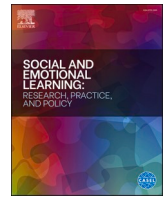


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Empirical/Meta-analyses



Bridging the gap: A longitudinal study on the relation between preschool children's moral self-concept, normative stances, and sharing behavior

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ABSTRACT

Social and Emotional Learning (SEL) is significant for providing children with adequate skills so that they can shape a supportive society. Even though children's moral self-concept (MSC) and their prosocial behavior are critical components of SEL, research on their association and development is comparatively novel. In a longitudinal study, we investigated the associations between children's MSC, their normative stances, and their sharing behavior. Data of $N = 500$ preschoolers with an average age of 61 months at t1 ($SD = 4.61$) were analyzed in a mixed-method design across the period of one year (t1–t3) with structural equation models. Findings revealed sharing behavior as a stable predictor for subsequent MSC across time. As children got older, their normative stances predicted sharing behavior. This connection was further moderated by their MSC. Our findings are the first to depict stable longitudinal predictive effects of prior sharing behavior on subsequent MSC, highlighting preschool age as a critical stage in the formation of MSC. Overall, they demonstrate how in the course of the preschool years, the MSC and normative stances developmentally interact in their relation to prosocial behavior.

Impact Statement

The present study expands the understanding of the developmental dynamics of morality and prosociality and thus clarifies the importance of an early implementation of SEL programs for practitioners as well as the promotion of children's moral understanding in the work of educators.

1. Introduction

Sharing behavior is a fundamental aspect of human interaction, fostering cooperation and participation in social life (Engelmann et al., 2013). The act of sharing does not only include material exchange, but also embodies a moral dimension that reflects values, beliefs, and norms (Smith et al., 2013). Understanding the roots of sharing behavior is therefore paramount in comprehending its societal significance and the development of moral reasoning.

Early childhood represents a critical developmental phase where foundational aspects of prosocial behavior, such as sharing, emerge and solidify (Paulus, 2022). During this period, children gradually develop an understanding of societal norms, guiding their behavior in social contexts (Schmidt et al., 2016). Normative stances, that is the judgment and potential punishment of norm transgressions, are suggested to play a pivotal role in shaping sharing behavior (Christner et al., 2022; Rakoczy et al., 2016).

However, previous research found a gap between children's normative stances and their actual sharing behavior (Blake, 2018; Smith et al., 2013; Tan et al., 2021), highlighting the complex relationship between moral decision-making and the act of sharing. Theories and empirical evidence emphasized the moral self-concept (MSC) as a potential moderator to bridge this gap (Blasi, 1983; Christner & Paulus, 2022). Here, the MSC encompasses a child's understanding and beliefs about what is right and wrong (Sticker, 2021). A child with high MSC who views themselves as a highly prosocial person may therefore be more inclined to share equal or even greater amounts of resources than a

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child who knows about social norms but does not see these norms as a part of their self.

Like behavior and beliefs, self-concept is influenced by background characteristics, such as children's socioeconomic status (Kosse et al., 2020; Trautwein et al., 2006). Consequently, an additional examination of these background characteristics can broaden the understanding of the intricate interplays between sharing behavior, normative stances, and the MSC.

The present study extends the available body of literature on the moral and prosocial development of preschool children via a mixed-method design. It examines the development and relations between children's MSC, normative stances, and their sharing behavior longitudinally, considering background characteristics. Additionally, it analyzes children's justifications concerning the judgment of others' behavior over time on a qualitative level.

2. Theoretical background

2.1. Sharing behavior

Prosocial behavior describes voluntary beneficial behavior towards others and comprises comforting, helping, and sharing (Paulus, 2023). Sharing behavior, in particular, holds a special place in human development, facilitating social actions that were vital for survival, such as participation and collaboration (Engelmann et al., 2013). It is defined as the distribution of resources from oneself to another party (Paulus, 2023) and is closely related to social and emotional aspects: Emerging through social interactions and relationships (Paulus, 2023), it is guided by emotion (Christner et al., 2020) and by familiarity with others (Engelmann et al., 2013; Blake, 2018). The ability to share is one of the skills needed to participate actively and empathetically in social life and thus part of meaningful SEL (Weissberg et al., 2015). Deliberate and spontaneous sharing can already be observed in toddlers (Paulus, 2023) and is orientated towards equal distributions from a young age (Elenbaas, 2019).

However, this orientation towards equal distribution appears to be differently strong in children. Based on background characteristics such as their socioeconomic status (SES), some children might share more than others. For instance, Kosse et al. (2020) reported that children from families with higher SES shared more with an anonymous child than children from families with lower SES. This finding indicates that children's sharing behavior is influenced by their social background from an early age. To date, there have been few studies investigating the potential relationship between SES and sharing behavior. The current study aims to supplement these few initial findings.

In addition to children's social background, developmental theories (Blasi, 1983; Hardy & Carlo, 2011) and empirical findings (Christner & Paulus, 2022; Christner et al., 2020; Kochanska et al., 2010) highlight a particular construct that can positively influence children's sharing behavior: the moral self-concept.

2.2. Moral self-concept

Early on, children develop an explicit conception of themselves, a self-concept (Hardy & Carlo, 2011). One domain of the self-concept concerns their view of themselves as moral agents, their moral self-concept (MSC). The MSC can be understood as the incorporation of beliefs and values that are reflected in how children view themselves (Johnston & Krettenauer, 2011). It is based on the rules and norms that children are confronted with during their early socialization and which they internalized (Kochanska, 2002). It is therefore linked with children's prosocial and antisocial behavior (Johnston & Krettenauer, 2011).

