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ABSTRACT

Does exposure to symbolically modeled aggression (aggression in cartoons, movies, stories and simulated television programs) increase children's willingness to engage in behavior which might actually harm another human being? This paper presents a summary of three recent experiments offering affirmative answers to the question. A fourth experiment provides evidence that at least under some circumstances, children's interpersonal aggression may be increased by witnessing symbolic aggressive models. Subjects were 136 boys and girls randomly assigned to an experimental or a control group. Individual children in each group watched a videotape of either a violent or a highly active sports sequence. Subjects were next escorted to an adjacent room and seated at a response box apparatus. By pressing either of two buttons, children communicated their intent to help or hurt another child. As in many earlier studies, subjects regularly exposed to symbolic aggressive models tended to respond more aggressively than control group subjects tested under identical circumstances. Further, this pattern of results emerged despite the brevity of the aggressive sequences and, in three of four experiments, such effects were found even in the absence of a strong prior instigation to aggression. (WY)

Effects of Symbolic Modeling on Children's Interpersonal Aggression

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Text and illustrations for paper read at the meeting of the Society For Research in Child Development, 1971.

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In Larsen's review of the social and scientific issues surrounding the portrayal of violence in the mass media, he noted that we may begin with two facts: (1) "Mass media content is heavily saturated with violence, and (2) people are spending more and more time in exposure to such content." (1968, p. 115). This state of affairs has been used by both laymen and professionals as the basis for appeals to modify the entertainment fare to which viewers, particularly children and adolescents, are exposed (e.g., Merriam, 1964; Schramm, Lyle, & Parker, 1961; Walters, 1966; Walters & Llewellyn Thomas, 1963; Wertham, 1966). Other writers, however, have argued that the kind of violence found on television or in movies does not necessarily influence observers' "real-life" social behavior (e.g., Halloran, 1964; Klapper, 1968) and some have even lauded the portrayal of violence as potentially preventing the overt expression of aggression, at least under some circumstances (e.g., Feshbach, 1961; Feshbach & Singer, 1971).

In view of the foregoing it is hardly surprising that recent years have seen a substantial increase in the number of experimental studies directed to this issue. Thus an effort has been made to determine whether children will either learn and/or be disinhibited in their performance of aggressive acts as a function of exposure to symbolic aggressive models (i.e., in cartoons, movies, stories, and simulated television

programs). This research has indicated consistently that children may indeed acquire from even a very brief period of observation certain motoric and verbal behaviors which are associated with aggression in life situations. More specifically, it has been repeatedly demonstrated that after viewing a film which depicts novel forms of hitting, kicking, and verbal abusement, children can, when asked to do so, reproduce these behaviors with a remarkable degree of fidelity (e.g., Bandura, 1965; Hicks, 1965). Taken together with the large body of research on the observational learning of other behaviors (Flanders, 1968), the available evidence appears to leave little doubt that the learning of at least some aggressive-like behaviors can occur from television or movie viewing.

Equally important, however, is the question of whether the observation of violence will influence children's performance of aggressive acts when they have not been specifically invited to imitate. A relatively large number of experiments appear to provide evidence relating to this issue (e.g., Bandura, Ross, & Ross, 1961, 1963a, b; Rosekrans & Hartup, 1967). In these studies, subjects have typically been exposed to live or filmed aggressive scenes, and then placed in a free-play situation with a variety of toys or other play materials. Results obtained with these procedures have shown reliably that the exposure of young children to aggression produces increments in such play activities as punching inflated plastic clowns, popping balloons, striking stuffed animals, and operating mechanized "hitting dolls." However, it has been argued by critics (e.g., Klapper, 1968) that the findings of this research are not directly relevant to the question of whether exposure to symbolically modeled aggression will increase

children's willingness to engage in behavior which might actually harm another human being. The purpose of this paper is to present a summary of four recent experiments which were directed more explicitly to this last question.

In the earliest of these studies, conducted by Hanratty, Liebert, Morris, & Fernandez (1969), the effects of observing a 2 1/2 minute film depicting physical and verbal aggression against a human clown were investigated. A 2 x 2 factorial design was employed, in which pre-school boys drawn from a Protestant Sunday School either were, or were not, exposed to the aggressive film. Thereafter, half the subjects in each of these groups were permitted to play in a room containing a mallet, a toy gun, and a plastic (Bobo-doll) clown, while the remaining children were placed in an otherwise identical situation in which a human clown replaced the familiar inanimate victim. The results of this experiment are presented in Slide 1, from which it can be seen that the incidence of aggression was higher if the aggressive film had been seen than if it had not, and that more aggression occurred against the inanimate than against the human victim. Additionally, and of greatest importance to the present discussion, physical aggression was directed against the human victim only when the children had seen the aggressive film.

Request Slide 1 Here

In a second experiment by Savitsky, Rogers, Izard, & Liebert (1971), employing similar procedures, the finding that such a film would significantly increase aggression against a human victim was replicated with first and second grade boys from a rural public school.

These results are shown in Slide 2. Note that frustration was also systematically manipulated in this study, but had no significant effect and did not interact with the modeling factor. However, the frustration manipulation may have been a relatively weak one.

Request Slide 2 Here

In a third study within the same general paradigm, Hanratty, O'Neal, & Sulzer (1970) found that first grade boys from an urban parochial school were also significantly more likely to engage in interpersonal aggression if they had observed an aggressive film than if they had not. In contrast to the two previous studies, the modeling effect was apparent only for children who had been frustrated, although whether the human victim had been the agent of frustration did not influence the frequency of aggression. The results of this study are summarized in Slide 3.

Request Slide 3 Here

The foregoing investigations consistently show that filmed aggressive modeling may increase children's aggression against a human victim. In a recently completed fourth experiment, conducted by Liebert & Baron (1972), at Fels Research Institute, an effort was made to extend this inquiry further. Specifically, we wished to determine the effects of exposing children to scenes of aggression taken directly from actual television programs on their subsequent willingness to hurt a peer. Moreover, this study focused upon the possible disinhibition effects rather than direct imitative effects, of observing aggressive models.

