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Can babies be prosocial in the first year of life?

Key points

1. Based on parents' report, infants can show prosocial behaviors (such as sharing food or toy, passing an object) during the first year of life
2. Increased participation in early socialization activities (e.g., peek-a-boo, reading picture books, building blocks, playing ball) is associated with more frequent prosocial behaviors in infants.
3. Infants whose parents have later expectations for prosocial behaviors tend to show these behaviors less often.
4. Parents who have higher individualistic values report less frequent prosocial behaviors in their infants.

Kindness, a virtue defined in both Western and Eastern philosophies, reflects a deep sensitivity to the needs and emotions of others. Over the past decade, it has increasingly gained attention in the field of psychology (e.g., Perkins et al., 2022). Undoubtedly, most parents wish to raise children who are attuned to others' feelings and aware of each individual's uniqueness. Ultimately, kindness is not only about nurturing others but also fostering personal growth and transformation (Malti, 2021).

However, less is known about kindness in the first year of life. In this project, we focus on proxies for kindness and aim to explore individual differences in its emergence during the first year of life. One key behavior we examine is infants' social preferences – the ability to distinguish and prefer who act kindly toward others. The hill paradigm, a method used to measure these preferences, has demonstrated that infants tend to prefer a character who helps another climb a hill over one who hinders (Hamlin et al., 2017). A meta-analysis further reveals that infants consistently favor prosocial characters over antisocial ones (Margoni & Surian, 2018). The ability to form social preferences based on third-party interactions during infancy is considered a critical milestone in early moral development (Woo et al., 2022).

However, not all infants display this preference, just as not all individuals show kindness to others. In fact, our recent large-scale, multi-lab coordinated replication study, ManyBabies 4 (MB4), found that 49.34% of infants preferred Helpers over Hinderers, a result that did not differ from chance (for the published paper, see <https://onlinelibrary.wiley.com/doi/10.1111/desc.13581>). This variation has motivated us to investigate the source of individual differences in social evaluations. Can these differences be attributed to parental moral-related values or cultural values? Do caregivers' socialization practices shape these early social preferences? While previous research has explored parental influence on these evaluations (Cowell & Decety, 2015; Loheide-Niesmann et al., 2020), few have addressed these factors within the hill paradigm, particularly in a cross-cultural context (Shimizu et al., 2018). Additionally, our study aims to explore infants' everyday prosocial behaviors (e.g., sharing food and toys), its relationship with infants' social evaluations, and its correlates with parental values and socialization practices, to better understand the development of early social preferences and prosocial behaviors during the first year of life.

We hypothesized that infants' preference for the helper over the hinderer will be positively associated with (1) parental justice sensitivity and parental prosocial values; (2) parental socialization practices related to morality (e.g., frequency of prosocial language used by caregivers); and (3) infants' own prosocial behaviors outside the lab.

This project is a spin-off of the ManyBabies 4 (MB4) study, a large-scale, multi-laboratory investigation of infants' social evaluations. By taking a multi-method approach, combining experimental, observational, and survey-based measures, we examined infants from 5 to 10 months of age from diverse cultural backgrounds. Data collection for this project was completed in October 2023, with over 600 infants from 22 labs across 14 regions. We measured 1) infants' social evaluation (the hill paradigm, Hamlin et al., 2007); 2) frequency of infant prosocial behaviors (Infant Prosocial Behavior Parent Interview, Breeland & Henderson, 2021); 3) culture, indicated by parental individualism and collectivism orientation (the Horizontal and Vertical Individualism and Collectivism II, Triandis & Gelfand, 1998); 4) parental moral-related values and beliefs, including justice sensitivity (Justice Sensitivity Short Scales, Baumert et al., 2014), expected age of infant prosocial behaviors and other-oriented prosocial values (Infant-prosocial-behavior Parent Interview, Breeland & Henderson, 2021), and interest and curiosity in infants' mental states (a subscale of the Parental Reflective Functioning Questionnaire, Pajulo et al., 2018); 5) parental socialization practices, including frequency of social games, frequency of book reading, and moral and mental state talk in a Joint-Book Reading Task (i.e., caregivers were asked to read a picture book to their infants; Senzaki et al., 2022; Shimizu et al., 2018; Taumoepeau & Ruffman, 2008).