While lower MSC is related to more aggressive behavior (Sengsavang & Krettenauer, 2015), higher MSC was found to predict young children's prosocial behavior (Christner & Paulus, 2022; Gniewosz et al., 2022;

Jennings et al., 2014; Sengsavang & Krettenauer, 2015). Researchers also found MSC to predict children's future social behavior and competence (Sengsavang & Krettenauer, 2015). However, in research on children's self-concept and their corresponding competencies, the precise causal interrelation is often disputed. Two different theoretical approaches aim to explain the directions between self-concept and competencies or behavior. According to the self-consistency approach (Blasi, 1983), self-concept precedes and impacts behavior. The self-perception approach (Bem, 1972), however, acts on the assumption that self-concept develops due to prior behavior. Current research findings in this field are not consistent, with some supporting the self-consistency approach (Kochanska et al., 2010; Paulus et al., 2020; Sengsavang & Krettenauer, 2015; Sticker et al., 2023) and others supporting the self-perception approach (Chernyak & Kushnir, 2013; Sengsavang et al., 2015; Sticker et al., 2021). Given these inconclusive findings, we aim to complement the available body of research on the relationship between young children's MSC and their sharing behavior.

2.3. Normative stances

By the age of three, children develop an understanding of what is right and what is wrong (Kochanska et al., 2010). This basic understanding becomes more differentiated and more equitable with increasing age (Paulus et al., 2020; Sengsavang et al., 2015). Early on, they show an understanding of fairness and equality and often protest against transgressions of these norms (Elenbaas, 2019; Engelmann & Tomasello, 2019; Paulus et al., 2018; Wörle & Paulus, 2019). However, even though children know that norms of fairness and equality exist and generally demand the corresponding behavior of others, they will not always act accordingly when they get the chance to allocate resources themselves (Blasi, 1983; Engelmann et al., 2013; McAuliffe et al., 2017; Steinbeis & Over, 2017). When asked how much they would share in a hypothetical task, children admitted that they would give less than half (Smith et al., 2013). Yet, even if children do not engage in corresponding behavior at an early age, knowledge of and compliance with moral norms can benefit children's social behavior later on. Researchers (Kochanska et al., 2010) found young children with strong rule compliance to be more engaged, competent, and prosocial later on in their early school years.

Children's identification with an exertion of rules plays an important part in their actions and reactions towards pro- and antisocial behavior. Children evaluate behavior based on these rules and on moral norms they are confronted with implicitly and explicitly while growing up (Carpendale et al., 2013; Killen & Dahl, 2018; Piaget, 2015), thus constituting their normative stances. Normative stances are considered to be mutually known across all group members, and it is expected that all adhere to them (Tomasello & Vaish, 2013). They develop in early years (Kochanska et al., 2010) and get more defined with increasing age (Wörle & Paulus, 2019).

Explicit recourse to moral norms in justifying their normative stances reveals that children judge and punish the behavior of others based on norms rather than their own desire (Smith et al., 2013). According to social domain theory (Smetana, 2006), children weigh up several types of justifications depending on the situation and choose the one that is most suitable or important for them. They distinguish between conventional and moral rules; whereas the first serves to regulate social orders, the latter serves to uphold fairness norms and others' wellbeing. Children consider these moral norms as inherently obligatory (Piaget, 2015) and will evaluate others' behavior based on these.

Especially references to others' wellbeing and to fairness and norms have been found as driving motives in children's evaluations of others' pro- or antisocial behavior (Christner & Paulus, 2022; Sengsavang et al., 2015). However, to our knowledge, an investigation of the change in the orientation of children's justifications is still pending. Therefore, we do not know much about the extent to which the reference norms that children use for the justification of their judgment and their demand for

punishment change over time.

2.4. The relation between sharing behavior, normative stances, and moral self-concept

To what extent do children's normative stances and their behavior relate to each other? Some theories (Killen & Dahl, 2018; Turiel, 2003) suggest that the two constructs align early on, which indicates that children's normative stances might guide their behavior. Another theoretical standpoint (Blake, 2018; Blasi, 1983) suggests a gap between normative stances and behavior, proposing that children's behavior is oriented towards something different than their normative stances. According to Blasi (Blasi, 1983), normative stances do not lead directly to behavior, but are additionally evaluated in terms of what he defines as "responsibility judgments" (p. 200), i.e., the moral assessment of the extent to which an individual feels responsible to act in a certain way. Here, a strong MSC can lead to children feeling more responsible to act according to their normative stances. Initial findings provide empirical evidence for this assumption. For instance, Christner and Paulus (Christner & Paulus, 2022) showed that children with a greater MSC tended to share more, whereas their normative stances showed no relation to their sharing behavior. To expand upon these findings and to follow up on previous discussions (Christner & Paulus, 2022; Smith et al., 2013), it is worthwhile to take a longitudinal approach to examine the link between children's actions and reactions in a sharing context.

3. The present study

The present study addresses the interrelation between the development of sharing behavior, the MSC, and normative stances longitudinally. We hypothesized that MSC is constituted from behavior (self-perception theory; H1a) and that the MSC influences subsequent behavior (self-consistency theory; H1b). Concerning the relationship between normative stances and sharing behavior, we followed Blasi's (Blasi, 1983) approach based on prior research (Christner & Paulus, 2022; Malti et al., 2010), which proposes a gap between children's normative stances and sharing behavior. We hypothesized that children's MSC can bridge this gap through an interaction with normative stances (Christner & Paulus, 2022) (H2). Additionally, we categorized and investigated the moral quality of children's justifications of their judgment across time. Here, due to increasing cognitive and language skills (Wörle & Paulus, 2019), we hypothesized that action-based and unrelated justifications would decline with time (Sengsavang et al., 2015) (H3a) and that children would increasingly justify their judgments based on fairness norms (Piaget, 2015; Tomasello & Vaish, 2013) (H3b).

