

**Caregivers' Everyday Moral Reasoning Predicts Young Children's Aggressive,  
Prosocial, and Moral Development: Evidence from Ambulatory Assessment**

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**Abstract**

Developmental theories have proposed caregiver reactions, in particular caregivers' moral reasoning with their children, as crucial factors in children's developing morality. Yet, empirical evidence is scarce and mainly restricted to laboratory contexts. Here, we used the ambulatory assessment method to investigate how caregiver responses to moral transgressions longitudinally relate to children's emerging moral agency. On the first measurement point, mothers ( $N = 220$ ) reported on 9 consecutive evenings on a moral transgression of their 5- to 46-month-olds', their emotional and verbal reactions and how in turn their child reacted. Five months later, mothers reported on their child's aggressive and prosocial (helping, sharing, comforting) behavior. Our results demonstrated that (1) caregiver reasoning supported children's sharing and comforting behavior and was related to lower levels of children's aggressive behavior half a year later, that (2) caregiver reasoning reactions supported children's negative evaluations of their own transgressions while compliance-based caregiver reactions (e.g., physical interventions, reprimands) were predictive of children's subsequent emotional distress and anger, and that (3) caregiver social conformity and reflective functioning abilities emerged as determinants of caregiver negative moral emotions. Thus, this study uses an innovative methodological approach to uncover key characteristics of caregiver moral reactions supporting the development of morality.

## **Caregivers' Moral Reasoning Predicts Young Children's Aggressive, Prosocial, and Moral Development: Evidence from Ambulatory Assessment**

Over the last years, developmental psychology has shown an increased interest in children's everyday social interactions with their caregivers in the context of their moral transgressions. These early moral interactions are proposed to be of paramount importance in revealing how children begin to construct an understanding of moral issues and become active moral agents participating in the moral discourse of their socio-cultural community (e.g., Paulus, 2020; Rogoff et al., 2018).

In studying young children's everyday moral interactions, the specific caregiver reaction to a moral transgression has been claimed to play a key role. That is, from a social-interactionist perspective (Carpendale et al., 2013), young children rely on such caregiver reactions in gradually constructing an understanding of the wrongness and implications of their moral transgressions, which supports them in ultimately regulating their behavior in morally relevant situations. Caregiver reactions might vary in their components and could involve, amongst others, evaluative commands (e.g., "No, don't hit her"), a concrete emotion (e.g., anger), and normative reasoning statements (e.g., "Hitting your sister is wrong and hurts her."). However, it is an open question which effects different kinds of caregiver reactions have on young children's developing prosocial, aggressive, and moral behavior. To investigate this question was the objective of the present study.

This interesting theoretical pursuit of mapping the kinds and effects of caregiver moral reactions has greatly benefitted from recent methodological advances. That is, many researchers have moved beyond laboratory settings that have yielded important insights based on standardized assessments of moral interactions and relied on home visits (e.g., Dahl, 2015; Huang et al., 2007), parental reports (e.g., Hammond et al., 2017; Hammond & Brownell, 2018), and parental evaluations of video-based moral transgressions (e.g., Essler & Paulus, 2020; Waltzer et al., 2019) to get a more complete picture of the ontogenetic emergence of

children's moral agency. A novel and especially promising methodological approach is ambulatory assessment. Here, caregivers report on a daily basis about moral transgressions that have occurred (Trull & Ebner-Priemer, 2013). Moral transgressions occur quite infrequently in young children's daily lives compared to prudential and pragmatic transgressions (Dahl, 2016b). Consequently, ambulatory assessment allows researchers to expand the time frame under investigation and thus get a clearer impression of the types of caregiver reactions and their effects children's moral development.

The current study followed three aims. First, it examined the effect of everyday maternal reactions to moral transgressions on the development of 1- to 4.5-year-olds' prosocial and aggressive behavior. In addition, (2) it examined the effects of everyday maternal reactions on subsequent child behavioral reactions in everyday moral transgressions and (3) it investigated possible determinants of everyday maternal moral reactions (maternal reflective functioning abilities, moral self-concept, social conformity). Thus, the present work aimed to advance our understanding of early moral development by investigating how young children's interactions with caregivers longitudinally related to their prosocial and aggressive behavior as well as how children themselves deal with moral transgressions.

### **Everyday Caregiver Reaction Tendencies to Moral Transgressions and Young Children's Emerging Prosocial and Aggressive Behavior**

Developmental science has accumulated considerable evidence on the emergence and development of young children's prosocial and aggressive behavior over the first years of life (e.g., Arsenio et al., 2000; Dahl, 2015, 2016a; Dahl & Freda, 2017; Dunfield, 2014; Essler et al., 2020; Essler & Paulus, 2021; Hammond, 2014; Hammond et al., 2017; Hammond & Brownell, 2018; Hay, 2005; Hay et al., 2021; Hay & Cook, 2010; Hay & Ross, 1982; Hyde et al., 2015; Lorber et al., 2015; Mackler et al., 2015; Paulus, 2014, 2018, 2019; Paulus & Essler, 2020; Pettygrove et al., 2013; Sengsavang & Krettenauer, 2015; Wörle & Paulus, 2018).

Following a recent framework on the emergence of human altruism (Dahl & Paulus, 2019), early behavioral indicators of prosociality (e.g., infants holding their toothbrush, infants helping their parents with chores) before and around infants' first birthday are based on children's interest in social interactions and to constitute important precursors of intentional prosociality (Hammond et al., 2017). As infants develop their communicative and empathic abilities in the second and third year of life, prosocial behaviors become more actively oriented towards supporting others' intentional goals and furthering others' well-being. For example, toddlers begin to engage in empathic helping (Svetlova et al., 2010), divide resources equally among themselves and begin to share valued resources (Brownell et al., 2009; Ulber et al., 2015), and alleviate others' distress (Zahn-Waxler et al., 1992). During the preschool age, children then increasingly appreciate the normative obligations connected to prosocial behavior. For example, preschoolers reason about equity, equality, and others' welfare when allocating resources (Rizzo et al., 2016). Thus, prosocial behavior seems to emerge from behavioral precursors and increasingly relies on empathic and normative aspects within the first years of life with helping, sharing, and comforting following different trajectories (Dunfield, 2014; Paulus, 2014).

How might different caregiver reactions to moral transgressions support children's developing prosocial behavior? Previous work has identified at least three characteristics of caregivers' reactions to young children's moral transgressions. First, caregivers may tend to display negative, angry, firm-stern emotions in reaction to children's moral transgressions (i.e., negative emotions/punishment; Dahl et al., 2014). Second, caregivers may tend to verbally direct their children to show or cease a certain behavior. This second category comprises compliance-focused caregiver reactions such as physical or verbal interventions and instructions that aim to ensure rule-following behavior (e.g., Kochanska, 2002). Third, caregivers may show a tendency to reason with their children about the moral transgression, its effect on others, and how to alternatively behave in a particular situation (Dahl & Killen, 2018;

Essler & Paulus, 2020; Gralinski & Kopp, 1993; Kuczynski et al., 1987; LeCuyer-Maus & Houck, 2002; Waltzer et al., 2019). Caregivers' reasoning following young children's moral transgressions might support children's awareness of others' needs and how children's actions can contribute or impede the furthering of others' welfare. Consequently, caregiver reasoning following moral transgressions might lead children to more adequately interpret others' negative state in a situation that calls for prosocial intervention and thereby support children's developing prosocial behavior (e.g., Hammond & Carpendale, 2015; Pettygrove et al., 2013). In contrast, compliance-focused reactions and negative emotions would not scaffold such a deeper processing of the agents' goals and needs in relation to a moral transgression to the same degree and should therefore contribute less to children's developing prosocial behavior.

