

UC Merced

Proceedings of the Annual Meeting of the Cognitive Science Society

Title

Early Concepts of Caregiving: Do Children Recognize Caregivers in Third-Party Interactions?

Permalink

<https://escholarship.org/uc/item/65t9b9b8>

Journal

Proceedings of the Annual Meeting of the Cognitive Science Society, 48(0)

Authors

Steele, Christina

Thomas, Ashley J

Publication Date

2026

Copyright Information

This work is made available under the terms of a Creative Commons Attribution License, available at <https://creativecommons.org/licenses/by/4.0/>

Peer reviewed

Early Concepts of Caregiving: Do Children Recognize Caregivers in Third-Party Interactions?

Christina M. Steele (csteele@g.harvard.edu) and Ashley J. Thomas (athomas@g.harvard.edu)

Department of Psychology, Harvard University, Cambridge, MA 02138

Abstract

Caregiving relationships are central to survival, yet little is known about how humans represent them. We investigate whether 3- to 7-year-old children (N=426) and adults (N=134) attend to intimacy (who is family) and asymmetry (who is an adult) to predict who provides care. We predicted that when the potential caregivers were both adults (mom, teacher) or both children (sister, friend), participants would expect the family member to respond, and when they were both family (mom, sister), participants would expect the adult to respond. Our hypothesis was partially supported. Adults and children expected a mom to comfort and provide food when the alternative was a teacher. However, unlike adults, children did not have strong expectations that a mom would provide care when the alternative was a child's same-aged sister. Ultimately, understanding caregiving relationships as both intimate and asymmetric may develop relatively slowly.

Keywords: caregiving relationships; children; social cognition

Introduction

Caregiving relationships are essential to our survival, especially during childhood (Hrdy, 2009). Existing theoretical work suggests that adults and possibly young children may represent caregiving relationships as both intimate and asymmetric (Thomas et al., 2025). The goal of the current investigation is to assess whether and how children come to represent caregiving relationships under this theoretical frame.

Perhaps the most paradigmatic example of caregiving relationships is parent-child relationships. These relationships typically involve strong emotional bonds and include physical intimacy, such as holding, snuggling, breastfeeding, and bathing (Ainsworth, 1979; Bowlby, 1958), which may promote emotional closeness (Yoshida & Funato, 2021). More broadly, people use physical intimacy as a cue of close, family, or family-like relationships (Fiske, 1992; Sorokowska et al., 2021; Suvilehto et al., 2019). For instance, adults and children expect intimate food sharing (e.g., licking the same ice cream cone) to occur within more intimate social relationships (Hung et al., 2022; Miller et al., 1998; Thomas et al., 2022). In one study, children were shown sharing interactions that were less intimate (i.e., sharing toys or partitionable food such as cookies) and sharing interactions that were more intimate (i.e., sharing food that involved sharing saliva, such as drinking from the same straw). For toys and partitionable food, 5- to 7-year-old children equally predicted that children would share with family and friends,

but for food that required saliva sharing, they predicted children would share with family. Even infants recognize physical intimacy. In one set of studies, infants expected those who had shared saliva to respond to one another's distress (Thomas et al., 2022; for a replication, refer to Ciftci et al., 2025). These intuitions align with behaviors in close relationships. Across 45 countries, intimate behavior occurs more often in close relationships (Sorokowska et al., 2021), and in the US occurs more often in family relationships than in non-family relationships (Thomas et al., 2022). In ethnographic descriptions of 40 small-scale societies, there were more than 50 instances of texts linking physically intimate actions to kinship bonds, many involving a parent and their young child (Thomas et al., 2022; refer also to Fiske 1992).

Caregiving relationships, however, are distinct from the broader category of intimate relationships because they are asymmetric: one partner is more able or competent due to age, resources, or physical strength. For young children, caregivers are almost always older and larger than the child. Do children recognize the asymmetry of caregiving relationships?

