Abstract

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This experiment was designed to study the behavior of a naive subject who was placed in a situation where he or she had the task of persuading another person to carry out a simple instruction. Six means of persuasion were made available to the subject. Two of these were physical means of persuasion, giving of pennies and delivery of electric shock. Two of these were verbal, request cooperation and demand cooperation. Two of these were considered to be intermediate between physical and verbal, threat of shock and promise of pennies.

The experimental conditions included sex of subject, level of attack, reward contingency, and trials. One specific purpose of the study was to establish the possibility of studying aggression in a persuasion paradigm. The predictions, therefore, were based on results from aggression studies. It was predicted that males would use more electric shock than females, that subjects who were attacked would use more electric shock than subjects who were not attacked, and that subjects who were persuading for a personal monetary reward would shock more than subjects who were persuading to help another person win a monetary reward. It was also predicted that use of all means of persuasion would increase over trials.

These predictions proved to be correct although the results were qualified by a number of interactions. An additional finding was that males used the physical means of persuasion more than females and females used the verbal means of persuasion more than males. Generally the most powerful and pervasive effects throughout the study were related to sex differences. It is clear that the sex of the subject had a great effect on the types of persuasion chosen. Males and females may employ quite different persuasive strategies but the present experiment does not establish that fact since patterns of responses across time are not considered.

Sex Differences in Modes of Social Influence Chosen as a Function of Attack and Motive

by

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Chapter 1

Introduction

Persuasion is a universal human activity. We are all persuaders. As members of the economic community we persuade others to buy or we persuade sellers to sell cheap. In our interpersonal relationships we persuade others that we are worthwhile and that we believe them to be worthwhile. As philosophers we persuade others that our view of reality is the true one. Even in the private world of our own experience we persuade ourselves to accept perspectives and opinions that make life pleasant, making changes only when contrary evidence becomes overwhelming. The ability to persuade successfully is thus an invaluable asset. It can bring not only economic and social success but also a good personal adjustment to its possessor. It is not surprising that much thought and study has been directed toward learning how to persuade effectively. Knowledge acquired in this area has immediate practical application in many facets of our everyday lives.

Research on persuasion has commonly focused on the recipient of the persuasive communication. There is, however, another aspect of the process of persuasion which may be equally significant. One may focus on the persuader and ask what factors cause a given means of persuasion to be chosen. Part of the significance of this latter question lies in the relationship between persuasion and aggression. Why a persuader chooses to use pleasant words or promises might be considered a matter of academic interest, but knowledge of the factors

which dispose a persuader to turn to coercive and perhaps violent means is vital to each of us.

A recent article by Tedeschi, Smith, and Brown (1974) explores the relationship between coercion and aggression. They assert that while social scientists studying coercive power have focused on factors which cause a target individual to comply to the persuasive attempt, aggression theorists have been concerned with the behavior of a source of coercive power. They suggest that human behaviors usually labelled aggressive could be more usefully conceptualized and studied as instances of the exercise of coercive power.

Several studies have focused on factors which influence choice of power strategies by leaders in industrial simulation experiments. Goodstadt and Kipnis (1970) conducted one such experiment, using male university freshmen as subjects. Subjects were told to supervise workers located in another room. Actually these workers did not exist, and their supposed output was pre-programmed. The supervisor was given several powers. He could threaten to fire, transfer, or reduce the pay of the worker or give a pay increase or give instruction. The results indicated that coercive strategies were more often used when a worker presented discipline or motivational problems while expert powers were used with problems of ineptness. It was also found that less time was spent with a problem worker when more workers were being supervised.

Kipnis and Vanderveer (1971) studied the effect of ingratiation on the use of power employing a similar procedure. They found that compliant workers received more pay raises when hostile

workers were present and that ingratiating workers received slightly more pay raises than average workers.

A study by Goodstadt and Hjelle (1973) replicated the results of the Goodstadt and Kipnis (1970) study in that subjects more often used expert powers with problems of ineptness and coercive powers with problems of poor attitude. Selecting subjects from the top and bottom quartiles of the Rotter Locus of Control Scale (1966), they also found that internals were more likely to use personal persuasive powers whereas externals were more likely to use coercive powers.

Although the work of Goodstadt and his associates contributed significantly to understanding factors which affect means of persuasion, their research has been limited to an industrial simulation setting. Furthermore, there has been no attempt on their part to investigate systematically the nature of the persuasive strategy (i.e.,positive versus negative, physical versus verbal). The proposed study was designed to both extend the generality of previous findings, plus systematically explore the nature of the persuasive response. Of particular interest was the examination of variables which influence the choice of persuasive powers in a context which allowed aggressive expression of a form often used in aggression research. This responds in part to the suggestion of Tedeschi, Smith, and Brown (1974) that aggression be conceptualized and studied as the exercise of coercive power.

In the present study subjects were led to believe that they

were to persuade another subject in an adjoining room to press a button during each of ten one-minute trials. Actually there was no other subject. Subjects were given six means of persuasion. These were categorized as verbal-physical and positive-negative. Subjects could request cooperation, demand cooperation, promise pennies, give pennies, threaten shock, or deliver shock. The delivery of shock is commonly used as a dependent measure in aggression research (i.e., Berkowitz, 1966; Buss, 1966; Gaebelein & Taylor, 1971). One purpose of the present experiment was to demonstrate the relationship between persuasion and aggression by manipulating variables usually associated with aggression in a persuasion paradigm. The independent variables were sex of the subject, level of attack, and nature of the reward contingencies. The attack consisted of either no attack or a mild verbal attack. The reward contingencies were such that the subject was either persuading to help himself or to help someone else. With number of shocks delivered being used as the dependent measure of aggression it was predicted that males would show more aggression than females, that subjects who were attacked would display more aggression than subjects who were not attacked, and that subjects who were persuading in their own interest and at the expense of the fictitious subject would display more aggression than subjects who were persuading in the best interest of the fictitious subject.

The common belief that males are more aggressive than females has generally been supported by experimental research (Maccoby & Jacklin, 1974, pp. 228-229). Attack has often been found to increase aggression (i.e. Gaebelein & Taylor, 1971; Taylor, 1970).

Justification for predicting more aggression when the subject was persuading in his own best interest can be given in at least two ways. The number of aggressive responses might have been increased by the contingent reward when the subject persuaded in his own best interest. That is to say, in addition to the subject's general predisposition to be aggressive there may occur a certain amount of instrumental aggression. Alternatively, it can be reasoned that aggression might have decreased when the subject was persuading to help the responder because of a conflict between altruistic and aggressive motives (Baron, 1972).

The six means of persuasion made available to the subject could be divided into positive and negative categories. The positive means were request cooperation, promise pennies, and give pennies. The negative means were demand cooperation, threaten shock, and deliver shock. It was predicted that use of negative, coercive means of persuasion would correlate with externality on the Rotter Locus of Control Scale (1966). It was also predicted that use of positive, reward means of persuasion would be correlated with high scores on the Empathy Scale (Mehrabian & Epstein, 1972).

It was also predicted that the use of all means of persuasion would increase over trials. This effect has been established for aggressive responses, and a recent study by Goldstein, Davis and Herman (1975) demonstrated a similar effect for prosocial behaviors.

Beyond testing the specific hypotheses set forth, this study was also intended to serve as a basis for further research using this paradigm. The six means of persuasion could, as noted, be

divided into coercive and reward categories. They could also be divided into verbal and physical means of persuasion. No predictions were made concerning the effect of the independent manipulations on the choice of verbal or physical methods, but the data were examined from this standpoint to provide indications for further research.

Chapter 2

Method

Subjects

Subjects were 32 male and 32 female volunteers from introductory psychology courses at the University of North Carolina at Greensboro. Participation was in partial fulfillment of course requirements.

Apparatus

In the subject's room there was a small wooden panel with two buttons and a light. The buttons were labelled shock and money respectively. Wires leading from this panel ostensibly connected with a shock bracelet attached to the wrist of another subject and to a penny dispenser, both located in another room. Actually these wires led to a panel in the experimenter's room. On the experimenter's panel there were two lights and one button. The lights on the experimenter's panel were activated by the buttons on the subject's panel, and the button on the experimenter's panel activated the light on the subject's panel. Two solid state counters served as back-ups to the lights on the experimenter's panel to insure an accurate record of the number of times the subject attempted to deliver shock or pennies. A tape recorder was used to play the taped instructions into the subject's room.

The two rooms were also connected by intercom. Transmission was always from the subject's room to the experimenter's room, except when the experimenter pushed a switch to talk to the subject.

Procedure

The subject was led into the room by the experimenter and seated. The subject was then left alone. About a minute later the taped instructions were played to the subject (see Appendix A).

The subject was told that he was to serve as an assistant to the experimenter in a study of the effectiveness of various means of persuasion. His task was to persuade a person in another room to push a button. He would know when he succeeded because the pushing of the button in the other room would light the light on his panel. (The second subject will be referred to as the responder.)

The subject was told that he had six means of persuasion available to him. He could request cooperation, demand cooperation, promise pennies, give pennies, threaten shock, or deliver shock. A folder in the subject's room supplemented the taped instructions. This folder contained a list of the means of persuasion with examples, a copy of the instructions to the responder, and a diagram of the rooms involved in the experiment (see Appendix B). In this diagram the experimenter was shown to be in a small room separate from the responder.

The subject was told that there would be ten one-minute trials and to do nothing between trials. During trials he was to use as many or as few of the means of persuasion as he chose.

The subject then heard the instructions being read to the responder. The responder was told that he could win ten cents during each trial by either pressing the button or not pressing the button but that he would not know which had been correct until the end of the experiment. This made it seem reasonable for the responder to be suspicious and not to simply press the button immediately when asked to do so.

Experimental design

Three independent variables were manipulated in a 2x2x2 design. The variables were sex of subject, level of attack, and nature of the reward contingencies.

Sex of Subject

32 male and 32 female subjects were used. All subjects were told that they were interacting with a responder of the same sex.

Attack

In the attack condition subjects were verbally attacked by the responder. This manipulation occurred at the end of the instructions to the responder. The experimenter asked if the responder had any questions about his role. In the attack condition the responder stated that there would be no difficulty because anybody could figure out the dummy he had seen being led into the other room. In the no attack condition the responder simply stated that he understood. These statements were recorded.

Reward contingency

The reward contingencies were such that in one condition

the subject was persuading the responder in order to help him and in the other condition the subject was persuading in his own self interest but at the responder's expense. In the altruism condition the subject was told that he would receive one dollar for participating in the experiment and that the responder would receive ten cents for every trial during which he pressed the button. In the self-interest condition the subject was told that he would receive ten cents for every trial during which the button was pressed but that the responder would receive ten cents only for trials during which the button was not pressed. All subjects were told that any pennies given to the responder would be deducted from their own money.

Trials

After the instructions were given, the experimenter asked the subject a few questions to be sure he understood the task. Errors made by the subject were corrected. This was followed by the ten trials. Announcements of the beginnings and endings of the trials were recorded.

The responses of the responder were standard across all conditions. The button was pressed on half of the trials. Eight sequences of trials were randomly derived, and these same sequences were used for all eight groups.

The button was pressed to light the light on the subject's panel during the last ten seconds of a "success" trial. This immediately followed the first means of persuasion used in that period. If no means of persuasion was used in that period

the button was pressed three seconds before the trial ended.

During the trials the experimenter recorded the frequency of the usage of each of the six means of persuasion. After the ten trials the subject was asked to fill out a rating scale about the responder (see Appendix C). Any subject who spontaneously questioned the presence of a responder was excluded from the analysis of the data. The subject also filled out a demographic data questionnaire (see Appendix D). Empathy Scale scores had already been obtained for all subjects via a mass testing conducted in their general psychology classes.