Aggressive behaviors emerge in the second half of the first year of life as infants begin to pull others' hair, bite, or kick (Hay, 2017; Lorber et al., 2015; Tremblay et al., 1999). While these early forms of physical aggression can be conceptualized as intentional with respect to the motoric execution of the action they comprise (e.g., pull someone's hair, bite someone's finger), these actions are likely not psychologically intentional with respect to children's awareness of their social consequences (e.g., children not anticipating pain or distress in the victim; Dahl, 2016a; Hay, 2005, 2017). In the second year of life, both provoked (i.e., aggression following frustration or anger) and unprovoked (i.e., aggression without signs of distress aimed to explore consequences or gain attention) acts of force increase (Dahl, 2016a; Dunn & Munn, 1985; Hay, 2005), while in the second half of the second year some studies report continued decreases extending throughout childhood (Côté et al., 2006) and some report temporal decreases (Hay, 2005). As children become more aware of the social consequences of their actions, unprovoked acts of force decrease in the second half of the second year of life and aggressive behavior becomes increasingly intentional (Dahl, 2016a). This relates well to studies showing that around their second birthday, parents begin to hold children accountable for their moral transgressions (i.e. acts of physical force harming others) and begin to regard them as

moral agents (Essler & Paulus, 2020). On a theoretical level, children's increasing language abilities represent a hallmark in their emerging moral agency as they become increasingly engaged in the moral discourse of their socio-cultural community (Paulus, 2020). As children's social cognition, language abilities, and appreciation of normative rules and others' intentions and welfare develops, their aggressive behaviors become more differentiated, reaching from forceful acts to regain or defend their possessions and the use of force against others' possessions (Hay, 2017), increasing relational aggression (e.g., rumor spreading) and decreasing physical aggression, and the manifestation of conduct problems in a minority of children (Côté et al., 2006). Taken together, infants' aggressive behavior and their moral transgressions emerge in the second half of the first year of life and become psychologically intentional during the second year of life. Initially high rates of physical aggression develop into more complex forms of social, relational, and object-oriented aggressive behavior during the preschool and elementary school years with rates of aggressive behaviors generally declining.

How could caregiver reactions to young children's moral transgressions diminish the development of aggressive behaviors? From a social-information processing point of view (Lemerise & Arsenio, 2000), caregiver negative emotions and compliance-focused reactions (e.g., directive comments) following a moral transgression represent important basic evaluations and instructions regarding children's behavior. However, caregiver reasoning reactions to a greater degree start a dialogue supporting the child to further comprehend what effects the moral transgression had on others, why it is considered aversive within a community, or how to act alternatively (e.g., ask for a toy instead of hitting someone). Thus, from a cognitive perspective, caregiver reasoning tendencies should be richer in information and dialogue than caregivers' negative emotions and compliance-focused reactions. Specifically, caregiver reasoning reactions might prompt children to reflect their behavior, consider the negative socio-emotional effects of moral transgressions (e.g., compromising others' well-being), support their

empathic and perspective taking skills, and suggest alternatives to morally transgressive behavior. It follows that these reasoning interactions should support children to consider the negative socio-emotional impacts of aggressive behavior and choose another course of action. Thus, caregiver reasoning reactions but not negative emotions and compliance-focused reactions should predict lower levels of aggressive behavior.

By investigating caregiver reactions as longitudinal predictors of children's prosocial and aggressive behavior, the present study aims to move the field forward in a number of ways. First, most of the findings to date are correlational in nature and thus do not speak to which longitudinal precursors predict the emergence of prosocial and aggressive behaviors in early childhood. Second, the relative contribution of different characteristics of caregivers' moral reaction tendencies (e.g., emotional vs. verbal; directive comments vs. reasoning) to children's emerging prosocial and aggressive tendencies is unclear. While some theoretical perspectives highlight the importance of compliance-focused caregiver reactions such as physical or verbal interventions to ensure rule-following behavior (e.g., Kochanska, 2002), other theoretical views propose caregiver reasoning reactions as crucial factor (e.g., Dahl & Killen, 2018). Third, caregiver moral reactions have been overwhelmingly studied in (1) scripted experimental settings or (2) with respect to general parental recollections (for an exception see Dahl, 2015). Parental reports and observations of children's lived experiences in specific intervals (e.g., daily reports) are needed to more closely tie everyday social interactions with caregivers to young children's developing moral stances (Rogoff et al., 2018). The present study addressed this research gap.

### **Everyday Caregiver Reactions and Subsequent Child Behavioral Reactions in Moral Transgression Situations**

A key proposal of the social-interactionist account concerns that caregivers' reactions to children's transgressions is an important factor in children's moral development. That is, after



transgressing (e.g., taking someone's toy away), caregivers display a number of reactions (e.g., caregiver reprimands child or explains why transgressions are problematic). These reactions, in turn, affect children's subsequent behavioral reactions (e.g., displaying anger). In the course of repeated interactions, young children increasingly develop moral agency by adapting their behavior and by growing in their abilities to actively engage in socio-moral interactions (Paulus, 2020).

From a developmental perspective (Carpendale et al., 2013), specific caregiver behavioral reactions to moral transgressions may be distinguished by their underlying intentions (cf. Côté-Lecaldare et al., 2016; Friedlmeier et al., 2019; Gralinski & Kopp, 1993; Kuczynski et al., 1987; LeCuyer-Maus & Houck, 2002). That is, some caregiver reactions seem to primarily focus on gaining the child's compliance or on the caregiver actively intervening to ensure morally adequate behavior (e.g., physical interventions; removal of problematic objects; reprimanding the child). From a compliance perspective (Kochanska, 2002), these reactions should lead to largely externally regulated child behavioral responses (Deci et al., 1994) that are based on young children's fear of punishment or on striving for obedience (Kohlberg, 1976; Piaget, 1932). That is, children do or do not comply with caregivers' demands (e.g., ceasing transgressive behaviors, showing anger or distress, continuing transgressive behavior), but they should not show reactions indicative of advanced moral agency (e.g., offering an excuse).

On the other hand, there are caregiver reactions primarily focusing on responding to the child's needs, engaging the child in a reasoning dialogue, and offering solutions. From a reasoning perspective (Dahl & Killen, 2018), these reasoning-focused caregiver reactions should instigate young children's deeper socio-cognitive processing and understanding of the transgression situation (e.g., involved needs, norms, alternatives). Thus, they should lead to a more internally motivated behavioral reaction of the child as an active agent participating in a socio-moral interaction (e.g., starting a new activity, negatively evaluating own behavior, offering an excuse, comforting the other child; Grolnick et al., 1997).

Thus, we predicted that maternal compliance-focused reactions to moral transgressions would positively predict young children's externally compliant and non-compliant responses while maternal reasoning-focused reactions would positively predict young children's active, internally regulated responses. This is particularly important as previous work has mostly focused on the transgression-caregiver reaction link and not taken the link to the subsequent reaction of the child into account, which can help to determine the effects of different maternal reactions. The present study aims at moving this line of research to a new level by examining associations between caregiver reactions to everyday moral transgressions and child moral development. It thereby directly tests the impact of compliance-focused versus reasoning-focused caregiver reactions on young children's subsequent behavioral responses.