4. Material and methods

4.1. Sample and procedure

All data was collected within the framework of the EU-funded, 5-years longitudinal study *Learning4Kids*, conducted in the greater area of Munich, Germany. *Learning4Kids* comprises two cohorts and assesses a wide range of competencies, beliefs and abilities of children, their parents, and their educators. All parents gave written consent to the participation of them and their children.

In the current study, data of the first three measurement points (t1-t3) of both cohorts were used. The sample consisted of $N = 500$ pre-school children ($M_{\text{age}}^1 = 60.69$ months, $SD = 4.61$, range = 51–75 months at t1; 257 girls). Every 5 to 6 months, the children and their families were visited at home by trained research assistants. During these visits, children's mathematical, literacy, cognitive, and non-cognitive abilities were assessed. For an overview of the whole project, the assessment materials and the ethics approval, please refer to Niklas et al. (2020,2022).

4.2. Moral self-concept

Moral self-concept (MSC) was assessed with an established instrument (Sticker et al., 2021) following the Pictorial Scale of Perceived Competence and Acceptance for Young Children (PSCA; Roux et al., 2010). The scale included four items each for prosocial and antisocial behavior, focusing on sharing behavior. Each item consisted of two pictured children (gender-matched); one did something well or liked to do something while the other did not. Children were asked to match themselves to the child whom they could most identify with. In a follow-up question, they were then asked to what extent they related to the chosen child (see Tab. S1 in the supplementary material for an overview of all eight items). Children rated their MSC according to the pictured children on a 4-point Likert scale (1 = "not at all" to 4 = "very much" for prosocial items; 1 = "very much" to 4 = "not at all" for antisocial items). The latent construct MSC consisted of both prosocial and antisocial behavioral items. Higher values indicated greater MSC (McDonald's $\omega_{t1-t3} = .75-.78$).

4.3. Sharing task

Each measurement point included two sharing tasks in the design of a mini-dictator game (following Sticker et al. (2021)), separated by school-relevant assessments. Children were presented with three items of the same kind in different colors or shapes (e.g., stars; rubbers) and chose the color/shape they liked most. They were then given six items in the chosen color/shape with the information, that these items now belonged to them. Next, the children were shown a picture and provided with the name of a fictitious child (gender-matched). Two boxes were placed in front of the child, with the picture of the fictitious child next to one of the boxes. The research assistant explained that the box with the fictitious child's picture next to it belonged to the fictitious child and the other box to the participant. Next, the children were given the opportunity to share their items or not. They were instructed to put all items they wanted to share into the fictitious child's box and all items they wanted to keep into their own box. While the children distributed their items, the research assistant kept busy, looking away, in order to minimize the risk of social desirability. Sum scores were used for analyses (McDonald's $\omega_{t1-t3} = .82$).

4.4. Normative stances: judgment and punishment of norm transgressions

After the first sharing task, children were presented with another fictitious child (gender-matched) and two envelopes. They were told that the child had also gotten six items and had had the opportunity to share their items with another child. The envelopes were opened to reveal that the fictitious child had kept five items and shared one. The children were now asked to rate the fictitious child's sharing behavior on a 5-point Likert scale consisting of smileys (0 = "very bad" to 4 = "very good"). Lower values indicated stronger normative stances. Next, children were asked to justify their rating (e.g., "Why do you think what the child did was bad?"). Children's justifications were noted by the research assistant.

After the second sharing task, children were again confronted with a fictitious child who had also shared one out of their six items, just like the fictitious child in the first sharing task. This time, instead of rating the behavior, children were asked whether the fictitious child should get in trouble for their behavior, and if so, whether it should be "a little" (1) or "a lot" (2) of trouble (Christner & Paulus, 2022). Higher values indicated stronger normative stances.

For latent moderation analyses, the two variables judgment and punishment were comprised in the latent variable "Normative Stances". To this end, judgment was recoded. Thus, higher values in the latent variable Normative Stances indicated that children showed greater reflection of moral cognitions in their reactions towards other children's norm transgressions (McDonald's $\omega_{t1-t3} = .72-.76$).

4.5. Coding of children's explicit justifications

The justification for their judgment of another child's sharing behavior that children expressed after the first sharing task was coded into five categories, following previous studies (Christner & Paulus, 2022; Sengsavang et al., 2015; Wörle & Paulus, 2019). *Rules and Norms* comprised any justifications that expressed fairness and sharing as a norm (e.g., "One always has to share"). *Socioemotional* justifications referred to the consideration of (others') feelings or consequences for others (e.g., "The other girl will be sad"). *Hedonistic* justifications referred to any egoistic, possession-oriented or self-serving motives (e.g., "The stars are pretty"). *Action-based* justifications referred to any expressions of the fictitious child's actions that did not include moral implications (e.g., "Because he shared one and kept five"). All expressions that did not fit into any of these categories were coded as *Other* (e.g., "I don't know"). As children's justifications sometimes referred to more than one category, multiple codings per child were possible. 25 % of all cases were coded by a second independent coder (Cohen's κ t1: 0.80–0.95; t2: 0.86–1.00; t3: 0.79–0.92 with the exception of action-based justifications $\kappa = 0.62$).