Following these tests the subject received his money for participating in the experiment and was asked not to discuss the procedure. He was told that a more complete description of the conditions of the experiment including the hypotheses and results would be mailed to him. This minimized the likelihood of subject's hearing about the experiment before participating while still permitting them to learn the results of the experiment.

Finally the subject was asked to fill out the Internal-External Locus of Control Scale (Rotter, 1966). He was told that this was being done to collect pilot data for the scale. This was done to disassociate the scale from the experiment and encourage the subject to respond based on his ordinary opinions rather than trying to answer in a manner consistent with his behavior during the experiment. After this the subject was thanked for his cooperation and allowed to leave.

Chapter 3

Results

Subjects Dropped

Eight subjects were dropped from the analyses, and additional subjects were run to replace them. Thus 64 subjects were used in the analyses. Six subjects were dropped because they were not deceived by the manipulation and did not believe themselves to be interacting with another person. One subject misunderstood the directions, another subject was dropped due to an experimenter error.

Dependent Variables

The dependent variables were the six possible responses. The two physical responses deliver shock or give penny were tallied based on the number of times the subject actually pushed the shock or money button. Request cooperation and demand cooperation were counted based on the number of distinct statements made. Sometimes it was necessary to use judgment in distinguishing between these two, but in no case did the intent of the speaker seem uncertain. In counting the occurrences of threaten shock and promise pennies, each statement was counted as one occurrence even though several shocks were sometimes mentioned or more often several pennies. Means for each response made in each condition are given in Table 1 (see Appendix E).

Multivariate Analysis of Variance

A multivariate analysis of variance was conducted using the six means of persuasion as dependent variables. The data were collapsed across trials. The results, thus, deal with the independent variables sex of subject, level of attack, and reward contingency. In each case the reported results are based on the Pillai's Trace test of multivariate significance (Olson, 1976).

The MANOVA yielded a significant effect for sex of subject, approximate $\underline{F}$ (6, 571) = 42.06, $\underline{p} < .0001$. Examination of the canonical correlation showed that the dependent variable of requesting cooperation contributed most to this effect ($\underline{r}$ = .81). Contributions of other dependent variables were relatively minimal.

The effect of level of attack was also significant, approximate $\underline{F}$ (6, 571) = 3.68, $\underline{p} < .0017$. Here the canonical correlation showed that the dependent variable threaten shock contributed most to this effect ($\underline{r}$ = .81) with shock and promise pennies also contributing somewhat ($\underline{r}$ = .46 and $\underline{r}$ = -.44, respectively).

The effect of reward contingency or motive of the subject was significant, approximate $\underline{F}$ (6, 571) = 6.07, $\underline{p} < .0001$. The canonical correlation showed a contribution from the dependent variables promise pennies and shock ($\underline{r}$ = .82 and $\underline{r}$ = -.53, respectively).

All interactions between the independent variables were also significant in the multivariate analysis of variance. The interaction of sex of subject by level of attack was significant, approximate $\underline{F}$ (6, 571) = 2.22, $\underline{p} < .0389$. Examination of the

canonical correlation showed this to be mainly due to the dependent variable promise pennies ($\underline{r}$ = -.63) with a substantial contribution also due to the dependent variable of shock ($\underline{r}$ = .52).

The interaction of sex of subject by reward contingency was significant, approximate $\underline{F}$ (6, 571) = 14.14, $\underline{p} < .0001$. Canonical correlations showed three dependent variables contributing substantially to this effect. These were threaten shock, request cooperation, and demand cooperation ($\underline{r}$ = .55, $\underline{r}$ = .48 and $\underline{r}$ = -.42 respectively).

The interaction of reward contingency by level of attack was significant, approximate $\underline{F}$ (6, 571) = 13.57, $\underline{p} < .0001$. Canonical correlations showed the dependent variables of promise pennies and threaten shock contributed most to this effect ($\underline{r}$ = .69 and $\underline{r}$ = .49, respectively).

Finally the sex of subject by reward contingency by level of attack interaction was also significant, approximate $\underline{F}$ (6, 571) = 20.30, $\underline{p} < .0001$. Canonical correlations showed the dependent variables of request cooperation and threaten shock contributed most to this effect ($\underline{r}$ = .52 and $\underline{r}$ = .51 respectively).

To more thoroughly understand what was taking place univariate analyses of variances were conducted using each of the six dependent variables separately. Results using each dependent variable are reported in turn.

Shock

The univariate analysis of variance using number of shocks

as a dependent variable yielded a significant three-way interaction, F (1, 576) = 7.86, $p < .0052$, which qualifies any interpretation of significant two-way interactions and main effects. The sex by level of attack interaction was marginally significant F (1, 576) = 3.61, $p < .0580$, and all three main effects were significant. These main effects were sex of subject, F (1, 576) = 4.63, $p < .0318$, reward contingency, F (1, 576) = 10.25, $p < .0014$, and level of attack, F (1, 576) = 4.79, $p < .0290$.

Scheffé post hoc comparisons yielded several significant differences. A graph illustrating these differences can be found in Figure 1 (see Appendix E). On the graph, level one of the reward contingency variable is labeled altruism. This was the condition in which the subject was persuading in the best interest of the responder. Level two of this variable is labeled self-interest. This was the condition in which the subject was persuading in his or her own best interest. In the altruism condition males who were not attacked shocked significantly more than females who were not attacked ($p < .05$).

In moving from the altruism condition to the self-interest condition we see that three of the groups significantly increased the number of shocks per trial. Males who were attacked increased shocks per trial from 1.49 to 2.49 ($p < .01$). Females who were attacked increased shocks per trial from .96 to 1.61, a marginally significant difference ($p < .10$) and females who were not attacked increased shocks per trial from .70 to 1.78 ($p < .01$). Males who were not attacked actually shocked less in the self-interest

condition although this difference was not significant.

Within the self-interest condition males who were attacked shocked significantly more than females who were attacked ($p < .05$) and males who were not attacked ($p < .01$). Males who were not attacked shocked significantly less than females who were not attacked ($p < .05$).

Threaten Shock

The univariate analysis using number of threats of shock as the dependent variable also yielded a significant three way interaction, F (1, 576) = 32.27, $p < .0001$). The sex by reward contingency interaction was also significant, F (1, 576) = 26.28, $p < .0001$) as was the reward contingency by level of attack interaction F (1, 576) = 20.07, $p < .0001$. Also significant were the main effects of level of attack, F (1, 576) = 14.70, $p < .0001$, and sex of subject, F (1, 576) = 12.00, $p < .0006$.

Scheffé post hoc comparisons were conducted and the results are graphed in Figure 2 (see Appendix E). Mean number of threats per trial did not differ significantly between males who were attacked and females who were attacked at either the altruism condition or the self-interest condition. All other comparisons were significant.

In the altruism condition males who were not attacked threatened shock significantly more than any of the other groups ($p < .01$) while females who were not attacked threatened shock significantly less than any of the other groups ($p < .01$).

The changes as we move from altruism to self-interest are similar to those using shock as the dependent measure. There are more threats in the self-interest condition for males who were attacked ($p < .05$), females who were attacked ($p < .05$) and females who were not attacked ($p < .01$), but for males who were not attacked there were fewer threats in the self-interest condition ($p < .01$).

Within the self-interest condition males who were attacked threatened more than males who were not attacked ($p < .01$). Females who were attacked also threatened more than females who were not attacked ($p < .05$). Finally females who were not attacked threatened shock significantly more often than males who were not attacked ($p < .01$).

Demand Cooperation

The univariate analysis of variance using number of occurrences of demand cooperation as a dependent variable yielded a marginally significant three-way interaction, F (1, 576) = 3.16, $p < .0759$. The reward contingency by level of attack interaction was significant, F (1, 576) = 6.20, $p < .0131$, as was the sex of subject by reward contingency interaction, F (1, 576) = 15.31, $p < .0001$. The only significant main effect for this analysis was sex of subject, F (1, 576) = 21.38, $p < .0001$.

Scheffé post hoc comparisons (see Figure 3, Appendix E) revealed that in the altruism condition attacked females demanded cooperation significantly more than attacked males ($p < .05$) but males who were not attacked demanded cooperation significantly

more than females who were not attacked ($p < .01$). Also attacked females demanded cooperation significantly more than females who were not attacked ($p < .05$) but attacked males demanded cooperation significantly less than males who were not attacked ($p < .01$). In moving from the altruism condition to the self-interest condition there was a significant decrease in occurrences of demand cooperation for both attacked females ($p < .01$) and for no attack males ($p < .01$), but a marginally significant increase in occurrence for attacked males ($p < .10$). Thus in the self-interest condition relationships between the groups have reversed with the differences generally being more significant. Attacked males demanded cooperation more than attacked females ($p < .01$) and more than not attacked males ($p < .01$), but the females who were not attacked demanded cooperation more than attacked females ($p < .05$) and more than not attacked males ($p < .01$).

Give Penny

The univariate analysis of variance using number of pennies given as the dependent variable revealed a significant interaction between reward contingency and level of attack, F (1, 576) = 7.39, $p < .0068$. This interaction qualifies interpretation of the marginally significant main effect for reward contingency, F (1, 576) = 3.42, $p < .0649$. This analysis also yielded a significant main effect for sex of subject, F (1, 576) = 14.04, $p < .0002$, showing that males gave an average of 1.34 per trial while females gave an average of .61 pennies per trial.

Scheffé post hoc analysis of the reward contingency by level

of attack interaction showed a significant difference between attack and no attack in the altruism condition ($p < .05$) but no difference in the self-interest condition (see Figure 4, Appendix E). In moving from altruism to self-interest, however, we also find a significant decrease in number of pennies given in the attack condition ($p < .01$).

Promise Penny

The univariate analysis of variance using number of occurrences of promise penny(s) as the dependent variable yielded a significant reward contingency by level of attack interaction, F (1, 576) = 38.56, $p < .0001$, sex of subject by level of attack interaction, F (1, 576) = 5.37, $p < .0208$, and sex of subject by reward contingency interaction, F (1, 576) = 5.76, $p < .0167$. Also significant were the three main effects of level of attack, F (1, 576) = 4.28, $p < .0389$, reward contingency, F (1, 576) = 24.68, $p < .0001$, and sex of subject, F (1, 576) = 13.88, $p < .0002$.

Scheffé post hoc comparisons of each of the two-way interactions was carried out. Examination of the reward contingency by level of attack interaction (see Figure 5, Appendix E) revealed that in the altruism condition subjects who were not attacked made more promises ($p < .01$) but in the self-interest condition subjects who were attacked made more promises ($p < .01$). This comparison also revealed that the no attack group made significantly fewer promises in the self-interest condition as opposed to the altruism condition ($p < .01$).

Examination of the sex by level of attack interaction(see Figure 6, Appendix E) demonstrated that females who were attacked made significantly more promises than males who were attacked ($p < .01$). Males who were not attacked made significantly more promises than males who were attacked ($p < .01$) so that not attacked males and females did not differ.

Finally, examination of the sex of subject by reward contingency interaction (see Figure 7, Appendix E) demonstrated that males and females did not differ in promises in the altruism condition but that males made significantly fewer promises in the self-interest condition than in the altruism condition ($p < .01$) and thus made fewer promises than the females in the self-interest condition. ($p < .01$).

Request Cooperation

The univariate analysis of variance using request cooperation as the dependent variable yielded a significant three-way interaction, F (1, 576) = 33.41, $p < .001$. The reward contingency by level of attack interaction was marginally significant, F (1, 576) = 2.88, $p < .0904$, and the sex by reward contingency interaction was significant, F (1, 576) = 19.93, $p < .0001$. The only significant main effect was for sex of subject, F (1, 576) = 166.67, $p < .0001$.

