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Provocation to Anger and Opportunity for Retaliation as Determinants of Alcohol Consumption in Social Drinkers

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The purpose of this study was to determine the effects of elicited anger and the opportunity for retaliation on the consumption of alcohol in social drinkers. The subjects, consisting of an equal number of male and female college students identified as heavy social drinkers ($n = 60$), were randomly assigned to one of six groups in a 3×2 factorial design. In addition to the subject sex factor, the three main treatment groups were (a) provocation to anger with no opportunity to retaliate, (b) provocation to anger with opportunity for retaliation, and (c) a no-provocation, no-retaliation control group. Provoked subjects were angered by an insulting confederate, whereas control subjects experienced a neutral interaction with the confederate. In the retaliation condition, subjects were given the opportunity to deliver a fixed number of shocks to the confederate who had provoked them. Drinking rates in all subjects were then determined by their participation in a standardized taste-rating task, which permitted an unobtrusive measure of alcohol consumption. The results showed that the group members who were provoked and expressed their anger by retaliating against the confederate consumed significantly less alcohol than provoked subjects in the no-retaliation condition. Control subjects drank an intermediate amount of alcohol but did not differ significantly from the other two groups. Sex of subject was not a significant determinant of alcohol consumption.

In the investigation of the relation between alcohol consumption and aggression, two important questions arise. First, what are the effects of alcohol on the expression of aggressive behavior? Recent studies which have assessed the effects of alcohol with alcoholics in a controlled research ward setting have indicated that consumption of alcohol may, in some instances, lead to an increase in aggressive feelings and behaviors as indicated by self-report ratings and clinical observations (see review by Mello, 1972). A second question may be posed by asking the first in obverse form: What are the effects, if any, of anger on drinking behavior? If anger can be shown to be a significant determinant of drinking, does the expression of aggressive behavior lead to a decrease in subsequent drinking behavior? The present study was designed as a preliminary investigation of these latter issues.

In a companion study to the present report, Lang, Goeckner, Adesso, and Marlatt (1975) explored the role of subjects' expectations concerning the effects of alcohol on aggressive responding. Male social drinkers were led to believe that they would be consuming either an alcoholic or nonalcoholic beverage prior to participation in the aggression task. Within each of these two groups, half of the subjects actually received alcohol (vodka and tonic), and half were given only tonic. Following the beverage administration, subjects were exposed either to an insulting (provoking) or neutral confederate while participating in a difficult motor coordination task. Aggression was assessed by the intensity

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and duration of shocks administered to the confederate on a modified Buss "aggression machine" apparatus. The only significant determinant of aggression was the expectation factor: Subjects who believed they had consumed alcohol were significantly more aggressive than subjects who believed they had consumed a nonalcoholic drink, regardless of the actual alcohol content of the beverages administered.

The finding that the expectation of drinking alcohol facilitates the expression of aggression has important implications. It could be argued that some individuals who have difficulty expressing their anger in a direct manner expect that alcohol will provide them with the fortitude to express their angry feelings. Depending on their prior experience with the use of alcoholic beverages, they may turn to alcohol as a means of coping with feelings of anger. Consumption of alcohol may facilitate the direct expression of aggression, as indicated by the findings reviewed above, or it may increase fantasies of increased aggression or power as suggested by the work of McClelland and his colleagues (McClelland, Davis, Kalin, & Wanner, 1972). Alcohol may provide a convenient excuse for behaving in an aggressive manner because the drinker can avoid the responsibility of his own actions by attributing them to the effects of alcohol.

Some support for the hypothesis that feelings of anger may initiate drinking behavior comes from an analysis of incidents leading to relapses experienced by alcoholics who had undergone treatment for their drinking problems. Examination of the relapse data for 48 alcoholics who participated in an inpatient treatment program revealed that 29% of the patients took their first drink in situations in which they reported feeling frustrated or angry (Marlatt, Note 1). Rather than expressing anger directly or otherwise responding in a constructive manner, these patients returned to drinking. The impetus for the present investigation came from this analysis of relapse situations with alcoholic patients. The questions prompted by this analysis were: (a) Is anger a determinant of drinking behavior? (b) If an angered individual is given the opportunity to express his anger directly, will this lead to a decreased probability of drinking? Positive answers to these questions could have important implications for the development of treatment methods with alcoholics.

