

## BRIEF REPORT

# Children's Low Affective Perspective-Taking Ability Is Associated With Low Self-Initiated Pro-sociality

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Children's affective perspective-taking (APT) may provide a basis for efficient social interaction. The APT abilities of 83 children from 46 same-sex sibling pairs (ages 36 to 72 months,  $M = 52.8$ ;  $SD = 12.6$ ) were assessed through their reactions to affectively loaded story situations, and children whose APT ability (but not general cognitive abilities) was low relative to other children of their age were designated as Low-APT children. These children were not less pro-social when specific social cues or requests for pro-social behavior were given by experimenters. However, low APT may hinder children's ability to infer the need for pro-social action from relatively subtle social cues. Although 46.9% of nonlow APT children behaved pro-socially in at least two of three opportunities they were given to perform a self-initiated pro-social behavior, none of the children who were low on APT did.

*Keywords:* pro-social behavior, affective knowledge, affective perspective taking, social skills

Understanding others' affective states may be an important step in children's processing of information that leads to a decision to behave pro-socially (Underwood & Moore, 1982). In order to help, individuals have to identify others' distress and need for help (Bar-Tal, 1982). To comfort others in distress, children need to consider others' feelings (Denham, 1986; Roberts & Strayer, 1996). Several studies have shown positive associations between affective perspective taking (APT) abilities and pro-social behavior (Marsh, Kozak, & Ambady, 2007; Carlo, Knight, Eisenberg, & Rotenberg, 1991; Denham, 1986). However, the relevance of interpersonal understanding may be higher for some pro-social behaviors than for others.

Pro-social behaviors, that is behaviors intended to benefit others (e.g., sharing, helping, or comforting, Eisenberg & Fabes, 1998), can be distinguished based on the degree of initiative in this behavior. An important, but understudied, distinction has been made between *compliant* pro-social behavior, which is performed

as a response to a specific verbal or nonverbal social demand or request, and *self-initiated* pro-social behavior, performed without such a demand or request (e.g., Eisenberg, Cameron, & Tryon, 1984; Grusec, 1991). This distinction is relevant to age differences in pro-social behavior (Eisenberg, Wolchik, Goldberg, & Engel, 1992) in the motivations behind it (Bar-Tal, 1982), and in the parenting behaviors associated with it (Eisenberg et al., 1992; Grusec, 1991). These findings suggest that the distinction between self-initiated and compliant pro-social behavior is important for understanding the sources and consequences of individual differences in children's pro-sociality.

Although children's APT abilities have been related to their pro-sociality, this relation depends on other factors, such as children's ability to regulate their distress when facing others' distress (Eisenberg, Shea, Carlo, & Knight, 1991). We propose that an important situational variable is the availability of clear social cues to facilitate children's understanding of the need to behave pro-socially. Although self-initiated pro-social behavior requires the ability to assume another person's perspective in order to perceive the needs of the other person, compliant pro-social behavior does not require these cognitive abilities and can be motivated solely by the need to gain approval and avoid punishment (Bar-Tal, 1982). In compliant pro-social behavior, social cues, such as direct requests for help or parental demands, are clearer. On the other hand, a minimal level of APT ability is required for detecting the need for pro-social behavior in the self-initiated case. In sum, APT abilities are more likely to be relevant to self-initiated, as compared to compliant, pro-social behavior.

Because the lack of sufficient developed APT abilities is expected to hinder pro-social behavior, especially of the self-initiated

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kind, in this study we focused on the lower end of the distribution of APT abilities. We categorized children as low in APT if they were especially low relative to children of their age in correctly attributing affective states to a story character. We hypothesized that pro-social behavior would be especially low among children with low APT abilities. We further hypothesized that this difference would be more prominent with regard to self-initiated, as compared to compliant, pro-social behavior.

We tested our hypothesis by comparing children at the low end of the APT distribution with other children. We also capitalized on having a same-sex sibling sample by performing within-family comparisons between siblings discordant for low APT. In addition to our main question, we studied the role of children's age and general cognitive abilities. APT ability increases substantially with age (Hughes & Dunn, 1998; Widen & Russell, 2008). Pro-social behavior also increases with age (Eisenberg & Fabes, 1998). In line with these findings, Hoffman (1982) proposed that children's increasing sociocognitive abilities provide a basis for the development of pro-sociality with age. This reasoning implies that APT mediates the relation between children's biological age and their pro-sociality.