One reason to think that children may recognize this asymmetry is that children and even infants recognize asymmetric social interactions in other contexts. For instance, they recognize cues of dominance. They expect larger individuals to “get their way” in conflicts (Thomsen et al., 2011; Thomsen, 2020). Toddlers also recognize cues associated with legitimate authority. They expect individuals to follow the directions of others to whom others bow down and defer; Margoni et al., 2018; Margoni & Thomsen, 2024). Toddlers also prefer those to whom others defer over those who defer, but not those who use force to win (Thomas et al., 2018). By age four, children are more sensitive to a wider variety of cues of social asymmetry (Gülgöz & Gelman, 2017). Like infants, they are sensitive to cues of strength, expecting those who appear physically stronger to have more authority (Terrizzi et al., 2019). They also say that those who have control over resources, make the rules, and get their way, even at the expense of others, are “in charge” (Gülgöz & Gelman, 2017).

However, it is unclear whether infants, toddlers, and children in these studies connect caregiving with these behaviors. One reason to think that they do not is that

caregiving relationships are distinct from other types of asymmetric relationships. People who provide care are more powerful, but they use their power to meet the needs of the person receiving care, often without expecting benefits. For example, in many contexts, parents prioritize their children's needs over their own. American US adults morally condemn parents who do not meet this expectation, even when their children are objectively safe (Thomas et al., 2016). Children may also hold such views. Around age 8, children tend to evaluate parents who fail to help more negatively than friends who fail to help (Marshall et al., 2022). When asked to complete a story about a child who was cold or hungry and needed help, six-year-olds selected an ending in which a parent helped over an ending in which a peer helped (Mammen et al., 2021). Even infants are surprised when an adult fails to approach a crying baby (e.g., ignoring a crying baby and attending to a laundry basket, or continuing to walk uphill after hearing a baby cry; Aptaker Ben-Dori et al., 2025; Biro, 2023; Jin et al., 2018; Johnson et al., 2007; Johnson et al., 2010).

However, in each of these studies, intimacy and asymmetry are manipulated simultaneously, making them difficult to interpret. For example, in Marshall et al. (2022), a parent is contrasted with a friend. Do children expect all adults to help, or do they have specific expectations about some adults, for example, those who are intimate or family? Does it matter that the person in the infant studies is an adult? While young children and infants may recognize and attend to two key features of caregiving relationships (intimacy, asymmetry) separately, it is unclear whether they integrate these two cues. To date, there is relatively little research that asks whether and how children conceptualize caregiving relationships, with only a handful of very recent empirical work and theoretical discussion (Dahmani et al., 2024; Gopnik, 2023; Gopnik et al., 2025; Thomas et al., 2022; Thomas et al., 2023; Thomas, 2024; Thomas et al., 2025; Shachnai et al., 2025; Steele & Thomas, 2024).

The current investigation focuses on children between 3 and 7 years. Here, we use relationship role labels (e.g., mom, sister, teacher, friend) to vary intimacy and asymmetry across two studies. We operationalize intimacy by comparing family (mom, sister) with positive non-family relations (teacher, friend)—an ecologically valid cue for US American children (Thomas et al., 2022). We operationalize asymmetry using physical size and role labels that indicate age (e.g., using moms and teachers to indicate adults, using sisters and friends to indicate children). We hypothesized that children would integrate cues of intimacy and asymmetry to predict who would comfort (study 1) and who would share food (study 2). We investigated these two needs because both are common in parent-child relationships, but they differ in their level of intimacy. We hypothesized that when the potential caregivers were both family members (i.e., a child's mom and a child's same-aged sister), children and adults should expect the adult (i.e., the mom) to respond. However, when the potential caregivers were both non-family members (i.e., a child's teacher and a child's same-aged friend) and hence less

intimate, children and adults should not have strong expectations about who would provide care. Similarly, we hypothesized that when the potential caregivers were both adults (i.e., a child's mom and a child's teacher), children and adults would expect the family member (i.e., the mom) to respond. However, when the potential caregivers were both children (i.e., a child's sister or same-aged friend), and therefore potentially less capable of, or less obligated to, provide care, we predicted that children and adults would not have strong expectations about who would respond. Lastly, we hypothesized that when the potential receivers of care were adults (i.e., a mom or teacher) rather than children, children and adults should not have strong expectations about who would provide care whether the potential caregivers were both family (i.e., a child's dad and the mom's child) or not family (i.e., a child's teacher and the teacher's student).

Study 1

We received Institutional Review Board approval. Our pre-registrations and materials are available on the Open Science Framework

(https://osf.io/h3u2c/overview?view_only=da2d777c1bca48919fb3f5b5258af305).

