

Prosocial Behavior, Social Inferential Ability, and Assertiveness in Children

David E. Barrett and Marian Radke Yarrow

National Institute of Mental Health

BARRETT, DAVID E., and YARROW, MARIAN RADKE. *Prosocial Behavior, Social Inferential Ability, and Assertiveness in Children*. CHILD DEVELOPMENT, 1977, 48, 475-481. Prosocial behavior in 5-8-year-old children was examined in relation to social inferential ability and assertiveness. It was hypothesized that assertiveness would be a significant predictor of prosocial behavior but that the strength of the relation would depend on the child's ability to make inferences about others' behaviors. 39 boys and 40 girls attending a summer day camp were each observed over a 6-week period and their assertive and prosocial behaviors recorded. Inferential ability was assessed by asking the child to interpret a series of videotaped social episodes in which an affective experience brought about an abrupt change in the central character's behavior. Correct interpretation depended on the subject's comprehending the relation between the earlier events in the sequence and the change in behavior. As hypothesized, assertiveness was positively and significantly related to prosocial behavior for high inferential ability subjects while no significant relations were identified in the low inferential ability group.

Research on prosocial behavior in children has tended to focus on situational factors and on specific training conditions that facilitate or hinder children's responding to others in need (see reviews by Bryan 1975 and Staub 1975). There are few data that allow one to predict, on the basis of personal variables, the relative frequency of children's helping, comforting, or sharing behaviors. In the present study, a cognitive and a personality variable have been examined in relation to prosocial behavior. The child's social inferential ability, specifically his ability to interpret others' behaviors and changes in behavior, and the child's interpersonal assertiveness have been investigated.

Recent studies of children that have been addressed to personal characteristics as predictors of prosocial behavior have generally been concerned with cognitive variables; only a few with personality. With the revival of interest in developmental issues relating to person perception, role taking, and social cognition, a theoretical link was soon made between the child's cognitive sense of the other

and his prosocial behavior (Hartup 1970; Hoffman 1975; Rothenberg 1970). Specifically, the child's developing ability to understand the perspective of another and to discern the other's intentions and motives has been interpreted as providing the cognitive basis for altruistic behavior. However, as Shantz (1975) has pointed out, the empirical data regarding hypothesized relations between social cognition and prosocial behavior are somewhat equivocal. For example, studies by Johnson (1975), Rubin and Schneider (1973), and Hudson, Peyton, and Brion-Maisels (Note 1) have reported significant positive relations between role taking and prosocial behavior in school-age children. Iannotti (Note 2) found that training in role taking significantly increased the sharing of 6-9-year-olds. Levine and Hoffman (1975) found no relations between measures of empathy and cooperation in 4-year-olds. Similarly, Waxler, Yarrow, and Smith (1977) found relations between a variety of indices of both perspective taking and prosocial responding to be inconsistent in sign as well as magnitude.

While the sum of these studies provides

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some evidence of a contribution from social cognitive abilities, these abilities do not appear to account for a large portion of the variability in prosocial behavior. One problem with the present evidence is that neither social cognition nor prosocial behavior represents the same entity or process from one study to another. Further, and most relevant to the present research, is the fact that in none of the studies involving social cognitive variables have investigators explored the possibility that these abilities may play an indirect, mediating role rather than, or in addition to, a direct "main effect" role with respect to prosocial behavior. Rather than influencing directly the frequency of children's helping behaviors, the social cognitive base may determine, in part, the manner in which other personal (social or affective) variables are predictive of prosocial acts. It was this formulation that was followed in the present study. Our reasoning was that for children who interpret others' behaviors on the basis of logical organizing principles, the prediction of prosocial behavior from other personality variables should be better than for children who approach behavior less systematically.