Thus, it is related both to investigations by Berkowitz, Walters, and their associates with adolescent and adult subjects (e.g., Berkowitz, 1965; Berkowitz & Rawlings, 1963; Walters & Llewellyn Thomas, 1963), and to earlier studies with children by Lovaas, Siegel, and others (e.g., Lovaas, 1961; Siegel, 1956). As Bandura (1969) has noted, both imitation and disinhibition may be fruitfully thought of as modeling effects although the former is concerned only with the occurrence of precise matching responses.

The subjects were 136 children, 68 boys and 68 girls, who were brought to the Institute by one of their parents in response to a newspaper advertisement and/or letters distributed in local public elementary schools asking for volunteers to participate in a study of the effects of television on children. Sixty-five of the participants were five or six years of age and the remaining subjects were eight or nine years of age at the time of the study. Within each age and sex the children were assigned randomly to the treatment conditions. Approximately 20% of the children in this sample were black and virtually all of the remainder were white. The economic backgrounds from which these participants came was widely varied and normally distributed. Further, although ethnic and economic characteristics were not used as a basis for assignment to treatment groups, inspection suggested that the procedure of random assignment had adequately distributed these characteristics among the experimental groups.

The sample was drawn from both Yellow Springs, Ohio, a liberal college town, and from a larger and more conservative neighboring community, Xenia, Ohio. Additionally, to assure that no potential participants were turned away because of scheduling inconveniences,

parents were invited to select their own appointment times, including evenings or weekends, and transportation was offered to those who could not provide it for themselves.

One of the principal investigators (R. A. B.) greeted the parent and child at the outset and served as the interviewer in obtaining informed parental consent for the child's participation. A 28-year-old white female served as experimenter for all children and two other adult white females served as unseen observers throughout the study.

Design

A 2 x 2 x 2 factorial design was employed, in which the three factors were sex, age (5-6 or 8-9 years), and treatment (observation of aggressive or nonaggressive television sequences).

Procedure

Introduction to the situation. Upon the arrival of parent and child at the Institute, the child was escorted to a waiting room containing nonaggressive magazines and other play materials, while the parent was interviewed in a separate room. During the interview, the nature of the experiment was disclosed to the parent, questions were invited and answered, and a written consent to the child's participation was obtained.[2]

Experimental and control treatment. After the interview, but without permitting the parent and the child to interact, each subject was escorted individually by the experimenter to a second waiting room containing children's furniture and a television video-tape monitor. The television was then turned on by the experimenter, who suggested that the child watch for a few minutes until she was ready for him. The experimenter left the child to watch television alone for 6 1/2

minutes. For all groups, the first 120 seconds of observation consisted of two one-minute commercials video-taped during early 1970. The first of these depicted the effectiveness of a certain paper towel and the second advertised a humorous movie (rated "G"). The commercials were selected for their humor and attention-getting characteristics. Thereafter, children in the experimental group observed an excerpt, three and one-half minutes in length, from a popular television series ("The Untouchables"). The sequence, which was designed to preserve a simple story line, contained a chase, two fist-fighting scenes, two shootings, and a stabbing. In contrast, children in the control group viewed a highly active three and a half minute video-taped sport sequence in which athletes competed in hurdle races, high jumps, and the like. For all subjects, the final 60 seconds of the program contained a commercial for automobile tires. Just prior to the end of this last commercial the experimenter re-entered the room and announced that she was ready to begin.

Assessment of willingness to hurt another child. The subject was next escorted by the experimenter from the TV room to an adjacent room and seated at a response box apparatus, modeled after one developed by Mallick and McCandless (1966). The grey metal box, which measured approximately 17" wide x 6" high, displayed a red button on the left, a green button on the right, and a white light centered above these two manipulanda. The word HURT appeared beneath the red button, while the word HELP appeared beneath the green button. Several plastic wires led from the response box to a vent in the wall. The experimenter explained to the subject that these wires were connected to a game in an adjacent room and that "one of the other children is in the next room right now

and will start to play the game in just a minute." It was further explained that the game required the player in the other room to turn a handle and that the white light would come on each time the other child in the next room started to turn the handle, thus activating the red and green buttons.

The experimenter continued: "When this white light comes on, you have to push one of these two buttons. If you push this green button, that will make the handle next door easier to turn and will help the child to win the game. If you push this red button, that will make the handle next door feel hot. That will hurt the child and he will have to let go of the handle. Remember, this is the help button, and this is the hurt button [indicating]. See, it says HELP and HURT... You have to push one of these two buttons each time the light goes on, but you can push whichever one you want to. You can always push the same button or you can change from one button to the other whenever you want to, but just remember, each time the light goes on, you can push only one. So, if you push this green button then you help the other child and if you push this red button then you hurt the other child. Now if you push this green button down for just a second, then you help the other child just a little, and if you push this red button down for just a second, then you hurt the other child just a little. But if you push this green button down a little longer, then you help the other child a little more, and if you push this red button down a little longer, then you hurt the other child a little more. The longer you push the green button, the more you help the other child and the longer you push the red button, the more you hurt the other child."

After being assured that the subject understood the task, the

experimenter left the room.[3] Although all subjects were led to believe that other children were participating, there was, in fact, no other child and the entire procedure was controlled in the next room so as to produce 20 trials, with an inter-trial interval of approximately 15 seconds. Each child's response for each trial (appearance of the white light) was automatically registered and its duration recorded. When the subject had completed 20 trials, the experimenter re-entered the room and announced that the game was over.

