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Effects of Repression-Sensitization, Arousal, and Sex on Physical Aggression

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EFFECTS OF REPRESSION-SENSITIZATION, AROUSAL, AND SEX ON PHYSICAL AGGRESSION

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This Dissertation submitted by Richard J. Moser in partial fulfillment of the requirements for the Degree of Doctor of Philosophy from the University of North Dakota is hereby approved by the Faculty Advisory Committee under whom the work has been done.

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ABSTRACT

In the past two decades, numerous experiments have focused on a wide variety of situational factors influencing the arousal, intensity, and direction of aggressive behavior. In contrast, few studies have considered the role of individual difference variables in producing aggression. The present study was concerned with a personality variable which theoretically should have some relevance to the expression of physical aggression. This variable was repression-sensitization (R-S) as measured by the revised Repression-Sensitization Scale (Byrne, Barry, and Nelson, 1963). In an attempt to improve upon the predictive validity of R-S, defensive and nondefensive repressors were differentiated through the use of Marlowe-Crowne Social Desirability Scale scores.

Arousal and subject sex were also included as independent variables. Arousal was manipulated by means of instructions.

The dependent variables in the present experiment were mean shock intensity administered on an apparatus similar to the Buss Aggression Machine, Multiple Affect Adjective Check List (MAACL) scale scores, and subscale scores on a Mood Scale constructed by the author. The experimental design was a 3x2x2 factorial with three levels

of R-S (sensitizers, nondefensive repressors, and defensive repressors), two levels of sex (male and female), and two conditions of arousal (high and low).

Seventy-two subjects were led to believe that a confederate was also a student participating in a learning experiment. Subjects were told that they would be teaching a concept through the use of reward (a "correct" light) and punishment (shock). Instructions were designed to produce more frustration in the high arousal group than in the low arousal condition. After the experimental procedure, the MAACL, the Mood Scale, and a Post Experiment Questionnaire were administered.

No differences in mean shock intensity were found among the R-S groups. Males and females also did not differ in aggressive responding. Only the arousal main effect reached significance. Contrary to expectations, the low arousal group administered significantly more shock than the high arousal subjects. A possible explanation in terms of aggression anxiety lowering the aggressive responses of high arousal subjects was offered.

On the hostility, anxiety, and depression subscales of the MAACL and Mood Scale, sensitizers scored higher than repressors. No differences in mean shock intensity or affect scale responses were found between nondefensive and defensive repressors. These data were compared to results of previous R-S experimentation in which defensive and nondefensive repressors were differentiated.

In conclusion, while sensitizers describe themselves as more hostile than repressors, their overt aggressive behavior does not appear to differ.

CHAPTER I

INTRODUCTION

In the past two decades, experimental investigation of the concept of aggression has been greatly accelerating. Numerous studies have focused on a wide variety of situational factors influencing the arousal, intensity, and direction of aggressive behavior. In contrast, there have been few investigations which have studied the role of individual difference variables in producing aggression. This may be an unfortunate oversight. In an Annual Review of Psychology article, Sarason and Smith (1971) wrote:

> . . . dismissing individual differences in personality characteristics because of the difficulties in measuring them or the procedural problems involved in incorporating them into research designs serves to vitiate the evolved goal of understanding human behavior (p. 394).

They suggested that experimental designs which apply treatment to subjects who differ on theoretically relevant dimensions "not only reduce error variance but also provide opportunities to demonstrate construct validity."

Consequently, the present study focused on a personality variable which theoretically should have some relevance to the expression of

physical aggression. This variable was repression-sensitization (R-S) as measured by the revised Repression-Sensitization Scale (Byrne, Barry, and Nelson, 1963).

Most previous experiments have related R-S to hostility rather than aggression. In these studies, hostility has been defined in terms of certain responses on projective techniques, scores on hostility scales, or self-reports on other scales and questionnaires. The term, "aggression," has been reserved for overt motor or verbal acts of a hostile nature. Following this distinction, in the present investigation, aggression is defined as "the delivery of noxious stimuli to another organism" (Buss, 1961). No studies relating R-S to physical aggression were found in a review of the literature. This lack of experimentation provided the impetus for the present investigation.

In the next chapter, studies which have investigated the relationship between personality characteristics and aggression expression will be reviewed. Following this, relevant R-S experimentation will be surveyed. Various methodological considerations will then be discussed. Finally, the rationale for the present investigation will be given, and predictions will be made regarding results.

CHAPTER II

LITERATURE REVIEW

Aggression

Personality Characteristics and Aggression

Although situational factors relating to the direct expression of aggression have been extensively studied during the past two decades, few experiments have measured the degree to which individual differences on personality and intrapersonal variables are important. This portion of the review will focus on studies in which personality and intrapersonal variables have been related to aggressive behavior. Among the individual difference variables which have been shown to have effects on aggressive behavior are: self-report guilt, anxiety, sex-role adjustment, self-report hostility, affective responsiveness, emotionality, impulsivity, and empathy. The following paragraphs will describe the research which utilized these variables.

One of the variables which has been studied in relationship to the expression of aggression is guilt. Using the Mosher Incomplete Sentences Test as a means of obtaining measures of "hostility-guilt," Gambaro and Rabin (1969) allowed angered high-guilt and low-guilt

subjects to aggress by means of shock. Following aggression, low-guilt subjects showed a significantly greater diastolic blood pressure decrease than did high-guilt subjects. In other words, low-guilt subjects showed a more rapid reduction in physiological tension than did high-guilt subjects. In another study, Okel and Mosher (1968) requested male subjects to aggress verbally against a stranger subsequent to listening to a "first impression" interview with that person. These verbal attacks appeared to lead to distress, disorganization, and discomfort in the victim whose responses were simulated by a tape recorder. After this violation of standards for proper aggressive conduct, subjects with high scores on the Mosher Forced-Choice Guilt Inventory were shown to have a greater increase in "guilt-state" as measured by the Nowlis Mood Adjective Checklist than did subjects with less guilty personality dispositions. Thus, guilt as a personality trait was relevant to the experiencing of a transitory state of guilt after engaging in an aggressive attack.

Trait anxiety as a personality variable has also been studied in relationship to physical aggression. In an unpublished doctoral dissertation, Middleton (1971) selected subjects on the basis of their scores on the Taylor Manifest Anxiety Scale (MAS). MAS scores were not found to be related to the overt expression of aggression on the Buss Aggression Machine (BAM). No other studies directly relating trait anxiety to physical aggression could be found in the literature.

Several investigations have related sex-role identification to the expression of aggression (Knott and Drost, 1970; Leventhal and Shemberg, 1969; Leventhal, Shemberg, and Van Schoelandt, 1968). In these studies sex-role adjustment was determined by scores on the Guillford-Zimmerman Index of Masculine Interests. Leventhal et al. suggested that both adequate identification with one's sexual role and the capacity to express aggression in situations calling for an aggressive response are positively related to good psychological and social adjustment. They used this rationale to predict that for both sexes adequate sex-role identification would lead to more aggression in a situation calling for aggressive responding than would inadequate identification with one's sexual role. Instructions were used to encourage the expression of aggression. The subjects were to use the BAM to teach a concept with the use of reward and punishment. As predicted, masculine males and feminine females delivered significantly more shock than did feminine males and masculine females. In a more recent study, Leventhal and Shemberg (1969) used a similar procedure except that aggressiveness was not clearly sanctioned. Well-adjusted males and poorly-adjusted males and females administered similar amounts of shock. However, these subjects expressed significantly more shock than females who were well adjusted to their sex role. The authors suggested that anxiety might be an important factor in the

differential expression of aggression by males and females who are well or poorly adjusted to their sex roles.

Knott and Drost (1970), using a procedure similar to that of Leventhal and his co-workers to determine sex-role adjustment, also employed a task in which aggression was clearly sanctioned. All subjects were shocked by a confederate and then allowed to counter-shock. Knott and Drost found that male subjects who were well adjusted to their sex roles expressed significantly more aggression in terms of number of shocks and mean intensity of administered shocks than did well-adjusted females and poorly-adjusted males and females. The authors explained the discrepancy between their results and those obtained by Leventhal et al. as probably a function of greater increases in anger produced by the Knott and Drost procedure. In addition, they stated that guilt might also have been a factor but that "the relationships between sex-role identification and the expression of aggression in sanctioned or nonsanctioned conditions will remain ambiguous until we learn more about the relationships among anger, anxiety about anger, and the actual expression of aggression."

Hostility as measured by self-report inventories is another personality variable which has been related to aggression expression. Results of these studies have been inconsistent. Leibowitz (1968) gave the Buss-Durkee Hostility Inventory (BD) to thirty-eight college males. No correlation was found between BD and the amount of shock ostensibly

given to an accomplice by means of the Buss Aggression Machine (BAM). These results conflict with those of Knott (1970), who found a significant relationship between BD scores and BAM measures of number and intensity of shocks used. The differences in the results of the two studies appear to be attributable to the research design employed. Knott's procedure differed from that of Leibowitz in that more anger was probably provoked in the Knott study. Knott had his accomplice administer a small number of shocks at pain threshold to the subjects. The subjects then were allowed to retaliate. However, Leibowitz did not have his accomplice aggress against the subjects. Leibowitz' subjects were thus not engaging in retaliation. Knott found a significant increase in anger reported on a mood questionnaire for both low hostility and high hostility subjects. Furthermore, Leibowitz provided feedback from the accomplice whenever the shock administered reached a certain level or higher, while Knott did not. This procedure would tend to decrease the intensity of aggression expressed (Buss, 1966).

Another variable which has been shown to have relevance to the expression of aggression is affective responsiveness. Dengerink (1969), in an unpublished doctoral dissertation, used scores from Lykken's Activity Preference Questionnaire as measures of affective responsiveness. Half of the subjects were told they would receive amounts of money which depended upon the intensity of the shock they set for their opponent. The remaining subjects received no money.

Subjects were provoked by receiving either high or low intensities of shock from their alleged opponent in a reaction time task. Subjects low in affective responsiveness were found to set higher intensity shocks for their opponents under low levels of provocation than did subjects high in affective responsiveness. Dengerink interpreted the results as indicating that unresponsive persons have less fear of punishment and/or disapproval than do people more affectively responsive. On the other hand, when a high level of provocation existed, subjects of all groups responded to increasing attack with increasing counter-aggression. In addition, instrumental reward enhanced the shock setting of both high and low affective responsiveness subjects.

Emotionality, a construct closely related to affective responsiveness, has also been used in an investigation of aggressive behavior. Fraczek and Macaulay (1971) gave a word association test which included aggressive stimuli to male college students. Their responses were rated as high or low in emotionality. On the basis of the ratings, subjects were divided into high and low emotionality groups. In the experiment, a confederate of the experimenter gave the subjects "an unfairly high number of shocks" in judging the subjects' performance on a task. Subjects then judged the confederate's work, again using shock. In the presence of an aggressive stimulus (a gun), low emotionality subjects gave a significantly greater number of shocks to the confederate than did another group of low emotionality subjects who

were not in the presence of the aggressive stimulus. High emotionality subjects tended to give the confederate longer shocks than low emotionality individuals, whether the aggressive stimulus was present or not. High emotionality subjects also tended to give shocks of shorter duration and to report lowered anger in the presence of aggressive stimuli than did low emotionality subjects. These findings can be related to those previously described for persons who were differentiated on the basis of affective responsiveness.

Impulsivity is a variable which has been studied in relationship to judged aggression. Kipnis (1968) used scores on the Kipnis and Wagner Insolence Scale as measures of impulsivity. Navy men high in impulsivity were shown to express more aggression in criticizing an individual with extremely deviant opinions than did men who were middle or low on impulsivity. This difference was much greater, however, when their performance was preceded by hearing a confederate, ostensibly another subject, give a strongly hostile evaluation. Thus, even the most impulsive persons were shown to be sensitive to a situational manipulation. This study offers additional evidence for the contention that both personality and situational variables must be considered in aggression research.

Empathy has also been related to judgmental ratings of aggression. Feshbach and Feshbach (1969) asked children to state how they felt following a presentation of slide sequences paired with narrative

material. Judges scored a response as empathic when the feeling reflected in the response was a specific match with the affective situation observed. Using rating scales, the authors found that teachers rated high empathy seven-year old males as significantly less aggressive than their low empathy peers; however, the relationship was reversed at the four- to five-year old level. Empathy in females was not found to be correlated with ratings of overt aggression at either age level. These findings were consistent with numerous other studies which have found sex differences in overt aggressive behavior (e.g., Buss, 1963, 1966; Schuck, Schuck, Hallam, Mancini, and Wells, 1971; Taylor and Epstein, 1967).