Personality variables have received only passing attention in the literature on children's helping, comforting, and sharing (see Bryan's summary, 1975). However, in early publications observers of young children such as Lois Murphy (1937) and Theresa Peterson (1938) noted that autonomous, independent children often assume responsibility for the welfare of others. More recent studies by Friedrich and Stein (1973), Hartup and Keller (1960), and Yarrow and Waxler et al. (1976) also suggest the relevance of assertive, aggressive, outgoing behavior in relation to children's giving of aid or nurturance to others. Although somewhat ill-defined as a variable, such an action dimension would appear to be relevant to differences in children's ability to mobilize themselves to intervene on another's behalf. Therefore, we chose to examine assertiveness as a predictor of prosocial behavior. In line with our formulation about the mediating role of social cognition, it was hypothesized that for children with high social inferential abilities differences in interpersonal assertiveness would be predictive of differences in prosocial behavior, while for children less capable of making inferences about others' behaviors differences in assertiveness would account for little variability in prosocial behavior.

Method

The present analyses are part of a naturalistic study concerned with situational and sequential aspects of children's prosocial interactions. Subjects were 39 boys and 40 girls aged 5–8 years attending a summer day camp. Subjects were predominantly white, upper middle class. Naturalistic observations provided the raw data. Each subject was observed for 2 hours in eight 15-min samples of free play and camp activity, spaced evenly over 6 weeks. Each child was observed by four different persons, one male and three female research assistants. Observing periods were divided into 5-min blocks, during which the observer recorded the subject's social behaviors on a pre-labeled form. The behaviors coded included assertions, aggression, prosocial behavior, and bids and opportunities for prosocial behavior. Brief definitions of these categories appear below.

Assertions are attempts to direct another person's activity or stop another person's activity. They are intended to influence or control but are not intended to injure. Assertions include commands, acts of physical leading, and implied directives. An example of an implied directive is a statement such as, "We'll do that *later*."

Aggressive behaviors are those intended to injure others or make them feel bad. Examples are hitting, pushing, insulting, criticizing with the intent to hurt feelings, and accusing. Threats are treated as aggression.

Prosocial behaviors are attempts to fulfill another person's need for physical or emotional support. They include acts of comforting (physically or verbally expressing sympathy or reassurance), sharing (giving materials or work space that one is using or giving a "turn" to another person), and helping (physically assisting or offering physical assistance). Praise, affection, and encouragement are not coded as prosocial behaviors.

Bids and opportunities to act prosocially refer to cues which the subject provides another person or receives from another person which indicate a need for comfort, sharing, or helping. These include both direct requests for assistance and nondirected bids for prosocial intervention (i.e., crying).

It should be noted that an attempt was made in the present study to correct for what has up until now been a methodological

weakness in naturalistic studies of children's prosocial behavior, namely, differences in the opportunities which children had to respond prosocially to others. Such differences have not been systematically accounted for, either at the observation level or in analyses. Therefore, when a relation emerged between prosocial behavior and a given variable it was not possible to determine whether the relation reflected differential opportunities to help, different probabilities of helping, given approximately equal opportunities, or both. In the present study the occasions on which the child received a direct bid for assistance or a clear opportunity to help another were recorded. Thus, it was possible to determine the child's overall frequency of responding to others and also obtain a measure of his responding in relation to explicit opportunities to do so.

To determine observing reliabilities, each child was observed simultaneously by two observers on two separate occasions. Reliabilities were determined by correlating frequencies obtained by each observing pair and correcting for length of the observation record using the Spearman-Brown correction. Uncorrected and corrected reliabilities were .69 and .90 for assertions, .63 and .87 for total aggression, .68 and .89 for the combined frequency of prosocial behaviors, and .42 and .74 for bids and opportunities received by the subject to respond prosocially.