4.6. Covariates

Children's socioeconomic status (SES) comprised family income, parents' highest educational attainment, and the highest prestige value of parents' occupation (Wegener, 1988). For our analyses, z-standardized values were used (McDonald's $\omega_{t1-t3} = .74$).

Children's intelligence was conducted with two different measures. At t1 and t2, the German version of the "Columbia Mental Maturity Scale" (CMMS; Esser, 2002) was used. At t3, two subtests of the "Culture Fair Test" (CFT 1-R; Cattell et al., 2012) were used. A z-standardized composite score of the three variables was used for the analyses (McDonald's $\omega = .62$).

5. Analysis

Analyses were conducted using R.4.2.1 (Core Team, 2023). For all analyses, structural equation models (SEM) were conducted using the lavaan package (Rosseel, 2012). To test the relation between children's MSC and sharing behavior (H1), cross-lagged relations between the two variables from prior to subsequent measurement points were added. To investigate interaction effects between MSC and normative stances on sharing behavior, latent moderator analyses were conducted. In order to create necessary product indicators in the semTools package (Jorgensen et al., 2023), double mean centering (DMC) strategy was used (for an overview, see (Schoemann & Jorgensen, 2021)).

All models were conducted with the covariates gender, SES, and intelligence. Five goodness-of-fit criteria with the following size recommendations were used to evaluate the models' fit (Hair et al., 2006; Hooper et al., 2008): The relative/normed chi-square (χ^2/df ; between .03 and .05), the comparative fit index (CFI; $\geq .95$), the non-normed fit index/Tucker-Lewis Index (TLI; $\geq .95$), and the root mean square error of approximation (RMSEA; $\leq .07$ and its 90 % confidence interval with a lower limit close to 0 and an upper limit $\leq .08$).

Prior investigations for measurement invariance revealed variance between measurement points in the latent variables sharing behavior and MSC. These findings will be discussed in Section 7.5. Nevertheless, we proceeded with the structural equation modelling in accordance with recommendations concerning measurement invariance (Robitzsch, 2022; Robitzsch & Lüdtke, 2022). Here, diagonally weighted least square estimation (DWLS) was used for all models.

6. Findings

6.1. Descriptive analyses

Table 1 gives an overview of the means, standard deviations, and correlations of all variables across all measurement points. With time, children's average MSC increased. Their sharing behavior at t1 was substantially greater than at later times. Both judgment and punishment decreased over time, indicating increased reflection of normative stances in judgments, but decreased reflection in punishment. Children's sharing behavior correlated moderately across measurement points. Whereas only sharing at t1 correlated significantly with MSC at t1 and t2, sharing at all three measurement points showed small correlations with MSC at t3. Sharing at t1 was linked with punishment at t1 and t3 while sharing at subsequent measurement points correlated with punishment at both t2 and t3. This indicates that greater generosity was associated with a greater demand for punishment. Small negative correlations between sharing and SES at all measurement points and for gender at t1 were found. This means that, at t1, children with lower SES and girls shared more than children with higher SES and boys. MSC correlated with small to moderate effect sizes across time, as well as with gender and intelligence (t1) and with SES (t3). This indicates that, at t1, girls and children with higher intelligence scores rated their MSC score higher than boys and children with lower intelligence. At t3, children with lower SES rated their MSC higher than children with higher SES. Both punishment and judgment correlated moderately across measurement points, indicating stability in children's normative stances over time. Age did not correlate with any of the variables and was thus not included in further analyses.

On average, children shared less than half of their resources at all measurement points ($M_{t1} = 2.18$ items shared, $SD = 1.23$; $M_{t2} = 1.98$, $SD = 1.16$; $M_{t3} = 2.03$, $SD = 1.13$).

6.2. Inferential analyses

To test hypotheses 1, 2, and 3, several SEMs and Mann-Whitney-U tests were conducted. For an overview of all results of the SEMs, please refer to the [supplementary material](#) (Tab. S2).

6.2.1. Hypothesis 1: relation between MSC and sharing behavior over time

To test whether and to what extent children's MSC and sharing behavior are linked, a cross-lagged panel model was conducted (Fig. 1). The model fit was acceptable ($\chi^2 = 801.08$, $df = 465$, CFI = .92, TLI = .91, RMSEA = .04, 95 % CI [.03, .04]). The results show that prior sharing behavior predicted both subsequent sharing behavior (t1 to t2: $\beta = .57$, $SE = .07$, $p < .001$; t2 to t3: $\beta = .73$, $SE = .07$, $p < .001$) and subsequent MSC (t1 to t2: $\beta = .09$, $SE = .02$, $p = .019$; t2 to t3: $\beta = .14$, $SE = .02$, $p < .001$). On the contrary, prior MSC predicted subsequent MSC (t1 to t2: $\beta = .59$, $SE = .09$, $p < .001$; t2 to t3: $\beta = .44$, $SE = .07$, $p < .001$), but not subsequent sharing behavior (t1 to t2: $\beta = -.01$, $SE = .10$, $p = .772$; t2 to t3: $\beta = -.02$, $SE = .08$, $p = .586$). Bidirectional paths between sharing behavior and MSC were found at t1 ($\beta = .16$, $SE = .01$, $p < .001$) and t3 ($\beta = .15$, $SE = .02$, $p = .031$). Both MSC and sharing were significantly predicted by the covariates SES (MSC: $\beta = -.13$, $SE = .02$, $p = .010$; sharing: $\beta = -.14$, $SE = .06$, $p = .019$) and gender (MSC: $\beta = -.20$, $SE = .03$, $p = .006$; sharing: $\beta = -.28$, $SE = .09$, $p = .001$) at t1, showing that children from families with lower SES and girls shared significantly more at t1 than children from higher SES families and boys. Higher intelligence scores correlated with greater sharing behavior at t3 ($\beta = .18$, $SE = .08$, $p = .024$) and higher MSC at t1 ($\beta = .21$, $SE = .02$, $p = .002$). However, at t2 and t3, lower intelligence scores related to greater MSC (t2: $\beta = -.17$, $SE = .04$, $p = .025$; t3: $\beta = -.17$, $SE = .03$, $p = .008$).

