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BEHAVIOR

Children's Moral Motivation, Sympathy, and Prosocial Behavior

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Abstract

Two studies investigated the role of children's moral motivation and sympathy in prosocial behavior. Study 1 measured other-reported prosocial behavior, and self- and other-reported sympathy. Moral motivation was assessed by emotion attributions and moral reasoning following hypothetical transgressions in a representative longitudinal sample of Swiss 6-year-old children ($N = 1,273$). Prosocial behavior increased with increasing sympathy, especially if children displayed low moral motivation. Moral motivation and sympathy were also independently related to prosocial behavior. Study 2 extended the findings of Study 1 with a second longitudinal sample of Swiss 6-year-old children ($N = 175$) using supplementary measures of prosocial behavior, sympathy, and moral motivation. The results are discussed in regard to the precursors of the moral self in childhood.

Children's Moral Motivation, Sympathy, and Prosocial Behavior

The question of what processes underlie prosocial behavior has been investigated in psychology for decades. In the research presented here, prosocial behavior is defined as social behavior that benefits another person (Eisenberg, 1982). Most developmental psychologists would agree that both cognitive and emotional factors are related to, and possibly underlie, such prosocial actions (Keller, 1996; 2004; Keller & Edelstein, 1993). Developmental researchers in moral psychology differ, however, in regard to the importance they assign to moral cognition and moral emotion in the genesis of prosocial, morally relevant behavior. Cognitive-structural and domain theorists (e.g., Kohlberg, 1969; Smetana, 2006) have maintained that moral judgment based on universal norms of fairness and care remains at the core of morality (see Nussbaum, 1992); the maturity of a person's moral reasoning in complex moral situations is the most important factor in moral action (Kohlberg & Candee, 1984). On the other hand, researchers such as Hoffman (2000; see also Blum, 1980; Eisenberg, 1986) have argued that moral emotions such as sympathy (feelings of concern for the other person based on an understanding of that person's circumstances) constitute the basic motive in situations calling for moral actions.

Recently, social-cognitive researchers have called for a more integrative developmental view on moral judgment and moral emotion and their role in moral action (Arsenio & Lemerise, 2004; Smetana & Killen, 2008). Research by Arsenio and colleagues (e.g., Arsenio, Gold, & Adams, 2006) has given particularly strong evidence for the interconnectedness of moral judgment and moral emotion. Accordingly, children judge moral transgressions negatively because they experience them as emotionally salient and associate moral emotions such as sympathy with these events (Arsenio, 1988; Arsenio & Lemerise, 2004; Smetana & Killen, 2008). In contrast, transgressions in the conventional or personal domain are experienced as emotionally neutral events (Arsenio & Ford, 1985). Thus, children's moral judgment is essential to morality, whereas moral emotions, particularly sympathy, are assumed to help children to

anticipate the (negative) outcomes of sociomoral events and to coordinate their moral action tendencies accordingly (Arsenio, 1988; Arsenio & Lemerise, 2004).

In the research presented here, we appealed to this important theoretical notion, and we aimed to integrate moral motivation and sympathy in an effort to better understand their relative and independent meaning for children's prosocial actions. We conceptualized moral motivation as the readiness to abide by a moral rule that a person understands to be valid, even if this motivation is in conflict with other, amoral desires and motives (Nunner-Winkler, 1999, 2007). By this definition, moral motivation has a strong cognitive component, as a child must first understand the validity of moral rules (Krettenauer, Malti, & Sokol, 2008). Social domain studies have provided ample evidence that already at 4 years of age, children have developed an understanding of the validity of norms of justice and care, and they are able to distinguish moral norms from other social rules (Turiel, 1983; Smetana & Killen, 2008). However, this moral knowledge is not necessarily experienced as personally binding and may remain seen as external to the self (Blasi, 1984). Moral motivation thus implies that a child not only understands, but also personally accepts the validity of these moral norms. This personal commitment requires reflection upon and acceptance of responsibility for one's moral transgressions.

In this research, we assessed children's moral motivation by emotion attributions and their justifications following moral transgressions, because the attribution of moral (i.e., negative) emotions and deontological or altruistic justifications reflect the child's personal acceptance of the rule validity (Arsenio et al., 2006; Keller, 1996; Mascolo & Fischer, in press; Montada, 1993; Nunner-Winkler, 1999). For example, a preschool girl who attributes to herself feelings of guilt after having pushed another child off the swing and who explains this attribution by altruistic arguments must engage her reflective abilities to predict her emotions, but she also must coordinate this prediction with the anticipated (emotional) consequences for self and others (e.g., the victim) from a moral stance (Arsenio, 1988;

Krettenauer et al., 2008). Moral emotion attributions and deontological or altruistic justifications then indicate the result of this coordination process and reflect that the girl has accepted responsibility for her (immoral) conduct. Moral motivation thus includes not only judgments pertaining to the validity of moral rules, but also a self-reflective process and acceptance of responsibility for one's transgressions, the latter being motivationally efficacious (Blasi, 1983, 2004).

Clearly, systematic empirical data supporting the theoretically assumed, but not actually proven, relations between children's moral motivation, sympathy, and prosocial actions would contribute to integrative developmental research. To obtain such data was the main objective of this research. In the present study, we therefore (1) analyzed the concurrent and longitudinal interrelations among moral motivation, sympathy, and prosocial behavior in a large representative sample of kindergarten children from Switzerland, using self- and other-reports, and (2) extended the findings of the first study by investigating these interrelations with a new longitudinal sample of kindergarteners, using a multi-informant, multimethod approach that included behavioral measures. These relations have been examined very rarely in middle childhood, and most of the related research has been carried out with middle-class children in the United States. This study is thus well suited to fill some of the research gaps concerning the role of moral motivation and sympathy in children's prosocial actions.

*The First Goal: Moral Motivation as a Moderator of Sympathy and Prosocial Behavior*

Sympathy is generally viewed as a quintessential moral emotion, and it has been regarded as an important cause of moral behavior in some philosophical theories of morality (e.g., Hume, 1751/1957). Batson's (1991) research with adults has shown that sympathy (which he calls empathy) leads to altruistic reactions intended to alleviate another person's negative emotions (empathy-altruism hypothesis). Developmental studies have supported a positive relationship in children between different measures of sympathy (i.e., behavioral or physiological reactions, and self- and other-reports) and prosocial behavior (e.g.,

Trommsdorff, Friedlmeier, & Mayer, 2007; Zahn-Waxler, Cole, Welsh, & Fox, 1995; see Eisenberg, Spinrad, & Sadovsky, 2006, for a review). Despite this ample empirical evidence for a positive relation between sympathy and prosocial behavior, a meta-analysis by Eisenberg and Miller (1987) revealed that the relation is rather modest in strength, as is the relation between moral reasoning and moral action (Blasi, 1983). Researchers have therefore argued that a further analysis of the motives and moderators of prosocial behavior is needed (Eisenberg, 2000).

From a social-cognitive perspective, sympathy is likely to conjointly with moral judgment influence moral action, because both sympathy and moral judgment require role-taking ability and therefore are likely to be interrelated (Helwig, 2008). Hoffman (2000) has argued that moral emotions and moral judgment may be congruent dispositions and thereby mutually support moral action. For example, sympathy for a victim may be aggravated by the judgment of being responsible to care about his or her fate and thereby support a child's prosocial action tendency. Despite this important argument, only very few studies have assessed how moral judgment moderates the relation between sympathy and prosocial behavior in children. One study by Miller et al. (1996) examined the combined effects of sympathy and moral reasoning on the prosocial behavior of preschoolers. Sympathetic children with high levels of prosocial moral reasoning were more prosocial than children with low sympathy. Within the group of children using low levels of prosocial moral reasoning there was no difference in helping behavior between high- and low-sympathy children. This study documents a moderating effect of moral reasoning in the relation between sympathy and prosocial behavior. Malti, Gummerum, and Buchmann (2007) are the first who directly investigated moral motivation as a moderator and found that children with high moral motivation scored high on measures of prosocial behavior, regardless of their sympathy. In children with low and moderate moral motivation, prosocial behavior increased with increasing sympathy. On the basis of this preliminary empirical evidence, we aimed to

analyze the effect of moral motivation on the relation between sympathy and prosocial behavior in more detail.