METHOD

Subjects

In order to recruit potential subjects for the experiment, 1,300 copies of the Drinking Habits Questionnaire were distributed to undergraduate psychology classes at the University of Washington. The questionnaire was adapted from Cahalan's structured interview used to assess drinking practices in a national survey (Cahalan, Cisin, & Crossley, 1969). Responses to a series of multiple-choice questions concerning the respondent's quantity, frequency, and variability of consumption of various alcoholic beverages were scored to classify the subject into one of five drinker categories: heavy, moderate, light, and infrequent drinkers, and abstainers. To qualify as a potential subject for this study, subjects had to be between the ages of 21 and 35 and classify as heavy social drinkers. Heavy social drinkers were selected as subjects for the following reasons: (a) to yield a relatively homogeneous sample with respect to current drinking practices, (b) to equate subjects in terms of their general expectations and experience of the effects of alcohol, (c) to select subjects whose rate of drinking could be expected to show either an increase or decrease as a function of experimental manipulations (i.e., to avoid a floor effect with light drinkers), and (d) heavy drinkers may be the best population to extrapolate implications for an alcoholic population.

Randomly selected individuals from the pool of 358 eligible subjects were telephoned and asked to participate in a wine-tasting experiment. Those agreeing to participate were told that subjects would be run in pairs and were asked to refrain from all food and drugs (including alcohol) for a period of 4 hr prior to their scheduled appointment.

In this manner, 30 male and 30 female subjects were recruited for the study. The mean age of subjects was 22.3 for the males and 22.7 for the females. Male and female subjects were assigned equally on a random basis to one of three conditions: (a) provocation to anger with no opportunity to retaliate, (b) provocation to anger with opportunity for retaliation, and (c) a no-provocation, no-retaliation control condition (2×3 factorial design; $n = 10$). During the course of the experiment, 11 subjects were replaced for the following reasons: (a) awareness of the confederate subject's role (four males and one female, in the two provocation groups), (b) refusal to administer shocks to the confederate subject (three females), (c) refusal to continue for other reasons (two females, one during the provocation manipulation and one during the taste-rating task), and (d) apparatus failure (one male).

Procedure

Until the administration of the taste-rating task, the procedure for the provocation and retaliation manipulations followed closely the method outlined in a paper by Konecni and Doob (1972). Upon arrival in the designated waiting room, the subject encountered a same-sexed confederate, who was ostensibly waiting as another subject. In order to test for individual differences in the confederate role, two male and two female confederates (undergraduate students) were assigned an equal number of subjects in each of the three treatment conditions. The experimenter (a senior major in psychology, same sex as the subjects) took both subjects to the laboratory room where they were seated at opposite ends of a large table. The table was placed next to a wall containing a one-way mirror, partially covered by a shade, which permitted observation of the subjects from an adjoining control room.

The experimenter then read the instructions, which served as a cover story for the procedures to follow. Subjects were told that the purpose of the experiment was to investigate various determinants of the ability to discriminate taste differences in wines. It was explained as part of the instructions that one important determinant was the subject's level of intelligence:

> Another factor which probably affects one's ability to make taste discriminations has to do with one's cognitive functioning and intellectual abilities. Actually, there are two aspects to this factor: one's basic intellectual capacity—the intellectual strengths you bring with you to any situation or task, and, in addition, one's ability to apply this capacity to the learning of a new task, such as tasting wines. . . . So, in the first phase of the experiment, we will be taking some assessments of your cognitive functioning. Then, in the second phase, we will present each of you with a wine-tasting task.

The subjects were asked to sign a consent form outlining the procedures and were told that they were free to discontinue the experiment whenever they wished.

The actual purpose of the test of intellectual abilities was to provide a task in which the subject could be provoked to anger by the confederate. The wine-tasting task to follow served as the measure of drinking behavior. This task has been found to be a useful unobtrusive measure of alcohol consumption in a number of previous studies (Caudill & Marlatt, 1975; Higgins & Marlatt, 1973, 1975; Marlatt, Demming, & Reid, 1973).

Provocation manipulation. The subjects were then introduced to the first test of cognitive functioning, a difficult anagrams task. The subjects were told that they would have 7 min to unscramble a series of seven anagrams, each the name of a city with seven letters (e.g., "Nairobi"). To discourage the subject from responding to the confederate during this period, the subject (on an ostensibly random basis) was asked to wear a microphone around his/her neck and say aloud any associations which occurred during the problem-solving process. Thus, the subject was led to believe that the verbalized associations were being recorded for research purposes. The confederate subject was asked to work silently on the task. The experimenter then left the subjects alone in the room for a 7-min period.