6.2.2. Hypothesis 2: relations between children's actions and reactions in interaction with moral self-concept

To investigate whether an interaction with children's MSC can

Table 1
Means, standard deviations, and correlations of all variables of interest.

Variable	M	SD	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1. Share t1	2.18	1.23															
2. Share t2	1.98	1.16	.46**														
3. Share t3	2.03	1.13	.31**	.57**													
4. MSC t1	3.43	0.49	.13**	.04	.07												
5. MSC t2	3.51	0.43	.14**	.08	.04	.39**											
6. MSC t3	3.57	0.45	.14**	.08	.04	.27**	.37**										
7. Judgment t1	2.36	1.64	-.10*	-.07	-.07	.06	.03	.10*									
8. Judgment t2	2.21	1.57	-.08	-.15**	-.14**	.05	.08	.11*	.31**								
9. Judgment t3	1.99	1.51	-.13**	-.25**	-.34**	.03	-.01	.02	.28**	.46**							
10. Punishment t1	0.50	0.76	.14**	.05	-.04	-.04	-.02	-.06	-.48**	-.24**							
11. Punishment t2	0.47	0.73	.18**	.15**	-.27**	.01	-.06	-.02	-.29**	-.48**	.39**						
12. Punishment t3	0.48	0.71	.11*	.22**	-.27**	-.00	.04	.02	-.25**	-.33**	.30**	.47**					
13. Age	60.96	4.61	.07	.06	.01	.02	.03	.00	-.08	-.03	-.00	-.04	-.02				
14. SES	-0.01	0.84	-.10*	-.13**	-.10*	-.05	-.04	-.09*	-.08	-.07	.00	-.03	-.02	-.02			
15. Gender	0.49	0.50	-.13**	-.02	-.06	-.09*	-.06	-.02	-.09*	-.04	-.08	.02	.03	.07	.05	.01	
16. Intelligence	-0.00	0.76	.01	-.06	.05	.12**	.03	-.07	-.09*	-.07	-.04	-.02	.01	-.04	.19**	.28**	-.13**

Note. M and SD are used to represent mean and standard deviation, respectively. MSC = moral self-concept. Age in months. SES = socioeconomic status. Gender: 0 = girls, 1 = boys. * indicates $p < .05$. ** indicates $p < .01$.

bridge the potential gap between children’s normative stances and their sharing behavior, SEMs for each measurement point were created (Fig. 2). The model fit of the base model was acceptable ($\chi^2 = 813.38$, $df = 558$, $CFI = .95$, $TLI = .95$, $RMSEA = .03$, 95 % CI [.03,.04]). At t1, MSC was significantly associated with children’s sharing behavior ($\beta = .17$, $SE = .10$, $p < .001$). Further, gender was significantly related to sharing at t1 ($\beta = -.30$, $SE = .09$, $p < .001$), indicating that girls shared more than boys. SES was significantly related to sharing at all measurement points (t1: $\beta = -.15$, $SE = .06$, $p = .010$; t2: $\beta = -.16$, $SE = .06$, $p = .007$; t3: $\beta = -.15$, $SE = .06$, $p = .008$), indicating that children with lower SES shared significantly more than children with higher SES at all times.

Neither children’s normative stances nor the interaction between their normative stances and MSC were related to sharing behavior at t1. These results changed at t2 when both MSC ($\beta = .11$, $SE = .07$, $p = .001$) and children’s normative stances ($\beta = .10$, $SE = .04$, $p = .019$), as well as the interaction between the two ($\beta = .12$, $SE = .01$, $p = .032$), were significantly related to children’s sharing behavior.

Similar results were found for t3: Both MSC ($\beta = .16$, $SE = .09$, $p < .001$) and children’s normative stances ($\beta = .19$, $SE = .04$, $p < .001$) as well as the interaction between the two ($\beta = .22$, $SE = .02$, $p = .001$) significantly related to children’s sharing behavior. The interaction effects show that while MSC and normative stances were each independently related to sharing behavior, their joint interaction was also associated with it.

6.2.3. Hypothesis 3: development of children’s justifications

Children’s justifications can be seen in Table 2. In order to investigate hypotheses H3a and H3b, we examined the development of children’s justifications on a descriptive level. Contrary to our expectations, action-based justifications increased with time. However, as expected, unrelated other-based justifications decreased with time, as did socio-emotional and hedonistic justifications. Further, children’s justifications reflecting rules and norms increased with time, indicating that with increasing age, children referred to moral norms more often when justifying their normative stances. While children referred to other-based justifications most often at t1 ($M = .39$, $SD = .49$), they evaluated norm transgressions based on rules and norms most often at t2 ($M = .36$, $SD = .48$) and t3 ($M = .37$, $SD = .48$). Socioemotional justifications were used least often at all measurement points ($M_{t1-t3} = .10-.07$, $SD = .30-.26$).

