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# THE EFFECTS OF PROSOCIAL MODELING ON YOUNG CHILDREN'S NURTURING OF A "SICK" CHILD

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We explored the effects of prosocial modeling on young children's caretaking of a "sick" child confederate. One group was exposed to affection and caretaking modeling, a second to only caretaking modeling, and a third to affectively neutral (control) modeling. While the children displayed almost no affectionate behavior when tested, there was a high but nondifferential rate of caretaking across all 3 groups. However, the affection and caretaking group displayed significantly more generalized nurturance than the caretaking only and control groups. A teacher's rating prior to the experiment showed that there was a significantly positive correlation between the children's affectionate disposition and subsequent caretaking behavior. Our findings indicate that young children are far more able to produce complex prosocial behavior than was believed previously.

*Keywords:* prosocial modeling, young children, nurturing, caretaking, affection, sick child.

The experimental exploration of the effects of prosocial modeling on nurturing and affectionate behavior in young children has generated two basic research strategies: laboratory studies that are well controlled but artificial in some respects; and field studies that less well controlled but more lifelike in their design. Both strategies have their strengths and weaknesses.

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Several prosocial modeling procedures have been found to be effective. Pirot and Schubert (1977) used an affectionate model, Pirot and Acker (1978) a nurturant model, and Acker and Marton (1984) moral stories to produce affectionate behavior in young children. These experiments were well-controlled laboratory studies intended to partition factors that favored *affectionate behavior*, i.e., physical demonstrations of affection or nurturance and imitative practice by the children, over factors that did not favor production of affectionate behavior, such as receiving verbal instructions to be prosocial, not having the opportunity to practice, and engaging in neutral nonemotive physical contact. All studies had a strict and reliable behavioral criterion of affectionate behavior. While the inferences drawn from these experiments are strong and uncontaminated by extraneous variables, in all cases the participants directed affection at a stuffed toy. However, generation of affection may not have occurred with live persons, rendering this "affection" a setting-bound artifact.

Friederich and Stein (1973) showed that prosocial modeling induced helping and other prosocial behavior toward live persons in a naturalistic nursery school setting. For 3 weeks, they recorded the prosocial base rate of a group of young children with different socioeconomic statuses. Then, for 4 weeks the children observed a prosocial, aggressive, or neutral television program. Children from a lower socioeconomic class who observed the prosocial program were more cooperative, nurturant, and verbalizing of their feelings posttreatment. This treatment × social class interaction severely limits generalizability to the entire population of young children. Further, criteria used to define prosocial behavior were broad and ambiguous, rendering the findings equivocal.



We conducted the present research in an attempt at combining the strengths of both strategies by making an experiment with more naturalistic elements, comprising reliable operationalization and control of variables, with affection directed at a "sick" child confederate in a more naturalistic setting. Multiple treatments and criteria were used in a manner not previously explored and the effects of affection and caretaking modeling on affectionate, nurturant, and altruistic behavior were assessed.

## Method

### Participants

Participants were 24 children between the ages of 3 and 5 years who attended the University of Regina Children's Centre. Children were randomly assigned to the groups in a manner that assured an equal number of participants of each gender. An 8-year-old boy was used as the "sick" confederate. He was trained by the experimenters in the procedures he was to enact with the participants.

### Setting and Apparatus

The study was conducted in two rooms adjoining the Children's Centre. The pre-experimental room contained a 9-inch black and white television set placed on a small table around which were two chairs. The experimental room contained a number of caretaking aids arranged on the floor in an ordered fashion. Next to these was a blanket spread on the floor on which the child confederate would lie. The caretaking aids comprised a plastic toy thermometer, stethoscope, syringe, blanket, glass of water, candy M&M, and wash cloth.

### Procedure

Two experimenters visited the Children's Centre prior to the experiment in order to familiarize the children with them. Further, prior to the experiment a teacher rated all the children's affection, aggression, and cooperation using three Likert-type scales.

Each child was approached individually by Experimenter A and told s/he would be playing a game. Then the child was seated in the pre-experimental room to watch on the television three 2-minute segments containing an equal number of interactions between an adult male and a child confederate named Zak (see Table 1).

Except for the differing television segments viewed, the procedure was exactly the same for all children. At the end of the television segment, Experimenter A took the child to the experimental room where Experimenter B and the child confederate were waiting. Experimenter A left the participant with his two aids and went to observe.