*The Second Goal: Associations Between Moral Motivation and Prosocial Behavior*

An individual's motivation to act prosocially is complex and may involve conflicting motives (Puka, 2004). People differ in their moral motivation, and theories on moral development have emphasized that these differences account for moral actions (Rest, 1986).

In developmental psychology, children's moral motivation has been most prominently investigated within the happy-victimizer paradigm (see Arsenio et al., 2006, and Krettenauer et al., 2008, for reviews). In this research, children are confronted with rule violations in different morally relevant contexts in order to study the attribution of emotions and the justifications of these attributions (e.g., Nunner-Winkler & Sodian, 1988). Theoretically, negative feelings after a moral violation (e.g., guilt) and deontological or altruistic arguments indicate that the transgressor personally accepts the validity of a moral rule. As such, emotion attributions and deontological arguments are an inherent motive to act morally (Keller, 1996; Mascolo & Fischer, in press; Nunner-Winkler, 1999, 2007). This argument has been supported by experimental studies showing that children who attributed negative emotions to wrongdoers resisted a real-life temptation to cheat (Asendorpf & Nunner-Winkler, 1992).

Even though moral motivation and (im)moral action are intimately linked from a theoretical point of view, only a handful of studies have examined this relation empirically, and the majority of them have focused on immoral (i.e., aggressive) behavior. For example, several studies have documented that children and adolescents demonstrating aggressive behavior show less moral motivation (self-attributed negative emotions and moral/empathic justifications in the happy-victimizer-task) than children and adolescents who do not exhibit aggressive behavior (Arsenio, Gold, & Adams, 2004; Krettenauer & Eichler, 2006; Malti & Keller, in press). Only two studies so far have explored moral motivation in relation to moral (i.e., prosocial) behavior. Gummerum, Keller, Rust, and Hanoch (2007) showed that

preschool children with high moral motivation also shared more attractive stickers in a prosocial dilemma situation. Malti et al. (2007) found that moral motivation was related to mother-rated prosocial behavior in 6-year-old kindergarten children. In the present study, we followed up on these findings by examining the role of moral motivation in children's prosocial behavior more systematically. We deliberately chose to investigate emotions attributed to the self in the role of victimizer and their justifications as indicators of moral motivation, because our previous research had provided evidence that self-attributed emotions effectively tap personally relevant moral convictions (Keller, Lourenço, Malti, & Saalbach, 2003) and relate closely to children's social behavior, whereas emotions attributed to hypothetical victimizers do not (Malti, 2007). Neuropsychological studies support the role of self-relevance in moral judgment, as the amygdala seems to be activated only when participants consider stories about their own rule transgressions, but not those of others (Berthoz, Grezes, Armony, Passingham, & Dolan, 2006).

Study 1

In the first study, we investigated the independent and combined effects of moral motivation and sympathy on prosocial behavior in a representative longitudinal sample of Swiss kindergarten children. This sampling procedure provided the opportunity to assess the relation between these variables across different (sub)populations and might therefore help to validate previous findings that used the more common North American middle-class samples. The question of how moral motivation is related to children's sympathy and prosocial behavior has been studied very rarely in previous research. This is a surprising lacuna, given that morality theorists have elaborated on the important role played by moral motivation in morally relevant, prosocial behavior (Blasi, 2004; Bergman, 2002).

To sum up, the first study pursued two research questions. First, we examined the moderating role of moral motivation on the relation between sympathy and prosocial behavior. In line with previous research findings, we hypothesized that sympathy would

predict prosocial behavior. Based on previous research by Malti et al. (2007), as well as

findings on moral motivation and aggressive behavior (Arsenio & Fleiss, 1996; Gasser &

Keller, in press), we also assumed that children with high moral motivation would

compensate for a relative lack of sympathy by displaying high levels of prosocial behavior.

Second, we investigated the independent role of moral motivation in prosocial behavior. We

expected high moral motivation to be positively associated with prosocial behavior, because

high moral motivation expresses a sense of moral responsibility and thereby constitutes a key

motive to act morally. As previous research has revealed sex differences in the variables of

this study (Kienbaum, 2008; Nunner-Winkler, Meyer-Nikele, & Wohlrab, 2007), we

controlled for sex. Likewise, we controlled for socioeconomic background, as it has been

shown to relate to the study variables (Edelstein, Keller, & Schröder, 1990). Finally, we

considered the context dependency of moral motivation, because both domain and happy-

victimizer research has revealed that children judge rule violations to be more objectionable

for negative duties such as stealing than for positive duties such as not sharing (Nunner-

Winkler, 1999; Smetana, 2006).

*Method*

The data were taken from the first and second waves of the Swiss Survey of Children

and Youth (Buchmann et al., 2007). This representative longitudinal survey investigates the

life course and development of three age groups (6, 15, and 21 years), using a multi-informant

approach. The present analysis is based on the data of the 6-year-olds.

*Participants*

A representative random sample from the German- and French-speaking parts of

Switzerland was drawn by a two-stage process in which 131 communities (broken down by

community type and community size) were selected. The residents of each community were

then randomly sampled on the basis of information provided by the community's official

register. The final response rate was 78%. The sample was weighted to correct for an

oversampling of particular community types, nonrespondents, and a moderate underrepresentation of lower educational strata and certain nationalities (Buchmann et al., 2007). The final sample consisted of 1,273 children with an average age of 6.17 years ($SD$ = 0.22). There were 628 girls (49%) and 645 boys (51%). The 1,273 primary caregivers, 93% of whom were mothers, were interviewed, and 1,266 (99%) of them filled in a supplementary questionnaire. In 869 cases (68%), the child's kindergarten teacher filled in a questionnaire. As for the socioeconomic background of the primary caregivers, 17% had little or no secondary education, 44% had vocational training, 12% had attended vocational school, 18% had a baccalaureate degree or an advanced vocational diploma, and 8% had a university degree. Eighty percent of the primary caregivers were Swiss, 18% were of other European nationalities, and 2% were non-European. The great majority of participants were Caucasian.

At the second assessment, which was conducted one year after the first, 1,172 of the primary caregivers (92%) participated in an initial telephone interview and 1,013 (80%) filled in a supplementary questionnaire.

We analyzed sample attrition in terms of demographic variables (highest primary caregiver education, marital status, family income) and the primary study variables at the first assessment (T1). Further, we compared the primary caregivers who filled out the questionnaire at T1 ($N$ = 1,266) with the primary caregivers who did not fill out the questionnaire at the second assessment (T2; $N$ = 253), because we used the data from the primary-caregiver-questionnaires at T1 and T2 for the assessment of the dependent variable (prosocial behavior). The T2 nonresponders reported a lower educational background, $t(1258)$ = 7.16, $p < .001$, Cohen's $d$ = .40, and lower family income, $t(1098)$ = 3.84, $p < .001$, Cohen's $d$ = 0.23, than the T1 responders.

*Procedure*

At the first assessment (spring 2006), the children and primary caregivers were individually interviewed at home via a computer-assisted personal interview (CAPI). Written

informed parental consent for participation was obtained. Both interviews lasted about 25‒30 min and contained questions about the child's social development as well as the most important socialization factors. During the interview of the child, the primary caregiver filled out a supplementary questionnaire measuring the child's social development. The child's kindergarten teacher filled out a questionnaire on the child's social development and returned it by mail. At the second assessment (spring 2007), a computer-assisted telephone interview (CATI) was conducted with the primary caregiver, who was then mailed the child social development questionnaire. Forty-four female interviewers, recruited from a professional research institute specializing in social science interviewing, conducted the interviews. They had been intensively trained by the research team, especially in techniques for interviewing children.