As APT may in part reflect children's general cognitive abilities, and because there is partial evidence for modest positive correlations between intelligence and pro-social behavior (Eisenberg & Fabes, 1998), we explored the role of intelligence in the relation between APT and pro-social behavior. In order to ensure that Low APT ability was not simply a measure of low intelligence, we compared the general cognitive abilities of Low-APT versus other children, and also compared the frequency of pro-social behavior among children with especially low cognitive abilities (relative to children of their age) with that of other children.

## Methods

### Participants and Procedure

Participants were 43 same-sex sibling pairs from the Jerusalem area with no known diagnoses for developmental problems ( $N =$

83, 3 children had incomplete data), ages 36 to 72 months. Younger siblings (36–48 months;  $M = 41.40$ ;  $SD = 4.84$ ) were 24 boys (57.1%) and 18 girls (42.9%), and older siblings (60–72 months;  $M = 64.20$ ;  $SD = 5.82$ ) included 23 boys (56.1%) and 18 girls (43.9%). Mothers (aged 25 to 44 years,  $M = 32.4$ ,  $SD = 4.7$ ) provided demographic information, indicating they were mainly Jewish (93%), with education levels ranging from 12 to 21 years ( $Mdn = 15$  years), which was slightly higher than in women in the general Israeli population of the same age (Israel Central Bureau of Statistics, 2007). Their mean socioeconomic status, based on self-reported household income, was average compared to the Israeli population.

Families were recruited through ads posted close to kindergartens and playgrounds. In home visits, after obtaining mothers' and children's consent, each child was tested by a different female experimenter. At the end of the visit mothers were compensated for their time with a monetary reward (\$12), and children were given a small present.

### Measures

*Pro-sociality* was assessed by experimenters presenting children with six situations (detailed in Table 1) designed to potentially elicit self-initiated and compliant pro-social responses of help, sharing, and comforting. Pro-social responses were counted to create three pro-sociality measures: compliant, self-initiated, and total. Children's responses could be rated on more than one dimension (e.g., in the sticker task both the presence of sharing and the quantity shared were coded). However, to increase comparability across tasks, we treat them here as dichotomous variables, where performance of a pro-social behavior is coded 1, and the lack of it is coded 0. The measures of compliant and self-initiated pro-sociality had a possible range of 0–3, and the total pro-sociality measure had a possible range of 0–6. Interrater agreements obtained for 40 children ranged from 90% to 100% for each of the six pro-social behaviors.

*APT* was tested by an experimenter telling each child an illustrated story depicting five emotion-eliciting situations involving

Table 1  
*Tasks Used to Assess Self-Initiated and Compliant Pro-social Behaviors of Help, Providing Emotional Support, and Sharing*

Type of behavior	Self-initiated pro-social behavior task	Compliant pro-social behavior task
Helping	Experimenter 'accidentally' knocked a pencil box on the floor. (Iannotti, 1985). Pro-social behavior was coded if the child helped picking the pencils spontaneously, without being requested to do so and before the experimenter started picking the pencils up.	Experimenter pretended to have lost a finger doll and asks the child for help in finding it.* Pro-social behavior was coded if the child actively looked for the doll.
Comforting	Experimenter pretended to have hurt her knee while getting up. (Zahn-Waxler, Schiro, Robinson, Emde, & Schmitz, 2001). Pro-social behavior was coded if the child helped or comforted the experimenter.	Experimenter pretends that the doll is sad, and asks the child to help the doll feel better.* Pro-social behavior was coded if the child behaved in a comforting manner towards the doll (e.g., caressing, soothing voices).
Sharing	After giving the child and herself a pack of snacks, the experimenter expressed surprise and disappointment for getting too little "Bamba," her favorite treat. (Adapted from Yarow et al., 1976). Pro-social behavior was coded if the child shared at least one of the Bambas.	Experimenter gave the child 6 attractive sticker sheets as a gift and asked whether he/she would like to give any stickers to an unfamiliar child who has not gotten any stickers. (Benenson et al. 2007). Pro-social behavior was coded if the child shared at least one of the sticker sheets.

