

Gender Specificity of Aggressive Behavior: Interactions with Cynical Hostility

Objective

Though behavioral measures of hostility and aggression have been significantly linked to men and heart disease, they have not consistently predicted the relationship between hostility and aggression in women and heart disease. However, gender differences in display of aggression are poorly understood. Current aggression models may be biased towards men. In order to better understand the role aggressive behavior and hostility play in the development of heart disease in women, it is the object of this project to gain a better understanding of gender differences in aggressive behavior.

Background

The degree to which men and women differ in their expression of behavioral aspects of hostility has received relatively little attention in empirical research. Although there is considerable evidence linking hostility and aggression to males, it is poorly understood how women express different behavioral aspects of hostility. One well-documented theory of gender differences in aggression expression is the theory that men exhibit more forms of direct aggression, while women exhibit more forms of indirect aggression. However, little research proposes a model accounting for these differences. Current literature proposes two possible models, the threat model that states aggressive behavior is determined by perceived or actual threat, and the social sanction model stating aggressive behavior is determined by social expectations.

In examining the role of each of these mechanisms plays in determining the exhibition of aggression, it is important to consider the gender of the target of aggression, as in each model the gender of the target affects the type of aggression displayed. Richardson et al. examined gender affects of the aggressor and the target of aggression, using the Richardson Conflict Response Questionnaire [RCRQ Green et al., 1996], a self-report measure, to measure direct and indirect aggression. The study found that though females reported more indirect aggression than direct aggression, males and females did not express differences in indirect aggression. Furthermore, he found no difference in the amount of direct aggression females delivered to targets of each gender, and failed to find any target gender for indirect aggression. These results fail to validate either proposed model. However, given the self-report nature of the study, there is concern about the validity of the results. Thus more research is needed exploring gender differences in the aggressor and the target.

Although both models provide compelling insight into the mechanism behind the differences, they fail to explore evolutionary aspects of gender difference, a feasible explanation that has been ignored. Similar to Shelly Taylor's *Tend-and-Befriend* model of stress reactivity, is the evolutionary model I propose for gender differences in aggression patterns. Because of the social structure of ancient society, the need for highly intense directly aggressive actions developed in men, but not in women. Furthermore, the survival of the human race depended on women's lack of direct aggression. The reason for this is two-fold. First, due to the size differences between men and women, aggressing directly against men posed too large of a threat for women. Thus, in order to ensure their own survival it was imperative for women to refrain from acting aggressively towards men. By aggressing indirectly it becomes difficult for the target of the aggression to realize they are the target of an aggressive attack, making it difficult for them to retaliate. Second, the traditional female role as the primary caregiver made women responsible for the survival of her children. Direct aggression would be contradictory to their role as the child's protector. Thus in order to ensure the survival of the human race, nature evolved different coping mechanisms for women to the sympathetic and hormonal responses of stress, resulting in the display of indirect aggression. If this model is true, it can be expected that women, when aggressing against other women will exhibit greater degrees of direct, while exhibiting forms of indirect aggression against men and children.

In an attempt to empirically demonstrate the relationship between gender and indirect and direct exhibitions of aggression, a data set was used to examine aggressive behavior as a function of gender and individual differences in dispositional hostility. Using a modified Buss-aggression (CRT) task, the intensity and duration of retaliatory responses were collected under 3 levels of increasing provocation. 17 women and 46 men were classified as High or Low hostile on the basis of their scores on the Cook-Medley Inventory (Ho). Main effects of Gender and Ho were obtained with men and High Ho Subjects delivering more intense noise blasts than women and Low Ho Subjects respectively ($X= 6.9, 6.3, 4.4, 5.2$, $p's <.001$). A positive association of hostility and retaliatory intensity was true only for men. Although women tended to deliver less intense retaliatory noise blasts to an opponent, the duration of the blasts they set were consistently greater than those set by men ($X 332.3, 101.5$, $p's <.001$) independent of the level of provocation. Cynical hostility was positively related to retaliatory duration at low levels of provocation among women.

Aggressive behavior was found to be a function of gender, cynical hostility, the type of retaliatory responding, and the level of provocation. These findings not only suggest the need to redefine measures of hostility and aggression, they suggest that women are different in their behavioral manifestations of aggression. Based on this data I propose to further study the interaction between gender and aggression by examining the affect of the gender of the target of aggression.

Hypothesis

In accordance with the hypothesized evolutionary model for gender differences in aggression, I expect women to exert longer, less intense blasts than men. Additionally women are expected to deliver blasts of higher intensities when another woman is the target of the aggression, and longer durations of blasts for men and children.

Methods of Proposed Research

Subjects and Screening: The study will include 40 healthy subjects: 20 men and 20 pre-menopausal women, ranging in age from 18-35. Subjects will be screened for any serious medical ailments, the use of medication that affect the cardiovascular system, or that affect mood. Subjects will be initially screened by phone, and again during their first laboratory session, to ensure their eligibility.

Research Design: This will be a 2 X 2 design in which gender is crossed with hostility level, resulting in four groups of 10 subjects each: high-hostile males, high-hostile females, low-hostile males, and low hostile females. Subjects will serve as their own controls, each participating in two different conditions: a male target of aggression and a female target of aggression. Experiment conditions will be counterbalanced. During each laboratory session behavioral, mood, and cardiovascular measures will be assessed using the same inventories.

