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## Alcohol-Cues Relate to Self-Perceptions of Aggression

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# ALCOHOL-CUES RELATE TO SELF-PERCEPTIONS OF AGGRESSION

by

NATALIE C. HOOKS

(Under the Direction of Janie H. Wilson)

## ABSTRACT

Alcohol consumption is linked to increases in aggression. Recently, alcohol-related cues alone have been shown to increase aggressive thoughts and behaviors. Furthermore, aggression is displayed differently by men and women; men are more physically aggressive, whereas women are more relationally aggressive. The current study further explored this influence of alcohol-related cues on physical and relational aggression. Furthermore, the study explored the influence of participant gender on type of aggression expressed. In this study, 126 undergraduates were primed with alcohol-related (e.g., Miller Lite) or non-alcohol related commercials (e.g., Diet Coke). Additionally, participants completed a competitive noise-blast task (physical aggression measure of length and loudness of noise-blasts), evaluated experimenter performance (relational aggression measure of ratings and recommendation of experimenter), and completed surveys on frequency of alcohol consumption, alcohol expectancies, and acceptance of aggressive behaviors. MANOVA results revealed a main effect of participant gender and aggression levels. Men gave longer noise-blasts than women, and women gave lower ratings and recommendations of experimenter than men. No relationship was found between type of commercial and aggression levels. Additionally, correlations between alcohol consumption and aggressive beliefs were found only for the alcohol condition. Results suggest that a gender difference in aggression still exists and that alcoholic cues were effective in priming participants to have more aggressive self-perceptions. Future research should examine effects of alcohol-cues on angered and non-angered participants.

INDEX WORDS: Aggression, Alcohol-cues, Gender, Alcohol, Self-perceptions

ALCOHOL-CUES RELATE TO SELF-PERCEPTIONS OF AGGRESSION

by

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## DEDICATION

I would like to dedicate this book to my family. To my husband, thank you for all of your support during this process in my life. Thank you for listening to all my presentations, showing patience and love when I was stressing out, and for always supporting me in everything I do. To my parents, thank you for all of your support, love, and prayers. I could not have accomplished all of this without you. Thank you for always being proud of and believing in your little girl. To my Aunt Kathy, thank you for always motivating me to be the best I can be and reminding me to never give up. Thank you for all of your encouragement over the years. Because of your encouragement and support, I have been able to strive for the best.

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## CHAPTER 1

### INTRODUCTION

Social psychologists define aggression as an overt behavior intended to inflict physical or psychological pain on another individual (Aronson, 2008). Physical aggression includes behaviors such as punching or stabbing; psychological aggression includes relational harm such as spreading rumors or making threats. Many factors are involved in the onset of both physical and psychological aggression. For examples, aggressive behaviors can result from a frustrating event (Barker, Dembo, & Lewin, 1941), viewing violence in the media (Bushman & Huesmann, 2006; Coyne et al., 2008), consuming alcoholic beverages (Bushman & Cooper, 1990; Chermack & Taylor, 1995), and even being exposed to alcohol-related cues (Brown, Coyne, Barlow, & Qualter, 2010; Subra, Muller, Bègue, Bushman, & Delmas, 2010). Beyond situational influences, aggression is expressed differently depending on characteristics of the individual, such as perceptions of aggression as acceptable (Levinson, Giancola, & Parrott, 2011), personal tendency to aggress (Bernhardt, 1997), and gender (Crick & Grotpeter, 1995; Parrott & Giancola, 2007).

## CHAPTER 2

### SITUATIONAL PRECUSORS TO AGGRESSION

#### *Frustration*

It is well established that a frustrating event causes aggressive acts. This effect is usually referred to as the *frustration-aggression theory* by Dollard, Doob, Miller, Mowrer, and Sears (1939). Dollard et al. defined frustration as an emotion that occurs after a goal has been established and then blocked access to or ability to complete that goal. According to this theory, frustration causes aggression. This effect is cumulative, meaning more frustration leads to more aggression. The *frustration-aggression theory* suggests that the larger the blocked goal, the larger the amount of frustration should be. Thus, frustration and aggression appear to represent a positive linear relationship.

Conversely, a few studies indicate that aggression levels remain unchanged based on level of frustration. For example, Buss' (1963) showed that the level of frustration does not matter; the end result is approximately the same amount of aggression for both small incidences and large incidences of frustration. Buss examined three major frustrating events: 1) failure of a task (small frustration), 2) obstruction in winning a reward (medium frustration), and 3) interference with obtaining a higher grade in a course (large frustration). The task was a learning task in which one person (the participant) taught the other (a confederate) a concept. Before participants started the task, each was randomly assigned to one of four different groups: the "Know-How," the "Money," the "Grades" group, and the control group. For the "Know-How" group, participants were told that previous studies showed that better teachers had faster learners. For the "Money" group, participants were told that monetary rewards would be given to the fastest team, with \$10 each for the fastest, \$5 each for the second fastest, and \$2 each for the

team coming in third. For the “Grades” group, participants were told that there could be a possibility for a grade change in their Introductory Psychology class based on the ability of the participant to teach their subjects. Additionally, for each of the 3 groups, participants were told that their subject should learn the concept in about 19 to 20 trials. In order for the study to examine frustration, the subjects’ did not “learn” until after the 70<sup>th</sup> trial. In the control group, participants were told nothing about the teaching outcomes and were told that other participants would take about 65-75 trials to get the answers correct. Like the experimental groups, subjects’ did not “learn” until after the 70<sup>th</sup> trial.

To measure participants’ aggression, Buss (1963) had an “Aggression Machine,” in which participants gave feedback to their subjects. If the subject answered with the correct response, the participant would flash the “Correct” light. If the subject answered incorrectly, the participant could administer a shock as a punishment. Shock levels ranged from 1 to 10, with 5 being the beginning level of painful shocks. In actuality, participants were not shocking their subjects. Participants’ shock levels were recorded and served as their measure of aggression for the study.

The results of Buss’ (1963) study showed that aggression did increase for all 3 of the groups in comparison to the control, yet no significant differences emerged in aggression intensities among the experimental groups. According to the *frustration-aggression theory*, aggression intensities should have been greater for larger frustrations (Dollard et al., 1939). In Buss’s study, those in the “Grades” group should have shown more aggression than those in the “Know-How” and “Money” groups. Yet Buss’ results show there were no significant differences between these groups. Although the *frustration-aggression theory* was not completely supported,

Buss' study did in fact show that frustration caused increased aggression levels because all 3 of the experimental groups had higher aggression than those of the control group.

### *Violence in the Media*

A second well-documented precursor to aggression involves modeling. Bandura (1973) explained that modeling, or learning through observing a model, leads to three major effects on viewers. The first major effect is that viewers can take on new behaviors simply by observing someone else's behavior. The second major effect is that observing a model exhibiting a behavior can reinforce or reduce the likelihood that the viewer will perform that behavior. For example, if a viewer watches another individual perform a certain behavior, the viewer is more likely to imitate that same behavior in a similar setting. Bandura suggests that this effect can be strongly attributed to the behavioral response of being rewarded or punished for the action. Thus watching others performing a behavior is reinforcing, in that it can be seen as the correct behavior for that particular situation. The last major effect of modeling is the response of others who are also watching the model. For example, if a crowd were to react badly to a model's behavior, the viewer is less likely to do the same behavior in a similar setting. Bandura explains that the responses of others (e.g., actions or verbal remarks) serve as a social prompt for how the viewer should behave.

Currently, one prime example of modeling is violence in the media, which has been shown to cause aggression to rise. In a meta-analysis on 431 studies, Bushman and Huesmann (2006) showed a significant effect size for exposure to violent media increasing levels of anger and physical arousal, increasing aggressive thoughts and behaviors, and decreasing helping behavior in both children and adults. Violent media included in the analysis were TV, movies, video games, music, and comic books. Results also showed larger effect sizes for adults in

laboratory studies (short-term) and larger effects for children in longitudinal studies (long-term). Hence, adults showed short-term effects of violent media on aggressive thoughts and behaviors, and children showed long-term effects. This result is thought to be due to the establishment of aggressive schemas, beliefs, and scripts in the adults due to exposure and experience, while children may not have these aggressive schemas yet established in their minds. Because of this thought process, adults can activate their well-encoded aggressive concepts faster, such as through priming; children must learn by increasing experience and exposure. However, over time, children actually exhibit stronger aggressive behavior than adults.

The effect of heightened aggression after exposure to violence has also been found to be true for exposure to both physical and relational aggression in the media. For example, Coyne and colleagues (2008) reported that women were more physically and relationally aggressive after viewing video clips containing either physical aggression or relational aggression than those women who viewed non-aggressive video clips. Also, Coyne and colleagues found a cross-over effect in that it did not matter which type of aggression (physical vs. relational) participants viewed; those who viewed physical or relational aggression were just as much physically aggressive as they were relationally aggressive. These results illustrate how the type of aggression viewed does not have to be physical in order to increase physical or relational aggression and vice versa. In other words, viewing any type of aggression increases the likelihood to aggress in some way.

### *Alcohol Consumption*

As a third precursor to aggression, alcohol increases intent to harm, and this is accurate both in the real world and in laboratory studies. For example, alcohol-induced violence accounts for 55% to 60% of violent crimes (U.S. Department of Justice, 2005). Also, extensive laboratory

research has found that consuming alcohol increases an individual's aggressive behaviors (see meta-analysis by Bushman & Cooper, 1990). In a naturalistic-type experiment by Boyatzis (1974), men were told they would be involved in an experiment on leisure-time behaviors. The experiment took place in a comfortable, modern office building, and participants were assigned to one of three drinking groups: distilled spirits, beer, or a nonalcoholic beverage. Participants were able to freely drink whatever beverages were in their assigned group and were encouraged to participate in games, such as darts, cards, or dice. Participants were videotaped once at the beginning of the study, once in the middle, and once at the end of the study. Over several behavior categories, aggressive behavior was rated for each participant. Boyatzis found that those who consumed the alcoholic drinks (distilled spirits and beer) were more aggressive than those who consumed the non-alcoholic drinks (control). Furthermore, those who consumed distilled spirits were more aggressive than those who consumed beer. This effect grew larger as the night progressed and individuals consumed more drinks.

In a more standard laboratory setting, Chermack and Taylor (1995) examined whether increased aggression was due to pharmacological effects of alcohol or expectancies about the effects of alcohol. Pharmacological effects are thought to be a result of the actual effects of alcohol consumption on the brain, whereas expectancy effects depend on the belief of the individual (e.g., mental links). Chermack and Taylor examined potential mental and physical links by using participants who had different expectancies: the expectation that alcohol increases aggression or that alcohol decreases aggression. Therefore, if heightened aggression was a result of expectancy effects, aggression should have increased with the belief that alcohol increases aggression, and aggression should have decreased with the belief that alcohol decreases aggression (Chermack & Taylor).