*Measures*

As the sample contained both German- and French-speaking participants, all the measures were translated from German to French by native speakers and then retranslated to correct ambiguous meanings. The children were interviewed in their primary language. A pilot study was conducted with 214 6-year-old kindergarten children to ensure the adequacy of the interview techniques and questions (Buchmann et al., 2007). As the primary caregivers were predominantly the mothers, we refer to "mothers" in the following.

*Prosocial behavior.* Mothers and kindergarten teachers evaluated the prosocial behavior of the children on a 4-point scale using three items (four items for the kindergarten teachers) of the prosocial behavior subscale of the Strength and Difficulties Questionnaire (SDQ; Goodman, 1997); for example, "My child/the child is helpful if someone is hurt, upset or feeling ill." This subscale of the SDQ is a validated and widely used measure of children's prosocial behavior (e.g., Becker, Woerner, Hasselhorn, Banaschewski, & Rothenberger, 2004). The mothers rated prosocial behavior at both assessments. Cronbach's α for the

mothers' ratings was .63 at T1 and .71 at T2; for the ratings by the kindergarten teachers, it was .78 (T1 only).

*Sympathy.*  The children's sympathy was assessed at T1 by (a) children's self-reports, (b) mothers' ratings, and (c) kindergarten teachers' ratings. The scale for the children consisted of five items from Zhou, Valiente, and Eisenberg (2003); for example, "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. They were told to answer spontaneously and not think too long about their answers. 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. Cronbach's α for the sympathy scale was .68. The mothers and the kindergarten teachers responded to three items from Zhou et al. (2003) to rate the children's sympathy; for example, "My child usually feels sorry for other children who are being teased." The reliabilities of the scales were .69 for the mothers' ratings at T1, .71 for the mothers' ratings at T2, and .91 for the kindergarten teachers' ratings at T1.

*Moral motivation.*  The children's moral motivation was measured at T1 by having them respond to two hypothetical rule violations: not sharing a pencil and stealing another child's chocolate. These stories were chosen because they vary in content and severity of the transgression: The first is the neglect of a positive, prosocial duty (not sharing), which is less objectionable and creates less psychological harm than the second, stealing (Nunner-Winkler, 1999). The two scenarios, which have been validated in previous research within the happy-victimizer paradigm (Keller et al., 2003), consist of a three-frame sequence of gender-matched cartoons. For the first story, the child is read the following text: "The child is drawing a picture. A second child [victim] asks to share one pencil, but the protagonist [victimizer] refuses." In the second story (stealing), a child [victim] leaves his or her jacket with a nice chocolate bar in the kindergarten hall (cartoon 1). Another child [victimizer] takes the chocolate bar (cartoon 2). In cartoon 3, the first child [victim] realizes that the chocolate

bar has been stolen. Afterwards, the children were asked the following questions: (a)

Understanding of rule validity: "Is it right, what the protagonist did?" "Why/ why not?" (b)

Attribution of emotion to self as victimizer: "How would you feel afterwards if you had done

this?" "Why?"

Understanding of rule validity was coded 0 (right) and 1 (wrong). Not sharing was

judged to be wrong by 91% of the children ($M = .91$, $SD = .29$) and stealing by 95% ($M = .95$,

$SD = .21$). Attributed emotion was coded 0 (positive) and 1 (mixed or negative); mixed

emotions occurred very rarely. For the not-sharing story, 73% of the children attributed mixed

or negative emotions to the self as victimizer; for the stealing story, it was 83%. The

justifications were assessed from the open-ended questions in the CAPI interview and later

placed in the following categories: (a) moral reasons, which refers to norms, rules, obligations

(e.g., "It is not fair to steal"), (b) empathic concern for the victim (e.g., "The other child will

be sad"), (c) sanction-oriented reasons, which refers to sanctions by an authority (e.g., "The

kindergarten teacher may find out and get angry."), (d) hedonistic, self-serving reasons (e.g.,

"He just likes all pencils so much"), (e) unelaborated reasons, which reflect undifferentiated

statements (e.g., "It is not nice/ He has the pencils"), and (f) other, unclassifiable, or no

reasons. All responses were probed at the time of the interview, and the results of the probing

figured into the coding. For example, if a child had initially responded "because it is not

right" and then after probing said "because you should not steal," this reasoning was coded as

moral. In contrast, if a child had answered after probing "because the teacher will find out and

you will get into trouble," this was coded as sanction-oriented. If the child did not change or

add to the initial response, the original answer was coded. As children mentioned more than

one justification after probing very infrequently (1%), only one argument was coded. A

child's answer was coded 1 if it was assigned to a category and 0 if it was not. For the

prosocial duty (not sharing), 30% of the children justified the attributed emotions with moral

or empathic reasons, 7% mentioned an authority, 14% gave hedonistic arguments, and 49%

gave unelaborated arguments. For the more severe transgression (stealing), 38% of the children referred to moral or empathic reasons, 14% mentioned sanctions by an authority, 12% gave hedonistic arguments, and 36% gave unelaborated arguments. These frequencies are consistent with those reported in other studies on moral rationales for emotion attribution in this age group (e.g., Malti, Gasser, & Gutzwiller-Helfenfinger, 2008).

Two independent coders rated a randomly selected half of the transcripts. Interrater reliability was determined by the raters' independent coding of a randomly selected subsample of 77 interview transcripts (i.e., 6% of the data). The interrater agreement was very good ($\kappa = .90$). The raters discussed disagreements with each other until a consensus was reached and the consensus was then coded. To ensure high-quality coding, 64 randomly chosen transcripts (i.e., 5% of the data) from each coder were independently coded by the first author. Disagreements remained in just a few cases; these were discussed and the consensus solution coded.

*Coding of moral motivation.* A score combining self-attributed emotions and the corresponding justification was calculated to measure moral motivation (see Malti et al., 2007; Nunner-Winkler, 1999). This coding procedure reflects the theoretical conceptualization of moral motivation described in the introduction, and it has been shown to be a valid measure of moral motivation (Nunner-Winkler, 2007; Nunner-Winkler et al., 2007). As the attributed emotions and the justifications are not independent, a scoring procedure similar to that proposed by Eisenberg (1986) was used (Nunner-Winkler, 2007): A score of 0 indicates self-attribution of positive emotion justified by hedonistic reasons, unelaborated reasons, unclassifiable reasons, or no reasons. (In fact, no child who attributed positive emotions gave moral or empathic reasons for them.) A score of 1 indicates self-attribution of negative emotion justified by sanction-oriented reasons, unelaborated reasons, unclassifiable reasons, or no reasons. A score of 2 indicates self-attribution of negative emotion justified by moral or empathic reasons. The mean score for moral motivation regarding a prosocial duty

(not sharing) was 0.94 ($SD = 0.70$; range: 0–2); for harm (stealing), the mean was 1.14 ($SD = .69$, range: 0–2).

<div align="center"><em>Results</em></div>

*Descriptive Statistics*

Table 1 shows the mean scores of the study variables by sex. As 93% of the children understood validity of the rules, this variable was dropped from further analyses.

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Insert Table 1 here

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Mothers rated girls as more prosocial than boys at T1, $t(1190) = 5.55$, $p < .001$, Cohen's $d = 0.29$, and at T2, $t(1011) = 6.06$, $p < .001$, Cohen's $d = 0.38$. Likewise, kindergarten teachers rated girls as more prosocial than boys at T1, $t(854) = 8.67$, $p < .001$, Cohen's $d = .0.66$. Girls were rated as more sympathetic than boys at T1 by their mothers, $t(1162) = 3.59$, $p < .001$, $d = 0.34$, and their teachers, $t(845) = 7.03$, $p < .001$, Cohen's $d = 0.55$.

The correlations among the study variables are presented in Table 2.

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Insert Table 2 here

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In the following summary, we report only correlations $> = .10$, because small correlations reach significance due to the large sample size, and correlations $< .10$ are considered to represent a small effect size (Valentine & Cooper, 2003). Mother-rated prosocial behavior at T1 is positively related to teacher-rated prosocial behavior at T1, and to mothers' and teachers' ratings of sympathy at T1. Mother-rated prosocial behavior at T2 is positively associated with mother- and teacher-rated prosocial behavior and sympathy at T1. Teacher-

rated prosocial behavior at T1 is positively related to teachers' ratings of sympathy at T1.

