

Contemporaneous and one-year longitudinal prediction of children's prosocial behavior
from sympathy and moral motivation

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Abstract

The study investigated the contemporaneous and longitudinal relations of children's (mean age = 6.4 years) prosocial behavior to sympathy and moral motivation. Prosocial behavior was rated by the mothers and kindergarten teachers. Sympathy was measured via self- and adult reports. Moral motivation was assessed with children's attribution of emotions to hypothetical victimizers and self-as-victimizers, as well as moral reasoning after rule violations. Mother-rated prosocial behavior was contemporaneously and longitudinally related to sympathy. Moral motivation moderated the relation of sympathy to mother-rated prosocial behavior. Furthermore, boys' level of mother-rated prosocial behavior increased with level of moral motivation, whereas girls were high in mother-rated prosocial behavior, regardless of their level of moral motivation. Kindergarten-teacher rated prosocial behavior was contemporaneously predicted by sympathy.

Key-words: Prosocial behavior, sympathy, moral motivation, kindergarten children

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Contemporaneous and one-year longitudinal prediction of children's prosocial behavior from sympathy and moral motivation.

The question of whether moral emotions, besides moral reasoning, are important factors for moral functioning has shifted throughout the history of both moral philosophy and psychology. Philosophers such as David Hume (1751/1957) and Adam Smith (1759/1976) regarded feelings of sympathy as critical for altruistic and prosocial actions. Conversely, Immanuel Kant believed that people's motives – also their moral motives – are controlled by reason, and he somewhat disparagingly looked upon women's morality as being more influenced by feeling and therefore less “purely rational” than men's (see Bennet, 1985). Similarly, in psychology the tides have shifted from behaviorist approaches, in which moral actions were contingent on rewards and punishment (e.g. Aronfreed, 1968) to the largely cognitive tradition of Kohlberg's moral reasoning paradigm. Some developmental psychologists have tried to integrate emotions into more cognitive models of moral development or investigate the role of (moral) emotions in moral functioning in its own right (see Eisenberg, 2000 for an overview; Arsenio & Lemerise, 2004). According to Eisenberg (2000), prototypical moral emotions such as empathy and guilt have been identified in previous research as playing an important role in moral action. In this paper, we followed up on this latter research by exploring the relations among prosocial behavior, the moral emotion empathy, and moral motivation in kindergarten children. In the following sections, we first review research on empathy/sympathy feelings in preschool and young elementary school children as well as their relation to prosocial behavior, before discussing research on moral motivation and prosocial behavior.

Empathy has been defined in various terms, from the cognitive ability of understanding the affective or cognitive status of another person, to a person's vicarious matching of another's affective state (see also Eisenberg & Miller, 1987; Hoffman, 2000; Zhou, Valiente, & Eisenberg, 2003). Theories of developmental psychology usually integrate both cognitive and affective aspects in their definitions of empathy. For example, Eisenberg (2000) characterized empathy as "an affective response that stems from the apprehension (...) of another's emotional state or condition and is similar to what the other person is feeling or would be expected to feel", and "(...) pure empathy is not other-oriented" (p. 671). Thus, a distinction between pure empathy and *sympathy* is necessary. According to Eisenberg (2000), both are based on an understanding of another's situation; only sympathy involves feelings of concern for the other, but it is not the same feeling as the other person may experience (p. 672; Zhou et al., 2003).

Empirical research in both social and developmental psychology has lent support to David Hume's and Adam Smith's propositions that empathy/sympathy is an effective motive for prosocial behavior. Batson (1991, 1998) has shown that sympathy leads to a prosocial reaction that tries to alleviate another's negative emotion. In contrast, personal distress is associated with self-oriented feelings (e.g., anxiety and worry about one's own welfare in response to the apprehension of another's emotion), which lead to reactions that help people to reduce their own aversive emotional arousal (see Eisenberg, 2000).

In children, numerous studies have shown a positive relation between different indexes of empathy or sympathy (i.e., behavioral or physiological reactions) and prosocial behavior (e.g., Eisenberg & Fabes, 1990; Holmgren, Eisenberg & Fabes, 1998; Miller, Eisenberg, Fabes, & Shell, 1996; Zahn-Waxler, Cole, Welsh, & Fox, 1995). Likewise, empathy appears to be negatively associated with observed aggressive behavior in preschool-children (Strayer & Roberts, 2004). In a meta-analysis, Eisenberg

and Miller (1987) found an overall positive but moderate relation between empathy/sympathy and prosocial behavior, which was stronger for adults than for children. Moreover, the relation between empathy and prosocial behavior seems to depend partially on the method of measurement (Roberts & Strayer, 1996; Trommsdorff & Friedlmeier, 1999). Regarding self-reported empathy/sympathy, Eisenberg and Fabes' review (1998) documented that children's self-reported empathy on questionnaires is associated with adult-ratings of prosocial behavior (Eisenberg, Spinrad, & Sadovsky, 2006, p. 523; Eisenberg et al., 1999; Krevans & Gibbs, 1996). Eisenberg et al. (1999) also found that sympathy partially mediated the association between spontaneous prosocial behavior and subsequent prosocial behavior.

Given that the relations between empathy/sympathy and prosocial behavior are mostly rather moderate, some studies have investigated variables moderating the relationship between moral emotions and prosocial behavior (e.g., Miller, Eisenberg, Fabes, & Shell, 1996). Nonetheless, Eisenberg (2000) proposed that further exploration of moderating effects is needed to deepen the understanding of the relations between empathy and prosocial behavior.

In the present study, we follow up on this suggestion and investigate children's moral motivation as a possible moderator of sympathy in the contemporaneous and longitudinal prediction of children's prosocial behavior.