In the two provocation conditions, the confederate completed the task in the first 2 min and introduced the annoyance manipulation. The confederate began by commenting, "Haven't you finished yet?" and proceeded to insult the subject's intellectual capacity, dress, manner, and general appearance. As the purpose of these comments was to anger the subject as much as possible, the confederate pursued the comments which seemed to most disturb the subject. The difficulty of the anagrams task presumably added to the subject's frustration, because the confederate had obviously completed the entire list. In the no-provocation condition, the confederate worked quietly throughout the task period and did not disturb the subject. At the end of the time period, the experimenter (who was blind as to the provocation manipulation for each subject) returned to collect the answer sheets and to proceed with the second phase of the experiment.

Retaliation procedure. The condition assignment for the second part of the experiment was made known to the experimenter by a code letter written on the confederate's anagrams answer sheet. Provoked subjects were assigned to one of two conditions: opportunity to retaliate against the confederate or a no-retaliation group. Nonprovoked subjects spent an equivalent amount of time in a waiting room during this period.

Provoked subjects were then read instructions in the presence of the confederate, which set the stage for the retaliation procedure. Subjects were told that it was necessary to participate in a second assessment of their intellectual abilities. Subjects were asked to take part in a paired-associates task in which one participant (the learner) would be tested by the other (the teacher). On an apparently random basis, the real subject was always assigned the role of the teacher, and the confederate was designated as the learner. The actual purpose of this procedure was to provide an opportunity for the subject to retaliate by delivering a fixed number of electric shocks to the confederate.

> During the exam, you, as the teacher, will read the stimulus word in each pair, the one on the left here; while you, as the learner, will attempt to recall the number that is on the right in each pair. As you probably know, reward and punishment have a great deal of influence on the learning of a new task. It is for this reason that you will say aloud "correct" for each correct answer the learner gives. For every wrong answer, you will cause a somewhat painful, but harmless, electric shock to be delivered [the experimenter removes a cover exposing an electronic device with various switches and dials, labeled, "shock apparatus"] to the

learner by pressing this button. All you will have to do is push the button quickly, and the machine will automatically deliver the same length shock each time. The learner will be in this next room during the task itself, but you will be able to hear each other and respond to each other with this system of mikes and speakers.

After reading the instructions, the experimenter attached two electrodes to the forearm of the confederate, who then asked, "Will the shock hurt much?" The experimenter replied, "The shock is somewhat painful, but it is perfectly harmless." The experimenter then took the confederate to an adjoining room to memorize the list of paired associates. The experimenter returned to the subject's room, turned on the shock apparatus and set the intensity dial at 5 mA. Although the whole procedure was designed to appear to the subject as though shocks were actually administered, the confederate did not actually receive any shocks.

After a short wait, the experimenter retrieved the paired-associate list, gave it to the subject, and then left the room for the duration of the task. In the retaliation condition, the subject read the stimulus word into the microphone and awaited the confederate's response for each of the 30 trials. The confederate intentionally made 14 errors (in predetermined order) and was shocked for each by the subject. In this manner, the degree of aggressive responding (in terms of a fixed number of shocks, each of equal duration) was held constant for all subjects.

Subjects in the provocation with no retaliation condition were treated identically to the retaliation subjects until the following events occurred. When the subject first pushed the shock button during the paired-associates task, an apparatus failure was staged and the subject was led to believe that no shock had been delivered. The subject was then taken to a nearby waiting room while an attempt was apparently made to fix the shock apparatus. At the end of a fixed time period (equivalent to the time taken for the actual retaliation procedure), the experimenter told the subject that they would proceed with the next phase of the study, the wine-tasting task. They were told that, if the apparatus was fixed in time, they would be able to return to testing the confederate after completing the tasting task. Thus, subjects in this condition did not actually administer any shocks to the confederate but expected that they might still have the opportunity to do so at a later time. Subjects in the no provocation condition were asked to sit alone in the waiting room for an equivalent period to keep the time factor between the anagrams task and the wine-tasting task constant for all subjects.

