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Mothers' Orientations to Infants' Moral, Prudential, and Pragmatic Transgressions

By

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University of California, Berkeley

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Professor Joseph J. Campos, Co-chair

Professor Elliot Turiel, Co-chair

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Professor Geoffrey B. Saxe

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Abstract

Mothers' Orientations to Infants' Moral, Prudential, and Pragmatic Transgressions

by

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The moral prohibition against harming others is fundamental to any social unit, including families with young children. Yet, infants appear less averse to harming others than do older children and adults. Infants' harmful actions may in turn elicit strong reactions from others that could contribute to the acquisition of morality.

The present study investigated two main propositions: 1) mothers respond differently to infants' harmful acts against others (*moral* transgressions) than when intervening on transgressions related to infants' own well-being (*prudential* transgressions) or the creation of inconvenience, such as spilling (*pragmatic* transgressions). 2) Most infants harm others even without provocation. Twenty-six infants and their families participated in a 2.5-hour naturalistic home observation when the infant was 14 months old. Most of the families participated in additional visits when the infant was 19 ($N = 24$) and 24 ($N = 22$) months of age.

All infants who participated in three visits had at least one instance of purposefully harming others and 82 percent did so without any provocation or sign of distress. The hourly frequency of unprovoked purposeful harm showed a curvilinear relation to age (Visit 1: 0.85, Visit 2: 1.42, Visit 3: 1.27). Compared to their interventions on prudential and pragmatic transgressions, mothers' interventions on moral transgressions involved increased use of physical interventions and direct commands, decreased use of softening interventions or distractions, and decreased relenting or compromising. Mothers also rated it as more important to discourage their children from moral transgressions than to discourage their children from prudential transgressions. These findings suggest that caregiver responses to transgressions provide unique opportunities for the early acquisition of the moral prohibition against harming others.

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Mothers' Orientations to Infants' Moral, Prudential, and Pragmatic Transgressions

I took him out of the bath and he bit me on the shoulder pretty hard. I immediately told him very, very firmly and strongly, "absolutely no biting," 'cause I've told him no biting before over and over again.

Mother of 21-month-old¹

The general prohibition against harming others is an indispensable part of any social group, be it the family of a young child, a group of peers, or an entire society. This moral norm rests on the fundamental respect for the value of human life (Dworkin, 1994). Without it, we might find ourselves in what philosopher Thomas Hobbes referred to as the *state of nature*, in which the life of humans would be "solitary, poor, nasty, brutish, and short" (1651/1996, p. 89). When individuals do harm others, the consequences for transgressors, victims, and those around them are often tragic (Dishion & Patterson, 2006). The inherent features of harmful acts set the moral prohibition against harm apart from non-moral norms that pertain to inconvenience (here termed *pragmatic* issues), safe behavior (*prudential* issues), or dress codes (*conventional* issues) (Gray, Young, & Waytz, 2012; Smetana, 2013; Turiel, 1983). Accordingly, preschoolers, older children, and adults view moral issues as categorically distinct from other normative considerations (Dahl & Kim, 2014; Nucci & Weber, 1995; Smetana, 2013; Smetana et al., 2012; Tisak, 1993; Turiel, 2014)

Unlike most older children and adults, human infants hardly seem averse to interpersonal harm (often to the frustration of caregivers). By the middle of the second year, the majority of infants physically harm others and do so at rates higher than the typical preschooler or adolescent (Dishion & Patterson, 2006; Hay, 2005; Tremblay et al., 1996). In one study, all mothers of 11- to 23-month-old infants were able to describe a recent instance when their child had harmed someone else (Dahl & Campos, 2013).

Insofar as moral norms are perceived as both categorically different from, and more important than, other norms, caregivers may respond differently to harmful transgressions than to transgressions that create inconvenience (e.g. spilling, playing with breakable family property; *pragmatic* transgressions) or affecting the child's welfare (e.g. climbing on couch, going down stairs; here termed *prudential* transgressions) (Dahl & Campos, 2013; Dahl & Kim, 2014; Turiel, 2005). If caregivers do indeed respond differently to different types of transgressions, early social interactions may convey important features of moral norms to young children, including how these norms differ from pragmatic and prudential norms.

Theories about moral development have proposed different hypotheses about the role of early experiences with moral transgressions. Within social domain theory, it has been argued that children construct moral norms through distinct forms of social interactions that differ from those associated with prudential (safety-related) or pragmatic (inconvenience-related) norms (Dahl & Campos, 2013; Smetana, 2013; Turiel, 1983, 2014). From this perspective, greater caregiver emphasis on moral norms than on prudential and pragmatic norms would help children construct these distinct categories of norms. Grasping the unique meaning and importance of moral norms is seen as essential when coordinating moral considerations with conflicting considerations arising in children's increasingly complex social worlds.

¹ Quotations are from the interview study by Dahl and Campos (2013).

Other theories place less emphasis on differentiated social experiences with transgressions. For instance, socialization researchers have argued that general properties of the parent-child dyad, such as mutually responsive orientation, power assertiveness, or child temperament, contribute to child acquisition of norms (Kochanska & Aksan, 2006; LeCuyer-Maus & Houck, 2002). These general properties are taken to characterize the parent-child interactions irrespective of whether the child is hitting someone or spilling food. In contrast, proponents of nativist views have argued that infants lack relevant social experiences prior to acquiring an aversion to unprovoked harm (Bloom, 2013; Hamlin & Wynn, 2011). According to this “poverty of the stimulus” argument (Chomsky, 1975), an ability (here: the negative evaluation of interpersonal harm) must be innate if children do not have sufficient experience to acquire this ability. Within a nativist framework, instances of infants harming others are interpreted as reflective of a desire for retribution following a provocation (Bloom, 2013).

In evaluating theoretical proposals about social development, it is necessary to distinguish between two types of questions. The first type of question, which includes the question addressed by the present study, is about children’s different types of social experiences. The second type of question deals with how children make use of, or are affected by, these experiences.

The present study was a naturalistic, longitudinal investigation of how mothers and 14-to 24-month-old infants interact following moral (interpersonal harm), prudential, and pragmatic transgressions (pertaining to inconvenience). “Interpersonal harm” here refers to the abrupt application of force to another person’s body, for instance through hitting, biting, or kicking. It was also of interest to ask whether infants are averse to harming others, and therefore harm primarily when provoked by others (Bloom, 2013), or whether infants also harm others without provocation. A secondary purpose of the study was therefore to investigate the presence of unprovoked harm in the second year of life.

Construction of Norms through Social Interactions

From early preschool age, children recognize that moral norms differ in meaning and importance from other types of norms. They give different justifications for moral norms than for prudential, pragmatic, or conventional norms and consider moral norms as more important than pragmatic, conventional, and (when amount of harm is equivalent) prudential norms (Dahl & Kim, 2014; Davidson, Turiel, & Black, 1983; Nucci & Weber, 1995; Tisak, 1993). The first known signs of an ability to distinguish between moral and other norms appear around the third birthday, when children tend to judge moral norms as more generalizable than social conventions (Smetana & Braeges, 1990; Smetana et al., 2012).

Social domain theorists have proposed that these categories of norms are associated with distinct types of social interactions which allow children to construct domains of social knowledge (Smetana, 2006; Turiel, 1983, 2014). For instance, violation of moral norms is associated with intrinsic consequences to other people, the violation of prudential norms is associated with consequences to the agent, and the violation of pragmatic norms is associated with inconvenience for the agent or others. Consistent with these propositions, research has found that different transgressions elicit different verbal reactions from others. For instance, children’s moral transgressions tends to elicit references to consequences to the victim, whereas prudential transgressions tend to elicit references to the potential or actual harm to the agent (Killen & Smetana, 1999; Nucci & Weber, 1995; Tisak, Nucci, & Jankowski, 1996).

However, in attempting to understand the earliest stages of moral development, our knowledge about interactions around transgressions is limited in three ways. First, most of the research on the unique features of interactions about moral transgressions has been conducted with preschoolers and older children (see Smetana, 2013). If differentiated social experiences contribute to the grasp of moral and other norms acquired during the third year, those differentiated experiences would expectably occur prior to the third year. Secondly, the studies of younger children have tended to focus on the linguistic aspects of interventions (e.g. the content of caregiver explanations, Smetana, 1984, 1989). Given their limited linguistic abilities, infants and young toddlers may not be able to understand the difference between explanations, for instance the difference between “you hurt your sister” and “you spilled milk all over the table” (Fenson et al., 1994). In a study focusing primarily on compliance (rather than norm acquisition), Kaler and Kopp (1990) found that the difficulty of comprehending even simple requests placed a major constraint on the responses of one-year-olds.