Moral Motivation and Prosocial Behavior

When philosophers talk about moral motivation, the basic phenomenon they seek to understand is whether a person's moral judgment motivates him or her to act in accordance with it. Thus, moral motivation in philosophy is intimately linked to (moral) action. In developmental psychology, the topic of moral motivation has been most prominently investigated within the happy-victimizer paradigm (e.g. Arsenio & Kramer,

1992; Keller, Lourenco, Malti, & Saalbach, 2003; Lourenco, 1997; Nunner-Winkler & Sodian, 1988; see Arsenio, Gold, & Adams, 2006, for a review). This approach interconnects children's moral cognitions (i.e., rule understanding and moral reasoning) with their emotion attribution, especially in cases of moral rule violations. Theoretically, negative feelings after a moral rule violation indicate that the transgressor has internalized and accepts the validity of a moral rule (Keller, 1996, Nunner-Winkler, 1999). Nunner-Winkler and colleagues (Nunner-Winkler, 1999; Asendorpf & Nunner-Winkler, 1992; Nunner-Winkler & Sodian, 1988) suggest that children's emotion attributions in a happy-victimizer task show which aspect of a moral situation they regard as important: If they concentrate on the fulfillment of the victimizer's personal goals, they attribute positive feelings to him or her. Furthermore, children justify these emotions with hedonistic interests because through the rule violation the victimizer would achieve his or her goals. If children focus on the validity of the moral rule, they attribute negative (moral) feelings to the victimizer as a result of the rule violation and justify this with deontological or altruistic concerns. Morally appropriate negative emotional attributions to a victimizer and corresponding moral and/or empathic reasoning can therefore be seen as an indicator of children's moral motivation (Montada, 1993; Nunner-Winkler, 1999). If children justify negative emotion attributions with fear of punishment or sanction-oriented reasons, however, the emotion attribution does not express moral motivation, but rather fear of punishment. It is therefore necessary to study the combined effect of emotion attributions and corresponding justifications.

So far, a number of studies in this tradition (e.g. Arsenio & Kramer, 1992; Keller et al., 2003; Lourenco, 1997; Nunner-Winkler & Sodian, 1988) have shown that most preschool children judge the violation of a moral norm (e.g. stealing, hurting, not helping) to be wrong. But when children are asked to judge the feelings of the violator of this norm, the majority of them attributed positive feelings to the victimizer. Whereas some

authors reported an increase in the attribution of negative (i.e., morally appropriate) feelings especially between 6 and 8 years (Nunner-Winkler & Sodian, 1988; Keller et al., 2003; Lourenço, 1997), others found no such shift (Arsenio & Kramer, 1992). Keller and colleagues (Keller et al., 2003; Keller, Schuster, Malti, Sigurdadottir, Fang & Hong, 2006) proposed that reported differences concerning the age of when children shift from an attribution of positive to negative emotions might be due to (cultural) differences in the spontaneous identification with the victimizer. When participants are asked how they themselves would feel as victimizers, negative emotional attributions increased dramatically both in younger and older elementary school children. Self-attributed negative emotions might tap more effectively into personally-relevant moral convictions. In contrast, a hypothetical victimizer's positive emotion attributions can be excused by the victimizer's personality. For example, Keller and Malti (1999) found that children who attributed negative emotions to self and positive emotions to the hypothetical victimizer also judged the hypothetical victimizer as being a "bad person". The findings by Keller and colleagues (2006) suggest that children start to differentially attribute emotions to self and other between 4 and 5 years. This is also a point when children develop a theory of other persons' mind and can differentiate between the perspectives of self and other (Flavell, 1999; Hughes & Leekam, 2004).

Only a few studies have examined the relationship between children's moral motivation and moral behavior to date. Almost all of those studies concentrated on immoral, aggressive behaviors rather than moral, prosocial behaviors, and their results are rather inconsistent. For example, Asendorpf and Nunner-Winkler (1992) reported a negative relationship between the attribution of negative emotions to hypothetical wrongdoers and cheating or egoistic behavior in a group situation for five- to seven-year-old children. In contrast, other studies did not find differences between aggressive and non-aggressive children's emotion attributions to hypothetical victimizers (Hughes

& Dunn, 2000; Malti, 2003), or found even a positive association (Arsenio & Fleiss, 1996).

To our knowledge, there has been no study on self-attributed emotions and spontaneous prosocial behavior in childhood until now. Malti (2003, 2007) and Malti and Keller (2007) have demonstrated that aggressive behavior is associated with the attribution of positive emotions to the self both in 6-year-old kindergarten and in elementary-school children (see Gasser & Alsaker, 2005). Regarding the relations between emotion attributions and prosocial behavior, Gummerum, Keller, Rust, and Hanoch (2006) showed that preschool children who attributed negative emotions after a moral transgression also shared more with an anonymous other person in a distribution situation which constituted a prosocial moral dilemma. There was no difference in emotions attributed to self and hypothetical victimizer in this study, probably because most of the three- to five-year-old participants had not yet developed the necessary perspective-taking abilities (see above). We shall investigate this finding further and differentiate between other- and self-attributed negative emotions in the happy-victimizer task and corresponding moral reasoning, i.e., moral motivation in the context of victimizer and self-as-victimizer, in relation to contemporaneous and longitudinal prediction of spontaneous prosocial behavior.

Interaction Effects

To our knowledge, only very few studies have investigated whether moral reasoning or moral motivation moderates the relationship between sympathy and prosocial behavior (e.g., Miller et al., 1996). This omission is rather surprising; theoretically, moral motivation represents an important step in translating one's sympathetic feelings or moral understanding into prosocial action towards another person (Bergman, 2002). One could hypothesize, for example, that high moral motivation can compensate for

low sympathetic reactions or, conversely, that even children high in sympathy need high moral motivation for acting prosocially. This study examines these hypotheses in more detail.