In order to assess their hypotheses, Chermack and Taylor (1995) divided participants into two groups based on their expectancies. Once divided, each participant was randomly assigned to consume an alcoholic drink (33% vodka and 67% ginger ale) or an active-placebo, a substance that mimics the common side-effects of alcohol. None of the participants were told whether their drink contained alcohol or not. Next, participants completed a competitive reaction-time task, in which they believed they were competing with another participant. Participants could give or receive shocks depending on if they lost or won the trial. If participants won, they could give a shock to their opponent, as well as decide the level of shock to their opponent. If their opponent won, participants would receive a shock. In reality, there was no opponent, and the opponent's shock level and wins/loses were randomly assigned in the task before the experiment. The participant's given shock intensity and duration served as the measure for aggression level. Those who consumed alcohol inflicted greater shock intensities, thus higher aggression, than those who consumed the active-placebo, regardless of their alcohol expectancies.

Chermack and Taylor (1995) showed that pharmacological effects of alcohol increased aggression. Because individuals who believed that alcohol decreased aggression displayed the same amount of aggression than those who believed that alcohol increased aggression, individual expectancy effects did not influence aggressive behaviors. For that reason, expectancies cannot overrule the pharmacological effects after someone has consumed alcohol. Because of these results, pharmacological effects can be seen as the major explanation for increased aggression after alcohol consumption.

#### *Exposure to Alcohol-Related Cues*

Even alcohol-related cues can induce aggressive thoughts and behaviors in adults. Subra, Muller, Bègue, Bushman, and Delmas's (2010) showed that individuals did not have to consume

any alcohol to become more aggressive (Experiment 1 & 2). Experiment 1 showed how individuals increased aggressive thoughts after viewing alcohol-related primes. For the study, participants were either exposed to alcohol-related, weapon-related, or neutral primes. Participants' reaction times for aggressive or neutral words during a lexical decision task were recorded. Subra and colleagues found that participants responded faster to aggressive-related words in a lexical decision task when they were primed with alcohol-related or weapon-related primes compared to when they were primed with neutral primes. Therefore, Experiment 1 showed that simply viewing alcohol-related images can elicit aggressive thoughts among individuals exposed to these images. Subra and colleagues also found there was no difference in response times for those primed with alcohol- and weapon-related primes. This result implies that in participants' memory links, alcohol cues were just as much linked to aggression as weapon cues (Subra et al.).

In Experiment 2, Subra and colleagues (2010) showed how unconscious alcohol-related and aggression-related cues automatically activate aggressive behaviors toward another individual. For Experiment 2, participants were subliminally exposed to alcohol-related, aggression-related, or neutral cues during a visual task. These cues were shown subliminally to ensure the participants were unaware they were exposed to alcohol or aggressive cues in order to receive unconscious, automatic responses. The visual task participants had to complete was boring as well as difficult. After completing a large portion of this task, participants learned that all data have been lost. To make the participant angry, the experimenter appeared to be incompetent and asked the participant to redo the entire task. After a little more time of trying to fix the computer, the experimenter finally said that the data were saved. Subsequently, the participant had the chance to rate the experimenter. The participant was told that these ratings

would be used to decide whether or not the experimenter would be hired for more studies. Consequently, the participant could directly hurt the experimenter (relational aggression).

Subra and colleagues' (2010) Experiment 2 results showed that those participants who were subliminally exposed to alcohol-related and aggression-related cues were more aggressive toward the experimenter in that they gave lower ratings than those exposed to the neutral cues. Also, just like Experiment 1, Experiment 2 showed no differences in aggressive levels between alcohol- and aggression-related cues. These two experiments show how people do not need to drink alcohol to have increased aggressive thoughts and behaviors; mere exposure to cues increased aggression.

In addition to adults, alcohol-related cues have also been found to increase aggression in adolescents. Brown, Coyne, Barlow, and Qualter (2010) conducted a priming study using participants between the ages of 11 and 14 years-old. For this study, participants were primed with alcohol-related or beverage-related primes. Participants then completed the Competitive Reaction Time task, in which they believed they were competing against another individual to respond faster to a stimulus. The loser of each trial was punished by their opponent with a noise-blast. Participants could determine the level and duration of the noise-blast before each trial. Each participant's noise level and duration was recorded. Brown and colleagues found that those primed with the alcohol-related images were more aggressive based on giving longer and louder noise-blasts than those primed with beverage-related images. These results suggest that the link between alcohol and aggression is learned at an early age, even before personal experience with alcohol could mold these representations in the mind. This study further supports the idea that aggression is part of our culture's schema for alcohol, and the schema does not rely on current or prior ingestion of alcohol.

## CHAPTER 3

### INDIVIDUAL DIFFERENCES IN AGGRESSION

Exposure to alcohol and alcohol cues increase aggression, but this increase does not occur to the same extent for everyone. Certain risk factors are attributed to the rise of aggression. For instance, high levels of testosterone and low levels of serotonin are associated with relatively high levels of aggressive behavior (Bernhardt, 1997). Additionally, childhood and adolescent aggressive tendencies were found to be a predictor of aggressive behavior in adulthood (Kokko, Pulkkinen, Huesmann, Dubow, & Boxer, 2009). Furthermore, individual's acceptance of aggression increases aggressive behavior. Levinson, Giancola, and Parrott (2011) recently found that beliefs about aggression do moderate an effect after all. For their study, participants either consumed an alcoholic beverage or a placebo and then participated in a competitive time task in which they could shock their mock opponents. Participants also completed the Normative Beliefs about Aggression Scale (NOBAGS; Huesmann, Guerra, Miller, & Zelli, 1989), to test participants' thoughts on how acceptable it is to behave aggressively during various situations. In the alcohol group, results indicated that those who were more accepting of aggression had higher aggression than those who were less accepting of aggression. Levinson, Giancola, and Parrott discuss that these results help support Huesmann's (1988) concept of activation of cognitive scripts of aggression. Those who have more acceptable beliefs are more likely to have scripts and schemas associated with alcohol and aggression. As a result, when the alcohol script is activated, the concepts associated within that script are likely to be included as well, such as aggression.

Furthermore, gender moderates aggressive behaviors. According to the U.S. Department of Justice (2008), men are disproportionately more violent than women. Men also display larger amounts of "direct" physical aggression, which is characterized by face-to-face contact with the

victim (Parrott & Giancola, 2007). Some examples include punching, assault with a weapon, and verbal threats. Giancola et al. suggests that physical aggression could be greater from men and lower for women due to the social norms and gender roles that are considered acceptable for men and women to display. For example, it may be seen as more socially acceptable for men to act aggressively than for women.

Although men tend to be more physically aggressive than women (Parrott & Giancola, 2007), some research suggests that there is little differences in relational aggression in men and women, and that this similarity may be a result of men having increases in relational aggression as they emerge into adulthood, making their relational aggression level comparable to women's (Archer & Coyne, 2005). This result is consistent with findings that girls are more relationally aggressive than boys (Crick & Grotpeter, 1995). *Relational aggression* is characterized by an action that would threaten or hurt relationships (Crick & Grotpeter). To assess aggression among girls, Crick and Grotpeter studied four categories of aggression among children third- through sixth-grade. The four categories used were relational aggression, overt aggression, prosocial aggression, and isolation. In the study, participants nominated peers through a peer nominating survey. In the survey, participants selected three classmates for each of the four aggression categories listed above. Participants then ranked their nominees on a scale from zero to the number of classmates (subtracting one from the group for him or herself). These scores were then standardized for each category and summed to create a total score for each category. With these scores, researchers assessed participants' relational and overt aggression. If participants' scores were a standard deviation above the mean for either relational or overt aggression or both, they were considered to be aggressive, while those lower were considered non-aggressive. The results showed that girls were more relationally aggressive than boys, while boys were more

overtly aggressive than girls. Therefore, gender can be considered to moderate aggressive behaviors of both children and adults.

## CHAPTER 4

### STATEMENT OF PROBLEM

The relationship between gender and aggression may be further moderated by alcohol. For instance, Giancola, Levinson, Corman, Godlaski, Morris, Phillips, and Holt (2009) reported that alcohol consumption increased aggression among men and woman; however, the effect was greater for men. However, we do not know if men and women differ in the type of aggression they display after viewing alcohol-related images that people experience in everyday life. Could exposure to alcohol commercials on TV affect participants' immediate aggressive thoughts and behaviors toward another individual? Also, because there are gender differences in type of aggression males and females display (Crick & Grotpeter, 1995; Parrott & Giancola, 2007), could the increase of aggression displayed in two different types of aggressive tasks differ depending of gender of participant? Subra et al. (2010) discussed the potential danger of alcohol commercials on TV, warning that commercials may offer cues to males and females that increase aggression in some way. The present study examined this hypothesis.

Specifically because previous research has found that individuals exposed to alcohol-related cues were more aggressive than those exposed to non-alcohol related cues (Brown et al., 2010; Subra et al., 2010), I predicted that those individuals primed with alcohol-related commercials would display more physical aggression during a competitive task than those exposed to non-alcohol related commercials. I further predicted that those individuals primed with alcohol-related commercials would display more relational aggression defined by rating the researcher's performance while testing participants than those exposed to non-alcohol related commercials.

In addition, because previous research has shown that men tend to be more physically aggressive (Parrott & Giancola, 2007), and young women tend to be more relationally aggressive (Crick & Grotpeter, 1995), this study examined a potential moderating effect of gender on type of aggression displayed. Therefore, I examined whether viewing alcohol commercials increased physical aggression (e.g., noise-blasts) in men and relational aggression (e.g., experimenter ratings) in women compared to those men and women primed with non-alcohol related commercials. I predicted that men would be more physically aggressive than women when exposed to alcohol-related commercials. Also, I predicted that women would give lower ratings than men when exposed to alcohol-related commercials.

A final hypothesis that warrants examination is the idea that participants may not increase aggression toward the researcher (which may be too salient and violate societal norms). Instead, participants who view alcohol-related cues may rate themselves as more likely to aggress and more accepting of aggression as a viable response.



## CHAPTER 5

### METHOD

#### *Participants*

One-hundred and twenty-six undergraduate students (68 females, 58 males) from the Introduction to Psychology course at a Southeastern University participated in the study. Average age was 19.33 years ( $SD = 1.49$ ). Students were 63 Caucasians (50.4%), 52 African Americans (41.6%), 3 Asian Americans (2.4%), 1 Latino (0.8%), 1 reported other (0.8%), 1 preferred not to respond (0.8%) and 5 reported multiple racial categories (4.0%). All students received course credit for participation.