### **Determinants of Everyday Caregiver Reaction Tendencies to Moral Transgressions**

Given the key role of caregiver reactions for young children's developing moral behavior and stances, developmental theorizing warrants the question which variables predict caregivers' reaction tendencies. That is, depending on caregivers' beliefs, abilities, and practices as well as caregivers' child rearing values, children might experience different reaction tendencies to their moral transgressions (Rogoff et al., 2018). In other words, the input young children rely on in constructing their moral stances might depend on the abilities and beliefs of their caregivers.

From a theoretical point of view, there are two different factors that could be related to caregivers' moral reaction tendencies. First, from a child as psychological agent point of view (e.g., Sharp & Fonagy, 2008), the extent to which caregivers have insight into the child's perceptions and internal states in the context of a moral transgression (child-related abilities; e.g., the child's specific emotions and intentions when hitting someone) constitutes an important factor. This competence to recognize one's own and the child's internal states such as feelings, goals, and desires has been defined as reflective functioning abilities (Fonagy et al., 2016). It can be conceptualized as a prerequisite for reasoning with the child about a moral

transgression and for offering insights into others' and the child's experience of the transgression at hand (e.g., how others' feel after being hit).

Second, from a moral self-concept perspective (e.g., Aquino & Reed, 2002), the extent to which caregivers themselves exhibit morally-relevant attitudes, which impact their interpretation of a moral transgression (self-related moral attitudes; e.g., how serious they perceive a moral transgression of the child and how they react subsequently) should be a crucial factor. One important concept here is the degree to which caregivers regard themselves as a person acting in a moral way (moral self-concept; Aquino & Reed, 2002). This could play a decisive role regarding the degree to which caregivers engage in reactions towards their child's moral transgressions. In addition, caregivers' tendency to agree with notions that people should generally abide by societal conventions and rules (social conformity; S. Feldman, 2003) could constitute a belief impacting the extent to which their moral reactions focus on societal norms and conventionalism. The present study thus contributes novel insights into the role caregivers' child-related abilities and self-related moral attitudes play in children's socio-moral interactions and moral development. Based on the above theoretical considerations, we hypothesized that (1) caregivers' reflective functioning would positively predict their reasoning reaction tendencies, (2) that caregivers' moral self-concept would positively predict their negative emotion reaction tendencies, their directive intervention reaction tendencies, and their reasoning reaction tendencies, and (3) that caregivers' social conformity would positively predict their negative emotion reaction tendencies and their directive intervention reaction tendencies.

### **The Current Study**

The present research aimed at bringing forth new evidence on (1) how caregiver reactions to children's moral transgressions predict the development of prosocial and aggressive behavior in early childhood and (2) how children themselves react to different caregiver interventions in

a transgression situation. In order to gain new insight into the dynamics of caregiver-child interactions in the context of children's moral transgressions, we relied on an ambulatory assessment approach in the context of a longitudinal investigation.

Parental questionnaires asking for reports of young children's behavior at home have been used successfully in previous research (e.g., Hammond et al., 2017). In particular, the ambulatory assessment approach using participants' smartphones to collect data (e.g., Fahrenberg et al., 2007; Miller, 2012; Trull & Ebner-Priemer, 2013) has yielded promising results regarding the study of a wide range of naturally occurring behaviors during childhood (e.g., Dirk & Schmiedek, 2017; von Stumm & Latham, 2018). Ambulatory assessment constitutes a minimally invasive method that has thus far often been used in clinical psychology to monitor patients' experiences of symptoms in their daily lives. It is a state-of-the-art behavior observation technology that frequently relies on participants' smartphones to study their daily experiences (Fahrenberg et al., 2007; Miller, 2012). Thus, using ambulatory assessment, researchers can collect data on a wide range of behavioral and physiological variables within the natural context they occur in. Specifically, respondents are prompted by notifications on their smartphones to report the behavior of interest repeatedly within a certain time frame (e.g., wellbeing, parenting practices, child moral transgressions). There are at least three advantages with the ambulatory assessment method: (1) It is minimally invasive compared to methods where researcher videotape behaviors of respondents, (2) it reduces recollection biases in self-reports by assessing variables of interest live or close to their occurrence, and (3) it expands the time frame that can be observed (e.g., multiple days, weeks) which is especially useful for rarely occurring behaviors. Given that harmful behaviors and aggression in young children's daily lives seem to occur at quite low rates overall (Dahl, 2016b; Hay, 2005), the ambulatory assessment approach seems destined to open a new window into the study of young children's moral transgressions.

At T1, we assessed young children's moral transgressions through caregiver report. Mothers reported over a time period of 9 days the most serious transgression on the evening of

each day as well as their own and their 5- to 46-month-old's subsequent emotional, verbal, and behavioral reactions. Over the final two days of the study, mothers reported their reflective functioning abilities, their moral self-concept, and their social conformity. At T2, 5 months later, mothers reported in the ambulatory assessment fashion on the evening of each of 2 days their child's aggressive and prosocial behavior.

## Method

### Participants

There were 220 mothers in the final sample at the first measurement point (see Table 1 for demographics). We excluded an additional 44 participants from the final sample as they did not report on any transgression at all ( $n = 38$ ) or failed to report the child's age ( $n = 6$ ). Each mother completed the survey with respect to one child (focal child) aged between 5 and 46 months (T1:  $M$  children = 25.38 months;  $SD$  children = 12.01 months; age range = 5-46 months; 86 girls, 106 boys, 33 no answer). At the second measurement point about 5 months later, there were 72 mothers taking part (T2:  $M$  children = 30.29 months;  $SD$  children = 12.10 months; age range = 13-53 months; 25 girls, 42 boys, 5 no answer). The attrition in number of participants from T1 to T2 was due to the generally greater attrition in online samples, especially during the COVID-19 pandemic. The study was part of an ongoing longitudinal project on moral interactions in infancy. We recruited participants by contacting families from a database of interested participants and by words of mouth. The present study was conducted according to guidelines laid down in the Declaration of Helsinki and participants gave their informed consent. All procedures involving human subjects in this study were approved by the local ethics committee at the Ludwig-Maximilians-Universität München.

Table 1

## Demographic Characteristics of Mothers at T1

Demographic Variable	Subcategory	Percentage
Age	20-30 years	22%
	31-40 years	53%
	41-55 years	7%
	No answer	18%
Highest Educational degree	University degree	48%
	Vocational training	24%
	Secondary school	5%
	Professional academy	6%
	Intermediate secondary school	5%
	Lower secondary school	<1%
	No answer	12%
Family situation (as pertaining to focal child)	Single parenthood	5%
	Joint parenthood	82%
	Parents separated & joint parenthood	<1%
	No answer	13%
Number of children (including focal child)	1 child	43%
	2 children	33%
	3 children	9%
	4 or more children	3%
	No answer	12%
Age of focal child	5-12 months	20%
	13-18 months	12%
	19-24 months	17%

	25-30 months	11%
	31-36 months	18%
	37-42 months	17%
	43-46 months	6%
Childcare outside of family for focal child (in general, not during COVID-19 pandemic)	Yes	55%
	No	32%
	No answer	13%

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### Sample Size

We used G\*Power to conduct a post-hoc statistical power analysis. Given the largely medium-sized effects in the data from a pilot study ( $N_{Pilot} = 14$ ), we aimed at detecting medium effect sizes. Assuming  $\alpha = .05$  and power = .80 in a multiple regression analysis with seven predictors, the projected minimum sample size was  $N = 103$ .