In line with Eisenberg's (2000) proposal, a few previous studies have investigated variables moderating the relationship between empathy and prosocial behavior. For example, Knight, Johnson, Carlo and Eisenberg (1994) examined how affective reasoning, sympathy, knowledge about money, and a multiplicative combination of these variables was related to elementary school children's prosocial donation behavior. They found that the variables independently as well as in interaction significantly predicted prosocial behavior: Increases in money knowledge led to increases in prosocial behavior only when a child was also high in affective reasoning and sympathy. Moreover, children who scored high on each of these three variables donated significantly more than children who had low scores on one or more of these variables. Miller and colleagues (1996) assessed the combined effects of sympathy and prosocial moral reasoning on preschoolers' prosocial behavior. Children who used higher levels of prosocial moral reasoning (particularly needs-oriented reasoning) and who responded with sympathy to a peer's distress acted more prosocial than non-sympathetic children. However, within the group of children using lower levels of prosocial moral reasoning, there was no difference in helping between high- and low-sympathy children. Thus, prosocial moral reasoning moderated the relation between sympathy and prosocial behaviors (see also Eisenberg, Zhou, & Koller, 2001, for a study with adolescents).

The Present Study

The purpose of the present study was to examine the relations between the moral emotion sympathy, moral motivation, and prosocial behavior in a one-year longitudinal study with kindergarten children. We pursued several research questions.

First, we examined whether prosocial behavior could be contemporaneously and longitudinally predicted by sympathy and children's moral motivation. In line with previous research findings, we hypothesized that both sympathy and moral motivation would independently predict spontaneous prosocial behavior. However, considering the age of our participants (6 years), we expected a self-other split for moral motivation: moral motivation based on the emotion attribution to self as victimizer rather than emotion attribution to the hypothetical victimizer should predict prosocial behavior. This assumption also traces back to earlier experimental work of Dienstbier and colleagues (Dienstbier, 1978; Dienstbier, Kahle, Willis, & Tunnell, 1980). They documented that emotion attributions affect subsequent cheating behavior, but in particular if the associated emotional arousal is evaluated as relevant to the self.

Second, we investigated the moderating role of moral motivation on the relationship between sympathy and prosocial behavior. We expected that children with high moral motivation would be able to compensate for low feelings of sympathy and display high levels of prosocial behavior. This assumption is based on the theoretical conceptualization of moral motivation as a central catalyst of moral action (Nucci, 2001; Nunner-Winkler, 1999).

Research on sympathy and prosocial behavior has shown gender effects for both variables, with girls being more sympathetic and prosocial than boys (see Eisenberg & Fabes, 1998). Recently, Malti and Keller (2007) found gender differences in the moral motivation of elementary school children: Girls attributed more negative emotions to both a hypothetical victimizer and to the self as a victimizer. We therefore expected that the relationship between sympathy and prosocial behavior and moral motivation and

prosocial behavior would be stronger in girls than in boys. Moderation by sex of the child of the relationship between sympathy or moral motivation and prosocial behavior was also investigated for exploratory.

Method

Participants

The data were taken from the pilot study of a representative, multi-cohort longitudinal survey on competences and contexts, currently being conducted in Switzerland (Buchmann & Fend, 2004). In the first step, a random sample of kindergarten children and their primary caregivers was drawn based on the resident population in the Canton of Zurich in Switzerland. Next, written requests for participation were sent to the primary caregivers, and they were then phoned by interviewers asking for their willingness to participate in the survey. Eighty percent of the primary caregivers contacted and reached by mail and phone gave their consent to participation.

A total of 208 child and primary-caregiver interviews were carried out. Of the primary caregivers 89% gave their written consent to our contacting the kindergarten teachers, and 152 of the corresponding kindergarten teachers filled in a questionnaire (78%). In sum, data for 150 complete triads (child/primary caregiver/kindergarten teacher) were available. The participating children were on average 6.4 years of age ($SD = 0.18$). There were 68 girls (45%) and 82 boys (55%). The corresponding primary caregivers were predominantly the mothers (92%); 83% of the mothers were of Swiss nationality and 17% of other nationalities, predominantly European. The kindergarten teachers had a mean age of 38 years ($SD = 11.9$). They had on average 13 years ($SD = 10.4$) of teaching experience.

The participation rate of primary caregivers in the second assessment was 94%, and 195 primary-caregiver interviews were carried out at t_2 . Children and kindergarten

teachers were only interviewed at t_1 . An attrition analyses was performed to test whether the sample attrition had any effects on the main study variables. On the one hand, the participants at t_1 with complete child-, mother- and kindergarten teacher data were compared with participants without the kindergarten teacher data ($n = 58$) on demographic variables (marital status, maternal income) as well as the t_1 main study variables (mother- and child-rated sympathy, moral motivation, mother- and kindergarten-teacher rated prosocial behavior). No significant differences occurred. On the other hand, the participants at t_1 were compared with the participants who dropped out at t_2 ($n = 13$) on the variables described above. In the latter sample, kindergarten teachers rated the children significantly lower on prosocial behavior, $t(139) = 2.26, p < .05$. No other significant differences were found.

Procedure

The first assessment was conducted during Spring, 2005. The children and mothers were individually interviewed at home via a computer-assisted personal interview (CAPI). Each interview lasted about 25-30 minutes. During the child interview, the mothers filled in a supplementary questionnaire on paper. Likewise, the corresponding kindergarten teachers filled in a questionnaire and returned it by mail.

The second assessment was finalized approximately one year later (June 2006). It included a computer-assisted telephone interview (CATI) with the primary caregivers. The interviewers were middle-aged women recruited from a professional research institute specializing in conducting interviews in the social sciences. The interviewers had been intensively trained in interview techniques by the research team, especially with regard to the child interview.