Lastly, studies of early parent-child interactions have typically not contrasted caregiver reactions to moral transgressions with reactions to prudential and pragmatic transgressions. Some studies have analyzed interactions about transgressions without distinguishing between the categories of norms maintained by mothers and older children (Dunn & Munn, 1985; Dunn, 1988; Emde, Johnson, & Easterbrooks, 1987; Power & Parke, 1986). Parental reports suggest that a large proportion of conflicts in the first years of life deal with transgressions related to the child’s wellbeing (prudential) and to spilling, playing with breakable objects, or otherwise creating inconvenience (pragmatic) (Gralinski & Kopp, 1993; Smetana, Kochanska, & Chuang, 2000). Still, research on interactions about transgressions in infancy has typically not investigated how caregivers and infants interact about prudential transgressions. Furthermore, there has been little attention paid to interactions about pragmatic transgressions. In some studies (e.g. Smetana, 1989), pragmatic transgressions have been pooled with conventional transgressions. However, whereas conventional transgressions (e.g. wearing a bathing suit to school) are arbitrary and lack direct consequences, pragmatic transgressions have direct consequences (e.g. spilled food) that ultimately create inconvenience (someone has to clean up). These distinctions between conventional and pragmatic norms are recognized by both mothers and preschoolers (Dahl & Kim, 2014; Kim, 2013).

Interactions about Transgressions in the Second Year

The second year is a particularly important period for the study of norm acquisition. An obvious reason is that this period precedes the time when children show signs of grasping the unique nature of moral norms, both in their judgments and in their reactions to transgressions against others (Schmidt, Rakoczy, & Tomasello, 2012; Smetana & Braeges, 1990; Smetana et al., 2012; Tisak, 1993; Vaish, Missana, & Tomasello, 2011). Moreover, the second year is a period characterized by increased frequency of parent-infant conflict and, as discussed above, limited verbal abilities (Dunn, 1988; Rijt-Plooij & Plooij, 1993). During the first half of the second year, infants typically become more aggressive and more motorically skilled, allowing them to explore new and potentially prohibited activities (Biringen, Emde, Campos, & Appelbaum, 1995; Hay, 2005). Observations of one-year-olds and their caregivers have reported an average of 10-20 conflicts per hour, depending on the context and operational definition of conflict (Kuczynski, Kochanska, Radke-Yarrow, & Girnius-Brown, 1987; Power & Parke, 1986). Together, the increased need to convey norms to infants and infants’ limited linguistic abilities lead to a communicative challenge for caregivers.

Caregivers can deal with the challenge of communicating norms to one-year-olds in at least two interrelated ways. First, caregivers may convey norms in ways that rely less heavily on children's linguistic abilities (Dahl & Campos, 2013; Dahl, Sherlock, Campos, & Theunissen, 2014; Kochanska, 1994). Second, caregivers may place greater emphasis on some norms, such as moral norms, over others, such as pragmatic norms (Turiel, 2005).

Parental reports provide initial evidence that mothers do use alternative means of communicating moral, prudential, and pragmatic norms to infants. In interviews with 60 mothers, it was found that infant moral transgressions were more likely to elicit physical force (e.g. pulling the child away) and less likely to elicit distraction (e.g. trying to get the child to play with something else) than pragmatic transgressions, with prudential situations falling in between (Dahl & Campos, 2013). Moreover, mothers tended to report being angrier in response to moral transgressions than in response to prudential and pragmatic transgressions. In contrast, prudential transgressions tended to elicit the most fear. Analyses of naturally occurring and experimentally elicited vocal prohibitions have shown that these differentiated emotional reactions are in part communicated through the mother's voice (Dahl et al., 2014). Infants' moral transgressions were the most likely to elicit stern (high-intensity anger) vocalizations, whereas prudential transgressions were the most likely to elicit fearful vocalizations, and pragmatic transgressions were associated with loving or playful vocalizations. (There was also some overlap between situations: The three transgression types were equally likely to elicit low-intensity anger vocalizations.)

A second way of dealing with the communicative challenge is to emphasize some norms, especially moral norms, over other norms, such as prudential and pragmatic norms.² At least early in the second year, mothers report that it is generally more important for them to discourage their children from harming others than from pragmatic transgressions, with prudential transgressions falling in between the two (Dahl et al., 2014, Study 2). The same study found that mothers responded to 85 percent of moral transgressions, but only 62 percent of prudential transgressions and 46 percent of pragmatic transgressions. As noted, mothers also had an increased tendency to respond with anger and decreased tendency to respond with positively valenced emotional tones to moral transgressions compared to prudential and especially pragmatic transgressions. In sum, these emotional responses appear to reflect an increased emphasis on moral norms when intervening upon young children's transgressions.

Insofar as mothers of one-year-olds see moral norms as qualitatively different from prudential and pragmatic norms (Dahl & Campos, 2013; Smetana et al., 2000), and consider moral norms as more important than prudential and pragmatic norms, mothers will expectedly behave differently when these three types of norms are violated. The present study was a naturalistic home observation study of mother-infant interactions about moral, prudential, and pragmatic transgressions in the second year of life. It was hypothesized that mothers' interventions on child transgressions would reflect their distinct orientations toward moral, prudential, and pragmatic norms. The present study focused on eight different aspects of maternal responses to child transgressions (physical intervention, direct/indirect commands, softening interventions, terms of endearment, distractions, soothing of child distress, interaction

² One may ask how mothers could be more insistent on moral norms than on norms protecting their children's wellbeing. It should be noted that a large number of life-threatening prudential issues are dealt with preventatively. That is, instead of relying on communicating the relevant prudential norms to infants, caregivers often remove the source of danger, for instance by using baby gates, closing doors, or removing dangerous objects from the child's reach (Gärling & Gärling, 1995).

outcome (compliance vs. relenting), and verbal explanations). These forms of interventions were chosen based on past research as well as a pilot study involving observations of mother-infant interactions (Dahl & Campos, 2013; Kuczynski et al., 1987; Reid, O’Leary, & Wolff, 1994; Smetana, 1989).

Unprovoked Harm in the Second Year

In addition to investigating differences in mother-infant interactions about moral, prudential, and pragmatic norms, a second purpose of this study was to investigate the presence of unprovoked harm in the second year of life. The idea that children acquire an aversion to interpersonal harm through social interactions implies that there is a time in development when infants do harm others even without provocation. An example of such behavior was provided by the mother of a 18-month-old girl who participated in the study by Dahl and Campos (2013): “When she’s playing with myself or my husband, she’ll suddenly get really excited, and she’ll give us a big whack in our face.” (Importantly, the child may not be trying to cause per se in such instances, even if the child is purposefully applying force to others in a way that leads to harm.)

Widespread presence of unprovoked harm would be consistent with the idea that infants at this age lack a robust aversion to harm and may require additional social experience to acquire the corresponding norm. Furthermore, instances of harm (unprovoked and provoked) would likely elicit strong reactions from infants’ social surroundings which in turn could contribute to the acquisition of a norm against harming others. The interactions with mothers about moral transgressions that were discussed above, including how these interactions differ from prudential and pragmatic transgressions, would likely constitute one important aspect of these social experiences.

The idea that infants engage in unprovoked harm contrasts with at least some nativist views, which see infants’ harmful actions as acts of revenge in response to perceived provocations (Bloom, 2013). Arguably, if infants rarely engage in unprovoked acts of harm they might already possess an aversion to such acts. If so, reactions to infants’ harmful acts would probably *not* be a major contributor to children’s acquisition of the norm against harming others.

There is substantial evidence that the rate of physical harm is higher in the second year than in most or all other periods of life (Eckerman, Whatley, & Kutz, 1975; Hay, 2005; Tremblay et al., 1996). Still, little is known about the circumstances of infants’ acts of harm during this period. Do most one-year-olds purposefully hit, bite, or kick others even in cases when their own desires have not been thwarted and they show no external signs of anger or distress? The present study addressed this question by coding naturally occurring instances of infants harming others during the second year.

The Present Study

Everyday interactions between mothers and their infants were studied when the child was 14, 19, and 24 months of age. The main questions were 1) whether mothers respond differently to infants’ harmful acts against others (moral situations) than when infants are doing something that may negatively affect their own welfare (prudential situations) or create inconvenience (pragmatic situations) and 2) whether infants engage in unprovoked harm during this period. The study focused on mothers because, in the population studied, it was found that mothers tended to be the caregiver who spent the most time with the child.

The study sampled from families living in an ethnically diverse metropolitan region of the western United States. The patterns found in this study could differ from those present in

other populations, but there are also reasons to expect similarities. The distinctions between moral and other norms are maintained by people in widely different communities (see Smetana, 2006; Turiel, 2014). While there are cultural differences in caregiving (Rogoff, 2003), there are also similarities in how caregivers deal with similar challenges (such as that of communicating moral norms to children with limited cognitive and linguistic abilities) (Cole & Tan, 2007; LeVine, 1974). I return to the question of individual and cultural differences in the Discussion.

It was decided to conduct use a longitudinal design primarily because of uncertainty about whether enough families could be recruited to conduct a cross-sectional study. The target sample size (26 families) was deemed sufficient for the purposes of finding significant differences in mothers' responses to moral, prudential, and pragmatic transgressions. However, the sample size provides insufficient statistical power for detecting significant longitudinal (and cross-sectional) predictive relations. Thus, the analyses reported here will not emphasize individual differences, except in the case of frequencies of interpersonal harm situations.