Study 1 Methods

Participants We tested 212 US children between 3 years 6 months 15 days and 7 years 6 months 15 days (Mean Age_{years}=4.76 SD Age_{years}=1.28; 55% (116/211) Girls; 3% (6/212) Hispanic or Latine; 46% (98/212) White; 4% (6/183) Single-parent household; 16% (20/122) Income less than \$80,000; 89% (187/209) Parents with a bachelor's degree or higher) via Children Helping Science (Scott & Schulz, 2017; Scott et al., 2017). A few participants (n=12) were just outside of this age range (11 were between the ages of 3 years 0 months and 1 days and 3 years 6 months and 13 days, while one was 7 years 7 months and 13 days), but we included them in our data as the overall pattern of results did not differ whether they were included or excluded).

We also tested 75 US adults recruited from Prolific (Mean Age_{years}=38.52, SD Age_{years}=12.38; 39% (28/71) Women; 3% (2/71) Hispanic or Latine; 56% (40/71) White; 70% (50/71) Income less than \$80,000; 61% (43/71) Bachelor's degree or higher).

Design and Materials Children and parents met with an experimenter on video-chat (<https://www.zoom.com/>). Adults completed a survey with the same materials presented to children. Each participant saw six conditions, counterbalanced. In each condition, children were shown a central character flanked by two social partners and then were asked to predict who would respond to the central character's distress: *“Look! Here is a kid! This [big/little] one is her [teacher/mom/sister]. This [big/little] one is her [teacher/dad/friend]. Oh no! The [kid/mom/teacher] in the middle is sad now! Who do you think will give the [kid/mom/teacher] in the middle a hug now that they're sad?”*. Characters were geometric shapes with limbs and eyes

(Figure 1). Characters within a condition were the same color, and each condition used a distinct color. Color and side of character were counterbalanced.

In two conditions (i.e., mom-sister, teacher-friend), we held intimacy constant: the potential caregivers were either both family or both non-family relations, and varied asymmetry: one potential caregiver was an adult, and the other was a child. In the mom-sister condition, a child was flanked by her mom and sister: both were family members, one was an adult, and one was a child. In the teacher-friend condition, a child was flanked by her teacher and friend: both were non-family members, but one was an adult and one was a child.

In two conditions (i.e., mom-teacher, sister-friend), we held asymmetry constant: the two potential caregivers were either both adults or both children, but varied intimacy: one potential caregiver was a family member, and one was not. In the mom-teacher condition, a child was flanked by her mom and teacher: both were adults, and one was family. In the sister-friend condition, a child was flanked by her sister and friend: both were children, and one was family. Across these conditions, the sister and friend were depicted as the same size as the central child character to avoid drawing inferences about age differences, while the mom and teacher were both larger. We predicted that children would have the strongest intuitions when they could choose an adult who was an intimate partner (i.e., a mom over a teacher, a mom over a sister). We predicted weaker intuitions when they could choose only on the basis of intimacy (i.e., a sister over a friend) or age (i.e., a teacher over a friend).

We also investigated whether children's answers would reflect a broader belief or heuristic that the adults always respond, regardless of whether the potential recipient of care is a child or an adult. To do so, in two conditions (i.e., dad-kid, teacher-kid) we kept intimacy constant: the potential caregivers were either both family or both non-family members, and we varied asymmetry: one potential caregiver was an adult, and one was a child. However, this time the central character was an adult instead of a child. In the dad-kid condition, a mom was flanked by her child's dad and her child: both were family members, but one was an adult and the other was a child. In the teacher-kid condition, a teacher was flanked by a fellow teacher and her student: both were non-family members, but one was an adult and the other a child. We reasoned that if children understand caregiving as an age-based role (such that older people respond to others' needs), they should choose the adult in both conditions. However, if they understand caregiving as a relationship (such that the type of relationship between the caregiver and care receiver matters for informing inferences about care), they should be at chance.

Analysis To measure whether participants selected the more intimate or larger character in each condition, we pre-registered one-sided Bayesian tests. However, we report two-sided tests due to unexpected patterns in the data. We used the software program, JASP (JASP Team, 2026). To assess

age effects and differences between conditions, we used Bayesian mixed models with the brms package (Bürkner, 2017) in R (R Core Team, 2026), and treated age as a continuous variable in days. We report model estimates and 95% credible intervals. Fixed effects in the models included condition (reference: "mom-teacher" condition) and age in days with participant ID as a random effect.