Mother-rated sympathy is positively associated with teacher- and child-rated sympathy at T1.

Mother-rated prosocial behavior at T1 and T2, teacher-rated prosocial behavior at T2, and

mother-rated sympathy at T1 are all higher for the female children. Moral motivation in both

contexts is positively associated with child-rated sympathy and moral motivation in the

context of harm. Moral motivation in the context of harm is positively associated with

prosocial moral motivation and with teacher-rated prosocial behavior at T1.

*Prediction of Prosocial Behavior by Sympathy and Moral Motivation*

Three separate regression models were run, with (a) the mothers' ratings of prosocial

behavior at T1, (b) the teachers' ratings of prosocial behavior at T1, and (c) the mothers'

ratings of prosocial behavior at T2, as dependent variables. As independent variables, we

entered gender, sympathy, the two moral motivation scores, the interaction terms, and mother-

rated prosocial behavior at T1 (only for the prediction of mother-rated prosocial behavior at

T2). All variables were *z*-standardized, and the 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

two interactions: (a) moral motivation in the context of the stealing story and sympathy, and

(b) moral motivation in the context of the not-helping story and sympathy. As mother-rated

sympathy and mother-rated prosocial behavior at T1 are highly correlated, as are teacher-rated

sympathy and prosocial behavior at T1, we dropped the within-rater sympathy variables in

these two models and aggregated the two remaining scores to create an overall final sympathy

score. For example, we used mother- and child-rated sympathy to predict teacher-rated

prosocial behavior. The independent variables were entered in two steps: gender, sympathy,

and moral motivation were entered in the first step and the interaction terms in the second.

Only the interactions that were significant in the preliminary analyses were retained in the

final models. We also conducted preliminary analyses to test the influence of socioeconomic

status (SES) on the dependent variables. As there was no significant influence, we dropped

SES from further analyses. The results of the final analyses are displayed in Table 3.

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Insert Table 3 here

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Mother-rated prosocial behavior at T1 is predicted by sympathy and gender, $R^2$ = .04,

$F(4, 973) = 9.22$, $p < .001$. Cohen's $f^2$ is .04, which indicates a small effect size (Cohen,

1977). Mother-rated prosocial behavior at T2 is predicted by prosocial behavior at T1 and

gender, $R^2$ = .28, $F(6, 806) = 52.18$, $p < .001$, Cohen's $f^2$ = .39 (large effect size).

Teacher-rated prosocial behavior at T1 is predicted by sympathy, gender, and by the

interaction of sympathy and moral motivation in the prosocial context, $R^2$ = .11, $F(5, 684) =$

16.36, $p < .001$, Cohen's $f^2$ = .12 (medium effect size). To further investigate the interaction,

we plotted it using the procedure of Aiken and West (1991). The slopes for low, moderate,

and high moral motivation (- 1 $SD$, 0 $SD$, and +1 $SD$) are .33, .23, and .09. The first two

slopes are significant ($p < .01$). Children with high moral motivation scored high on teacher-

rated prosocial behavior, regardless of their level of sympathy. In children with low or

medium moral motivation, prosocial behavior increases with increasing sympathy (see Figure

1).

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Insert Figure 1 here

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*Discussion*

This study analyzed the relations among sympathy, moral motivation, and prosocial

behavior in a representative longitudinal sample of 6-year-old Swiss kindergarten children.

The first goal was to investigate the moderating role of moral motivation in the relation

between sympathy and prosocial action. Moral motivation moderated the relation between

sympathy and teacher-rated prosocial behavior at T1: Children with medium or high moral motivation showed high prosocial behavior, regardless of their sympathy. However, in children with low moral motivation, prosocial behavior increased with increasing sympathy. This moderating effect may indicate that sympathy is a particularly important predictor of prosocial behavior in children with low moral motivation, because it acts as a substitute for the lack of moral motivation. Children with high moral motivation, on the other hand, are perceived as prosocial regardless of their sympathy. This latter finding possibly reflects an early developmental link between children's moral motivation and prosocial, morally relevant behavior, as proposed by morality psychologists (Bergman, 2002). Thus, high moral motivation may reflect a child's personal commitment to the moral rule and thereby constitute an impetus for moral action (Blasi, 2004; Haste, 1990; Walker, 2004). This result is in line with those of our previous study (Malti et al., 2007), but it extends them by showing that these relations are valid in a representative sample.

By documenting that level of sympathy predicts children's prosocial behavior, we confirm previous research (Eisenberg & Fabes, 1998), but we also extend it by showing that the link is not restricted to a particular socioeconomic or cultural group. In the present study, mothers' and kindergarten teachers' ratings of prosocial behavior were associated with the child's sympathy in a representative sample of kindergarteners. This result supports the hypothesis that sympathy is an important motive for prosocial action.

Moral motivation was associated with teacher- and child-rated sympathy. These findings indicate the interconnectedness of moral emotion and moral judgment, as proposed by social-cognitive theorists (Arsenio et al., 2006; Piaget, 1965, 1981). As moral motivation was conceptualized as expressing a moral-responsibility judgment, the findings support Helwig's (2008) argument that children are likely to draw upon their empathic ability in constructing moral judgments.

The second goal of Study 1 was to investigate the association between moral motivation and prosocial behavior. Morality theorists have emphasized that moral motivation plays an important role in (prosocial) moral action (Blasi, 2004). Empirical data are, however, largely nonexistent, and we know very little about these relations in childhood. Our bivariate analyses showed that moral motivation in the prosocial context was directly related to mother-rated concurrent and longitudinal prosocial behavior, whereas moral motivation in the context of harm was associated with teacher-rated prosocial behavior. These findings provide the first evidence for the direct role of moral motivation in children's prosocial action (Malti et al., 2007). Notwithstanding the significance of this result, we cannot completely exclude the possibility that the findings are limited to the particular measures used in the study. Although this was a representative longitudinal study with a large sample of children, the measures were somewhat restricted. Further, only one of the three regression models revealed a moderator effect of moral motivation. Therefore, we do not know if different measures would yield different results. In the second study, we remedied this desideratum by adding more behavioral measures of prosocial behavior and sympathy, and an expanded measure of moral motivation.

<center>Study 2</center>

In Study 2, we undertook a more detailed investigation of the interrelations among prosocial behavior, sympathy, and moral motivation, testing a new longitudinal sample of children with additional behavioral measures of sympathy and prosocial behavior and expanded measures of moral motivation. By using multiple methods, we aimed to reinvestigate if the prediction of prosocial behavior is strengthened when additional measures of sympathy and expanded measures of moral motivation are examined. Previous research by Denham (1986) suggests that particularly observational measures of prosocial behavior may help to demonstrate early links between prosocial behavior, moral emotions, and moral cognition, because they are of higher contextual validity (i.e., related to the social context and

ability of young children) than other- and self reports. On the other hand, we also aimed to validate the findings of Study 1. To the best of our knowledge, no previous study has investigated these relations in middle childhood longitudinally using a multi-informant, multimethod approach. This strategy may help disentangle previous inconsistencies in the relation between sympathy and prosocial behavior, which may be caused in part by the method of measurement (Roberts & Strayer, 1996).

The sympathy-altruism hypothesis has been criticized as misleading, because it conceptualizes sympathy as a spontaneous emotion resulting directly from a particular social situation (Puka, 2004). This hypothesis fails to acknowledge that sympathy may require role-taking ability; it also may be connected to individual motives, values, and moral judgment in important ways (Arsenio et al., 2006; Helwig, 2008). Following this line of reasoning, we argued in Study 1 that moral motivation and sympathy are critical motives for moral and prosocial action and may independently and conjointly contribute to children's prosocial behavior. In line with the findings of Study 1, we assumed that sympathy would independently predict prosocial behavior across measures, and that moral motivation would moderate the relation between sympathy and prosocial behavior. We also expected moral motivation to be directly associated with prosocial behavior. To allow for comparison of the findings from Studies 1 and 2, we controlled for sex, socioeconomic background, and the context of moral motivation.