#### *Materials*

##### **Primary design components.**

**Commercials.** The commercials used in this study were created by the author and consisted of two men talking and drinking a canned beverage. Each commercial began with the picture of an advertisement for Miller Lite or Diet Coke (see Appendix A for picture). Each commercial was one minute long and featured a simple original song played on an acoustic guitar. Though the men were seen speaking in the video, the conversation was not audible. Each commercial had cut-scenes of the phrases “Sometimes you just want to sit with a friend and talk. Just relax,” “Pretty much do nothing,” “Except drink an ice-cold insert Miller Lite or Diet Coke.” starting 35 seconds into the commercial. The commercial ended with another picture advertisement of the beverage. These commercials served as the priming task for alcohol or for non-alcohol related primes.

The Commercial Evaluation Form was created by the author of this study. This survey consisted of a 3-question measure for evaluation of the commercials. For this survey, participants

were asked “*How would you rate the commercial overall?*” on a 7-point Likert scale, with 1 = *Very Bad* and 7 = *Very Good*. Participants were also asked “*How entertaining did you find the commercial to be?*” on a 7-point Likert scale, with 1 = *Not at All Entertaining* and 7 = *Most Entertaining*. The survey also asked “*What was being advertised in the commercial?*” in a fill-in-the-blank format. This survey measured possible differences between commercials (e.g., entertainment value) in addition to confirming that the participant watched the commercial.

***Positive and Negative Affect Schedule.*** The Positive and Negative Affect Schedule (PANAS) is a 20-item self-report measure that evaluates participants’ current state of mood (Watson, Clark, & Tellegen, 1988b). The PANAS includes items pertaining to types of current moods in a 5-point Likert-type format, with 1 = *Very slightly or Not at All* and 5 = *Extremely* (see Appendix B). The types of moods addressed are *Interested, Distressed, Excited, Upset, Strong, Guilty, Scared, Hostile, Enthusiastic, Proud, Irritable, Alert, Ashamed, Inspired, Nervous, Determined, Attentive, Jittery, Active, and Afraid*. The PANAS’s moods are grouped into two categories, *Positive Affect* and *Negative Affect*, and are totaled to get a *Positive-Negative Affect* score. For the *Positive Affect (PA)* score, I summed the responses for *Interested, Excited, Strong, Enthusiastic, Proud, Alert, Inspired, Determined, Attentive, and Active* to obtain the total subscore. For the *Negative Affect (NA)* score, I summed the responses for *Distressed, Upset, Guilty, Scared, Hostile, Irritable, Ashamed, Nervous, Jittery, and Afraid* to obtain the total subscore. Finally, I subtracted the total *Negative Affect* score and the total *Positive Affect* score to obtain the total *Positive-Negative Affect* score. For the PANAS, Cronbach’s  $\alpha$  reliability is strong (0.89 for PA; 0.85 for NA) and is a valid measure for current state of mood in a general adult population (Crawford & Henry, 2004).

***Competitive Noise-Blast Task.*** The Competitive Noise-Blast Task, created by the author, is a visual game-like task where participants are told they are playing against the researcher, who is seated in a separate room. This task was adapted from the Taylor Aggression Paradigm (TAP; Taylor, 1967), which is a valid measure for physical aggression (Giancola & Parrott, 2008). For the noise-blast task, participants viewed slides that have two large circles of unequal sizes (Please see Appendix C for example). The researcher told each participant that “to win the round, you will have to click on the circle that is larger than the other before I do.” The wins and losses for each round were predetermined before the game, and the game lasted for 30 rounds (14 wins, 16 losses).

***Researcher Evaluation Form.*** The Researcher Evaluation Form is an 8-question measure for relational aggression among participants toward the researcher (see Appendix D). Each item asked participants to indicate the extent to which they agreed with each statement on a 7-point Likert scale, with 1 = *Strongly Disagree* and 7 = *Strongly Agree*. The first two items from this questionnaire were adapted from previous research by Subra, Muller, Bègue, Bushman, and Delmas (2010). Subra et al. used the items for their measure of relational aggression and found them to be high correlated ( $r = .72, p < .001$ ). Adapted items from their survey included statements the following statements: 1) “*The experimenter’s overall performance during the study was poor,*” and 2) “*I would recommend this experimenter to run future studies.*” Due to the high reliability between the two items, these items served as the measure for relational aggression in the current study. The other six items were added to this survey by the current researcher and examined participants’ thoughts on researcher’s performance on the competitive task. Because the game was predetermined on the number of wins/loses, the aim was to examine

the participants' thoughts concerning the outcome of the game. For example, one of these items included "*The researcher had an unfair advantage while playing the game.*"

### **Participant characteristics.**

***Alcohol Use Disorder Identification Test.*** The Alcohol Use Disorder Identification Test (AUDIT) is a 10-question instrument which evaluates alcohol use as well as possible alcohol abuse (Saunders, Aasland, Babor, De La Fuente, & Grant, 1993). The AUDIT asked participants questions pertaining to frequency of alcohol use, amount of alcohol consumption, and problems (such as the inability to remember what happened the night before or injury during drinking) that are associated with heavy alcohol consumption (see Appendix E). For instance, item one asked "*How often do you have a drink containing alcohol?*" on a 5 choice answering scale, with 0 = *Never* (lowest frequency) and 4 = *Four or More Times a Week* (highest frequency). Item two asked "*How many drinks containing alcohol do you have on a typical day when you are drinking?*" on a 5 choice answering scale, with 0 = *1 or 2* (lowest amount) and 4 = *10 or More* (highest amount). Items 3 through 8 pertained to questions about frequency of drinking: (3) "*How often do you have six or more drinks on one occasion?*" (4) "*How often during the last year have you found that you were not able to stop drinking once you had started?*" (5) "*How often during the last year have you failed to do what was normally expected from you because of drinking?*" (6) "*How often during the last year have you needed a first drink in the morning to get yourself going after a heavy drinking session?*" (7) "*How often during the last year have you had a feeling of guilt or remorse after drinking?*" and (8) "*How often during the last year have you been unable to remember what happened the night before because you had been drinking?*". Items 3 through 8 are answered on a 5 choice answering scale, with 0 = *Never* (lowest frequency) and 4 = *Daily or Almost Daily* (highest frequency). The last two items, 9 and 10, pertained to

possible health problems associated with heavy drinking: (9) “*Have you or someone else been injured as a result of your drinking?*” and (10) “*Has a relative or friend, or a doctor or other health worker been concerned about your drinking or suggested you cut down?*”. Items 9 and 10 are answered on a 3 choice answering scale, with 0 = *No* (least possibility) and 4 = *Yes, During the Last Year* (highest possibility).

The overall AUDIT score was calculated by summing the values for each section. Scores can range from 0 (e.g. for non-drinkers) to 40. An AUDIT score of 8 or more indicates a strong possibility for harmful alcohol consumption. The AUDIT has been validated as a cross-national standardization test and has been used primarily on health-care patients in six countries, including the United States. Reliability of this instrument is adequate, ranging from  $\alpha = 0.75$  to 0.94 (Allen, Litten, Fertig, & Babor, 1997).

***Drinking Expectancies Questionnaire.*** The Drinking Expectancies Questionnaire is a 20-question instrument designed to examine the possible expectancy effects of alcohol on social behavior (Leigh, 1987). The Drinking Expectancies Questionnaire asked questions pertaining to the potential behaviors and feeling one may experience when consuming alcohol (see Appendix F). Some of the examples of the behaviors and feeling include are *feel sleepy*, *become talkative*, *feel sad or depressed*, and *get aggressive* and are answered on a 5-point Likert scale, with 1 = *Very Unlikely* and 5 = *Very Likely*. Of these items, items d, j, k, m, and r create the Nastiness category, items a, f, h, i, and t\* create the Cognitive/Physical Impairment category, items l, n, q, s create the Disinhibition category, items, e, g, and o create the Gregariousness category, and items b\*, c, and p create the Depressant category (\*these items are reverse scored). By summing the responses of items in a category, the total score for each category was calculated. According to Leigh, the Drinking Expectancies Questionnaire has been found to be acceptable for

measuring Nastiness ( $\alpha = .83$ ), Cognitive/Physical Impairment ( $\alpha = .73$ ), Disinhibition ( $\alpha = .66$ ), Gregariousness ( $\alpha = .63$ ), and Depressant ( $\alpha = .56$ ).

***Normative Belief about Aggression Scale.*** The Normative Beliefs about Aggression Scale (NOBAGS) is a 20-item scale that was developed to assess children's beliefs about acceptability of aggressive behaviors (Huesmann, Guerra, Miller, & Zelli, 1989). Items 1 through 12 measure approval of retaliatory aggression, while items 13 through 20 measure the approval of general aggression (see Appendix G). Additionally, the scale measures approval of aggression, both general and retaliation, against both males and females. The current author modified the NOBAGS by changing the terms "boys" and "girls" to "men" and "women" to make it applicable in a college setting. One example of a retaliation item is "Suppose a man says something bad to another man, John: a) Do you think it's OK for John to scream at him? and b) Do you think it's OK for John to hit him?" and are answered on a 4-point Likert scale, with 1 = *It's Really Wrong* and 4 = *It's Perfectly OK*. An example for general aggression is "It is wrong to take it out on others by saying mean things when you're mad." Items are answered on a 4-point Likert scale, with 1 = *It's Really Wrong* and 4 = *It's Perfectly OK*. By summing responses to items 1-12, the total retaliation score was computed. By summing responses to 13-20, the total general aggression score was computed. Therefore, the higher the score, the more acceptable participants views aggression to be. Reliabilities for the survey are good for the entire survey ( $\alpha = .86$ ), the retaliation items ( $\alpha = .80$ ), and the general-aggression items ( $\alpha = .82$ ) between genders and different ethnic groups (Huesmann & Guerra, 1997).

***Demographics.*** The Demographics survey is a 4-question survey that measures the general characteristics of the sample population (see Appendix H). This measure asks questions pertaining to participants' gender, race or ethnicity, and age. The demographics survey also asks

one self-report question pertaining to their general aggressiveness in a 7-point Likert-like format, from 1 = *Not Aggressive at All* to 7 = *Very Aggressive*.

