drinking and continuous (rather than binge) alcohol use among black alcoholics.

Among all subjects, the best predictors of problem

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<tbody>
<tr>
<td>3: Gregarious drinking</td>
<td>21</td>
<td>49d</td>
<td>22</td>
<td>24</td>
<td>50d</td>
<td>41</td>
<td>27</td>
<td>-</td>
</tr>
<tr>
<td>4: Obsessive-compulsive</td>
<td>32</td>
<td>20</td>
<td>26</td>
<td>36</td>
<td>45b</td>
<td>31</td>
<td>33</td>
<td>57</td>
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<tr>
<td>drinking</td>
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<td>5: Sustained drinking guilt</td>
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<td></td>
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<tr>
<td>6: Prior treatment</td>
<td>45</td>
<td>25</td>
<td>27</td>
<td>47</td>
<td>33</td>
<td>38</td>
<td>22</td>
<td>69</td>
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<tr>
<td>7: Loss of control</td>
<td>33c</td>
<td>36c</td>
<td>26</td>
<td>35c</td>
<td>26c</td>
<td>38</td>
<td>22</td>
<td>69</td>
</tr>
<tr>
<td>8: Social maladaptation</td>
<td>28</td>
<td>46d</td>
<td>26</td>
<td>37</td>
<td>26</td>
<td>36</td>
<td>20</td>
<td>52</td>
</tr>
<tr>
<td>9: Perceptual withdrawal</td>
<td>19</td>
<td>-</td>
<td>17</td>
<td>29</td>
<td>-</td>
<td>34</td>
<td>-</td>
<td>36</td>
</tr>
<tr>
<td>10: Physical withdrawal</td>
<td>24</td>
<td>23</td>
<td>-</td>
<td>34</td>
<td>28c</td>
<td>-</td>
<td>-</td>
<td>38</td>
</tr>
<tr>
<td>11: Other drug use</td>
<td>21</td>
<td>35</td>
<td>24</td>
<td>37</td>
<td>24</td>
<td>25</td>
<td>-</td>
<td>50</td>
</tr>
<tr>
<td>12: Alcohol quantity</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>27</td>
<td>21</td>
<td>38</td>
</tr>
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*Note: Decimals omitted. All correlations significant at the .01 level.

* Significant for females only.

*b Significant for blacks only.

*c Significant for males only.

*d Significant for whites only.
drinking and alcohol-related negative consequences were expectations of social (as measured by the AEQ) and mood (as measured by the AUI) enhancement. These beliefs were related to loss of behavioral control while drinking, preoccupation with consuming alcohol, guilt due to drinking and social role deterioration. Expectation of mood enhancement was the only significant predictor of previous treatment for drinking problems and amount of other drug use for both sexes.

With one exception (AUI Scale 7), expectancy scales were not significantly related to extent of nonalcoholic drug use. These results suggest that beliefs measured by the AEQ and AUI may be specific to alcohol. The AEQ scales were not related to quantity of alcohol consumed, at least as measured by this AUI screening scale (Scale 14). This finding is inconsistent with results of previous research with the AEQ, and may be attributable to the fact that AUI Scale 14 is not a sophisticated measure of alcohol consumption (e.g., this scale has only three items).

**Discussion**

Before implications of the results of this study are discussed, some qualifications will be considered. Because alcoholics of the present study were volunteers, these findings may not apply to those less inclined to describe their expectancies and drinking patterns. The white alcoholics of this sample appeared to have more severe drinking histories than did the black alcoholics, but the opposite is true in the general population. Thus, the white and black subjects may not be representative of their respective racial groups, and the generalizability of the race-specific expectancy-drinking behavior relations identified in this study may be suspect.

Other limitations concern the measures used in this study. Common method variance due to self-report may have inflated the covariance of expectancy and drinking pattern scales, but would be unlikely to affect the status of gender or race as moderator variables. Scores on the revised AEQ Arousal and Aggression scale were not available for subjects of this study, and it was not possible to identify drinking behavior correlates of this domain. A final limitation concerns the MMPI validity Scale, L, F, and K. These scales were originally constructed to detect response biases in self-reports of general psychopathology, and their capability to reflect specific distortion of drinking-related attitudes or patterns is unknown.

There was no evidence of significant gender differences in absolute strength of positive expectancies among the alcoholics of this study. Gender differences in expectancies have been found, however, in nonalcoholic populations (e.g., Brown et al., 1980; Roilinow, 1983). Because positive expectancies are correlated with drinking level, the magnitude of gender differences among alcoholics may be truncated relative to nonalcoholics. Race differences in expectancy strength were small and limited to a single domain: white alcoholics had slightly stronger beliefs that alcohol could improve mood. The direction of this effect was consistent with the likelihood that the white alcoholics in this sample had more pathological drinking histories than did the black alcoholics.