Study 1 Results

We found decisive evidence that children expect moms over teachers to comfort a sad child (Frequency_{mom_teacher}: 82% (173/210), $BF_{10}=3.75 \times 10^{19}$), suggesting they expect family-member adults to comfort (Figure 1). However, children were not as decisive about whether moms over sisters would comfort (Frequency_{mom_sister}: 63% (131/209), $BF_{10}=74.6$). These two conditions were significantly different ($\beta=1.02$; 95% CI [0.56, 1.47]). Similarly, children only weakly predicted that sisters over friends would comfort (Frequency_{sister_friend}: 62% (131/210), $BF_{10}=55.9$). Children did not expect teachers over friends to comfort (Frequency_{teacher_friend}: 41% (87/210), $BF_{10}=1.89$), nor dads over children to comfort the mom (Frequency_{dad_kid}: 56% (116/208), $BF_{10}=0.35$), nor teachers over children to comfort another teacher (Frequency_{teacher_kid}: 47% (99/209), $BF_{10}=0.12$). We found no significant age effects in the full model ($\beta=0$ [-0.00, 0.00]).

Adults, like children, expected moms over teachers to comfort (Frequency_{mom_teacher}: 96% (70/73), $BF_{10}=2.05 \times 10^{15}$). However, unlike children, adults showed decisive evidence that they expected moms over sisters to comfort (Frequency_{mom_sister}: 89% (65/73), $BF_{10}=9.50 \times 10^9$) and expected sisters over friends to comfort (Frequency_{sister_friend}: 75% (55/73), $BF_{10}=2.32 \times 10^3$), although not as strongly as in the mom-sister or mom-teacher conditions. Adults, like children, did not expect teachers over friends to comfort (Frequency_{teacher_friend}: 29% (21/73), $BF_{10}=118$), nor dads over children to comfort the mom (Frequency_{dad_kid}: 40% (30/75), $BF_{10}=0.64$), nor teachers over children to comfort another teacher (Frequency_{teacher_kid}: 45% (33/74), $BF_{10}=0.22$).

Study 1 Discussion

We found strong evidence that both children and adults expected moms, rather than teachers, to provide comfort. Thus, when choosing between two adults, children and adults choose the family member, suggesting they expect more intimate partners to respond. This aligns with prior research indicating that children distinguish between intimate and less intimate relationships (Steele & Thomas, 2025; Thomas et al., 2022). However, children's and adults' expectations differed when distinguishing between two family relations that differed in age (mom-sister). Adults strongly predicted that the mom would comfort, while children did so only weakly, suggesting that children may not begin to distinguish different intimate partners based on age asymmetry until later in childhood. Neither children nor adults expected teachers over friends to comfort a child, nor teachers over children to comfort a teacher, nor dads over children to comfort moms,

suggesting neither age group always expects the adult to comfort. However, children may have relied more on intimacy to make predictions about physical acts of comfort (i.e., hugging) because intimacy is more immediately relevant to comforting. If this were so, children might reason differently about other needs (e.g., food provision). While siblings, parents, teachers, and friends are all equally capable of comforting, adults often control resources (e.g., in parent-child relationships, parents often provide food). Accordingly, children may be more likely to expect parents, compared to siblings, to share food. Thus, in study 2, we test whether children and adults will use cues of intimacy and asymmetry to predict who will respond to a request for food.

Study 2

Study 2 Methods

Participants We recruited 214 3- to 7-year-old US children (Mean Age_{years}=4.68, SD Age_{years}=1.41; 50% (104/210) Girls; 4% (8/211) Hispanic or Latine; 56% (119/211) White; 2% (3/193) Single-parent household; 16% (22/134) Income less than \$80,000; 94% (194/206) Parents with a bachelor's degree or higher) via Children Helping Science. A few participants (n=18) were just outside of the age range (16 were between the ages of 3 years 0 months and 1 days and 3

years 6 months and 13 days, while two were 7 years 11 months and 24 days, 8 years 4 months and 0 days), but we included them in our data as the overall pattern of results did not differ whether they were included or excluded.