Table 1. *Interactions Viewed by the Different Groups*

| **Interactions viewed by the affection and caretaking group** | |
|---|---|
| 1 | Covered child with a blanket, saying "I'm covering Zak with a blanket. It's important to keep sick people warm." |
| 2 | Put a hand on the child's forehead, saying "I'm putting my hand on Zak's forehead to see how hot it is." |
| 3 | Held up thermometer and then pretended to take child's temperature, saying "This is a thermometer. I put the thermometer gently in Zak's mouth, leave it there awhile, and then I take it out." |
| 4 | Held child's hand for a few seconds, saying "I'm holding Zak's hand to help him feel better." |
| 5 | Held up the stethoscope and then pretended to listen to the child's chest, saying "This is a stethoscope. Now I'm going to listen to your chest." |
| 6 | Patted child on the leg, saying "I like you, Zak. I sure hope you feel better soon." |
| 7 | Held up the syringe and then pretended to give child a needle, saying "This is a syringe. There's medicine in the syringe to help you feel better." |
| 8 | Patted child on the stomach, saying "I'm sorry you have a tummy-ache. Nobody likes to have a tummy-ache." |

Table 1 (continued)

| | **Interactions viewed by the caretaking group** |
|---|---|
| 1 | Covered child with a blanket, saying "I'm covering Zak with a blanket. It's important to keep sick people warm." |
| 2 | Held up thermometer and then pretended to take child's temperature, saying "This is a thermometer. I put the thermometer gently in Zak's mouth, leave it there awhile, and then I take it out." |
| 3 | Held up stethoscope and then pretended to listen to child's chest, saying "This is a stethoscope. Now I'm going to listen to your chest." |
| 4 | Held up syringe and then pretended to give child a needle, saying "This is a syringe. There's medicine in the syringe to help you feel better." |
| 5 | Said to child, "One of my favorite animals is the bear. I like black bears because their fur is so pretty. Bears can be dangerous." |
| 6 | Said to child, "Another of my favorite animals is the rabbit. I like rabbits because they run so fast. I wish I could run as fast as a rabbit." |
| 7 | Said to child, "I also like monkeys, especially when they hang by their tails from trees. When I was little, I wanted a monkey for a pet." |
| 8 | Said to child, "My very favorite animal is the buffalo. It's too bad that there aren't many buffalo left any more. There used to be a lot of buffalo around Regina. If I could be any animal, I'd be a buffalo." |
| | **Interactions viewed by the control group** |
| 1 | Said to child, "One of my favorite animals is the bear. I like black bears because their fur is so pretty. Bears can be dangerous." |
| 2 | Said to child, "Another of my favorite animals is the rabbit. I like rabbits because they run so fast. I wish I could run as fast as a rabbit." |
| 3 | Said to child, "I also like monkeys, especially when they hang by their tails from trees. When I was little, I wanted a monkey for a pet." |
| 4 | Said to child, "One of my favorite animals is the deer. Once, I saw a deer running down a street in Regina. Lots of deer live in the country around Regina." |
| 5 | Said to child, "Another nice animal is the turtle. Some big turtles live for hundreds of years and other turtles live for just a few years. I used to have a turtle named Fred." |
| 6 | Said to child, "I really like horses a lot. Sometimes I wish I lived in the old cowboy days so I could ride a horse all the time. Everybody rode horses in those days because there weren't any cars. |
| 7 | Said to child, "I like camels too. Camels live in the desert, so there aren't any in this country except in zoos. I like the humps on the camel's back." |
| 8 | Said to child, "My favorite animal is the buffalo. It's too bad there aren't many buffalo left any more. There used to be lots of buffalo around Regina. If I could be any animal, I'd be a buffalo." |

Experimenter B then proceeded to play a guessing game with the two children. This game consisted of each child taking his/her turn at guessing which hand the experimenter was hiding a penny in. If a child guessed correctly, s/he got to put the penny in his/her bowl. If a child guessed incorrectly, then the other child got the penny.

Experimenter B's only feedback to the children during this game was to say whose turn it was and to smile at the winner of each penny. The child confederate was instructed to give feedback to the child participant, in the form of statements such as "Way to go" and "You're sure lucky." The order and number of pennies won by each child was kept constant by

behind-the-back transfer of the penny when necessary. The child participant always won eight pennies compared to two by the child confederate. After the last guess, the experimenter declared that the game was over, put the two bowls away, and told the children they could collect the pennies when it was time for them to go.