7. Discussion

The early development of prosocial behavior and socioemotional learning has become a topic of vivid interest. The current study investigated the interrelations between preschool children’s MSC and their developing sharing behavior longitudinally. Moreover, it addressed how MSC and normative stances interact in the prediction of prosocial behavior. It also allowed us to examine the developmental stability of preschool children’s sharing, normative stances, and their MSC over the course of a year. In a qualitative approach, the norm-based quality of the justification children used for their judgment of another child’s norm transgression was also categorized.

7.1. Longitudinal stability of normative stances

Correlational analyses revealed longitudinal stability of children’s normative stances: Both their judgments and their punishment correlated moderately across time. This indicates that normative stances are already stable across young children’s development.

7.2. Relation between Moral Self-concept and Sharing Behavior over Time

Our findings revealed cross-sectional relations between MSC and sharing behavior at t1, which is in line with previous work (Christner

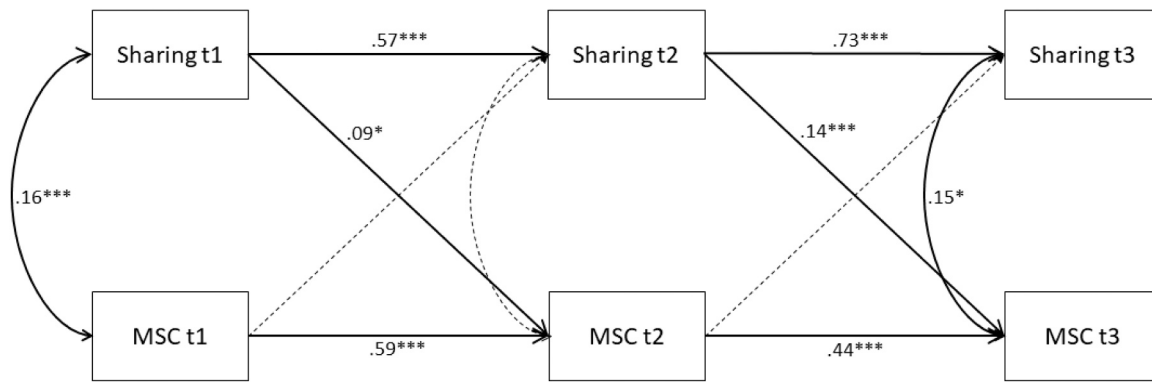


Fig. 1. Cross-Lagged-Panel Model of the Relation Between Sharing Behavior and Moral Self-Concept. *Note.* MSC = moral self-concept. Covariates gender, socioeconomic status, and intelligence were controlled for. Bold lines indicate significant pathways. Dashed lines indicate non-significant pathways. * = $p < .05$. *** = $p < .0001$.

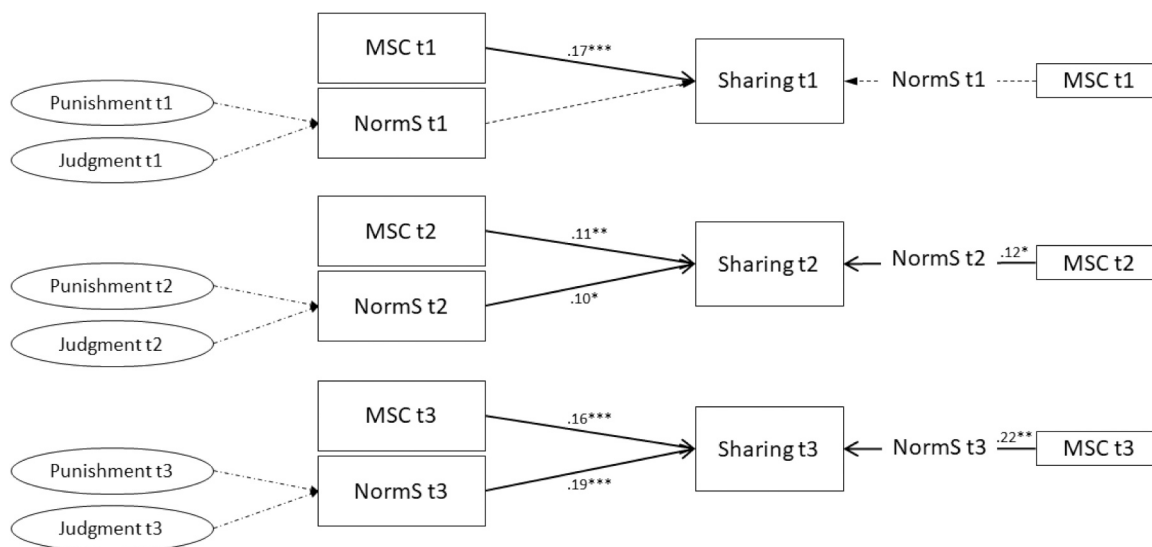


Fig. 2. Interaction Between Moral Self-Concept and Normative Stances on Sharing Behavior at all Measurement Points. *Note.* NormS = normative stances. MSC = moral self-concept. Covariates gender, socioeconomic status, and intelligence were controlled for. Bold lines indicate significant pathways. Dashed lines indicate non-significant pathways between latent variables. Dotted lines indicate pathways between latent variables and interaction effects. Dashed and dotted lines indicate allocation of manifest variables to latent ones. * = $p < .05$. ** = $p < .01$. *** = $p < .0001$.

Table 2
Means and Standard Deviations of Children’s Justification Categories.