Inferential ability was assessed in an individual interview in which the subject was shown five videotapes of social interaction involving a child or young adult. In each sequence an affective experience brings about an abrupt change in behavior. For example, one sequence shows a child performing a manual task successfully. As he is proceeding, his parents are heard arguing angrily. He then begins to have difficulty with the task that before was proceeding smoothly. At the end of each videotaped episode, the child was tested for retention of the main events of the story and then asked to explain why the central character behaved as he had at the end of the story. Children were observed and verbal responses were recorded. Both the interviewer and the observer were female research assistants, neither of whom was involved in the naturalistic observation of the children. Children's responses were assigned to one of three categories: (1) no response or a "pseudo-explanation" which restates the final event of the sequence; (2) a noncontextual response,

attempting to explain the final event without relating it to earlier events in the sequence; (3) attempts to explain the final event by utilizing information from earlier events in the sequence.

Since two of the episodes elicited responses that fell mainly in one category, only three of the videotapes were retained in the analysis. Depicted in these sequences were (a) the situation described above involving failure due to emotional stress, (b) a situation in which a child engaging in friendly play with a peer is slighted by his mother and thereupon shows displaced aggression toward the peer, and (c) a situation in which a young man who has been vigorously "working out" with barbells while alone later pretends to have difficulty with his weight-lifting activity due to the presence of a less competent friend.

Thirty-two children who responded to all three sequences at level 3 were assigned to a high inferential ability group. Forty-six children who responded one or more times at level 1 or 2 were assigned to the low ability group. Percentage agreement on classifications was 90. One girl was not classified because of her unconventional interpretation of one of the sequences.

Results

For both boys and girls, assertiveness was positively and significantly related to prosocial behavior. Correlations were $r(37) = .32$, $p < .05$, for boys, and $r(38) = .35$, $p < .05$, for girls. Inferential ability was not related to prosocial behavior; the correlations were $r(33) = -.02$ for boys and $r(36) = .06$ for girls. (The correlations between inferential ability and assertiveness were $r[33] = .27$, $p < .15$, for boys, and $r[36] = .23$, $p < .20$, for girls.)

The number of bids and requests for help which subjects received from others was not related to assertiveness, age, or inferential ability for either sex. However, the correlation between assertiveness and opportunities to help approached significance for girls: $r(38) = .30$, $p = .06$. The partial correlations between assertiveness and prosocial behavior controlling on opportunities were $r(36) = .28$, $p = .10$, for boys, and $r(37) = .25$, $p < .15$, for girls.

To test for an interaction between assertiveness and inferential ability, correlations between assertiveness and prosocial behavior were determined separately for the groups high and

low in inferential ability. The results of this analysis are shown in table 1. Simple and partial correlations (controlling on opportunities to help others) were .55 and .52, respectively, for the high ability group but only $-.02$ and $-.10$ for the low ability children. The differential pattern of correlations was consistent across sexes. For boys high in inferential ability the simple and partial correlations were .72 and .77, respectively; for boys low in inferential ability the correlations were $-.10$ and $-.16$. Similarly, for high ability girls the simple and partial correlations were .50 and .41, respectively, while for low ability girls they were .11 and $-.11$.

TABLE 1

CORRELATIONS BETWEEN ASSERTIVENESS AND PROSOCIAL BEHAVIOR FOR CHILDREN AT TWO LEVELS OF SOCIAL INFERENTIAL ABILITY

	Simple Correlations	Partial Correlations, Controlling on Opportunities to Help Others
High inferential ability:		
Total sample ($N=32$)	.55***	.52***
Boys ($N=14$)	.72***	.77***
Girls ($N=18$)	.50**	.41*
Low inferential ability:		
Total sample ($N=46$)	$-.02$	$-.10$
Boys ($N=25$)	$-.10$	$-.16$
Girls ($N=21$)	.11	$-.11$

* .05 < p < .10.

** p < .05.

*** p < .01.

Inferential ability was not significantly related to age over the age range of 5–8 years; $r(76) = .16$. The correlations between age and prosocial behavior, $r(72) = .18$, and between age and assertiveness, $r(72) = .04$, were also nonsignificant. To determine whether the relations between prosocial behavior and assertiveness were mediated by age as well as by inferential ability, correlations between prosocial behavior and assertions were computed for each of the four age groups. There was no systematic change in the relation between assertiveness and prosocial behavior as a function of age. Correlations were $r(15) = .34$, $p < .20$, for 5-year-olds; $r(25) = .02$, N.S., for 6-year-olds; $r(22) = .49$, $p < .05$, for 7-year-olds; and $r(9) = -.11$, N.S., for 8-year-olds. Controlling on number of opportunities to help did not substantially affect the correlations.