*Method*

The data were taken from the first and second waves of a second Swiss longitudinal survey concerning the development of social competence from childhood to adolescence (Buchmann et al., 2007).

*Participants*

A random sample of kindergarten children and their primary caregivers was drawn from residents of the canton of Zurich in Switzerland. Written informed consent was

obtained from the primary caregivers. Interviews were conducted at T1 with 175 children and 175 primary caregivers. One-hundred sixty-three of the primary caregivers (93%) filled in a supplementary questionnaire. The children had an average age of 6.1 years ($SD = 0.19$). There were 85 girls (48.6%) and 90 boys (51.4%). Of the primary caregivers, 98% gave us written consent to contact the child's kindergarten teacher, and 133 of the corresponding kindergarten teachers filled in a questionnaire (77%). The primary caregivers were predominantly mothers (90.3%), of whom 85% were Swiss nationals and 15% were of other nationalities, mostly European. The great majority of participants were Caucasian.

As for socioeconomic background, 9% of the primary caregivers had no education or lower secondary education, 45% had vocational training, 5% attended a vocational college, 30% had a baccalaureate degree or a higher vocational diploma, and 12% had a university degree.

At the second assessment (T2), interviews were carried out with 158 children and 160 primary-caregivers; one child refused to participate after the interview with the mother, and one mother refused to let the child participate because the child was too shy. A supplementary questionnaire was completed by 147 of the primary caregivers (92%). Consent to contact the kindergarten teacher at T2 was obtained from 154 of the parents (96%), and 140 teachers (91%) filled in a questionnaire.

Sample attrition effects were tested by comparing the primary caregivers at T1 ($N = 175$) with those who dropped out at T2 ($N = 15$) on demographic variables (highest primary caregiver education, marital status, family income) and the study variables at T1. Caregivers who dropped out at T2 were more likely to lack a significant other than caregivers who stayed in the sample at T2, $\chi^2(1, 175) = 12.18$, $p < .001$: 40% of this latter group were single, compared to 9% of the other group.

*Procedure*

As Study 2 was designed to be as comparable as possible methodologically to Study 1, the contact and interviewing procedures were identical to those of Study 1. The first assessment was conducted during spring 2006. There were three sessions for each child, each lasting about 60 minutes: one at home, consisting of a CAPI, and two in quiet rooms at the kindergarten, using paper-and-pencil tests and video observation. The mothers were individually interviewed at home with a CAPI procedure; these sessions also lasted about 60 minutes. During the child interviews at home, the mothers filled out a supplementary questionnaire. The kindergarten teachers filled out a questionnaire for the corresponding child and returned it by mail. The second assessment was completed approximately one year later, using the same procedure as at T1. The interviewers were undergraduate psychology students who had been intensively trained by the first author in interview techniques, especially those that apply to children.

*Measures*

*Prosocial behavior.* Children's prosocial behavior was assessed at both T1 and T2 by (a) mothers' and kindergarten teachers' ratings, and (b) spontaneous sharing behavior. Mothers and kindergarten teachers evaluated the prosocial behavior of the children on a 6-point scale derived from the prosocial behavior subscale of the Strength and Difficulties Questionnaire (Goodman, 1997). Cronbach's $\alpha$ was .76 at T1 and .68 at T2 for the mothers' ratings, and .85 at T1 and .86 at T2 for the kindergarten teachers' ratings. Spontaneous sharing behavior (i.e., observed prosocial behavior) was measured by the dictator game, a prosocial sharing task developed in experimental economics (Kahneman, Knetsch, & Thaler, 1986). In the simplest, one-shot version of the game, one person, the dictator, can unilaterally allocate resources to another anonymous person, the receiver. The receiver cannot reject an allocation offer and cannot punish or reciprocate any action by the dictator. Therefore, if dictators are interested in maximizing their self-interest, they would not offer any resources to the receivers, and this behavior would have no negative consequences for the dictators.

However, economics research has shown that most adult dictators offer a positive amount, thus indicating prosocial concern for the receiver (Camerer, 2003). Studies with children (e.g., Benenson, Pascoe, & Radmore, 2007; Gummerum, Keller, Takezawa, & Mata, 2008) indicate that the dictator game is an appropriate tool for measuring children's prosocial behavior. In the present study, participants had to share six identical stickers between themselves and a hypothetical other child of the same age and sex. The mean number of stickers shared was 2.65 ($SD = 1.01$) at T1 and 2.82 ($SD = .61$) at T2, with no significant difference between the two means.

*Sympathy.* Children's sympathy was assessed by (a) mothers' and kindergarten teachers' ratings, (b) self-ratings, and (c) play narratives. In the present analysis, we used the sympathy data only at T1, as this was the procedure in Study 1. The mothers and the kindergarten teachers rated children's sympathy with the same five items used in Study 1 (see Zhou et al., 2003). For mother-rated sympathy, $\alpha = .83$, and for teacher-rated sympathy, $\alpha = .92$. Children's self-reported sympathy was assessed using the same five items as in Study 1 (Zhou et al., 2003), with $\alpha = .67$. Children's sympathetic narrative themes were assessed using the MacArthur Story Stem Battery (Emde, Wolf, & Oppenheim, 2003), in which standardized stories elicit children's responses to socioemotional dilemmas. To illustrate the story content, the experimenter moves dolls through the designated actions and speaks in character. Next, the child is invited to "show and tell me what happens next." Nondirective comments facilitate the child's narratives. Each story has specific probes to redirect and focus the child on the dilemma. In this study, after the presentation of a warm-up story (birthday party), each child was given two additional stories: (a) bathroom shelf, which measures conflict between obedience and sympathy (the child is forbidden to touch the bathroom shelf, but a sibling has sustained a cut and asks for a plaster from the shelf), and (b) three's a crowd, which measures conflict between loyality towards a friend and sympathy with the sibling (friend wants to exclude the child's younger sibling from play). Children's

responses to the story stems were videotaped. The narratives were coded for "sympathetic themes" by two independent coders, using a revised version of the MacArthur Narrative Coding Manual (Emde et al., 2003). The sympathetic themes include the verbal expression of sympathy, the expressed intention to help another person, and helping behaviors. For example, in the first story sympathy was coded if the child verbally expressed his or her sympathy with the sibling's pain. For each story, occurrence of sympathy was coded 1 and nonoccurrence 0, giving a possible range of 0 to 2 for the two stories combined. The mean score for sympathetic themes across the two stories was 0.64 ($SD$ = .53). The interrater reliability between the two coders, who were trained by a supervisor and the authors of the instrument, was calculated for the narratives of 20 children ($\kappa$ = 0.61).

*Moral motivation.* Children's moral motivation was measured using two pairs of two hypothetical rule violations: (a) neglecting prosocial moral duties (i.e., not supporting a needy child; not sharing a pencil) and, (b) violating a strict moral duty by committing psychological/physical harm (i.e., stealing another child's chocolate; pushing a child off a swing). In the present analysis, we use moral motivation data only at T1, as this was the procedure in Study 1. The presentations of the stories were systematically counterbalanced to avoid order effects. Each story was illustrated by a three-frame sequence of gender-matched cartoons. After listening to the story, the children were asked the same two questions as in Study 1: (a) understanding of rule validity: "Is it right, what the protagonist did?" "Why/ why not?", and (b) attribution of emotion to self as victimizer: "How would you feel afterwards?" "Why?".

For the harm stories, the proportion of children who understood the rule validity was .96 ($SD$ = .15), whereas the proportion of children who understood the rule validity in the context of the prosocial duties was .89 ($SD$ = .26).