	T1	T2	T3
Category	<i>M (SD)</i>	<i>M (SD)</i>	<i>M (SD)</i>
Rules and Norms	.29 (.45)	.36 (.48)	.37 (.48)
Socioemotional	.10 (.30)	.09 (.28)	.07 (.26)
Hedonistic	.13 (.33)	.10 (.30)	.09 (.29)
Action-Based	.25 (.44)	.33 (.47)	.34 (.48)
Other	.39 (.49)	.27 (.45)	.24 (.43)

Note. All means and standard deviations according to ratings of coder 1.

et al., 2020; Sticker et al., 2023). More importantly, the investigation of cross-lagged effects between children’s MSC and their sharing behavior revealed stable evidence for the self-perception theory (Bem, 1972), suggesting that behavior precedes MSC. Our study is thereby the first to demonstrate a stable link from children’s prosocial behavior onto their MSC across time. This extends previous correlational findings by demonstrating a longitudinal development (Chernyak & Kushnir, 2013; Sengsavang et al., 2015).

Consistent with Shavelson et al. (1976) hierarchical model, behavior acted as the foundation on which the self-concept is built. This reinforces

Sticker et al. (2021) proposal that MSC has a similar structure to other self-concept domains. Therefore, our findings support the assumption that MSC is formed in a constructivist way in kindergarten age (Killen & Dahl, 2018).

Contrary to our assumptions, we were unable to find any evidence in favor of the self-consistency approach (Blasi, 1983). This is presumably due to children’s immature cognitive development at this age. With increasing age, children expand their representational ability, which allows them to compare their self-image with their behavior in order to establish self-consistency (Harter, 2006). Theories (Dahl, 2014; Harter, 2006; Hammond, 2010) and empirical findings (Krettenauer et al., 2013) propose that significant cognitive-developmental progress for the integration of a sense of self occurs later during middle to late childhood. Further longitudinal studies are needed that investigate the development of MSC in relation to prosocial behavior, particularly during the important transition from preschool to school and across the first years in school. Nevertheless, or precisely because of the concretization of MSC at elementary school age, the preschool years are a valuable developmental stage in which interventions such as SEL programs may contribute directly to the development and stabilization of a positive and realistic MSC (Gniewosz et al., 2022).

7.3. Relation of normative stances and sharing behavior over time and the interaction with moral self-concept

Structural equation modelling revealed significant changes in the development of the relation between normative stances and sharing behavior. Whereas at t1, normative stances were not significantly related to sharing behavior, this changed at t2. This finding indicates that with increasing age, children seem to consider normative stances when engaging in sharing. Positive associations between normative stances and sharing behavior are in line with previous work (Christner et al., 2022; Paulus et al., 2018). However, our longitudinal design allows us to capture a potential turning point in young children's moral and prosocial development.

Interaction effects with MSC as moderator not only support the assumption that children increasingly refer to their normative stances in their behavior, but exemplify that MSC can indeed strengthen the connection between normative stances and sharing behavior. This relates to Blasi (1983) assumption that a more consistent MSC is a means to bridge the gap between children's normative stances and their behavior.

In order to further analyze how the relation between normative stances and sharing behavior differs for children with different levels of MSC, exploratory analyses on these relations were conducted. Linear regression models with sharing as dependent and normative stances as independent variable were set up for t2 and t3 for children with low versus high MSC. To this end, children's values on the variable of the total MSC were divided by a median split into children with low (i.e., \leq median; "1") and high (i.e., $>$ median; "2") MSC. This way, the category "high MSC" comprised 40 % of the children at t2 ($M = 1.40$, $SD = .49$) and 48 % of the children at t3 ($M = 1.48$, $SD = .50$).

The analyses revealed no differences between the two groups: Children with comparatively low and high MSC both integrated normative considerations into their sharing behavior (for results, see Tab. S3 in the [supplementary material](#)). As expected for this age group (Harter, 2006), children generally rated their MSC very positively. Therefore, even those children who belonged to the low MSC group recorded comparatively high MSC ratings. Nevertheless, the correlation between normative stances and sharing behavior was even greater for children from the high MSC group. This shows that having a stronger image of oneself as a prosocial person corresponds with behavior (Deci & Ryan, 2000).

Furthermore, our results indicate a significant association between children's SES and their sharing behavior: Children with lower SES shared significantly more than children with high SES, at least among the children who had a high MSC. This finding is consistent with previous studies with children (Kosse et al., 2020) and adults (Kraus & Callaghan, 2016). The influence of social background on prosocial behavior and moral development is an important factor that needs to be investigated more closely in further studies.

With considerations of both the findings in this section and those shown in [Section 7.2](#), it can be assumed that the interaction of normative stances and MSC are particularly important for the prosocial behavior of young children. With that, our findings extend previous research with a longitudinal approach (Christner & Paulus, 2022; Christner et al., 2020; Sengsavang et al., 2015). The suggestion of a close connection between MSC, normative stances, and sharing behavior points out the need to holistically address both children's knowledge and behavior in interventions.