The child was then escorted to a specially prepared third room, designated the "play room," and a measure of aggressive play obtained. Although the details and outcome of this measure are beyond the scope of the present report, it should be noted that the groups who observed the aggressive program all tended to show more aggression on this measure than those who observed the nonaggressive program. At the end of the play period, the experimenter re-entered the room and asked the child to recall both the television program which he had seen and the nature of the game he had played. All children included in the analyses were able to recall correctly the operation of the red and green buttons and the essential content of the television programs to which they had been exposed.[4]

Results

The single overall measure which appears to capture the greatest amount of information in this situation is the total duration in seconds of each subject's aggressive responses during the 20 trials. Since marked heterogeneity of variance was apparent among the groups on this measure, the overall 2 x 2 x 2 analysis of variance was performed on square-root transformed scores ($x = \sqrt{x} + \sqrt{x + 1}$, cf. Winer, 1962, p. 220).

The means for all groups on this measure are presented in Slide 4. The analysis itself reveals only one significant effect, for treatment conditions ($F = 4.16$, $p < .05$). Specifically, as can be seen from the slide, children who had observed the aggressive program later showed reliably more interpersonal aggression than those who had observed the neutral one.

Slide 4 Here

We have also undertaken several other analyses which may serve to clarify the nature of this overall effect. For example, note that a subject's total duration score is the product of the frequency with which he aggresses and the average duration of each of these aggressive responses. Moreover, it is of some interest that these two measures are only moderately, although reliably, related in the overall sample ($r = +.30$, $p < .05$).

Separate overall analyses of these two component scores reveals a significant effect for the mean duration which directly parallels the effects for total duration ($F = 3.95$, $p < .05$). The data themselves are shown in Slide 5.

Slide 5 Here

On the other hand, analysis of the frequency measure fails to show any significant effects although as seen in Slide 6, the tendency, for the younger children, is in the same direction.

Slide 6 Here

One possible explanation that might account for the longer durations shown by the aggressive program group is that these children were simply more aroused than their nonaggressive treatment counterparts. To check on this interpretation, an overall analysis of variance was performed on the mean duration of the HELP responses. Presumably, if general arousal accounted for these effects, the aggressive program groups should also show longer HELP responses than the nonaggressive program groups. However, contrary to the general arousal hypothesis, the effect of the treatments on this measure was not significant, the overall F comparing the aggressive program subjects' prosocial responses with those of the nonaggressive program observers being only 1.24. [5] Thus, it appears that a more specific disinhibition regarding aggressive behavior was produced by observing the modeled hostilities.

A final measure that we have computed, restricted to the subjects who aggressed at least once (approximately 83% of all subjects who participated did so) is the latency in trials until the first aggressive response occurred. Specifically, a child who aggressed on the initial trial received a score of 0, a child who aggressed for the first time on the eighth trial received a score of 7, and so on. These data are shown in Slide 7. Analysis of variance revealed two significant effects, an age difference ($F = 5.44$, $p < .05$) and an age by treatment interaction ($F = 9.35$, $p < .01$). The interaction occurs because the aggressive program produced earlier use of the red button than the nonaggressive program among the younger children ($t = 2.78$), $p < .01$) but was not influential in this respect for the

older participants (t = 1.21).