Scheffé post hoc comparisons (see Figure 8, Appendix E) demonstrated that in the altruism condition males were less likely to request cooperation if they were attacked, ($p < .10$) but females

were more likely to request cooperation if they were attacked ($p < .01$).

In moving from altruism to self-interest, however, the no attack males decreased in occurrences of request cooperation ($p < .01$) while no attack females increased ($p < .01$) bringing about a reversal of the earlier relationships. In the self-interest condition the attacked males made more requests than the no attack males ($p < .05$), and the attacked females made fewer requests than the no attack females ($p < .01$).

As examination of the graph (see Figure 8, Appendix E) indicates females requested cooperation more often than did males in all cases. This difference was significant in the case of attacked females over attacked males in both the altruism condition ($p < .01$) and the self-interest condition ($p < .01$). The difference was significant for no attack females over no attack males in the self-interest condition only ($p < .01$).

Positive Means vs. Negative Means

The per cent positive means of persuasion for each condition was calculated with give penny, promise penny, and request cooperation being considered positive. An arcsin transformation was performed on these data. The transformed data were submitted to a univariate analysis of variance, and it was found there were no significant effects.

Physical Means vs. Verbal Means

A similar transformation was performed on the per cent physical means of persuasion and on the per cent verbal means of persuasion. The verbal means of persuasion were divided into two categories. The physical means of persuasion include delivery of shock and giving of pennies. Threat of shock and promise of pennies were designated intermediate means, and demand cooperation and request cooperation were designated verbal means. The transformed data for each of these categories were submitted to an analysis of variance.

The analysis of variance using physical means of persuasion as the dependent variable showed a significant sex X reward contingency interaction, F (1, 576) = 5.27, $p < .0221$, (see Figure 9 , Appendix E). There was also a main effect for sex of subject, F (1, 576) = 25.00, $p < .0001$, with males using more physical means of persuasion.

Scheffe post hoc comparisons of the means for the sex X altruism interaction revealed that males persuading for altruistic purposes used more physical means of persuasion than either males persuading for selfish reasons or females persuading for altruistic purposes ($p < .05$).

The analysis of variance using intermediate means of persuasion as the dependent variable (see Figure 10, Appendix E) yielded a significant interaction for sex of subject by attack, F (1, 576) = 14.85, $p < .0001$, and for reward contingency by attack, F (1, 576) = 26.59, $p < .0001$, as well as a main effect for reward contingency, F (1, 576) = 10.89, $p < .001$, which showed that the

intermediate category was used more often by subjects persuading for altruistic purposes than by subjects persuading for selfish purposes.

Scheffé post hoc comparisons showed that females were more likely to use the intermediate means of persuasion if they were attacked but that males were less likely to use these means if they were attacked ($p < .05$). Males who were not attacked were more likely to use these means of persuasion than females who were not attacked ($p < .05$). Attacked males used these means less than attacked females, but this difference was not significant (see Figure 10, Appendix E).

For the reward contingency by attack interaction (see Figure 11, Appendix E) it was found that subjects persuading for altruistic purposes were more likely to use intermediate means if attacked but subjects persuading for self-interest were less likely to use these means if they were attacked ($p < .05$). It was also found that in the absence of attack these means were more used by subjects persuading for altruistic purposes ($p < .05$).

The analysis of variance using verbal means of persuasion as the dependent variable (see Figure 12, Appendix E) yielded a marginally significant sex by reward contingency by level of attack interaction, F (1, 576) = 3.18, $p < .0752$, as well as a reward contingency by attack interaction, F (1, 576) = 9.32, $p < .0024$, a sex by reward contingency interaction, F (1, 576) = 4.85, $p < .0280$, and a main effect for sex of subject with females showing greater use of these means of persuasion, F (1, 576) = 69.89, $p < .0001$.

Scheffé post hoc comparisons showed that females used these means of persuasion more than males in every category and the difference was significant except in the case of subjects persuading for self-interest in the attack condition ($p < .05$). It was also found that females persuading for altruistic purposes were less likely to use these means if they were attacked ($p < .05$) and that females who were attacked were less likely to use these means if they were persuading for self-interest ($p < .05$). On the other hand, males who were not attacked were more likely to use these means if persuading for their own self-interest ($p < .05$).

Significant Differences in Response Modes

The design of the study was reconceptualized to include response mode as an independent variable in order to make statements about significant differences in the use of each of the response modes. This also provided an opportunity to analyze the effect of trials since inclusion of trials in the previously reported MANOVA analysis overloaded the computer. In a 2X2X8X10X6 design, the independent variables were sex of subject, level of attack, reward contingency, subjects, trials, and response modes. This analysis yielded a significant effect for trials, F (9, 504) = 7.20, $p < .01$, response mode, F (5, 280) = 9.63, $p < .01$, and the interaction of sex by response mode, F (5, 280) = 3.87, $p < .01$.

There was a general tendency for total responding to increase over trials but the only significant differences revealed by the Scheffé post hoc comparisons were between Trials 1, 2 and 3 and

Trial 10, with total responses for Trial 10 being greater than each of the other three ($p < .05$).

Scheffé post hoc comparisons were also conducted on the response modes and the sex by response mode interaction. In the response mode comparison, the use of request cooperation exceeded use of each of the other response modes by a significant amount ($p < .05$) but examination of the sex by response mode interaction reveals that this is primarily due to the high use of this particular response mode by females. In the sex by response mode interaction use of request cooperation exceeded use of each of the others for females ($p < .05$) but not for males. The Scheffé comparison also indicated that females request cooperation significantly more often than males ($p < .05$) and that males give pennies significantly more often than females ($p < .05$).

Locus of Control and Empathy Scale

An analysis was conducted to test for a significant correlation between Locus of Control and Empathy scores and use of positive and physical means of persuasion. No significant correlations were found, either overall or within groups.

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Chapter 4

Discussion

Predictions

The major predictions concerning the results of this experiment only involved the use of shock as the dependent variable. These predictions were based on earlier research using shock as the operational definition of aggression, and each prediction did prove to be correct. These results can be taken as support for the validity of the present paradigm and for the viability of reconceptualizing aggression research within the broader framework of a persuasion paradigm. The results may even be interpreted to suggest that the aggression research results give a biased view of the real situation due to the investigations having been overly narrow in focus. This study, in keeping with earlier research, found that males use shock more than females, that subjects who are attacked shock more than subjects who are not attacked, and that subjects in whom an altruistic motive has been induced shock less than subjects in whom no motive has been induced. In the present study, however, these significant main effects are qualified by a significant three-way interaction. This interaction indicates that there are, in fact, no sweeping consistencies. The interaction in the analysis of variance using shock as the dependent variable, as well as the complex interactions in all of the analyses performed in this study, suggest that an accurate picture can only be obtained

if we consider the interaction of the person, situation, and response mode. This can be related to the models of Bowers (1973) and Mischel (1973). Though simpler experimental procedures yield more easily interpreted results, these studies are valueless if they lack generalizability. The present study, on the other hand, though complex may more closely approximate a realistic situation by allowing the subject a greater range of responses. These results can probably best be understood in terms of a person x situation x response mode interaction and the results will be discussed from this perspective.

It was predicted that use of all means of persuasion would increase over trials. This prediction also proved to be correct.

The remaining predictions concerned correlations between means of persuasion and the Locus of Control Scale and Empathy Scale, but these predictions did not prove to be correct. This could be due to the fact that subjects were not selected for extreme scores on these tests or perhaps because the experimental manipulations were strong enough to override such individual difference variables.

Sex Differences in Responses

The strongest differences to emerge from the analyses involved the sex of subject. Sex of subject was significant in the MANOVA and accounted for more variability than any other main effect or interaction. There was also a significant main effect for sex in each of the six univariate analyses using the individual response modes as dependent variables.

Sex differences were also prominent in the univariate analyses using physical, intermediate, and verbal means as dependent variables. The male subjects tended to use the physical means of persuasion more than did the females, and the female subjects tended to use the verbal means of persuasion more than did the males. These results are well illustrated by Figure 13 (Appendix E) where per cent use of each category for each group is graphed. Notice that the males generally tended to use all means of persuasion about equally while the females used the physical means least and the verbal means most. This result is in keeping with the idea that males are more likely to use physical forms of aggression while females are more likely to use other forms (Maccoby & Jacklin, 1974, pp. 234-235), and further implied that males may use more physical responses in general.

Significant sex differences are demonstrated by post hoc tests in several of the univariate analyses. Request cooperation was the dependent variable which most clearly demonstrated sex differences as revealed by the canonical correlation in the MANOVA. Females were more likely to use this response mode than males in all cases and the difference was significant for attacked subjects in the altruism condition and the not attacked subjects in the self-interest condition. This response mode might have been chosen as most appropriate by females since it is not only one of the positive responses and, therefore, not aggressive but is also the least physical of the positive responses.

The least expected result involving sex differences was found in the univariate analyses using shock and threaten shock as dependent variables. Although males generally used these means of persuasion more than females, this pattern was reversed for subjects in the self-interest condition who were not attacked. Apparently the males in the self-interest condition were inhibited from using these relatively direct forms of aggression without some further justification. Either altruism or attack provide this justification and hence reduce aggression anxiety. This analysis is supported by a suggestion by Maccoby and Jacklin (1974, p. 237) that indicates that males in some ways are more likely to show attenuation of aggression due to anxiety than are females.

It is interesting to note that although males gave more pennies than females, females promised more pennies than males. This latter difference was shown to be significant for attacked subjects and for subjects in the self-interest condition.

In several instances the manipulations seemed to have a nearly opposite effect on males and females. For instance, in the altruism condition females demanded cooperation more if they were attacked but males demanded cooperation more if they were not attacked. On the other hand in the self-interest condition these relationships were reversed. A similar pattern of results was displayed with regard to requesting cooperation. While the theoretical explanation for these patterns is not clear, they clearly demonstrate the person (sex) by situation (attack and altruism),

by response mode (demand and request cooperation) interaction discussed above.

There were sex differences in the response to attack with this manipulation being generally more effective for males. This is partially explained by the possible "disinhibition" of aggressive tendencies for males in the self-interest condition but it may be also partially due to a flaw in the design of the experiment. No provisions were made to assure that the male and female attacks were of equal potency. Of course, the recorded male and female voices used the same words, but in order to make positive statements about sex differences in responses to attack it would be necessary to have judges rate the intensity of attack using different male and female speakers and choose speakers of near equal intensity. Examination of the three-way interactions in the univariates using each response mode as dependent variable demonstrates that the attack was generally more effective for males, but at this point it is not possible to state unequivocally whether females respond less forcefully to attack or whether the attack in this case was merely less strong for the females.

Examination of the results of the analyses using physical, intermediate, and verbal means of persuasion as dependent variables reveals an interesting pattern of responses for males and females in relation to the attack variable. For both sexes there appears to be a tendency to move toward greater use of physical means of persuasion when attacked. In fact there was a near significant

trend for attack to increase the use of physical means of persuasion in that univariate analysis ($p < .08$). It seems that for males this increase meant shifting from use of threats and promises to shocks and pennies but that for females it meant moving from demands and requests to threats and promises. This interpretation is necessarily tentative, but it would explain the finding that attacked males used threats and promises less than not attacked males while for females the opposite was true.

Males and females responded very differently to the reward contingency manipulation. Males, if persuading for self-interest instead of altruism, used fewer threats and requests but more demands while females in similar circimstances used more threats and requests and fewer demands. Both groups used fewer promises, but this effect was much stronger for males.