This review provides strong evidence that a number of personality factors play a role in determining the expression of overt aggression. The studies of greatest interest from the standpoint of the present investigation are those dealing with affective responsiveness and emotionality. The general finding that persons high in affective responsiveness and emotionality are likely to respond with greater degrees of aggressiveness suggests the hypothesis that, in certain situations, sensitizers would have a greater probability of responding in an aggressive fashion than would repressors. However, no direct investigation of this hypothesis was found in a review of the literature. In view of this, the present investigation was designed to study the

relationship between repression-sensitization and the physical expression of aggression.

In the following section, a conceptualization of R-S will be presented followed by a review of studies relating R-S to hostility and aggression.

Repression-Sensitization

Conceptualization of Repression-Sensitization

The concept of repression-sensitization arose out of investigations of perceptual defense in the late 1940's and early 1950's. In this research, subjects were categorized as repressors or sensitizers by various methods and then were tested for perceptual threshold differences for threat versus nonthreat stimuli (e.g., Carpenter, Wiener, and Carpenter, 1956; Eriksen, 1952; Kissin, Gottesfeld, and Dickes, 1957; Kurland, 1954; Lazarus, Eriksen, and Fonda, 1951; Nelson, 1955). Although these studies contained several different subject populations, perceptual tasks, and measures of defenses, significant relationships were generally reported between perceptual behavior and defenses. Byrne (1964) suggested that these studies indicate that:

> . . . those individuals who have difficulty in perceiving threatening material accurately also give evidence of blocking, repression, and avoiding when responding to conflictual stimuli in other contexts. Conversely, those who perceive threatening stimuli as accurately or more accurately than neutral stimuli respond in other situations with intellectualization, sensitization, and general approach behavior (p. 172).

Byrne believes that investigations in these areas "suggest rather strongly the presence of an approach-avoidance sort of dimension with respect to response to threatening stimuli."

As a solution to the problem of reaching and agreeing upon a stable measure of repression-sensitization, Byrne (1961) developed a 156-item Repression-Sensitization Scale, in which high scores indicated sensitizing responses and low scores repression. A later revision (Byrne, Barry, and Nelson, 1963) resulted in a 127-item revised R-S scale. This scale was found to correlate highly with concurrent measures of repression-sensitization.

Since the literature on R-S has been reviewed extensively elsewhere (Sarason and Smith, 1971; Adelson, 1969; Byrne, 1964), an all-inclusive review will not be attempted here. Instead, the focus will be on studies involving R-S and the expression of hostility or aggression. Investigations will be presented in which the R-S scale was used to predict differential hostile or aggressive responses.

Repression-Sensitization and Hostility Expression

This section of the review will focus on the relationship between R-S and hostility. In the studies below, hostility will be variously defined in terms of scores on projective techniques, self-report rating scales, inventories, and questionnaires.

One method of deriving hostility scores has been through the use of projective techniques. Research employing projective measures of hostility in repressors and sensitizers has produced equivocal results. Byrne (1964) reviewed a study by Tempone who found that male sensitizers gave significantly more aggressive content than repressors on the Thematic Apperception Test (TAT). On the other hand, Byrne (1961) found no differences between male and female repressors and sensitizers on TAT aggression scores. Likewise, scores on the Elizur Rorschach content test of hostility did not differentiate repressors from sensitizers (Parsons and Fulgenzi, 1968). In a personal communication to Byrne (1964), Lomont reported that he had found no correlation between R-S and aggression scores on the Holtzman Ink Blot Test.

Word association responses might also be used as projective measures of hostility. Blaylock (1963) investigated the correlation between repression-sensitization and the number of stimulus words perceived as aggressive. In a group administration Blaylock found a moderate but significant correlation. In contrast, individual administration to persons in another group resulted in no relationship between R-S scale scores and number of stimulus words perceived as aggressive.

The failure to find significant results in some of the above-mentioned studies could be attributable to poor validity of hostility measures derived from projective techniques. Another interpretation, however, was made in the Lomont research described above. He found

a significant correlation between R-S and scores on the Buss-Durkee Hostility Inventory but no relationship between R-S and a Holtzman Ink Blot measure of hostility. The hostility measures did not correlate significantly with each other unless scores on the R-S variable were partialled out. Lomont concluded that "this finding is in keeping with the clinical hypothesis that repression censors an individual's self report of aggression and that the ink blot measure of aggression largely circumvents censorship." Due to the small amount of common variance (r = .49) found between the two measures, further experimental validation of the above findings seems to be warranted.

Studies in which self-report scales and indices have been employed to measure hostility have provided more consistent results than those reported above. These more direct measures are presumably more susceptible to the defensive patterns used by repressors and sensitizers.

In a study investigating the relationship between R-S and measures of self-description, Altrocchi and Perlitsch (1963) used scores on several MMPI scales to measure R-S. Female nursing students who were acquainted with each other were administered the Interpersonal Check List. Love scores from this instrument measure affection and hostility attributed to self, to others, and to oneself by others. High love scores indicate the attribution of affiliative, affection oriented traits, while low scores indicate the attribution of hostile, disaffiliative

traits. Results suggested that sensitizers tend to attribute more hostility toward themselves than do repressors. Altrocchi and Perlitsch concluded that repressors "do not seem to think that feelings of anger or hostile behavior are salient aspects of their functioning." These experimenters stated that further evidence is required in evaluating clinicians' assumptions that "hostile impulses are aroused as readily in repressors as in other people, but are simply repressed."

A later study by Altrocchi, Shrauger, and McLeod (1964) used the Rosenzweig Picture-Frustration Test and a fourteen-item rating scale as hostility measures. R-S was again measured by scores on a combination of six scales on the MMPI. After discussion of a controversial subject with a stranger, subjects rated themselves and the stranger on the hostility scales. On the Rosenzweig test, female sensitizers attributed more hostility toward themselves than did female repressors. No relationship was found for females between the rating scale responses and R-S. No differences were reported between male repressors and sensitizers on either hostility scale. Male and female subjects attributed more hostility to self than to others on both instruments. Thus, again, female sensitizers were shown to produce a higher self-report expression of hostility than did repressors.

Megargee, Cook, and Mendelsohn (1967) gave the R-S scale to male prisoners in order to obtain evidence for validation of their Over-controlled Hostility Scale (O-H) derived from MMPI items. Repressors

scored higher on the O-H scale than sensitizers. Repressors were thus less likely to admit hostility to themselves. On yet another scale (Aggression scale of the Adjective Check List), male and female repressors gave lower hostility scores than did sensitizers (Weissman and Ritter, 1970).

Another means of investigating the differential self-descriptive tendencies of repressors and sensitizers was devised by Axtell and Cole (1971). Using male and female subjects, these authors asked repressors, sensitizers, and neutrals to describe themselves either positively or negatively. Half of the subjects were exposed to prerecorded verbal feedback during the discussion. With duration of verbalization the dependent variable, no interaction was found between R-S status and positive or negative stimulus topic. Other results indicated that repressors, in contrast to the other groups, talked less and did not respond to the simulated verbal interaction with longer verbalizations. Sex differences were found under feedback conditions in the verbalization of positive and negative qualities. For this reason, the authors concluded that sex differences should be taken into account in future research utilizing the R-S personality variable.

To summarize, nearly all studies which have investigated hostility expression as a function of R-S have utilized projective or self-report measures of hostility. The results with the projective measures have been equivocal; however, a large body of experimental evidence with

self-report measures has found sensitizers to have higher hostility scores than repressors.

Repression-Sensitization and Aggression Expression

No experiments were found which related R-S to direct measures of physical aggression. The studies described below are relevant to this review because they offer some indirect evidence of a relationship between R-S and aggression as defined previously in this paper.

In two separate experiments Parsons, Fulgenzi, and Edelberg (1969) selected five-person male discussion groups on the basis of their scores on the R-S scales. Repressors were found to have significantly greater amount of concurrent skin conductance, both in number and amplitude, than sensitizers. Repressors were also rated by experienced judges on Bales' Categories of Behavior as more aggressive than sensitizers. In spite of this result, repressors in their self-ratings reported themselves less aggressive than did the other groups. The authors concluded that repressors, by both behavioral and psychophysiological criteria, were more aggressive.

Objective of the Present Investigation

Only ratings by judges have been used to assess aggressive behavior in repressors and sensitizers. No evidence is provided in the literature regarding the relationship between direct measures of physical

aggression and R-S. The divergent results between self-report indices of hostility and ratings of aggression by judges suggest that differences might be found between overt aggressive behavior and a subsequent self-report of mood in repressors and sensitizers.

The present investigation was designed to assess the propensity of repressors and sensitizers to engage in aggressive behavior. A second purpose was to examine the relationship between overt aggression and self-reports of hostility.

The next section of this review will identify some of the methodological problems which must be dealt with in this type of research.

Methodological Considerations

Improving the Repression-Sensitization Measure

Several investigators have found significant relationships between scores on the R-S scale and the Marlowe-Crowne Social Desirability scale (M-C SD; Crowne and Marlowe, 1960). Feder (1967) gave the revised Byrne R-S scale and the M-C SD scale to male hospitalized psychiatric and medical-surgical patients. She found a significant negative correlation of -.45 between R-S and M-C SD. In other studies, correlations between R-S and M-C SD have ranged from -.32 (Silber and Grebstein, 1964) to -.49 (Cosentino and Kahn, 1967). Feder stated that the moderate correlations indicate the R-S scale "is not merely an equivalent form of the social desirability or acquiescence response scale,

but rather is measuring a rather complex and currently insufficiently defined dimension." Furthermore, Cosentino and Kahn viewed the shared variance between the scales as not readily supporting "the interpretation that the scales measure a single dimension or that they measure independent dimensions."

In a series of studies to be reviewed below, Schill and his colleagues used the M-C SD scale as a measure of defensiveness in conjunction with Byrne's R-S scale to differentiate defensive and non-defensive repressors (Kahn and Schill, 1971; Schill and Althoff, 1968; Schill and Black, 1969; Schill, Emmanuel, Pedersen, Schneider, and Wachowiak, 1970). Repressors were divided into high and low M-C SD groups. Subjects scoring above the median M-C SD were designated defensive repressors, while below median M-C SD scorers were called nondefensive repressors. This differentiation assisted the authors in identifying "true" repressors (those with high M-C SD scores) from subjects who obtain low R-S scores simply because they lack the pathology implied in the test items. With this technique, predictions were made and substantiated regarding the behavior of sensitizers, nondefensive repressors, and defensive repressors. Defensive repressors showed fewer negative self-evaluations and responded more in socially approved directions than sensitizers and nondefensive repressors.

Kahn and Schill (1971) gave the IPAT Anxiety Scale to groups of male and female sensitizers, nondefensive repressors, and defensive repressors. They found a significantly higher anxiety score for sensitizers than for defensive or nondefensive repressors. In addition, nondefensive repressors were significantly higher than defensive repressors on the anxiety measure. The authors stated that "the extremely high score of sensitizers was consistent with the conceptualization of them as individuals who readily admit negative personality characteristics." Kahn and Schill concluded that defensive repressors appear to deny existing anxiety, whereas nondefensive repressors seem to report the anxiety they experience more readily. The authors suggested that these differences be "evaluated further by comparing the reported anxiety of these groups with their physiologically assessed anxiety."

The responses of sensitizers, nondefensive repressors, and defensive repressors to sexual stimuli were investigated in two studies (Schill and Althoff, 1968; Schill et al., 1970). In the Schill and Althoff experiment, male groups based on R-S and M-C SD scores were given a series of sexual, aggressive, and neutral sentences partially masked with white noise. No differences between groups were found between recognition scores for aggressive sentences. In the case of sexual sentences, sensitizers obtained a significantly higher recognition score than did defensive repressors. Nondefensive repressors were also shown to have higher recognition scores for the sexual sentences. In the second study,

Schill et al. found that sexual responses given in free association to double-entendre words by groups of male subjects tested by a female were not related to repression-sensitization and defensiveness. However, when subjects were tested by a male examiner, nondefensive repressors and sensitizers showed significantly greater sexual responding than did defensive repressors. According to the authors, these results indicate the importance of taking into account the interaction of situational (sex of experimenter) and personality variables.

Lefcourt (1969) used the production of human movement (M) on Barron's M ink blot test as an indicator of expressiveness. His results indicated that high male and female M-C SD scorers gave less M than those with low M-C SD scores. Under personal threat conditions, nondefensive repressors produced significantly more M than defensive repressors and nondefensive and defensive sensitizers. The defensive repressors were lower in M production than the other three groups. Lefcourt maintained that defensive repressors respond to R-S items the way they do because "that too is seen as necessary for the securing of approval." When such persons are placed in threatening situations, "their first predisposition would be to avoid self-disclosure." Lefcourt saw nondefensive repressors as "individuals who have confidence in their own well-being."

While these studies indicate the importance of employing M-C SD together with R-S scores, an experiment by Schill and Black (1969) is

more relevant to the present research. Using male subjects, these investigators found that nondefensive repressors and sensitizers had significantly higher extrapunitive scores on the Rosenzweig Picture Frustration Study than did defensive repressors. No significant differences were seen for the intropunitive and impunitive Rosenzweig dimensions. These results provided self-report evidence of hostility but did not shed light on the tendency of sensitizers and nondefensive and defensive repressors to produce overt aggressive responses.