\* Situation designed for the current study.

Loulou, a child matched to the child's gender. The situations were adopted from Ribordy, Camras, Stefani, and Spaccarelli (1988), with changes and adaptations based on Denham (1986). Ribordy et al. (1988) showed that 70–86% of 5–6-year-old children identified the emotion in these situations correctly. The situations were built into the current test specifically to engage children and to resemble real-life storytelling. For example, in one of the situations, when Loulou finds a worm in his or her apple, the child is asked, "How does Loulou feel?"—following his or her answer, the child is requested to choose from three illustrations the one which correctly depicts Loulou's facial expression when he or she found the worm. Children whose response concerned disgust were considered to have answered correctly. Three additional situations, presented in the same manner, were designated to elicit emotions of sadness, happiness, and anger. A fifth situation eliciting fear did not load on the same factor as the other situations and, therefore, was dropped from the scale.

For each emotional situation two questions were asked, one examining verbal emotion identification and another examining nonverbal facial expression recognition. Correct verbal identification of emotion was scored as 1 and an incorrect one was scored as 0. Correct recognition of facial expression was scored as 1 and an incorrect one was scored as 0. If the facial expression was erroneous but compatible with the emotion that was erroneously identified in the verbal item, a score of 0.5 was given.

A confirmatory factor analysis of the four affect recognition/identification situations provided an excellent fit for a single factor model, on which all four emotions loaded positively,  $\chi^2 = 0.28$ , *ns*. The comparative fit index (CFI) was perfect (1.00). The APT score was obtained by computing the average score of both verbal and non verbal items for all four situations. The internal consistency coefficient for all eight items was modest,  $\alpha = .58$ , possibly reflecting the finding that identification of different emotions develops at varying rates (e.g., identification of happiness develops earlier than that of anger, Widen & Russell, 2008), so performance is not expected to be uniform across emotions. The internal consistency coefficient for the two scales of verbal emotion identification and nonverbal facial expression recognition was  $\alpha = .73$ .

Evidence from another study using a slightly modified version of the story provides support for the validity of this APT measure (Knafo et al., 2009), as APT scores increased dramatically from age 3.5 to age 5, and as children's knowledge of specific emotions developed in the order previously observed in normally developing children (Widen & Russell, 2008). Predictive validity was demonstrated when children's affective knowledge interacted with their emotion regulation in predicting empathic responding toward an examiner's simulated pain.

As we were interested in APT deficiency over and above normal age differences, for the low APT versus other children analyses we corrected APT scores for age differences across children with a regression analysis, using standardized residuals of the APT scores regressed on age. Children in the bottom 20% of the age-corrected APT distribution (18 of 83), were designated as Low-APT children. We chose this threshold to allow for a large enough group that would still be quite low on APT. Using two alternative cutoffs (15% and 25%), yielded essentially unchanged results. Low-APT children did not differ from the rest of the sample in the proportion of males and females,  $\chi^2(1) = .031$ , *ns*, nor in their mean age,  $t = .77$ , *ns*.

*Children's general cognitive abilities* were tested with the Israeli version (Peysner, Shimborsky, Wolf, & Hazany, 1996) of the mental processing scales of the K-ABC test battery (Kaufman & Kaufman, 1983). Each child received an age-standardized score, based on a normal distribution with a mean of 100 and a standard deviation of 15.

### Statistical Analyses With Siblings

Our sample consisted of pairs of same-sex siblings. Therefore, in order to present descriptive data of our sample and in order to test a hierarchical regression model in which APT mediates the correlation between age and pro-social behavior, we used our full sample while giving each child a weight of 0.5. This does not affect the main results, but corrects for the inflated statistical power due to studying two siblings per family. Second, to conduct independent comparisons between Low-APT and other children which would test our hypothesis regarding levels of pro-social behavior, we randomly chose one sibling (younger/older) from each family, so that the participants would be truly independent in the analyses. This procedure created a sample in which there were 10 low-APT and 33 other children. Finally, in the last analysis, we chose from the initial full sample only the 12 sibling pairs discordant for low APT, and compared pro-sociality between these siblings using paired samples *t* tests, to control over many factors shared by siblings growing up in the same family.