Taste-rating task. In the two provocation conditions, subjects were led to believe that the confederate subject was participating in the tasting task at the same time but in a different room. The instructions for the task were similar to those described in earlier papers (Higgins & Marlatt, 1973; Marlatt, Demming, & Reid, 1973). The subject was presented with three different brands of rosé wine (12% alcohol content) with three decanters and three empty glasses. The subject was asked to compare the taste of each wine on a list of taste characteristics (e.g., "mellow," "bitter," "dry") which were contained in a memory drum apparatus. The subject was asked to determine which wine a particular adjective best described, which wine the same adjective applied to least, and to record the responses on the taste-rating forms provided. The subject was told to repeat this procedure for each adjective presented, working at his/her own pace. Ad-lib consumption of the wines was encouraged by telling the subjects, "Remember, you will be able to take as many tastes of the wines as you need to make the ratings." The subject was left alone during the task period of 15 min, although an observer monitored his/her behavior through the one-way viewing mirror.

Evaluation form. Upon completion of the tasting task, the subject was asked to fill out a research evaluation form that was presented to the subject as a standard procedure used in all experiments conducted in the psychology department. The actual purpose of the form was to obtain ratings of the confederate subject to serve as a check on the effectiveness of the provocation manipulation.

Breathalyzer and debriefing procedure. When the subject completed the evaluation form, the experimenter asked a series of structured questions to evaluate the subject's awareness of any deception in the experiment. Subjects who indicated awareness of either the confederate's role, the actual purpose of the retaliation task, or the true purpose of the wine-tasting task were eliminated from the sample. Fifteen minutes following completion of the tasting task, the subject was administered a Breathalyzer test to determine blood-alcohol levels. Subjects were then told the true purpose of the study and informed of the deceptions employed.

RESULTS

Effectiveness of the Provocation Manipulation

To provide for a manipulation check on the effectiveness of the confederate's provocation in the anagrams task, subjects were asked to rate aspects of the confederate's behavior on the research evaluation form, administered at the completion of the study. Responses to the seven 7-point rating scales were assessed by means of a 3×2 analysis of variance (treatments $\times$ sex of subjects). Significant treatment effects were found for ratings of the confederate as "domineering," $F(2, 54) = 10.07$, $p < .001$, and "aggressive," $F(2, 54) = 7.81$, $p < .001$. Subsequent F tests of significance among the treatment means revealed that provoked subjects in

TABLE 1

MEANS AND STANDARD DEVIATIONS FOR OUNCES OF WINE CONSUMED IN THE TASTE-RATING TASK

Sex	Provocation condition: Insulted only	Insulted with retaliation	No-insult control	Condition *M*
Males				
M	7.31	4.86	6.69	6.28
SD	2.93	1.97	3.56	
Females				
M	6.90	4.37	4.66	5.31
SD	3.04	2.38	2.71	
Condition *M*	7.10	4.61	5.67	

Note. 1 ounce = 29.5 ml.

both the retaliation and no-retaliation conditions rated the confederate as significantly more domineering and more aggressive (both with $p < .005$) than nonprovoked subjects. Significant main effects for treatment were also found for ratings of the confederate as "friendly," $F(2, 54) = 3.97$, $p < .025$, and "likeable," $F(2, 54) = 5.40$, $p < .01$. With both of these ratings, subsequent tests showed that only the subjects in the retaliation groups rated the confederate as significantly less friendly and less likeable. Thus, it appears that subjects who believed they had administered shocks to the confederate were the only ones who gave lower ratings for these two attributes.

Individual Confederate Effects

Two male and two female confederates were each assigned an equal number of subjects in each condition, in order to test for any possible effects attributable to the particular individual who played the confederate role. Separate analyses of variance (treatments × confederates) were conducted for each dependent variable. Subsequent tests of significance were performed in those cases where the analysis of variance yielded significant effects in order to determine if differences existed between confederates of the same sex. No such within-sex differences were found for any of the major dependent variables.

Alcohol Consumption

Overall consumption. Total consumption of wine was determined for each subject by subtracting the remaining amount of wine left at the end of the taste-rating task from the 72 fluid ounces initially presented. Mean consumption rates for both sexes in each of the three treatment conditions are presented in Table 1. A 3 × 2 analysis of variance (treatments × sex) was conducted for these data (and for the other measures to be reported). A significant main effect was obtained for the treatment factor, $F(2, 54) = 3.94$, $p < .025$. Subsequent tests among the treatment means revealed that the subjects who were provoked to anger without the opportunity to retaliate against the confederate consumed significantly more wine ($M = 7.10$ ounces, or 209.8 ml) than provoked subjects who did retaliate ($M = 4.61$ ounces, or 136.5 ml; $p < .01$). Neither of the provoked groups differed significantly from the nonprovoked control condition, which showed an intermediate level of consumption ($M = 5.67$ ounces, or 167.8 ml). Neither the sex of subject factor nor the interaction effect obtained significance in the analysis. The findings thus indicate that provoked subjects who are given the opportunity to counteraggress against the individual who insulted them show a reduction in alcohol consumption of 35% relative to those subjects who did not retaliate against the confederate. Retaliation subjects also show a 19% decrease in drinking compared to the nonprovoked control subjects, although this difference failed to attain statistical significance.