The same coding procedure was used for moral motivation as in Study 1. The attributed emotions were coded as 0 for positive and 1 for mixed or negative. For the

prosocial duties, 70% of the children attributed mixed or negative emotions to the self as victimizer; for the negative duties, it was 78%. As in the previous study, justifications were coded as (a) moral reasons (e.g., "It is not fair to steal"), (b) empathic concern for the victim (e.g., "The other child will be sad"), (c) sanction-oriented reasons (e.g., "The kindergarten teacher may find out and get angry"), (d) hedonistic, self-interested reasons (e.g., "He just likes all pencils so much"), (e) unelaborated reasons (e.g., "It is not nice/ He has the pencils"), and (f) other, unclassifiable, or no reasons. All responses were probed, and the arguments after probing were coded. If the child did not change the initial response or did not give an additional answer after probing, the initial argument was coded. The children's answers were coded 1 if the category was used and 0 if it was not. In response to the prosocial duty stories, 33% of the children justified the attributed emotions with moral or empathic reasons, 5% mentioned an authority, 21% gave hedonistic arguments, and 40% gave unelaborated arguments. In response to the harm stories, 39% gave moral or empathic reasons, 11% mentioned sanctions by an authority, 16% gave hedonistic arguments, and 34% gave unelaborated arguments.

Two independent raters coded the justifications. The first coder scored all the transcripts, and the second scored a randomly chosen 12% to establish reliability ($\kappa = .96$). The raters discussed the few disagreements with each other until a consensus was reached and the consensus was then coded.

As in Study 1, the scores representing attribution of emotion to the self and the corresponding justifications were combined to create scores for moral motivation. A score of 0 indicates that a child attributed positive emotions to the self and justified this with hedonistic reasons, unelaborated reasons, or unclassifiable/no reasons. A score of 1 indicates that a child self-attributed negative emotions and justified this with unelaborated or sanction-oriented reasons, or with unclassifiable/no reasons. A score of 2 indicates that the child self-attributed negative emotions and justified this choice with moral or empathic reasoning. We

then averaged the moral motivation scores across the two prosocial stories; the correlation between the two types of prosocial stories was $r(138) = .52$, $p < .001$, and between the two types of harm stories, $r(137) = .42$, $p < .001$. The mean score for moral motivation with respect to prosocial duty was 0.90 ($SD = 0.65$, range: 0–2); with respect to harm, the mean was 1.04 ($SD = .62$; range: 0–2).

*Results*

*Descriptive Statistics*

Table 4 shows the means of the study variables by sex. As 93% of the children understood the validity of the moral rules, this variable was not considered further.

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Insert Table 4 here

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The kindergarten teachers rated girls as more prosocial than boys at both T1, $t(131) = 2.36$, $p < .05$, Cohen's $d = 0.41$, and T2, $t(138) = 3.84$, $p < .001$, Cohen's $d = 0.65$. Likewise, girls shared more stickers than boys at T1, $t(157) = 2.27$, $p < .05$, Cohen's $d = 0.36$, and at T2, $t(156) = 2.26$, $p < .05$, Cohen's $d = 0.35$. Furthermore, girls displayed more sympathetic themes than boys at T1, $t(139) = 2.16$, $p < .05$, Cohen's $d = 0.36$. Teachers also rated girls as more sympathetic than boys at T1, $t(130) = 2.32$, $p < .05$, Cohen's $d = 0.40$.

The correlations among the study variables are shown in Table 5.

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Insert Table 5 here

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Mother-rated prosocial behavior at T1 was positively associated with mother-rated prosocial behavior at T2, teacher-rated prosocial behavior at T1, and mother- teacher-, and child-rated

sympathy at T1. Mother-rated prosocial behavior at T2 was positively associated with teacher-rated prosocial behavior at T1 and T2, observed prosocial behavior at T2, mother- and teacher-rated sympathy at T1, and moral motivation in the context of harm. Teacher-rated prosocial behavior at T1 was positively associated with teacher–rated prosocial behavior at T2 and teacher-rated sympathy at T1. Teacher-rated prosocial behavior at T2 was positively related to teacher-rated sympathy at T1. Mother-rated sympathy at T1 was associated with teacher- and child-rated sympathy at T1. Moral motivation in the context of harm was associated with moral motivation in the context of the positive duty; both were associated with higher SES. Girls showed higher teacher-rated prosocial behavior than boys at both T1 and T2, as well as higher teacher-rated sympathy and sympathetic themes at T1.

*Prediction of Prosocial Behavior by Sympathy and Moral Motivation*

Six hierarchical linear regression models were computed, with the mothers' and teachers' ratings of prosocial behavior, plus observed prosocial behavior at T1 and T2, as the dependent variables. The independent variables were gender, sympathy, the two moral motivation and rule understanding scores (physical harm, prosocial moral duty), plus the interactions. In the longitudinal analyses for T2 we controlled for prosocial behavior at T1. Preliminary analyses revealed no SES influence, and this variable was therefore dropped from further analyses. The same procedure as in study 1 was applied to create final sympathy scores: We dropped sympathy of the same rater in the prediction of mother- and teacher-rated prosocial behavior, because the relations between sympathy and prosocial behavior were very strong in the mother and teacher ratings. We then combined the remaining sympathy variables to create the final scores. For example, in the prediction of mother-rated prosocial behavior at T1, we combined the teacher and child ratings of sympathy to produce a score labeled "sympathy." The variable "sympathetic themes" was entered separately in the equation because it did not relate to the sympathy ratings. The interaction terms were produced by calculating the product of the mean-centered main

effects. We tested the interactions between the two moral motivation scores and the sympathy ratings, and between the two moral motivation scores and sympathetic themes. To keep the models at a reasonable size, we did not test the interaction between sex and either moral motivation or sympathy; recall that the preliminary analyses in Study 1 did not show any significant effects of these interaction terms. The independent variables were entered in two steps: In the first step, gender, sympathy ratings, sympathetic themes, and moral motivation in the two contexts were entered. The interaction terms were entered in the second step. Only the interactions that were significant in the preliminary analyses were retained in the final models (see Table 6).

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Insert Table 6 here

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Mother-rated prosocial behavior was predicted at both T1 and T2 by the independent variables: at T1, $R^2 = .14$, $F(6, 126) = 3.11$, $p < .01$, Cohen's $f^2 = .16$ (medium effect size); at T2, $R^2 = .51$, $F(8, 111) = 12.94$, $p < .001$, Cohen's $f^2 = 1.04$ (large effect size). Prosocial behavior at T1 was predicted by sympathy ratings and by the interaction of moral motivation in the context of prosocial duty and sympathetic themes. The interaction analyses reveal that the slopes for low, moderate, and high moral motivation ($-1$ $SD$, $0$ $SD$, and $+1$ $SD$) are .44, .17, and -.10 respectively; only the first slope is significant ($p < .01$). In children with low prosocial motivation, prosocial behavior increased with increasing sympathy, whereas in children with medium or high prosocial moral motivation, prosocial behavior did not depend on sympathy. Mother-rated prosocial behavior at T2 was predicted slightly by moral motivation in the context of harm, prosocial behavior at T1, and the interaction of moral motivation in the context of positives duty and sympathetic themes. The slopes for low, moderate, and high moral motivation ($-1$ $SD$, $0$ $SD$, and $+1$ $SD$) are .34, .15, and -.04, respectively; only the first slope is significant ($p < .05$): In children with low

prosocial motivation, prosocial behavior increased with sympathy, whereas in children with moderate or high levels of prosocial moral motivation, prosocial behavior is unrelated to sympathy.

Teacher-rated prosocial behavior at T1 was only slightly predicted by the independent variables, $R^2 = .08$, $F(5, 113) = 1.86$, $p = .10$. Teacher-rated prosocial behavior at T2 was predicted by sex and by teacher-rated prosocial behavior at T1, $R^2 = .18$, $F(6, 94) = 3.13$, $p < .01$, Cohen's $f^2 = .22$ (medium-large effect size).

Observed prosocial behavior at T1 was not predicted by the independent variables. Observed prosocial behavior at T2 was predicted by gender and moral motivation in the context of harm, $R^2 = .14$, $F(7, 121) = 2.62$, $p < .05$; Cohen's $f^2 = .18$ (medium effect size) .