Measures

Prosocial behavior. Both mothers and kindergarten teachers evaluated the prosocial behavior of the children on a four-point scale with the same three items from the prosocial behavior subscale of the Strength and Difficulties Questionnaire (SDQ) (e.g., *my child/the child is helpful if someone is hurt, upset or feeling ill*). Sum scores were derived. For the mother rating, the reliability of the scale was $\alpha = .63$. The reliability of the kindergarten-teacher rating of prosocial behavior was $\alpha = .83$. At the second assessment, the mothers rated their children's prosocial behavior with the same three items on a six-point scale. Alpha was .58.

Sympathy. Children's sympathy was assessed by (a) children's self-reports, (b) mother ratings and (c) kindergarten teachers' ratings. Children's self-reported sympathy was assessed with five items from Zhou et al. (2003; e.g., *when I see another child who is hurt or upset, I feel sorry for him or her*). The children were asked whether the sentence is like him/her or not, and if so, how much. The answers were scored as follows: not like him/her was scored as 0, "sort of" like him/ her was scored as 1, and like him/her was scored as 2. A sum score was computed ($\alpha = .76$). The mothers and the kindergarten teachers each rated children's sympathy with the same items (e.g., *my child feels usually sorry for other children who are being teased*) from Zhou et al. (2003; $\alpha = .66$ and $.84$, respectively). Sum scores were derived.

Moral motivation. We assessed the children's moral motivation by means of two hypothetical moral rule violations. The two transgressions have been frequently used in previous research within the happy-victimizer paradigm (Keller et al., 2003; Nunner-Winkler & Sodian, 1988): Pushing a child off the swing (physical harm) and stealing another's child chocolate (psychological harm). The two transgressions were illustrated by a three-frame sequence of cartoons, which were gender-matched. The stories were systematically counterbalanced in order to avoid story effects. The content of the transgressions is as follows: In the first story, a child (victim) swings, and the

protagonist (victimizer) stands next to the swing (cartoon 1). The protagonist wants to swing, and pushes the first child (victim) off the swing. In the second story, a child (victim) leaves its jacket with a delicious chocolate bar in the kindergarten hall (cartoon 1). Another child (victimizer) takes the chocolate bar and eats it (cartoon 2). In cartoon 3, the first child (victim) realizes that the chocolate bar has been stolen. The child looks sad.

Although the consequences were not presented in the pushing-off-the-swing-story, our previous work shows that children understand very well the negative consequences of the story. Malti (2003) documented that almost all children reported negative emotions to the victim when asked how the victim may feel after being pushed off the swing. The children were then asked a control question to assess whether they understood the rule violation. Almost all children judged that it was not right to violate the rule in the two moral transgressions (97%). Next, the children were asked the following questions on their emotion attributions and justifications:

1. Emotion attribution to victimizer: How does he/she feel afterwards? Why?
2. Emotion attribution to self: How would you feel afterwards? Why?

Coding of emotion attributions. The attributed emotions were coded as ‘positive’ (immoral), ‘negative’ (moral), and ‘mixed’. The category ‘mixed’ rarely occurred (2% victimizer; 6% self-as-victimizer) and was combined with the category ‘negative’ for statistical analyses. The category ‘don’t know’ occurred rarely (3% for victimizer; 5% for self-as-victimizer) and was excluded from further analyses. Overall, children attributed negative (moral) emotions to victimizers in 63% of the cases, and in 84% of the cases they attributed negative (moral) emotions to themselves as victimizers.

To ensure the equivalence of the stories, the interrelations among the two stories in emotion attribution were computed. Emotion attributions to victimizer in the two

stories were highly correlated, $r(128) = .56, p < .01$, as were the emotion attributions to the self-as-victimizer, $r(126) = .56, p < .01$. Thus, the variables were combined across the stories, and two continuous variables for the emotion attribution to victimizer and to self-as-victimizer were created with a range from 0 (children attributed in both stories positive emotions) to 1 (children attributed in one story positive, and in the other negative emotions) to 2 (children attributed in both stories negative emotions).

Coding of moral reasoning. Regarding the coding of the corresponding justifications, a revised coding manual was employed (Keller et al, 2003; Keller, Edelstein, Schmid, Fang, & Fang 1998; Lourenço, 1997). Four reasoning categories were defined:

- | | |
|----------------------------|--|
| Moral reasons: | Reasons concerning moral norms, rules, obligations (e.g., ‘a child should not steal, it is not fair’). |
| Empathic concern: | Reasons related to empathy/altruism (e.g., ‘the victim will cry and suffer pain’). |
| Sanction-oriented reasons: | Reasons referring to sanctions by an authority (e.g., ‘his mother will be mad with him’). |
| Hedonistic reasons: | Reasons of interest for an object or self-interest (e.g., ‘he loves chocolate so much’). |
| Other reasons: | Other reasons and non-classifiable arguments. |

The justifications were assessed as open-ended questions in the CAPI interview and were coded into the quantitative reasoning categories afterwards. Percentage interrater agreement across reasoning categories was 95%. Disagreements were discussed, and a consensus was reached.