Frequency of sips. The number of sips taken by each subject was recorded by an assistant who observed the subject through the one-way mirror. The mean number of sips taken by all subjects was 41.5 during the 15-min tasting task. Analysis of variance for sip frequency failed to show any significant effects for either the treatment condition factor (provocation only, $M = 42.7$; provocation with retaliation, $M = 39.1$; nonprovoked control, $M = 42.8$) or the sex factor (male $M = 37.9$; female $M = 45.1$) The interaction effect also was not significant in the analysis. Sip frequency was analyzed separately for each of the three 5-min block pe-

riods during the task. Here, the only significant finding was found for the first 5-min block, with female subjects taking more sips ($M = 19.3$) than males ($M = 16.6$), $F(1, 54) = 4.85$, $p < .05$.

To provide some information about the rate of alcohol consumption over the task period, the consumption rate for each subject was divided by the total frequency of sips for each 5-min block. This measure provides only an estimated quantity, however, as subjects may have consumed differing amounts with each sip. Figure 1 presents the mean consumption rates over time blocks for each of the three treatment conditions. Inspection of this figure reveals that consumption in all groups tends to decrease throughout the task period. This decrease, found previously in studies using the taste-rating task, seems to reflect the fact that subjects require less sampling of the wines to make the taste ratings in the latter stages of the task. Analyses of variance were conducted for the consumption rates at each 5-min block. The results showed a significant treatment condition effect for each block, in a direction identical to that found for the overall consumption analysis.

Breathalyzer readings. The Breathalyzer was administered following the taste-rating task in order to determine blood–alcohol levels. The mean reading for all subjects was .02%, which reflects the low alcoholic content of the wines used in the tasting task (12% alcohol). Analysis of variance for the Breathalyzer data failed to show any significant effects. The Breathalyzer may not be the best breath analysis apparatus for determining low blood–alcohol levels (< .05%) because of the lack of precision in the read-out at these levels.[1]

DISCUSSION

The finding of central importance in this study was that subjects who were provoked to anger and were permitted to aggress against the confederate subject drank significantly less alcohol in the taste-rating task than subjects who were denied the opportunity to retaliate. Thus, support was obtained for the hypothesis that subjects who were given an opportunity to express aggression directly would drink less than angered subjects who were deprived of this opportunity. The results do not show, however, that angered subjects drank significantly more than nonangered control subjects. Although insulted subjects who did not express aggression to the confederate showed a 21% increase in wine consumption relative to the nonangered control subjects, this difference failed to attain statistical significance. Similarly, the decrease in consumption for the retaliation condition relative to the control condition (19%) also failed to attain significance. The control subjects may also have experienced some degree of frustration, however, because of their participation in the difficult anagrams task which was presented to them as a measure of intellectual functioning. Because none of the subjects in this group was able to complete the anagrams task successfully in the time allotted, subjects in the control group may have experienced some frustration or anger which increased their drinking to some degree.

It could also be argued that the subjects in the no-retaliation group drank more because they were additionally frustrated by the

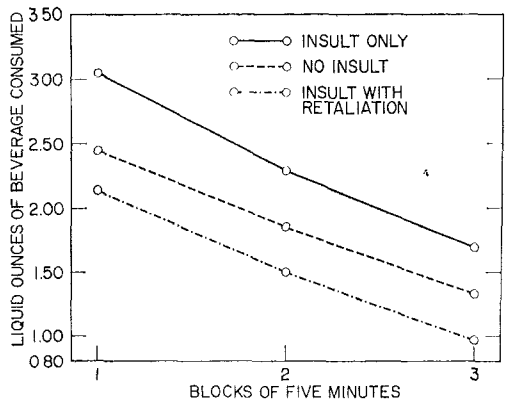

FIGURE 1. Amount of wine consumed in the insult, no insult, and insult with retaliation conditions during the taste-rating task (based on estimates of the amount consumed per sip by each subject in 5-min blocks). (1 ounce = 29.5 ml.)