Slide 7 Here

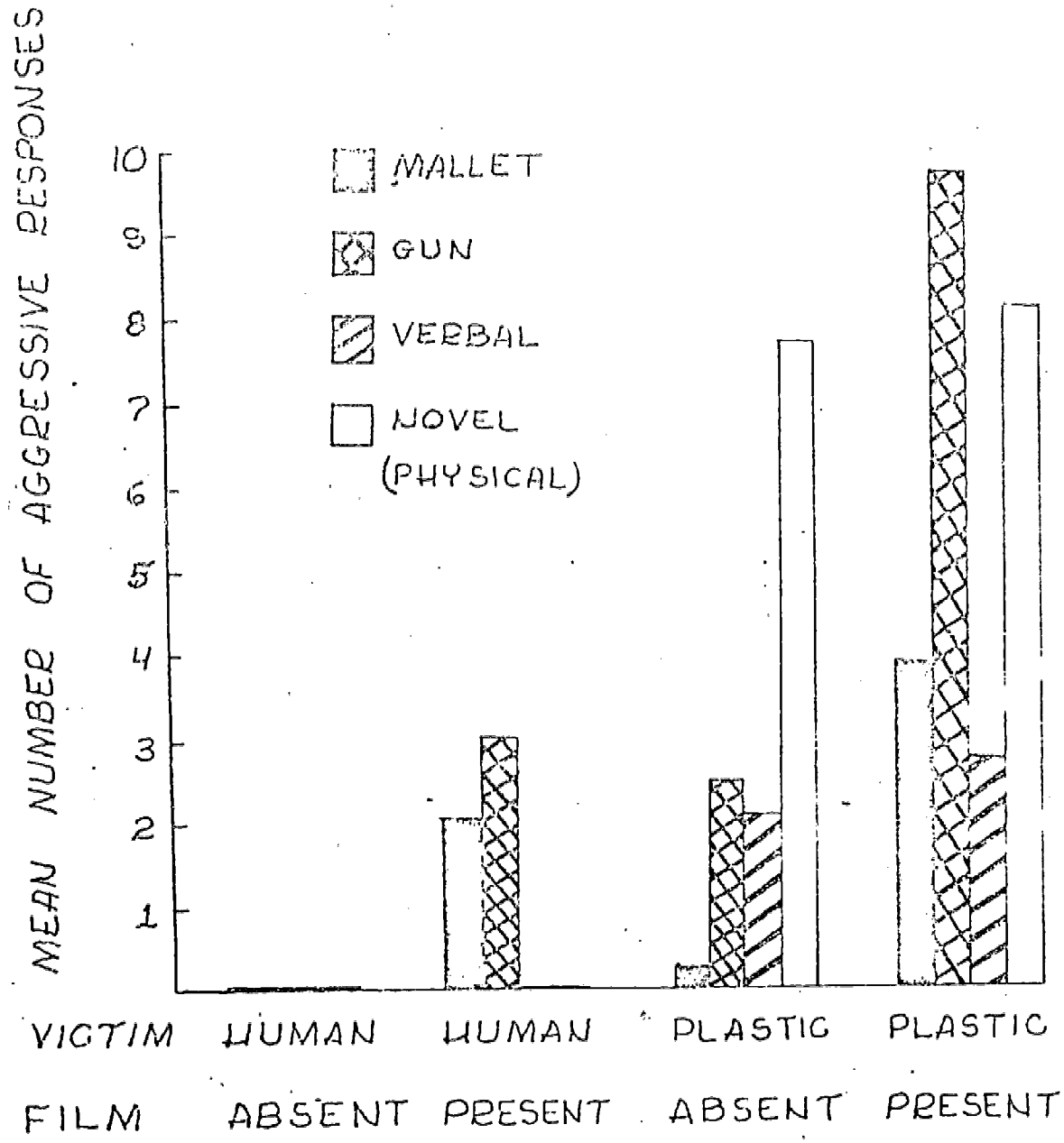
Discussion

The overall and quite consistent pattern of results in the four experiments reviewed provides direct evidence for the view that, at least under some circumstances, children's interpersonal aggression may be increased by witnessing symbolic aggressive models. These findings appear to confirm and extend the effects of symbolically modeled aggression on the subsequent imitative aggressive behavior of young observers toward inanimate objects, as well as the disinhibition effects which such observation has been shown to have for both children's aggressive play and older viewer's willingness to shock another person. That is, as in many earlier studies, subjects exposed to symbolic aggressive models regularly tended to behave more aggressively than control group subjects tested under identical circumstances. Further, this pattern of results emerged despite the brevity of the aggressive sequences (always less than four minutes) and, in three of the four studies, such effects were found even in the absence of a strong prior instigation to aggression.

Paul Ekman and his associates, who measured the younger children's affective facial reactions in conjunction with the Liebert and Baron experiment, appear to have data which are related to the degree to which the children later aggressed. These findings, which suggest the possibility of predicting which children will be most and least