We have presented the descriptive statistics and sample size in Table 1, along with the correlations among all variables in Figure 1. Based on parents' reports, infants as young as 5 to 10 months can show prosocial behaviors, such as sharing food or toys and passing objects. Moreover, older infants were reported to display prosocial behaviors more frequently, supporting the idea that prosocial behaviors emerge and develop during the first year of life.

Our findings also revealed several factors associated with infants' prosocial behaviors. First, infants' prosocial development is related to the social environment created by their caregivers. Parents who frequently engaged in social games (e.g., peek-a-boo, building blocks, playing ball) or read books with their babies reported more frequent prosocial behaviors in their infants' daily lives.

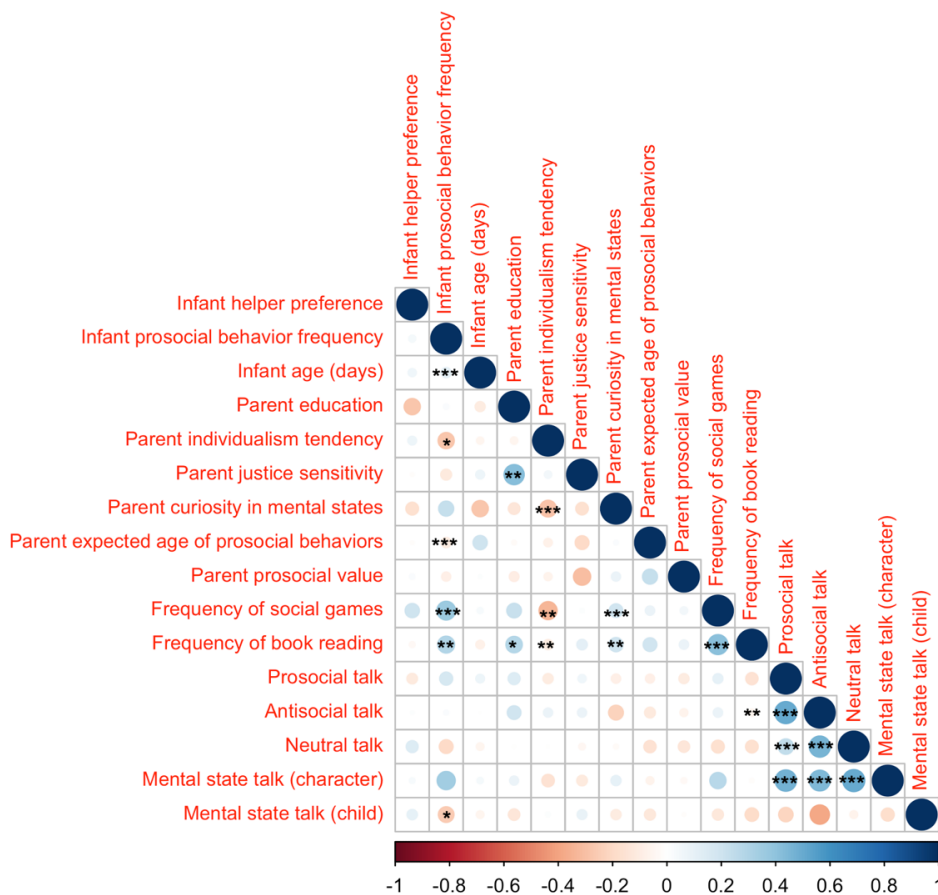
Second, parents' expectations regarding the onset of prosocial behaviors were also important. When parents expected that prosocial behaviors would emerge at a later age, their infants were reported to demonstrate prosocial behaviors less frequently in daily life. In addition, during the joint-book reading task, parents who focused on their infants' mental states (e.g., asking "Does this make you happy?" or "Do you wanna touch the story?"), rather than referring to the characters in the book, reported less frequent prosocial behaviors in babies.