[1] The Intoxilyzer (Model 4011, manufactured by Omicron Systems Corporation, Palo Alto, California) is a breath analysis instrument which gives readings of blood–alcohol concentrations accurate to three decimal points and is recommended for the assessment of blood–alcohol levels below .05%.

shock apparatus breakdown which denied them the opportunity to aggress against the confederate. This procedure was followed in order to equate the subjects' expectation that they would be able to retaliate against the confederate in the two provocation groups. (A similar expectation was not manipulated in the control group because these subjects were not provoked to anger by the confederate.) However, subjects in the no-retaliation group were led to believe that they would be given the opportunity to counteraggress following the taste-rating task, if the shock apparatus could be repaired in time. The frustration associated with this denied opportunity would thus appear to be greatest following completion of the drinking task (when the subject was told that the apparatus was still broken) and would not be expected to markedly increase consumption during the taste-rating task itself. These subjects were able to maintain their feelings of anger during the drinking task, however, because they expected they would be permitted eventually to aggress against the confederate.

The finding that provoked subjects in the retaliation condition consumed less wine than provoked subjects in the no-retaliation group is open to several interpretations. If insulted subjects experienced a heightened state of tension, frustration, or arousal during the anagrams task, then it could be argued that the subjects who were allowed to express their aggression directly would show a subsequent reduction in arousal or drive. Further, if alcohol consumption is mediated by the reinforcing effects of tension reduction, then provoked subjects in the no-retaliation condition may have consumed more wine because of their heightened state of tension relative to subjects who aggressed against the confederate. From this point of view, consistent with a drive-reduction or catharsis explanation, provoked subjects would experience a lessening of anger or tension either by expressing aggression directly (shocking the confederate) or by increasing their consumption of alcohol.

The explanation of the results in these terms suffers from a number of problems. In general, the validity of the catharsis effect in the experimental study of aggression has been seriously challenged (Bandura, 1973). The merits of this explanation could be further assessed in this context, however, by varying the degree of aggressive responding and by comparing different targets of aggression to determine the effects of these manipulations on consumption rates. A second problem concerns the assumption that the consumption of alcohol leads to a reduction in tension or arousal. The literature on the tension-reduction model of alcoholism is currently contradictory and inconclusive (Cappell, 1975; Cappell & Herman, 1972). In some studies, for example (see review by Nathan, in press), the consumption of alcohol is accompanied by an increase, rather than a decrease, in emotional arousal. In addition, even if it were shown to be the case that alcohol does serve to reduce states of emotional arousal, including anger, it does not necessarily follow that the induction of such a state (as in the provocation manipulation in this study) will be followed by an increase in drinking.

An alternative explanation of the findings is worthy of consideration. In order to provoke subjects to anger, the confederate critically evaluated their behavior and task performance through the delivery of insulting remarks and innuendoes. As such, the confederate assumed a position of control over the subject by evaluating his/her behavior when the subject was relatively powerless to respond. The role of evaluation fear or apprehension as a determinant of alcohol consumption has been recently demonstrated in a study reported by Higgins and Marlatt (1975). These investigators found that male heavy social drinkers who believed that they would be evaluated by a group of female peers on such dimensions as personal attractiveness following their participation in a wine-tasting task consumed significantly more alcohol than control subjects who did not anticipate evaluation. It follows from the findings of the Higgins and Marlatt experiment and of the present study that alcohol consumption may be increased in situations in which the individual feels deprived of personal control either by being negatively evaluated (insulted) prior to drinking or by anticipating evaluation during the act of drinking itself (cf. Marlatt, in press). If the

individual is given the opportunity of regaining conrol through the expression of an adaptive alternative behavior (e.g., retaliation against the evaluator), however, drinking may decrease as a result.

The treatment implications of the present study merit some consideration. If situations such as experiencing frustration and anger are related to relapse or increased drinking for the alcoholic (Marlatt, Note 1), then the results of this study would suggest that treatment techniques be adopted in which the alcoholic is trained in the execution of adaptive social behaviors (e.g., assertive training) as an alternative to drinking in each of these situations. Treatment programs which emphasize role-playing and modeling (cf. Marlatt & Perry, 1975) along with self-instructional procedures (Meichenbaum, 1975) may enable the alcoholic to "innoculate" himself against potential relapse situations. Social-skill training and self-control procedures may also prove effective in the prevention of problem drinking if applied to the high-risk population of heavy social drinkers.

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