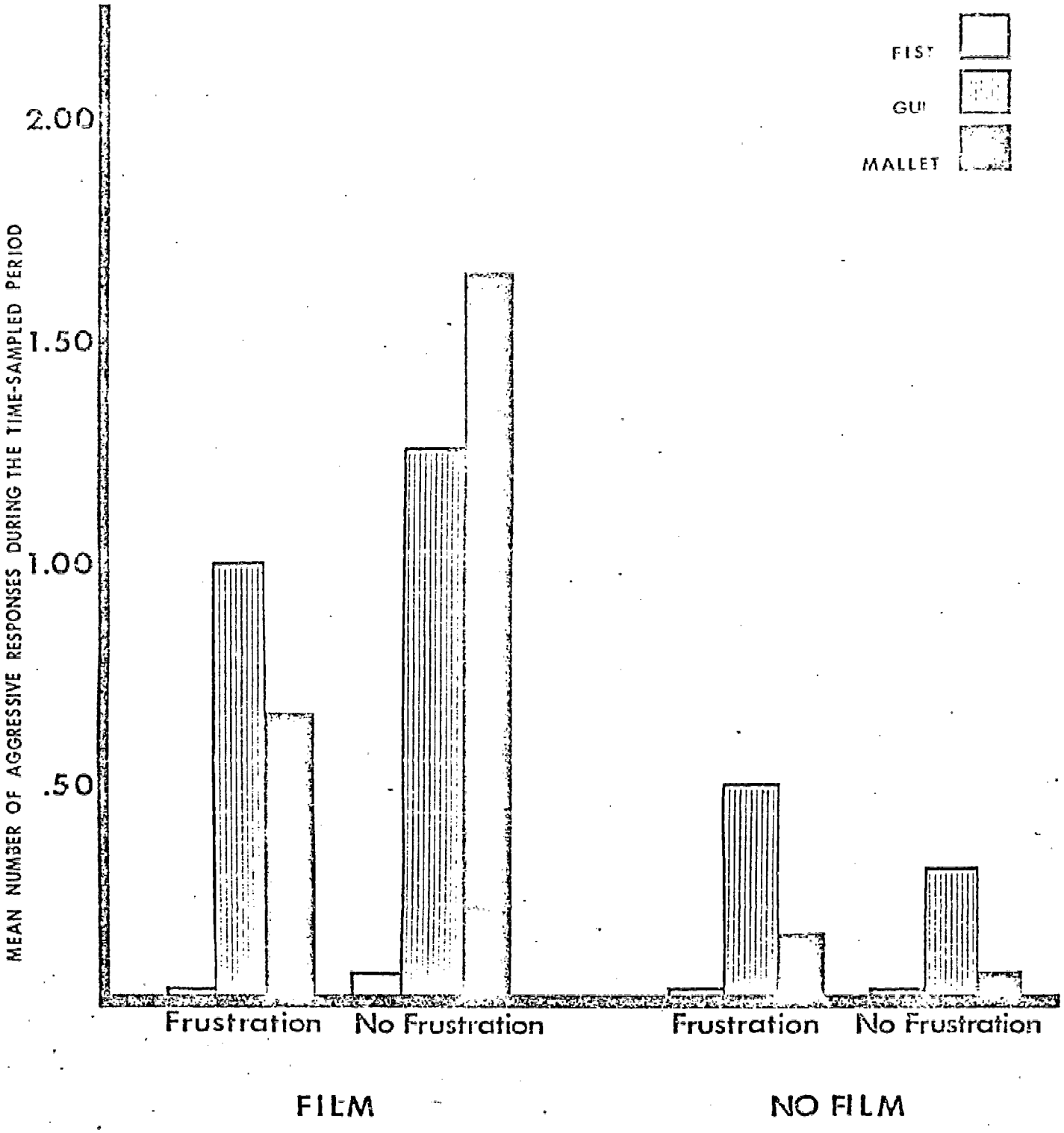
susceptible to the effects of modeled aggression, pose one of the many questions raised, but not answered by the studies reviewed in the present paper. Among the others: (1) Do the effects of observed violence upon children's behavior vary as a function of the length and "plot" of the observed sequence? (2) Will the observation of aggressive scenes produce greater effects upon the behavior of young observers when they have been subjected to prior anger arousal? (3) What particular types of modeled aggression (e.g., Western-style gunfights, fist-fights, war-scenes) are most and least likely to have such effects? (4) What is the durability of the influence of symbolically modeled aggression and is the effect cumulative? (5) Finally, and perhaps of greatest importance: What sorts of televised sequences will reduce the probability of interpersonal aggression? Extensive experimental analyses in a variety of settings, some of which are already under way, are required to answer these questions. In view of the fact that a child born today will, by the age of 18, have spent more of his life watching television than in any other single activity except sleep (Lesser, 1970), few problems would seem more deserving of attention.