No investigations were found regarding the tendency of sensitizers, nondefensive repressors, and defensive repressors to express aggression physically. This dearth in experimentation led to the design of the present investigation.

Amount of Frustration as a Determinant of Aggressive Behavior

Although the present experiment was concerned with the relationship of a personality factor to aggressive behavior, it seemed necessary to take frustration, a situational variable, into account in designing the study. The objective was to provide a condition in which frustration was likely to produce aggression and another situation where frustration would result in less aggression.

Since its introduction three decades ago, the frustration-aggression hypothesis has had much experimental attention. This hypothesis assumes that frustration is the sole antecedent of aggression,

and it specifies strength of frustration and punishment of aggression as determinants of the intensity of aggression. At present, research on the frustration-aggression hypothesis suggests that its generality may be limited. Berkowitz (1969) discussed several experiments which support this hypothesis and others which do not. The divergent findings might be attributed in part to differences in the way frustration has been produced by different experimenters. Experimenters have used different methodological approaches to operationalize their conceptual definitions of frustration. Some of these approaches were considered in designing the present study. Described below are two studies in which different operations were used to produce frustration.

Rule and Percival (1971) used the inability of subjects to teach a peer a list of nonsense syllables to produce frustration. In the frustration condition, subjects were told that the list was very easy to learn and that the confederate should learn it quickly. Subjects in the no-frustration condition were informed that the list was quite difficult and that it would take the confederate some time to learn it. With this design, frustrated subjects were shown to exhibit more aggression than did nonfrustrated subjects. In contrast to these findings, Gentry (1970) found frustration to be ineffective in increasing aggressive behavior. He attempted to produce frustration by preventing subjects from completing an intelligence test within a prescribed time limit and by indicating to them that they had failed the test. In his no-frustration

condition, Gentry's subjects were allowed to complete the intelligence test successfully and were so informed by the experimenter. When subjects were allowed to use shock to evaluate the experimenter's performance on a counting task, no differences in shock amount and intensity were found between the two frustration groups.

The inconsistent findings in these two studies could be due to the different ways in which frustration was manipulated. If so, this indicates that the operational definition of frustration should be specified before results of studies employing this variable are compared. Both the degree to which goal-directed or consummatory behavior is blocked and the type of blocking involved may be important in determining the amount of aggression produced. Because the blocking of goal-directed behavior in the Rule and Percival study was effective in producing aggression, a similar approach was used in the present experiment.

Another factor contributing to the inconsistent results found in frustration studies could be the interference of situational variables which are not under direct experimental control. The following study investigated a variable which might be expected to affect the degree to which frustration produces aggression.

Arbitrariness of frustration refers to the degree to which a person views frustration as being unreasonable or unjustified. Thompson (1970) used instructions to manipulate arbitrariness. He found no more aggression in the arbitrary frustration condition than the non-arbitrary

condition. He viewed the lack of findings for this variable as being a function of the wording of his instructions rather than the ineffectiveness of that variable as a determiner of aggression. A post-experiment questionnaire revealed that only thirty-five per cent of those subjects in the arbitrary group believed that the confederate was not cooperating. The author concluded that differential degrees of arbitrariness were not produced in the two groups. The present study attempted to provide conditions which were more conducive to establishing high and low degrees of arbitrariness.

The present investigation manipulated frustration both by blocking goal-directed behavior and by emphasizing the arbitrariness of frustration. In both cases, this was done through instructions.

Sex of Subject

Sex differences have been found in R-S related research. In experiments described earlier, Axtell and Cole (1971) and Altrocchi et al. (1964) found sex differences in positive and negative self-descriptions and in the attribution of hostility to self and others.

Sex of subject has also been related to aggression expression. Strong support can be found in the literature for the commonly held belief that males are more likely than females to express aggression directly (e.g., Buss, 1963, 1966; Taylor and Epstein, 1967). In these studies, males were consistently more aggressive than females, but

both males and females aggressed less against a female confederate than they did toward a male confederate. These sex differences have not held up under all conditions (e.g., Shemberg, Leventhal, and Allman, 1968) but have been found in widely divergent experimental designs.

Because the sex of subject apparently affects results in both R-S and aggression experiments, this variable was also selected for study.

The Present Investigation

The design of this experiment was a 3x2x2 factorial (Winer, 1962) with three levels of repression-sensitization (sensitizers, nondefensive repressors, and defensive repressors), two levels of sex (male and female), and two conditions of arousal (high and low). Byrne's revised R-S scale was used to measure repression-sensitization. The Marlowe-Crowne Social Desirability Scale (M-C SD) differentiated between non-defensive repressors and defensive repressors.

The dependent variable was the mean intensity of shocks ostensibly administered by subjects to a confederate on the Buss Aggression Machine (BAM; Buss, 1961). The BAM has provided a stable and direct means of assessing aggression (defined by Buss as "the delivery of noxious stimuli to another organism"). Since in most previous studies the number, intensity, and duration of shocks have correlated highly, only the mean intensity of shock was used in the present study.

Subjects were asked to teach a concept to the confederate by means of reward (a "correct" light) and punishment (shock).

The arousal conditions in this study were included to provide situations in which different levels of frustration would be likely to occur. In the high arousal condition, instructions were designed to increase the subject's frustration. The low arousal group received instructions which were likely to produce less frustration than that felt by the high arousal subjects.

In the high arousal group, instructions were designed to produce a sense of failure on the part of the subject. These subjects were told that learning was likely to occur early in the series of trials. However, in fact the confederate "required" considerably more trials to reach criterion. In contrast, the instructions to the low arousal group were intended to generate less frustration. These subjects were told that learning should require a larger number of trials. The confederate obtained criterion in about the same number of trials that the low arousal subjects were led to expect.

Arbitrariness of frustration was also manipulated. Arbitrariness should have been greater in the high arousal condition since these subjects were told that slow learning by the confederate might indicate uncooperativeness or malingering. Annoyance with the confederate should have led to increased aggression by the subject. No mention of

possible sabotaging by the confederate was made to the low arousal group.

An additional means of increasing the likelihood of aggression in the high arousal condition and decreasing the probability of aggression in the low arousal group was to provide feedback (gasps, groans) from the confederate to the low arousal subject whenever he administered very high levels of shock (cf., Baron, 1971; Buss, 1966; Geen, 1970). No feedback was provided to the high arousal subject.

After completion of the learning task, subjects were administered two affect scales. These were included to compare the self-attribution of anger and other emotions in sensitizers, nondefensive repressors, and defensive repressors with their overt expression of aggression. To provide an independent check on the effectiveness of instructions, a post-experiment questionnaire was also administered. The questionnaire asked for the opinions of the subjects about the experiment and their impressions regarding its purpose.

Hypotheses

The following hypotheses were made:

1. More aggression would be exhibited by males than by females.
2. More aggression would be shown in the high arousal condition than in the low arousal condition.

3. More aggression would be expressed by sensitizers and nondefensive repressors than by defensive repressors in the low arousal condition.

Because of the paucity of information regarding the relationship between overt physical aggression and repression-sensitization, no further predictions were made regarding the effects of this variable. No hypotheses concerning the correlation between the mean intensities of shock administered and responses on the affect scales were proposed.

CHAPTER III

METHOD

Design

For the principal portion of this study, a 3x2x2 factorial design was used with three categories of repression-sensitization, two categories of sex of subject, and two levels of arousal. Six Ss were assigned to each of the twelve conditions. Assignments to the high and low arousal conditions were randomly made. The dependent variable was the mean shock intensity administered by Ss to the confederate on a device similar to the Buss Aggression Machine.

Subjects

The seventy-two participants in this experiment were chosen on the basis of scores on the revised Byrne, Barry, and Nelson Repression-Sensitization Scale (R-S) and the Marlowe-Crowne Social Desirability Scale (M-C SD). These scales were administered to 78 male and 129 female undergraduates in introductory psychology and educational psychology classes at the University of North Dakota.

The mean of the R-S scores was 46.52 with a standard deviation of 20.19. Repressors were selected from the lower third and sensitizers from the upper third of the R-S distribution.

On the M-C SD, the mean was 14.60, and the standard deviation was 5.71. Repressors whose scores were in the upper half of the M-C SD distribution were termed defensive repressors, while repressors in the lower half of the distribution were designated nondefensive repressors. Sensitizers were divided into defensive and nondefensive repressors in the same manner. Only nondefensive sensitizers were included in the study. Previous experimenters (Kahn and Schill, 1971; Schill and Althoff, 1968) have used only nondefensive sensitizers because these authors found few defensive sensitizers and also wanted a "pure" sensitizer group. Twelve men and twelve women were chosen for each of the three R-S groups.

Apparatus

Buss Aggression Machine

A modified version of the Buss (1961) Aggression Machine was used to measure physical aggression. A schematic diagram of the apparatus is presented in Figure 1. The BAM was introduced to S as an apparatus for teaching a "learner" a set of responses. The apparatus features a console for S and two panels for the ostensible learner (actually a confederate). S's console was located in a room adjoining

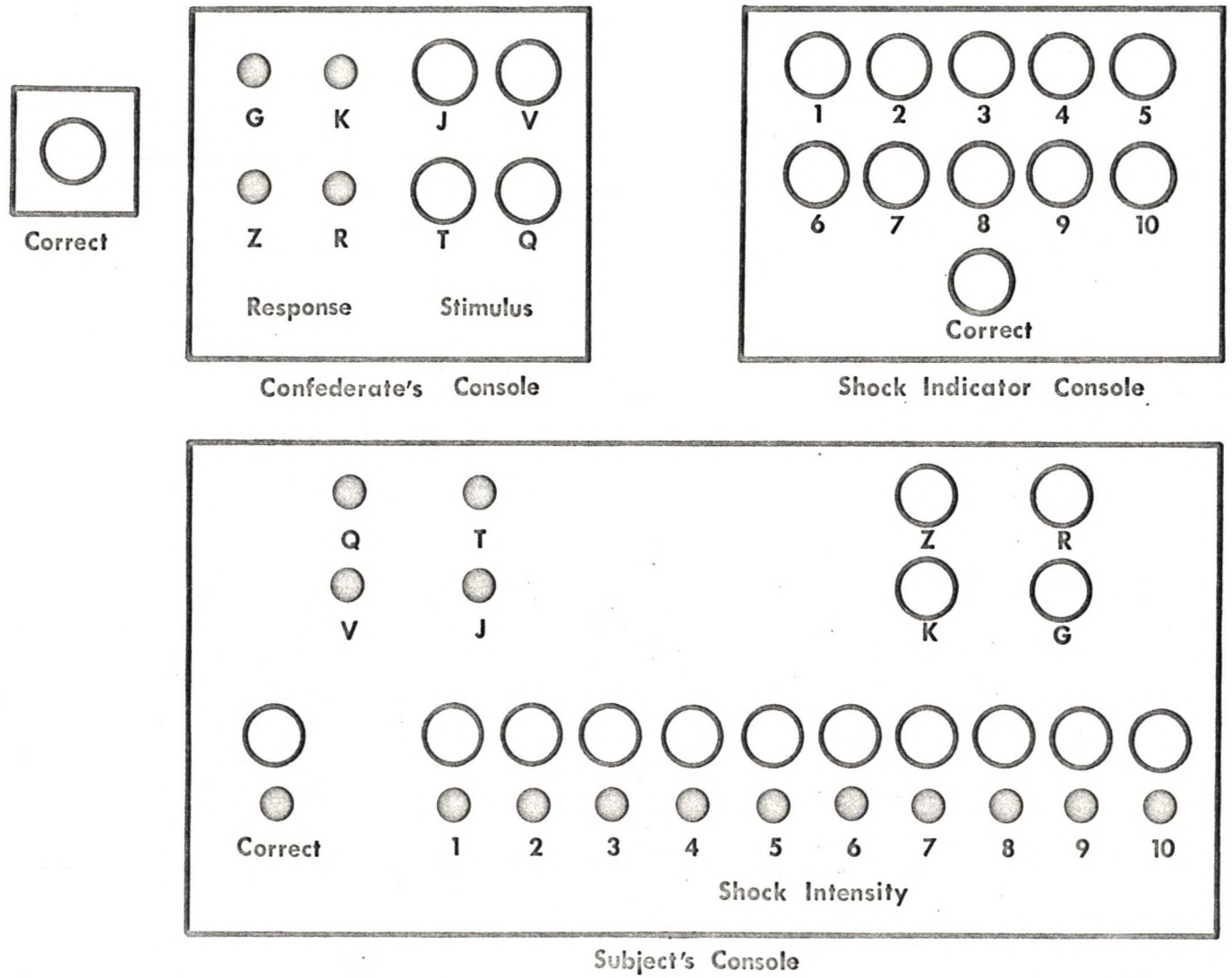

Fig. 1. Illustration of the Aggression Machine.

the room containing the two panels for the confederate. The two rooms were separated by an opaque wall through which verbal responses of the confederate could be heard.