Experimental Procedures: Subjects will meet at the laboratory during the afternoon (2:00- 4:00). During the first lab session, subjects will first participate in an orientation session in which the experimental protocol and all experimental procedures are fully explained. Written informed consent will be obtained after subjects read the consent form and all questions are answer. Subjects will leave the session with a copy of the consent form.

Once informed consent is obtained, subjects will be asked to complete the Cook-Medley questionnaire and well as the Buss-Durkee Hostility Inventory, in order to determine hostility level. In order to assess arousal, subjects will next be fitted with heart rate and blood pressure measuring equipment, and resting heart rate and blood pressure will be recorded. Subjects will then be asked to participate in a computerized competitive reaction time task, in which participants will be told they are playing against an 'opponent' in the next room. The object of the game is to determine who can react more quickly to a red

signal presented on a computer screen placed in front of them. The person who 'loses' will receive a noise blast, of an intensity set by their opponent. Noise level blasts will range from 60 dB to 100 dB. The task will consist of 25 trials, all of which will allow the participant to set a new intensity. After each of the trials, participants will be able to see an image of their opponent and the intensity of the blast they set. The intensity of the blast delivered as well as the duration of the blast will be recorded.

Individual difference measures: The level of hostility of each participant will be assessed from the administration of three inventories assessing trait hostility (Cook-Medley Hostility Scale and the Buss-Durkee Hostility Inventory).

Analysis of Laboratory Data: The effects of target gender will be examined as a repeated-measures factor in an analysis of variance (ANOVA) of the gender, cardiovascular and trait hostility variables.

1. For the analysis of the behavioral data, the basic design will be: 2 Target Gender (male/female) by 2 aggressor gender (males/females) by 2 Hostility Conditions (High/Low). Intensity and duration will be analyzed separately, according to mean score differences across conditions. Overall, I predict men to deliver blasts of higher intensity than females, while females deliver blasts of a longer duration than males. I also expect there to be an interaction between the blast intensity and the gender of the target, with subjects delivering more intense blast to members of their own sex.
2. Analyses of cardiovascular data will be analyzed similar to that described above. Heart rate and blood pressure will be analyzed separately, according to an initial baseline and reactivity scores (change from baseline to level during the behavioral challenge). I predict that high-hostile males aggressing against other males will have the greatest cardiovascular reactivity, followed by high-hostile females aggressing against another female. Furthermore, I expect male's intensity scores to be positively correlated with cardiovascular reactivity, and females duration scores to be positively correlated with cardiovascular reactivity.

Sample Size Considerations:

The proposed study is designed to explain the effect gender of the target and gender of the aggressor has on aggression. Sample sizes were chosen based on estimates of power adequate to detect significant differences based on a alpha level of .05.

Significance

Hostility and aggression have been linked to heart disease in men, however the role they play in predicting heart disease for women is not well understood. This is perhaps due to the lack of knowledge on the mechanisms behind the behavioral display of aggression by women. Once it is understood how women display aggression, we will be able to examine the effects of aggression and hostility in women.

Responsibilities

It will be my responsibility to continue reviewing the literature pertaining to gender differences in aggression, recruit all subjects, run subjects, analyze and interpret data, and report findings.

Timeline

September- December

Research literature on gender differences in aggression

Design Study

Submit proposal for IRB Review

January - March

Begin subject recruitment

Run subjects

Input data

April - May

Analyze and Interpret data

Report findings

Itemized Budget

Item	Cost
Compensation for human subjects	\$600
First session (\$7 X 40 subjects)	
Second session (\$8 X 40 subjects)	
Flyers for subject recruitment	\$50
Reference Materials	\$50
Computer supplies (eg. Disks)	\$50
Lab equipment costs	\$150
Presentation Materials	\$50
Mileage	\$50
Total	\$1000

Personal Statement

At the age of ten, I was rendered helpless, with no knowledge of CPR, as I witnessed my grandmother suffer a severe myocardial infarction resulting in her death. In order to cope with her passing, I learned CPR, a skill that I would unfortunately have to use to save my brother's life six years later. Coupled, these two traumatic events have shaped my career and research interests and goals. Initially, interested in the treatment of cardiac arrests, I completed a 150 hour internship under the Director of the Pediatric Intensive Care Unit at the Children's Hospital of Orange County to prepare myself for medical school. However, upon realizing that heart disease is not only the leading cause of death in the U.S., but also the most preventable cause of death, I have since focused on prevention aspects of heart disease. With prevention of cardiac disease related deaths as ultimate goal, I transferred to UCI this fall from UCSB, in order to pursue a research opportunity with Dr. Jamner. Additionally, I became a Red Cross certified CPR instructor, and am now employed with the Red Cross as a Health and Safety instructor.

Although hostility is linked to heart disease in men, behavior aspects of hostility have not produced a link to heart disease in women. Gaining a better understanding of the gender differences in behavioral displays of aggression may provide a bridge for this gender gap, and ultimately lead to more applicable heart disease prevention measures for women.

IRB Review

Full Review needed

Status: Pending

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