### Materials

The online survey at T1 consisted of four parts and extended over 12 days (questionnaires were sent at 7 pm each day, see below for details): (1) demographics (day 1), (2) ambulatory assessment questionnaire (day 2-10), (3) parental reflective functioning questionnaire (PRFQ) and maternal moral self-concept (day 11), and (4) maternal social conformity (day 12). We present the materials of the four parts separately. The online survey at T2 consisted of three parts and extended over 3 days (questionnaires were sent at 7 pm each day again, see below for details): (1) demographics (day 1), (2) Infant Externalizing Questionnaire and Child Behavior Scale (day 2), and (3) Early Prosocial Behavior Questionnaire and Child Behavior Checklist (day 3).

**At T1 and T2: Demographics (Day 1).** The demographic questions asked about basic information pertaining to mother, child, and caretaking arrangements. Specifically, it asked for age and gender of mother and focal child, how many siblings the focal child had, mother's educational degree, and average daily time spent taking care of the focal child. Given the quickly evolving situation during the COVID-19 pandemic pertaining to the lockdown restrictions at the time of data collections for T1 and T2, we also asked mothers at each day of the ambulatory assessment phase how much time they had spent with their child during a specific day.

**At T1 (predictor variables): Ambulatory Assessment Questionnaire (Days 2-10).** At the beginning of the questionnaire, mothers were given a definition of moral transgressions to be reported: (1) acts of physical harm (e.g., hitting, kicking, biting, destroying objects of another person), which previous research has identified as particularly common in young children (Côté et al., 2006; Hay, 2005) and (2) acts of psychological harm (e.g., verbal attacks) to account for children's increasing social-cognitive and language abilities between 5 and 46 months.

***Reporting of Transgressions and Maternal Emotional, Verbal, and Behavioral Reactions.*** Mothers indicated how many waking hours they spent with their focal child on this day and how many moral transgressions happened or were intended by the child but prevented by the caregiver during this time. In this way, we were able to include transgressions that a caretaker prevented before fully unfolding (e.g., preventing the focal child from hitting its sibling with a toy). If participants selected zero, the questionnaire ended for this day. In the other cases, participants were asked to briefly describe the most serious transgression in an open-ended format. Subsequently, if mothers were the victim of the transgression, they rated how they reacted emotionally and verbally to this transgression on two scales as described below. If the transgression involved a victim different from the mother, mothers were asked to rate how the victim and they themselves reacted emotionally and verbally (same scales). By



focusing on the most serious transgression, we aimed to facilitate mothers' accurate recollection of the incident.

The scales for assessing the intensity of verbal and emotional reactions to the child's transgression each consisted of 8 items. All items were rated on a 5-point Likert scale ("not at all", "barely", "medium", "quite", "very strong"). For the emotional reactions scale mothers were asked, "How did you react in the above described situation towards your child on an emotional level?" The items were "angry/furious", "expressing pain", "serious", "insecure", "indignant/outraged", "startled", "disappointed/sad", and "no emotional reaction". These items were chosen based on past research indicating that parents frequently express pain, anger, and seriousness in their reactions to children's moral transgressions (Dahl, 2016b; Dahl & Campos, 2013). In addition, mothers might react insecurely or even be startled, if they are not sure how to interpret the incident. In contrast, they might react indignantly or disappointedly if they clearly interpret the incident as a moral transgression they hold the child accountable for (cf. Essler & Paulus, 2020).

For the verbal reactions scale mothers were asked, "How did you react in the above described situation towards your child on a verbal level?" The items were *halting* (e.g., "No!"), *calling attention to consequences* (e.g., "That hurts!"), *reacting normatively* (e.g., "You are not allowed to do that!"), *giving instructions* (e.g., "Give that back!"), *asking for child's motive* (e.g., "Why have you done that?"), *interpreting child's motive* (e.g., "I know you like to have this toy, but ..."), *changing perspective* (e.g., "How do you think she feel now after you have hit her?"), and *no verbal reaction*. These items were chosen based on literature showing that mothers employ directly transgression-directed verbal strategies such as commands and instructions as well as normative explanations and verbal strategies focusing on the motives and consequences following transgressions of young children (e.g., Dahl, 2016b; Gralinski & Kopp, 1993; Kuczynski et al., 1987; LeCuyer-Maus & Houck, 2002). At the end of the questionnaire, mothers were asked to describe open-endedly how they reacted on a behavioral

level to the transgression of the focal child (“With which specific behavior did you react towards your child in the above described situation (e.g., taking toy away)”).

***Reporting of Child Behavioral Reactions.*** To open a window into the impact of the maternal reactions on the child and to assess the child’s response to his/her transgression and the subsequent environmental feedback, we asked mothers to report in an open-ended format how the focal child in turn reacted to the mother’s intervention behavior (“With which specific behavior did your child react towards your reaction in the above described situation (e.g., ran away)”). Feedback during pilot testing revealed the suitability of the questionnaire as well as a short completion time (average of 3-5 minutes if a transgression was reported).

***Factor Analyses of Emotional and Verbal Scales.*** To assess the structure of mothers’ emotional and verbal reactions, we calculated two exploratory factor analyses (one for the emotional scale and one for the verbal scale) on the mean reactions (averaged across days) to the seven items of both scales (excluding the items “no emotional reaction” and “no verbal reaction”). The Kaiser-Meyer-Olkin measure (KMO) determines the proportion of variance among the items that could be shared variance. Higher values indicate higher aptness of the data for factor analysis. KMO values of the 14 items were  $> 0.68$  indicating that the data is suited for factor analysis and Bartlett’s test of sphericity showed sufficiently large intercorrelations between items for both scales ( $ps < 0.001$ ). For the emotional scale, parallel analysis suggested 3 factors and very simple structure analysis suggested 1 factor to extract. Given that for the 3 factor solution the oblique factor analysis yielded only one item with the highest loading on factor 3, we opted for the 1 factor solution, explaining 39% of the variance. We therefore calculated a mean across the 7 items of the emotional scale for further analyses (Cronbach’s  $\alpha = 0.79$ ) representing mothers’ tendency to react with negative emotions to their children’s moral transgressions (e.g., angry, indignant, sad), factor henceforth labelled “negative emotion”.

For the verbal scale, parallel analysis suggested 2 factors and very simple structure analysis suggested 1 factor to extract. The items “reacting normatively (e.g., You are not allowed to do that!)”, “asking for child’s motive (e.g., Why have you done that?)”, “interpreting child’s motive (e.g., I know you like to have this toy, but ...)”, and “changing perspective (e.g., How do you think she feel now after you have hit her?)” showed high loadings ( $> 0.39$ ) on factor 1 but not on factor 2 in the oblique factor analysis. In contrast, the items “stopping (e.g., No!)”, “calling attention to consequences (e.g., That hurts!)”, and “giving instructions (e.g., Give that back!)” showed high loadings ( $> 0.4$ ) on factor 2 but not on factor 1. Thus, we opted for a 2 factor solution explaining 55% of the variance with a correlation of  $r = 0.58$  between both factors. We calculated a mean across the 4 items of factor 1 (Cronbach’s  $\alpha = 0.82$ ) representing mothers’ tendency to reason in response to transgressions (about motive, perspective, norms; factor “verbal reasoning”), henceforth labelled “verbal reasoning”. Moreover, we calculated a mean across the 3 items of factor 2 (Cronbach’s  $\alpha = 0.78$ ) representing mothers’ tendency for directive verbal intervention (stopping, giving directions; factor “directive verbal interventions”) for further analyses, henceforth labelled directive verbal intervention.