The console used by S consisted of three sections: stimulus, response, and shock delivery. On the stimulus panel were four buttons which S could use to present the learning task stimuli to the confederate. The response panel contained lights which displayed the responses of the confederate. On the shock delivery panel, a series of ten numbered buttons were used by S to "administer" shock to the confederate (actually the confederate received no shock). Above the buttons were lights which came on when the buttons below them were pushed. A button to the left of the ten-button series was used to notify the confederate that he had made a correct response.

In the confederate's room were two separate panels. One of these contained four lights which were connected to S's stimulus buttons. To the left of these lights were four buttons which the confederate could use to make his responses. The second panel consisted of ten numbered lights and a "correct" light which were connected to S's "shock" and "correct" buttons, respectively. This panel was kept covered when S was present. An additional bulb was also present. S was told that this light would be used to indicate to the confederate that he had made a correct response, but in fact it was not activated by S's responses.

Multiple Affect Adjective Check List

Following completion of the "learning task," the Multiple Affect Adjective Check List (MAACL; Zuckerman, Lubin, Vogel, and Valerius, 1964) was given to each S. This check list consists of 132 items, 89 of which are scorable on three scales: hostility, anxiety, and depression.

Mood Scale

Because scores on check list scales are often influenced by the number of tiems checked (Zuckerman, 1969), a forced choice Mood Scale (Appendix A) constructed by the author was also administered. Bipolar items were separated by a seven-point scale. Ss were asked to place a check mark at the point consistent with their current feelings. By choosing items which appeared to have face validity and which have been contained on other similar scales, the author derived three subscales from items on the Mood Scale. Items constituting the hostility, anxiety, and depression subscales are shown in Appendix B. Scores on these items were combined to arrive at three subscale scores.

Post Experiment Questionnaire

A brief questionnaire (Appendix C) was given at the end of the experiment. Questions focused on S's impression of the procedure and its purposes.

Procedure

A male confederate was present in an adjoining waiting room when S arrived. He was dressed casually and appeared to be approximately the same age as S. It was explained to S and the confederate that they would be involved in a learning experiment in which one of them would be required to administer electric shock. Ss were given the opportunity to withdraw from the experiment if they desired. No S refused to participate.

By means of a rigged lottery (Leventhal et al., 1968), Ss were always chosen as experimenter and the confederate was always chosen as the learner. After the lottery was completed, the confederate was told to wait in the hall. S was then asked to accompany E to the room which contained the aggression machine. The aggression machine was shown to S and one of two sets of instructions read to him, depending on whether he was in the high or low arousal group.

For the high arousal condition, Ss were read the following instructions:

> This experiment is concerned with the effects of reward and punishment on the learning of stimulus-response pairs. Previously, studies have shown that the know-how and skill of the experimenter are important factors in how fast learning occurs. The list you see before you is very easy to learn, and the learner should reach the goal of five consecutive correct

responses quickly. In most experiments learners are able to reach the goal in about twenty-five trials. If more than thirty-five trials are required, the learner is probably "goofing off." Your job is to continue the experiment until the learner has made five consecutive correct responses.

Ss in the low arousal group were read these instructions:

This experiment is concerned with the effects of reward and punishment on the learning of stimulus-response pairs. Previous studies have shown that the stimulus-response pairs before you are harder to learn than it would appear. In most experiments, learners have required approximately forty trials before reaching the goal of five consecutive correct responses. Your job is to continue the experiment until the learner has made five consecutive correct responses.

After the appropriate set of instructions were read, S was shown how to present the stimuli and record responses. The stimulus presentation sheet is shown in Appendix D. S was told to indicate to the confederate when his response was correct by pressing the button below the "correct" light. S was instructed to shock the confederate whenever he made an error. It was indicated to S that he could vary the amount of shock administered to the confederate by pushing any of the buttons from 1 (weak shock) to 10 (extremely strong shock). To show S the amount of shock that he would ostensibly be administering, E gave S examples of

shock from buttons 1, 3, and 5. Under a 100K ohm resistive load, the respective shock intensities were 74, 92, and 127 volts. The intensity of shock delivered at button 1 was set at a point which several Ss described as weak or mild, while the shock at button 5 was often described as painful or noxious.

E and S next joined the confederate and accompanied him to the confederate's room where S read to the confederate a standard set of instructions similar to those used by Middleton (1971):

> This experiment is concerned with the effects of reward and punishment on stimulus-response pair learning. On the board before you are lights and buttons, each of which has a different letter beneath it. Your task is to determine how the letters beneath the lights are related to the letters beneath the buttons. Each time I flash one of the lights, you are to respond by pushing the button which you think is appropriate. When your response is correct, the "correct" light will light up. When your response is incorrect, you will receive a shock. Do you have any questions?

S then fastened the shock electrodes to the fingers of the confederate.

After returning to the adjoining room with E, S was given the list of stimuli which he was to present to the confederate. Instructions were briefly reviewed, and S was again told to continue with the experiment

until the confederate had reached the criterion of five correct responses. Without the knowledge of S, the confederate had a programmed list of responses (Appendix E) which he followed for all Ss. For each S, the confederate reached the criterion of learning at the end of forty-five trials. Errors were made on trials one to five, and the remaining errors were distributed as follows: five errors in trials six through twelve, four errors in trials thirteen through nineteen, four errors in trials twenty through twenty-six, three errors in trials twenty-seven through thirty-three, and three errors in trials thirty-four through forty. Thus, on twenty-four of the forty-five trials, shocks should have been administered.

The confederate did not actually receive shock. After E and S left his room, he removed the shock electrodes and uncovered the eleven-light panel. From this panel, the confederate observed and recorded on a data sheet (Appendix E) the shock intensity "delivered" by S on each shock trial. For Ss in the low arousal condition, the confederate provided feedback in the form of gasps or groans whenever the lights indicated a shock intensity of seven or higher.

After the forty-five trials, E gave S the MAACL and the Mood Scale. Next, E administered the Post Experiment Questionnaire. S was then requested to refrain from discussing the experiment with anyone during the remainder of the semester. He was also assured that a debriefing session would be held at the end of the data collection.

CHAPTER IV

RESULTS

Mean aggression scores, MAACL scale scores, and Mood Scale subscale scores were analyzed as 3x2x2 factorials (Winer, 1962).

Aggression

Mean aggression scores over the twenty-four shock trials were computed for each of the seventy-two subjects. Table 1 shows the means and standard deviations for each treatment condition. A Hartley test for homogeneity of variance was not significant ($F_{max} = 6.08$, $p > .05$). Table 2 gives a summary of the analysis of variance of the mean aggression scores. Only the arousal main effect reached significance. Subjects under low arousal administered significantly more shock than those under high arousal. This result was in the direction opposite to that specified by the second experimental hypothesis. The first and third experimental hypotheses were not supported.

Total aggression scores were analyzed in three-trial blocks for all seventy-two subjects. A single factor repeated measures analysis of variance (Winer, 1962) was computed for each treatment group. Table 3 presents the blocks F ratios for the twelve treatment conditions. In

TABLE 1

MEANS AND STANDARD DEVIATIONS PER GROUP OF AGGRESSIVE RESPONSE OVER TWENTY-FOUR SHOCK TRIALS

Sex and Arousal Level	R-S Level	N	Mean	SD
Male-HA	SEN	6	3.08	0.89
Male-HA	NDR	6	3.04	1.00
Male-HA	DR	6	2.83	0.62
Female-HA	SEN	6	2.33	0.69
Female-HA	NDR	6	3.38	1.40
Female-HA	DR	6	3.27	1.22
Male-LA	SEN	6	3.57	1.52
Male-LA	NDR	6	3.51	1.03
Male-LA	DR	6	4.26	1.33
Female-LA	SEN	6	3.43	0.84
Female-LA	NDR	6	3.27	0.87
Female-LA	DR	6	3.02	1.04

TABLE 2

SUMMARY OF ANALYSIS OF VARIANCE OF AGGRESSIVE RESPONSE OVER TWENTY-FOUR SHOCK TRIALS

Source	SS	df	MS	F	P
R-S (A)	0.79	2	0.40	0.34	NS
Sex (B)	1.30	1	1.30	1.13	NS
Arousal (C)	4.90	1	4.90	4.25	.05
AB	0.89	2	0.44	0.39	NS
AC	1.20	2	0.60	0.52	NS
BC	1.35	1	1.35	1.17	NS
ABC	3.92	2	1.96	1.70	NS
Within	69.09	60	1.15		
Total	83.44	71			

every treatment condition, shocks increased significantly over blocks of trials. Tests for trend (Winer, 1962) were also made. F tests for linear and quadratic trend components are shown in Table 4. All linear trends were significant beyond the .01 level of probability. Three treatment groups were found to have significant quadratic trends in between-block variation. Figures 2, 3, and 4 show graphs of aggressive responses over three-trial blocks for the sensitizer, nondefensive repressor, and defensive repressor groups, respectively.

Multiple Affect Adjective Check List

MAACL protocols were scored for hostility, anxiety and depression (Zuckerman and Lubin, 1965). Scale score means and standard deviations for each treatment condition are represented in Table 5. Hartley's tests for homogeneity of variance did not reach significance. Tables 6, 7, and 8 show summaries of analyses of variance of scores on the three MAACL scales. The R-S variable reached significance on all scales. The Newman-Kuels method (Winer, 1962) for testing differences between means was used to analyze the R-S differences on the MAACL scales. Sensitizers were found to describe themselves as more hostile ($p < .01$), anxious ($p < .05$), and depressed ($p < .01$) than nondefensive and defensive repressors. No significant differences were found between nondefensive repressors and defensive repressors on the three scales.

TABLE 3

SINGLE-FACTOR REPEATED MEASURES F-RATIOS PER GROUP OF TOTAL AGGRESSIVE RESPONSE OVER EIGHT BLOCKS OF THREE SHOCK TRIALS (df = 7, 35)

Sex and Arousal Level	R-S Level	MS Blocks	MS Residual	F	P
Male-HA	SEN	11.04	2.10	5.26	.01
Male-HA	NDR	11.61	0.34	34.55	.01
Male-HA	DR	15.35	6.15	2.50	.05
Female-HA	SEN	4.45	1.71	2.60	.05
Female-HA	NDR	17.46	5.10	3.42	.01
Female-HA	DR	11.46	4.46	2.58	.05
Male-LA	SEN	18.40	3.64	5.05	.01
Male-LA	NDR	33.64	2.32	14.50	.01
Male-LA	DR	19.04	4.26	4.47	.01
Female-LA	SEN	9.56	2.10	4.55	.01
Female-LA	NDR	9.32	1.96	4.76	.01
Female-LA	DR	12.47	1.96	6.27	.01

TABLE 4

LINEAR AND QUADRATIC TREND COMPONENTS PER GROUP OF TOTAL AGGRESSIVE RESPONSE OVER EIGHT BLOCKS OF THREE SHOCK TRIALS (df = 1, 35)

Sex and Arousal Level	R-S Level	F Linear	P Linear	F Quadratic	P Quadratic
Male-HA	SEN	34.95	.01	1.70	NS
Male-HA	NDR	231.49	.01	6.25	.05
Male-HA	DR	15.80	.01	1.40	NS
Female-HA	SEN	13.23	.01	1.07	NS
Female-HA	NDR	21.44	.01	2.44	NS
Female-HA	DR	13.90	.01	1.72	NS
Male-LA	SEN	32.44	.01	1.01	NS
Male-LA	NDR	97.29	.01	1.59	NS
Male-LA	DR	15.74	.01	13.64	.01
Female-LA	SEN	24.13	.01	4.54	.05
Female-LA	NDR	29.15	.01	1.94	NS
Female-LA	DR	33.44	.01	3.60	NS