### Results

There were no significant gender differences in any of the study variables. Although modest sibling correlations were found for compliant pro-social behavior,  $r = .20$ , and IQ,  $r = .24$ , none of them were significant. In addition, although positive correlations were found between age and APT ( $r = .50$ ,  $df = 42$ ,  $p = .001$ ) and compliant pro-social behavior ( $r = .33$ ,  $df = 42$ ,  $p = .035$ ), there were no significant correlations between age and self-initiated pro-social behavior and between APT and self-initiated ( $r = .13$ ,  $df = 42$ , *ns*) or compliant ( $r = .14$ ,  $df = 42$ , *ns*) pro-social behavior. Thus, the hypothesized model of APT mediating the relation between age and pro-sociality, was not supported. Although no linear correlation was found between APT and pro-social behavior, our focus was on the lower end of the APT distribution. We therefore, for further analyses, focused on the comparison between "low" APT and other children.

Our main hypothesis, that low APT would be associated with lower pro-sociality, especially of the self-initiated kind, was tested in a random half-sample (choosing one sibling per family). Low-APT children were significantly less pro-social ( $M = 2.30$ ,  $SD = 0.82$ ) as compared to other children ( $M = 3.54$ ,  $SD = 1.44$ ),  $t(41) = 2.59$ ,  $p = .013$ , effect size ( $D$ ) = 0.81.

Figure 1 presents the distribution of Low-APT and other children who performed different numbers of pro-social behaviors for the three compliant and three self-initiated pro-social behaviors. While there was no significant relation between Low APT and compliant pro-sociality,  $t(41) = 1.88$ , *ns*, (see Figure 1), as hypothesized, Low-APT children were much less likely ( $D = 1.05$ ) to perform self-initiated pro-social behaviors ( $M = 0.60$ ,  $SD = .52$ ) in comparison with other children ( $M = 1.34$ ,  $SD = 1.07$ ),  $t(32.3) = 2.98$ ,  $p = .005$ , equal variances not assumed. Whereas

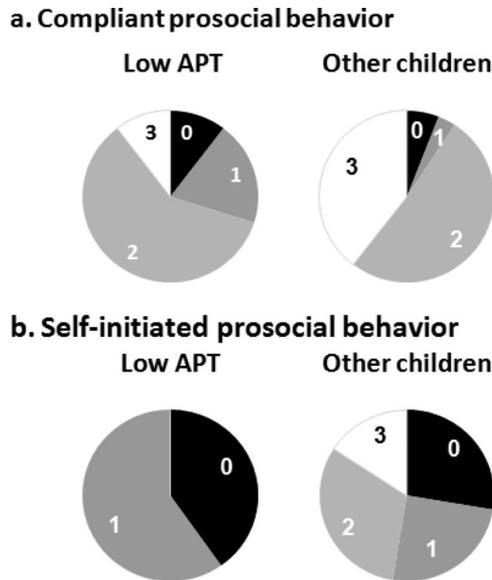


Figure 1. Proportion of children ( $N = 43$ ) with and without low affective perspective-taking (APT) abilities behaving pro-socially in different numbers of pro-social behavior tasks. Note: Numbers indicate the number of pro-social behaviors performed by the child.

46.9% of other children behaved pro-socially in at least two of the three self-initiated pro-social tasks, none of the low-APT children did,  $\chi^2(1) = 7.29, p = .007$ .

The matching of siblings in gender and family variables enabled within-pair comparisons in the 12 pairs discordant for low APT. In eight of these pairs, the low-APT child behaved less pro-socially than his or her sibling, and in no pair did the low-APT sibling behave more pro-socially. As expected, a large difference in the tendency to behave pro-socially was found between non-low APT children and their low-APT sibling for self-initiated pro-social behavior,  $t(11) = 2.60, p = .025, D = .82$ , but not for compliant pro-social behavior,  $t(11) = 1.82, ns$ .