**At T1 (predictor variable): Parental reflective functioning and moral self-concept (Day 11).** To assess maternal reflective functioning we used the PRFQ (Luyten et al., 2017). It consists of 18 items (example item: “I always know what my child wants.”) and a 7-point Likert-type response scale (ranging from 1 “strongly disagree” to 7 “strongly agree”). Items were combined into three groups with 6 items each to form the subscales pre-mentalizing (Cronbach’s  $\alpha = 0.37$ ), certainty of mental states (Cronbach’s  $\alpha = 0.74$ ) and interest and curiosity (Cronbach’s  $\alpha = 0.49$ ). The pre-mentalizing subscale was excluded from further analyses due to the very low reliability value. Means were calculated for the other two subscales after reversing the respective items for further analyses.

We assessed mothers' moral self-concept on the same day using an established moral self-concept questionnaire comprising 10 items (Aquino & Reed, 2002). Participant responded on a 7-point Likert-type scale ranging from 1 "do not agree at all" to 7 "agree completely" (example item: "It would make me feel good to be a person who has these characteristics."). Two means (each across 5 items) were calculated after reversing the respective items to form the subscales symbolization (Cronbach's  $\alpha = 0.72$ ) and internalization (Cronbach's  $\alpha = 0.66$ ).

**At T1 (predictor variable): Social conformity (Day 12).** Mothers were asked to indicate how desirable they judged four authoritarian (e.g., obedience) and four non-authoritarian (e.g., curiosity) child-rearing values (S. Feldman & Stenner, 1997). As pilot testing revealed little variance with the original response format (pairing up one authoritarian and one non-authoritarian value and choosing for one), we changed the response format to a 4-point Likert type scale ranging from 1 ("not at all desirable") to 4 ("very desirable") to assess participants judgment in a more nuanced way. We translated the items to obtain a German version (Cronbach's  $\alpha = 0.49$ ) and used back translation to ensure equivalency of item formulations.

As previous work suggested that authoritarianism might be related to a generalized motive for social conformity, we also incorporated a social conformity measure to broaden the scope social conformity related findings (S. Feldman, 2003; Reifen Tagar et al., 2014). For the same reason as above, we presented the items not as pairs to choose between, but as single statement participants could rate on a 4-point Likert-type scale ranging from 1 ("do not agree at all") to 4 ("agree completely"). We translated the items to obtain a German version (Cronbach's  $\alpha = 0.87$ ) and used back translation to ensure equivalency of item formulations. Due to the high intercorrelation between both measures ( $r = 0.58, p < 0.001$ ), we combined them into a single social conformity measure after reversing the respective items (Cronbach's  $\alpha = 0.88$ ).

**At T2 (outcome variables): Infant Externalizing Questionnaire, Child Behavior Scale (Day 2), and Child Behavior Checklist (Day 3).** To assess children's aggressive behavior we administered the Infant Externalizing Questionnaire (IEQ; Lorber et al., 2015) consisting of the physical aggression subscale (6 items, e.g., "kicks people", Cronbach's  $\alpha = 0.55$ ) and the defiance subscale (3 items, e.g., "keeps going when told to stop", Cronbach's  $\alpha = 0.82$ ). Mothers were asked to respond on a 3-point Likert-type scale ranging from 0 ("not at all true") to 2 ("very true or often true"). As further indicator of aggressive behavior we used the aggressive with peers subscale (7 items, e.g., "fights with other children", Cronbach's  $\alpha = 0.70$ ) of the Child Behavior Scale (CBS; Ladd & Profilet, 1996). Mothers responded on a 3-point Likert-type scale ranging from 1 ("doesn't apply (child seldom displays this behavior)") to 3 ("certainly applies (child often displays this behavior)"). We translated the items of both questionnaires to obtain a German version and used back translation to ensure equivalency of item formulations. As a final indicator of children's aggressive behavior we administered 9 items (e.g., "hits others", Cronbach's  $\alpha = 0.77$ ) from the aggressive behavior subscale of the Child Behavior Checklist (CBCL; Achenbach & Rescorla, 2000). Mothers indicated their responses on a 3-point Likert-type scale ranging from 0 ("not true (as far as you know)") to 2 ("very true or often true"). Given the high intercorrelations between the CBCL aggressive behavior items, the CBS aggressive with peers subscale, and the IEQ physical aggression subscale ( $r_s > 0.50$ ,  $p_s < 0.01$ ), we scaled and mean-centered the three scales and subsequently calculated a grand mean across the three means of the scales to yield one aggressive behavior scale (Cronbach's  $\alpha = 0.88$ ).

**At T2 (outcome variable): Early Prosocial Behavior Questionnaire (Day 3).** We measured children's early prosocial behavior (helping, sharing, comforting) by using the Early Prosocial Behavior Questionnaire (Giner Torrens & Kärtner, 2017). It consists of 10 items to be rated on a 4-point Likert-type scale ranging from 1 ("This behavior occurs almost never") to 4 ("This behavior occurs almost always"). The three subscales are helping (4 items, e.g., "helps

cleaning”, Cronbach’s  $\alpha = 0.80$ ), sharing (3 items, e.g., “shares things with others”, Cronbach’s  $\alpha = 0.85$ ), and comforting (3 items, e.g., “comforts others when they are sad or unhappy”, Cronbach’s  $\alpha = 0.92$ ).

### **Procedure**

The online survey extended over 12 days (T1) and 3 days (T2). After registering their smartphones, participants received a link leading them to the respective questionnaires (see above) for 12/3 consecutive days. The link was sent at 7 pm every evening and was valid until midnight. Embedded data and person-specific codes were used to match responses from the same participant. In the beginning, all links were sent out via SMS using surveysignal. After experiencing technical difficulties on part of surveysignal, we changed from SMS to E-mail notifications containing the link. All questionnaires were hosted on Qualtrics. Upon registration, instructions informed participants on the purpose of the study and on data privacy topics. Participants agreed that their data will be saved anonymously.

On the first evening participants completed the demographics questionnaire. The following nine evenings, participants completed the ambulatory assessment questionnaire (only T1). The questionnaire was the same for all days (as described above). We chose nine days as pilot testing revealed that after this time most participants had reported a moral transgression on at least two days, giving us the opportunity to combine responses across at least two incidents. On day eleven/twelve (T1) and two/three (T2) participants filled out the questionnaires pertaining to maternal constructs/child behavior as described above.

### **Data Coding**

The transgressions described by the mothers as well as the description of their own and the child’s behavior following the transgression were coded into non-mutually exclusive categories based on previous research on mother-child interactions in the context of moral transgressions

(Dahl, 2016b; Dahl & Campos, 2013; Gralinski & Kopp, 1993; Kuczynski et al., 1987; LeCuyer-Maus & Houck, 2002). The interrater reliability was calculated based on 20% of the sample.

**Types of Transgressions.** We coded the reported transgressions into 6 categories (Cohen's  $\kappa = 0.94$ ): (1) physical: direct infliction of physical harm (e.g., hitting); (2) ownership: unallowed taking away of objects or destroying of objects without direct infliction of physical pain (e.g., destroying someone else's drawing); (3) emotional: infliction of emotional harm, verbal attack, or emotional impulsiveness (e.g., name calling); (4) social-conventional transgressions (deviating from socio-cultural or family rules/habits; e.g., spilling water); (5) failure to act in a positive moral way/not fulfilling positive duties (e.g., not sharing toys); (6) other. In addition, we coded whether transgressions did actually occur or were prevented from happening.