Method

Participants

Twenty-six families participated in a 2.5-hour home visit when the target child (11 female, 15 male) was 14 months of age ($M_{\text{age}} = 14.5$ months, $SD_{\text{age}} = 0.63$ months). Twenty-four of these families participated in a second visit when the child was 19 months ($M_{\text{age}} = 19.5$ months, $SD_{\text{age}} = 0.59$ months) and 22 of these 24 families participated in a third and final visit when the child was 24 months ($M_{\text{age}} = 24.5$ months, $SD_{\text{age}} = 0.51$ months). Two families were too busy to participate in subsequent visits, one family moved to another state, and one family stopped speaking English at home. Families were recruited from the participant database at the UC Berkeley Infant Studies Center. The database contained contact information of families living in the San Francisco Bay Area who had previously expressed interest in participating in research. Sixty-two percent of parents were non-Hispanic Caucasian, 19 percent were Asian American, and 19 percent were of African-American, Hispanic, other, or mixed ethnicity. Seventy-seven percent of caregivers had a college degree and 29 percent had a graduate degree.

Materials and Procedure

At all visits, the target child, the mother, and one older sibling younger than eight years of age were present. Visits were scheduled to include a mealtime, as pilot observations suggested that this was an everyday context in which mother-child conflicts were especially frequent. It was left to the mother to decide which mealtime was most convenient for her. (Lunchtime was the most common choice.)

Mothers were told to do whatever they would have been doing if the observer had not been present, as the purpose of the study was to investigate children's everyday experiences. During the visit, the observer followed the child with a video camcorder. The observer logged every instance of the mother intervening on the target child's behavior, either by trying to stop the target child from doing something or by negatively evaluating the child's action. The observer also logged situations in which the child made forceful contact with someone else, for instance by hitting, kicking, or biting, *even if the mother did not intervene* (e.g. because she was in a different room). The logging was done electronically using an *iPod Touch* (Apple, Inc.). Observers were trained using pilot video recordings until they logged 80 percent of the events logged by the author.

At the first visit, mothers were given a demographics questionnaire. At all three visits, mothers were also given a behavior rating questionnaire to be filled out and returned by mail. On the behavior rating questionnaire, mothers indicated how important it was for them to encourage their child to refrain from or engage in a set of behaviors on a scale from 1 (*unimportant*) to 4 (*very important*). The list of behaviors was taken from Gralinski and Kopp (1993). For the purposes of the present study I analyzed only ratings pertaining to the following: violations of moral (interpersonal harm) norms (not being rough with other children, not biting mom or dad), prudential norms (not climbing on furniture, not going into the street, not touching things that are dangerous), and pragmatic norms (not coloring on walls, not tearing up books, not interrupting, not playing with food, not spilling drinks). Ratings for behaviors in each category were averaged to create one moral, one prudential, and one pragmatic score for each mother for each visit.

After the visit, the observer watched the logged situations in the video recordings to identify situations in which there was any doubt about why the mother intervened (for instance, when the mother stopped the child from opening a cabinet but the observer did not know what the cabinet contained). The observer then conducted a phone interview with the mother about these situations (typically 30-40 percent of situations), in which the interviewer asked the mother what her concern was in intervening on the child's behavior. Summaries of the mothers' responses for each situation were used for classifying the child's transgression (see below).

Coding and Data Analysis

The video recordings obtained during the home visits were coded by research assistants blind to the study hypotheses. Coders only coded situations that had been logged during the observation. Video recordings from 20 percent of visits were double-coded to assess inter-rater agreement. Agreement was calculated for situations in which both coders had noted at least one intervention from the mother.

Mother-infant interactions about transgressions. Three sets of codes were applied to the interactions about transgressions (situations in which the mother negatively evaluated or attempted to stop the child's behavior). One set of codes applied to the level of the *situation* as a whole, a second set of codes applied to the *mother's individual actions* within the situation, and a third set applied to the *child's individual actions* within the situation.

Situation codes. In a first pass, coders judged what kind of norm had been violated (if any): *moral* (interpersonal harm), *prudential* (doing something dangerous), or *pragmatic* (causing inconvenience but no potential or actual harm, for instance creating disorder, spilling food, or playing with a breakable object), or *other* (not included in the analyses). If a mother had been interviewed about the situation, the coder classified the situation based on the mother's explanation. Situations involving both pragmatic and either moral *or* prudential concerns were classified as moral or prudential respectively. Only 87 such mixed events were recorded (4.7% of all events). Situations involving both moral and prudential were rare and were excluded from analysis ($N = 2$). Agreement for situation classification: $\kappa_{\text{Cohen}} = .90$. At the situation level, coders also assessed the outcome of the situation (*child complies*, *compromise*, or *mother relents*, $\kappa_{\text{Cohen}} = .79$).

Next, coders rated the individual actions of each interactant. Action codes were derived from previous studies of early family interactions as well as from pilot observations (Dahl & Campos, 2013; Kuczynski et al., 1987; LeCuyer-Maus & Houck, 2002; Nucci & Weber, 1995; Smetana, 1989).

Mother and child codes. For every maternal action within a transgressive situation the coder noted presence of the following: *physical intervention* (attempt to physically keep the child from transgressing, e.g. by holding the child’s arm back), *verbal command* (either *direct command* or *indirect command*), *explanation*, *softening intervention*, *term of endearment*, or *distraction* (Table 1).

Table 1.

List of Maternal Intervention Codes

Code	Definition
Physical intervention	Use of force to stop or prevent child from transgressing.
Direct command	Explicit command telling the child to alter behavior, including second-person imperative verb form (“Don’t hit your brother”, “Put the scissors down”).
Indirect command	Suggestive or mild command telling the child to alter behavior, including first-person plural imperative (“Let’s not play with that”) or question (“Do you want to give me the scissors?”).
Explanation	Provision of justification for why child’s behavior is wrong.
Softening intervention	Acknowledging the child’s desire, comforting the child, or proposing a compromise.
Term of endearment	Term of endearment use to describe the child (“Honey”, “you turkey”).
Distraction	Attempt to draw child’s attention to something other than the prohibited behavior.

If the mother gave an explanation, the explanation was further classified using the categories listed in Table 2 (Nucci & Turiel, 1978; Nucci & Weber, 1995; Smetana, 1989). Mean agreement for maternal interventions: $\kappa_{\text{Cohen}} = .74$ (range: .65-.91).

Table 2.

List of Explanation Categories

Category	Content of explanation	Example
Disorder	Potential or actual disorder or property damage, including mess or spilling	“Look at this mess!”
Evaluation	Value of act	“That’s not very nice”
Feelings/desires	Potential or actual feelings or desires of another person (excluding pain or harm)	“That’s annoying me”
Harm to child	Potential or actual harm to the child	“You’ll hurt yourself”
Harm to others	Potential or actual harm to another person	“That hurt your sister”
Property ownership	Ownership of object	“That’s mommy’s cup”
Rule	Wrongness of act described on a general level	“We don’t run in the stairs”
Sanction	Potential or actual sanction against the child	“One more and you’ll get a time-out”
Other reason	Any reason not fitting into the above categories	“We’re going to go to Grandpa’s house now”

The children’s behavior was coded for the following: *compliance* with the initial maternal intervention (i.e. stopped the behavior), *protest* during the situation (e.g. by saying “no” or “a little longer”), or vocal or facial signs of *negative emotion* during the situation. Mean agreement for child codes: $\kappa = .82$ (range: .65-.98).

Interpersonal harm situations. Situations in which the child used physical force on others were coded in a second pass. These situations included situations in which the child actually (as opposed to potentially) harmed someone else, *regardless of whether the mother intervened on the child’s behavior*. The following aspects of the situation were also coded: whether the harm was *purposeful* or *accidental*, whether the act was *provoked* (by restraining the child’s activity, hitting the child [only instances of a sibling hitting were observed], or refusing to yield to a child’s desire) or *unprovoked*, and whether the harmful act was accompanied by any signs of negative emotions on the part of the child. Coders also noted whether the child showed any facial or verbal signs of *negative emotion* in a given situation. Mean interrater agreement: $\kappa = .76$ (range: .65-1.00).

Table 3 gives an overview of the coding process.

Table 3.

Coding overview

	Interpersonal Harm		Mother-Infant Interactions About Transgressions		
			Moral	Prudential	Pragmatic
Definition	Infant actually harms (abruptly applies force to body of) someone		Mother intervenes because infant is... <i>...harming someone</i> <i>...doing something dangerous</i> <i>...creating inconvenience</i>		
Number of situations	<i>Harm, mom not involved</i>	<i>Harm, mom involved</i>	<i>No harm, mom involved</i>	699	1042
	78	94	26		
Situation codes	(Un-)Purposeful (Un-)Provoked		Situation type (moral, prudential, or pragmatic) Outcome (compliance, compromise, relenting)		
Mother action codes	None		Physical intervention Direct command Indirect command Explanation Softening intervention Term of endearment Distraction		
Child action codes	Negative emotion		Compliance Protest Negative emotion		

Data analytic strategy. Data were analyzed using Generalized Linear Mixed Models (GLMMs) with Poisson, Gaussian, or binomial error distributions and logarithmic, identity, or logistic link functions (Hox, 2010). Hypotheses were tested using likelihood ratio tests (for difference in model deviance [D]) and Wald tests (for regression coefficients) (Hox, 2010). Initial analyses revealed no significant effects of child gender (p -values adjusted for multiple comparisons) and gender was therefore not included in the final regression models. More details on each set of analyses are provided below.