### *Procedure*

Upon arrival to the study, participants were told they were late to the study despite when the participant arrived. This procedure was incorporated to dissuade initial liking of the researcher. Usually the door to the lab was closed, and participants had to wait until close to the experiment time for the researcher to open the door. The researcher would ignore any knocks until it was close enough to time. Participants often argued with the researcher saying they were not late to the study. If this occurred, the researcher would disregard the participant's confrontation by saying, "Whatever. Let's begin the experiment."

After the initial conversation about lateness, all participants were seated in a small room with a computer, and they completed the informed-consent sheet. After participants signed the consent form, the researcher collected the informed-consent and left the room. In that other room, the researcher called out to the participant to "Hang on for a second" and spoke on a cell phone loudly enough the participant could overhear the conversation. Phone-call scripts were devised by the author to create mild frustration within participants. Previous research shows that overhearing a one-sided phone conversation, or a "halfalogue," is irritating and causes reduced performance on cognitive tasks (Emberson, Lupyan, Goldstein, & Spivey, 2010). To fake the phone conversation, the researcher held her cell phone up to her ear (on "silent" mode) and read from the phone conversation script (Please see Appendix I for script.). While the researcher took the phone conversation, the participant waited in the other room. After the phone-call ended, the researcher entered the participants' room, and participants completed the Positive and Negative Affect Schedule (PANAS) to test the participant's mood.

Next, participants were told to randomly click on one commercial link (3 links were the same Miller Lite commercial and 3 were the same Diet Coke commercial). The links for the commercials were a random string of numbers and order of commercials were changed often. After the participant viewed either the alcohol-related commercial or the non-alcohol related commercial, participants completed the PANAS again to report their mood after the commercial along with the Commercial Evaluation Survey. After the PANAS and Commercial Evaluation Survey were collected, the researcher took another phone call in the other room (see Appendix J).

After the phone conversation was over, the researcher explained the Competitive Noise-blast Task to the participant using a script. Then participants completed the Competitive Noise-blast Task. During the beginning of the game, the participant appeared to be winning many rounds, but toward the end of the game appeared to be losing many rounds. This procedure acted as a method to frustrate the participant. After each round, participants were shown whether he/she had won/lost the round (see Appendix K for example) and then were given the opportunity to respond aggressively toward the researcher by giving her a noise-blast (Please note that no noise-blast were actually delivered to the researcher.). Participants were allowed to decide the duration and intensity of each noise-blast to the researcher after each round. The noise-blasts intensities ranged from 1 to 9 on the number keypad, with 1 being the lowest noise-blast and 9 being the highest noise-blast. No time limit was set for the amount of time, or duration, participants could hold down the key. The noise-blasts from the participants were recorded for each round and served as the measure of physical aggression in this study.

Next, upon entering the participants' room, the researcher told the participant that she (the researcher) was going to leave the study to meet up with a friend (after reading a text



message on her phone). The researcher walked into another room and asked a confederate (always a female) to do a favor for her and finish the study for her. The researcher then left the room (in actuality the researcher pretend to leave the room by opening and closing the exit door and quietly sitting in the other room).

The confederate finished the study by handing a survey packet to participants and sitting quietly in another room. The survey packet consisted of the Experimenter Evaluation Form, the Alcohol Use Disorder Identification Test (AUDIT), the Drinking Expectancies Questionnaire, the Normative Beliefs about Aggression Scale (NOBAGS), and the demographic form. Then participants were thanked and debriefed by the researcher. Participants were encouraged not to talk with others about the experiment due to this knowledge being crucial for validity of the experiment. This debriefing seemed to be kept secret due to the future participants responses during debriefing. No evidence was seen to show that information was spread throughout the participant pool.

## CHAPTER 6

## RESULTS

*Primary Analysis*

A 2 (Commercial Type: Alcohol vs. Non-Alcohol) x 2 (Gender: Men vs. Women) between-groups MANOVA was utilized to examine differences in aggression level for the physical-aggression task (loudness and duration of noise-blasts) and for the relational-aggression task (experimenter performance and recommendations). The results revealed an overall main effect of participant gender, Wilk's  $\lambda = .892$ ,  $F(1, 3) = 3.58$ ,  $p < .01$ ,  $\eta p^2 = .108$ . There was no overall main effect for commercial type, Wilk's  $\lambda = .984$ ,  $F < 1$ ,  $p > .05$ , nor a significant interaction between commercial type and gender, Wilk's  $\lambda = .972$ ,  $F < 1$ ,  $p > .05$ .

Specific univariate ANOVAs revealed that the relationship between gender and noise-blast length was significant,  $F(1, 123) = 4.56$ ,  $p = .03$ . On average, men ( $M = 16.08$ ,  $SD = 22.33$ ) gave longer noise-blasts than women ( $M = 8.89$ ,  $SD = 14.91$ ). However, there was no significant relationship between gender and loudness of noise-blasts,  $F(1, 123) = 2.58$ ,  $p = .11$ .

Gender of participant also was related to the experimenter performance ratings,  $F(1, 124) = 6.12$ ,  $p = .02$ . Women ( $M = 4.13$ ,  $SD = 1.98$ ) rated the researcher's performance poorer, on average, than men ( $M = 3.26$ ,  $SD = 1.72$ ). Furthermore, there was a significant relationship between gender and the experimenter recommendations,  $F(1, 124) = 8.41$ ,  $p = .004$ . Women ( $M = 3.10$ ,  $SD = 1.84$ ) rated the researcher's recommendation, on average, lower than men ( $M = 4.00$ ,  $SD = 1.51$ ).

*Secondary Analyses: Covariates*

**Self-reported aggression.** A 2 x 2 (Commercial Type x Gender) between-groups MANCOVA was utilized to examine potential differences in aggression levels (physical vs.

relational) with individuals' self-report of general aggression level as a covariate. The results did not support a significant main effect for commercial type, Wilk's  $\lambda = .981$ ,  $F < 1$ ,  $p > .05$ , or relationship based on participant gender, Wilk's  $\lambda = .903$ ,  $F < 1$ ,  $p > .05$ . Results failed to reveal a significant interaction between commercial type and gender when covarying self-reports of aggression, Wilk's  $\lambda = .971$ ,  $F < 1$ ,  $p > .05$ .

**General aggression acceptability.** A 2 x 2 (Commercial Type x Gender) between-groups MANCOVA was utilized to examine potential differences in aggression levels (physical vs. relational) with individuals' level of acceptability for general aggression (belief that general aggression is acceptable) as a covariate. The results did not support a significant main effect for commercial type, Wilk's  $\lambda = .985$ ,  $F < 1$ ,  $p > .05$ , or relationship based on participant gender, Wilk's  $\lambda = .890$ ,  $F < 1$ ,  $p > .05$ . Results failed to reveal a significant interaction between commercial type and gender when covarying acceptance of general aggression, Wilk's  $\lambda = .973$ ,  $F < 1$ ,  $p > .05$ .

**Retaliatory aggression acceptability.** A 2 x 2 (Commercial Type x Gender) between-groups MANCOVA was utilized to examine potential differences in aggression levels (physical vs. relational) with individuals' level of acceptability for retaliatory aggression (belief that retaliation is acceptable) as a covariate. The results did not support a significant main effect for commercial type, Wilk's  $\lambda = .984$ ,  $F < 1$ ,  $p > .05$ , or relationship based on participant gender, Wilk's  $\lambda = .896$ ,  $F < 1$ ,  $p > .05$ . Results failed to reveal a significant interaction between commercial type and gender when covarying acceptance of retaliatory aggression, Wilk's  $\lambda = .972$ ,  $F < 1$ ,  $p > .05$ .

**Alcohol consumption.** A 2 x 2 (Commercial Type x Gender) between-groups MANCOVA was utilized to examine potential differences in aggression levels (physical vs.

relational) with individuals' reports of alcohol consumption as a covariate. The results did not support a significant main effect for commercial type, Wilk's  $\lambda = .986$ ,  $F < 1$ ,  $p > .05$ , or relationship based on participant gender, Wilk's  $\lambda = .896$ ,  $F < 1$ ,  $p > .05$ . Results failed to reveal a significant interaction between commercial type and gender when covarying alcohol consumption, Wilk's  $\lambda = .961$ ,  $F < 1$ ,  $p > .05$ .

### *Correlations*

**Relationships Among Dependent Variables and Participant Variables.** These data were analyzed using one-tailed Pearson's correlation analyses. The noise-blast loudness and the expectancy of nastiness (item subcategories: aggressiveness, arguments, mean, sexual aggression, vulgar, and fights) when intoxicated were positively related,  $r(123) = 0.24$ ,  $p < 0.01$ . Thus the louder noise-blasts given to the researcher, the more participants expected to be nasty if they were intoxicated. As a results, the louder noise-blasts the participants gave, the more the participants rated themselves as being more aggressive, argumentative, mean, sexually aggressive, vulgar, and more likely to get into fight when intoxicated. Similarly, the expectancy of nastiness when intoxicated and acceptability of general aggression were positively related,  $r(123) = 0.24$ ,  $p < 0.01$ . The more participants expected to be nasty while intoxicated, the more acceptable they thought it was to express general aggression. Again, the more participants had accepting beliefs about expressing general aggression, the participants rated themselves as being more aggressive, argumentative, mean, sexually aggressive, vulgar, and more likely to get into fight when intoxicated. Furthermore, the expectancy of nastiness when intoxicated and acceptability of retaliatory aggression (e.g., yelling back at someone who is yelling at you) were positively related,  $r(123) = 0.42$ ,  $p < 0.01$ . The more participants expected to be nasty while intoxicated, the more acceptable they thought it was to express retaliatory aggression. Thus, the

more participants had accepting beliefs about expressing retaliatory aggression, the more participants rated themselves as being more aggressive, argumentative, mean, sexually aggressive, vulgar, and more likely to get into fight when intoxicated.

**Correlations: Control-Group Only.** Because the alcohol-related commercial may have primed aggression in participants' perception of themselves, I examined bivariate correlations for control (non-alcohol) and alcohol-primed groups separately. For those in the non-alcoholic condition, the loudness of noise-blasts and the drinking expectancy of nastiness were positively related,  $r(58) = 0.32, p < 0.01$ . Hence, as the loudness of noise-blasts given increased, the more one expected to be nasty while intoxicated. Therefore, this means as the loudness of noise-blasts increased, the more participants rated themselves as being more aggressive, argumentative, mean, sexually aggressive, vulgar, and more likely to get into fight when intoxicated.