Third, parental cultural orientations might also play a role. Infants whose parents held stronger individualism values were reported to show prosocial behaviors less frequently.

The finalization of calculations of parental talk from the Joint-Book Reading task is still ongoing and expected to be finished by January 2025. Once finalized, we will have an expanded dataset to further examine the role of parent moral talk and mental state talk on infants' social preferences and prosocial behaviors.

By examining infants' prosocial behaviors and social preferences in relation to caregivers' moral-related values, socialization activities, and cultural orientation, this project has deepened our understanding of the early foundations of kindness.

Figure 1 The correlation plot between variables



a *** indicates $p < .001$, ** indicates $p < .01$, * indicates $p < .05$. All p-values were adjusted for multiple comparisons using the False Discovery Rate (FDR) procedure.

Table 1 Descriptive statistics of variables

Variable	Mean	SD	N
Infant helper preference ^a	0.52	0.50	567
Infant prosocial behavior frequency ^b	1.91	0.87	538
Infant age (months) ^c	8.50	1.79	985
Parent education ^d	4.13	0.98	514
Parent individualism tendency ^e	0.43	0.06	580
Parent justice sensitivity	3.10	0.82	583
Parent curiosity in mental states	6.36	0.73	563
Parent expected age of prosocial behaviors ^f	7.55	3.19	556
Parent prosocial value ^g	0.36	0.21	520
Frequency of social games ^h	4.23	0.98	542
Frequency of book reading ⁱ	3.52	1.09	547
Prosocial talk ^j	0.06	0.04	164
Antisocial talk ^j	0.08	0.05	164
Neutral talk ^j	0.18	0.09	164
Mental state talk (character) ^j	0.09	0.06	164
Mental state talk (child) ^j	0.03	0.03	164

^a Infants' choices in the hill paradigm (1 = the helper, 0 = the hinderer).

^b The averaged frequency of infant prosocial behaviors (helping, comforting, sharing, cooperating) reported by parents (Never = 1, Rarely (one or two times per week) = 2, Sometimes (three - six times per week) = 3, Often (daily) = 4, Very Often (multiple times a day) = 5)

^c Infants' age information based on the full dataset of ManyBabies4.

^d Parent education level (No high school diploma = 1, High school diploma = 2, Some college = 3, 4-year college degree = 4, Graduate school degree = 5)

^e Parent individualism tendency (the scores of individualism subscales divided by the total scores of individualism and collectivism subscales)

^f The averaged age (in months) of when parents expect infants to show prosocial behaviors (helping, comforting, sharing, cooperating) (0 - 3 months = 1, 3 - 6 months = 2, 6 - 9 months = 3, 9 - 12 months = 4, 12 - 15 months = 5, 15 - 18 months = 6, 18 - 21 months = 7, 21 - 24 months = 8, 24 - 27 months = 9, 27 - 30 months = 10, 30 - 33 months = 11, 33 - 36 months = 12, 36 - 39 months = 13, 39 - 42 months = 14, 42 - 45 months = 15, 45 - 48 months = 16, 48 - 51 months = 17, 51 - 54 months = 18, 54 - 57 months = 19, 57 - 60 months = 20, 60+ months = 21)

^g The averaged scores of parent prosocial value across prosocial behaviors when asked by children should help, comfort, share, cooperate (other-oriented reasons = 1, other reasons = 0)

^h The frequency of playing social games with infants (Never = 1, Rarely (one or two times per week) = 2, Sometimes (three - six times per week) = 3, Often (daily) = 4, Very Often (multiple times a day) = 5)

ⁱ The frequency of reading a book to infants (Never = 1, Rarely (one or two times per week) = 2, Sometimes (three - six times per week) = 3, Often (daily) = 4, Very Often (multiple times a day) = 5)

^j Proportion of one category of talk (the number of the utterances coded into the category divided by the total number of utterances)

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