SLIDE 1



After Hanratty, Liebert, Morris, & Fernandez, 1970

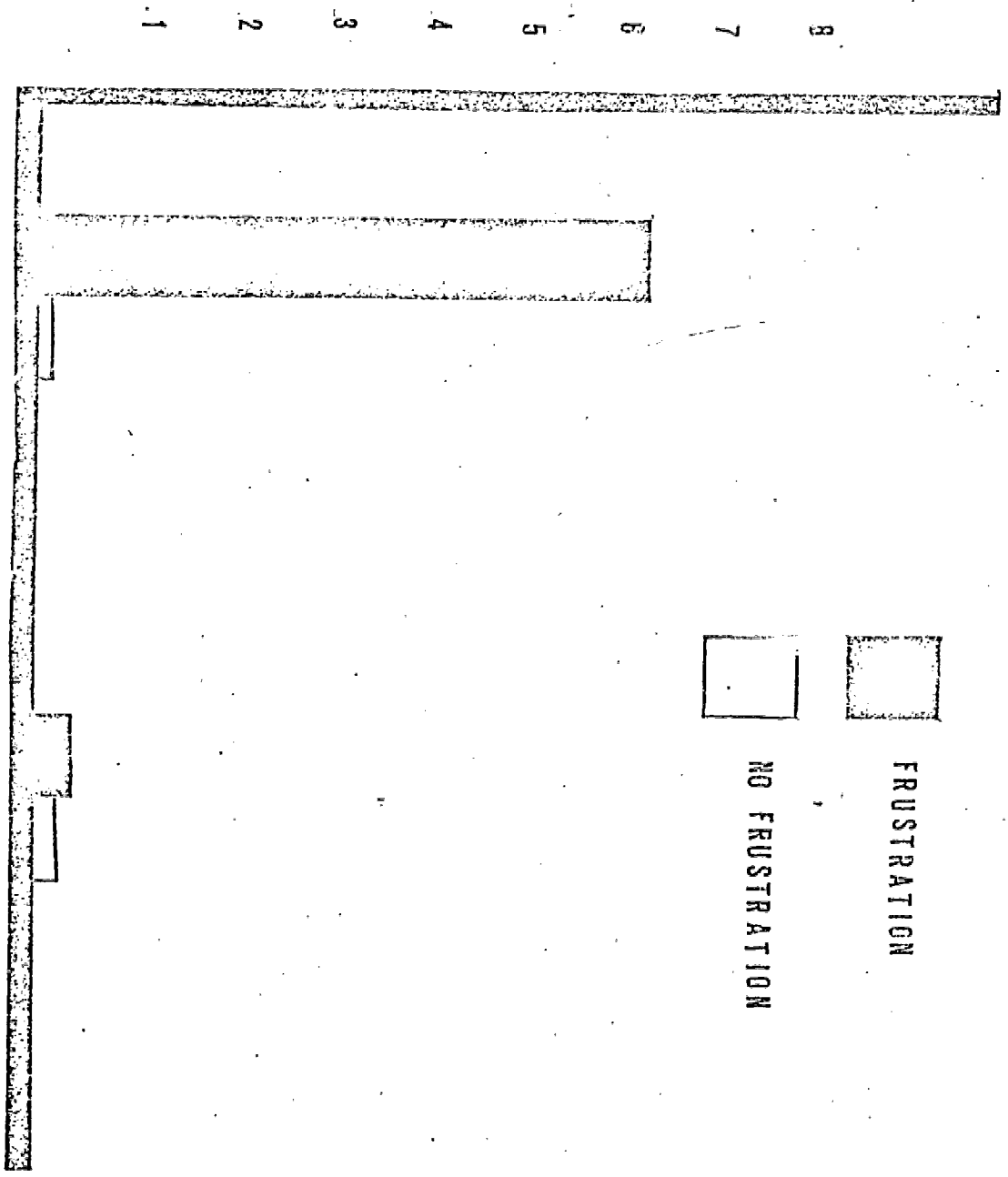
SLIDE 2



After Savitsky, Rogers, Izard, & Liebert, 1971

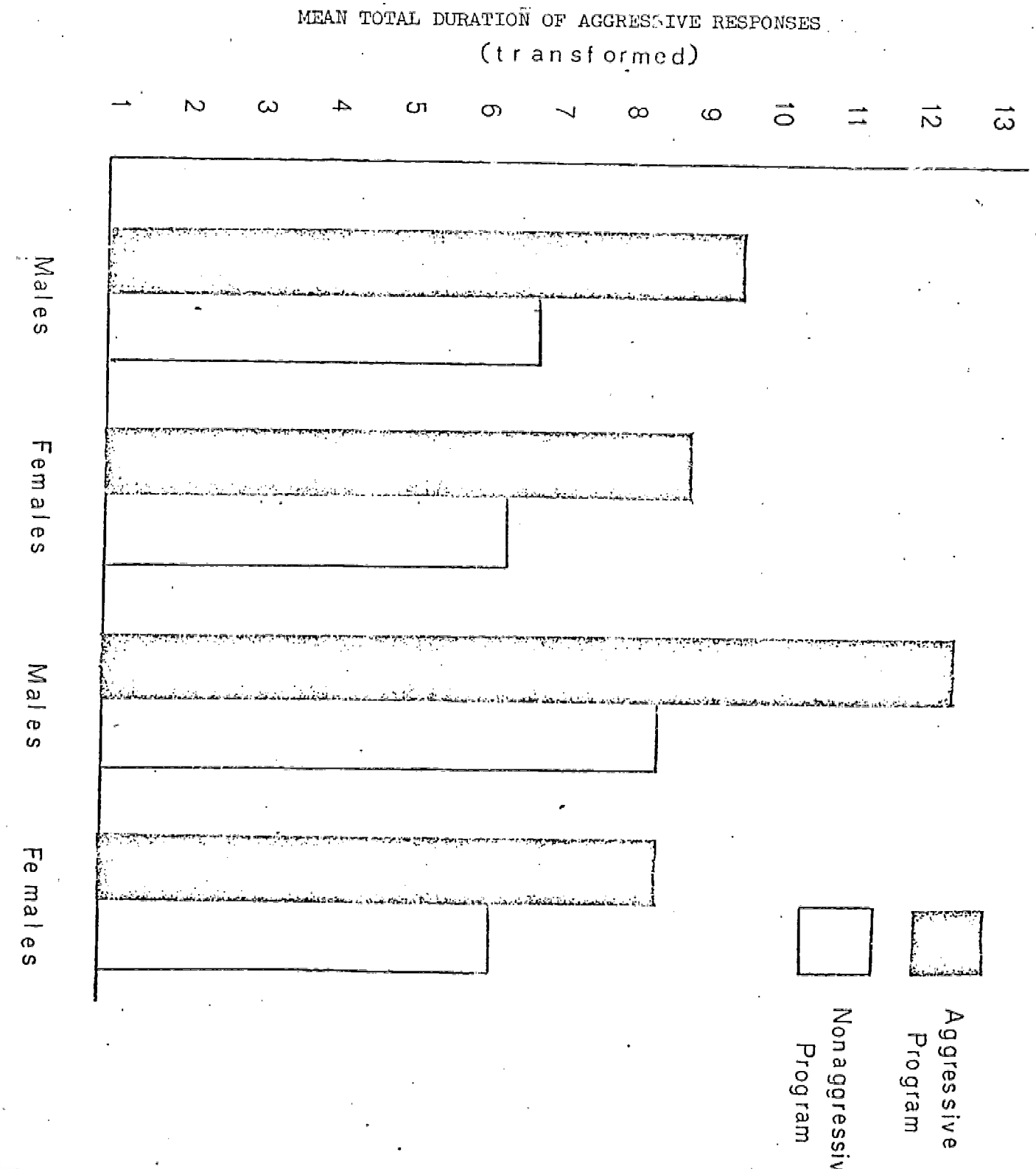
SLIDE 3

MEAN IMITATIVE AGGRESSION SCORES



After Hanratty, O'Neal, & Sulzer (1971)