Low-APT children averaged 106.4 IQ points ( $SD = 11.61$ ), well within the normal range of intelligence, as did other children ( $M = 113.1, SD = 14.18$ ),  $t(40) = 1.29, ns$ . This established the specificity of impaired or delayed functioning in Low-APT children. In addition, the 20% of children with the lowest IQ did not differ from other children in either compliant,  $t(40) = -.92, ns$ , or self-initiated,  $t(40) = -.56, ns$ , pro-social behavior.

## Discussion

The ability to assume another's perspective was suggested as a necessary but not sufficient prerequisite for self-initiated pro-social behavior to take place (e.g., Bar-Tal, 1982). The current investigation is the first to address the compliant/self-initiated distinction with regard to the role of children's APT abilities. We demonstrated that low APT abilities in children whose cognitive processes are otherwise normal might hinder their ability to infer the need for pro-social action from relatively subtle social cues. When interpretation of social cues is necessary (self-initiated pro-sociality), APT may be especially important for altruism and help.

Large differences were found in self-initiated pro-sociality between low-APT and other children. A similar pattern was found both when comparing low-APT and other children as independent groups, randomly selecting one child per family, and in within-family comparisons between low-APT and their nonlow APT siblings. This attests to the robustness of the findings. Although more research is needed, our results suggest that interventions aimed at increasing pro-social behavior that goes beyond compliance with open requests should consider incorporating training for APT skills.

It is interesting that although low APT related to pro-sociality, we did not find significant linear correlations between APT and pro-social behavior. A possible interpretation is that whereas low degrees of APT may hinder (self-initiated) pro-sociality, moderate degrees of APT ability are sufficient to enable children to gather the information required to engage in pro-social behavior.

While a certain degree of APT is required for self-initiated pro-social behavior, additional factors may influence children's behavior. For example, 3.5 year-old twin children rated by their mothers as low in emotional regulation problems reacted more empathically to an examiner's pain if they were high in APT, while children rated as high in emotional symptoms responded less empathically if they were high on APT (Knafo et al., 2009). This complexity suggests the need to consider other aspects of children's social competence in future research.

Despite the contribution of this study to our understanding of the relation between APT and pro-sociality, it has several limitations. Among them is the small sample size which may have prevented us from finding significant linear effects that might exist between APT and self-initiated pro-social behavior. The participants in this study were mainly Jewish Israeli children. Our sample was quite representative of this ethnic group in terms of family income, family size and country of origin, but the slightly higher maternal educational level and employment rate, as well as the focus on families with same-sex siblings suggests some caution in generalization to other populations and the results should be replicated cross-culturally. In addition, the low proportion of children performing more than one self-initiated pro-social behavior may reflect the young age of the sample (3–6 years). As pro-social behavior increases with age (Eisenberg & Fabes, 1998) it would be important to replicate our study with a broader age range.

The difference between low-APT and other children was not due to a deficit in general cognitive abilities, as low-APT children had normal range IQ scores while low-IQ children did not behave less pro-socially than other children. This attests to the specificity of the low-APT relation with self-initiated pro-social behavior, although the role of children's verbal abilities should also be addressed in future studies. Our results call for a deeper understanding of the role of APT in children's pro-sociality. In addition, we provided novel evidence for the importance of the distinction between compliant and self-initiated pro-social behavior. This distinction shows great promise for our understanding of the development of pro-social behavior.

## References

- Bar-Tal, D. (1982). Sequential development of helping behavior: A cognitive-learning approach. *Developmental Review, 2*, 101–124.
- Benenson, J. F., Pascoe, J., & Radmore, N. (2007). Children's altruistic