Relatively few expectancy-drinking pattern associations were gender- or race-specific, and most of these were found for expectations of sexual enhancement and tension reduction. This is consistent with previous findings of gender differences in the impact of expectancy on sexual arousal and anxiety and of black-white differences in anticipation of "warming" or pain-reducing effects of alcohol. Female alcoholics in the present study who expected alcohol to enhance sexuality tended to drink in a continuous, gregarious manner. Although female alcoholics are less likely to drink socially than are male alcoholics (Wolin, 1980), this expectancy may account for some of the variability of settings in which women abuse alcohol. Expectancy of sexual enhancement among white alcoholics, however, was associated with loss of behavioral control while drinking. Among alcoholics who expected alcohol to induce relaxation, women were likely to drink with others; blacks tended to drink continuously and be preoccupied with alcohol; and men reported more previous treatments for alcoholism and perceptual withdrawal symptoms. The latter outcome for male alcoholics is consistent with Brown's (1985c) finding that belief of tension reduction was related to posttreatment relapse for the same population.

Expectations that alcohol enhances sociability and mood were the best predictors of negative consequences of drinking and were "high-risk" beliefs among the alcoholics of this study. Brown (1985a) also found that belief of social improvement was related to disruptive consequences among alcoholics, but also reported that global enhancement was another "high-risk" belief. This discrepancy may be due to sample differences: The alcoholics of the present study were somewhat younger (mean age = 37 years) but much more likely to have at least one previous residential treatment (97%) than were the subjects of Brown's (1985a) study (mean age = 42 years; 34% had previous treatment). Thus, the drinking problems of the subjects of this study were likely more severe than those of Brown's study, and there is some evidence (e.g., Brown et al., 1980; Christiansen et al., 1982) that heavier drinking is associated with specific, "crystallized" beliefs rather than global expectations about alcohol's effects. (This evidence is, however, mixed; cf., Brown et al., 1980.) In any event, the evidence for expectation of social enhancement as
a "high-risk" belief is more convincing, and this belief may be useful to the understanding of differences in the severity of alcohol-related consequences among alcoholics.

Apart from results regarding "high-risk" beliefs, there was little evidence in this study that distinct drinking patterns are associated with different expectancies. Instead, most expectancies were related nonspecifically to drinking patterns. Several factors may account for this finding. Ranges of expectancies and drinking patterns among the alcoholic subjects of this study may be restricted relative to nonalcoholic populations, and thus expectancy-behavior covariation may have been diminished. Also, expectancies about alcohol's effects are only one parameter among several others that influence drinking behavior (e.g., drinking social context: Sher, 1985; Steele et al., 1986; physiological response: Finn and Pihl, 1987; Schuckit, 1987; Vogel-Sprott and Chipperfield, 1987; family history: Levenson et al., 1987; anticipated negative consequences: Zeichner and Pihl, 1979). Determination of distinct expectation-behavior relations may be difficult without information about some of these other factors.

Psychometric characteristics of the AEQ and AUI may also adversely affect their external validity. The relatively small number of items on AEQ and AUI expectancy scales may limit their sensitivity. (All scales except AUI Scale 1 have < 10 items each.) Expectancy scale items of both measures are true-false, but subjects who attribute a behavioral effect to alcohol may differ in their probability or desirability estimates of that effect (Bauman, 1986; Bauman et al., 1985). Neither of these dimensions are represented in the AEQ or AUI. Another shortcoming is that subjects' endorsements of alcohol's effects vary according to whether they are instructed to assume moderate or heavy doses (e.g., Collins et al., 1988; Southwick et al., 1981); no directions regarding dose appear in either measure. Some AEQ items are in first-person form (e.g., "Alcohol makes me worry less"), while others concern people in general (e.g., "Men are friendlier when they drink"). Rohsenow (1983) reported that college students expected alcohol to affect themselves less than it affects other people, and that the magnitude of this self-other discrepancy was greatest for women and light drinkers. Information about personal versus generalized beliefs may thus be confounded on the AEQ.

Several questions regarding expectancy-drinking behavior associations and variables that moderate these relations remain to be explored. Whether the gender- or race-specific expectancy-drinking pattern correlations identified in this study are replicated in other alcoholic samples and/or are generalizable to nonalcoholic populations should be evaluated. The differential role expectancies may play in the onset of problem drink-

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