Results

Interactions about Transgressions

A total of 1861 situations involving maternal interventions were coded in the 72 visits, yielding an average frequency of 10.3 situations per hour. This rate is comparable to that found in other observational studies of early parent-child conflict (Kuczynski et al., 1987; Power &

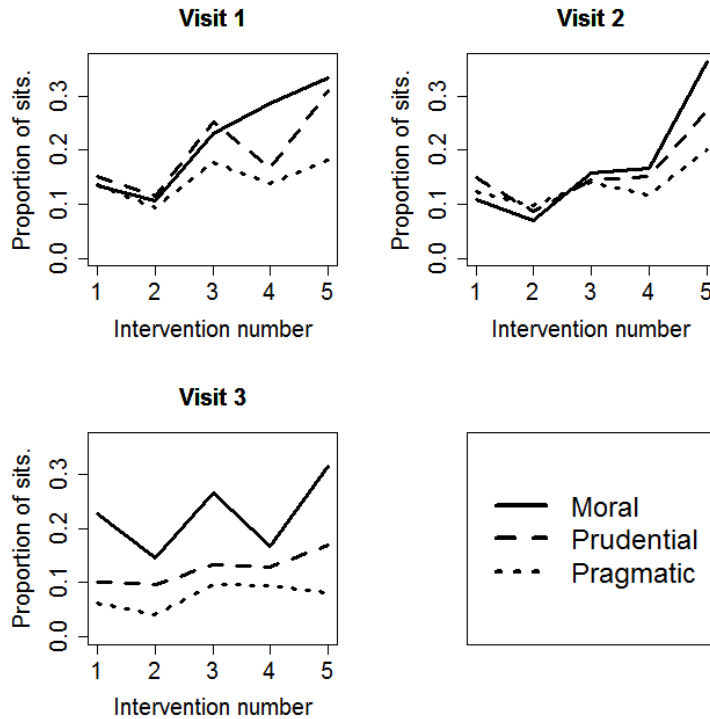
Parke, 1986; Smetana, 1989). Among these situations, 120 (6.4%) were coded as moral, 699 (37.6%) as prudential, and 1042 (56.0%) as pragmatic. At the level of individuals, 21 infants had at least one moral situation and all 26 infants had at least one prudential situation and one pragmatic situation. Although the frequencies of the situation types varied, even the least frequent situation type (moral) occurred frequently enough for the purposes of statistical analyses.

Physical interventions. Physical interventions were common, occurring in 27.3 percent of situations and representing 12 percent of all coded interventions. The high prevalence of such interventions made it possible to analyze these data at the level of individual interventions rather than at the level of situations. A further reason for analyzing physical interventions at this level was that the use of physical interventions would expectably become more common later in situations as mothers become increasingly likely to resort to force in order to terminate the prohibited behavior. Whether or not a mother used a physical intervention was predicted using binomial GLMMs with situation type, intervention number (within the given situation), and child age. As the number of maternal actions varied between situations (range: 1-27), only the first five actions were included in the analyses, which included 75 percent of maternal actions.

As predicted, there was a significant effect of situation type on the use of physical interventions, binomial GLMM: $D(2) = 17.48, p < .001$. Wald tests revealed that the use of physical interventions was significantly more common in moral situations (18% of interventions were physical) than in prudential (15%) and pragmatic situations (11%), $ps < .05$. Physical interventions were also significantly more common in prudential than in pragmatic situations.

The presence of physical interventions was also more common later in the situation (i.e. positively related to intervention number), $D(1) = 34.85, p < .001$, and negatively associated with child age, $D(1) = 7.76, p = .005$. Figure 1 shows the proportion of situations in which the mother used physical intervention as a function of situation type, visit number, and intervention number. As suggested by the graphs, there was a significant interaction between child age and situation type, $D(2) = 9.203, p = .01$. In moral situations, physical interventions became more slightly common later in the second year, whereas such interventions became less common in prudential and pragmatic situations.

Figure 1. Mean use of physical intervention as a function of situation type, visit number, and intervention number. Y-axis indicates proportion of situations in which physical interventions occurred. X-axis shows maternal intervention number. Lines show values for moral (solid), prudential (dashed), and pragmatic (dotted) situations. The three graphs show data for the three visits.



Commands. Explicit commands occurred in 84 percent of situations. The presence of commands did not depend significantly on situation type, binomial GLMM: $D(2) = 4.27, p = .12$, but increased with age, $D(1) = 12.41, p < .001$ (Visit 1: 78.5%, Visit 2: 85.9%, Visit 3: 88.1%). The main question regarding commands was whether the *type* of command (direct vs. indirect) depended on situation type. To test this hypothesis, GLMMs with binomial error distribution and logit link function were fitted to predict whether the command used was a direct or an indirect command (only interventions involving maternal commands were included). The models also included random intercepts for each visit nested within participants and fixed effects of situation type, child age, and intervention number. As in the analyses of physical interventions, only the first five interventions from each situation were included in the analyses.

There was a significant effect of situation type, $D(2) = 45.46, p < .001$, in predicting the type of command used. Direct (as opposed to indirect commands) were significantly more common in moral situations (90.2%) than in prudential (75.8%) and pragmatic (72.7%) situations, Wald tests: $ps < .001$. Direct commands were in turn more common in prudential than in pragmatic situations, $\chi^2(1) = 5.8, p = .016$. Direct commands were also more common earlier

in the interaction, $D(1) = 16.28, p < .001$, but were not significantly associated with child age, $D(1) = 1.06, p = .30$.

The types of interventions analyzed below were used less frequently than physical interventions and commands (less than 10% of maternal interventions). For this reason, the dependent variable in the subsequent analyses was whether or not a given intervention type was *present in a situation*. These data were analyzed using GLMMs with binomial error distribution and logistic link function with random intercept of visits (nested within participants) and fixed effects of situation type and child age.

Verbal explanations. There was no significant effect of situation type on the presence of at least one explanation in a given situation, binomial GLMM: $D(2) = 2.09, p = .35$. There was also no significant effect of child age, $D(1) = 0.93, p = .34$.

The next question was whether the type of explanation depended on the nature of the child's transgression (see Table 2 for definitions of the explanation categories). Only data from situations in which the mother provided at least one justification were included. As predicted there was a significant interaction between situation and explanation type in predicting the presence of explanations, binomial GLMM: $D(12) = 460.80, p < .001$. Given the significant interaction between situation and justification type, I analyzed the presence of each justification type as a function of situation type (controlling for age).

Table 4

Content of Explanation as a Function of Situation type

	Situation Type			
	Moral	Prudential	Pragmatic	
Disorder	.00 _a	.04 _a	.25 _b	***
Evaluation	.13	.21	.16	
Feelings/desires	.00	.05	.07	
Harm to child	.00 _a	.44 _b	.01 _a	***
Harm to others	.63 _a	.00 _b	.01 _b	***
Property ownership	.02	.01	.05	
Rule	.11	.17	.11	
Sanction	.09	.06	.05	
Other reason	.20 _a	.29 _{a,b}	.45 _b	***

Note. The table shows number of situations in which the mother used a particular explanation type divided by the number of situations in which a mother used any explanation, calculated separately for each domain. P-values are adjusted for multiple tests using Holm's (1979) procedure. *** Situation effect is significant (adjusted $p < .001$). Cells with different subscripts differ significantly (adjusted $p < .05$).

Table 4 shows the proportion of situations in which the different justifications were used (out of the total number of situations involving explanations). P-values were adjusted for

multiple tests using Holm's (1979) procedure. As expected, references to harm to others were most common in moral situations (63% of moral situations), references to harm to the child were most common in prudential situations (44%), and references to disorder or property destruction were most common in pragmatic situations (25%). Somewhat unexpectedly, reasons classified as "other" were more common in pragmatic situations (45%) than in moral situations (20%) with prudential falling in between. This category included justification statements not falling into any of the other justification categories, such as "Don't get your toys out now because we're going to Grandpa's house." It appears that many of the explanations classified as "other" expressed mothers' pragmatic considerations (i.e. about inconvenience of child's behavior for ongoing or planned activities). There were no significant age effects for the use of any of the explanation types, adjusted $ps > .09$.

Softening interventions. The use of softening interventions (e.g. comforting, acknowledging child's desire) depended significantly on situation type, binomial GLMM: $D(2) = 6.31, p = .043$. Softening interventions were significantly less common in moral situations (7.5%) than in prudential (16.7%) and pragmatic (15.7%), Wald tests: $ps < .03$. In contrast, prudential and pragmatic situations did not differ, Wald test: $\chi^2(1) = 0.05, p = .82$. Softening interventions also became less frequent as children grew older, $D(1) = 4.01, p = .045$ (Visit 1: 18.0%, Visit 2: 15.3%, Visit 3: 13.2%).

Terms of endearment. Terms of endearment (e.g. "honey," "love") represent another maternal behavior that serves to dampen the impact of the intervention and promote harmony. Although the overall frequency of these situations was relatively low (occurring in 8.9% of situations), it is interesting that terms of endearment occur at all in conflictual interactions. Because of the low overall frequency of these behaviors, the data were analyzed using a planned contrast between moral situations on the one hand and prudential and pragmatic situations on the other.

Consistent with the hypotheses, terms of endearment were more than twice as likely in prudential and pragmatic situations (9.2%) as in moral situations (4.2%), binomial GLMM: $D(1) = 5.63, p = .018$. For descriptive purposes, I note that the relative frequency of terms of endearment in prudential and pragmatic situations were highly similar (9.6% and 9.0% respectively).