Given that the justifications are not independent of the attributed emotions, a somewhat differing scoring procedure for the levels of moral reasoning than originally proposed within Kohlberg’s theory (1969) was necessary. While the latter scoring was

developed for evaluating the quality of moral judgments, in the present study reasoning in the context of emotion attributions was assessed, and sanction-oriented reasons always refer to negative emotion attributions and represent thus a higher level of moral reasoning than hedonistic justifications. It was assumed that in the context of emotion attributions, moral and empathic reasoning express the highest level of moral reasoning, followed by sanction-oriented and then by hedonistic reasoning (Eisenberg, 1986), and the scoring of moral reasoning was as follows: Hedonistic reasoning was scored a 0, sanction-oriented reasoning a 1, and moral or empathic reasoning a 2. The moral reasoning scores were highly interrelated across the two stories, $r(112) = .59, p < .01$ in the context of emotion attribution to victimizer, and $r(106) = .54, p < .01$ in the context of emotion attribution to self-as-victimizer, respectively; therefore, the four scores of moral reasoning were aggregated over the stories. Thus, two moral reasoning scores were derived, one for the justifications in the context of the emotions attributed to the victimizer, and one for the justifications in the context of the emotions attributed to the self-as-victimizer. The range of these scores was 0-4, and a score of 0 indicated that children justified in both stories their positive emotion attributions to the victimizer/self-as-victimizer with hedonistic reasons. A score of 4 indicated that children justified in both stories their negative emotion attributions to the victimizer/self-as-victimizer with moral or empathic reasons.

Coding of moral motivation. Finally, two scores for moral motivation were computed: a sum score of emotion attribution to victimizer and moral reasoning in the context of emotion attribution victimizer and a sum score of emotion attribution to self-as-victimizer and moral reasoning in the context of self-attributed emotions. A score of 0 indicated for example that a child attributed positive emotions to the victimizer or self in both stories and justified this with hedonistic reasons. The mean score of moral motivation in the context of victimizer emotion was 3.01 ($SD = 2.41$; range: 0-6), and

the mean score of moral motivation in the context of self-attributed emotion was 3.73 ($SD = 1.98$; range: 0-6).

Results

Relations of the Study Variables with Gender

Table 1 shows the mean scores of the study variables for girls and boys.

Table 1

Means and Standard Deviations of Study Variables by Gender

Measure and assessment point	Girls		Boys	
	M	SD	M	SD
Child-reported sympathy at t_1^a	4.67	2.90	4.50	2.63
Mother-rated sympathy at t_1^b	10.66	1.45	10.10	1.89
Kindergarten-teacher rated sympathy at t_1^b	10.60	1.85	9.22	2.36
Moral motivation victimizer ^c	2.87	2.48	3.13	2.37
Moral motivation self-as-victimizer ^c	3.64	1.96	3.80	2.00
Mother-rated prosocial behavior at t_1^b	10.28	1.60	9.68	1.59
Kindergarten-teacher rated prosocial behavior at t_1^b	10.25	1.77	8.58	2.20
Mother-rated prosocial behavior at t_2^d	16.13	1.62	14.88	2.29

^aPossible range: 0-10.

^bPossible range: 4-12.

^cPossible range: 0-6.

^dPossible range: 3-18.

As can be seen in Table 1, the mothers and the kindergarten teachers both rated girls as more sympathetic than boys at t_1 , $F(1, 143) = 3.88$, $p = .05$, and $F(1, 144) = 15.31$, $p < .001$, respectively. Moreover, girls were rated as more prosocial than boys at t_1 and t_2 by the mothers as well as by the kindergarten teachers, $F(1, 143) = 5.17$, $p < .05$, $F(1, 124) = 12.32$, $p < .01$, and $F(1, 144) = 25.10$, $p < .01$, respectively. No other significant gender differences occurred.

Relations between Sympathy, Moral Motivation, and Prosocial Behavior

A correlation analysis was computed to analyze the interrelations between sympathy, moral motivation in the context of victimizer and self-as-victimizer, and prosocial behavior (see Table 2). Boys are represented in the top and girls in the bottom numbers in each cell of table 2. Due to the assumption that information from multiple raters may be more reliable (Epstein, 1979), we standardized and averaged the scores for kindergarten-, mother- and child reports of sympathy in the following analyses, although only the correlation between child- and kindergarten teachers' reports of sympathy reached significance, $r(139) = .17, p = .05$. The overt score was labelled 'sympathy'.

Table 2

Correlations Between the Study Variables for Boys and Girls

	1	2	3	4	5	6
1 Sympathy	1					
2 Moral motivation victimizer	.06	1				
	.25*					
3 Moral motivation self-as-victimizer	.24*	.66***	1			
	.17	.70***				
4 Mother-rated prosocial behavior at t ₁	.27*	.23*	.21†	1		
	.08	-.19	.04			
5 Kindergarten-teacher rated prosocial behavior at t ₁	.47***	.04	.07	.30**	1	
	.24*	.04	-.01	.01		
6 Mother-rated prosocial behavior at t ₂	.23†	.03	.02	.49***	.27*	1
	-.01	-.02	.10	.46***	.08	

Note. Boys in top, girls in bottom numbers in each cell.

† $p < .10$. * $p < .05$. ** $p < .01$. *** $p < .001$

As can be seen in Table 2, sympathy was positively associated with moral motivation in the victimizer context for girls, and it was positively associated with moral motivation in the self-as-victimizer context for boys. Moreover, boys' sympathy was positively associated with mother- and kindergarten teachers' ratings of prosocial behavior at t_1 and marginally positive with prosocial behavior at t_2 . For girls, sympathy was associated with kindergarten teachers' ratings of prosocial behavior at t_1 . Moral motivation to victimizer and moral motivation to self-as-victimizer were highly interrelated for both boys and girls. The moral motivation to the victimizer was positively associated with mother-rated prosocial behavior at t_1 for boys. Likewise, moral motivation to self-as-victimizer was marginally positively associated with mother-rated prosocial behavior at t_1 for boys. Further, mother-rated prosocial behavior at t_1 was positively related to kindergarten-teacher rated prosocial behavior at t_1 for boys, but not for girls. Mother-rated prosocial behavior at t_1 was positively associated with mother-rated prosocial behavior at t_2 for boys and girls.