The sex of subject by reward contingency interaction was also significant for the analyses using physical and verbal means of persuasion as dependent variables. In moving from altruism to self-interest males used fewer physical means and more verbal means while females showed the opposite pattern. Although only the difference for males in use of physical means was significant in post hoc comparisons, the combined effect of these differences yielded the significant interactions.

Differences in Responses Due to Attack

The canonical correlations in the MANOVA indicate that the attack manipulation had a greater effect on threaten shock than

any other dependent variable. The attack significantly increased threats of shock for females in both the altruism condition and the self-interest condition, but for males it only increased threats of shock in the self-interest condition. Attack also increased the actual delivery of shock for males in the self-interest condition but not for any other group.

In the altruism condition attack actually increased the giving of pennies. This result is difficult to interpret. It may be that this reflected a desire to placate the responder. One of the 64 subjects did appear to the experimenter to be afraid of the responder. Perhaps many of the subjects experienced a similar emotion to a lesser degree.

Differences in Responses Due to Reward Contingency

The canonical correlations in the MANOVA indicate that the dependent variable contributing most to the significant result of the reward contingency variable was promise penny. The induction of an altruistic motive increased the promising of pennies for males and for subjects who were not attacked, but had virtually no effect for subjects who were attacked. Paradoxically, altruism increased giving of pennies when the subject was attacked but not when the subject was not attacked. This again may be related to a desire to placate the responder by giving pennies in the attack condition.

Future Research

The initial aim of this study was to demonstrate the possibility of reconceptualizing aggression as a particular form of the exercise of coercive power in the manner suggested by Tedeschi et al.,

(1974). A further aim was to demonstrate the efficacy of this paradigm by replicating some of the results of earlier studies of aggression. Since these goals were achieved, a discussion of possible directions for future research using this paradigm seems to be in order.

A particularly interesting variable to manipulate would be information about the responder. This study was designed to keep such knowledge minimal so that the results could serve as an anchor point for interpreting results of future studies. The subject knew that the responder was another student and of the same sex as themselves. Other than this they only had the information conveyed by the brief statement made by the responder which they "accidently" overheard. The attack was delivered as a part of this statement, and even this can be construed as providing information about the responder. The effectiveness of the attack manipulation may partially be due to the subject's belief that the responder will be susceptible to the same type of forceful communication that he or she uses. This variable might be manipulated in conjunction with psychological distance from the responder. Milgram (1974) found this to greatly reduce the willingness of a subject to administer electric shock.

Another factor to be considered in future research is the finding of a means to analyze the strategies of the subjects. It may be that in some conditions a threat or promise is followed by action while in others it is not, or perhaps some subjects alternate

between positive and negative response modes. The paradigm would be more valuable if this type of information were provided.

Conclusion

Although it seems likely that persuasion is practiced by everyone, it is al: likely that no two individuals employ exactly the same persuasive style nor do they persuade for the same reasons. This study was designed to limit the methods of persuasion to a discrete set to permit systematic study of the phenomenon. It is hoped that the methods of persuasion made available to the subject were sufficiently like those used in a natural setting to make generalization possible.

This study did not allow systematic investigation of persuasive styles or motives for persuading. The observation can be made that some subjects refused to use shock and announced that they would not do so early in the trials. There were also a few subjects who seemed to enjoy using shock, and one subject specifically stated that this was the case. It is only possible to speculate concerning the motives of the subjects other than those created by the experimental manipulations, but many subjects did seem to be more concerned about succeeding in the task than about winning money or helping the responder. Perhaps persuasion is a universal activity and perhaps it is intrinsically rewarding.

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Appendices

Appendix A

Taped Instructions

Taped Instructions

Paragraphs marked (A) are only for subjects persuading in the best interest of the responder. Paragraphs marked (B) are only for subjects persuading in their own interest.

(Both) Listen very carefully to the following instructions. After they are given you will be asked a few questions to be sure you understand before we proceed with the experiment.

(Both) This is a study of the effectiveness of different styles of persuasion in getting a suspicious subject to carry out a simple instruction. For this study you will serve as an assistant to the experimenter. This is necessary since you will not be biased by knowledge of the experimental hypothesis. Also by using different individuals in the assistant role we can be assured of getting a good variety of persuasive styles.

(Both) Your role in this experiment is really quite simple. You will speak over this intercom and try to get the subject to press a button and light up the light on your panel. You will not have to touch the intercom since it is already set. You will have several means of persuasion available to you.

(A) You may receive as much as $1.00 for participating in this experiment.

(B) You may win as much as $1.00 if you are 100% effective

in persuading the subject.

(Both) On the table in front of you is a folder. Open it and look at the first sheet. (pause) These are the means of persuasion available to you. You may follow along while I read them and comment on what they mean. You may request the subject's cooperation. This means you may ask the subject to push the button. (pause) You may demand cooperation. This means you may tell the subject to push the button. You may promise pennies or give pennies. You may threaten shock or deliver shock; this will be explained more fully shortly. Now turn to the second sheet in your folder. This sheet is entitled "Instructions to Subject". These instructions will be read aloud to the subject. When I read them I will leave the microphone open so you will be familiar with the information available to him (her).

(Both) Now turn to the third sheet in the folder. This is a diagram of the rooms involved in this experiment. The subject is in a room much like the one you're in. His (her) panel has only one button while your panel has two buttons and a light. If he (she) presses that button it will light the light on your panel. The buttons on your panel are labeled "shock" and "money". If you press the shock button the subject will receive a shock that is painful but not dangerous. If you press the money button the subject will receive a penny from a penny dispenser. If you hold down the shock button only one brief shock is

delivered. If you hold down the money button only one penny is delivered. If you wish to deliver more than one shock or more than one penny you must release the button and press it again.

(Both) This experiment will consist of ten trials, each of which lasts for one minute. There will be 15 seconds between trials for you to plan your strategy for the next trial. During the experiment the subject will hear everything you say but you will not be able to hear him (her). You will hear me announce the beginning and end of each trial. During each trial you will use as many of the six means of persuasion available to you as you choose. Please don't try to persuade the subject during the 15 seconds between trials.

(Both) As you will notice when you hear me read the instructions to the subject, he (she) knows that he (she) can win money in this experiment, but he (she) doesn't know whether he (she) will win by pressing the button or by not pressing the button. I will now provide you with this information, but I do not want you to tell this to the subject.

(A) In fact for each time the subject presses the button during a one minute trial he (she) will receive 10¢. If he (she) presses the button during each trial he (she) will receive a total of $1.00.

(B) In fact each time the subject fails to press the button during a trial he (she) will receive 10¢. If he (she)

does not press the button at all he (she) will receive a total of $1.00. You will recall that I said that you might win $1.00. Each time you succeed in persuading the subject to press the button during a trial you will win 10¢.

(Both) One other factor concerning the money you will receive should be mentioned. Any pennies you give the subject by pressing the money button will be deducted from your money.

(Both) Now turn back to the first sheet in your folder where the means of persuasion are listed. Keep this sheet in front of you for reference during the experiment. Remember that you are free to use as many or as few of these means of persuasion as you choose.

(Both) I will now read the instructions to the subject. You will hear these being read. I will then ask you a few questions to be sure you understand your role in the experiment and then we will proceed.

Appendix B

Information for the Subject

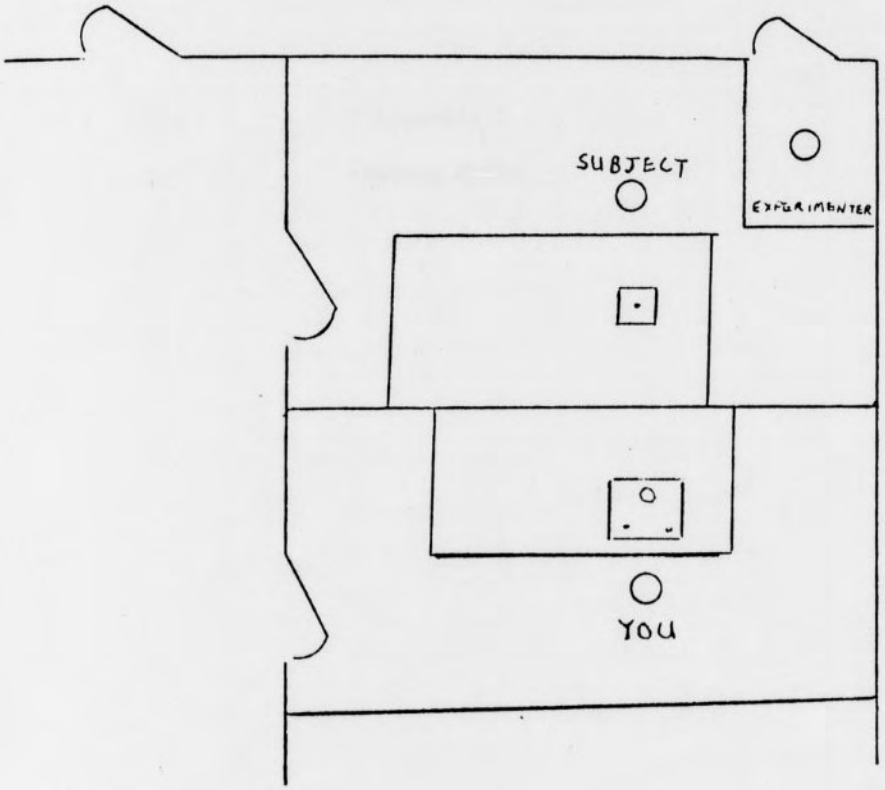
Means of Persuasion With Examples

Method of Persuasion	Examples
Request cooperation	"Please push the button" "Will you push the button, please"
Demand cooperation	"Push the button!" "You had better push the button"
Promise pennies	"If you push the button I will give you a penny (or several pennies)"
Give pennies	(Use the "money" button)
Threaten shock	"If you don't push the button I will shock you"
Deliver shock	(Use the "shock" button)

Instructions to the Responder

On the table in front of you is a panel with one button. During each of ten one-minute trials you must decide whether or not to press that button. If you decide correctly on a given trial you will win 10¢, but you will not know how well you have done until the end of the experiment. My assistant in another room will be trying to persuade you to press the button. He (she) will know whether this will cause you to lose or win but he (she) will not tell you. Now look at the second sheet in your folder. These are the means by which my assistant will try to persuade you. You will notice that they include the delivering of pennies from the penny dispenser on your right and the delivering of shock by means of the shock bracelet which has been attached to your left wrist. The level of shock is set to be painful but not dangerous. Any pennies which you receive will be yours to keep. You will hear me announce the beginning and end of each trial. Please do not press the button between trials. During the experiment you will hear my assistant over the intercom but he (she) will not be able to hear you.