Distraction. Attempts to distract the child (e.g. by making the child play with something else) were significantly less common in moral situations than in prudential and pragmatic situations, binomial GLMM: $D(2) = 6.17, p = .046$. Wald tests showed that moral situations (4.2%) differed significantly from prudential (10.9%) and pragmatic situations (11.0%), $ps < .05$, whereas the two latter did not differ from each other, $\chi^2(1) = 0.26, p = .61$. The use of distractions was also negatively related to child age, $D(1) = 4.91, p = .027$ (Visit 1: 16.7%, Visit 2: 7.9%, Visit 3: 6.7%).

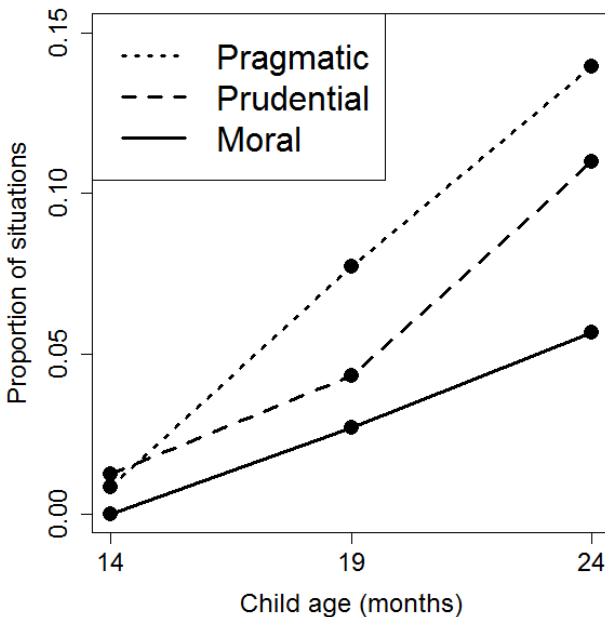
Child initial compliance with intervention. How do children first respond when mothers intervene on moral, prudential, and pragmatic transgressions? There was a significant effect of situation type on children's initial compliance, binomial GLMM: $D(2) = 11.01, p = .004$. Initial compliance was higher in moral situations (63.3%) than in prudential (45.5%) and pragmatic (49.3%) situations, Wald tests: $ps < .005$. Prudential and pragmatic situations did not differ significantly, Wald test: $\chi^2(1) = 0.85, p = .36$. There was no significant effect of child age on initial compliance, $D(1) = 0.82, p = .36$.

Child protests. Verbal protests are even more unambiguous signs of children's disagreement with maternal interventions. Since these were extremely rare at the first visit (< 1%

of situations), only data from the second and third visits were included in the analyses of verbal protests. At the two last visits, there was a significant effect of situation on the presence of child verbal protest, binomial GLMM: $D(2) = 6.11, p = .047$. Subsequent Wald-tests comparing the three situation types were not significant (Wald tests, $ps > .07$), but the overall situation effect was due to verbal protests being less common in moral situations (4.4%) than in prudential (7.3%) and pragmatic (10.4%) situations. As shown by Figure 2, there was also an effect of child age, $D(1) = 11.35, p < .001$ (Visit 2: 6.2%, Visit 3: 12.1%).

Interestingly, the presence of child protests was related to mothers' use of explanations. Specifically, explanations were more common in situations involving child protests than in situations without child protests (when controlling for child age), $D(1) = 23.06, p < .001$. Mothers provided explanations in 67.0 percent of cases when children protested but only 39.8 percent of cases when children did not protest.

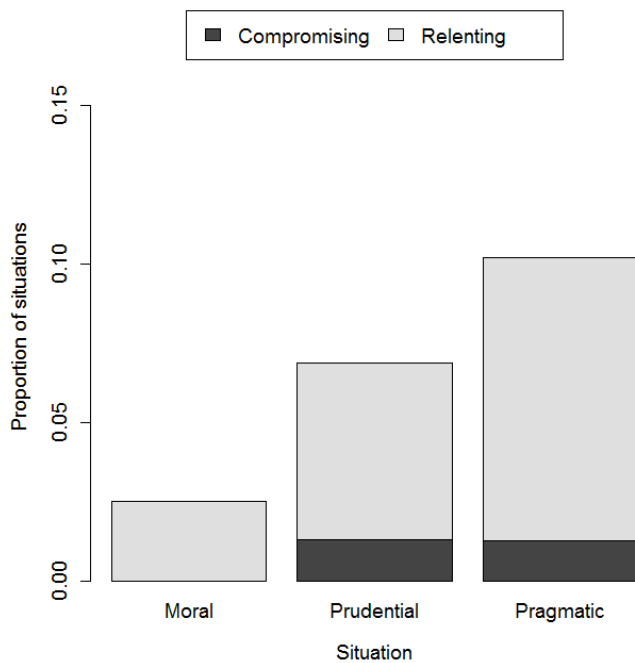
Figure 2. Child protests as a function of age and situation type. The vertical axis represents the proportion of each situation type in which a child protested at a given visit. The horizontal axis represents child age.



Child distress. The presence of negative emotion also depended significantly on situation type, binomial GLMM: $D(2) = 8.27, p = .016$, being more common in pragmatic situations (12.1%) than in moral (10.8%) and prudential (7.6%) situations. Wald tests showed that pragmatic and prudential situations differed significantly, $p = .006$, whereas moral situations did not differ significantly from the two other situation types, $ps > .13$. In addition, there was a significant effect of age, $D(1) = 11.12, p < .001$: Negative expressions became less common as children got older (Visit 1: 13.9%, Visit 2: 9.9%, Visit 3: 6.9%).

Outcome of interaction. Mothers' tendency to compromise or relent was also significantly related to situation type, binomial GLMM: $D(2) = 14.77, p < .001$. Compromising or relenting was less common in moral situations (2.5%) and prudential situations (7.0%) than in pragmatic situations (10.3%), Wald tests: $ps < .02$, whereas moral and prudential situations did not differ significantly, $\chi^2(1) = 3.20, p = .074$ (Figure 3). There was no significant effect of child age, $D(1) = 0.20, p = .66$.

Figure 3. Compromising and relenting as a function of situation type. Bars show proportion of situations in which mothers compromised or relented as a function of situation type. Moral and prudential situations did not differ significantly from each other, $p = .07$, but both differed significantly from pragmatic situations, $ps < .02$.



Interpersonal Harm Situations

A total of 172 instances of a child harming someone else were coded. All infants who participated in three visits engaged in at least one act of harm across the three visits (hourly rate: $M = 0.96, SD = 1.07$). Moreover, all but four of these infants (82%) engaged in at least one act of unprovoked purposeful harm against someone else. Unprovoked purposeful harm constituted about half (48.8%) of all instances of harm. The frequency of the child harming someone else was analyzed using Generalized Linear Mixed models with Poisson error distribution and logarithmic link function. Models included a fixed effect of child age and random intercepts for participants.

The frequency of unprovoked purposeful harm showed a curvilinear relation with age, Poisson GLMM: $D(1) = 4.88, p = .027$: Visit 1: 0.85, Visit 2: 1.42, Visit 3: 1.27. In contrast, there was a positive, linear effect of age on the frequency of *provoked* purposeful harm, $D(1) =$

6.71, $p = .001$ (there was no significant curvilinear relation between child age and provoked purposeful harm, $D(1) = 2.44$, $p = .12$): Visit 1: 0.69, Visit 2: 1.13, Visit 3: 1.32. At 14 and 19 months, but not 24 months, infants tended to engage in more unprovoked than provoked aggression. Further supporting the validity of the distinction between unprovoked and provoked harm, infants never showed negative emotion during their unprovoked harmful behavior, whereas they did so in 36 percent of instances of provoked harm.

Overall, infant harmful actions targeted an adult in 31 percent of cases (typically the mother or the father), another child in 58 percent of cases (typically a sibling), and a pet in 11 percent of cases. Acts of harming others showed low to moderate stability between visits (Pearson r s: .19-.45).

Maternal Ratings of Norm Importance.

The final set of analyses was of the questionnaire data on mothers' ratings of norm importance. The purpose of including these analyses was to see whether mothers reported being more concerned with discouraging children from harming others than from prudential and pragmatic transgressions. Rating data were analyzed using GLMMs with Gaussian error distribution and identity link function. Models included random intercepts for participants and a fixed effect of child age. Models predicting importance ratings also included a fixed effect of situation type.

As predicted, mothers said it was more important to keep their infants from engaging in moral transgressions ($M = 3.76$, $SD = 0.38$) than to keep their infants from engaging in prudential ($M = 3.59$, $SD = 0.34$) and pragmatic transgressions ($M = 2.82$, $SD = 0.53$), Gaussian GLMM: $D(2) = 140.95$, $p < .001$. Follow-up Wald tests revealed that ratings of all three situation types differed significantly from each other, $ps < .01$. Although the rating scale was bounded by 0 and 4, examinations of regression residuals did not suggest violations of assumptions of normally distributed errors with equal variance. A mean score of almost 4 indicated that mothers generally considered it "very important" to discourage their child from harming others, whereas a mean score of almost 3 (pragmatic transgressions) corresponded to a rating of "important". Overall, mothers' ratings increased with child age, $D(1) = 14.01$, $p < .001$: Visit 1: 3.27, Visit 2: 3.36, Visit 3: 3.53.