The guessing game was intended to allow the child participant to become familiar with the child confederate in a play situation, to facilitate further interactions between the two. It also helped to create the later circumstance in which the child participant was asked to share his/her winnings with the child confederate who had won less pennies.

Experimenter B next said, "Now we're going to play another game. Zak is sick and going to lie down. You can take care of him." The child confederate went and lay down and then Experimenter B uncovered the caretaking aids. These aids were arranged in a regularized order and were described to the child in a standardized manner, involving picking up and describing each item in turn (e.g., "Here's a thermometer you could take Zak's temperature with"). The experimenter then returned to his chair, saying, "You go ahead and take care of Zak while I read my book." Experimenter B tried to avoid any direct interaction with the child participant during this time, but if the child persisted in talking to or questioning the experimenter, he would direct the child back to the task by saying, "Go ahead and take care of Zak."



A timer that delivered a tone every 5 seconds was used by Experimenter A, who acted as the primary observer and was situated behind a one-way mirror. He scored the child's behavior at each 5-second interval, using caretaking (e.g., child using stethoscope), affectionate (e.g., child patting confederate on the head), or neutral behavior categories. In any given 5-second interval, only one category was filled. Caretaking scoring involved behavior using the caretaking aids, whereas affectionate behavior scoring involved the participant holding the confederate's hand, touching his forehead, patting his tummy or leg, or other forms of physical affection.

Experimenter A ceased observation and re-entered the experimental room after the child had had eight consecutive neutral intervals or after the child had declared s/he was finished. Experimenter A then led the child back to the pre-experimental room, taking with him the two bowls of pennies. Once there, he lined up the participant's pennies next to those of the child confederate, saying, "You sure won a lot of pennies. Would you like to give some of your pennies to Zak?" If the child answered "yes," the experimenter asked the child to show him how many pennies s/he would give. This was scored, and the child was returned to the Children's Centre.

## Results

### Interobserver Reliability Data

Interobserver reliability was found by having a second observer categorize the data independently for 25% of the participants drawn about equally from all three groups. Both observers were blind as to scoring of the other. The reliability coefficient was found by the following formula:

$$\frac{\text{Total Number of Agreements}}{\text{Total Number of Agreements + Disagreements}} = \frac{210}{210 + 25.89}$$

### Dependent Measures Data

To assess whether the groups differed in terms of the number of 5-second intervals of modeled caretaking, a 1 × 3 analysis of variance (ANOVA) was performed and found to be nonsignificant, $F(2, 21) = 0.79$, $p > .05$. Inspection of the data showed that all the groups produced a high rate of caretaking, but not in a differential manner.

To assess whether prosocial modeling induced a response generalization to caretaking with items not modeled, a 1 × 3 ANOVA was performed on the number of 5-second intervals of nonmodeled caretaking acts and found to be significant, $F(2, 21) = 5.51$, $p < .025$. Means, standard deviations, and summarized analysis results are shown in Tables 2a and 2b.

Table 2a. *Means and Standard Deviations for the Total Number of 5-Second Intervals of Nonmodeled Caretaking Behavior Across Groups*

| Group | *M* | *SD* |
|---|---|---|
| Affection and caretaking | 13.50 | 4.28 |
| Caretaking | 7.13 | 4.24 |
| Control | 9.38 | 3.00 |

*Note.* Number of intervals was used as the dependent measure, rather than proportions (as planned), because children produced only caretaking behavior with nearly nil instances of affectionate and neutral behavior.

Table 2b. *Independent Groups ANOVA Results for the Total Number of 5-Second Intervals of Nonmodeled Caretaking Behavior Across Groups*



| Source of variation | Sum of squares | *df* | Mean square | *F* | *p* |
|---|---|---|---|---|---|
| Between | 167.25 | 2 | 83.63 | 5.51 | < .025 |
| Within | 318.75 | 21 | 15.18 | | |
| Total | 486 | 23 | | | |

A Tukey's honestly significant differences test (HSD) showed that the affection + caretaking modeling group produced more instances of caretaking than the caretaking, HSD (20) = 6.37, $p < .01$, and control, HSD (20) = 4.12, $p < .05$, groups. The two latter groups did not show

significant differences. Further probing showed that gender was not a significant factor, $t(22) = .96$, $p < .05$.