*Discussion*

This study investigated the role of moral motivation and sympathy in children's prosocial behavior using multiple informants and measures, including behavioral observations. In line with our predictions and Study 1, the findings revealed significant relations between sympathy and prosocial behavior, but they depended on the measures used and were predominantly limited to cross-sectional relations. On the one hand, these findings provide empirical evidence that sympathy can indeed be an effective motive for prosocial behavior. On the other hand, they emphasize the need to explore further possible (moderating) motives of prosocial behavior (Eisenberg, 2000). We documented a moderator effect of moral motivation in the context of positive duty in relation to sympathy and mother-rated prosocial behavior: In children with low moral motivation, mother-rated prosocial behavior at T1 and T2 increased with increasing sympathetic themes at T1. Despite differences in measures between the studies, these findings confirm the relations between moral motivation, sympathy, and prosocial behavior found in both Study 1 and our previous study (Malti et al., 2007), after controlling for different types of measurements (i.e., sympathy ratings versus sympathetic themes in play narratives) and using expanded measures of moral motivation. In

contrast to the first study, we found no moderating effect of moral motivation on the relation between sympathy and teacher-rated prosocial behavior. This result is difficult to explain, although it is consistent with the results of our previous study (Malti et al., 2007). As we did not have a representative sample in Study 2, differences in teachers' and mothers' perceptions of prosocial behavior and their relation with sympathy and moral motivation may be attributable to sample characteristics or, more generally, to the fact that these relations are not necessarily replicable in nonrepresentative samples.

Moral motivation in the context of harm predicted observed prosocial behavior, and slightly predicted mother-rated prosocial behavior, at T2. As moral motivation conceptually has a strong cognitive component and represents a judgment of responsibility, the present study provides the first evidence that moral judgment can independently contribute to children's observed prosocial behavior. Possibly, observed spontaneous sharing behavior in the dictator game relates to children's daily experiences of situations entailing moral norms and is therefore directly associated with the emotion attributions and justifications that children anticipate after situations entailing moral rule violations (Denham, 1986; Gummerum et al., 2007). The finding that moral motivation, particularly in the more severe context of harm, is meaningful for prosocial action could be explained by the children's moral socialization experiences with respect to different types of transgressions. Whereas transgressions in the context of harm are inconsistent with the negative moral duties that we owe to everybody, positive moral duties leave more personal freedom and may therefore depend more strongly on the situational context (see Frankena, 1973).

## General Discussion

Recent theoretical approaches in the psychology of moral development suggest that both moral emotions (i.e., sympathy) and moral motivation serve as important underpinnings of prosocial, morally relevant behavior (e.g., Bergman, 2002; Gibbs, 2003). So far, the existing theories of the moral self have failed to explain the antecedents of moral behavior in

childhood—a time period, unlike adolescence, when moral identity cannot be invoked as an explanation for prosocial, moral action (Nucci, 2004). Theorists have suggested that the investigation of possible precursors and antecedents of the emerging moral self in middle childhood is needed (Nucci, 2004), because children in middle childhood are able to assume moral responsibility (Turiel & Davidson, 1986). In this research, it was argued that not only the more commonly emphasized affective components of morality (i.e., sympathy), but also moral motivation plays an important role in children's moral action tendencies and early development of the moral self. Children's emotion attributions and corresponding justifications indicate a self-evaluative process that involves reflection upon their own motives in a specific moral situation in relation to the broader sociomoral context (Krettenauer et al., 2008). Thus, moral motivation includes judgments of responsibility, which guide moral action and are likely to be linked to the emerging moral self (Krettenauer et al., in press; Mascolo & Fischer, in press). This is why we chose in the present research to investigate moral motivation and sympathy as key antecedents of children's prosocial behavior and as precursors of the moral self.

Our results reveal that children with low moral motivation, in particular, display increased prosocial behavior with increasing levels of sympathy. We also found support for a direct relation between moral motivation and prosocial behavior. These findings may provide evidence for the assumption that, already in childhood, moral motivation is an important precursor of the moral self and related (prosocial) moral actions, although these relations may depend on the particular samples and measures used.

Moral motivation and various assessments of sympathy were likewise shown to be associated with one another, although only in the first, representative study. An increasing linkage of morally relevant emotions such as sympathy to moral judgment is likely to contribute to the later development of the moral self, because it may indicate an increasingly

internalized morality that is anchored in one's self-understanding, which forms a fundamental part of personhood and (moral) identity (Krettenauer et al., 2008).

This research also contributes to the literature on gender and moral development. Girls revealed more moral motivation in the context of harm than boys. The latter finding is in line with gender differences in moral motivation documented by Nunner-Winkler et al. (2007), and it may be explained by sex-specific socialization. Girls also showed more other-rated prosocial behavior and sympathy than boys, and they shared more stickers in the dictator game than boys. These findings are in line with previous studies and may provide some support for gender differences in children's prosocial development (Eisenberg et al., 2006; Leman, Keller, Takezawa, & Gummerum, in press). However, we could not completely rule out the possibility that the mother and teacher ratings were influenced by stereotypic, gender-specific role expectations; further studies with multiple measures seem warranted.

In sum, we focused in this research on the novel question of how moral motivation relates to sympathy and prosocial behavior in middle childhood. Moreover, we extended previous research on children's prosocial development by (a) investigating these interrelations in a large representative longitudinal sample of children from Switzerland (Study 1), and (b) by examining these interrelations further in an additional longitudinal sample using a multi-informant, multimeasure approach (Study 2). The sampling procedure of the first study is particularly important, since most studies use much smaller samples in which children from low socioeconomic backgrounds are often underrepresented. The multimeasure approach of Study 2 provides additional information on the relations under study.

Several limitations of the studies should be mentioned. First, the causal mechanisms underlying the relation between sympathy, moral motivation, and prosocial behavior remain unclear. Even though the studies used 1-year longitudinal data, bidirectional effects between the variables are particularly likely from a socioconstructivist perspective (Edelstein & Habermas, 1984), as prosocial interactions provide opportunities to understand and

sympathize with others and may therefore facilitate later sympathy and moral judgment.
Second, our prosocial and sympathy measures were predominantly restricted to other- and
self-ratings, although we measured sympathetic themes in play narratives and sharing
behavior in the dictator game in Study 2. Other- and self ratings may be subject to social
desirability, and further measures of sympathy that tap immediate emotional arousal (e.g.,
physiological indexes) might yield additional knowledge on the relations between sympathy,
prosocial behavior, and moral motivation.

Despite these limitations, the present research gives new insights into potential
precursors of the moral self in childhood: moral motivation, sympathy, and their complex
associations with prosocial actions. These relations are of interest not only for theoretical
reasons, but also because of their relevance to interventions aimed at promoting children's
moral growth. Only by better understanding the factors that affect prosociality in children can
we successfully promote its antecedents (Berkowitz, Sherblom, Bier, & Battistich, 2006;
Nucci & Narvaez, 2008).

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Table 1

*Means and Standard Deviations of Study 1 Main Variables by Gender*

| Measure | Girls (*n* = 628) | | Boys (*n* = 645) | |
|---|---|---|---|---|
| | *M* | *SD* | *M* | *SD* |
| Prosocial behavior T1[a] | 5.13 | 0.66 | 4.93 | 0.71 |
| Prosocial behavior T2[a] | 5.13 | 0.66 | 4.82 | 0.81 |
| Prosocial behavior T1[b] | 4.96 | 0.92 | 4.29 | 1.09 |
| Sympathy T1[a] | 5.25 | 0.73 | 4.99 | 0.79 |
| Sympathy T1[b] | 5.19 | 0.88 | 4.64 | 1.12 |
| Sympathy T1[c] | 1.12 | 0.61 | 1.02 | 0.58 |
| Moral motivation, prosocial T1 | 0.97 | 0.69 | 0.92 | 0.71 |
| Moral motivation, harm T1 | 1.19 | 0.67 | 1.10 | 0.68 |

[a]Mother report. [b]Teacher report. [c]Child report.