Diagram of Rooms



Appendix C

Rating Scale

Rating Scale

Please rate the subject on a 6-point scale on the following Characteristics:

weak	/___/___/___/___/___/	strong
friendly	/___/___/___/___/___/	unfriendly
fair	/___/___/___/___/___/	unfair
brave	/___/___/___/___/___/	cowardly
reasonable	/___/___/___/___/___/	unreasonable
maladjusted	/___/___/___/___/___/	well-adjusted
tense	/___/___/___/___/___/	relaxed
ignorant	/___/___/___/___/___/	intelligent
sympathetic	/___/___/___/___/___/	unsympathetic
cooperative	/___/___/___/___/___/	uncooperative
bad	/___/___/___/___/___/	good
ill-humored	/___/___/___/___/___/	good-humored
honest	/___/___/___/___/___/	deceitful
accepting	/___/___/___/___/___/	rejecting
sociable	/___/___/___/___/___/	unsociable
cruel	/___/___/___/___/___/	kind

Appendix D

Demographic Data Questionnaire

Demographic Data Questionnaire

Name_____

Age_____ Major_____ Year in school _____

Career plans_____

Grade point average_____

May we check G.P.A. with the Registrar? Yes_____ No_____

Marital status_____ Children_____ How many?_____

Number of siblings_____ Older_____ Younger _____

Father's occupation_____

Mother's occupation_____

Educational level of father_____ mother _____

Religious affiliation of father _____ mother _____

Your religious affiliation_____

How often do you attend religious services?_____

Signature_____

Date_____ Time_____

Appendix E

Tables and Figures

Table 1

Mean Frequency per Trial of Each Response Mode in Each Condition

Sex of Subject	Reward Contingency	Level of Attack	Shock	Threaten Shock	Demand Cooperation	Give Penny	Promise Penny	Request Cooperation
Female	Altruism	Attack	.96	1.31	1.83	3.86	1.66	3.25
Female	Altruism	No Attack	.70	.88	1.48	.64	2.03	2.51
Female	Self-Int.	Attack	1.61	1.58	1.03	.36	1.85	3.03
Female	Self-Int.	No Attack	1.78	1.30	1.43	.58	1.45	3.64
Male	Altruism	Attack	1.49	1.41	.85	2.05	1.30	1.95
Male	Altruism	No Attack	1.54	1.94	.95	1.06	2.19	2.29
Male	Self-Int.	Attack	2.49	1.75	1.05	.78	1.30	1.96
Male	Self-Int.	No Attack	1.03	.90	1.28	1.46	1.08	1.56

Figure 1 Mean Use of Shock per Trial in Each Condition

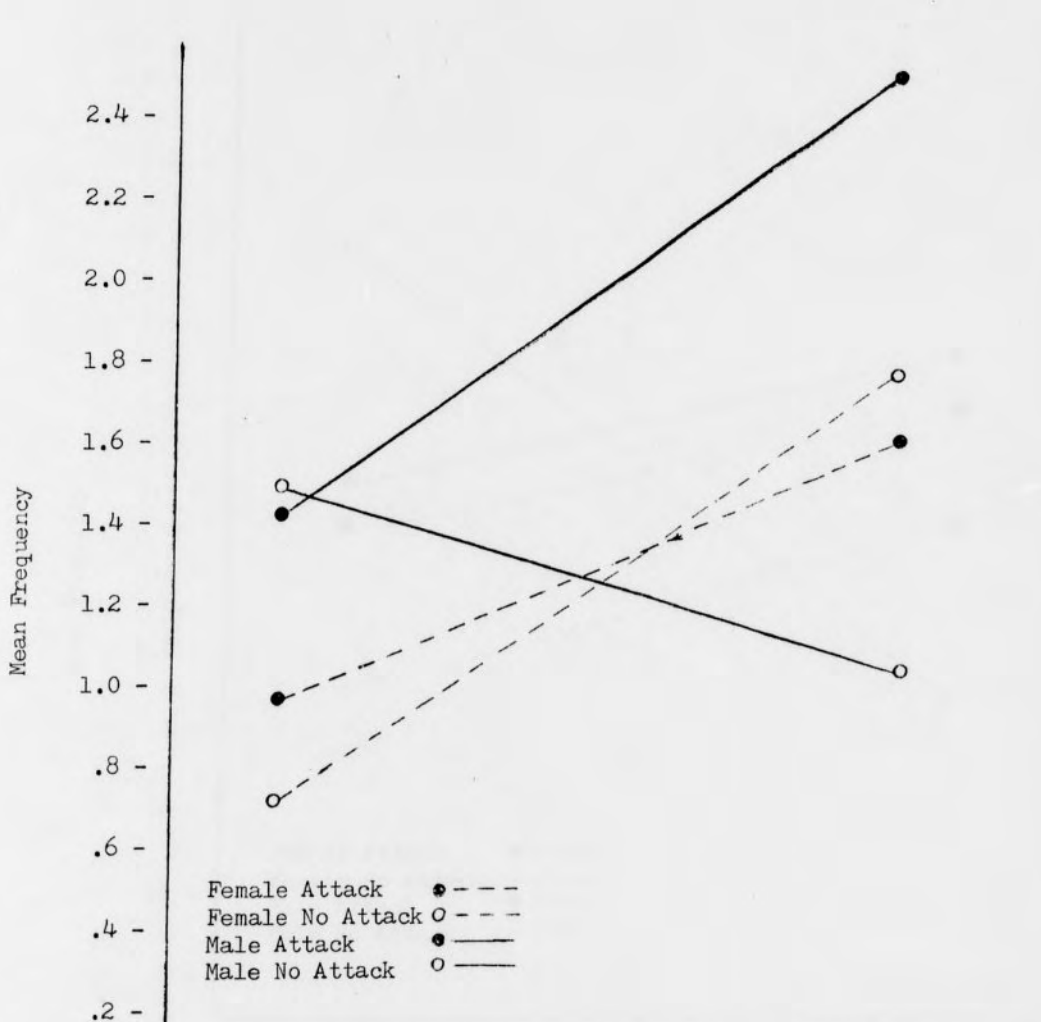


Figure 2 Mean Threats of Shock per Trial in Each Condition

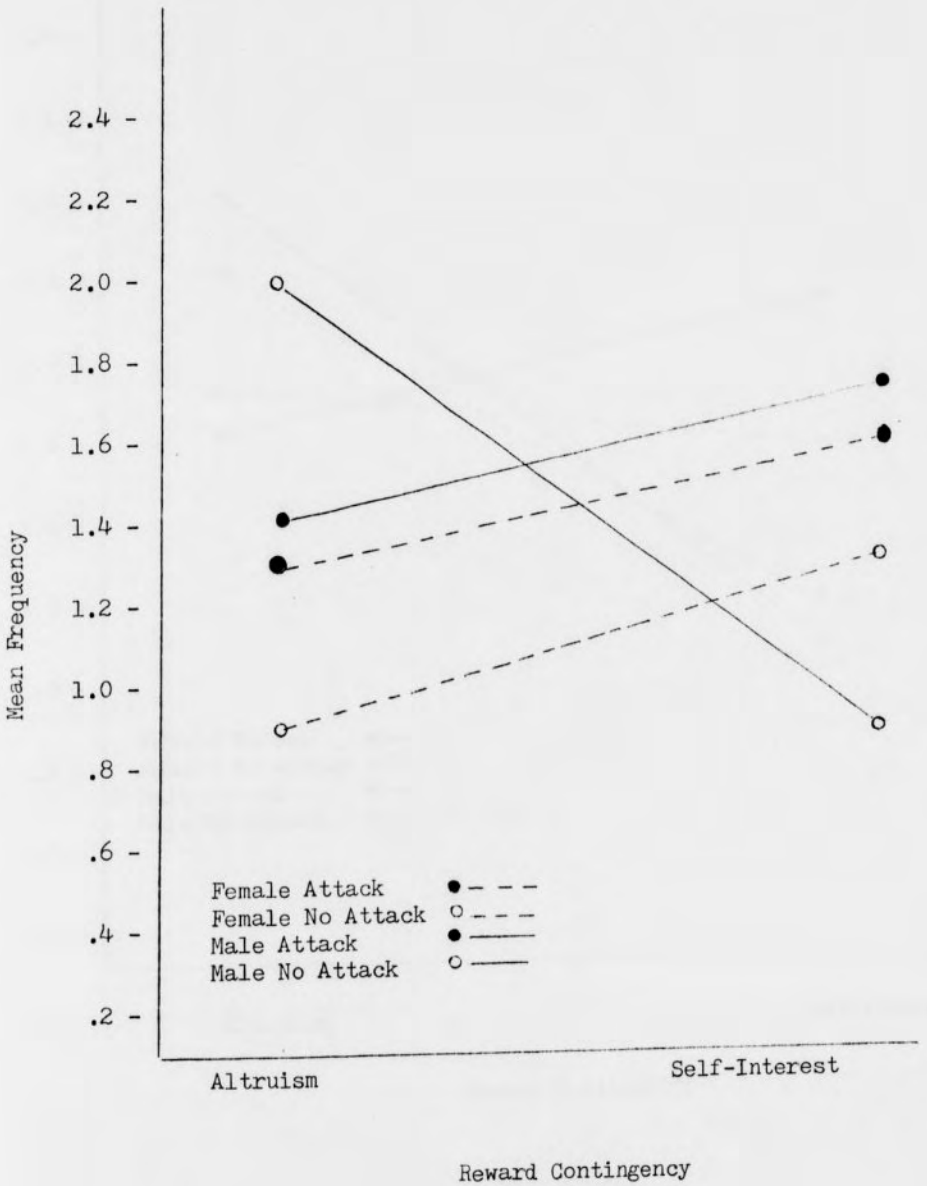


Figure 3

Mean Use of Demand Cooperation per Trial in Each Condition

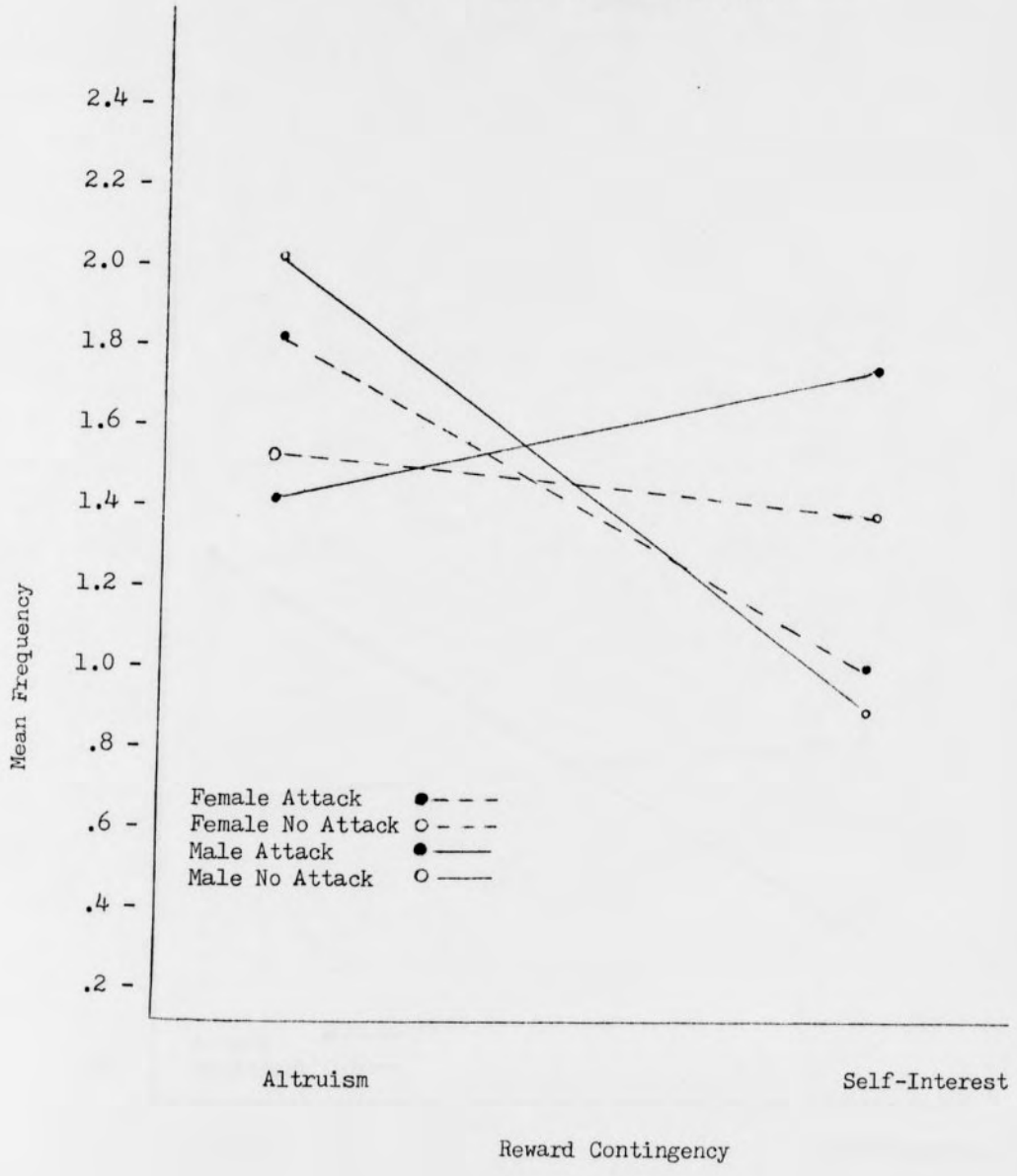


Figure 4 Mean Pennies Given per Trial at Each Level of Reward Contingency and Attack