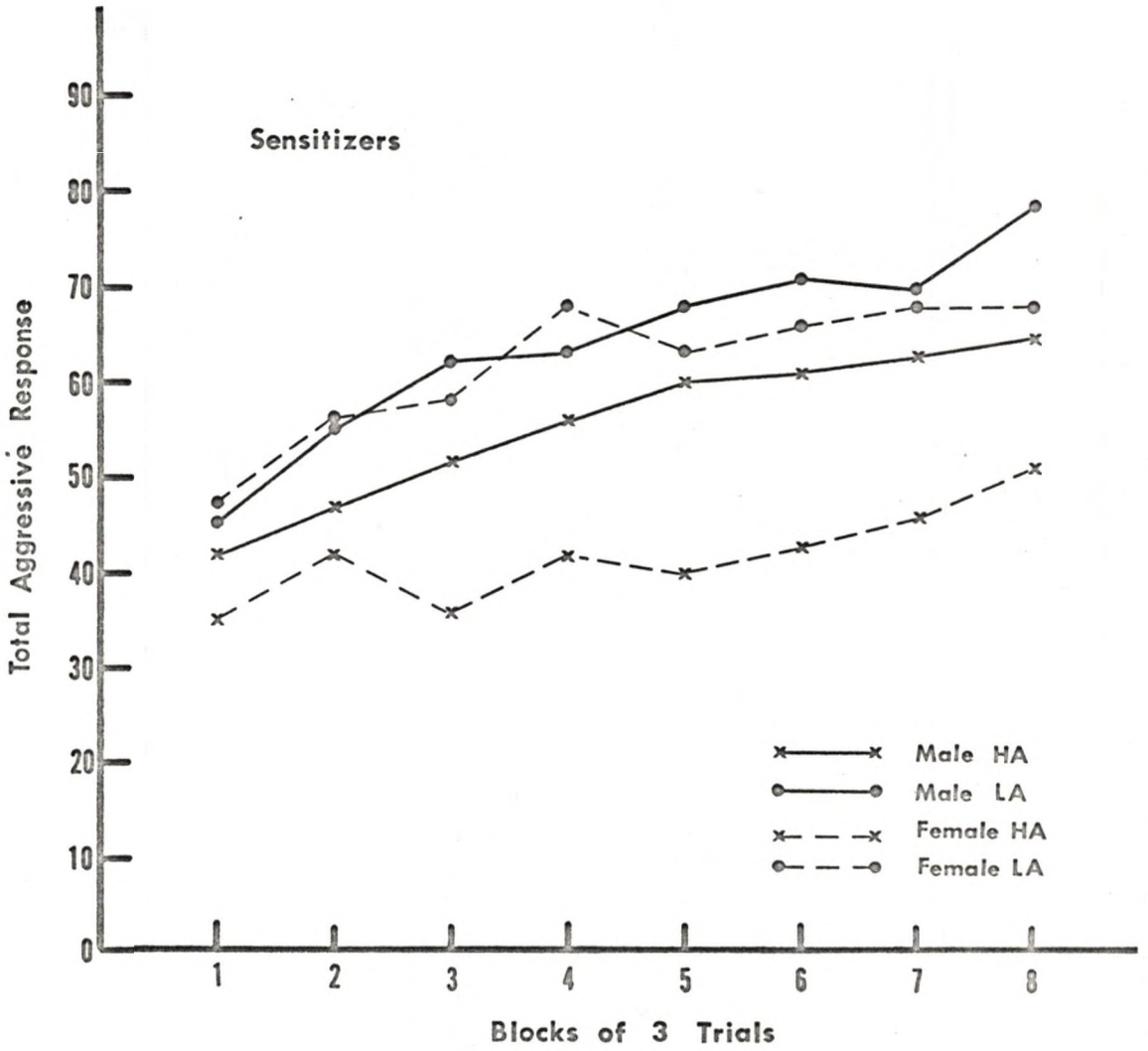

Fig. 2. Graph of Total Shock Administered by Sensitizers over 8 Blocks of 3 Trials.

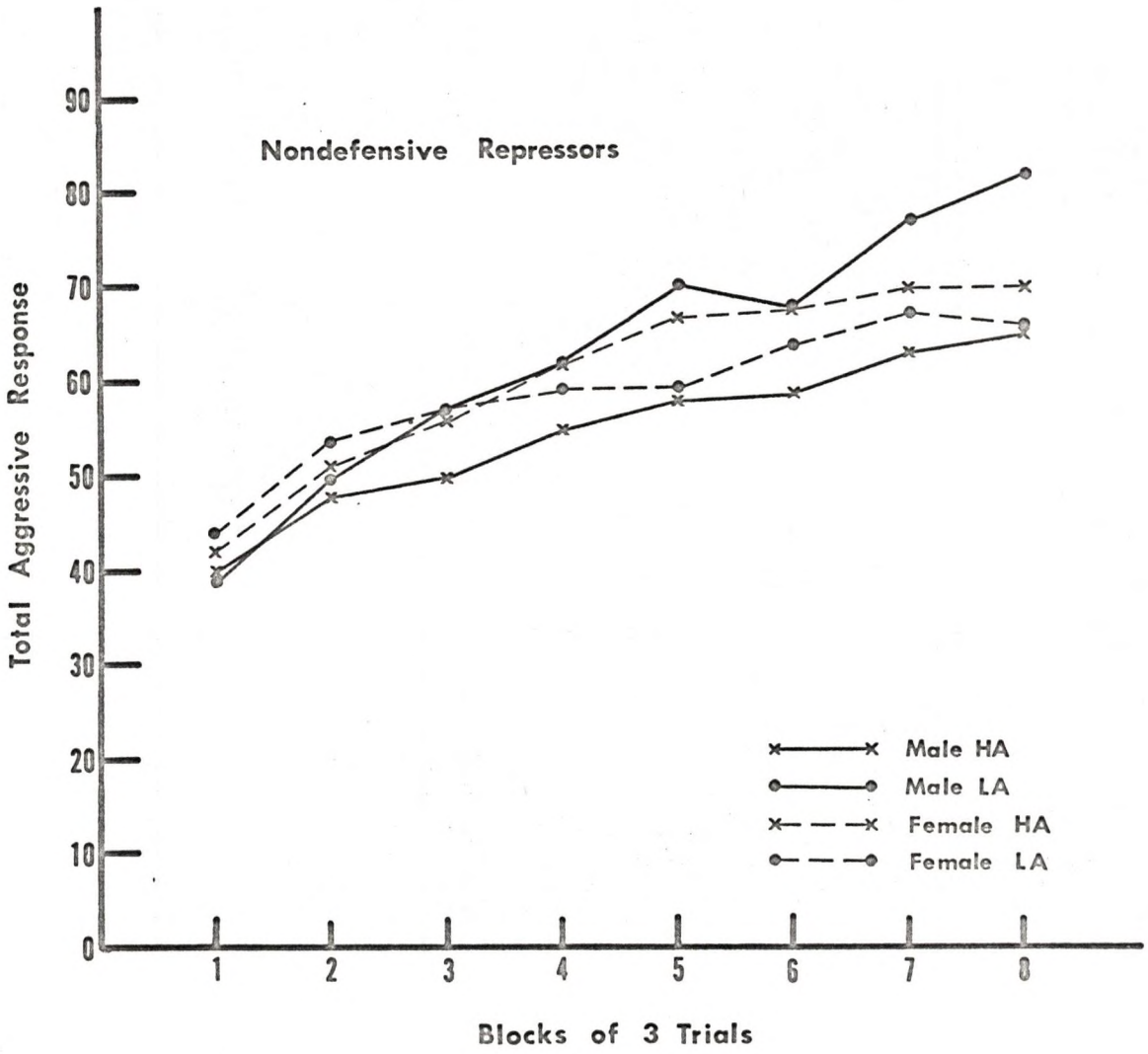

Fig. 3. Graph of Total Shock Administered by Nondefensive Repressors over 8 Blocks of 3 Trials.

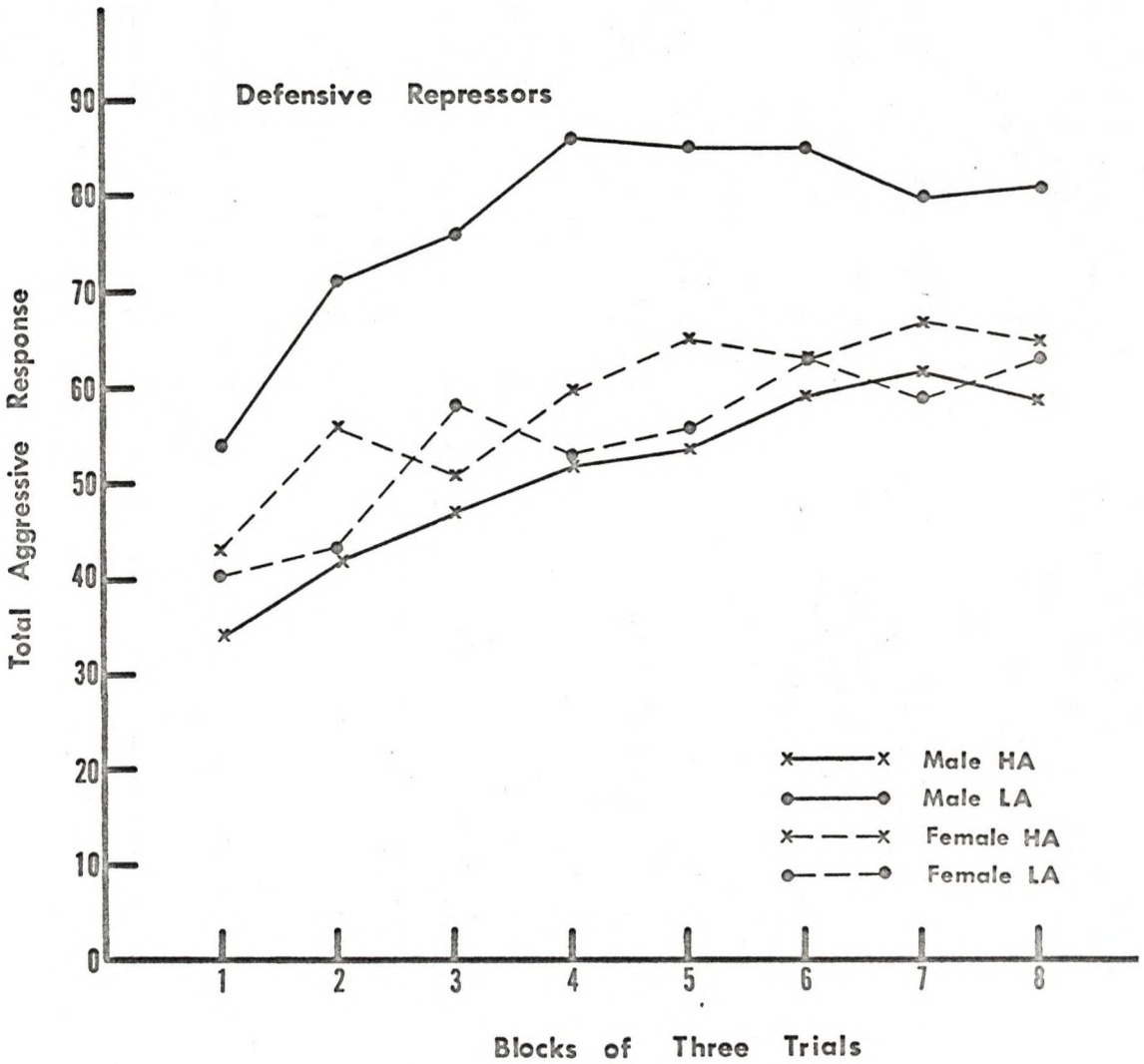

Fig. 4. Graph of Total Shock Administered by Defensive Repressors over 8 Blocks of 3 Trials.

TABLE 5

MEANS AND STANDARD DEVIATIONS PER GROUP ON THE THREE MAACL SCALES

Sex and Arousal Level	R-S Level	Hostility Scale		Anxiety Scale		Depression Scale	
		Mean	SD	Mean	SD	Mean	SD
Male-HA	SEN	9.83	3.60	7.33	3.01	13.83	5.95
Male-HA	NDR	5.33	3.01	4.17	2.48	7.33	4.08
Male-HA	DR	4.50	2.26	4.17	2.64	6.67	3.78
Female-HA	SEN	10.00	2.45	8.17	4.45	15.33	4.89
Female-HA	NDR	6.00	4.00	6.00	3.58	10.83	8.75
Female-HA	DR	6.00	2.10	4.00	3.58	6.83	5.04
Male-LA	SEN	10.17	4.45	8.50	4.32	14.00	7.18
Male-LA	NDR	4.67	1.75	5.17	3.55	8.17	5.04
Male-LA	DR	9.50	3.08	6.50	3.83	11.50	5.32
Female-LA	SEN	7.83	3.71	8.67	6.15	14.17	8.21
Female-LA	NDR	6.50	2.26	8.67	5.39	8.50	3.21
Female-LA	DR	5.00	2.37	6.83	3.92	12.50	7.50

TABLE 6

SUMMARY OF ANALYSIS OF VARIANCE OF MAACL HOSTILITY SCALE SCORES

Source	SS	df	MS	F	P
R-S (A)	203.03	2	101.51	11.04	.01
Sex (B)	3.56	1	3.56	0.39	NS
Arousal (C)	2.00	1	2.00	0.22	NS
AB	26.36	2	13.18	1.43	NS
AC	27.08	2	13.54	1.47	NS
BC	26.89	1	26.89	2.92	NS
ABC	38.53	2	19.26	2.10	NS
Within	551.67	60	9.19		
Total	879.11	71			