Additionally, the drinking expectancy of nastiness and the acceptability of general aggression were positively related,  $r(58) = .24, p < 0.05$ . Hence, as the participants expected to become nasty while intoxicated increased, the more participants had accepting beliefs about expressing general aggression. As a result, as the more participants rated themselves as being more aggressive, argumentative, mean, sexually aggressive, vulgar, and more likely to get into fight when intoxicated, the more accepting participants thought it was to express general aggression. Also, the drinking expectancy of nastiness and the acceptability of retaliatory aggression were positively related,  $r(58) = .32, p < 0.01$ . Hence, as the participants expected to become nasty while intoxicated increased, the more participants had accepting beliefs about expressing retaliatory aggression. As a result, as the more participants rated themselves as being more aggressive, argumentative, mean, sexually aggressive, vulgar, and more likely to get into

fight when intoxicated, the more accepting participants thought it was to express retaliatory aggression. No other bivariate correlations were significant.

**Correlations: Alcohol-Condition Only.** Similar to the control group, for those in the alcohol condition, the drinking expectancy of nastiness and the acceptability of general aggression were positively related,  $r(63) = .46, p < 0.001$  ( see Figure 1.). Hence, as the participants expected to become nasty while intoxicated increased, the more participants had accepting beliefs about expressing general aggression. As a result, as the more participants rated themselves as being more aggressive, argumentative, mean, sexually aggressive, vulgar, and more likely to get into fight when intoxicated, the more accepting participants thought it was to express general aggression. Additionally, the drinking expectancy of nastiness and the acceptability of retaliatory aggression were positively related,  $r(63) = .50, p < 0.001$  ( see Figure 2.). Hence, as the participants expected to become nasty while intoxicated increased, the more participants had accepting beliefs about expressing retaliatory aggression. As a result, as the more participants rated themselves as being more aggressive, argumentative, mean, sexually aggressive, vulgar, and more likely to get into fight when intoxicated, the more accepting participants thought it was to express retaliatory aggression. Though the correlations between the expectancy of nastiness and general aggression and between the expectancy of nastiness and retaliatory aggression were similar between both conditions, the effect was larger for those in the alcohol condition.

Furthermore, there were additional correlations found for those only in the alcohol condition. For those in the alcohol condition, the number of alcoholic drinks consumed and acceptability of general aggression were positively related,  $r(63) = 0.23, p < 0.05$  (see Figure 3.). Therefore, as the number of alcoholic drinks consumed on a regular basis increased, the more

participants had accepting beliefs about expressing general aggression. Additionally, for those in the alcohol condition, the number of alcoholic drinks consumed and acceptability of retaliatory aggression were positively related,  $r(63) = 0.22, p < 0.05$  (see Figure 4.). As the number of alcoholic drinks consumed increased, the more participants had accepting beliefs about expressing retaliatory aggression. Furthermore, the number of alcoholic drinks consumed and the drinking expectancy of nastiness were positively related,  $r(63) = 0.32, p < 0.01$  (see Figure 5.). Therefore, as the number of alcoholic drinks consumed increased, the more participants expected to become nasty while intoxicated. Among only participants who saw the alcohol commercial, as the number of alcoholic drink consumed increased, the more participants rated themselves as being more aggressive, argumentative, mean, sexually aggressive, vulgar, and more likely to get into fight when intoxicated. Thus numerous relationships were found between self-reports of aggression and alcohol consumption, but only among those who saw the alcohol-related commercial.

## CHAPTER 7

### DISCUSSION

Alcohol consumption has been shown repeatedly to be linked to increased aggressive behavior (Bushman & Cooper, 1990; Chermack & Taylor, 1995). Previous research has also shown that viewing alcohol-related images increases aggressive thoughts and behaviors (Subra et al., 2010), even in adolescents (Brown, Coyne, Barlow, & Qualter, 2010). Viewing alcohol-related words has also been shown to be as linked with aggression in the mind as aggression-related words (Subra et al.). The purpose of the current study was to expand on this link between alcohol and aggression by examining potential moderating effects of gender on type of aggression displayed. Though the current study did not show evidence to support that alcohol commercials augment physical and relational aggression, traditional gender differences in aggression found in previous research (e.g., Crick & Grotpeter, 1995; Parrott & Giancola, 2007) were supported by the data. Men and women displayed different aggression styles. Men were more physically aggressive (longer noise-blasts) than women, and women were more relationally aggressive (lower ratings, lower recommendations) than men.

The primary hypothesis, that alcohol-cues would cause increases in aggression, was not supported. In prior research, alcohol-related cues, such as pictures of a bottle of vodka or the word “beer,” were sufficient enough to increase aggressive thoughts and behaviors (Subra et al., 2010). A potential reason for a lack of effect could be that the alcohol-priming cue, the commercials, contained too many extraneous variables. Because the actors in the film, though unheard, were freely talking and drinking their beverages, there could have been subtle differences in the commercials. However, an independent-samples *t*-test showed no differences in participants’ overall ratings of commercials ( $p = .50$ ) between the alcohol commercial



condition ( $M = 3.11$ ,  $SD = 1.24$ ) and the non-alcohol commercial condition ( $M = 3.17$ ,  $SD = 1.22$ ) on the Commercial Evaluation Form. A second  $t$ -test showed no difference in participant ratings of commercial entertainment value ( $p = .67$ ) between the alcohol commercial condition ( $M = 2.35$ ,  $SD = 1.27$ ) and the non-alcohol commercial condition ( $M = 2.25$ ,  $SD = 1.26$ ) on the Commercial Evaluation Form. Although, no differences in participant ratings of commercials were found, all possible differences were not assessed, and subtle differences may still have existed.

Second potential problem could have been participants' moods during the study. Reasonably, mood could have affected how participants displayed aggression along with how participants answered survey questions. For instance, if a participant was in a good mood, he or she may not answer in a way that would encourage a bad mood or may not interpret the researcher's behavior as negatively as if someone who was already in a bad mood. Because mood was most likely affected by the rudeness of the researcher, such as the when the researcher insisted the participant was late or when the researcher answered the phone in the middle of the study, the first mood scale cannot be considered to be a baseline mood. In order to address this possible explanation, I ran independent samples  $t$ -tests on both mood scores. The  $t$ -test revealed that there were similar ratings for the initial mood scores ( $p = .75$ ) between the alcohol commercial condition ( $M = 12.49$ ,  $SD = 8.57$ ) and the non-alcohol commercial condition ( $M = 15.63$ ,  $SD = 8.02$ ) on the PANAS mood survey. Further, the  $t$ -test revealed similar ratings for the second mood score ( $p = .19$ ) between the alcohol commercial condition ( $M = 11.65$ ,  $SD = 10.29$ ) and the non-alcohol commercial condition ( $M = 14.48$ ,  $SD = 8.27$ ) on the PANAS mood survey. Thought mood may be an issue, the above analyses reduce the likelihood of mood as a viable explanation for null results.

A third explanation is that perhaps the anger-inducing manipulation was not effective. Unlike previous studies (e.g., Brown, Coyne, Barlow, & Qualter, 2010; Chermack & Taylor, 1995), participants in the current study were not noise-blasted (or shocked) during the competitive reaction-time task. Subra and colleagues (2010) suggested in their experiment that future research should examine whether alcohol-related stimuli increased aggression in those who were not angered during the experiment. Despite the intent to aggravate participants with an overheard phone conversation or comments about lateness, there was no manipulation check to see if phone conversation or other comments actually frustrated the participants. Thus, it could have been that participants in the current study were not angered or that frustration dissipated quickly after the phone conversation or comments occurred. Moreover, perhaps it is necessary for participants to experience the physical discomfort of a loud noise-blasts or shock in order to respond aggressive (physically or relationally) toward another person. Thus, frustration may be the necessary factor that links alcohol-related cues with increased aggression. Follow-up studies should take this into account in order to fully explain how alcohol-related stimuli foster increased aggression.

A fourth explanation is possible differences in alcohol consumption, thus their experience with alcohol. Few individuals in the study reported not having consumed alcohol on a regular basis or at all (6 males, 15 females), whereas several participants would be considered to drink harmful amounts of alcohol often (AUDIT score of 8 or above; 21 males, 13 females). Though this was not a problem in prior studies (e.g., Subra et al., 2010), previous experiences could play a factor in the current study to why aggression did not change between conditions. The main idea behind why alcohol-related cues prime aggression is explained by memory links within an individual's schema of alcohol that the person learns overtime (Subra et al.). It could be that

there were multiple schemas associated with alcohol use within our participants. For example, the participants' alcohol schema could contain both the ideas of aggression and relaxation, therefore linking the concepts of both aggression and relaxation to the priming of alcohol. If someone had more relaxing feelings associated with consuming alcohol, then when primed with alcohol, feelings of relaxation would be primed as well. Moreover, because an individual's perception can alter interpretation of events and behavior, participants may have perceived the study as non-aggressive. Therefore, participants may have recalled other aspects of their schema of alcohol due to their perception of behavior during the study. As a result of lack of understanding of participants' previous experiences that may affect behavior, this non-aggressive perception could explain the failure of finding between commercial conditions. Hence, researchers should consider how previous experiences may influence alcohol-related aggression in future studies.

Finally, perhaps gender of the researcher had influenced aggressive behaviors of participants. Previous research showed that gender of the victim played a role in aggressive behavior, such as physical aggression toward another individual. Perhaps the present study did not reveal differences in aggression against the experimenter because she was female. However, based a meta-analysis by Bushman and Cooper (1990) on alcohol consumption and aggression, of those experiments that considered gender as a component, results indicated that both intoxicated men and women behaved more aggressively toward a female individual than toward a male individual. Possibly the current study did not support this result due to other factors such as gender roles in the southeast. For example, gender roles have been found to mediate the perception that physical aggression directed toward a woman is more harmful and less acceptable than physical aggression toward a man (Basow, Cahill, Phelan, Longshore, & McGillicuddy-DeLisi, 2007). This concept is clearly shown in a study on aggressive behaviors

where participants' verbal aggressive responses were recorded during a competitive time task against a male or female opponent (Taylor & Epstein, 1967). During the study many males expressed verbal aggression (e.g., "Oh that sneaky ---- gave me a four. I'll kill her!"), but responded with the lowest level of shock to their female opponent (Taylor & Epstein; p. 482). In fact, one male opponent stated he would not aggress toward his opponent "because she was a girl" (Taylor & Epstein; p. 481).

Despite the lack of finding an increase in physical or relational aggression toward another individual, the study did find that those who were primed with alcohol cues perceived themselves as more aggressive than those not primed with alcohol cues. Results showed that those exposed to alcohol-related cues had relationships between alcohol consumption and higher acceptability of general aggression, between alcohol consumption and higher acceptability of retaliatory aggression, and between alcohol consumption and higher nastiness expectancies (more aggressive, argumentative, mean, sexually aggressive, vulgar, and more likely to get into fights) when intoxicated. This pervasive pattern between reported alcohol consumption and aggression was only seen when participants were primed with alcohol-cues.

