

# DO ANGRY WOMEN CHOOSE ALCOHOL?

MORRISON, NOEL & OGLE, DO ANGRY WOMEN CHOOSE ALCOHOL?  
*ADDICTIVE BEHAVIORS* (2012)

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# ABSTRACT

- Researchers hypothesized that the emotion of anger in women increased their likeness to drink alcohol.
- With little research to support this hypothesis, researchers selected 30 college-aged women, half of whom were put into an anger provoking condition(pestered/annoyed for 8 minutes) and the other half which were put into a non-anger provoking condition.
- After being conditioned, all the participants were brought together for a tasting which they could choose between ginger ale or placebo beer.
- The provoked group chose to drink beer more than the non-provoked group did, with no differences in ginger ale consumption between the two groups, which creates a causal relationship between young women's anger and their choice to consume alcohol.



# INTRODUCTION

- 29% of relapsers during alcohol treatment said anger was a motivating factor in choosing to drink
- Anger management is said to be a “key component” for those seeking treatment for drinking and more so for women specifically
- There are reports of women choosing alcohol to relieve negative emotions such as anger
- Before this study, most studies involving alcohol and anger involved showing how drinking lead to aggression and not the opposite, aggression leading to drinking.
- These previous studies do not address whether a person would drink, or drink more in response to anger.
- Many studies included both men and women rather than just women and this did not give accurate results because men and women have different triggers for anger.

# INTRODUCTION

## PREVIOUS STUDIES

- One study involved college females, some were given frustrating unsolvable problems while others were given problems that were solvable, the group of females with the unsolvable problems scored higher on a hostility scale and in turn drank more alcohol in a taste-task.
- A separate study involved male and female adults who engaged in limited interactions in a lab setting with random children. Some of the children were labeled “normal” and the others were labeled “deviant”. The participants who were interacting with the “deviant” children responded with higher negative emotions who then consumed more alcohol than the participants who interacted with the said to be “normal” children.
- Those studies were not helpful with concluding whether anger was the only trigger for consuming alcohol.
- There is one study that discusses the effects of anger on alcohol consumption. This study included men and women who were intentionally provoked. One group was allowed to retaliate and the other group was not allowed to retaliate. The group that was NOT allowed to retaliate drank significantly more wine. This was said to be because of the unrelieved anger.

# INTRODUCTION

## PRESENT STUDY

- The study that we will discuss tests the hypothesis that anger determines alcohol consumption, specifically for women. The expected outcome of the study was that the women who were provoked would choose the alcoholic beverage at the end of the test when given the option, whereas the women without provocation would choose a nonalcoholic beverage.



# METHODS

## Participants

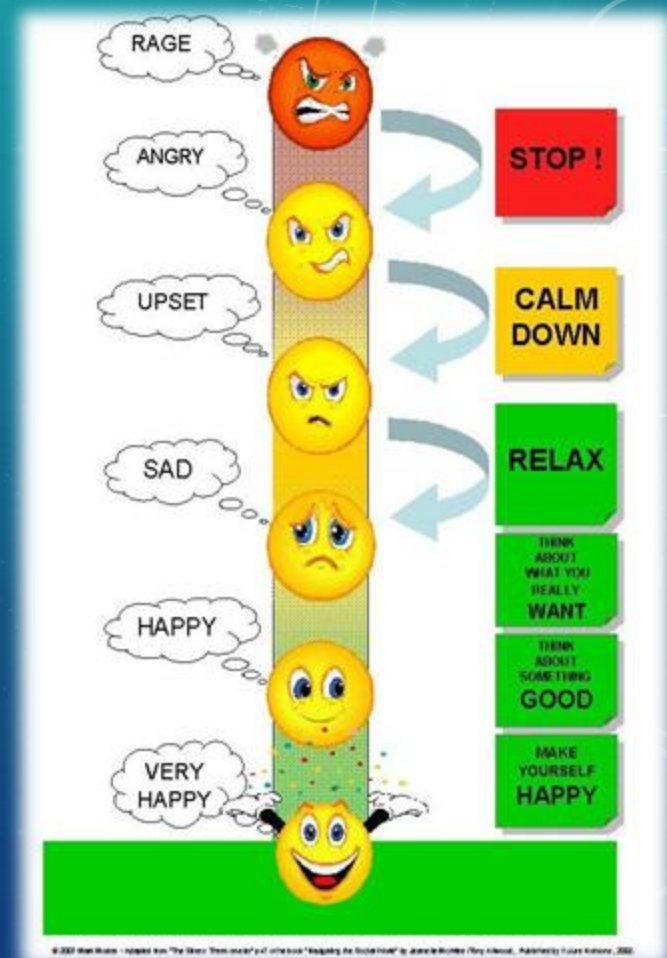
- There were 30 participants for the study. They were all women from a small southeastern US city with an average age of 22.5 (SD=2.0, range=21-30) and spent an average of 15.87 (SD=1.19) years receiving an education.
- Most of the women were Caucasian, (n=29) and the majority of them were full time or part time university students. (n=24)
- Two participants were excluded from the study, leaving a final total of 28.
- One of the participants had to be excluded because she detected deception during the anger provocation phase of the study.
- The other was excluded because she appeared to qualify for an alcohol dependence diagnosis, due to self-report of past withdrawal symptoms.