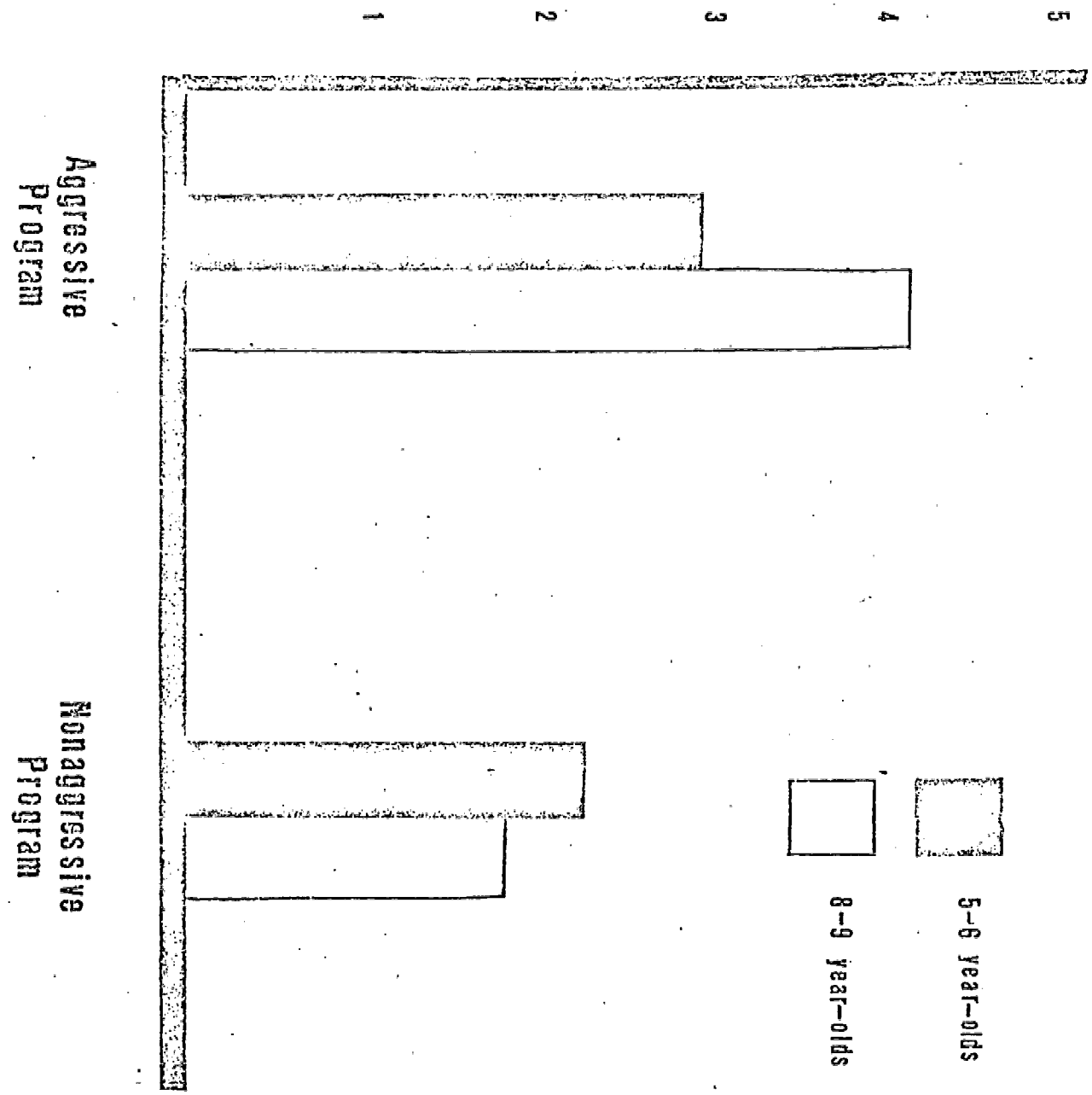
SLIDE 4


MEAN TOTAL DURATION OF AGGRESSIVE RESPONSES
(transformed)
1
2
3
4
5
6
7
8
9
10
11
12
13
Males
Females
Males
Females
5-6 year olds
8-9 year olds
Nonaggressive Program
Aggressive Program

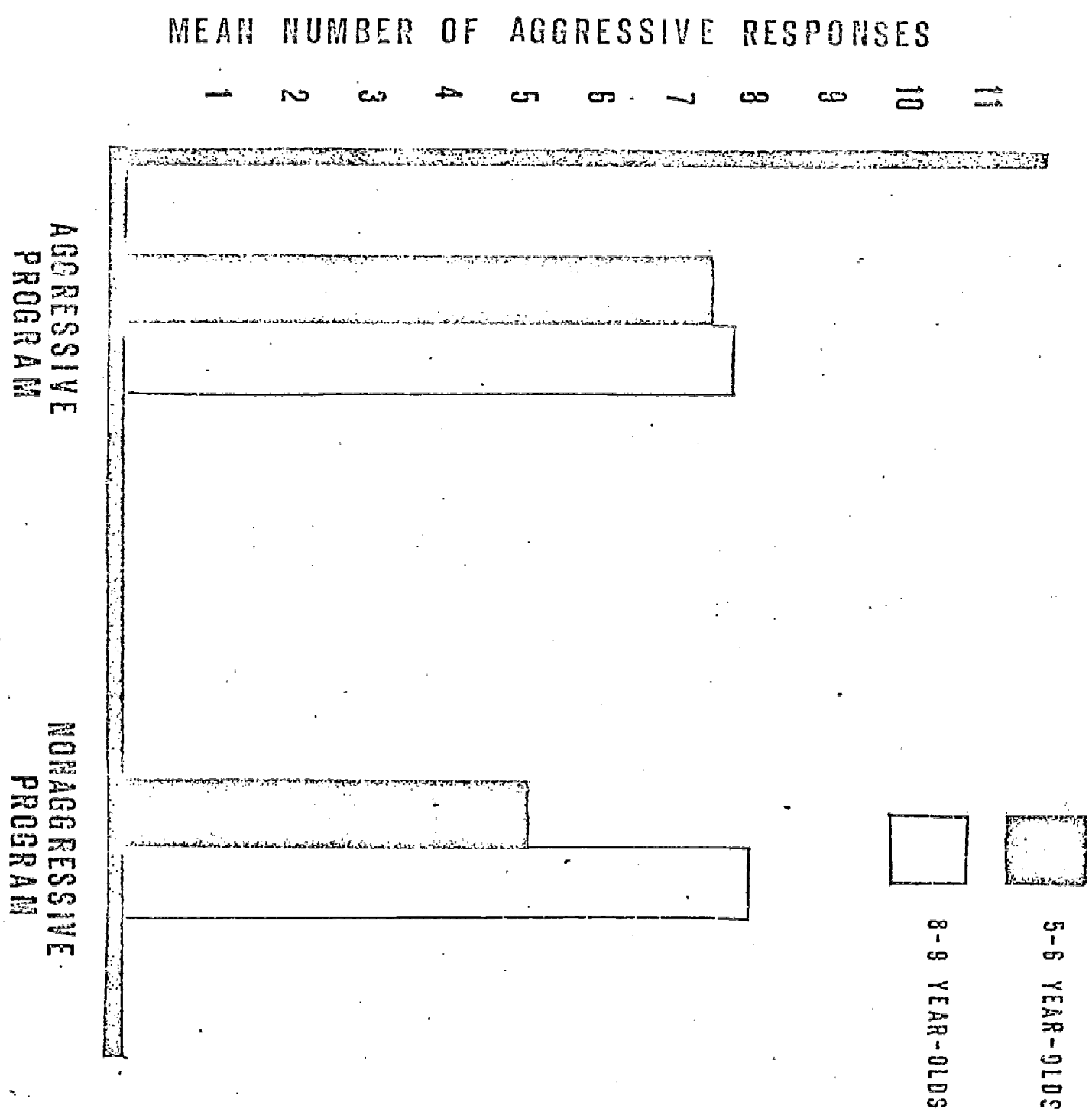
SLIDE 5

MEAN DURATION OF AGGRESSIVE RESPONSES PER TRIAL

(TOTAL DURATION/NUMBER OF AGGRESSIVE RESPONSES)