TABLE 7

SUMMARY OF ANALYSIS OF VARIANCE OF MAACL ANXIETY SCALE SCORES

Source	SS	df	MS	F	P
R-S (A)	103.03	2	51.51	3.16	.05
Sex (B)	21.13	1	21.13	1.29	NS
Arousal (C)	55.13	1	55.13	3.38	NS
AB	23.08	2	11.54	0.71	NS
AC	9.25	2	4.62	0.28	NS
BC	1.12	1	1.12	0.07	NS
ABC	4.08	2	2.04	0.13	NS
Within	979.17	60	16.32		
Total	1195.99	71			

TABLE 8

SUMMARY OF ANALYSIS OF VARIANCE OF MAACL DEPRESSION SCALE SCORES

Source	SS	df	MS	F	P
R-S (A)	453.36	2	226.68	6.31	.01
Sex (B)	22.22	1	22.22	0.62	NS
Arousal (C)	32.00	1	32.00	0.89	NS
AB	6.03	2	3.01	0.08	NS
AC	138.25	2	69.13	1.92	NS
BC	6.72	1	6.72	0.19	NS
ABC	12.02	2	6.01	0.17	NS
Within	2156.68	60	35.94		
Total	2827.28	71			

Mood Scale

Scores on the Mood Scale items were combined to obtain subscale scores for hostility, anxiety, and depression. Table 9 shows the means and standard deviations for the treatment groups on the Mood Scale subscales. Hartley's tests for homogeneity of variance were not significant. Summaries of the analyses of variance of scores on the three subscales are given in Tables 10, 11, and 12. As with the MAACL data, only the R-S main effect reached significance for each subscale. The three-way interaction component for the anxiety data also was significant beyond the .05 level of probability. Newman-Kuels tests were calculated on the differences between the R-S means. For the hostility and depression subscales, sensitizers had significantly higher scores ($p < .01$) than did nondefensive and defensive repressors. No differences were found between nondefensive and defensive repressors on any of the three scales. Sensitizers were significantly higher ($p < .05$) than defensive repressors on the anxiety subscale; however sensitizers did not differ from nondefensive repressors on this subscale.

Comparability of Scales from the MAACL and Mood Scale

Correlations were calculated between similarly named MAACL and Mood Scale subscales. The correlation between MAACL hostility and Mood Scale hostility was .62 ($p < .01$). MAACL anxiety and Mood

TABLE 9

MEANS AND STANDARD DEVIATIONS PER GROUP ON THREE SUBSCALES OF THE MOOD SCALE

Sex and Arousal Level	R-S Level	Hostility Scale		Anxiety Scale		Depression Scale	
		Mean	SD	Mean	SD	Mean	SD
Male-HA	SEN	15.17	7.25	5.83	3.67	14.83	7.08
Male-HA	NDR	11.17	3.19	5.83	3.60	12.50	4.68
Male-HA	DR	9.50	2.74	4.67	2.58	11.17	3.43
Female-HA	SEN	16.67	7.79	9.00	2.37	21.67	8.38
Female-HA	NDR	9.17	2.64	3.83	2.23	13.33	5.32
Female-HA	DR	8.50	2.88	3.67	1.86	11.33	3.98
Male-LA	SEN	16.33	4.08	6.50	3.45	19.17	7.06
Male-LA	NDR	9.00	2.37	6.33	3.78	11.17	2.23
Male-LA	DR	11.67	6.83	3.00	0.63	12.17	5.35
Female-LA	SEN	12.33	3.98	4.67	4.08	18.33	7.58
Female-LA	NDR	12.67	5.01	7.00	3.03	11.33	4.55
Female-LA	DR	12.17	5.12	5.17	2.64	16.00	6.78

TABLE 10

SUMMARY OF ANALYSIS OF VARIANCE OF MOOD SCALE HOSTILITY SUBSCALE SCORES

Source	SS	df	MS	F	P
R-S (A)	345.36	2	172.68	7.34	.01
Sex (B)	0.88	1	0.88	0.04	NS
Arousal (C)	8.00	1	8.00	0.34	NS
AB	13.03	2	6.52	0.28	NS
AC	60.75	2	30.38	1.29	NS
BC	1.39	1	1.39	0.06	NS
ABC	95.51	2	47.76	2.03	NS
Within	1411.02	60	23.52		
Total	1935.95	71			

TABLE 11

SUMMARY OF ANALYSIS OF VARIANCE OF MOOD SCALE ANXIETY SUBSCALE SCORES

Source	SS	df	MS	F	P
R-S (A)	70.75	2	35.38	3.99	.05
Sex (B)	6.80	1	0.68	0.08	NS
Arousal (C)	0.01	1	0.01	0.00	NS
AB	6.69	2	3.35	0.38	NS
AC	40.36	2	20.18	2.28	NS
BC	0.35	1	0.35	0.04	NS
ABC	62.86	2	31.43	3.54	.05
Within	532.17	60	8.87		
Total	713.88	71			

TABLE 12

SUMMARY OF ANALYSIS OF VARIANCE OF MOOD SCALE DEPRESSION SUBSCALE SCORES

Source	SS	df	MS	F	P
R-S (A)	604.33	2	302.17	8.94	.01
Sex (B)	60.50	1	60.50	1.79	NS
Arousal (C)	5.55	1	5.55	0.16	NS
AB	19.00	2	9.50	0.28	NS
AC	60.78	2	30.39	0.90	NS
BC	10.89	1	10.89	0.32	NS
ABC	98.09	2	49.05	1.45	NS
Within	2028.36	60	33.81		
Total	2887.50	71			

Scale anxiety correlated .47 ($p < .01$). Scores on the two depression scales produced a correlation of .74 ($p < .01$).

Relationship between Aggression and the Hostility Scales

Mean aggression scores over twenty-four trials and MAACL hostility scores did not correlate significantly ($r = .12$, $p > .05$). Similarly the correlation between mean aggression scores and Mood Scale hostility was not significant ($r = .08$, $p > .05$).

Post Experiment Questionnaire Responses

To provide a check on the effectiveness of instructions, the Post Experiment Questionnaire responses were tabulated. Table 13 shows the frequency of responses made by high and low arousal subjects. The first four questions are most pertinent in evaluating the instructional manipulations toward the high and low arousal subjects. Tests for the significance of the difference between proportions were computed for these questions and are shown in Table 13.

TABLE 13

FREQUENCY OF RESPONSES MADE BY HIGH AND LOW AROUSAL SUBJECTS AND TESTS FOR SIGNIFICANCE BETWEEN PROPORTIONS ON THE POST EXPERIMENT QUESTIONNAIRE

Question	Group	Response		Z	P
		Effective	Ineffective		
1. How effective do you feel you were in teaching the subject the task?	HA	17 (47%)	19 (53%)		
	LA	30 (83%)	6 (17%)	3.22	.01
		Yes	No		
2. Did learning occur as quickly as you expected?	HA	9 (25%)	27 (75%)		
	LA	16 (44%)	20 (56%)	1.70	.09
		Yes	No		
3. Do you think that the subject tried his best to learn the pairs?	HA	25 (69%)	11 (31%)		
	LA	34 (94%)	2 (6%)	2.78	.01
		Yes	No		
4. Do you feel that using shock as punishment speeds up learning?	HA	16 (44%)	20 (56%)		
	LA	24 (67%)	12 (33%)	1.98	.05
		Object	Approve		
5. How do you personally feel about the use of shock as a teaching device?	HA	30 (83%)	6 (17%)		
	LA	24 (67%)	12 (33%)	1.58	NS
		Yes	No		
6. If asked, would you be willing to participate in another experiment comparable to this one?	HA	32 (89%)	4 (11%)		
	LA	34 (94%)	2 (6%)	0.79	NS

CHAPTER V

DISCUSSION

No differences in overt aggressive behavior were found between sensitizers, nondefensive repressors, and defensive repressors. This finding contrasts with the Parsons et al. (1969) investigation which showed repressors to be more aggressive than sensitizers in group interactions. Together, both studies suggest that repressors may be more verbally aggressive than sensitizers but not different in physically aggressive behavior. The Parsons et al. and present studies both drew samples from college populations. Physical aggression is probably less socially acceptable than verbal aggression among college students. The threatening nature of physical aggression might tend to lower the level of aggression that college student repressors are willing to exhibit.

Males and females also did not differ in the mean level of shock administered. This result is inconsistent with several previous studies (Buss, 1963, 1966; Taylor and Epstein, 1967) in which males have delivered higher levels of shock than females. However, other experiments (Shemberg, Leventhal, and Allman, 1968; Middleton, 1971) have

produced no differences between males and females in mean shock levels. These conflicting results could be attributable to differences in sampling characteristics of subjects in the positive and negative studies. For example, the positive studies cited above were conducted at eastern United States universities (Pittsburgh, Rutgers, and Massachusetts) while those with negative results for sex were held at mid-western universities (Bowling Green of Ohio and North Dakota). Thus, regional differences in male and female aggressive behavior might account for the divergent results. Differences in time when the experiments were conducted might provide another explanation. Studies in which no sex differences in aggressive behavior were found have generally been more recent than those where significant differences were obtained. It is possible that the women's liberation movement of recent years may be helping to make sexual roles become less distinct. If so, sex differences in aggressive, as well as other, behavior may be becoming less evident.

Before attempting to understand the aggression data for the high and low arousal conditions, the effectiveness of the instructions in producing differential levels of frustration for the two groups should be examined. Responses on the Post Experiment Questionnaire (Table 13) suggest that more frustration was produced in the high arousal group. The differences between proportions of high and low arousal subject responses to the first four questions were in the predicted directions.

High arousal subjects saw themselves as less effective than low arousal subjects in teaching the confederate. Fewer high arousal than low arousal subjects tended ($p < .09$) to feel that learning occurred as quickly as expected or thought that using shock speeded up learning. On the question concerning the arbitrariness of frustration, a smaller proportion of high arousal than low arousal subjects stated that they thought the confederate tried his best.

Since the Post Experimental Questionnaire data indicate that the arousal manipulation was successful, the finding that low arousal subjects administered greater amounts of shock than high arousal subjects is difficult to understand. This result is in a direction opposite from that which would be predicted from the frustration-aggression hypothesis.

Berkowitz (1959) has speculated that guilt or aggression anxiety in some cases is aroused in frustrated persons and has the effect of reducing the amount of overt aggression expressed. Evidence to support this conjecture has been presented by Rule (1966) and Fischer and Rule (1967) who demonstrated that moderately prejudiced persons who were frustrated typically showed increased friendliness rather than increased hostility toward innocent persons. Under less frustration, moderately prejudiced individuals manifested more hostility than did highly prejudiced persons. Perhaps, in the present experiment, it was also

the case that low levels of frustration led to more aggression than high amounts of frustration.

Also consistent with this interpretation is a study by Berkowitz, Lepinski, and Angulo (1969). These investigators exposed subjects to an obnoxious accomplice. Subjects were then induced to think that they were either low, moderate, or high in anger toward the accomplice. When given the opportunity to shock the confederate, the medium-anger subjects were significantly more aggressive than either the low- or high-anger subjects. The authors explained this result by arguing that high-anger subjects inhibited strong aggressive responses because "the knowledge that they were very angry had made them highly anxious." Anxiety scores on the Nowlis Mood Scale supported this explanation.

However, if aggression anxiety were responsible for the lower aggression elicited in the present investigation's high arousal group, one might expect this to be reflected in higher MAACL anxiety scores for the high arousal group. This was not the case. No difference was found between high and low arousal subjects on MAACL anxiety scores (Table 7). This finding does not completely rule out an aggression anxiety explanation because the MAACL anxiety scale might not be a valid measure of aggression anxiety. Clearly, an adequate investigation of this position would require further investigation.

Trend analyses were computed to investigate possible group differences in the pattern of aggressive response over trials. The linear

trend data (Table 4) indicate that shock intensities increased over trials in a similar fashion for all treatment conditions. All groups had significant linear trends; but none of the differences between linear trends were significant. While low arousal subjects responded more aggressively than high arousal individuals, their rate of increase in aggression over trials was not different. Although significant trends were obtained for several groups (Table 4), no pattern was discernible in this data (Figures 2, 3, and 4).

Correlations between MAACL and Mood Scale scores indicated a moderate degree of common variance in the similarly named subscales. Sensitizers scored higher than defensive repressors on all MAACL and Mood Scale subscales. Sensitizers also described themselves as more hostile, anxious, and depressed than nondefensive repressors on all subscales except the Mood Scale anxiety subscale where no difference was found. These results are consistent with R-S theory. One would expect from the theory that repressors would tend to deny having the negative feelings of hostility, anxiety, and depression. The higher scores of sensitizers reflect their propensity toward acknowledging negative self-descriptions.