**Maternal Behavior (Open-Ended Question).** Maternal reactive behaviors in response to transgressions were coded into 8 categories (Cohen's  $\kappa = 0.89$ ): (1) physical intervention (e.g., forcing child's hand); (2) physical intervention to meet the child's needs (e.g., embracing the child for comfort); (3) removal or relocation of problematic objects (e.g., taking object(s) away from child); (4) no intervention, ignoring, or observation of unfolding events; (5) reasoning (e.g., explanation of situation, norm, or consequences of behavior, giving of directions, commands); (6) change of situation, distraction, leading child to a different activity, or offering a solution (e.g., giving the child another toy); (7) reprimand (e.g., punishing the child); (8) other.

**Child Behavior (Open-Ended Question).** Child reactive behaviors in response to maternal interventions were coded into 9 categories (Cohen's  $\kappa = 0.84$ ): (1) no reaction; (2) emotional distress (e.g., looking scared, crying); (3) anger, rage (e.g., throwing toys around); (4) positive emotional reaction (e.g., smiling); (5) leaving situation, starting new activity (e.g., running away); (6) ceasing previous behavior (e.g., stopping to hit another child); (7)

continuation of previous behavior (e.g., keep hitting another child); (8) negative evaluation of own behavior, attempting to make reparations, offering an excuse (e.g., comforting the other child); (9) other.

### **Data Analysis**

All analyses were conducted in R (R Core Team, 2020). The analyses are structured into two parts. The first part of the analyses focuses on the maternal variables (level 1), such as (1) relations of mothers' general reaction tendencies with child aggressive and prosocial behavior as well as (2) relations of mothers' reflective functioning skills, moral self-concept, and social conformist attitude with mothers' general reaction tendencies.

The second part of the analyses focuses on relations between mothers' open-ended behavioral reactions and children's associated open-ended behavioral reactions in response to the reported transgressions which are nested within mothers (level 2). Therefore, this part will rely on multilevel modelling. We used the mice-package in R to impute missing data via predictive mean matching to avoid loss of statistical power and bias due to missing data (Enders et al., 2016; van Buuren & Groothuis-Oudshoorn, 2010). Data supporting the findings of this study are available under <https://osf.io/vrhxs/>.

## **Results**

### **Descriptives**

Table 2 shows descriptive statistics of the main study variables. These results indicate that mothers, on average, responded on 7 out of 9 days to the ambulatory assessment questionnaire, reported transgressions on 4 out of 7 days on average, and reported an average number of 2.22 transgressions per day, that is, a total number of about 2,000 transgressions.

Regarding the open-ended transgressions, where mothers reported the one most serious transgression of the day, mothers reported 884 in total. Out of these transgressions, 69% were



coded as physical, 14% were coded as ownership, 15% were coded as emotional, 4% were coded as social-conventional, < 1% was coded as failure to act in a positive moral way and 2% were coded as other (the last three were excluded from further analysis due to low percentage).

Note that all descriptive statistics are based on the original, unimputed dataset.

Table 2

*Descriptives of the main variables*

	<i>N</i>	<i>Mean</i>	<i>SD</i>	<i>Range</i>
<b>T1 Measures</b>				
Days responding to AA questionnaire	220	7.04	2.28	1–9
Days reporting a transgression	220	4.01	2.36	1–9
Number of transgressions per day	220	2.22	1.44	1–11.44
Daily waking hours with focal child	220	10.05	2.27	2.33–16.00
Negative emotion (factor)	220	2.28	0.63	1.00–4.29
Verbal reasoning (factor)	220	2.55	0.97	1.00–5.00
Directive verbal intervention (factor)	220	3.32	0.85	1.00–5.00
PRFQ – certainty mental states	163	3.83	0.94	1.00–6.33
PRFQ – interest and curiosity	163	5.63	0.66	4.17–7.00
MSC – internalization	163	6.02	0.73	3.20–7.00
MSC – symbolization	163	4.12	1.05	1.00–6.40
Social conformity	166	2.15	0.30	1.33–3.00
<b>T2 Measures</b>				
Child aggressive behavior	65	0.00	0.86	-1.42–2.91
Child defiance	58	2.18	0.56	1.00–3.00
Child helping	60	2.77	0.61	1.00–4.00
Child sharing	60	3.02	0.64	1.33–4.00
Child comforting	60	2.71	0.81	1.00–4.00

*Note.* Negative value of child aggressive behavior resulted from scaling and mean-centering. The differences in *N* for the T1 measures is due to the fact that mothers could participate in

AA measures on each of 9 days while they could only participate in the PRFQ, MSC, and social conformity measures on 1 day.

### **Longitudinal Predictors of Child Aggressive and Prosocial Behavior**

To assess longitudinal relations between maternal reactions to transgressions and child aggressive and prosocial behavior, we conducted multiple linear regressions with T1 maternal negative emotion, verbal reasoning, and directive verbal interventions as predictors of T2 child aggressive behavior, child defiance, and child helping, sharing, and comforting. Given the rather small sample size at T2 and given that we had missing values only on the outcome variables, we ran the models on the available data rather than relying on multiple imputation. Child aggressive behavior at T2 ( $R^2 = .10$ ) was less likely after increased maternal verbal reasoning at T1,  $b = -0.33$ ,  $SE = .15$ ,  $t(61) = -2.20$ ,  $p = 0.032$ . For child defiance ( $R^2 = .06$ ) and child helping behavior ( $R^2 = .10$ ), all predictors emerged as non-significant ( $ps > 0.07$ ). Child sharing behavior at T2 ( $R^2 = .24$ ) was more likely after increased maternal verbal reasoning,  $b = 0.23$ ,  $SE = .11$ ,  $t(56) = 2.14$ ,  $p = 0.037$  and after increased maternal directive verbal interventions,  $b = 0.33$ ,  $SE = .16$ ,  $t(56) = 2.13$ ,  $p = 0.038$  at T1. Child comforting behavior at T2 ( $R^2 = .28$ ) was more likely after increased maternal verbal reasoning at T1,  $b = 0.39$ ,  $SE = .13$ ,  $t(56) = 2.87$ ,  $p = 0.006$ .