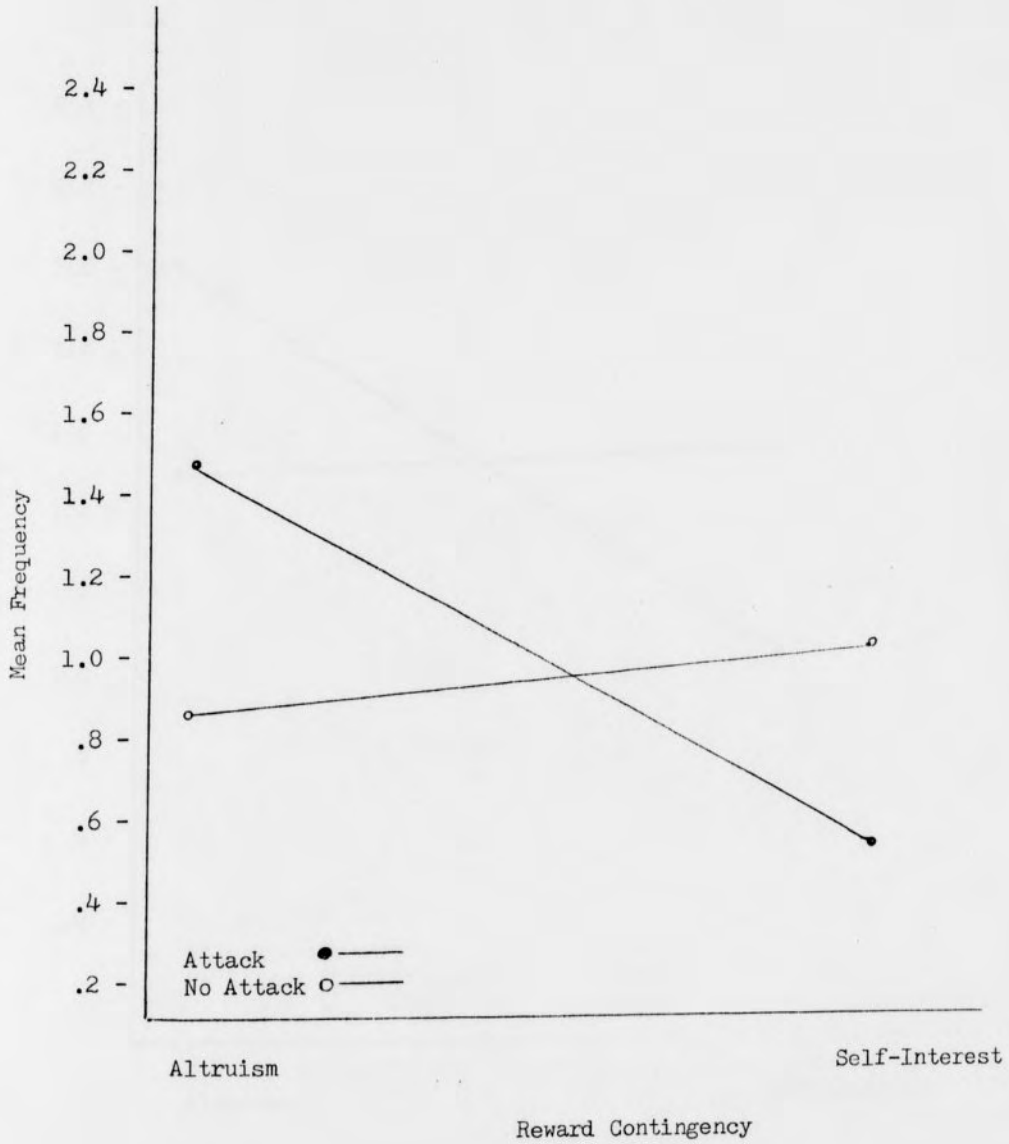


Figure 5 Mean Promises of Pennies per Trial at Each Level of Reward Contingency and Attack