# METHODS

- Participants self-reported drinking during the previous 90 days, as well as past and current alcohol problems using a Quantity-Frequency Index. (how much and how often alcohol was consumed)
- The average drinking days out of the past 90 was 21, with a standard deviation of 7.8 days.
- Emotions were assessed using the Multiple Affect Adjective Checklist-Revised, as well as a 7 point Linkert-type Feeling thermometer.
- The MAACL-R is a list of 130 adjectives describing emotions.
- The objective is to assess how the participant feels in the moment, and the adjectives checked (or unchecked) combine to yield four main scores composed of: hostility, anxiety, depression, and positive effect

The MAACL-R as well as a "Feeling Thermometer" were used to assess the participants emotional states prior to the experimental manipulation, and then once again immediately after (prior to administering the taste task).

The Feeling Thermometer asked the participants to rate themselves on a scale of 1-7 on the following five emotions: Calm, angry, contented, happy, anxious



# METHODS

Following the taste task participants completed the 120 question Alcohol Expectancy Questionnaire. The AEQ is a widely used and empirically validated measure of alcohol expectancies with six subscales:

- Global positive changes
- Sexual enhancement
- Social and physical pleasure
- Social assertiveness
- Relaxation
- Arousal/Aggression



There was a high internal consistency within these subscales, with the lowest having a Cronbach's alpha (lower bound estimate of reliability) of .75.



# METHODS

## Recruitment

- Participants were recruited through advertisements in the local newspaper and flyers distributed throughout campus and to local businesses.
- Instead of being paid for participation, the women's names were entered into a drawing to win \$250.00 at the completion of the study.
- Participants were required to be 21 or older and in good health, with no risk of pregnancy or other physical or psychological conditions that could be contraindicators to administering alcohol.
- When they were called in for a pre-experiment appointment, they were reminded that they would be given beer as part of the study. (This weeded out the abstainers and non-beer drinkers)
- They were required to abstain from drugs and alcohol for 24 hours, as well as tobacco for 30 minutes, prior to the experimental session.

# METHODS

- 7 female undergraduate Psychology majors (aged 21-31) assisted as confederates in the study.
- 5 were Caucasian, 1 was African-American, and 1 was Asian-American.
- The two experimenters (also undergraduate Caucasian females) and the rest of the team were overseen by the Graduate research coordinator, who did not interact with the participants until their sessions were complete.

# METHODS

## Initial Data Collection

- When the participants arrived at the laboratory, a confederate was placed with them. She would then pretend to be a fellow "subject".
- Experimenter #1 seated them across from each other in a small room with a one-way window.
- Each participant (as well as the confederates pretending to be participants) completed a demographic inventory, the QFI, baseline MAACL-R as well as the "Feeling thermometer"
- All of them took a breathalyzer assessment prior to the study, ensuring they had started with a blood alcohol level of 0.