Discussion

Unprovoked Harm

The findings suggest that most infants inflict harm on others, even without provocation, and that these moral transgressions often elicit interventions from mothers. All infants harmed someone else at least once during three visits (constituting 7.5 hours of observation time). More than 80 percent of these infants had at least one instance of purposefully harming someone else without any visible provocation or sign of negative emotion. Unprovoked purposeful harm represented about half of all observed instances of purposeful harm, occurring on average once every two hours. If an infant is awake 10 hours per day (the median at 14 months, Iglowstein, Jenni, Molinari, & Largo [2003]), an hourly frequency of 0.5 implies about 35 instances of purposeful unprovoked harm per week.

There was also evidence that the nature of infants' harmful acts changed over the second year. Whereas the frequency of *provoked* physical harm increased during this period, the frequency of *unprovoked* harm showed a curvilinear relation to age. There was an increase in unprovoked harm during the first half of the second year and a decrease in the second half. This

could reflect that the infants were beginning to acquire a norm against harming others toward the end of the period studied here. The present findings highlight that infants' aversion to harming others cannot be taken for granted and must be studied developmentally. In addition, these findings illustrate the need to distinguish between different forms of harmful actions (e.g. provoked vs. unprovoked) (Hay, 2005). The unprovoked acts of harm shown by the infants in this study were not accompanied by signs of distress and may thus have been exploratory or playful rather than aggressive. Especially early in the second year, infants may still be trying to grasp the consequences of applying force to another person.

The presence of unprovoked harm in the second year may seem at odds with two lines of research in early moral development: one dealing with empathic tendencies and another dealing with social evaluations. Regarding infant empathic tendencies, it should be kept in mind that empathic responses are not very robust at the beginning of the second year. One study found that 14-month-olds showed prosocial behavior in response to distress about 20% of the time (Roth-Hanania, Davidov, & Zahn-Waxler, 2011), while another study using maternal reports found even lower rates at this age (Zahn-Waxler, Radke-Yarrow, Wagner, & Chapman, 1992). It is also worth noting that the rate of *prosocial* empathic behaviors (e.g. comforting) greatly increases late in the second year, simultaneously with the decrease in unprovoked harm seen in the present study (Zahn-Waxler et al., 1992). In general, though, one should not expect the relation between early empathic and harmful behaviors to be straightforward. For instance, some studies have found positive relations between prosocial and aggressive tendencies in young children (Gill & Calkins, 2003; Hay, Castle, & Davies, 2000).

A separate line of research has been interpreted to show that infants evaluate prosocial agents positively and antisocial agents negatively as early as three months of age (Hamlin, Wynn, Bloom, & Mahajan, 2011; Hamlin & Wynn, 2011; Hamlin, 2013). Even if one accepts this general proposition, the work on early social evaluation does not directly imply that infants would be averse to their own harmful acts against others. In all the relevant studies, infants have been asked to evaluate interactions between two or more agents (puppets or geometric shapes) which, moreover, have not involved physical harm. In addition, there is some evidence that infants may not show the same abilities in interactions with humans as they do in interactions with puppets (Dahl, Schuck, & Campos, 2013). This is not to say that no morally *relevant* abilities exist prior to the second year or even at birth. The question is what those abilities are (e.g. socio-moral concepts, goal oriented motor capabilities, or motives) and how they develop through interactions (Allen & Bickhard, 2013; Carpendale, Hammond, & Atwood, 2013; Emde, Biringen, Clyman, & Oppenheim, 1991).

We know relatively little about *why* infants harm others without any obvious provocation. One possibility is that they are exploring the social consequences of their actions (Dunn, 1988). Another question is how the tendency to harm (or not harm) others becomes *integrated* with other morally relevant abilities in early life, such as helping behavior, empathic tendencies, and interventions on the transgressions of others (Hay, 2009). Regardless of the answers to these questions, the presence of both provoked and unprovoked harm in the second year of life is noteworthy both as one index of infants' morally relevant abilities *and* as an instigator of conflictual interactions with others. I now turn to the discussion of the latter.

Mother-Infant Interactions about Transgressions

Interactions with their mothers appeared to provide infants with opportunities for grasping the unique nature of moral transgressions that involve harming others. As predicted,

mothers reported being more concerned with discouraging their children from harming others (moral) than from doing something dangerous (prudential) or creating inconvenience (pragmatic) (Dahl et al., 2014). Mothers also provided different explanations for moral, prudential, and pragmatic norms, suggesting that they do see moral transgressions as categorically different from prudential and pragmatic transgressions (Dahl & Campos, 2013; Smetana et al., 2000; Smetana, 1989).

The differences in mothers' orientations to moral, prudential, and pragmatic norms were reflected in how they intervened on infant transgressions. In response to moral transgressions, mothers showed greater use of physical interventions (e.g. holding the child back), greater use of direct commands ("No, don't hit your brother") as opposed to indirect commands ("Let's not hit your brother"), decreased use of softening interventions (e.g. acknowledging child's desire to transgress), decreased use of endearment terms (e.g. "honey"), and decreased use of distraction (e.g. drawing child's attention to something else). Finally, mothers were four times more likely to compromise or relent in pragmatic situations than in moral situations, with prudential situations falling between the two.

At least some of these forms of intervention seem specifically to reflect an increased emphasis on moral norms over prudential and pragmatic norms. In other words, the distribution of interventions seem consistent with the idea that mothers wanted to 1) end the behavior sooner and 2) communicate the prohibition more explicitly in moral situations than in prudential and pragmatic situations. Mothers' physical interventions and absence of relenting or compromising (both most prevalent in moral situations) suggest an unwillingness to allow the prohibited behavior to continue. In contrast, indirect commands and distraction (both more common in pragmatic and prudential situations than in moral situations) represent less explicit ways of stopping the child from transgressing. It is also striking that the use of softening interventions (e.g. comforting the child) and terms of endearment were more common in pragmatic and prudential situations than in moral situations. These forms of interventions seem to reassure the child of the positive relationship with the mother rather than pointing to the wrongness of what the child has done.

As a whole, this pattern of maternal behaviors may therefore contain a powerful message to infants: Among the many prohibited behaviors, harming others is an especially serious transgression. This message is communicated in ways that do not rely exclusively on linguistic content, presumably making it more easily assimilated by infants. At the same time, it is important to note that moral norms do not only differ from other transgressions along the dimension of importance but also in the nature of their intrinsic consequences, in their justifications (Tisak & Turiel, 1988; Turiel, 1983). As mentioned, mothers provided qualitatively different explanations for moral norms than for prudential and pragmatic norms. The difference in importance between moral and other norms should be seen as a consequence of these underlying qualitative differences and not as a defining feature of the moral domain (Turiel, 1983). Still, the unique emphasis placed on the prohibition of harming others seems impactful for at least two reasons. First, mothers' insistence may ultimately serve to draw children's attention to the intrinsic and highly negative consequences of these acts. Secondly, the dimension of importance may be the easiest dimension for children to understand at an age during which their linguistic, cognitive, and empathic abilities remain limited.

A key question is whether children can make use of these differences in how mothers responded to moral, prudential, and pragmatic transgressions. One could claim, for instance, that there is too much overlap between the parental reactions to moral and other transgressions for

children to construct moral norms as constituting a distinct category or domain. In investigating this question, we must pay close attention to how the learning problem is posed. On the one hand, we might ask whether children could make use of this differentiated emphasis to construct distinct categories of norms. This could take the form of a cluster analysis or a latent class analysis (Agresti, 2013; Lazarsfeld & Henry, 1968). On the other hand, we might assume that infants can distinguish moral transgressions from other transgressions simply through the respective physical and motoric features of the acts. Most obviously, physically harming others always involves applying force to another person's body. In this second scenario, the learning problem would be that of understanding more about the nature of the pre-established transgression categories (for instance which category is more serious). It is beyond the scope of this research to be able to decide which of the two learning problems infants are faced with or to evaluate the feasibility of solving these learning problems. Suffice it to say that the overlap between the situation types is compatible with the idea that infants use these social experiences in grasping the unique meaning and importance of moral norms (for research on infant use of probabilistic behavioral evidence, see Denison, Reed, and Xu [2013] and Kushnir, Xu, and Wellman [2010]).

There was in fact some evidence that infants had begun to see moral norms as more serious than prudential and especially pragmatic norms. First, initial compliance was higher in moral situations than in the other two situation types. Second, on the last two visits, children tended to utter somewhat more verbal protests against mothers' interventions in pragmatic situations than in prudential and moral situations. Finally, infants showed more distress in pragmatic situations than in moral and prudential situations, which also could indicate that infants were less accepting of the prohibitions against pragmatic transgressions.

Infants' responses in these interactions are in line with findings that young preschoolers generally think of moral transgressions as more serious than other transgressions (Dahl & Kim, 2014; Smetana & Braeges, 1990; Tisak & Turiel, 1984). In fact, Dahl and Kim (2014) found that three-year-olds differentiated even more between moral and pragmatic norms than did five-year-olds along the dimension of severity (possibly because parents of young children may respond less strongly to pragmatic transgressions than parents of older children). Also consistent with the present data, Tisak and Turiel (1984) found that when their physical consequences are the same, children see moral transgressions as more serious than prudential transgressions (this is not always the case when the consequences differ in seriousness; for instance, comparing hitting someone with running into the street in front of moving cars [Dahl & Kim, 2014]).