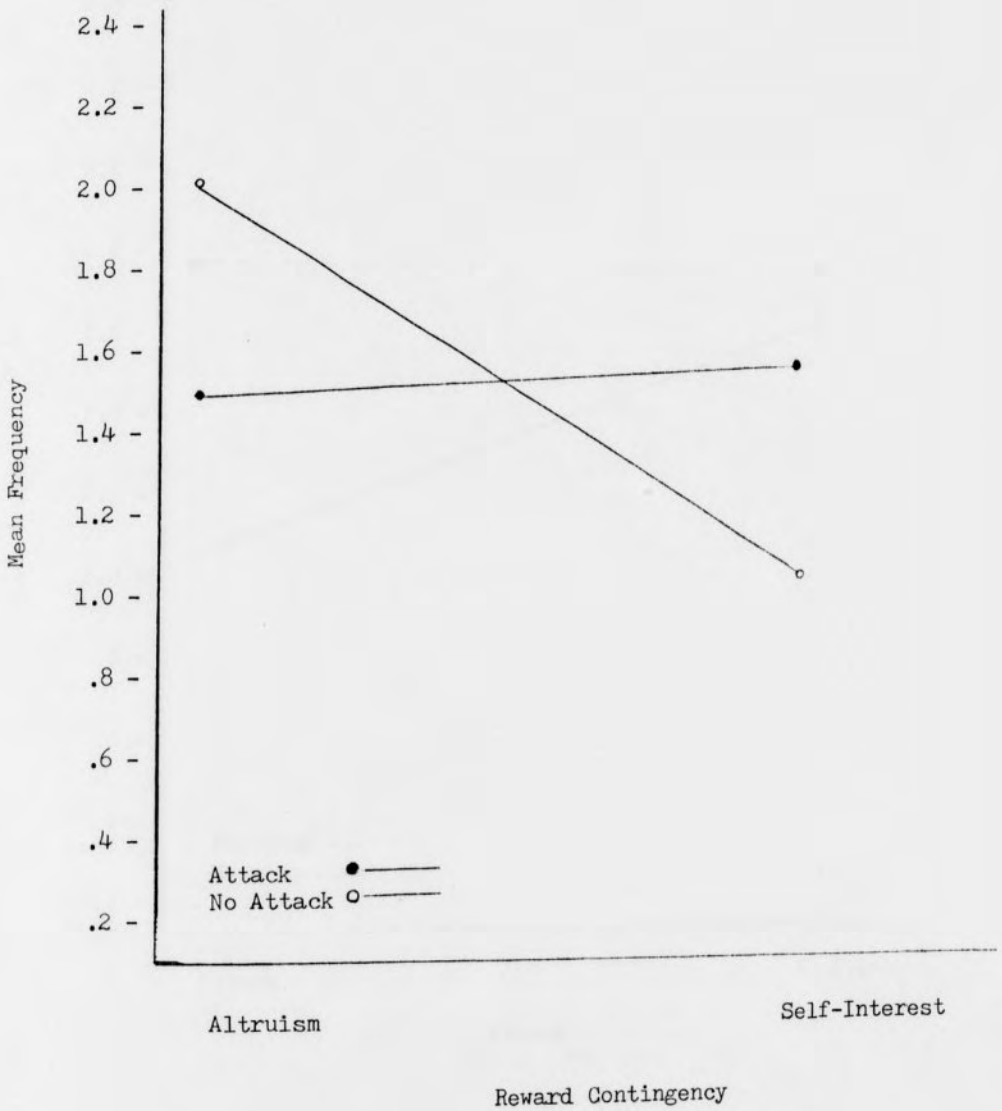


Figure 6

Mean Promises of Pennies per Trial at Each Level of Sex and Attack

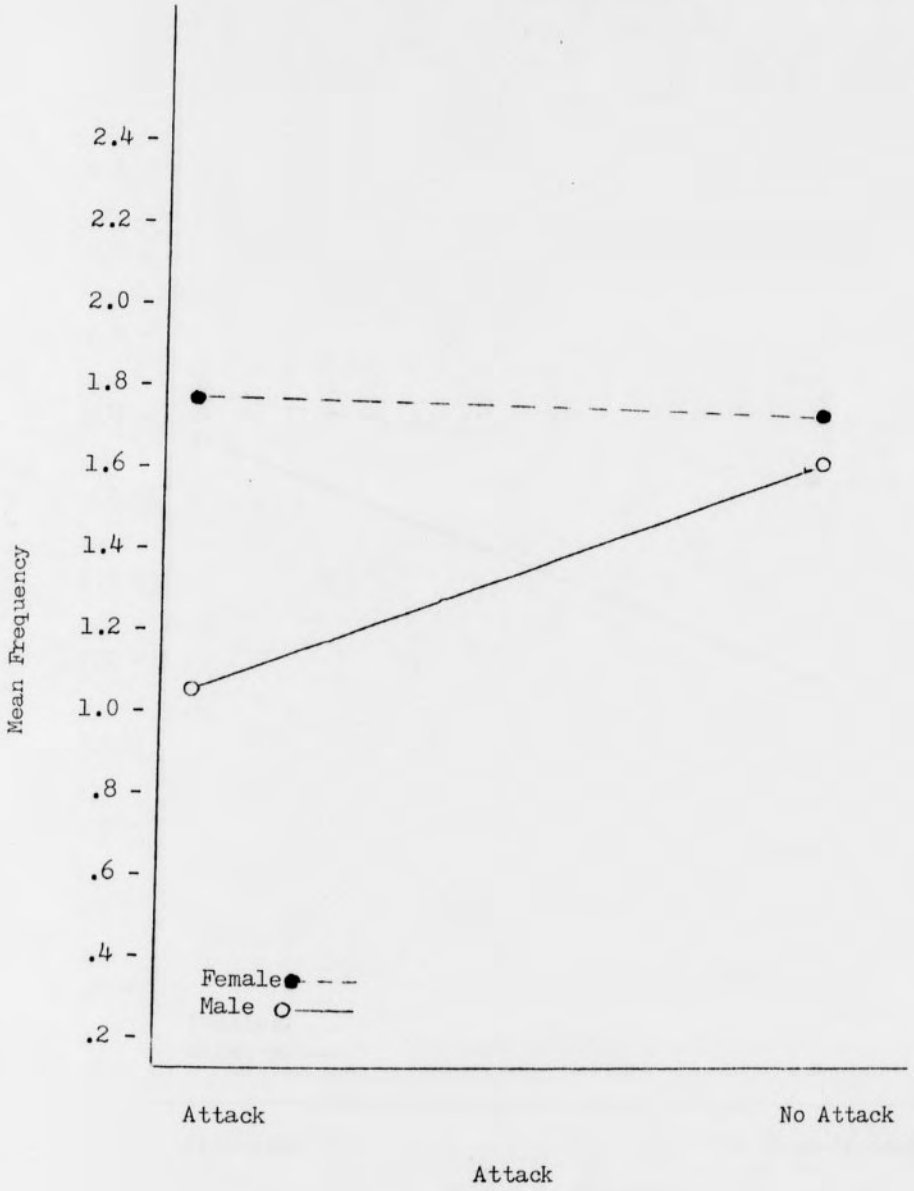


Figure 7

Mean Promises of Pennies per Trial at Each Level of Sex and Reward Contingency

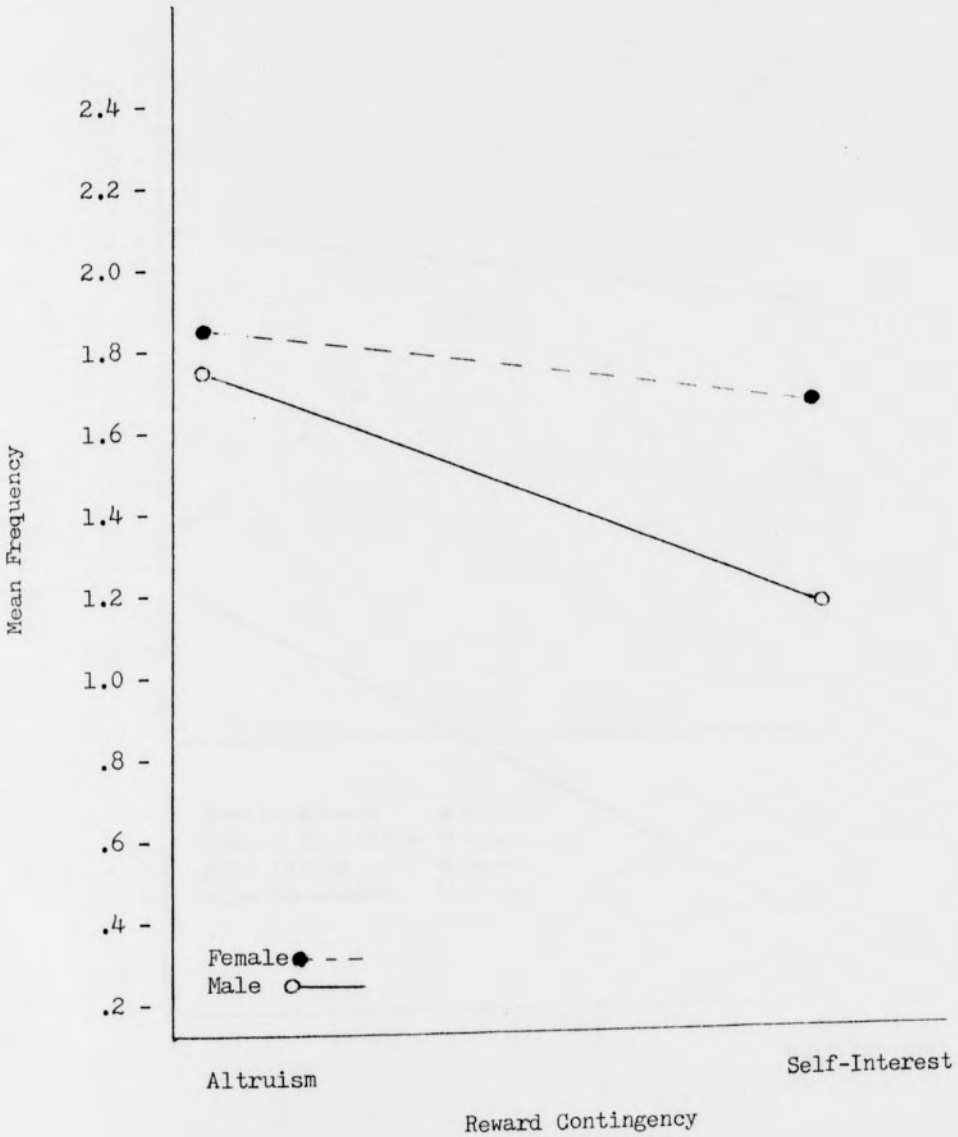


Figure 8 Mean Use of Request Cooperation per Trial in Each Condition

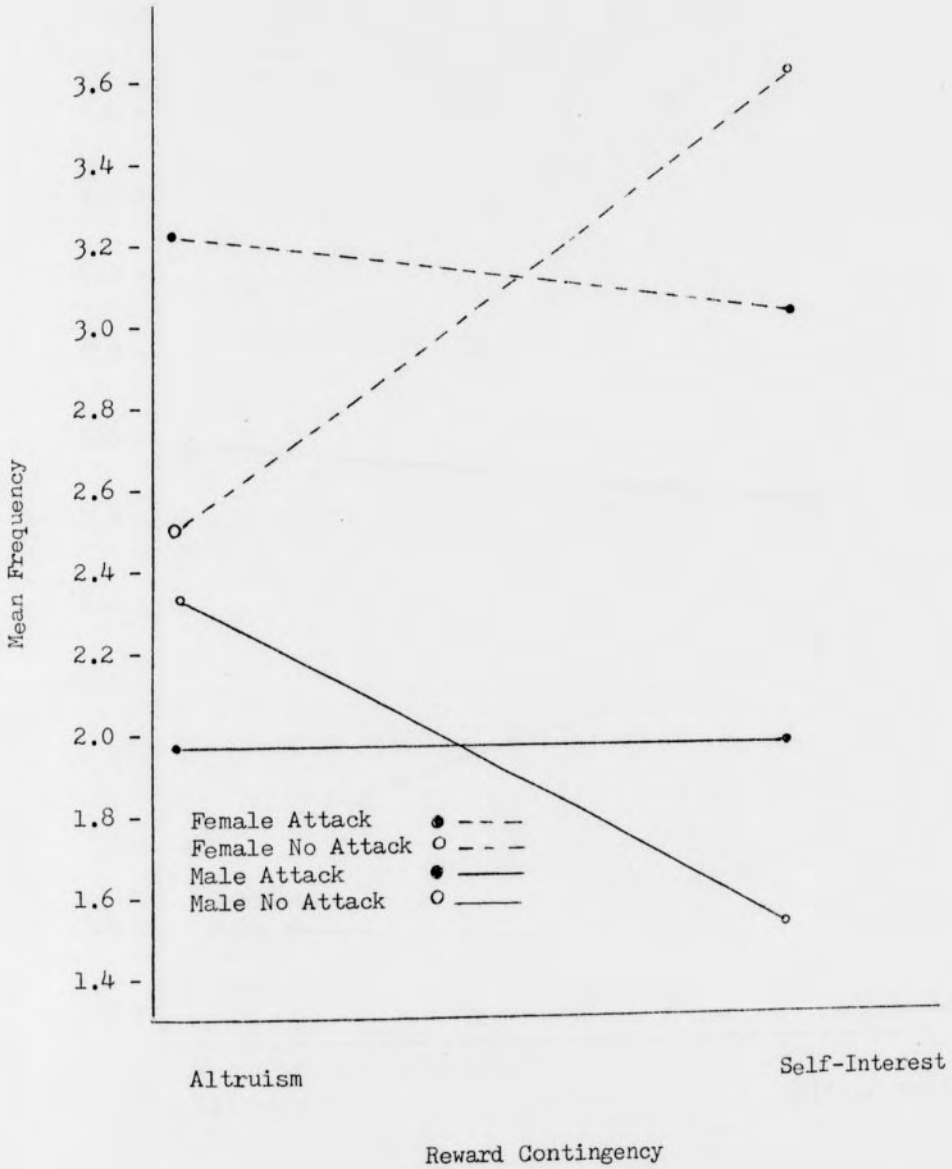


Figure 9

Mean Use of Each Physical Means of Persuasion per Trial at Each Level of Sex and Reward Contingency

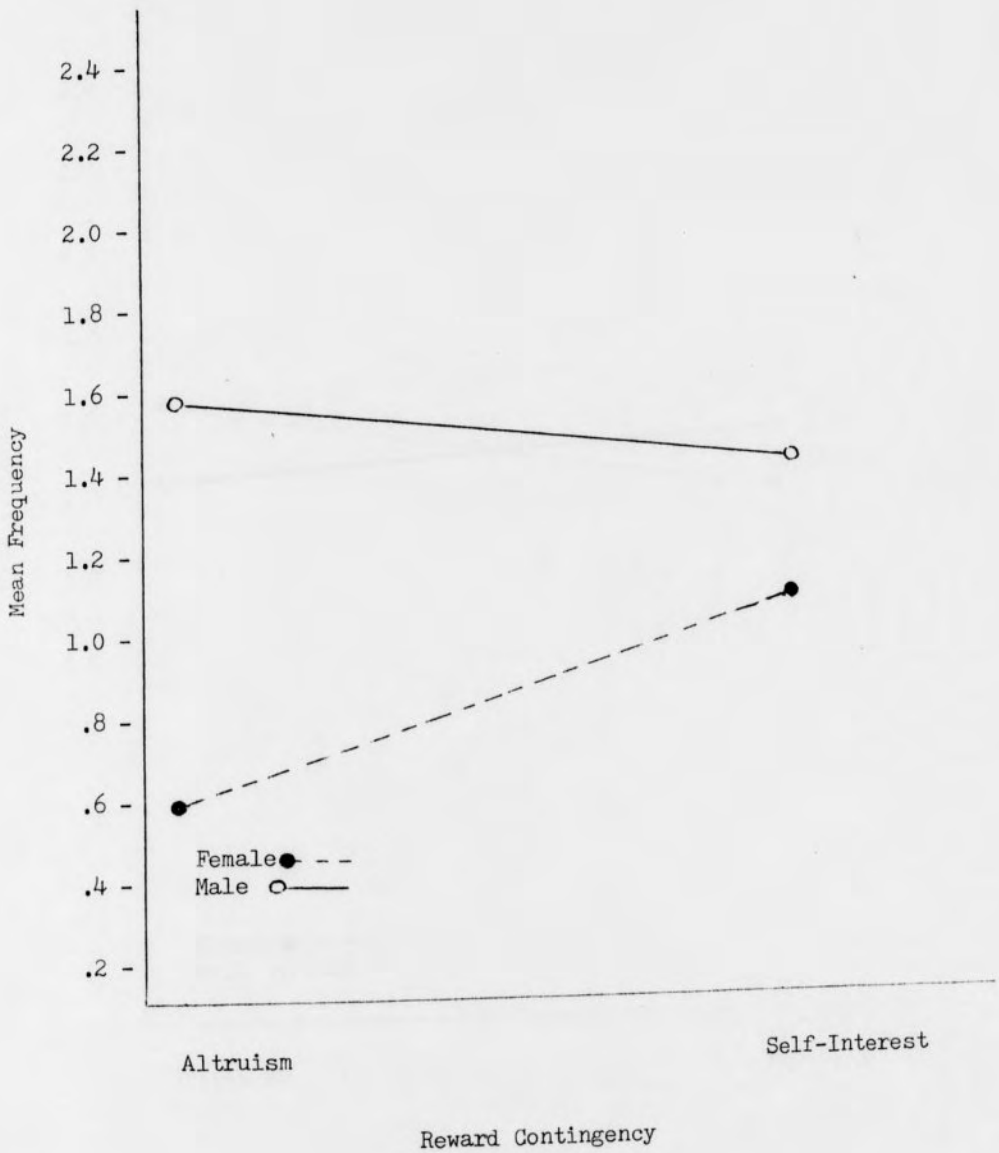


Figure 10

Mean Use of Each Intermediate Means of Persuasion per Trial at Each Level of Sex and Attack

