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## The Influence of Gender on the Relationship Between Problem-Solving and Aggression

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*The continuous rise of violence among young people has caused aggression to become a variable of interest for society. Many people believe that controlling external factors will prevent the aggressive nature of children from developing. However, the key to reducing aggression may lie in the development of proper internal coping skills. The present study focused on problem-solving ability, a component that can be taught. The relationship between problem-solving and aggression was examined, as well as how gender moderates this connection. It was hypothesized that a negative relationship existed between the two variables and that the correlation would be stronger for men than for women. The Aggression Questionnaire and the Problem-Solving Inventory were administered to a sample of 46 undergraduates, 23 men and 23 women. The Pearson  $r$  correlation showed the predicted negative relationship between problem-solving and aggression. In addition this relationship was significantly stronger for the sample of men than it was for women. These results were discussed in terms of differential socialization patterns, especially during college years.*

For years it was believed that aggression was an innate personality trait, more common among men than women. Due to the rise in aggressive behavior in today's society, people are looking for a less simplistic explanation. Some blame the increased violence on television, movies, video games and music. They feel that this constant exposure desensitizes children who grow up not knowing the difference between appropriate and inappropriate behavior. Others look at the family system as the culprit. Society appears to look toward outside influences for an answer, but perhaps we've overlooked an important environmental component; learning how to problem-solve. Before an definitive explanation is discovered, there must be an understanding of the interactions among gender,

aggression, and problem-solving abilities.

Society has established the notion that men are the aggressors and women are the passive, primitive gender. This idea creates the myth that these traits are the distinguishing aspects between the two genders. Previous studies have found results that support the concept that men are more aggressive than women, especially in the physical dimension (Buss & Perry, 1992; Gladue, 1991). These studies provide information on the correlation between gender and aggression; however, it is important to explore other factors that may give rise to aggressive tendencies. In a study of college students, Kopper (1993) demonstrated that aggression and components of it are not related solely to gender, but could possibly be linked to

sex role identity, in which masculine types express anger outwardly compared to feminine types.

In addition to gender and sex role identity, another potential antecedent of aggression is an individual's problem-solving ability, which influences many aspects of demeanor and behavior. Wang, Heppner and Berry (1997) confirmed the importance of problem-solving in the development of one's interpersonal and intrapersonal components of psychological adjustment, but did not relate this finding to aggression. Prior studies have demonstrated that a negative relationship exists between aggression and problem-solving abilities (Hammock & Richardson, 1992; Kordacova, 1990; Lovas, 1997). In the study by Kordacova (1990), it was discovered that boys demonstrated better problem-solving abilities, as did girls who exhibited masculine type qualities, a surprising finding since males are considered the aggressive sex.

Lindeman, Harakka and Keltikangas-Jarvinen (1997) examined the differences in how boys and girls react to problem situations and the role of aggressive behavior. They focused on three specific age groups, 11, 14, and 17. The researchers found that girls used prosocial and withdrawal strategies more than aggression in problem situations, whereas the reverse was found for boys. An interesting discovery was found only among the boys; their problem-solving strategies shifted from ages 11 to 17, with prosocial behavior being used more often at age 11. The researchers suggested that these results were due to the problem-solving strategies children had during these time periods. They explained the possibility that due to changes a youth undergoes from pre-adolescence to adolescence, the proper problem-solving skills may not be present, but are learned over time from various sources. However, the adjustment period a youth undergoes during development, as well as the influence of certain individuals, may have a negative effect on these learned skills. This study is important in demonstrating the idea that problem-solving is a learned phenomenon which could result in either appropriate or inappropriate behaviors later on in life.

The notion of acquiring problem-solving abilities during one's development is the primary interest of the present study, especially in regards to aggressive behaviors. It was hypothesized that

those individuals with low problem-solving abilities would exhibit higher aggression levels. It was also predicted that this negative relationship is moderated by gender with the interaction stronger for men than for women. The findings of Lindeman, Harakka, and Keltikangas-Jarvinen (1997) were expanded upon by the use of an undergraduate sample. By studying an older age group, the researcher was able to examine if college men are influenced more by others to act inappropriately, than are college women. This idea of differential learning of proper problem-solving skills is an important concept to be explored, especially if it helps prevent another Columbine tragedy.

## METHODS

### Participants and Procedure

The study was conducted at a mid-sized comprehensive university on the East Coast at which most of the students are Caucasian. The participants consisted of 46 undergraduates, 23 men and 23 women, ages 18-21, with 18 being the mode. The questionnaires were administered to 22 students currently enrolled in lower level psychology courses at two separate times. The remaining 26 participants were approached in the school cafeteria. The students were told the investigator was looking at the relationship between personality types and how one reacts in various situations. All students participated voluntarily and each signed a consent form before completing the questionnaires, which were anonymous. There was a total of 50 questionnaires collected, 25 men and 25 women; however, two of the men did not fully complete the PSI scale. In order to have an even number of men and women, two of the questionnaires of the women were randomly withdrawn from the study. Once the remaining 46 questionnaires were scored, the data were entered into a database, and analyzed with an SPSS program.

### Materials

The Aggression Questionnaire is a 29 item inventory which was designed to assess the aggression levels of individuals based on four intercorrelated components, Physical Aggression, Verbal Aggression, Anger, and

Hostility (Buss & Perry, 1992). This instrument is an updated version from previous measures that did not meet psychometric standards. This measure has a test-retest reliability in each of the four components, Physical Aggression .80; Verbal Aggression .76; Anger .72; and Hostility .72. The construct validity was averaged to be .40. The participants were presented with 29 items that inquired about their reaction to various situations surrounding aggressive aspects of behavior. They had to determine whether the statements were "extremely uncharacteristic of me" (1) or "extremely characteristic of me" (5). The score of this measure was achieved by adding all of the responses together, ranging from 29 to 145, with lower scores indicating lower levels of aggression.