The present findings suggest that under some circumstances repressors may behave as a homogeneous group. Nondefensive repressors and defensive repressors showed similar aggressive behavior under the frustration conditions in the present experiment. This result, however,

might be an artifact of experimental methodology since sensitizers also did not differ from the two repressor groups. On the other hand, sensitizers did exhibit differences from both repressor groups on most of the affect subscales, while the nondefensive and defensive repressor groups again did not differ. The data on the anxiety subscales conflict with those of Kahn and Schill (1971), who found that nondefensive repressors reported anxiety more readily than defensive repressors. The difference in results possibly reflects a lack of convergent validity in the anxiety scales used in the two studies. The relationship between the IPAT Anxiety scale used by Kahn and Schill and the anxiety scales administered in the present study has not been investigated.

A nonsignificant correlation between mean aggression scores and MAACL hostility indicated that, in general, a subject's self report of hostility did not coincide with his actual aggressive behavior. These results are similar to those of Leibowitz (1968) who found no relationship between Buss Aggression Machine and Buss-Durkee Hostility Inventory scores. Correlations also were calculated between mean shock intensities and MAACL hostility scores for sensitizers, nondefensive repressors, and defensive repressors. Those correlations were -.18 ($p > .05$), .31 ($p > .05$), and .49 ($p < .05$), respectively. T-tests were run to test the differences between the correlations. Only the difference between the sensitizer and defensive repressor correlations was significant beyond the .05 level. Thus, defensive repressors were shown to

have greater congruence between their overt aggressive behavior and their self-descriptive hostility than did sensitizers. This suggests that the more a defensive repressor talks about his feelings of hostility, the more he is likely to act out these feelings through aggressive behavior. These results are inconsistent with the usual view of repression and may bring into question the ability of the R-S scale to measure the construct of repression. The R-S scale has previously received criticism for lacking construct validity (cf. Golin, Herron, Lakota, and Reineck, 1967; Lefcourt, 1969).

In summary, no differences were found in the physical aggression of sensitizers, nondefensive repressors, and defensive repressors. In contrast, sensitizers described themselves as more hostile, anxious, and depressed than nondefensive and defensive repressors. Differences found in previous studies between nondefensive and defensive repressors were not shown in the aggression or affect scale data of the present investigation. No significant difference was exhibited between mean shock intensities of males and females. Subjects in the low arousal group gave significantly more shock than those in the high arousal condition. The result for this variable was opposite from that expected. Explanation in terms of possible increased aggression anxiety in the high arousal group was discussed.

APPENDICES

APPENDIX A

Mood Scale

This scale is made to determine your feelings at this moment. For each item place a check mark at the point that best describes the way you feel right now.

(1) Pleased — Annoyed

(2) Energetic — Tired

(3) Friendly — Grouchy

(4) Efficient — Inefficient

(5) Full of Pep — Fatigued

(6) Cooperative — Uncooperative

(7) Adequate — Inadequate

(8) Content — Angry

(9) Unashamed — Ashamed

(10) Calm — Anxious

(11) Vigorous — Depressed

(12) Affectionate — Hostile

(13) Guiltless — Guilty

(14) Worthy — Worthless

(15) Forgiving — Resentful

(16) Happy — Sad

(17) Confident — Inadequate

(18) Relaxed — Tense

(19) Carefree — Worried

APPENDIX B

Items Constituting the Three Mood Scale Subscales

Hostility	Anxiety	Depression
Pleased-Annoyed	Calm-Anxious	Energetic-Tired
Friendly-Grouchy	Relaxed-Tense	Full of Pep-Fatigued
Cooperative-Uncooperative		Vigorous-Depressed
Content-Angry		Worthy-Worthless
Affectionate-Hostile		Happy-Sad
Forgiving-Resentful		Carefree-Worried

APPENDIX C

Post Experiment Questionnaire

The questions below help me to understand your thoughts and impressions regarding the experimental procedure. Please answer these questions according to your present feelings.

1. How effective do you feel you were in teaching the subject the task?

   Effective_____ Ineffective_____

2. Did learning occur as quickly as you expected? Yes____ No____

3. Do you think that the subject tried his best to learn the pairs?

   Yes_____ No_____

4. Do you feel that using shock as punishment speeds up learning?

   Yes_____ No_____

5. How do you personally feel about the use of shock as a teaching device? Object_____ Approve_____

6. If asked, would you be willing to participate in another experiment comparable to this one? Yes_____ No_____

7. Briefly state below any objections you might have about the experiment.

8. Briefly describe below your thoughts about the purpose of this experiment.

APPENDIX D

Stimulus Presentation Sheet

Key

Stimulus		Response
J	___	Z
T	___	G
V	___	R
Q	___	K

Trial	Stimulus	Response	Correct Response	Trial	Stimulus	Response	Correct Response
1.	Q	___	K	13.	J	___	Z
2.	V	___	R	14.	J	___	Z
3.	J	___	Z	15.	Q	___	K
4.	Q	___	K	16.	V	___	R
5.	T	___	G	17.	Q	___	K
6.	Q	___	K	18.	J	___	Z
7.	V	___	R	19.	T	___	G
8.	J	___	Z	20.	Q	___	K
9.	V	___	R	21.	T	___	G
10.	T	___	G	22.	V	___	R
11.	Q	___	K	23.	J	___	Z
12.	T	___	G	24.	T	___	G

Trial	Stimulus	Response	Correct Response	Trial	Stimulus	Response	Correct Response
25.	Q	___	K	43.	Q	___	K
26.	J	___	Z	44.	T	___	G
27.	V	___	R	45.	T	___	G
28.	T	___	G	46.	J	___	Z
29.	J	___	Z	47.	V	___	R
30.	Q	___	K	48.	Q	___	K
31.	T	___	G	49.	T	___	G
32.	V	___	R	50.	J	___	Z
33.	J	___	Z	51.	Q	___	K
34.	V	___	R	52.	T	___	G
35.	Q	___	K	53.	J	___	Z
36.	T	___	G	54.	V	___	R
37.	J	___	Z	55.	Q	___	K
38.	V	___	R	56.	V	___	R
39.	T	___	G	57.	T	___	G
40.	Q	___	K	58.	J	___	Z
41.	J	___	Z	59.	J	___	Z
42.	V	___	R	60.	V	___	R

APPENDIX E

Shock Intensity Record Sheet

Name_____
Sex_____
Arousal_____
R-S_____

Trial	Stimulus	Response	Shock Intensity	Trial	Stimulus	Response	Shock Intensity
1.	Q	G	___	14.	J	Z	
2.	V	G	___	15.	Q	R	___
3.	J	R	___	16.	V	R	
4.	Q	Z	___	17.	Q	Z	___
5.	T	K	___	18.	J	Z	
6.	Q	K		19.	T	K	___
7.	V	G	___	20.	Q	G	___
8.	J	R	___	21.	T	G	
9.	V	R		22.	V	R	
10.	T	K	___	23.	J	K	___
11.	Q	G	___	24.	T	R	___
12.	T	R	___	25.	Q	K	
13.	J	R	___	26.	J	G	___

Trial	Stimulus	Response	Shock Intensity	Trial	Stimulus	Response	Shock Intensity
27.	V	R		37.	J	Z	
28.	T	G		38.	V	K	___
29.	J	K	___	39.	T	G	
30.	Q	K		40.	Q	Z	___
31.	T	G		41.	J	Z	
32.	V	Z	___	42.	V	R	
33.	J	R	___	43.	Q	K	
34.	V	R		44.	T	G	
35.	Q	G	___	45.	T	G	
36.	T	G					

TABLE 14

RAW DATA

Shock Intensities Administered per S on Each of Twenty-Four Shock Trials

Treatment Condition	S	Trials 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
		Sensitizers																							
	1	2	2	3	2	3	2	3	2	2	3	2	3	3	3	3	3	3	2	3	3	4	3	4	4
	2	1	2	3	3	3	2	4	4	3	3	2	3	3	3	4	4	3	4	3	3	4	4	4	4
Male	3	2	3	2	3	3	2	3	3	3	4	4	3	3	3	4	4	4	3	4	4	4	3	4	5
High Arousal	4	3	4	3	4	3	3	4	3	5	5	4	4	6	5	7	5	6	4	7	5	6	6	5	4
	5	2	2	2	3	3	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
	6	2	2	2	2	2	2	2	2	2	3	3	3	3	2	3	2	3	3	2	2	3	4	3	2
	1	2	2	2	3	2	2	3	2	3	2	2	3	4	3	4	3	4	4	4	3	4	5	4	5
	2	2	2	3	3	4	4	4	5	5	5	6	6	6	6	6	6	7	6	6	6	6	6	6	6
Male	3	4	5	4	4	6	6	7	4	4	5	4	5	5	4	4	6	4	5	5	6	6	6	7	6
Low Arousal	4	2	2	2	2	2	2	2	3	2	2	2	2	2	2	2	2	3	2	2	2	2	2	2	2
	5	3	3	4	3	4	4	4	5	4	4	5	4	4	5	4	5	5	5	5	5	5	5	5	5
	6	1	1	1	1	1	2	1	1	3	1	2	3	3	1	3	1	1	2	1	1	1	3	1	3
	1	2	2	2	3	2	2	2	2	2	2	2	2	1	2	2	1	2	2	2	2	2	2	2	2
	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	3	2	2	2	2	2	2	2
Female	3	1	2	1	2	3	3	1	2	2	4	3	4	5	2	3	2	4	4	2	4	5	3	4	5
High Arousal	4	2	2	3	3	3	3	2	3	2	1	3	3	2	3	2	3	3	2	3	3	2	3	3	3
	5	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	4	4	4
	6	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2	2	2	2	2	2

TABLE 14--Continued

Treatment Condition	S	Trials 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
	1	2	2	2	2	3	2	3	2	3	2	3	3	3	3	3	3	2	3	2	3	3	3	2	2
	2	2	2	2	3	2	3	3	3	2	3	2	3	3	3	3	3	3	3	3	3	3	3	4	3
Female	3	2	3	2	3	2	2	3	3	2	3	4	3	2	3	2	3	3	3	3	3	3	2	3	3
Low Arousal	4	3	2	5	4	6	4	2	6	4	7	4	5	3	5	4	5	2	5	4	4	5	3	5	4
	5	3	4	3	3	3	4	3	2	5	4	4	4	5	5	5	5	6	5	6	5	5	5	6	5
	6	2	2	4	3	4	3	4	5	3	5	5	4	3	4	4	3	3	6	3	6	4	4	6	5
										Nondefensive Repressors															
	1	2	3	3	4	4	3	3	5	3	4	5	4	4	3	4	4	4	5	4	4	3	4	4	5
	2	2	2	2	2	3	3	3	3	3	3	4	4	4	5	5	4	4	5	6	5	5	5	6	6
Male	3	2	3	2	2	3	3	3	3	4	3	4	3	4	3	4	4	4	5	4	5	5	5	5	4
High Arousal	4	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2	2	2	2	2	2
	5	2	3	2	3	3	3	2	3	3	3	3	3	3	3	3	3	3	3	3	2	2	2	2	2
	6	3	3	3	3	3	3	3	3	3	3	3	3	3	3	4	3	2	3	3	3	3	3	3	3
	1	2	2	2	2	3	3	3	3	4	3	4	3	5	3	4	5	5	5	4	4	5	4	4	5
	2	1	1	2	2	2	2	2	2	2	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
Male	3	3	2	4	6	1	5	7	4	6	8	4	4	6	6	7	5	7	5	7	6	6	7	6	7
Low Arousal	4	2	2	2	2	2	2	2	2	3	2	2	3	3	3	3	3	3	2	3	3	3	3	4	4
	5	3	3	3	3	4	3	3	3	3	3	3	3	4	3	3	3	3	3	3	6	6	5	5	6
	6	1	2	2	3	2	3	3	3	2	4	3	4	3	4	4	3	4	3	4	4	4	4	4	5

TABLE 14--Continued

Treatment Condition	S	Trials 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
	1	2	2	2	3	1	4	2	2	3	2	2	3	3	5	4	4	4	2	3	3	3	2	2	3
	2	2	2	2	2	3	2	2	2	3	2	3	2	2	2	2	2	2	3	3	2	2	3	2	2
Female	3	3	3	3	4	4	3	5	5	4	5	6	6	6	7	6	6	7	7	7	7	7	8	8	8
High Arousal	4	2	2	3	3	2	2	3	2	2	2	3	2	2	2	3	2	3	3	3	3	3	3	3	2
	5	2	2	2	3	2	2	3	3	3	3	3	3	3	2	3	2	2	3	2	2	3	3	2	2
	6	2	3	3	3	4	4	3	4	5	5	5	5	5	5	5	6	5	5	5	7	5	5	7	5
	1	1	2	3	2	3	3	2	3	3	2	2	3	3	2	2	2	2	3	2	4	3	2	3	3
	2	2	3	4	4	3	4	4	5	5	3	1	6	2	5	3	7	1	4	4	5	3	4	4	4
Female	3	2	2	3	3	3	3	3	3	4	3	4	4	4	4	5	5	5	5	6	5	5	5	6	4
Low Arousal	4	2	2	3	3	2	3	3	2	3	3	4	4	3	4	4	4	3	4	4	4	3	4	4	3
	5	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
	6	3	4	3	4	4	4	3	4	4	5	5	4	4	4	4	4	4	5	4	4	5	4	5	5
													Defensive Repressors												
	1	2	2	3	2	3	3	3	3	3	3	3	3	4	4	3	3	4	3	3	3	4	3	3	3
	2	3	2	1	3	2	2	3	3	2	4	3	2	2	2	1	2	2	2	3	2	4	3	4	2
Male	3	1	2	2	3	2	3	4	3	4	3	4	4	3	3	4	4	2	3	3	3	2	3	3	3
High Arousal	4	2	2	2	2	2	2	2	2	2	2	2	2	2	2	3	3	3	3	4	4	4	3	5	5
	5	1	1	2	2	2	2	2	3	2	3	4	4	5	5	5	6	5	8	6	4	7	8	2	3
	6	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2