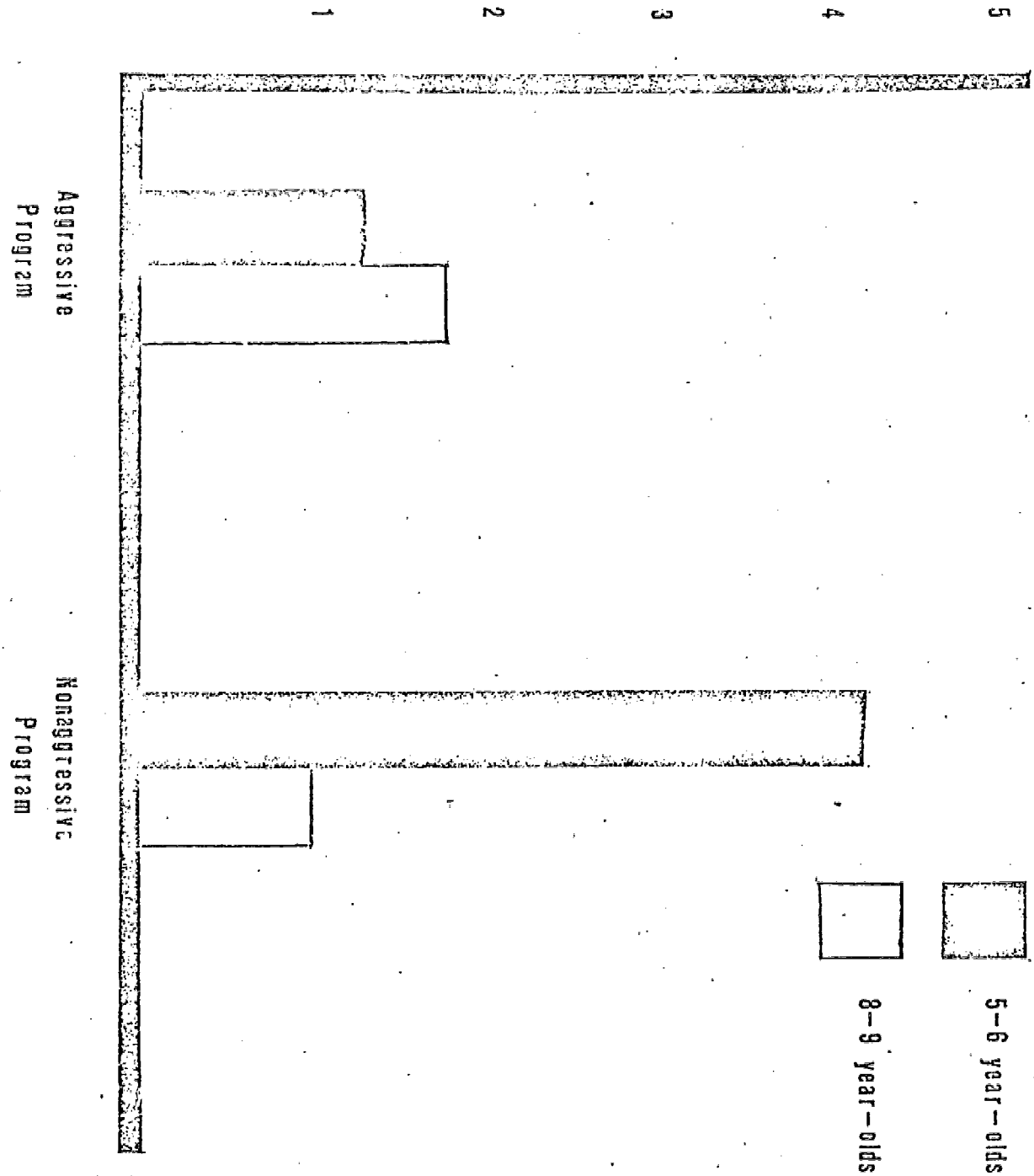


SLIDE 6


MEAN NUMBER OF AGGRESSIVE RESPONSES
1
2
3
4
5
6
7
8
9
10
11
AGGRESSIVE PROGRAM
NONAGGRESSIVE PROGRAM
8-9 YEAR-OLDS
5-6 YEAR-OLDS

SLIDE 7

MEAN LATENCY (IN TRIALS) TO FIRST AGGRESSIVE RESPONSE



Footnotes

[1]This study was supported by a contract from the National Institute of Mental Health to The Fels Research Institute and was conducted while both authors were affiliated with that institution. The contributions of the two authors to the overall project were approximately equal. Baron is now at the Department of Psychology, University of South Carolina and Liebert at the Department of Psychology, State University of New York at Stony Brook. Grateful thanks are due to Robert Devine, Joan Kleban, Diane Liebert, Carol Lyons, Cheryl Russell, and Sharon Swenson for their many contributions.

[2]Since no specific information could be provided in public announcements or over the telephone, it appeared necessary to have parents accompany their children to the Institute in order to assure that no child participated without the informed consent of his parents. In order to defray the costs of transportation, baby-sitters for siblings who remained at home, and the like, and to eliminate economic biases which might otherwise appear in the sample, a ten-dollar stipend was given to the parent of each participant. No parent who appeared for an interview declined to participate.

[3]It should be noted that similar tasks have gained widespread usage in experiments dealing with human aggression (e.g., Baron & Kepner, 1970; Berkowitz & Geen, 1966; Buss, 1966.) Moreover, the Mallick and McCandless (1966) apparatus appears to provide subjects with a credible, apparent opportunity to harm a peer without actually jeopardizing a young victim. Additionally, there is evidence to suggest that behavior on such tasks is related directly to the occurrence of aggressive acts in naturalistic social situations (Wolfe & Baron, 1970; Hartmann, 1969).

[4]Nine children, all in the 5-6 age range, were terminated prior to collecting data because they refused to remain alone, cried, or left the experimental situation. Twenty-three other children participated in the entire experiment but were not included in the sample. Of these, 14 (five in the younger group and nine in the older group) did not understand or follow instructions for the response box and seven (three younger children and four older ones) played or explored the room instead of watching television. The data for the remaining two children were not recorded properly due to technical difficulties.

[5]Interestingly, the overall means on this measure for the younger subjects was somewhat lower in the aggressive program groups than in the nonaggressive program groups, while the reverse tended to be true for the older children. However, neither the age x treatment interaction nor any of the other main effects or interactions reached significance.

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