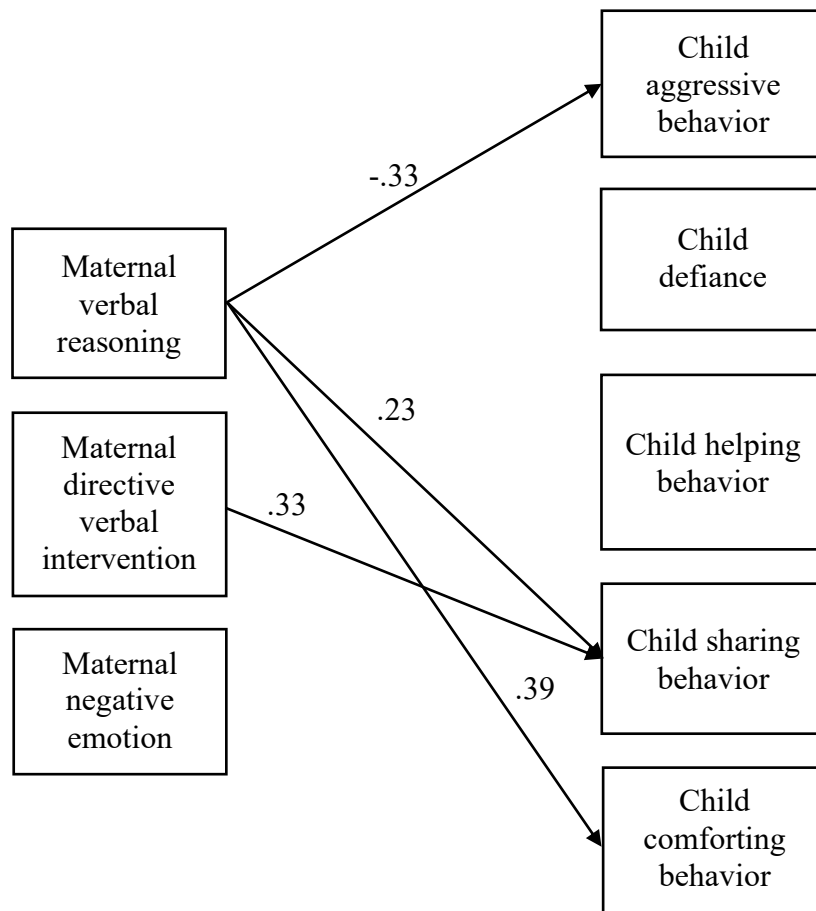


Figure 1. Regression coefficients of the multiple linear regressions. Note: arrows indicate  $p < .05$ . All other coefficients  $p > .05$ .

### Predictors of Maternal Emotional and Verbal Reactions to Children's Transgressions

To investigate which variable predicted maternal negative emotion, verbal reasoning and directive verbal intervention, we computed three multiple linear regressions with maternal reflective functioning abilities, maternal moral self-concept, maternal social conformity, and child age as predictors. Maternal negative emotion ( $R^2 = .17$ ) was less likely with increased maternal interest and curiosity,  $b = -0.16$ ,  $SE = .07$ ,  $t(160.27) = -2.16$ ,  $p = .032$  and more likely with increased maternal social conformity,  $b = 0.50$ ,  $SE = .16$ ,  $t(145.52) = 3.24$ ,  $p = .001$  and increased child age,  $b = 0.01$ ,  $SE = .004$ ,  $t(195.87) = 3.55$ ,  $p < 0.001$ . Maternal verbal reasoning ( $R^2 = .24$ ) was more likely with increased child age,  $b = 0.03$ ,  $SE = .005$ ,  $t(195.11) = 6.55$ ,  $p <$

0.001. Maternal directive verbal interventions ( $R^2 = .08$ ) were more likely with increased child age,  $b = 0.02$ ,  $SE = .005$ ,  $t(195.82) = 3.61$ ,  $p < 0.001$ .

### **Relations Between Maternal Reactions and Subsequent Child Reactions**

We specified binomial linear mixed-effects models with transgressions nested within mothers. Given that there were no missing values in the coded data, we ran the models without relying on multiple imputation. First, we assessed the effect of child age on the types of transgressions (physical, ownership, emotional). With increasing child age physical transgressions became less likely ( $R^2 = .30$ ),  $b = -0.03$ ,  $SE = .01$ ,  $z = -2.79$ ,  $p = 0.005$  and emotional transgressions became more likely ( $R^2 = .16$ ),  $b = 0.04$ ,  $SE = .01$ ,  $z = 3.38$ ,  $p < 0.001$  (other  $p > 0.80$ ).

Second, we assessed types of maternal reactions (physical, physical needs, removal, no reaction, reasoning, change situation, reprimand) as predictors for different subsequent child reactions ( $p$ -values adjusted for multiple testing). The child showing no reactions ( $R^2 = .23$ ) became less likely with increasing child age,  $b = -0.08$ ,  $SE = .02$ ,  $z = -4.57$ ,  $p < 0.001$ . Child emotional crying reactions ( $R^2 = .22$ ) were more likely after increased maternal physical reactions,  $b = 0.75$ ,  $SE = .25$ ,  $z = 3.02$ ,  $p = 0.024$ , increased maternal removal reactions,  $b = 1.09$ ,  $SE = .30$ ,  $z = 3.62$ ,  $p = 0.002$ , and increased maternal reprimands,  $b = 1.29$ ,  $SE = .46$ ,  $z = 2.78$ ,  $p = 0.043$ . Child emotional anger reactions ( $R^2 = .11$ ) were more likely after increased maternal physical reactions,  $b = 0.67$ ,  $SE = .24$ ,  $z = 2.80$ ,  $p = 0.041$  and with increasing child age,  $b = 0.03$ ,  $SE = .01$ ,  $z = 2.84$ ,  $p = 0.037$ . Child leaving situation reactions ( $R^2 = .18$ ) were more likely after maternal changing situation reactions,  $b = 1.96$ ,  $SE = .27$ ,  $z = 7.13$ ,  $p < 0.001$ . Child negative evaluation of transgression reactions (e.g., making reparations, offering an excuse;  $R^2 = .32$ ) were more likely after increased maternal reasoning reactions,  $b = 0.98$ ,  $SE = .36$ ,  $z = 2.74$ ,  $p = 0.048$  and with increasing child age,  $b = 0.05$ ,  $SE = .02$ ,  $z = 2.91$ ,  $p = 0.029$ .

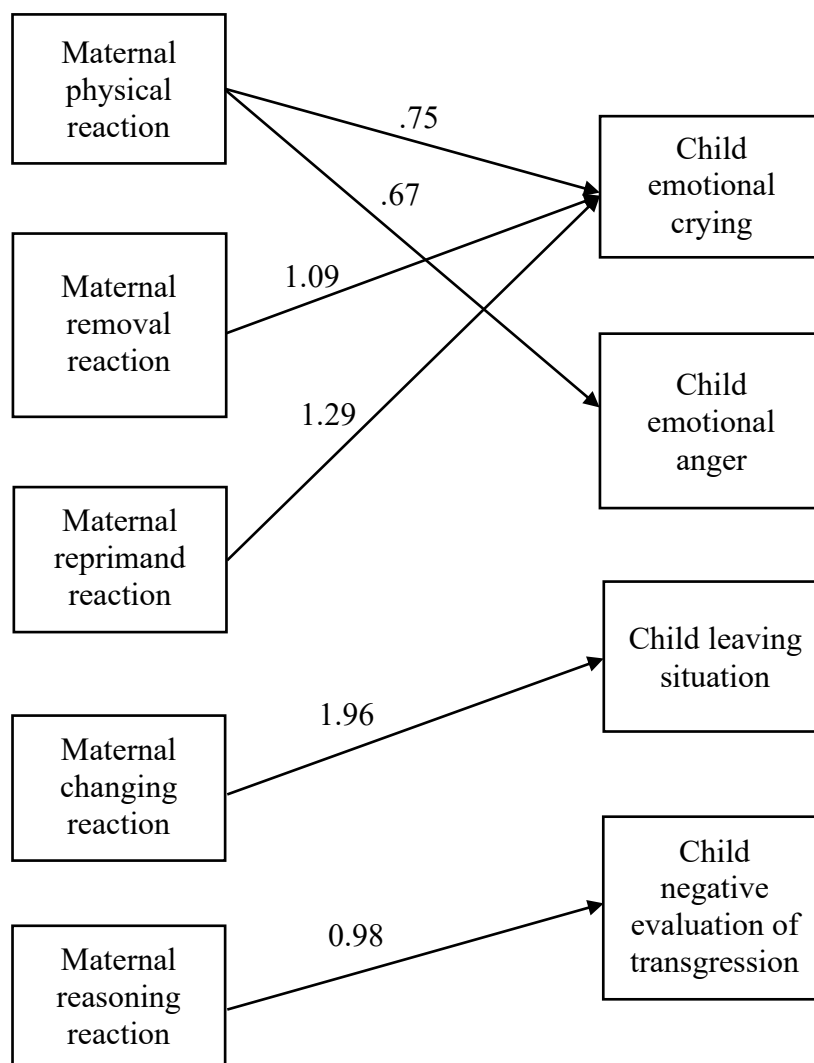


Figure 2. Regression coefficients of the multiple linear regressions. Note: arrows indicate  $p < .05$ . All other coefficients  $p > .05$ .