TABLE 14--Continued

Treatment Condition	S	Trials 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
	1	4	6	5	5	6	5	7	7	6	8	6	8	8	9	6	10	4	5	5	5	5	6	7	4
	2	3	4	3	5	4	5	3	4	4	8	4	4	4	4	3	4	6	4	4	5	5	6	5	5
Male	3	3	3	5	4	6	6	5	5	5	5	5	5	5	5	10	7	5	7	6	7	5	5	8	7
Low Arousal	4	2	1	2	2	2	2	2	3	3	2	2	3	3	3	3	4	3	3	3	3	3	3	3	3
	5	1	2	2	3	3	4	4	5	3	6	4	4	5	5	3	4	4	4	5	4	5	2	3	4
	6	2	3	3	3	3	3	3	4	3	3	4	3	3	3	3	3	4	4	3	3	4	4	3	3
	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
	2	4	4	4	6	6	7	4	5	5	8	5	8	5	7	7	5	7	5	5	6	3	3	4	6
Female	3	2	2	3	3	3	3	3	3	3	4	4	4	3	4	4	4	4	4	4	4	4	4	4	3
High Arousal	4	1	1	2	2	2	1	1	2	2	2	2	3	3	3	3	3	3	3	4	4	4	4	5	5
	5	3	3	2	5	3	3	5	3	3	2	3	3	5	4	3	5	4	3	6	5	4	5	4	3
	6	2	2	2	2	2	2	2	2	2	2	2	2	3	2	3	3	2	2	3	3	2	3	3	3
	1	1	1	1	1	1	1	1	1	2	1	1	2	2	2	2	2	2	2	2	2	2	2	2	2
	2	2	2	2	2	2	2	2	3	3	3	2	3	3	3	3	3	3	3	3	3	3	3	3	3
Female	3	2	3	3	1	4	4	5	4	7	3	2	3	4	4	2	4	4	5	4	4	4	5	5	2
Low Arousal	4	2	3	4	3	3	3	4	4	4	4	4	5	4	4	4	3	4	5	5	4	4	5	5	6
	5	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	3	2	3	3	2	2	2	2	2
	6	2	3	3	3	4	3	4	4	4	5	5	4	4	4	5	4	5	5	4	4	4	5	5	4

BIBLIOGRAPHY

Adelson, J. Personality. Annual Review of Psychology, 1969, 20, 217-252.

Altrocchi, J., and Perlitsch, H. D. Ego control patterns and attribution of hostility. Psychological Reports, 1963, 12, 811-818.

Altrocchi, J., Shrauger, S., and McLeod, M. A. Attribution of hostility to self and others by expressors, sensitizers, and repressors. Journal of Clinical Psychology, 1964, 20, 233.

Axtell, B., and Cole, C. W. Repression-sensitization response mode and verbal avoidance. Journal of Personality and Social Psychology, 1971, 18, 133-137.

Baron, R. A. Aggression as a function of magnitude of victim's pain cues, level of prior anger arousal, and aggressor-victim similarity. Journal of Personality and Social Psychology, 1971, 18, 48-54.

Berkowitz, L. Antisemitism and the displacement of aggression. Journal of Abnormal and Social Psychology, 1959, 59, 182-187.

Berkowitz, L. The frustration-aggression hypothesis revisited. In Berkowitz, L. (Ed.). Roots of Aggression: A re-examination of the frustration-aggression hypothesis. New York: Atherton Press, 1969.

Berkowitz, L., Lepinski, J. P., and Angulo, E. J. Awareness of own anger level and subsequent aggression. Journal of Personality and Social Psychology, 1969, 11, 293-300.

Blaylock, B. A. Repression-sensitization, word association responses, and incidental recall. Unpublished master's thesis, University of Texas at Austin, 1963.

Buss, A. H. The psychology of aggression. New York: Wiley, 1961.

Buss, A. H. Physical aggression in relation to different frustrations. Journal of Abnormal and Social Psychology, 1963, 67, 1-7.

Buss, A. H. Instrumentality of aggression, feedback, and frustration as determinants of physical aggression. Journal of Personality and Social Psychology, 1966, 3, 153-162.

Byrne, D. The Repression-Sensitization Scale: Rationale, reliability and validity. Journal of Personality, 1961, 29, 334-349.

Byrne, D. Repression-sensitization as a dimension of personality. In Maher, B. A. (Ed.). Progress in experimental personality research. New York: Academic Press, 1964.

Byrne, D., Barry, J., and Nelson, D. Relation of the revised Repression-Sensitization Scale to measures of self-description. Psychological Reports, 1963, 13, 323-334.

Carpenter, B., Wiener, M., and Carpenter, J. T. Predictability of perceptual defense behavior. Journal of Abnormal and Social Psychology, 1956, 52, 380-383.

Cosentino, F., and Kahn, M. Further normative and comparative data on the Repression-Sensitization and Social Desirability scales. Psychological Reports, 1967, 20, 959-962.

Crowne, D. P., and Marlowe, D. A. A new scale of social desirability independent of psychopathology. Journal of Consulting Psychology, 1960, 24, 349-354.

Dengerink, H. A. Affective responsiveness, aggression and physiological arousal. Unpublished doctoral dissertation, Kent State University, 1969.

Eriksen, C. W. Defense against ego-threat in memory and perception. Journal of Abnormal and Social Psychology, 1952, 47, 230-235.

Feder, C. Z. Relationship between self-acceptance and adjustment, repression-sensitization and social competence. Journal of Abnormal Psychology, 1967, 73, 317-322.

Feshbach, N. D., and Feshbach, S. The relationship between empathy and aggression in two age groups. Developmental Psychology, 1969, 1, 102-107.

Fischer, D. G., and Rule, B. Anti-semitism, stress, and anchor effects on interpersonal judgments. Journal of Personality and Social Psychology, 1967, 6, 447-450.

Fraczek, A., and Macaulay, J. R. Some personality factors in reaction to aggressive stimuli. Journal of Personality, 1971, 39, 163-177.

Gambaro, S., and Rabin, A. I. Diastolic blood pressure responses following direct and displaced aggression after anger arousal in high- and low-guilt subjects. Journal of Personality and Social Psychology, 1969, 12, 87-94.

Geen, R. G. Perceived suffering of the victim as an inhibitor of attack-induced aggression. Journal of Social Psychology, 1970, 81, 209-215.

Gentry, W. D. Effects of frustration, attack, and prior aggressive training on overt aggression and vascular processes. Journal of Personality and Social Psychology, 1970, 16, 718-725.

Golin, S., Herron, E. W., Lakota, R., and Reineck, L. Journal of Consulting Psychology, 1967, 31, 564-569.

Kahn, M., and Schill, T. Anxiety report in defensive and nondefensive repressors. Journal of Consulting and Clinical Psychology, 1971, 36, 300.

Kipnis, D. Studies in character structure. Journal of Personality and Social Psychology, 1968, 8, 217-227.

Kissen, B., Gottesfeld, H., and Dickes, R. Inhibition and tachistoscopic thresholds for sexually charged words. Journal of Psychology, 1957, 43, 333-339.

Knott, P. D. A further methodological study of the measurement of interpersonal aggression. Psychological Reports, 1970, 26, 807-809.

Knott, P. D., and Drost, B. A. Sex-role identification, interpersonal aggression, and anger. Psychological Reports, 1970, 27, 154.

Kurland, S. H. The lack of generality in defense mechanisms as indicated in auditory perception. Journal of Abnormal and Social Psychology, 1954, 49, 173-177.

Lazarus, R. S., Eriksen, C. W., and Fonda, C. P. Personality dynamics and auditory perceptual recognition. Journal of Personality, 1951, 19, 471-482.

Lefcourt, H. M. Need for approval and threatened negative evaluation as determinants of expressiveness in a projective test. Journal of Consulting and Clinical Psychology, 1969, 33, 96-102.

Leibowitz, G. Comparison of self-report and behavioral techniques of assessing aggression. Journal of Consulting and Clinical Psychology, 1968, 32, 21-25.

Leventhal, D. B., and Shemberg, K. M. Sex role adjustment and non-sanctioned aggression. Journal of Experimental Research in Personality, 1969, 3, 283-289.

Leventhal, D. B., Shemberg, K. M., and Van Schoelandt, S. K. Effects of sex-role adjustment upon the expression of aggression. Journal of Personality and Social Psychology, 1968, 8, 393-396.

Megargee, E. I., Cook, P. E., and Mendelsohn, G. A. Development and validation of an MMPI scale of assaultiveness in overcontrolled individuals. Journal of Abnormal Psychology, 1967, 72, 519-528.

Middleton, B. A. Aggressive behavior as a function of trait anxiety, anger and sex. Unpublished doctoral dissertation, University of North Dakota, 1971.

Nelson, S. E. Psychosexual conflicts and defenses in visual perception. Journal of Abnormal and Social Psychology, 1955, 51, 427-433.

Okel, E., and Mosher, D. L. Changes in affective states as a function of guilt over aggressive behavior. Journal of Consulting and Clinical Psychology, 1968, 32, 256-270.

Parsons, O. A., and Fulgenzi, L. B. Overt and covert hostility in repressers and sensitizers. Perceptual and Motor Skills, 1968, 27, 537-538.

Parsons, O. A., Fulgenzi, L., and Edelberg, R. Aggressiveness and psychophysiological responsivity in groups of repressors and sensitizers. Journal of Personality and Social Psychology, 1969, 12, 233-244.

Rule, B. Anti-semitism, stress, and perception of strangers. Journal of Personality and Social Psychology, 1966, 3, 132-134.

Rule, B. G., and Percival, E. The effects of frustration and attack on physical aggression. Journal of Experimental Research in Personality, 1971, 5, 111-118.

Sarason, I. G., and Smith, R. E. Personality. Annual Review of Psychology, 1971, 22, 393-446.

Schill, T., and Althoff, M. Auditory perceptual thresholds for sensitizers, defensive and nondefensive repressors. Perceptual and Motor Skills, 1968, 27, 935-938.

Schill, T., and Black, J. Differences in reactions to Rosenzweig's P-F Study by defensive and nondefensive repressors and sensitizers. Psychological Reports, 1969, 25, 929-930.

Schill, T., Emmanuel, G., Pedersen, V., Schneider, L., and Wachowiak, D. Sexual responsivity for defensive and nondefensive sensitizers and repressors. Journal of Consulting and Clinical Psychology, 1970, 35, 44-47.

Schuck, S. Z., Schuck, A., Hallam, E., Mancini, F., and Wells, R. Sex differences in aggressive behavior subsequent to listening to a radio broadcast of violence. Psychological Reports, 1971, 23, 931-936.

Shemberg, K. M., Leventhal, D. B., and Allman, L. Aggression machine performance and rated aggression. Journal of Experimental Research in Personality, 1968, 3, 117-119.

Silber, L. D., and Grebstein, L. C. Repression-sensitization and social desirability responding. Journal of Consulting Psychology, 1964, 23, 559.

Taylor, S. P., and Epstein, S. Aggression as a function of the interaction of the sex of the aggressor and the sex of the victim. Journal of Personality, 1967, 35, 474-486.

Thompson, R. J., Jr. Instrumentality of aggression and strength and arbitrariness of frustration related to direct physical aggression. Unpublished doctoral dissertation, University of North Dakota, 1970.

Weissman, H. N., and Ritter, K. Openness to experience, ego strength and self-description as a function of repression and sensitization. Psychological Reports, 1970, 26, 859-864.

Winer, B. J. Statistical principles in experimental design. New York: McGraw-Hill, 1962.

Zuckerman, M. Response set in a check list test: A sometimes thing. Psychological Reports, 1969, 25, 773-774.

Zuckerman, M., and Lubin, B. Manual for the Multiple Affect Adjective Check List. San Diego: Educational and Industrial Testing Service, 1965.

Zuckerman, M., Lubin, B., Vogel, L., and Valerius, E. Measurement of experimentally induced affects. Journal of Consulting Psychology, 1964, 28, 418-425.