To determine more precisely the contribution of the inferential ability \times assertiveness interaction to the prediction of prosocial behavior, multiple-regression analyses were performed in which the criterion variable was prosocial behavior and the predictor variables were opportunities to help, inferential ability, assertiveness, and the inferential ability \times assertiveness product term. In one analysis, opportunities to help was entered first into the regression equation, followed by inferential ability, assertiveness, and the product term, respectively. In a second analysis, the order of the variables social inferential ability and assertiveness was reversed. Results of the two analyses are shown in table 2. Whether entered

TABLE 2

MULTIPLE-REGRESSION ANALYSES FOR PREDICTION OF PROSOCIAL BEHAVIOR FROM OPPORTUNITIES TO HELP, SOCIAL INFERENTIAL ABILITY, AND ASSERTIVENESS

INFERENTIAL ABILITY ENTERED SECOND IN THE EQUATION				ASSERTIVENESS ENTERED SECOND IN THE EQUATION			
Variable	R	R^2 Change	Final b	Variable	R	R^2 Change	Final b
Opportunities	.49	.24***	0.59***	Opportunities	.49	.24***	0.59***
Inferential ability ^a	.49	.00	-2.44^*	Assertiveness ^b	.55	.06**	-0.33
Assertiveness ^b	.55	.06**	-0.33	Inferential ability ^a	.55	.00	-2.44^*
Inferential ability \times assertiveness ^{a, b}	.59	.05**	0.27**	Inferential ability \times assertiveness ^{a, b}	.59	.05**	0.27**

NOTE.— R is the multiple correlation coefficient at a given step in the analysis, R^2 change is the increase in the squared multiple correlation coefficient associated with the entry of the variable, and final b is the partial regression coefficient with all variables in the equation. Significance tests for R^2 change and b are given in Kerlinger and Pedhazur (1973, pp. 65–72).

^a Categorical coding was 1 for low ability subjects, 2 for high ability subjects.

^b Assertion scores ranged from 0 to 31 with a mean of 8.58.

* .05 < p < .10.

** p < .05.

*** p < .01.

second or third in the equation, the inferential ability variable did not improve the prediction of prosocial behavior, while assertiveness improved prediction significantly at either step. Most important, the product term representing the interaction of inferential ability and assertiveness resulted in a significant increase in variance accounted for when entered into the equation after the main effects terms. When parallel analyses were performed using the product of age and assertiveness as the last term in the equation, rather than the product of inferential ability and assertiveness, the new second-order term did not significantly improve prediction.

Examining the results of the multiple-regression analyses, we observed that both social inferential ability and assertiveness attained substantial regression weights at the final step of the analysis. Moreover, the complete pattern of weightings indicated that the inferential ability \times assertiveness interaction could be interpreted in a second way from that which we originally suggested; namely, that for children at high levels of assertiveness inferential ability was positively related to prosocial behavior, while for children at low levels of assertiveness it was negatively related. These relations would not be inconsistent with our original finding of no simple relation between social inferential ability and prosocial behavior.

Pursuing this interpretation, we examined the interaction of assertiveness and social inferential ability from the point of view of dif-

ferences in level of assertiveness, rather than differences in level of inferential ability. Subjects were divided at the group medians in assertiveness (7.2 for the total group, 9.8 for boys, and 5.3 for girls) and relations between social inferential ability and prosocial behavior were determined. The results of this analysis are shown in table 3. There was a tendency for inferential ability to be positively related to prosocial behavior for highly assertive children but negatively related for unassertive children, particularly for boys. Parallel analyses performed with age rather than social inferential ability as the predictor variable yielded entirely different findings (age being positively related to prosocial behavior for both groups of girls but unrelated for the two groups of boys).