7.4. Development of children's justifications

On a qualitative level, we investigated the justifications children expressed for their judgments of another child's norm transgression. Unexpectedly and contrary to previous research (Sengsavang et al., 2015), children's action-based justifications did not decrease with age. At the same time, both children's orientation towards rules and norms of fairness increased and unrelated justifications decreased, findings that

align with our hypotheses (Piaget, 2015; Smetana, 2006). Despite the unexpected increase in action-based justifications, the findings are comparable to those of previous empirical studies (Sengsavang et al., 2015) and expand the predominantly cross-sectional body of literature on children's justifications (Christner & Paulus, 2022; Wörle & Paulus, 2019) by allowing insight into developmental changes. The decrease in other-based and simultaneous increase in action-based justifications implies that the children who may not have been able to adequately express their judgment at previous measurement points gained cognitive and linguistic competencies over the course of the year and were thus better able to justify their evaluations. Similarly, the increase in reference to rules and norms implies that over the period from age five to six, children undergo the cognitive and linguistic development necessary to evaluate the behavior of others in reference to moral values (Sengsavang et al., 2015; Wörle & Paulus, 2019).

The interrater reliability for action-based justifications at t3 differed substantially from all other categories (.62 versus .79 to .92). Consequently, it was more difficult for the raters to identify action-based justification at t3 compared to earlier assessments and compared to other forms of justification at t3. This difference may be due to children's increased cognitive and linguistic abilities, which led to statements oscillated between justifications oriented towards rules and norms and action-based justifications. Consequently, these justifications could not be clearly assigned, leading to a greater disagreement between the coders compared to other categories.

Similar to previous findings (Christner & Paulus, 2022; Smith et al., 2013; Sticker et al., 2023), children shared less than half of their resources at all measurement points. At the same time, however, their MSC, reflection of normative stances, and fairness-reflecting justifications increased (Sengsavang et al., 2015). This development is indeed curious and needs to be discussed (see also Blake, 2018 for proposals).

On average, the children in our sample shared 34 % of their resources with the fictitious children, which is in line with the developmental model proposed by Ibbotson (Ibbotson, 2014) in a meta-analysis. In an investigation of the relationship between normative stances, MSC, and sharing behavior, Christner and Paulus (Christner & Paulus, 2022) classified three distinct groups with either low or great extents of the three constructs. The authors concluded that behavior and normative stances are linked for some children, while for others they exist independently of each other.

Potential explanations for this disparity between behavior and normative stances are manifold. Among other things, previous research suggests that children behave differently depending on the familiarity status of the recipient (Paulus, 2016), whether they expect reciprocity or not (Xiong et al., 2016), or due to insufficient behavioral control (Smith et al., 2013; Steinbeis, 2018).

Children also have the ability to adapt their behavior early on depending on the situation and their counterpart (Dunn, 2002). In the present study, children shared, on average, the most resources at the first measurement point. After the first assessments, the children realized that they were indeed allowed to keep all items they had not shared, without any disadvantages. It is therefore possible that the children understood that for the next two measurement points, there were no negative consequences if they did not share, but on the contrary, positive ones (more resources). This may be an explanation for why children did not share accordingly despite an increased orientation towards moral reference norms.

Based on our findings, MSC seems to have the potential to act as a bridge between normative stances and sharing behavior; however, this bridge seems to be only gradually being built in preschool age. Studies using other research designs could shed more light on this. For instance, designs in which the children do not retain any resources but instead act as "dictators" between two other parties and are therefore independent of the outcome of the sharing process may be useful. Field observations in kindergartens are also highly valuable in order to investigate in which situations children incorporate their own moral convictions into their

sharing behavior and to what extent.

7.5. Limitations

This study faced several limitations. First and most importantly, our analyses revealed variance between measurement points. However, recent discussions suggest that measurement invariance is not a prerequisite for valid group comparisons (Robitzsch & Lüdtke, 2022; Welzel et al., 2021, but see also Meuleman et al., 2022). In line with these statements, we used diagonally weighted least squares as an alternative estimation method in our analyses (Robitzsch, 2022). Further, previous research revealed instability of MSC during preschool age (Sticker et al., 2023). Consequently, children's MSC might be in the process of forming and reforming, which could account for different findings concerning MSC between measurement points. Therefore, we advise that the findings should be interpreted with caution.

For the investigation of children's justifications, we did not consider children's ratings of the other child's behavior. This means that children whose justifications were categorized as referring to rules and norms could have rated the other child's behavior as "very good", as the child did indeed share – just not an equal amount as would be expected when following moral norms. Therefore, for some children, categorization and rating may differ. In further analyses, the ratings should be considered as well in order to get a deeper understanding of the difference between children's rule incorporation and actual rule understanding (Piaget, 2015).

8. Conclusion

Longitudinal investigations of the relations between preschoolers' normative stances, MSC, and sharing behavior revealed prior sharing behavior as a stable predictor for subsequent MSC. We found developmental changes in the significance of normative stances on sharing behavior, in line with an increase in norm-oriented justifications. All in all, the findings illustrate the interplay between normative stances and MSC in fostering prosocial behavior during the preschool years and thus point to developmental dynamics that SEL programs may target.

Ethical approval

This study was ethically approved by the European Research Council Executive Agency and performed in line with the principles of the Declaration of Helsinki. Approval was granted by the ethics committee of the Faculty of Psychology and Educational Sciences, University of Munich (LMU).

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Declarations of Interest

None.

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Statement of Competing Interest

The authors have no competing interests to declare.

Consent to participate

All participating families gave written consent to participate.

Consent for publication

All authors consent to the publication of the manuscript in *Social and Emotional Learning: Research, Practice, and Policy*, should the article be accepted by the Guest Editor upon completion of the refereeing process. Formal consent to publish anonymized data was obtained by all participating families.

Appendix A. Supporting information

Supplementary data associated with this article can be found in the online version at [doi:10.1016/j.sel.2024.100027](https://doi.org/10.1016/j.sel.2024.100027).

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