Contemporaneous and Longitudinal Prediction of Prosocial Behavior by Sympathy and Moral Motivation

Hierarchical linear regression analyses were employed to analyze the role of sympathy and moral motivation on children's prosocial behavior. Three separate regression models were run for (a) the mothers' ratings of prosocial behavior at t_1 , (b) the kindergarten teachers' ratings of prosocial behavior at t_1 as well as (c) mother ratings of prosocial behavior at t_2 as dependent variable. We entered the independent variables of gender, sympathy, moral motivation, and interaction terms. Due to the high interrelations between moral motivation in the two contexts of victimizer and self-as-victimizer and the results of preliminary analysis showing no different impact on

prosocial behavior, the two scores were standardized and averaged to one overall score for the multivariate analyses. The score was labelled ‘moral motivation’. All variables were standardised, and interaction terms were created by calculating the product of the mean centered main effects. Gender was coded as 0.5 and -0.5. We tested three interactions, the interaction between the moral motivation score and the sympathy variable, the interaction between sympathy and gender and the interaction between moral motivation and gender. The independent variables were entered in three steps: In the first step, gender was entered. Sympathy and moral motivation were entered in the second step. The interaction terms of sympathy with moral motivation, sympathy with gender, and moral motivation with gender were entered in the third step. The results of the regression analyses are displayed in Table 3.

Table 3

Results of the Hierarchical Linear Regression Analyses Predicting Prosocial Behavior

Independent variables	Mother-rated prosocial behavior at t ₁		Mother-rated prosocial behavior at t ₂		Kindergarten-teacher rated prosocial behavior at t ₁	
	β	ΔR ²	β	ΔR ²	β	ΔR ²
<i>Step 1</i>						
Sex	.17*	.03*	.22**	.28***	.39***	.15***
Mother-rated prosocial behavior at t ₁ ^a			.45***			
<i>Step 2</i>						
Sex	.10		.19*		.38***	
Mother-rated prosocial behavior at t ₁ ^a			.41***			
Sympathy	.29***		.14		.15†	
Moral motivation	.01	.08**	-.03	.02	.03	.02
<i>Step 3</i>						
Sex	.10		.20*		.38***	
Mother-rated prosocial behavior at t ₁ ^a			.40***		.	

Sympathy	.24*		.22*		.24*	
Moral motivation	.13		-.13		.06	
Sympathy x moral motivation	-.17*		-.11		.09	
Sympathy x gender	.03		-.14		-.13	
Moral motivation x gender	-.21*	.06*	.13	.02	-.04	.02

^aVariable only included in the second model.

† $p < .10$. * $p < .05$. ** $p < .01$. *** $p < .001$.

The first regression model showed that prosocial behavior as rated by the mothers at t_1 was significantly predicted by the independent variables, $R^2 = .17$, $F(6, 137) = 4.31$, $p < .01$. As can be seen in Table 3, prosocial behavior was significantly predicted by sympathy. Further, the interaction between sympathy and moral motivation and the interaction between moral motivation and gender significantly predicted prosocial behavior. To further analyze the interaction between sympathy and moral motivation, the slopes were calculated using the program ZumaStat, and the interaction was plotted using the procedure outlined by Aiken and West (1991). The slopes for low, moderate, and high moral motivation ($-1 SD$, $0 SD$, and $+1 SD$) were .41, .25, and .09, $ps < .001$, for the first two slopes and nonsignificant for the third. As can be seen in Figure 1, children with high moral motivation were high in prosocial behavior, regardless of their level of sympathy. In children with low and moderate moral motivation, level of prosocial behavior increased with level of sympathy.

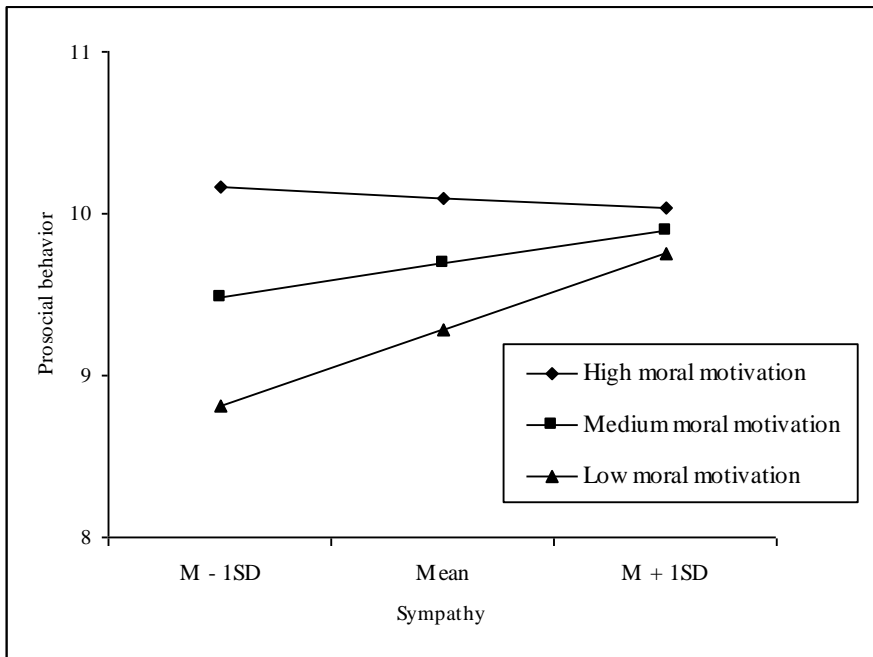


Figure 1. Interaction of sympathy with moral motivation: Prediction of mother-rated prosocial behavior at t_1 .