Furthermore, results showed a stronger relationship between higher nastiness expectancies when intoxicated and higher acceptance of general aggression and between higher nastiness expectancies when intoxicated and higher acceptance of retaliatory aggression for those in the alcohol condition than for those in the non-alcohol condition. Exposure to alcohol-related cues may have primed aggressive thoughts, and thus, individuals responded more aggressive when disclosing aggressive beliefs about themselves. This priming of alcohol has been shown in previous studies to increase aggressive thoughts, supporting the current finding (e.g., Brown, Coyne, Barlow, & Qualter, 2010; Subra et al., 2010). Thus, eliciting aggressive thoughts may

influence the acceptance of general and retaliatory beliefs about aggression and alter individuals' self-perceptions. Again, alcohol-related cues did appear to influence perceptions of self-aggression, while non-alcohol related cues did not.

For the current study, it could be that gender roles are still prevalent today and that it may be necessary to consume alcohol to inhibit the pressure to conform to these roles. Likewise, this concept of inhibition could attribute to the findings in the current study that the more alcohol an individual consumed on a regular basis, the more aggressive, argumentative, mean, sexually aggressive, vulgar, and more likely to get into fight the individual expected to be when intoxicated. As a result, participants could have had the belief that they would be more aggressive toward another individual, even a female, when intoxicated, but could not overcome these gender roles when not under the influence of alcohol. Due to previous research on the influence alcohol expectancies on aggression (e.g., Chermack & Taylor, 1955; Levinson, Giancola, & Parrott, 2011), this belief pattern may be the best explanation for the findings of the current study.

Implications of this study suggest that gender differences exist between the aggression men and women display. The passage of time has not altered the general pattern that men express more physical aggression and young women express more relational aggression. Similarly, results did indicate an influence of alcohol-cues on self-perception of aggression, in that those who were primed with alcohol-related cues rated themselves as more likely to have aggressive tendencies when intoxicated. In addition, this study may suggest that participants must be sufficiently angered in order to become aggressive toward another individual. This notion would be predicted given the *frustration-aggression theory*, in that frustration leads to an aggressive response (Dollard, Doob, Miller, Mowrer, & Sears, 1939). Future studies should

examine whether frustration and anger are needed to fully support the notion that alcohol-cues prime aggressive responses. Finally, even when alcohol-cues or frustration are not sufficient to increase aggression toward a salient person, priming with alcohol cues may increase self-perceptions of aggression when alcohol has been consumed. In other words, priming with alcohol-cues may trigger acceptance of aggression when intoxicated.

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FIGURE 1  
NASTINESS RATINGS AND GENERAL AGGRESSION

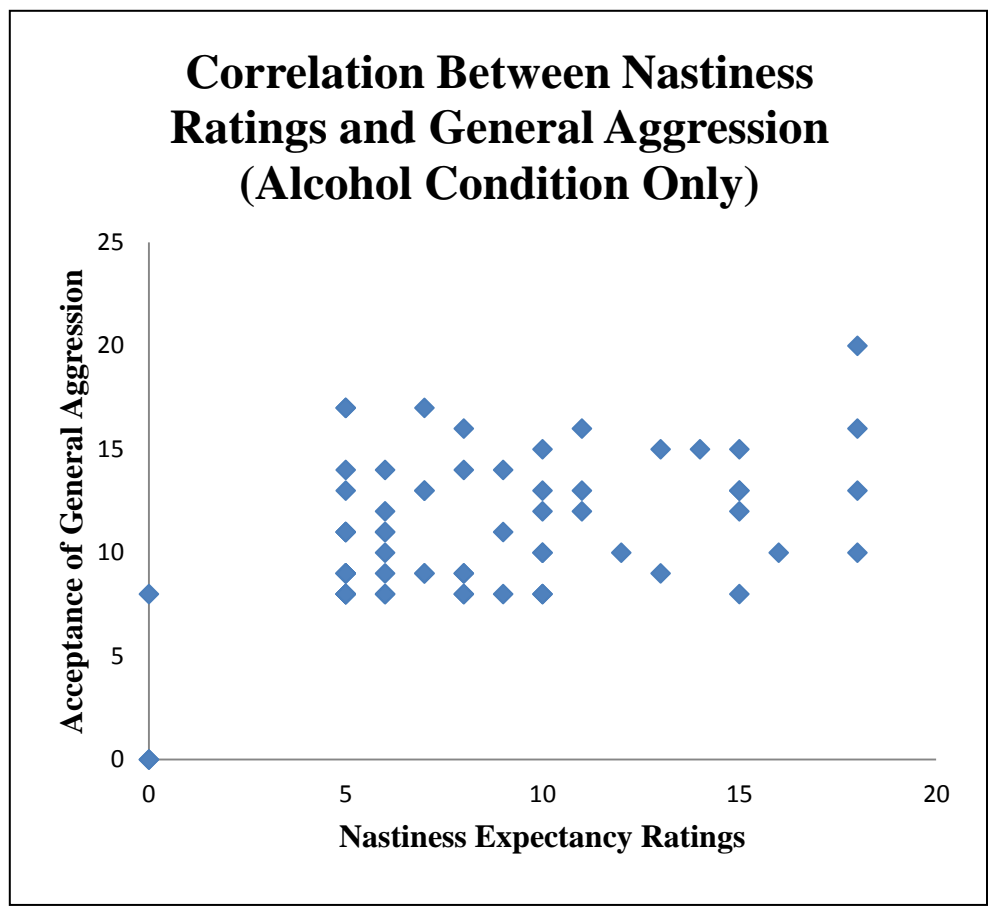


Figure 1. Scatter plot for nastiness expectancy ratings and acceptance of general aggression for the alcohol condition only. The figure illustrates that as participants expected to become nasty while intoxicated increased, the more participants had accepting belief about general aggression. Thus, as the more participants rated themselves as being more aggressive, argumentative, mean, sexually aggressive, vulgar, and more likely to get into fight when intoxicated increased, the more participants had accepting beliefs about general aggression.

FIGURE 2

## NASTINESS RATINGS AND RETALIATORY AGGRESSION

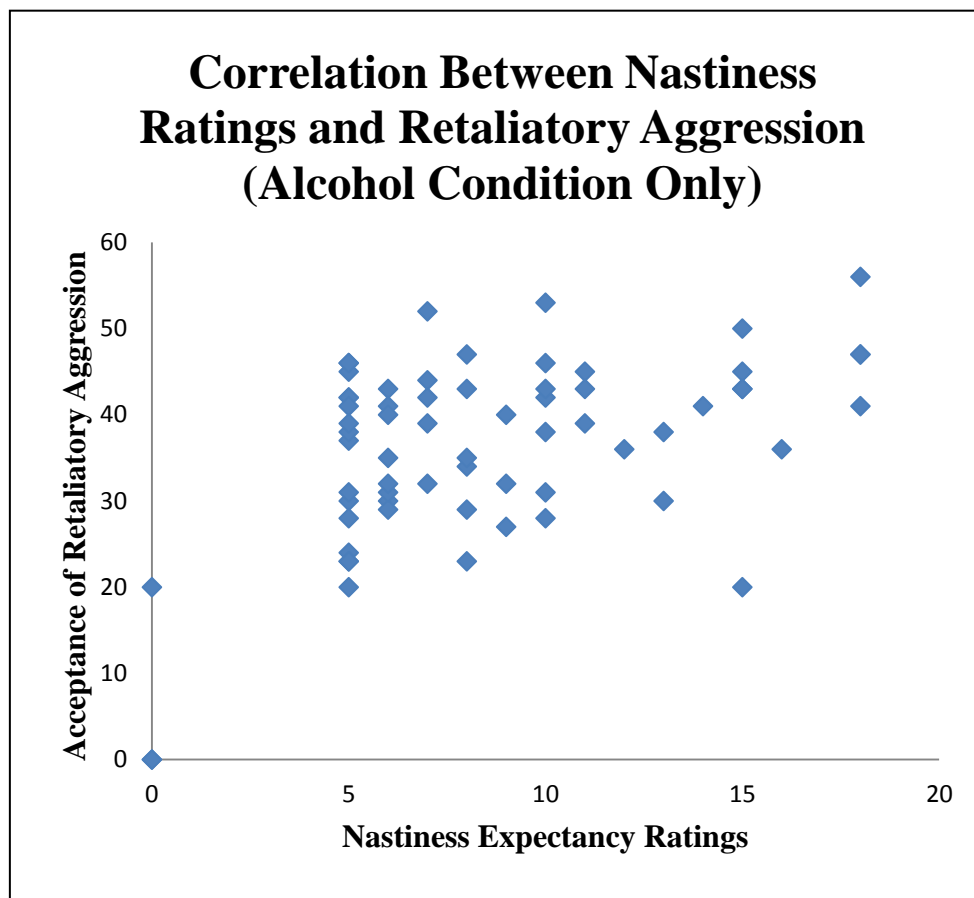


Figure 2. Scatter plot for nastiness expectancy ratings and acceptance of retaliatory aggression for the alcohol condition only. The figure illustrates that as participants expected to become nasty while intoxicated increased, the more participants had accepting belief about retaliatory aggression. Thus, as the more participants rated themselves as being more aggressive, argumentative, mean, sexually aggressive, vulgar, and more likely to get into fight when intoxicated increased, the more participants had accepting beliefs about retaliatory aggression.