The naturalistic study reported herein requires expansion in two directions. First, it will be important to conduct naturalistic research with longer observational periods, more varied observational settings, and different populations. In interviews preceding this study many mothers said that aggressive conflicts with their infants often happened in situations of stress, for instance when the parent was under time pressure to drop off the child at daycare before going to work. Harmful acts also occur in interactions between peers at this age (Hay et al., 2000; Smetana, 1989).

The inclusion of families from other populations will allow for assessment of both differences *and* similarities. In the Introduction, it was argued that the moral prohibition against harming others is important in all social groups. Research on maternal power assertion provides an interesting illustration. Power assertiveness (the tendency to use of coercion, criticism, forceful commands, and physical directives with little sensitivity or explanation) is generally thought of as a stable characteristic of a given parent and has mainly been assessed in a

laboratory paradigm with a prohibited object (Kochanska, Aksan, & Nichols, 2003; LeCuyer & Houck, 2006). Using naturalistic data from the present study, Chen (2014) found that mothers did indeed differ in their overall level of power assertiveness. Importantly, however, both highly power assertive and less power assertive mothers were more assertive in response to moral transgressions than in response to prudential or pragmatic transgressions.

Still, individuals and communities may differ in when they begin communicating this norm, who communicates it, how it is communicated, and when exceptions are made (Briggs, 1974; Dunn & Brown, 1991; Rogoff, 2003). For instance, the low-income mothers studied by Miller and Sperry (1987) encouraged young toddlers to hit back if someone hit them, but did not encourage unprovoked harm. Additional research is needed on how differences in caregiver goals and beliefs, child characteristics, and societal context interact with the nature of the child's transgression to shape early conflictual interactions.

The second expansion is to investigate how children make use of the social experiences documented in naturalistic studies. This can be done, for instance, by experimentally varying the parameters of social interactions found to vary in the child's everyday life. Adopting this strategy, Dahl (2014a) experimentally manipulated the vocal tone used to prohibit infants from approaching a novel object. Preliminary data suggest that by 24 months of age, infants comply more readily with prohibitions elicited by moral transgressions than with prohibitions elicited by pragmatic transgressions. The benefits of integrating experimental and naturalistic methods are twofold. One benefit is the opportunity to test hypotheses generated by naturalistic studies (Dahl, Campos, & Witherington, 2011; Dahl et al., 2014; Dahl, 2014b). A second benefit is the possibility of connecting the phenomena studied in the laboratory to the challenges and opportunities encountered by infants and their families in everyday life.

This study found support for the following two propositions: 1) Mothers respond differently to moral transgressions than to prudential and pragmatic transgressions as early as the second year of life. 2) Most infants harm others even without apparent provocation or signs of distress. Differences in mothers' orientations to moral transgressions were reflected across multiple forms of interventions on infant transgressions, including the use of physical interventions and distractions, the content of commands, and the outcome of interactions about transgressions. In conjunction, the two propositions suggest that mother-infant interactions about transgressions constitute a key context for the early acquisition of a fundamental moral prohibition against interpersonal harm.

References

- Agresti, A. (2013). *Categorical data analysis*. Hoboken, NJ: Wiley.
- Allen, J. W. P., & Bickhard, M. H. (2013). Stepping off the pendulum: Why only an action-based approach can transcend the nativist–empiricist debate. *Cognitive Development*, 28(2), 96–133. doi:10.1016/j.cogdev.2013.01.002
- Biringen, Z., Emde, R. N., Campos, J. J., & Appelbaum, M. I. (1995). Affective reorganization in the infant, the mother, and the dyad: The role of upright locomotion and its timing. *Child Development*, 66(2), 499–514.
- Bloom, P. (2013). *Just babies: the origins of good and evil*. New York: Crown.
- Briggs, J. L. (1974). *Never in anger: portrait of an Eskimo family*. Cambridge, MA: Harvard University Press.
- Carpendale, J. I. M., Hammond, S. I., & Atwood, S. (2013). A relational developmental systems approach to moral development. *Advances in Child Development and Behavior*, 45, 125–153. doi:10.1016/B978-0-12-397946-9.00006-3
- Chen, S. (2014). *Intraindividual and interindividual differences in maternal power assertion* (Unpublished honors thesis). University of California, Berkeley, CA.
- Cole, P. M., & Tan, P. Z. (2007). Emotion socialization from a cultural perspective. In J. E. Grusec & P. D. Hastings (Eds.), *Handbook of socialization: Theory and research* (pp. 516–542). New York: Guilford Press.
- Dahl, A. (2014a). Early moral development in social interactions. Presentation at the Department of Psychology, University of Oslo, Norway.
- Dahl, A. (2014b). The developing social context of early helping behavior. *Manuscript submitted for publication*.
- Dahl, A., & Campos, J. J. (2013). Domain differences in early social interactions. *Child Development*, 84(3), 817–825. doi:10.1111/cdev.12002
- Dahl, A., Campos, J. J., & Witherington, D. C. (2011). Emotional action and communication in early moral development. *Emotion Review*, 3(2), 147–157. doi:10.1177/1754073910387948
- Dahl, A., & Kim, L. (2014). Why is it bad to make a mess? Preschoolers' conceptions of pragmatic norms. *Manuscript submitted for publication*.
- Dahl, A., Schuck, R. K., & Campos, J. J. (2013). Do young toddlers act on their social preferences? *Developmental Psychology*. doi:10.1037/a0031460
- Dahl, A., Sherlock, B. R., Campos, J. J., & Theunissen, F. E. (2014). Mothers' tone of voice depends on the nature of infants' transgressions. *Emotion*.
- Davidson, P., Turiel, E., & Black, A. (1983). The effect of stimulus familiarity on the use of criteria and justifications in children's social reasoning. *British Journal of Developmental Psychology*, 1(1), 49–65.
- Denison, S., Reed, C., & Xu, F. (2013). The emergence of probabilistic reasoning in very young infants: Evidence from 4.5- and 6-month-olds. *Developmental Psychology*, 49(2), 243–249. doi:10.1037/a0028278
- Dishion, T. J., & Patterson, G. R. (2006). The development and ecology of antisocial behavior in children and adolescents. In D. Cicchetti & D. J. Cohen (Eds.), *Developmental psychopathology, Vol 3: Risk, disorder, and adaptation (2nd ed.)* (pp. 503–541). Hoboken, NJ: John Wiley & Sons.
- Dunn, J. (1988). *The beginnings of social understanding*. Oxford: Blackwell.

- Dunn, J., & Brown, J. (1991). Becoming American or English? Talking about the social world in England and the United States. In M. H. Bornstein (Ed.), *Cultural approaches to parenting* (pp. 155–172). Hillsdale, NJ: Lawrence Erlbaum. Retrieved from <http://psycnet.apa.org/psycinfo/1991-97857-007>
- Dunn, J., & Munn, P. (1985). Becoming a family member: Family conflict and the development of social understanding in the second year. *Child Development, 56*(2), 480–492. doi:10.2307/1129735
- Dworkin, R. (1994). *Life's dominion: an argument about abortion, euthanasia, and individual freedom*. New York: Vintage Books.
- Eckerman, C. O., Whatley, J. L., & Kutz, S. L. (1975). Growth of social play with peers during the second year of life. *Developmental Psychology, 11*(1), 42–49.
- Emde, R. N., Biringen, Z., Clyman, R. B., & Oppenheim, D. (1991). The moral self of infancy: Affective core and procedural knowledge. *Developmental Review, 11*(3), 251–270.
- Emde, R. N., Johnson, W. F., & Easterbrooks, M. A. (1987). The do's and don'ts of early moral development: Psychoanalytic tradition and current research. In J. Kagan & S. Lamb (Eds.), *The emergence of morality in young children* (pp. 245–276). Chicago: University of Chicago Press.
- Fenson, L., Dale, P. S., Reznick, J. S., Bates, E., Thal, D. J., & Pethick, S. J. (1994). Variability in early communicative development. *Monographs of the Society for Research in Child Development, i*–185.
- Gärling, A., & Gärling, T. (1995). Mothers' anticipation and prevention of unintentional injury to young children in the home. *Journal of Pediatric Psychology, 20*(1), 23–36.
- Gill, K. L., & Calkins, S. D. (2003). Do aggressive/destructive toddlers lack concern for others? Behavioral and physiological indicators of empathic responding in 2-year-old children. *Development and Psychopathology, 15*(1), 55–71.
- Gralinski, J. H., & Kopp, C. B. (1993). Everyday rules for behavior: Mothers' requests to young children. *Developmental Psychology, 29*(3), 573–584.
- Gray, K., Young, L., & Waytz, A. (2012). Mind Perception Is the Essence of Morality. *Psychological Inquiry, 23*(2), 101–124. doi:10.1080/1047840X.2012.651387
- Hamlin, J. K. (2013). Moral judgment and action in preverbal infants and toddlers: evidence for an innate moral core. *Current Directions in Psychological Science, 22*(3), 186–193. doi:10.1177/0963721412470687
- Hamlin, J. K., & Wynn, K. (2011). Young infants prefer prosocial to antisocial others. *Cognitive Development, 26*(1), 30–39. doi:10.1016/j.cogdev.2010.09.001
- Hamlin, J. K., Wynn, K., Bloom, P., & Mahajan, N. (2011). How infants and toddlers react to antisocial others. *Proceedings of the National Academy of Sciences, 108*(50), 19931–19936. doi:10.1073/pnas.1110306108
- Hay, D. F. (2005). The beginnings of aggression in infancy. In R. E. Tremblay, W. W. Hartup, & J. Archer (Eds.), *Developmental origins of aggression* (pp. 107–132). New York, NY: Guilford Press.
- Hay, D. F. (2009). The roots and branches of human altruism. *British Journal of Psychology, 100*(3), 473–479. doi:10.1348/000712609X442096
- Hay, D. F., Castle, J., & Davies, L. (2000). Toddlers' use of force against familiar peers: a precursor of serious aggression? *Child Development, 71*(2), 457–467.
- Hobbes, T. (1651/1996). *Leviathan, or the matter, forme and power of a commonwealth ecclesiasticall and civil*. Oxford: Oxford University Press.