# METHODS

## Anger Provocation Manipulation

- Participants were assigned randomly to one of two experimental conditions: **Provocation** (n=15) and **Non-Provocation** (n=15)
- Important note: There were no differences between these groups on initial measures.
- Instructions given to the participants informed them that they would be in two experiments, and the first study would focus on "examining problem solving strategies and female perceptions of different situations".
- They were told the second study was a taste testing task.
- Experimenter #1 then gave each "subject" (both the participant and the confederate) a list of anagrams and a strict time limit of 8 minutes to solve them.
- To motivate them further, they were told that for each correct anagram they would have their name entered for the \$250.00 cash lottery prize at the end of the study



# METHODS

- Experimenter #1 left the room for the 8 minutes, leaving the confederates and participants facing each other at a table with pencils and clipboards.
- In the **Provocation** condition, anger was induced by frustration (deliberately providing them with unsolvable anagrams) and requiring the confederate to be annoying and condescending during the task.
- The confederate "solved" her list of anagrams during the first 4 minutes, repeatedly making tapping noises and commenting on her own fast progress saying things like "These are so easy!"
- To throw a little extra fuel on the fire, a kitchen timer was set right next to the participant that made loud ticking noises continuously for the 8 minutes.



# METHODS

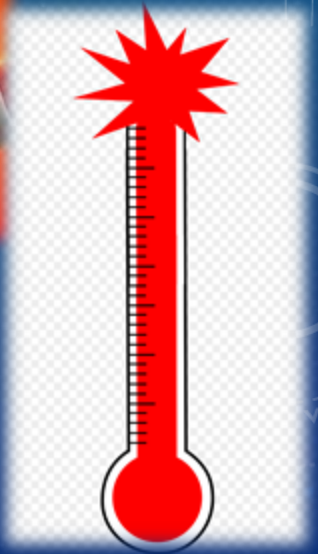
- For the next 4 minutes, the confederate sat with her completed anagrams, waiting for the participant to finish.
- During this time, they would taunt the participants at pre-selected time intervals. ("Do you think you're ever going to get done with those?") with the intensity of the taunts escalating until the end of the 8 minutes.
- Note: There was no name calling or profanity involved, and the confederates used the exact same wording including even the same hand gestures, since they were following the same script. (and at the same time intervals)
- To verify that each confederate followed the protocol, Experimenter #1 and the Research Coordinator observed the interactions from behind the one-way window.





# METHODS

- During the Provocation condition one of the participants correctly guessed aloud that the confederate was not a real participant, and had to be excluded from the study. (Although the confederate still did succeed in provoking an anger response from her)
- Interestingly, three of the other participants during their provocation conditions stated loudly that they DID in fact complete their anagram puzzle (despite it being unsolvable) before the 8-minute mark concluded.
- In each of these conditions, the Research coordinator terminated the session early (each around the 7-minute mark) due to signs of emotional distress in the participants. (flushed complexion, clenched jaws, etc.)
- The participants reported greatly increased anger in the post assessment. One participant reported a 6-point jump on the 1-7 "emotional thermometer" scale.
- Even though they did not last the full 8 minutes, these three still had their data included in the final study since they had not detected the deception and were "indeed, quite angry".



# METHODS

- By contrast, in the **non-provocation** group had a list of relatively simple anagrams, a quiet and neutral confederate who took the whole 8 minutes to solve her puzzle, and no ticking timer.
- In both conditions, after 8 minutes Experimenter #1 returned to the room and announced time was over and collected the anagrams.
- Participants and confederates in both conditions then repeated the MAACL-R and Feeling thermometer tests.





# METHODS

## Drinking Behavior

- Drinking following the provocation was assessed under the guise of a separate experiment.
- Participants were told they would now be in a separate study with a second new experimenter.
- They were told Experimenter #2 was testing "women's perceptions of the tastes of different beverages".
- Both participants and confederates were asked to take place in the study, although they were switched around and seated at tables on the other side of the room. (to try to prevent social influence on the participant's drinking)
- Experimenter #2, who was blind to what condition each participant was in, gave four chilled beverages in opaque plastic cups to the participants (as well as similar ones to the confederates)





# METHODS

- 2 of these drinks were labeled "Beer" and the other 2 were labeled "Ginger Ale" (although the beer was non-alcoholic)
- They were told they had 20 minutes to label each drink according to a list of taste related adjectives, and then that they could help themselves if they finished before time was up.
- "Finish any or all of the beverages you would like" is what they were instructed before Experimenter #2 left the room.
- After 20 minutes, she returned to collect the taste rating sheets, as well as any remaining beer or ginger ale.
- In the observation room, the Research Coordinator measured what was remaining of each participant's beverages (in ml) and subtracted that from the initial amount to determine how much of each drink each participant had consumed.