FIGURE 3  
AUDIT SCORES AND GENERAL AGGRESSION

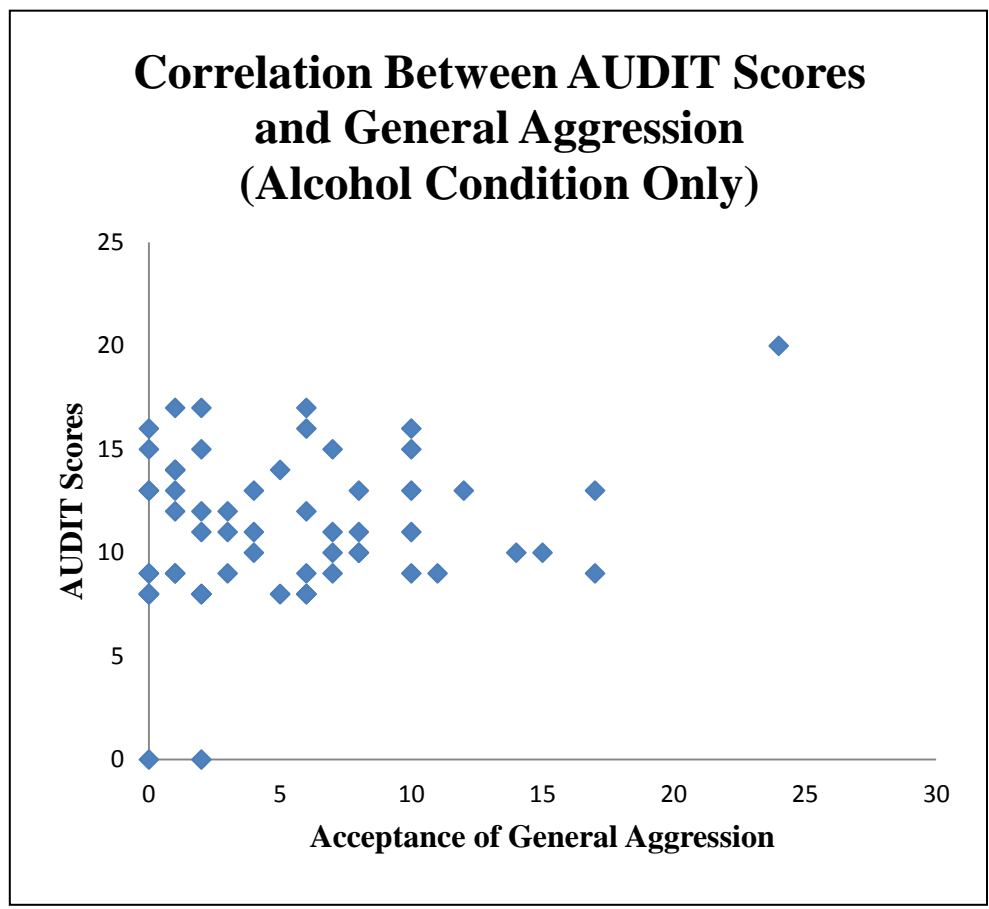


Figure 3. Scatter plot for AUDIT scores and acceptance of general aggression. The figure illustrates that as reported alcoholic drinks consumed increased, the more participants had accepting beliefs about general aggression, but only for those who viewed the alcohol-related commercial.

FIGURE 4  
AUDIT SCORES AND RETALIATORY AGGRESSION

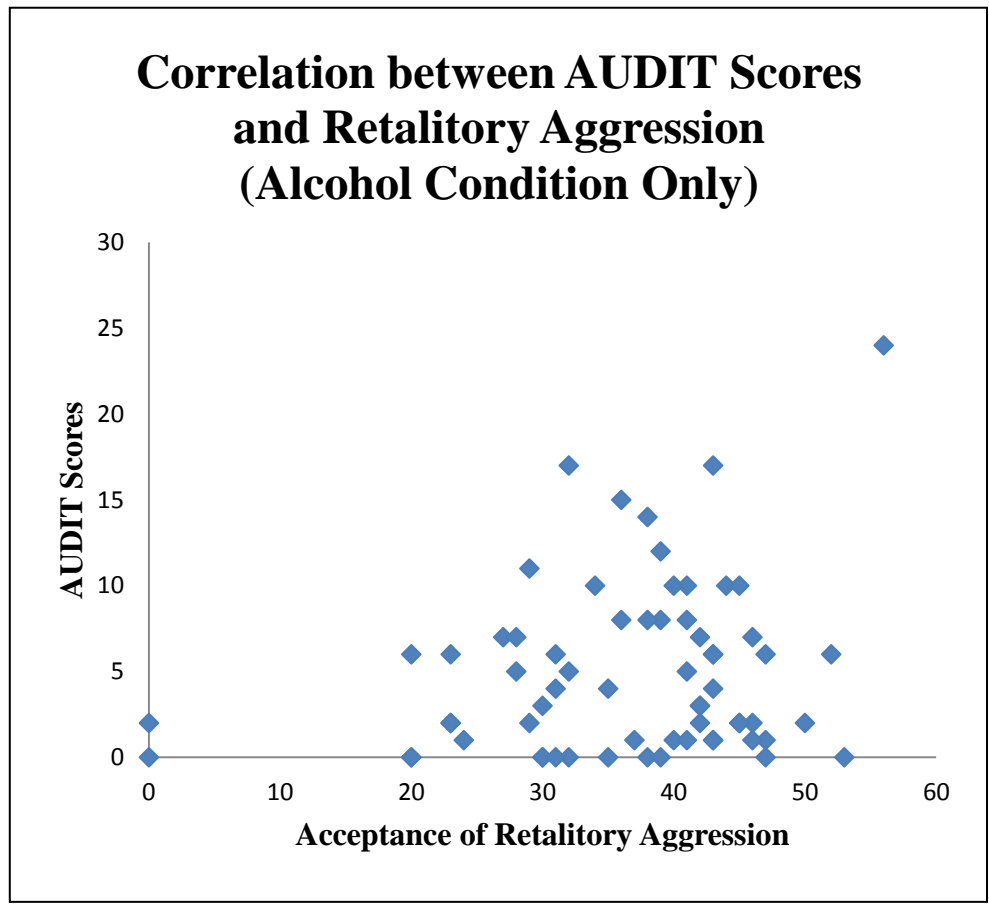


Figure 4. Scatter plot for AUDIT scores and acceptance of retaliatory aggression. The figure illustrates that as reported alcoholic drinks consumed increased, the more participants had accepting belief about retaliatory aggression, but only for those who viewed the alcohol-related commercial.

FIGURE 5  
AUDIT SCORES AND NASTINESS RATINGS

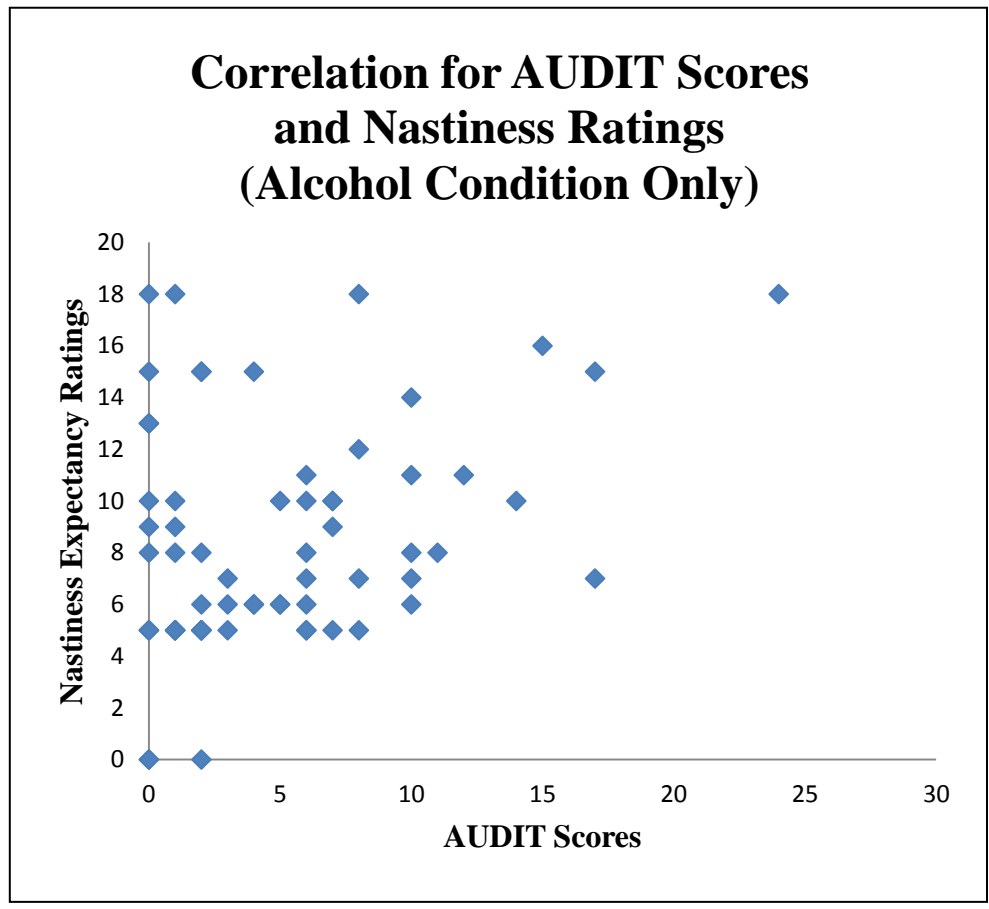


Figure 5. Scatter plot for AUDIT scores and nastiness expectancy ratings. The figure illustrates that as reported alcoholic drinks consumed increased, the more participants expected to become nasty while intoxicated, but only for those who viewed the alcohol-related commercial. Thus, among only participants who saw the alcohol commercial, as the number of alcoholic drink consumed increased, the more participants rated themselves as being more aggressive, argumentative, mean, sexually aggressive, vulgar, and more likely to get into fight when intoxicated.

## APPENDIX A

## PICTURES OF ADVERTISEMENTS

Top pictures were shown at the beginning of the commercial, while the bottom pictures were shown at the end of the commercial.





## APPENDIX B

## POSITIVE AND NEGATIVE AFFECT SCHEDULE

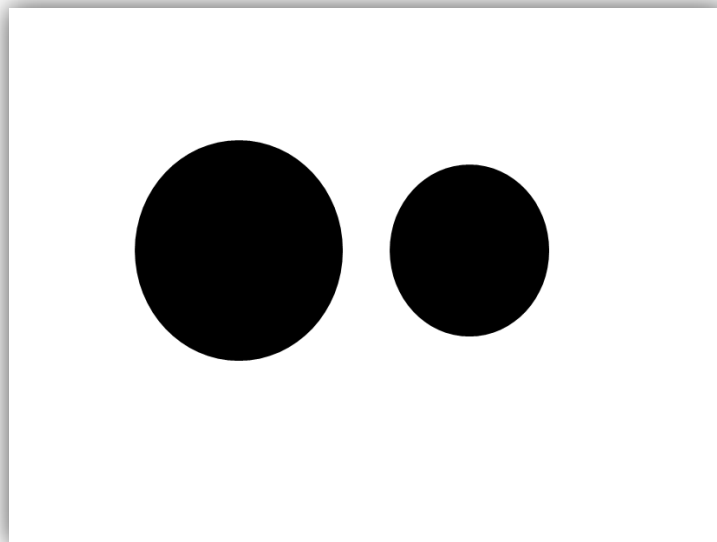
**INSTRUCTIONS:** This scale consists of a number of words that describe different feelings and emotions. Read each item and then mark the appropriate answer in the space next to that word. Indicate to what extent you have felt this way **right now**. Use the following scale to record your answers.