We recruited 77 US adults on Prolific (Mean Age_{years}=42.24, SD Age_{years}=13.42; 65% (41/63) Women; 5% Hispanic or Latine; 77% (49/64) White; 66% (42/63) Income less than \$80,000; 58% (37/64) Bachelor's degree or higher).

Design and Materials The methods and design were the same as in study 1, except in study 2, we used the following script: "Look! Here is a kid! This [big/little] one is her [teacher/mom/sister]. This [big/little] one is her [teacher/dad/friend]. Oh no! The kid in the middle is hungry now! Who do you think will give the kid in the middle strawberries now that they're hungry?". Both flanking characters had identical bowls of strawberries in front of them.

Study 2 Results

As in study 1, children strongly expected moms over teachers to share food (Frequency_{mom_teacher}: 80% (164/206), $BF_{10}=4.10 \times 10^{15}$; Figure 1). A larger percentage of children expected moms over sisters to share food (Frequency_{mom_sister}: 69% (145/210), $BF_{10}=4.89 \times 10^5$) compared to comfort (in

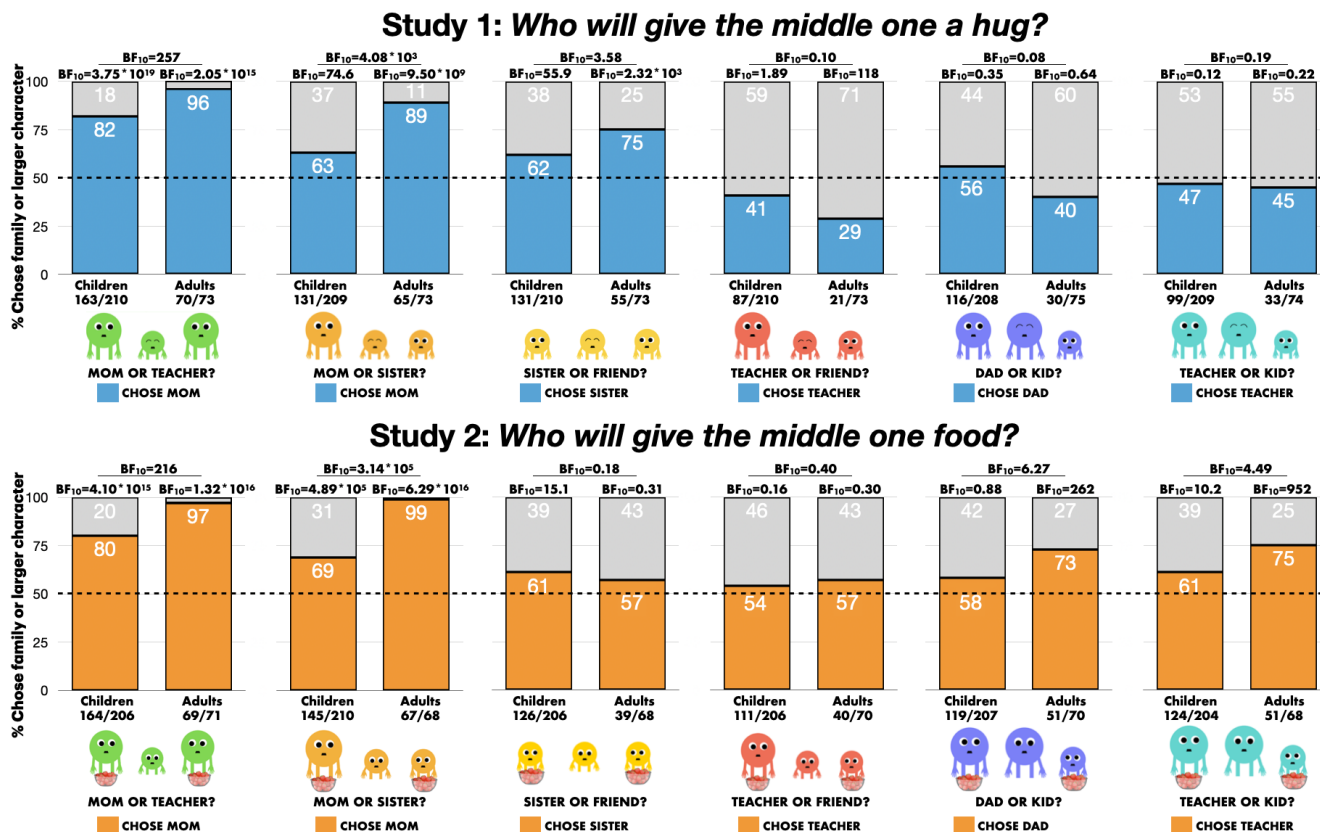


Figure 1: [TOP] Study 1 data and stimuli. [BOTTOM] Study 2 data and stimuli. Bar plots of the proportion participants selected either the family member or the larger character across each condition. BF = Bayes Factors.

study 1, 63% chose mom, although there was no significant difference between the mom-sister conditions across studies ($\beta=0.27$; 95% CI [-0.14, 0.69]). As in study 1, children were more likely to choose mom in the mom-teacher condition than in the mom-sister condition ($\beta=0.47$; 95% CI [0.03, 0.87]). The other conditions were similar to study 1: Children were only slightly more likely to predict sisters over friends (Frequency_{sister_friend}: 61% (126/206), $BF_{10}=15.1$) and did not have strong expectations about teachers over friends (Frequency_{teacher_friend}: 54% (111/206), $BF_{10}=0.16$). Children did not expect dads over children to share with moms (Frequency_{dad_kid}: 58% (119/207), $BF_{10}=0.88$). However, children did somewhat expect teachers over children to share with other teachers (Frequency_{teacher_kid}: 61% (124/204), $BF_{10}=10.2$). Moreover, we did not find a significant effect of age in the full model ($\beta=0$ [-0.00, 0.00]).

As in study 1, adults expected moms over teachers to share food (Frequency_{mom_teacher}: 97% (69/71), $BF_{10}=1.32 \times 10^{16}$) and were at ceiling in choosing moms over sisters to share food (Frequency_{mom_sister}: 99% (67/68), $BF_{10}=6.29 \times 10^{16}$). Adults, unlike children and unlike study 1, did not expect sisters over friends to share food (Frequency_{sister_friend}: 