### Discussion

The present study investigated the effect of everyday caregiver reactions to children's moral transgressions on early moral development. Specifically, it examined the role of socio-moral interactions between children and caregivers for children's developing aggressive, prosocial, and moral behavior. Our results indicated that primarily caregiver reasoning interventions in the context of moral transgressions supported children's sharing and comforting behavior and

was related to lower levels of children's aggressive behavior half a year later. Caregiver social conformity and reflective functioning abilities emerged as determinants of caregiver negative emotions in the context of moral transgressions. Caregiver reasoning reactions supported children's negative evaluations of their own transgressions. Thus, the present work offers methodological and theoretical advances in the study of children's moral development in everyday life and underscores the pivotal role of caregiver reasoning in children's developing moral agency.

Developmental theories have claimed the importance of socio-moral interactions in general and caregiver reasoning in the context of moral transgressions in particular for children's developing internalized, self-regulated moral stances (Carpendale et al., 2013; Grolnick et al., 1997; Kochanska et al., 2010). By reasoning with their children about the needs, emotions, norms, and consequences involved in morally relevant situations, caregivers support children to elaborately process the moral transgression, its effect on others, and consider alternative behaviors. Our results underline these theoretical assumptions: First, our results indicate that caregiver reasoning longitudinally predict the emergence of prosocial behavior as well as reduced aggressive behaviors. Second, caregiver reasoning also predicted that children made reparations in response to their transgressions and offered excuses. This complements and extends previous work on caregiver-child interactions in the context of moral development by demonstrating the impact of caregiver reasoning strategies on early moral development. Third, caregiver reasoning seems to be complemented by caregiver directive verbal interventions in relation to salient, concrete behaviors (e.g., sharing) pointing to the importance of verbal directions alongside reasoning in scaffolding children's prosocial development.

The present work is among the first to use ambulatory assessment methods in moral development research. It corroborates previous findings on the rather infrequent occurrence of moral transgressions in young children's everyday lives (Dahl, 2016b; Hay, 2005) and thereby underscores the validity of and the need for ambulatory assessments. Using everyday

assessments over a prolonged time period opens a new window into young children's socio-moral interactions. In particular, the present study demonstrates how different types of daily caregiver moral reactions contribute to children's moral development. Thus, (1) by yielding a large number of moral interactions due to the extended assessment time period, (2) by representing a minimally invasive method to investigate everyday moral interactions, and (3) by facilitating parental recollection through daily reports, ambulatory assessment methods constitute promising ways to further advance moral development research.

From a constructivist perspective (e.g., Paulus, 2020; Smetana, 2013), it is especially caregiver reactions focusing on the child's needs, on offering solutions and on engaging the child in a reasoning dialogue in the context of moral transgressions and not compliance-based reactions that should promote children's appreciation of moral action. With increasing appreciation of moral norms and understanding of others' perspectives, children are supposed to develop increased self-regulated appreciation of moral behavior. The results from the present study underscore this notion. Interestingly, compliance-based caregiver reactions (e.g., physical intervention, removal, reprimand) were followed by compliance-based child reactions (e.g., emotional distress and anger). On the other hand, solution-focused caregiver reactions (e.g., changing the situation, reasoning) were followed by child reactions evident of greater self-regulation and appreciation of morality (e.g., finding a solution by leaving the situation, negatively evaluating own transgression). This resonates well with previous work (Huang et al., 2007; Karreman et al., 2006; LeCuyer & Houck, 2006) and expands it. Specifically, the current work provides a unique window into the links between caregiver reactions and subsequent child reactions in the context of moral transgressions. That is, it offers evidence from children's everyday lives pinpointing which kind of caregiver reactions contribute to children's self-regulated participation in socio-moral interactions.

Notably, our results indicate that determinants of caregivers' reaction tendencies solely affected caregivers' negative emotions but not their verbal reasoning or directive intervention.

That is, interest and curiosity related negatively and social conformity related positively to negative emotions. This suggests that caregivers' own attitudes towards societal conventions as well as their interest into the child's mental states did not affect how they verbally responded to the child's transgression but rather what emotional weight they assigned to their reaction (S. Feldman, 2003). Specifically, this hints at moral transgressions being a hot and emotionally charged interaction context with the strength of negative emotions depending on caregivers attitudes and abilities in addition to factors like the nature of the transgression (Dahl et al., 2014).

Our findings show that caregiver reflective functioning does not predict caregiver use of reasoning in response to child moral transgressions. We could think of two possible explanations here. First, caregivers' ability to conceive of their child's internal states related to a transgression (Sharp & Fonagy, 2008) might be a predictor of caregiver emotional reactions (e.g., displaying less negative emotions) more than of caregiver reasoning reactions. That is, by understanding their child's wishes behind the transgression (e.g., wanting to get a toy), caregivers might attune their negative emotions. This would relate well to our finding that caregiver reflective functioning predicted less negative emotions. Second, for the interest and curiosity subscale, all parents reported means above the midpoint of the scale and variance was quite low. This could indicate that our sample was too high and homogenous in their reflective functioning to find relations with caregiver reasoning. That is, once a certain threshold of reflective functioning is reached, it might not impact caregiver reasoning anymore. It would be worthwhile to investigate the impact of reflective functioning on caregiver reasoning further in more diverse samples.

Finally, our results show that, with age, children displayed more emotional and less physical transgressions and that, with age, children responded less with no reaction, more with negative evaluations of own transgressions, and more with anger. This relates well to developmental trajectories across early childhood such as the increase of language abilities and



the increase of socio-emotional abilities such as perspective-taking (D. H. Feldman, 2012; Malti & Noam, 2016). With age, children seem to become more active participants in socio-moral interactions by increasingly engaging in verbal transgressions, increasingly responding to caregiver interventions, and increasingly reflecting on their own behavior.

### **Limitations and Conclusion**

The present study presents methodological and theoretical advances in research on children's developing morality in their everyday lives. While being methodologically innovative, our findings are based on parental reports and need to be complemented by assessments of child moral behavior. In addition, to get a more detailed picture of specific developmental trajectories of morality in children's everyday lives, future research should rely more on concrete age bands to extract effects in even greater detail.

Future research should examine effects of the COVID-19 pandemic on caregiver-child moral interactions in more detail. For example, one might expect that public health measures such as home confinement and restriction on peer contacts might lead to an increase in moral transgressions and caregiver-child moral interactions (e.g., Christner et al., 2021). In addition, maternity leave could also have an impact on the time caregivers and children spend together. It would be worthwhile to investigate how maternity leave would affect caregiver-child moral interactions.

Taken together, the current work highlights the pivotal role of reasoning in caregiver-child interactions for children's development of prosocial, aggressive, and moral behavior. It thereby demonstrates how the socio-cultural community contributes to children's emerging moral agency across the first years of life.

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