Table 2

*Correlation Matrix of Study 1 Variables*

| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 Prosocial behavior T1[a] | -- | | | | | | | | | |
| 2 Prosocial behavior T2[a] | .52*** | -- | | | | | | | | |
| 3 Prosocial behavior T1[b] | .28*** | .21*** | -- | | | | | | | |
| 4 Sympathy T1[a] | .56*** | .39*** | .21*** | -- | | | | | | |
| 5 Sympathy T1[b] | .26*** | .18*** | .78*** | .22*** | -- | | | | | |
| 6 Sympathy T1[c] | .08* | .04 | .07* | .11*** | .06† | -- | | | | |
| 7 Moral motivation, prosocial T1 | .06* | .09** | .07† | .07* | .08* | .18*** | -- | | | |
| 8 Moral motivation, harm T1 | .03 | .05 | .09* | .03 | .08* | .10** | .43*** | -- | | |
| 9 Sex | .16*** | .19*** | .29*** | .11*** | .24*** | .04 | .03 | .07* | -- | |
| 10 SES | -.03 | .01 | .08* | .05† | .09** | .02 | .01 | .02 | .00 | -- |

[a]Mother report. [b]Teacher report. [c]Child report.

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

Range of dfs: 710-1268

Table 3

*Results of the Hierarchical Linear Regression Analyses Predicting Prosocial Behavior in Study 1*

| Independent variables | Prosocial behavior T1 | | Prosocial behavior T2[a] | | Prosocial behavior T1[b] | |
|---|---|---|---|---|---|---|
| | $\Delta R^2$ | β | $\Delta R^2$ | β | $\Delta R^2$ | β |
| Step 1 | .04*** | | .28*** | | .10*** | |
| Sex | | .11** | | .10** | | .26*** |
| Sympathy T1 | | .14*** | | -.02 | | .16*** |
| Moral motivation, prosocial T1 | | .03 | | .03 | | .02 |
| Moral motivation, harm T1 | | -.01 | | .01 | | .03 |
| Prosocial behavior T1[a] | | | | .50*** | | |
| Step 2 | | | .00 | | .01* | |
| Sympathy T1 x moral motivation, harm T1[c] | | | | -.03 | | |
| Sympathy T1 x moral motivation, prosocial T1[d] | | | | | | -.10* |

[a]Mother report. [b]Teacher report. [c]Only included in the second  model. [d]Only included in the third model.

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

Table 4

*Means and Standard Deviations of Study 2 Main Variables By Gender*

| Measure | Girls (*n* = 85) | | Boys (*n* = 90) | |
|---|---|---|---|---|
| | *M* | *SD* | *M* | *SD* |
| Prosocial behavior T1[a] | 5.11 | 0.70 | 5.04 | 0.69 |
| Prosocial behavior T2[a] | 5.20 | 0.59 | 5.06 | 0.60 |
| Prosocial behavior T1[b] | 4.93 | 0.89 | 4.53 | 1.05 |
| Prosocial behavior T2[b] | 4.81 | 0.92 | 4.14 | 1.12 |
| Prosocial behavior T1[c] | 2.84 | 0.85 | 2.48 | 1.12 |
| Prosocial behavior T2[c] | 2.92 | 0.47 | 2.71 | 0.70 |
| Sympathy T1[a] | 4.99 | 0.62 | 4.81 | 0.83 |
| Sympathy T1[b] | 4.76 | 0.91 | 4.33 | 1.21 |
| Sympathy T1[d] | 0.90 | 0.52 | 0.82 | 0.59 |
| Sympathy T1[e] | 0.74 | 0.49 | 0.55 | 0.55 |
| Moral motivation, prosocial T1 | 0.91 | 0.67 | 0.90 | 0.63 |
| Moral motivation, harm T1 | 1.13 | 0.62 | 0.95 | 0.61 |

[a]Mother report. [b]Teacher report. [c]Behavioral observation. [d]Child report. [e]Play narratives.

Table 5

*Correlations Between Study 2 Variables*

| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 Prosocial behavior T1[a] | -- | | | | | | | | | | | | | |
| 2 Prosocial behavior T2[a] | .66*** | -- | | | | | | | | | | | | |
| 3 Prosocial behavior T1[b] | .27** | .31** | -- | | | | | | | | | | | |
| 4 Prosocial behavior T2[b] | .00 | .17* | .34*** | -- | | | | | | | | | | |
| 5 Prosocial behavior T1[c] | -.09 | -.09 | .01 | .16† | -- | | | | | | | | | |
| 6 Prosocial behavior T2[c] | .10 | .19* | .02 | -.02 | .12 | -- | | | | | | | | |
| 7 Sympathy T1[a] | .64*** | .45*** | .17† | -.05 | -.05 | .12 | -- | | | | | | | |
| 8 Sympathy T1[b] | .28** | .24** | .82*** | .23* | -.02 | .06 | .28** | -- | | | | | | |
| 9 Sympathy T1[d] | .17* | .14 | .13 | .03 | .08 | .07 | .20* | .14 | -- | | | | | |
| 10 Sympathy T1[e] | .10 | .00 | .14 | .12 | .15† | .13 | .11 | .10 | .07 | -- | | | | |
| 11 Moral motivation, prosocial T1 | .01 | .03 | -.01 | -.07 | -.09 | .06 | .05 | -.04 | .04 | -.01 | -- | | | |
| 12 Moral motivation, harm T1 | .12 | .21* | .08 | -.01 | -.08 | .20* | .12 | .05 | .10 | .02 | .59*** | -- | | |
| 13 Sex | .05 | .11 | .21* | .31*** | .18* | .18* | .12 | .20* | .07 | .18* | .01 | .14† | -- | |
| 14 SES | -.06 | .01 | .07 | .14† | -.08 | .06 | -.01 | .11 | .08 | -.02 | .20* | .22** | .06 | -- |

[a] Mother report. [b]Teacher report. [c]Behavioral observation. [d]Child report. [e]Play narratives.

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

Range of dfs: 106-173

Table 6

*Results of the Hierarchical Linear Regression Analyses Predicting Prosocial Behavior in Study 2*

| Independent variables | Prosocial behavior[a] | | | | Prosocial behavior[b] | | | | Prosocial behavior[c] | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | T1 | | T2 | | T1 | | T2 | | T1 | | T2 | |
| | $\Delta R^2$ | $\beta$ | $\Delta R^2$ | $\beta$ | $\Delta R^2$ | $\beta$ | $\Delta R^2$ | $\beta$ | $\Delta R^2$ | $\beta$ | $\Delta R^2$ | $\beta$ |
| *Step 1* | .10* | | .48*** | | .08† | | .18** | | .05 | | .13* | |
| Gender | | -.01 | | .04 | | .15 | | .24* | | .17† | | .19* |
| Sympathy ratings T1 | | .26** | | .12 | | .16† | | -.15 | | -.04 | | .06 |
| Sympathetic themes T1 | | .06 | | -.09 | | .09 | | .03 | | .12 | | .09 |
| Moral motivation, harm T1 | | .13 | | .17† | | .06 | | -.04 | | -.09 | | .26* |
| Moral motivation, prosocial T1 | | -.02 | | -.05 | | -.09 | | -.03 | | .01 | | -.11 |
| Prosocial behavior T1 | | | | .63*** | | | | .29** | | | | .06 |
| Step 2 | .04* | | .03* | | | | | | | | .01 | |
| Moral motivation, prosocial T1 x sympathy[d] T1 | | -.21* | | -.17* | | | | | | | | |
| Moral motivation, harm T1 x sympathy[d] T1 | | | | .13 | | | | | | | | -.12 |

[a] Mother report. [b] Teacher report. [c] Behavioral observation. [d] Play narratives.

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

Figure Caption

*Figure 1*. Interaction of sympathy with moral motivation in the prosocial context: Prediction

of teacher-rated prosocial behavior at T1.