	1	2	3	4	5
	Very slightly	A little	Moderately	Quite a bit	Extremely
	or not at all				
_____ interested					_____ irritable
_____ distressed					_____ alert
_____ excited					_____ ashamed
_____ upset					_____ inspired
_____ strong					_____ nervous
_____ guilty					_____ determined
_____ scared					_____ attentive
_____ hostile					_____ jittery
_____ enthusiastic					_____ active
_____ proud					_____ afraid

## APPENDIX C

## COMPETITIVE NOISE-BLAST TASK

Example of larger circle on the left.



## APPENDIX D

## EXPERIMENTER EVALUATION FORM

**INSTRUCTIONS:** Please circle the number that best indicates the extent to which you **agree** with each statement. All responses will be anonymous.

1. The experimenter's overall performance during the study was poor.

Strongly

Disagree

Strongly

Agree

1

2

3

4

5

6

7

2. I would recommend this experimenter to run future studies.

Strongly

Disagree

Strongly

Agree

1

2

3

4

5

6

7

3. The researcher had an unfair advantage while playing the game.

Strongly

Disagree

Strongly

Agree

1

2

3

4

5

6

7

4. The experimenter was professional during the study.

Strongly

Disagree

Strongly

Agree

1

2

3

4

5

6

7

5. The experimenter cheated during the game.

Strongly

Disagree

1

2

3

4

5

6

7

Strongly

Agree

6. The experimenter was efficient during the study.

Strongly

Disagree

1

2

3

4

5

6

7

Strongly

Agree

7. This study was a waste of my time.

Strongly

Disagree

1

2

3

4

5

6

7

Strongly

Agree

8. I would recommend this study to other students.

Strongly

Disagree

1

2

3

4

5

6

7

Strongly

Agree

## APPENDIX E

## ALCOHOL USE DISORDER IDENTIFICATION TEST

**INSTRUCTIONS: Please circle the answer that is correct for you.**

1. How often do you have a drink containing alcohol?

Never	Monthly or less	Two to four times a month	Two to three times a week	Four or more times a week
-------	-----------------	------------------------------	------------------------------	------------------------------

2. How many drinks containing alcohol do you have on a typical day when you are drinking?

1 or 2	3 or 4	5 or 6	7 to 9	10 or more
--------	--------	--------	--------	------------

3. How often do you have six or more drinks on one occasion?

Never	Less than monthly	Monthly	Weekly	Daily or almost daily
-------	-------------------	---------	--------	--------------------------

4. How often during the last year have you found that you were not able to stop drinking once you had started?

Never	Less than monthly	Monthly	Weekly	Daily or almost daily
-------	-------------------	---------	--------	--------------------------

5. How often during the last year have you failed to do what was normally expected from you because of drinking?

Never	Less than monthly	Monthly	Weekly	Daily or almost daily
-------	-------------------	---------	--------	--------------------------

6. How often during the last year have you needed a first drink in the morning to get yourself going after a heavy drinking session?

Never	Less than monthly	Monthly	Weekly	Daily or almost daily
-------	-------------------	---------	--------	--------------------------

7. How often during the last year have you had a feeling of guilt or remorse after drinking?

Never	Less than monthly	Monthly	Weekly	Daily or almost daily
-------	-------------------	---------	--------	--------------------------

8. How often during the last year have you been unable to remember what happened the night before because you had been drinking?

Never	Less than monthly	Monthly	Weekly	Daily or almost daily
-------	-------------------	---------	--------	--------------------------

9. Have you or someone else been injured as a result of your drinking?

No

Yes, but not in the  
last year

Yes, during the  
last year

10. Has a relative or friend, or a doctor or other health worker been concerned about your drinking or suggested you cut down?

No

Yes, but not in the  
last year

Yes, during the  
last year

## APPENDIX F

## ALCOHOL EXPECTANCIES QUESTIONNAIRE

**INSTRUCTIONS:** In the next questions, we are interested in the effects that drinking alcohol has on you. In your opinion, do these effects happen to you when you drink alcohol? Please circle the number that best describes how drinking alcohol affects you. (If you do not drink alcohol, would these things happen if you were to drink enough to be “under the influence”?)

If I were to drink enough alcohol to be under the influence, I would:

	Very unlikely	Moderately unlikely	Neither	Moderately likely	Very likely
a. feel sleepy.	1	2	3	4	5
b. become talkative.	1	2	3	4	5
c. feel sad or depressed.	1	2	3	4	5
d. get aggressive	1	2	3	4	5
e. get romantic.	1	2	3	4	5
f. feel sick.	1	2	3	4	5
g. get friendly.	1	2	3	4	5
h. become unpleasantly dizzy.	1	2	3	4	5
i. find it difficult to think straight.	1	2	3	4	5
j. get into arguments.	1	2	3	4	5
k. get mean.	1	2	3	4	5
l. do things I would not do otherwise.	1	2	3	4	5
m. act vulgar.	1	2	3	4	5
n. act silly.	1	2	3	4	5
o. become sexually aggressive.	1	2	3	4	5
p. get more quiet than usual.	1	2	3	4	5

---

	Very unlikely	Moderately unlikely	Neither	Moderately likely	Very likely
q. get loud, boisterous, or noisy.	1	2	3	4	5
r. get into fights.	1	2	3	4	5
s. lose my self-control.	1	2	3	4	5
t. feel good.	1	2	3	4	5

---



## APPENDIX G

## NORMATIVE BELIEFS ABOUT AGGRESSION SCALE

**INSTRUCTIONS:** The following questions ask you about whether you think certain behaviors are WRONG or are OK. Please circle the answer that best describes what you think. Circle ONE and only one answer.

**1. Suppose a man says something bad to another man, John:**

**a) Do you think it's OK for John to scream at him?**

It's Perfectly OK      It's Sort of OK      It's Sort of Wrong      It's Really Wrong

**b) Do you think it's OK for John to hit him?**

It's Perfectly OK      It's Sort of OK      It's Sort of Wrong      It's Really Wrong

**2. Suppose a man says something bad to a woman:**

**a) Do you think it's wrong for the woman to scream at him?**

It's Really Wrong      It's Sort of Wrong      It's Sort of OK      It's Perfectly OK

**b) Do you think it's wrong for the woman to hit him?**

It's Really Wrong      It's Sort of Wrong      It's Sort of OK      It's Perfectly OK

**3. Suppose a woman says something bad to another woman, Mary:**

**a) Do you think it's OK for Mary to scream at her?**

It's Perfectly OK      It's Sort of OK      It's Sort of Wrong      It's Really Wrong

**b) Do you think it's OK for Mary to hit her?**

It's Perfectly OK      It's Sort of OK      It's Sort of Wrong      It's Really Wrong

**4. Suppose a woman says something bad to a man:**

**a) Do you think it's wrong for the man to scream at her?**

It's Really Wrong      It's Sort of Wrong      It's Sort of OK      It's Perfectly OK

**b) Do you think it's wrong for the man to hit her?**

It's Really Wrong      It's Sort of Wrong      It's Sort of OK      It's Perfectly OK

**5. Suppose a man hits another man, John:**

a) **Do you think it's wrong for John to hit him back?**

It's Really Wrong      It's Sort of Wrong      It's Sort of OK      It's Perfectly OK

**6. Suppose a man hits a woman:**

a) **Do you think it's OK for the woman to hit him back?**

It's Perfectly OK      It's Sort of OK      It's Sort of Wrong      It's Really Wrong

**7. Suppose a woman hits another girl, Mary:**

a) **Do you think it's wrong for Mary to hit her back?**

It's Really Wrong      It's Sort of Wrong      It's Sort of OK      It's Perfectly OK

**8. Suppose a woman hits a man:**

a) **Do you think it's wrong for the boy to hit her back?**

It's Really Wrong      It's Sort of Wrong      It's Sort of OK      It's Perfectly OK

**9. In general, it is wrong to hit other people:**

It's Really Wrong      It's Sort of Wrong      It's Sort of OK      It's Perfectly OK

**10. If you're angry, it is OK to say mean things to other people:**

It's Perfectly OK      It's Sort of OK      It's Sort of Wrong      It's Really Wrong

**11. In general, it is OK to yell at others and say bad things:**

It's Perfectly OK      It's Sort of OK      It's Sort of Wrong      It's Really Wrong

**12. It is usually OK to push or shove other people around if you're mad:**

It's Perfectly OK      It's Sort of OK      It's Sort of Wrong      It's Really Wrong

**13. It is wrong to insult other people:**

It's Really Wrong      It's Sort of Wrong      It's Sort of OK      It's Perfectly OK

**14. It is wrong to take it out on others by saying mean things when you're mad:**

It's Really Wrong      It's Sort of Wrong      It's Sort of OK      It's Perfectly OK

**15. It is generally wrong to get into physical fights with others:**

It's Really Wrong      It's Sort of Wrong      It's Sort of OK      It's Perfectly OK

**16. In, general, it is OK to take your anger out on others by using physical force:**

It's Perfectly OK      It's Sort of OK      It's Sort of Wrong      It's Really Wrong

APPENDIX H  
DEMOGRAPHICS

What is your gender? CIRCLE ONE    Male        Female

What is your race or ethnicity? CHECK ALL THAT APPLY

\_\_\_ African American

\_\_\_ Asian

\_\_\_ Caucasian

\_\_\_ Hispanic

\_\_\_ Native American

\_\_\_ Pacific Islander

\_\_\_ Other

\_\_\_ I prefer not to say

Age: \_\_\_\_\_ yrs

How aggressive are you, in general?

*Not aggressive at all*

*Very aggressive*

1

2

3

4

5

6

7

APPENDIX I  
PHONE SCRIPT 1

Hello

Oh hey!

Nothing much.

Oh no it's ok I'm not busy. What have you been up to?

Yeah, that sounds good.

No. That day doesn't work.

Ok that will be fine. Is 5:00 ok?

Yeah I can bring it.

Ok.

Alright.

Bye.

APPENDIX J  
PHONE SCRIPT 2

Hello?

Oh hey! What are you up to?

Yeah, that sounds like fun!

We were thinking 5:00.

Ok. Yeah.

Yeah.

Ok. Who all is going to be there?

Ok, alright.

Yeah. Ok.

Bye.

APPENDIX K  
COMPETITIVE NOISE-BLAST TASK WINS/LOSES

Example of win/lose screen

**YOU WIN!**

Give your opponent a noise blast by pressing the numbers on the keypad.

After you give the noise blast, please hit the SPACE BAR to move to the next round.

**YOU LOSE!**

Give your opponent a noise blast by pressing the numbers on the keypad.

After you give the noise blast, please hit the SPACE BAR to move to the next round.