# METHODS

- During this time, the participants were asked to complete their Alcohol expectancy questionnaires.
- NOTE: While realizing that post hoc measurements of expectations might be a limiting factor, it was decided to distribute this after the taste task instead of before to avoid drawing suspicion from the participants about the true nature of the experiment.

Following this, a debriefing took place with three primary objectives:

1. Assess the effectiveness of the deceptions
2. Address any lingering emotional distress felt by the participants
3. Help the participants understand the importance of the research and enlist them as "research partners" to help protect the integrity of the experiment.



# METHODS



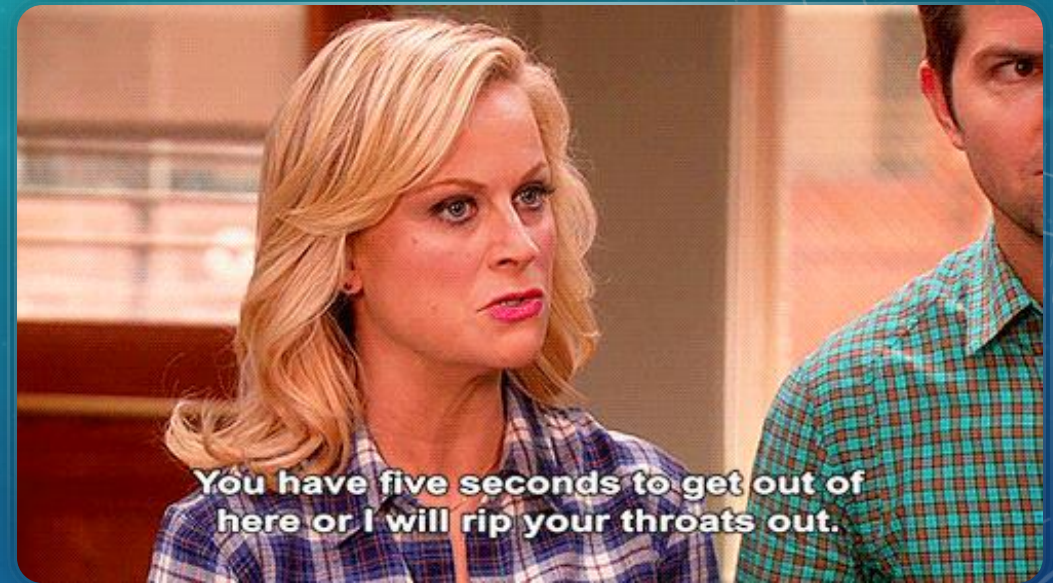
- The researchers took great care to explain the purpose and details of the experiment to the participants, and validate their feelings of frustration.
- The confederates came back into the room and apologized for their annoying behavior.
- By the time they all left, the participants reported no longer feeling negative emotions.
- They all agreed to keep their experiences confidential until the study was completed (to avoid risk of damaging the confederate's credibility)
- All of them were entered for the \$250 lottery prize, awarded at the end of the study



# RESULTS

## ○ Verification of Anger Provocation

- Participants in the Provocation condition reported higher MAACL-R hostility scores ( $M=3.14$ ,  $SD=2.88$ ) than those in non-Provocation condition ( $M=0.36$ ,  $SD=0.63$ ). Also provocation participants had higher Feeling Thermometer anger scores than non-provocation participants.



# RESULTS

## ○ Beverage Consumption

- Participants in Provocation condition consumed an average of 170.0 ml of placebo beer and 181.79 ml of ginger ale.
- Non-provocation participants consumed a mean of 120.07 ml of placebo beer and 199.5 ml of ginger ale.
- The results of testing the effects of anger manipulation would lead to consumption of more placebo beer was significant in those women in Provocation
  - The same test was repeated using ginger ale, the results were not in fact significant.

# RESULTS

- **Beverage Consumption**

- To assess the association between expectancies and drinking a bivariate correlation revealed a significant positive correlation between assertiveness and "beer" consumed.
- The Provocation women believed alcohol would make them more assertive the more they drank ( $r = .54$ ;  $p < .05$ ).