- Holm, S. (1979). A simple sequentially rejective multiple test procedure. *Scandinavian Journal of Statistics*, 6(2), 65–70. doi:10.2307/4615733
- Hox, J. (2010). *Multilevel analysis: techniques and applications* (2nd ed.). New York: Routledge.
- Iglowstein, I., Jenni, O. G., Molinari, L., & Largo, R. H. (2003). Sleep duration from infancy to adolescence: reference values and generational trends. *Pediatrics*, 111(2), 302–307. doi:10.1542/peds.111.2.302
- Kaler, S. R., & Kopp, C. B. (1990). Compliance and comprehension in very young toddlers. *Child Development*, 61(6), 1997–2003. doi:10.2307/1130853
- Killen, M., & Smetana, J. G. (1999). Social interactions in preschool classrooms and the development of young children's conceptions of the personal. *Child Development*, 70(2), 486–501.
- Kim, L. (2013). *Young children's understanding of pragmatic norms* (Unpublished honors thesis). University of California, Berkeley, CA.
- Kochanska, G. (1994). Beyond cognition: Expanding the search for the early roots of internalization and conscience. *Developmental Psychology*, 30(1), 20–22. doi:10.1037/0012-1649.30.1.20
- Kochanska, G., & Aksan, N. (2006). Children's conscience and self-regulation. *Journal of Personality*, 74(6), 1587–1618. doi:10.1111/j.1467-6494.2006.00421.x
- Kochanska, G., Aksan, N., & Nichols, K. E. (2003). Maternal power assertion in discipline and moral discourse contexts: Commonalities, differences, and implications for children's moral conduct and cognition. *Developmental Psychology*, 39(6), 949–963. doi:10.1037/0012-1649.39.6.949
- Kuczynski, L., Kochanska, G., Radke-Yarrow, M., & Girmius-Brown, O. (1987). A developmental interpretation of young children's noncompliance. *Developmental Psychology*, 23(6), 799–806.
- Kushnir, T., Xu, F., & Wellman, H. M. (2010). Young children use statistical sampling to infer the preferences of other people. *Psychological Science*, 21(8), 1134–1140. doi:10.1177/0956797610376652
- Lazarsfeld, P. F., & Henry, N. W. (1968). *Latent structure analysis*. New York: Houghton, Mifflin.
- LeCuyer, E., & Houck, G. M. (2006). Maternal limit-setting in toddlerhood: Socialization strategies for the development of self-regulation. *Infant Mental Health Journal*, 27(4), 344–370. doi:10.1002/imhj.20096
- LeCuyer-Maus, E. A., & Houck, G. M. (2002). Mother-toddler interaction and the development of self-regulation in a limit-setting context. *Journal of Pediatric Nursing*, 17(3), 184–200. doi:10.1053/jpdn.2002.124112
- LeVine, R. (1974). Parental goals: A cross-cultural view. *The Teachers College Record*, 76(2), 226–239.
- Miller, P., & Sperry, L. L. (1987). The socialization of anger and aggression. *Merrill-Palmer Quarterly*, 33(1), 1–31.
- Nucci, L. P., & Turiel, E. (1978). Social interactions and the development of social concepts in preschool children. *Child Development*, 400–407.
- Nucci, L. P., & Weber, E. K. (1995). Social interactions in the home and the development of young children's conceptions of the personal. *Child Development*, 66(5), 1438–1452.

- Power, T. G., & Parke, R. D. (1986). Patterns of early socialization: mother-and father-infant interaction in the home. *International Journal of Behavioral Development*, 9(3), 331–341. doi:10.1177/016502548600900305
- Reid, M. J., O’Leary, S. G., & Wolff, L. S. (1994). Effects of maternal distraction and reprimands on toddlers’ transgressions and negative affect. *Journal of Abnormal Child Psychology*, 22(2), 237–245.
- Rijt-Plooij, H. H., & Plooij, F. X. (1993). Distinct periods of mother-infant conflict in normal development: sources of progress and germs of pathology. *Journal of Child Psychology and Psychiatry*, 34(2), 229–245.
- Rogoff, B. (2003). *The cultural nature of human development*. Oxford: Oxford University Press.
- Roth-Hanania, R., Davidov, M., & Zahn-Waxler, C. (2011). Empathy development from 8 to 16 months: Early signs of concern for others. *Infant Behavior and Development*, 34(3), 447–458. doi:10.1016/j.infbeh.2011.04.007
- Schmidt, M. F. H., Rakoczy, H., & Tomasello, M. (2012). Young children enforce social norms selectively depending on the violator’s group affiliation. *Cognition*, 124(3), 325–333. doi:10.1016/j.cognition.2012.06.004
- Smetana, J. G. (1984). Toddlers’ social interactions regarding moral and conventional transgressions. *Child Development*, 55(5), 1767–1776.
- Smetana, J. G. (1989). Toddlers’ social interactions in the context of moral and conventional transgressions in the home. *Developmental Psychology*, 25(4), 499.
- Smetana, J. G. (2006). Social-cognitive domain theory: Consistencies and variations in children’s moral and social judgments. *Handbook of Moral Development*, 119–153.
- Smetana, J. G. (2013). Moral development: the social domain theory view. In P. D. Zelazo (Ed.), *The Oxford Handbook of Developmental Psychology, Vol. 1: Body and Mind* (pp. 832–864). Oxford: Oxford University Press.
- Smetana, J. G., & Braeges, J. L. (1990). The development of toddlers’ moral and conventional judgments. *Merrill-Palmer Quarterly*, 329–346.
- Smetana, J. G., Kochanska, G., & Chuang, S. (2000). Mothers’ conceptions of everyday rules for young toddlers: a longitudinal investigation. *Merrill-Palmer Quarterly (1982-)*, 46(3), 391–416. doi:10.2307/23093738
- Smetana, J. G., Rote, W. M., Jambon, M., Tasopoulos-Chan, M., Villalobos, M., & Comer, J. (2012). Developmental changes and individual differences in young children’s moral judgments. *Child Development*, 683–696. doi:10.1111/j.1467-8624.2011.01714.x
- Tisak, M. S. (1993). Preschool children’s judgments of moral and personal events involving physical harm and property damage. *Merrill-Palmer Quarterly*, 39(3), 375–390. doi:10.2307/23087427
- Tisak, M. S., Nucci, L. P., & Jankowski, A. M. (1996). Preschool children’s social interactions involving moral and prudential transgressions: An observational study. *Early Education & Development*, 7(2), 137–148. doi:10.1207/s15566935eed0702_3
- Tisak, M. S., & Turiel, E. (1984). Children’s conceptions of moral and prudential rules. *Child Development*, 1030–1039.
- Tisak, M. S., & Turiel, E. (1988). Variation in seriousness of transgressions and children’s moral and conventional concepts. *Developmental Psychology*, 24(3), 352–357.
- Tremblay, R. E., Boulerice, B., Harden, P. W., McDuff, P., Perusse, D., Pihl, R. O., & Zoccolillo, M. (1996). Do children in Canada become more aggressive as they approach adolescence. In Human Resources Development Canada & Statistics Canada (Ed.),

- Growing up in Canada: National Longitudinal Survey of Children and Youth* (pp. 127–137). Ottawa: Statistics Canada.
- Turiel, E. (1983). *The development of social knowledge: morality and convention*. New York: Cambridge University Press.
- Turiel, E. (2005). The many faces of parenting. *New Directions for Child and Adolescent Development, 108*, 79–88.
- Turiel, E. (2014). Moral development. In *Handbook of child psychology and developmental science* (7th ed., Vol. 1). Hoboken, NJ: Wiley.
- Vaish, A., Missana, M., & Tomasello, M. (2011). Three-year-old children intervene in third-party moral transgressions. *British Journal of Developmental Psychology, 29*(1), 124–130. doi:10.1348/026151010X532888
- Zahn-Waxler, C., Radke-Yarrow, M., Wagner, E., & Chapman, M. (1992). Development of concern for others. *Developmental Psychology, 28*(1), 126–136.