The Problem-Solving Inventory is a 35 item measure designed to examine real life, personal problem-solving strategies based on three main factors: Problem-Solving Confidence, Approach-Avoidance Style, and Personal Control (Heppner & Petersen, 1982). This instrument has an alpha coefficient of .90, with a test-retest reliability of .89 and the validity ranged from a .21 to .67 across the three components (Goldman, Mitchell & Egelson, 1997). The participants in this study were presented with 35 items which examined their strategies when faced with a stressful situation. They had to determine whether they "strongly agree" (1) or "strongly disagree" (6) with the statements. The score for this measure consisted of three totals for the three different scales, with low scores indicating high problem-solving skills. Once the totals for each sub-scale were found, the cumulative scale score was calculated and used for analysis.

## RESULTS

The scores on the Aggression Questionnaire ranged from 38 to 129, with a mean of 72.22 and a standard deviation of 19.06. The scores on the Problem-Solving Inventory ranged from 57 to 119, with a mean of 90.67 and a standard deviation of 19.05.

The first hypothesis was tested using a Pearson  $r$  correlation. There was a significant relationship found between these two variables,  $r(45) = -.51$ ,  $p < .05$ , suggesting that high problem-solving skills are related to low aggression.

The second hypothesis, the relationship between problem-solving and aggression is moderated by gender with the connection stronger for men, was also measured by using two Pearson  $r$  correlations, one for the men and one for the women. The independent variable for these correlations was problem-solving and the dependent variable was aggression. There was a significant relationship found between these variables for the men,  $r(22) = -.68$ ,  $p < .05$ . The proportion of the variance accounted for was 46%, indicating a fairly powerful relationship. As predicted, no relationship was found between these variables for the women,  $r(22) = .30$ ,  $p > .05$ . A post hoc analysis was conducted to test the relationship between each of the sub-scales of the two instruments and gender. In order to measure this relationship a point-biserial correlation, with gender as the dichotomous variable, and the values of the sub-scales as the continuous variable, was administered. The only relatively significant relationship was that for physical aggression,  $r(44) = -.44$ ,  $p < .05$ . The correlations of the other sub-scales were all nonsignificant.

## DISCUSSION

The results obtained support the proposal that there is a negative relationship between problem-solving and aggression, which is in accordance with past research (Hammock & Richardson, 1992; Kordacova, 1990; Lovas, 1997). This significant relationship was demonstrated more strongly for men, as illustrated by the difference between the correlation for men and women. This finding coincides with the research of Lindeman, Harakka, and Keltikangas-Jarvinen (1997), in that men used aggressive tactics in situations as they got older whereas the women did not. The researchers suggested that this type of behavior may be due to outside influences, where men are more negatively influenced than women. This concept was demonstrated in the present study, which could be explained by the fact that the majority of the participants were in their freshman year, a time of uncertainty and experimentation. These individuals undergo growth, change and development, while expanding and adapting their prior knowledge and experiences. They are highly influenced by those

with whom they come into contact, which often may result in negative or inappropriate behavior. It could be suggested that men allow outside influences and the foreign surroundings of college to increase their aggressive levels in conflict situations, whereas the women did not. One possible explanation for this difference could lie in the stereotypes instilled upon them by society or their families. There may also be a genetic difference between men and women that causes men to react in a more aggressive manner. Further research on these areas, as well as other possible independent variables that influence aggression, should be conducted.

A post hoc analysis was conducted to test if there is a relationship between gender and the sub-scales of the instruments, as indicated by previous research (Buss & Perry, 1992; Gladue, 1991; Kopper, 1993). The most significant relationship was that of physical aggression, which demonstrated that men are more physically aggressive than women. An investigation of the variables involved in this difference should also be studied in future research.

Although the relationship for verbal aggression was relatively weak ( $r_{pb} = -.29$ ), it reflects the research of Buss and Perry (1992), but contradicts that of Gladue (1991). One reason may be the sample collected in each study. Each researcher sampled undergraduates; however, the age, race, family structure, environment, and personal characteristics of the students may vary, restricting generalization from one population to another. In order for these findings to be universal, a more sophisticated study involving stratified random sampling from various universities should be administered. Another possibility is a longitudinal study of students throughout their four years of college.

The results of the other sub-scales were not significant for this sample. In future research, a more representative sample, consisting of an equal number of students from each class should be collected and emphasis should be placed on each component as a variable, rather than as a sub-unit.

Although the present study had built in limitations, the hypotheses were supported by the results. These findings demonstrate that aggression and components of it are linked to factors other than gender. Researchers can apply the variable of problem-solving to other studies

that focus on aggression. This aspect could be of interest when examining if media violence increases a child's aggression levels. Perhaps studies can evaluate if proper internal coping strategies reduce the influence of violent images. This concept can also be incorporated when exploring the aggression levels in children growing up in tension filled households or underprivileged neighborhoods.

The fact that the men in this sample demonstrated aggressive tendencies is also important because the majority of this sample was Caucasian. This finding coincides with the ethnicity of those involved in the school violence that has occurred in the past few years. Since these adolescents were not part of a minority group, society is forced to abandon the myth that violence stems from a suppressed and underprivileged race. Instead, parents and teachers need to focus on teaching these young people, especially boys, appropriate problem-solving skills. Perhaps by putting more resources into educating children on how to properly deal with feelings, rather than pointing a finger at the media, society can help prevent the next child from picking up a gun as a means of self expression.

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