- behavior in the dictator game. *Evolution and Human Behavior*, 28, 168–175.
- Carlo, G., Knight, G. P., Eisenberg, N., & Rotenberg, K. J. (1991). Cognitive processes and pro-social behaviors among children: The role of affective attributions and reconciliations. *Developmental Psychology*, 27, 456–461.
- Denham, S. (1986). Social cognition, pro-social behavior and emotion in preschoolers: Contextual validation. *Child Development*, 57, 194–201.
- Eisenberg, N., Cameron, E., & Tryon, F. (1984). Pro-social behavior in the preschool years: Methodological and conceptual issues. In E. Staub, D. Bar-Tal, J. Karylowski, & J. Reykowski (Eds.), *The development and maintenance of pro-social behavior: International perspectives on positive development* (pp. 101–115). New York: Plenum Press.
- Eisenberg, N., & Fabes, R. A. (1998). Pro-social development. In N. Eisenberg & W. Damon (Eds.), *Handbook of child psychology, Vol. 3: Social, emotional and personality development* (5th ed., pp. 701–778). New York: Wiley.
- Eisenberg, N., Shea, C. L., Carlo, G., & Knight, G. P. (1991). Empathy related responding and cognition: A “chicken and the egg” dilemma. In W. Kurtines & J. Gewirtz (Eds.), *Handbook of moral behavior and development: Vol. 2, Research* (pp. 63–88). Hillsdale, NJ: Erlbaum.
- Eisenberg, N., Wolchik, S. A., Goldberg, L., & Engel, I. (1992). Parental values, reinforcement, and young children’s pro-social behavior: A longitudinal study. *The Journal of Genetic Psychology*, 153, 19–36.
- Grusec, J. E. (1991). Socializing concern for others in the home. *Developmental Psychology*, 27, 338–342.
- Hoffman, M. L. (1982). Development of pro-social motivation: Empathy and guilt. In N. Eisenberg (Ed.), *The development of pro-social behavior* (pp. 218–231). New York: Academic Press.
- Hughes, C., & Dunn, J. (1998). Understanding mind and emotion: Longitudinal associations with mental-state talk between young friends. *Developmental Psychology*, 34, 1026–1037.
- Iannotti, R. J. (1985). Naturalistic and structured assessments of pro-social behavior in preschool children: The influence of empathy and perspective taking. *Developmental Psychology*, 21, 46–55.
- Israel Central Bureau of Statistics (2007). *Statistical abstract of Israel (2007)*. Retrieved from [www.cbs.gov.il/reader/shnaton/shnatonh\\_new.htm?CYear=2007&Vol=58&CSubject=2](http://www.cbs.gov.il/reader/shnaton/shnatonh_new.htm?CYear=2007&Vol=58&CSubject=2).
- Kaufman, A. S., & Kaufman, N. L. (1983). *Kaufman assessment battery for children*. Circle Pines, MN: American Guidance Services.
- Knafo, A., Zahn-Waxler, C., Davidov, M., Van Hulle, C., Robinson, J., & Rhee, S. H. (2009). Empathy in early childhood: Genetic, environmental and affective contributions. *Annals of the New York Academy of Sciences*, 1167, 103–114.
- Marsh, A. M., Kozak, M. N., & Ambady, N. (2007). Accurate identification of fear facial expressions predicts pro-social behavior. *Emotion*, 7, 239–251.
- Peysner, M., Shimborsky, G., Wolf, N., & Hazany, I. (1996). *Kaufman assessment battery for children: Israeli version*. Jerusalem: Ministry of education, culture and sports – psychological and counseling services, the Henrietta Szold institute for research in behavioral sciences.
- Ribordy, S. C., Camras, L. A., Stefani, R., & Spaccarelli, S. (1988). Vignettes for emotion recognition research and affective therapy with children. *Journal of Clinical Child Psychology*, 17, 322–325.
- Roberts, W., & Strayer, J. (1996). Empathy, emotional expressiveness, and pro-social behavior. *Child Development*, 67, 449–470.
- Underwood, B., & Moore, B. (1982). Perspective-taking and altruism. *Psychological Bulletin*, 91, 143–173.
- Widen, S. C., & Russell, J. A. (2008). Children acquire emotion categories gradually. *Cognitive Development*, 23, 291–312.
- Yarrow, M. R., Zahn-Waxler, C., in collaboration with Barrett, D., Darby, J., King, R., Pickett, M., & Brady-Smith, J. (1976). Dimensions and correlates of pro-social behavior in young children. *Child Development*, 47, 118–125.
- Zahn-Waxler, C., Schiro, K., Robinson, J. L., Emde, R. N., & Schmitz, S. (2001). Empathy and pro-social patterns in young MZ and DZ twins: Development and genetic and environmental influences. In: R. N. Emde & J. K. Hewitt, (Eds.), *Infancy to early childhood: Genetic and environmental influences on developmental change* (pp. 141–162). New York: Oxford University Press.

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