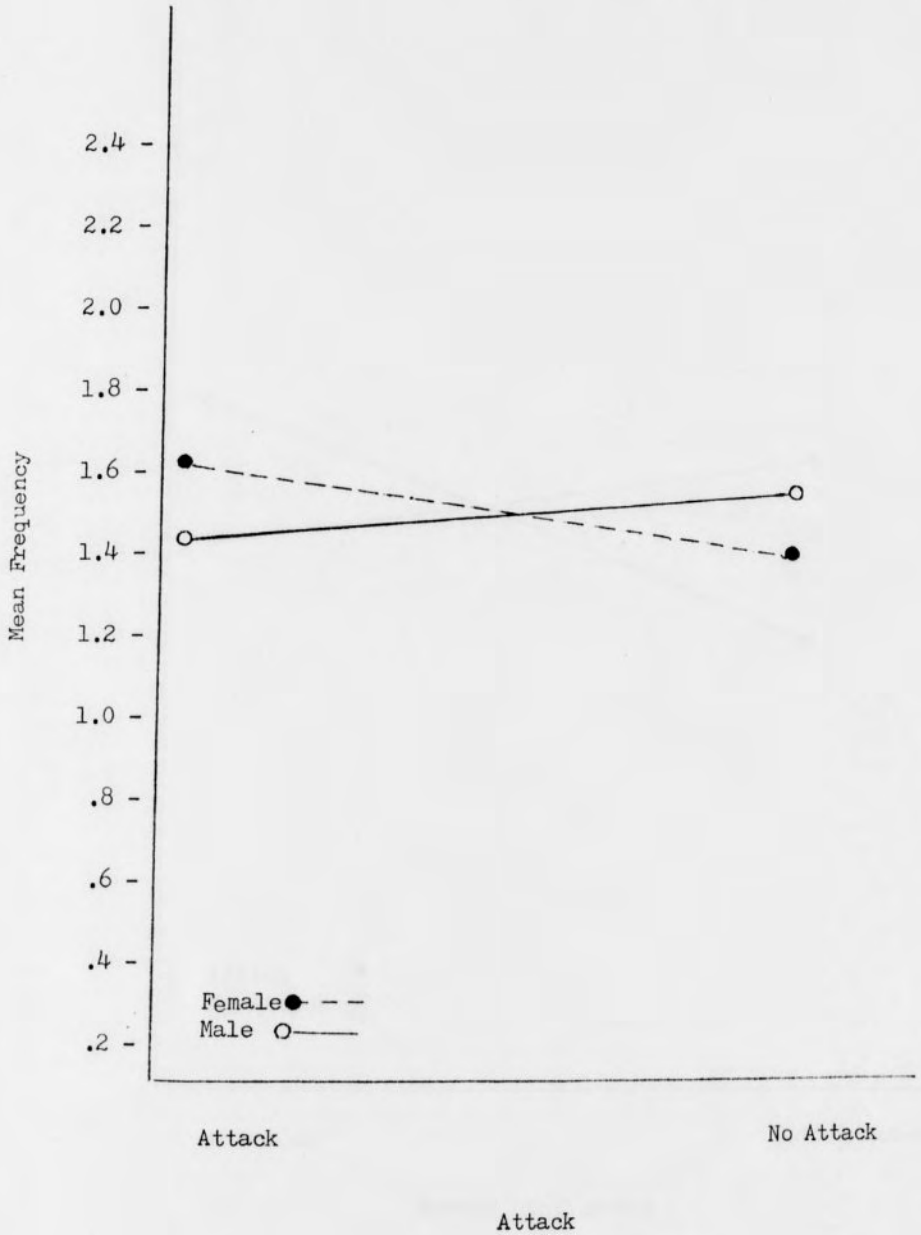


Figure 11

Mean Use of Each Intermediate Means of Persuasion per Trial at Each Level of Reward Contingency and Attack

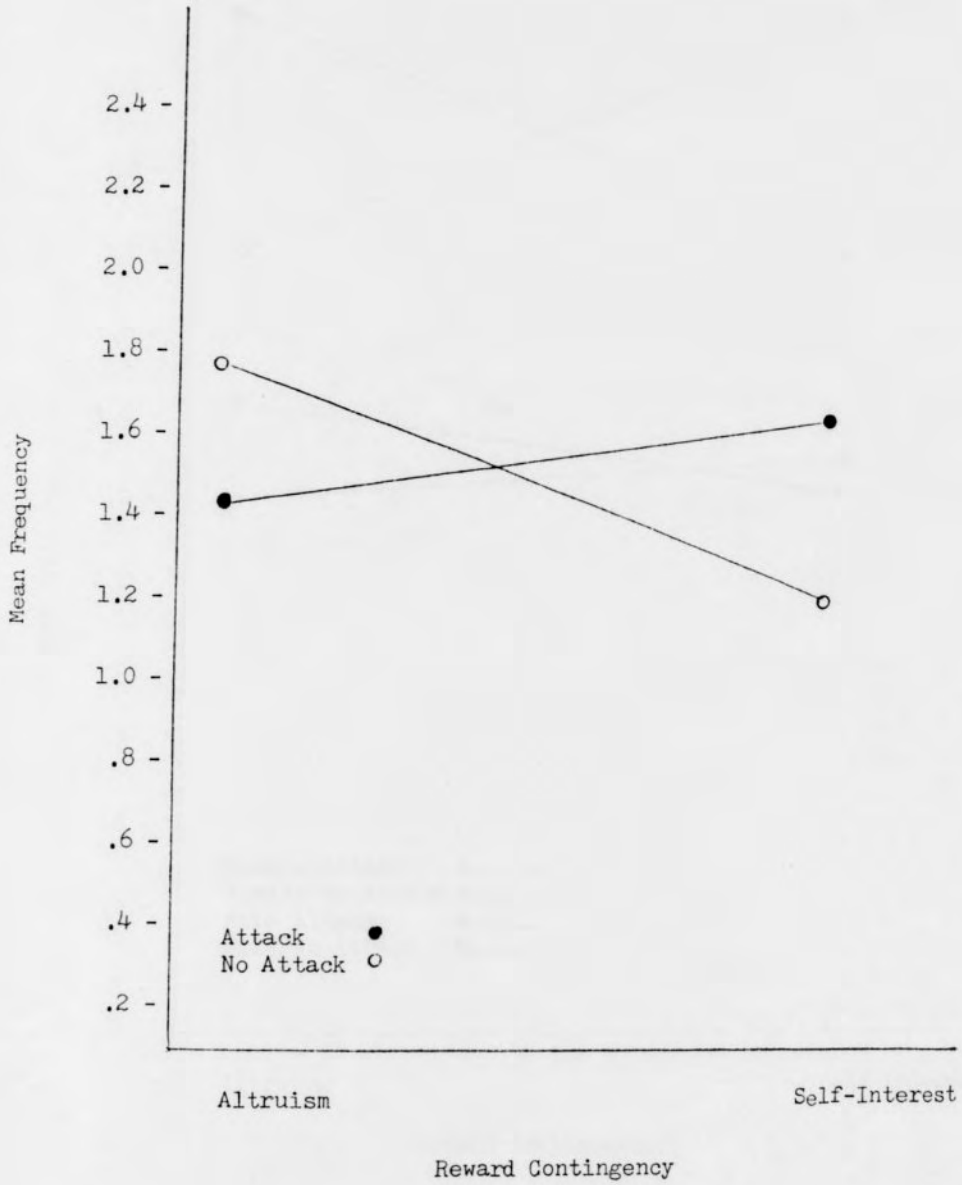


Figure 12

Mean Use of Each Verbal Means of Persuasion per Trial in Each Condition

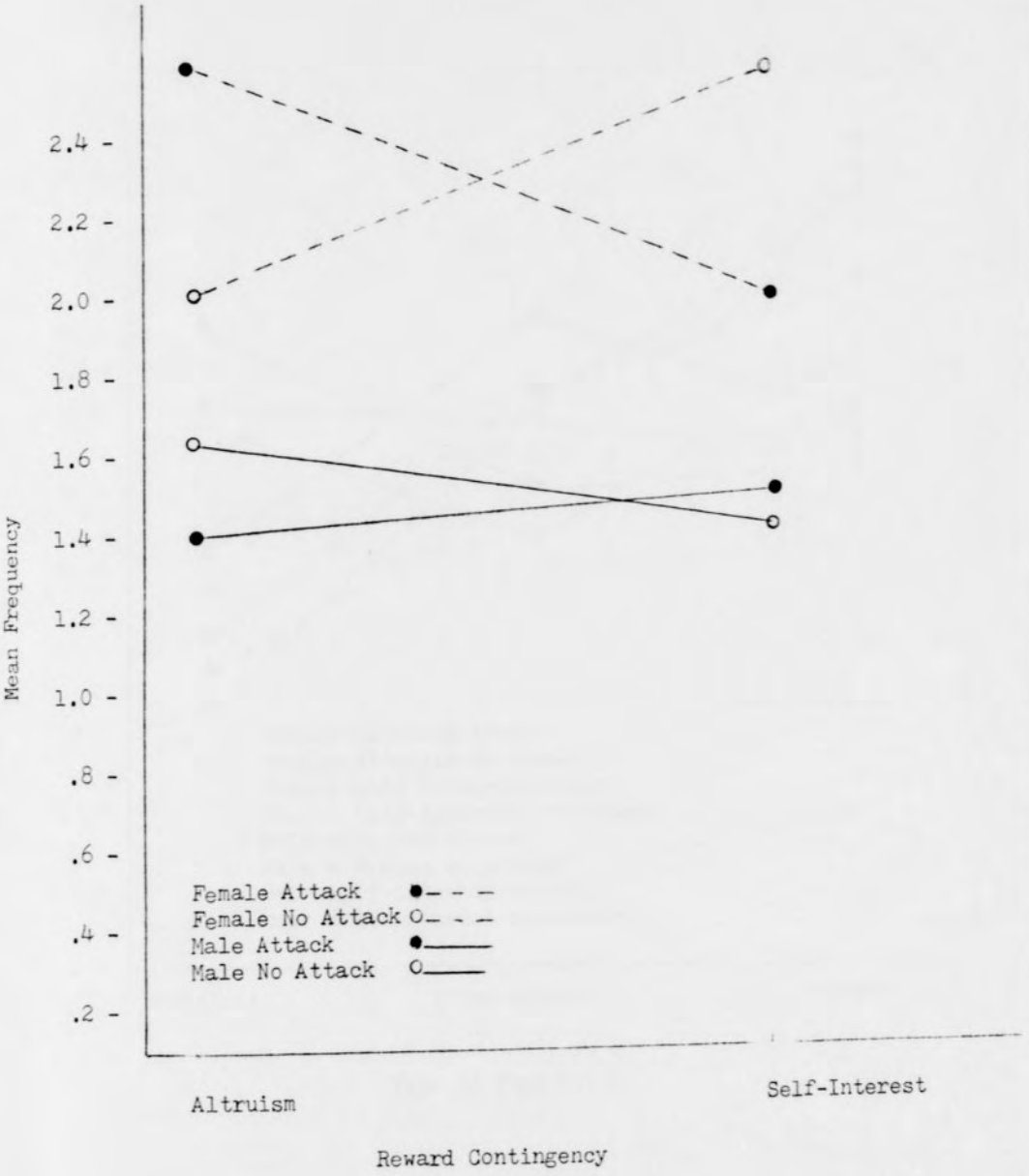


Figure 13

Per Cent of Total Responses in Physical, Intermediate or Verbal Categories