There was a significant Pearson product-moment correlation between the teacher's rating of the children's disposition toward affection as measured by a Likert-type scale and the total number of 5-second intervals of caretaking produced by children in all the groups, $r(22) = .42$, $p < .025$.

A 3 × 2 chi-square analysis showed that willingness to donate pennies by the children was not affected by the treatment, $\chi^2(2) = 2.50$, $p < .05$, or by the gender of the participant in a 2 × 2 chi-square analysis, $\chi^2(1) = 1.36$, $p < .05$.

## Discussion

Modeling induced nil physically affectionate behavior and no differential amount of caretaking behavior across the groups; however, there was a high rate of caretaking by all three groups. There are several possible reasons for these findings. Acker, Acker, and Pearson (1973) showed that prior physical contact facilitated the later production of affectionate behavior in young children. Pirot and Schubert (1977), Pirot and Acker (1978), and Acker and Marton (1984) all observed that physical contact seems to be a necessary condition to induce children to produce physically affectionate behavior. The lack of physical contact operation in the present experiment likely accounted for the lack of physically affectionate behavior on the part of the children. The experimenter's instructions, involving pointing out all the caretaking aids present and instructing all children to "Go ahead and take care of Zak," may have also have influenced this result by implying a demand of the children to produce acts associated with caretaking, but not affectionate behavior. While affection and caretaking are both prosocial behaviors, they are likely members of different response classes requiring differing operations to set their occurrence. The powerful effects of instructions on children's behavior has been well researched by Staub (1970) and Steinman (1970). Future researchers should attempt to set and separate the effects of prior physical contact from the social setting effects of instructions.

In contrast to the absence of affectionate behavior, children in all three groups produced abundant caretaking behavior toward the "sick" child confederate; however, the groups did not differentiate on this variable. We find it surprising that all children seemed to be familiar with the caretaking aids and used them. It is likely that the children already had a history with the caretaking aids through their experience with doctors and nurses, with many children making comments about their visits with doctors and nurses and the associated instruments (caretaking aids). Differences between

individual children seemed more to do with how well they took care rather than with their knowledge of how to use the particular caretaking aids.

A theory of hierarchic cognitive and behavioral development cannot easily account for the capability of these young children to have knowledge of and correctly use the caretaking aids in a complex behavioral task of caretaking a "sick" child. One implication of this result is that because children appear to already have the ability to learn such complex behaviors, the training for skilled work may begin at a far earlier age than was suspected previously. It may be that the most important learnings about how to be a good caretaker, such as a doctor or nurse, come long before receipt of formal medical training.

The instructions to caretake, and not the modeling treatment, was likely the variable that was setting and controlling the caretaking behavior in the children, and it was effective because the children already had knowledge of how to caretake. The modeling treatment was administered in a different room from the caretaking situation and may have seemed remote compared to the powerful demand to caretake.



The affection + caretaking modeling group induced a significant response generalization of caretaking with items not modeled. This was the only modeling effect of this experiment. The richer prosocial combination of physical affection and caretaking probably accounts for its effectiveness over the single prosocial modeling of the caretaking group, which was not effective. This combined prosocial effect suggests that even though affectionate and caretaking behavior may not belong to the same response class, there is reason to believe that they are related to each other sufficiently to induce the response generalization.

The finding that a teacher's rating of the children's affectionate personality was significantly correlated with the total number of intervals of caretaking behavior suggests that this dispositional factor must be accounted for in future research. Prosocial behavior in young children is likely to be accounted for by a two-factor theory that includes predisposition and a learning history. Yarrow, Scott, and Waxler (1978) found that infants vary in their disposition to show empathic responses to distress in other infants. Our findings in this study suggest that children can transcend the egocentrism of this age to apparently empathize with and caretake another.

Another prosocial test conducted in this experiment was the children's willingness and act of sharing altruistically with the "sick" child. Several reasons may explain its failure as a measure. Altruism may be a response class (Peterson, 1968) that is not set by prosocial circumstances like affection or nurturance, the modeling treatment may have been too weak, or the participants found eight pennies too scarce a good to give up—that is, having 40 pennies may have made him/her more willing to donate.

This experiment should be repeated with the following changes: increase the number of participants, use a prosocial modeling procedure that allows the participants physically practice nurturance or affection, use a greater number of pennies in the altruism test, and apply partitioning and control of experimenter demand effects made.

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