# DISCUSSION

## *Anger provocation manipulation*

- Manipulation significantly increased women's ratings of anger and hostility
- Ratings of anxiety, depression, calm, happiness did not appear to change on the MAACL-R
- Shows that group differences in drinking behavior were due to anger and not to diffuse negative affect (such as stress relief)
- Gender-specific manipulation important in the study of women's drinking behavior?



# DISCUSSION

## *Group differences in beverage consumption*

- Provocation women consumed more "beer" than non-provocation women
- Evidence of anger as a determinant for alcohol consumption
- This study is consistent with similar studies such as *Ciesla et al., 2011*; *Lonczak et al., 2007* which suggests an association between anger and alcohol consumption and *Marlatt & Gordon, 1985* which studies anger as a reason for relapse
- Findings support the importance of including anger management in women's alcohol treatment programs





# DISCUSSION

*Specific association between expectation and "beer" consumption*

- Expectation appeared to "play a role in the woman's decision to drink when she was provoked."
- It appears the more women felt that drinking the beer would make them assertive drank more when provoked
- Perhaps they thought the alcohol would allow them to "stand up" to the provoker
- "Conversely, anger (tension) reduction expectancies did not seem to be associated with drinking under these circumstances" (based of their response to the MAACL-R)





# DISCUSSION



## *Limitations*

- Used non-alcoholic beer rather than an actual alcoholic beverage
- No one reported suspicion, but conclusions must be made about women's desire to consume alcohol rather than actual alcohol consumption
- Hypotheses not given a fair test because subjects were assessed after "drinking" which might have changed their assessment (made them more relaxed) No baseline
- Needed more participants to have more power
- Several provocation methods were used, it's unclear if some were better than others
- Not very diverse sample

# DISCUSSION



## *Future directions*

- Study demonstrated that women will drink more "alcohol" when they believe it will make them more assertive
- But how exactly anger affects drinking is still unclear
- Would results be the same with a more diverse sample?
- Gender-specific alcohol expectations may play a role and should be considered
- Similar studies should be done when real alcohol is consumed to see the effect

# REFERENCES

- Biaggio, M. (1989). Sex differences in behavioral reactions to provocation of anger. *Psychological Reports*, 64, 23–26.
- Brown, S., Christiansen, B., & Goldman, M. (1987). The alcohol expectancy questionnaire: An instrument for the assessment of adolescent and adult expectancies. *Journal of Studies on Alcohol*, 48, 483–491.
- Cahalan, D., Cisin, I., & Crossley, H. (1969). *American drinking practices*. New Brunswick, NJ: Rutgers University Press.
- Ciesla, J., Dickson, K., Anderson, N., & Neal, D. (2011). Negative repetitive thought and college drinking: Angry rumination, depressive rumination, co-rumination, and worry. *Cognitive Therapy and Research*, 35, 142–150.
- Conger, J. (1958). Perception, learning and emotion: The role of alcohol. *The Annals of the American Academy of Political and Social Science*, 315, 31–39.
- Dimeff, L., & Marlatt, G. A. (1995). Relapse prevention. In R. K. Hester, & W. R. Miller (Eds.), *Handbook of alcoholism treatment approaches: Effective alternatives* (Second Edition). Boston, MA: Allyn and Bacon.
- Frodi, A. (1977). Sex differences in perception of a provocation, a survey. *Perceptual and Motor Skills*, 44, 113–114.
- Frodi, A. (1978). Experimental and physiological responses associated with anger and aggression in women and men. *Journal of Research in Personality*, 12, 349–355.
- Frodi, A., Macaulay, J., & Thome, P. (1977). Are women always less aggressive than men? A review of the experimental literature. *Psychological Bulletin*, 84, 634–660.
- Giancola, P., Levinson, C., Corman, M., Godlaski, A., Morris, D., Phillips, J., et al. (2009). Men and women, alcohol and aggression. *Experimental and Clinical Psychopharmacology*, 17, 154–164.