Discussion

The present findings support the hypothesis that level of inferential ability determines the extent to which information about a child's interpersonal assertiveness is useful in predicting his prosocial behavior. For children who are aware of the implications of others' and presumably their own behavior, individual differences in prosocial behavior are significantly accounted for by differences in assertiveness, even when opportunities to respond to others prosocially are statistically controlled. For children who are unable to utilize information from earlier events in a behavior sequence to interpret subsequent behaviors, assertiveness appears to be unrelated to prosocial behavior. One might speculate that for these children differences in prosocial behavior are more dependent on situational factors than they are on stable personality characteristics.

While knowledge of a child's assertiveness was by itself useful in predicting prosocial behavior, social inferential ability alone provided virtually no prediction of prosocial activity. However, this finding, which appears to be at variance with previously cited reports, should be interpreted cautiously, since the social cognition measure used in the present study tapped only one dimension of the child's sensitivity to others' behaviors.

Somewhat surprising was the finding that neither inferential ability nor assertiveness related to how much a child was sought out by others for help, suggesting that children discriminate along other lines in selecting peers

TABLE 3

CORRELATIONS BETWEEN SOCIAL INFERENTIAL ABILITY
AND PROSOCIAL BEHAVIOR FOR CHILDREN AT
TWO LEVELS OF ASSERTIVENESS

	Simple Correlations	Partial Corre- lations, Con- trolling on Opportunities to Help Others
High assertive:		
Total sample ($N=36$) ^a	.22	.23
Boys ($N=18$)	.39	.38
Girls ($N=17$)	.23	.36
Low assertive:		
Total sample ($N=37$) ^a	-.19	-.19
Boys ($N=17$)	-.52*	-.51*
Girls ($N=21$)	-.11	-.19

^a The median scores used to divide children into low and high assertive groups were different for the total sample (median = 7.2), boys (median = 9.8), and girls (median = 5.3); for this reason total samples N 's were not equal to the sum of the N 's for boys and girls.

* $p < .05$.

to give them sympathy or support. The question of who becomes the provider or source of nurturance for others is a significant and largely unexplored issue in research on prosocial behavior.

Despite the apparent clarity of the results of this study, there remain interpretive issues. What has been called social inferential ability is clearly a cognitive ability. How highly it is correlated with general intelligence, or how much it is a specific kind of social sensitivity, needs to be clarified. In further studies, it would be helpful to have available information about the child's general cognitive status so that the precise nature of the cognitive abilities which influence the relationship between assertiveness and prosocial behavior may be better understood.

The supplementary analyses which examined the relationship between social inferential ability and prosocial behavior as a function of level of assertiveness raise a final issue. The processes by which sensitivity to others may influence the likelihood of prosocial responding are not readily apparent and need to be explored. We assume that a "victim" in need of help or emotional support represents one kind of stimulus to an onlooker who is able to pick up subtle behavioral cues and discern the relations among the elements of a complex sequence of events; quite a different kind of stimulus to the onlooker less capable of understanding others' actions. Is it then the fineness of relational discriminations, per se, which relates to level of prosocial responding? Or do fine discriminations and inferences about a "victim" stimulus lead to greater emotional arousal in the onlooker, which in turn influences prosocial behavior? Perhaps sensitive comprehension of others' experiences results in higher affective arousal which in the socially courageous child leads to prosocial intervention. The same sensitivities and arousal in the more timid, nonassertive children might have an inhibiting effect. Pursuit of this speculation requires information concerning the affective aspects of prosocial intervention and would benefit from experimental manipulation of the several variables involved.

The present study has provided evidence of an interaction between social inferential ability and assertiveness in the prediction of prosocial behavior in children. The results of the study suggest the importance of further research concerning the simultaneous contribu-

tions of social cognition and personality variables to individual differences in prosocial activity.

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