The interaction between moral motivation and gender was also significant. To further analyze the interaction between gender and moral motivation, the slopes were calculated, and interaction was plotted (see figure 2). The slopes for boys and girls were .15 and -0.03, $p < .05$ and *ns*.

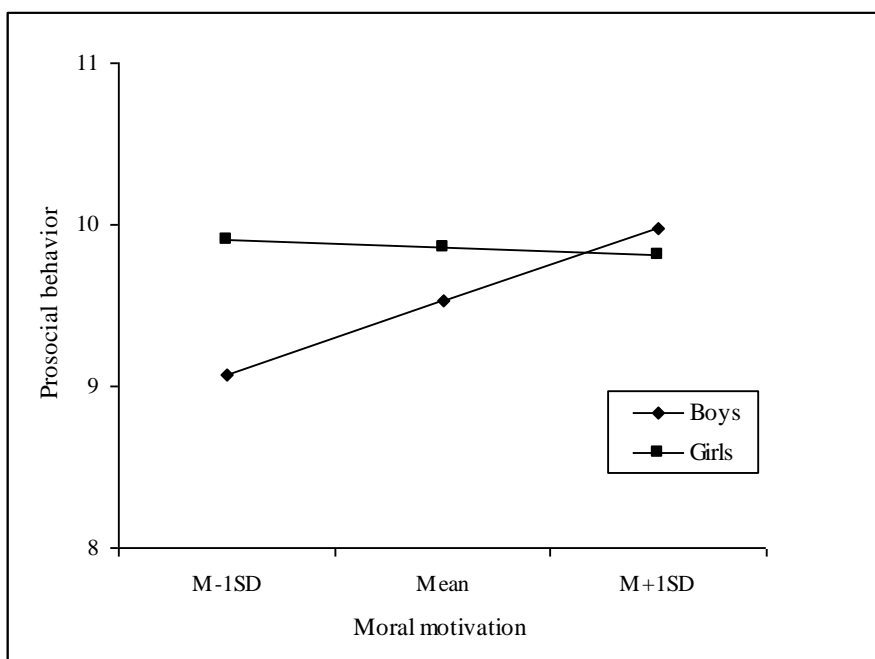


Figure 2. Interaction of moral motivation with gender: Prediction of mother-rated prosocial behavior at t_1 .

As can be seen in Figure 2, boys' level of prosocial behavior increased with level of moral motivation, whereas girls' level of prosocial behavior did not depend on the level of moral motivation.

The results of the second regression model regarding mother-rated prosocial behavior at t_2 showed that prosocial behavior was significantly predicted by the independent variables as well, $R^2 = .32$, $F(7, 122) = 7.73$, $p < .01$. Prosocial behavior at t_2 was significantly predicted by gender, sympathy and mother-rated prosocial behavior at t_1 , but the interaction terms were not significant. Although sympathy was significant in the final model, it should be noted that it was not significant in the second step of the model.

In the third regression on prosocial behavior as rated by the kindergarten teachers at t_1 , prosocial behavior also was significantly predicted by the independent variables, $R^2 = .19$, $F(6, 138) = 5.24$, $p < .01$. Due to the high correlation between kindergarten-teacher rated sympathy and kindergarten-teacher rated prosocial behavior, $r(144) = .69$, $p < .01$, kindergarten teachers' ratings of sympathy were not included in the aggregated sympathy score in this regression model. Prosocial behavior as rated by the kindergarten teachers was significantly predicted by female gender and high sympathy.

Discussion

The purpose of the current study was to investigate the contemporaneous and longitudinal relation of children's prosocial behavior to their sympathy and moral motivation. Moreover, the study examined whether moral motivation has a moderating effect on the relation between sympathy and prosocial behavior. The moderating role of

gender in the relations between sympathy or moral motivation and prosocial behavior was also explored.

Mothers' ratings of prosocial behavior were both contemporaneously and longitudinally related to the child's sympathy. The latter finding remained significant after controlling for mother ratings of prosocial behavior at t_1 , even though the effect of sympathy on the longitudinal prediction of mother-rated prosocial behavior showed some instability in the regression model. Similarly, the child's sympathy predicted the contemporaneous kindergarten teachers' ratings of prosocial behavior. These results predominantly confirm previous studies regarding the role of dispositional empathy/sympathy on prosocial behavior (see Eisenberg & Fabes, 1998). The relations of children's sympathy to mothers' and kindergarten teachers' ratings of prosocial behavior may imply that these two dimensions conceptually overlap. For example, it is possible that sympathy is perceived as a motivational component of an altruistic orientation, and the prosocial behavior as the expression of the same altruistic orientation, but at a different, i.e. behavioral, level.

Furthermore, there was a relation between boys' moral motivation in the context of victimizer and self-as-victimizer and prosocial behavior, although moral motivation in the context of self-as-victimizer was only marginally related to prosocial behavior. For girls, there was no association between moral motivation and prosocial behavior, thus partially contradicting the findings of previous studies on a general relation between moral reasoning and prosocial behavior. For example, a study by Woolgar, Steele, Steele, Yabsley, and Fonagy (2001) found that the justifications for anticipated emotions tended to predict five- to six-year-old children's behavior in a cheating task. The findings thus only partially confirm the theoretical assumption on a relation between moral motivation and (im)moral behavior (Nunner-Winkler, 1999) and previous research, which has documented an association between young children's

attribution of morally appropriate negative feelings, the expression of guilt, and (im)moral behaviors (see Kochanska, Gross, Lin, & Nichols, 2002; Koenig, Cicchetti, & Rogosch, 2004; Malti, 2003, 2007). The inconsistencies may partially be due to the use of different methods (behavioral observations vs. adult-ratings of prosocial behavior), and assessments of the components of moral motivation, i.e., emotion attributions and moral reasoning (e.g., perspective-taking ability vs. moral justifications). It is possible that dispositional sympathy is generally related to prosocial tendencies, given the fact that it reflects a rather stable disposition, whereas moral motivation may possibly also relate to kindergarten children's prosocial behavior, but in dependence of the situational context differently for boys and girls. The situation-dependency of emotion attributions and moral reasoning as components of moral motivation has been documented in previous studies and is explained in domain theory (Keller, Gummerum, Wang, & Lindsey, 2004; Turiel, 1983). In the present study, we included two stories on psychological and physical harm, but there was no story about omitting a prosocial act. Moral motivation expressed in such prosocial situations possibly relates more strongly to girls' prosocial moral behaviors than to the moral motivation expressed in our stories because girls are may be expected to be more empathic than boys in such situations.