# REFERENCES CONTINUED

- Goldman, M., Brown, S., Christiansen, B., & Smith, G. (1991). Alcoholism and memory: Broadening the scope of alcohol-expectancy research. *Psychological Bulletin*, 110, 137–146.
- González-Prendes, A. (2008). Anger-control group counseling for women recovering from alcohol or drug addiction. *Research on Social Work Practice*, 18, 616–625.
- Grover, S., & Thomas, S. (1993). Substance use and anger in mid-life women. *Issues in Mental Health Nursing*, 14, 19–29.
- Harris, M. (1993). How provoking! What makes men and women angry. *Aggressive Behavior*, 19, 199–211.
- Harris, M. (1994). Gender of subject and target as mediators of aggression. *Journal of Applied Social Psychology*, 24, 453–471.
- Higgins, R., & Marlatt, G. A. (1973). Fear of interpersonal evaluation as a determinant of alcohol consumption in male social drinkers. *Journal of Abnormal Psychology*, 6, 644–651.
- Lee, D., Mendes-de-Leon, C., & Markides, K. (1988). The relationship between hostility, smoking and alcohol consumption in Mexican Americans. *International Journal of the Addictions*, 23, 887–896.
- Leibsohn, M., Oetting, E., & Deffenbacher, J. (1994). Effects of trait anger on alcohol consumption and consequences. *Journal of Child and Adolescent Substance Abuse*, 3, 17–32.
- Litt, M., Cooney, N., & Morse, P. (2000). Reactivity to alcohol-related stimuli in the laboratory and in the field: Predictors of craving in treated alcoholics. *Addiction*, 95, 889–900.
- Lonczak, H., Neighbors, C., & Donovan, J. (2007). Predicting risky and angry driving as a function of gender. *Accident Analysis and Prevention*, 39, 546–549.
- Lubin, B., Van Whitlock, R., Reddy, D., & Petren, S. (2001). A Comparison of the short and long forms of the Multiple Affect Adjective Checklist—Revised (MAACL-R). *Journal of Clinical Psychology*, 57, 411–416.
- Maisto, S., Ewart, C., Connors, G., Funderburk, J., & Krennek, M. (2009). Use of the social competence interview and the anger transcendence challenge in individuals with alcohol use disorders. *Journal of Behavioral Medicine*, 32, 285–293.

# REFERENCES CONTINUED

- Marlatt, G. A., Demming, B., & Reid, J. (1973). Loss of control drinking in alcoholics: An experimental analogue. *Journal of Abnormal Psychology*, 81, 233–241.
- Marlatt, G. A., & Gordon, J. (1985). *Relapse prevention: Maintenance strategies in the treatment of addictive behaviors*. New York: Guilford Press.
- Marlatt, G. A., Kosturn, C., & Lang, A. (1975). Provocation to anger and opportunity for retaliation as determinants of alcohol consumption in social drinkers. *Journal of Abnormal Psychology*, 84, 652–659.
- Morissette, P. (1994). At risk alcohol consumption habits of female professionals and white collar workers. *Employee Assistance Quarterly*, 10, 47–62.
- National Institute of Alcohol Abuse and Alcoholism (NIAAA) (1989). *Guidelines for ethanol administration with humans*.
- Noel, N., & Lisman, S. (1980). Alcohol consumption by college women following exposure to unsolvable problems: Learned helplessness or stress induced drinking? *Behaviour Research and Therapy*, 18, 429–440.
- Pelham, W., Lang, A., Atkeson, B., Murphy, D., Gnagy, E., Greiner, A., et al. (1997). Effects of deviant child behavior on parental distress and alcohol consumption in laboratory interactions. *Journal of Abnormal Child Psychology*, 25, 413–424.
- Schunemann, H., Griffith, L., Stubbing, D., Goldstein, R., & Guyatt, G. (2003). A clinical trial to evaluate the measurement properties of two direct preference instruments administered with and without hypothetical marker states. *Medical Decision Making*, 23, 140–149.
- Tedeschi, J., & Quigley, B. (1996). Limitations of laboratory paradigms for studying aggression. *Aggression and Violent Behavior*, 2, 163–177.
- Walk, R. (1956). Self-ratings of fear in a fear-invoking situation. *Journal of Abnormal and Social Psychology*, 52, 171–178.
- Zuckerman, M., & Lubin, B. (1986). *Multiple Affect Adjective Check List—Revised*. San Diego, CA: EdITS.