Moreover, the findings demonstrated that there was a relation between moral motivation and children's sympathy. This association is not surprising, given that moral motivation includes emotion attributions and justifications of attributed emotions, and in particular the attribution of negative emotions after moral transgression may require the ability to sympathize with the feelings and needs of other children – at least to some extent. In sum, this finding may indicate the growing integration of more cognitive and more affective aspects in conscience development (Aksan & Kochanska, 2005; Gibbs, 2003; Piaget, 1965, 1981).

The results also showed that moral motivation moderated the association between sympathy and the contemporaneous mother-rated prosocial behavior: Children with high moral motivation were high in mother-rated prosocial behavior, regardless of their level of sympathy, whereas in children with low or moderate moral motivation, level of prosocial behavior increased with level of sympathy. The moderating effect of moral motivation in the relation between sympathy and prosocial behavior is very interesting and may indicate that sympathy is in particularly important in predicting prosocial behavior in the case of low or moderate moral motivation because it acts as a substitute for the lack of moral motivation. Children with high moral motivation, however, are perceived as prosocial independent of their level of sympathy. The latter finding may possibly reflect an early link between children's moral motivation and prosocial, morally relevant behavior as proposed by moral theorists (cf. Bergman, 2002; Nucci, 2001). Given that the moderating effect in the present study was limited to the prediction of the contemporaneous mother ratings of prosocial behavior, further studies are needed.

In regard to gender differences, girls were rated as more empathic and prosocial than boys by mothers and kindergarten teachers. These perceptions may partially reflect typical gender stereotypes, which may have been established through socialization influences within the family (McHale, Crouter, & Whiteman, 2003). Girls may be relatively high in mother- and kindergarten teachers' ratings due to normative beliefs that they should be prosocial. Interestingly, the girls did not report more sympathy in the present study, thus contradicting previous findings, which have found inconsistent findings regarding general gender differences in sympathy, but rather consistent gender differences especially in self-report measures of sympathy (Eisenberg et al., 2006). However, these gender differences seem to be stronger in older children (Eisenberg et

al., 2006) and thus the present lack of gender differences in the self-report measures may be due to the young age of the children in our study.

Moreover, we found a very interesting interaction effect of moral motivation and gender on prosocial behavior as rated by the mothers: Boys' level of prosocial behavior increased with level of moral motivation, whereas girls' level of prosocial behavior did not depend on level of moral motivation. This finding possibly reflects the expression of gender-specific perceptions of a child's prosociality: Mothers may rate girls generally as high in prosocial behavior, regardless of their real-life cognitions and concern for others in morally relevant situations, whereas they presumably rate boys more differentiated and may possibly integrate perceived observations of boys' moral cognitions and emotion attributions into their evaluation of prosocial behavior. This interpretation is, however, rather speculative, and future research is needed to investigate the influence of gender on the relations between prosocial behavior, the moral emotion sympathy, and moral motivation.

Overall, correlations between the mothers'- and teachers' ratings of prosocial behavior were moderate for boys and rather low for girls. This finding might indicate that mothers and kindergarten teachers use the same criteria for judging boys' prosocial behavior, but differ when evaluating girls. Previous research has reported only low to moderate relationships between different measures of prosocial behavior (e.g., Eisenberg et al., 1996; Eisenberg, Fabes, Shepard, et al., 1998; Ensor & Hughes, 2005; Gummerum et al., 2006), which resonates with the findings of the current study.

In sum, the findings predominantly confirmed the hypothesis that there are relations among prosocial behavior, sympathy, and moral motivation. In particular, sympathy was related to prosocial behavior. Furthermore, boys' moral motivation was associated with prosocial behavior. The hypothesis about the moderating effect of moral motivation on sympathy and prosocial behavior was partly confirmed as well:

Contemporaneous mother-rated prosocial behavior was high in children with high moral motivation, regardless of their level of sympathy, whereas level of sympathy mattered for the children with low or moderate moral motivation. Moreover, boys' prosocial behavior as rated by the mothers increased with level of moral motivation, whereas girl's level of prosocial behavior was not related to level of moral motivation.

This study is not without limitations, however: First, we only used self- and other-report measures of sympathy and prosocial behavior and did not include behavioral observations or physiological correlates. Social desirability is known to be a weakness of self-report measures (Eisenberg et al., 2006). Second, there was rather moderate reliability of the longitudinal prosocial behavior rating, thus indicating that the homogeneity of the scale was only just satisfactory. Nonetheless, the reliability of the other two ratings was better, being similarly predicted by sympathy. Given that the SDQ is a common measure to use with parents and kindergarten teachers, the moderate reliability may be due to the methodology used at t_2 , i.e. a telephone interview, which possibly caused lower face validity for the items.

Further research is needed to validate and extend these findings. In particular the longitudinal investigation of children's sympathy and moral motivation and their relations to prosocial, moral behaviors may shed light on the precursors of moral identity formation (Lapsley & Narvaez, 2004).

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