57% (39/68), $BF_{10}=0.31$). As in study 1, adults did not expect teachers over friends to share food (Frequency_{teacher_friend}: 57% (40/70), $BF_{10}=0.30$). Distinct from adults' responses in study 1 and from children's responses, adults expected dads over children to share food (Frequency_{dad_kid}: 73% (51/70), $BF_{10}=262$). Adults, like children, expected teachers over children to share food with another teacher (Frequency_{teacher_kid}: 75% (51/68), $BF_{10}=952$).

Study 2 Discussion

As in study 1, children had the strongest intuitions about food sharing when comparing a mom and a teacher: Children expected a mom rather than a teacher to share food with a child. However, compared to the comforting case in study 1, though not statistically different, a larger percentage of children expected a mom rather than a sister to share food with a child. One possibility is that children may perceive comforting as more intimate than food sharing and perceive age or role within a family to be irrelevant to who will provide care. In past work, children expected their own parents to seek comfort from socially close individuals, but seek resources, such as information, from more knowledgeable individuals regardless of whether they were socially close (Steele & Thomas, 2025). Interestingly, our findings differ conceptually from prior work, which found that children did not expect children to preferentially share resources that did not involve physical intimacy (e.g., toys or food that could be divided and hence easily shared) with family (parents and siblings) over other social partners (teachers and friends; Thomas et al., 2022). Children also did not expect parents to preferentially share resources (e.g., items that could not be divided and hence not evenly shared: blanket, tea) in response to a need (e.g., hunger, thirst, feeling cold, having a sore throat) with their own children compared to other non-related children (Thomas et al., 2023).

General Discussion

The current studies investigated young children's representations of caregiving relationships. We predicted that children would recognize caregiving as intimate and asymmetric, and thus would choose potential caregivers who are more intimate (family members) and who are more likely to be capable of, or more obligated to, providing care (adults). Our predictions were informed by previous literature showing early emerging abilities to recognize intimate relationships (Thomas et al., 2022) and use physical size (Thomsen et al., 2011) to make predictions in social interactions. However, our current studies did not fully support this hypothesis.

In line with our predictions, adults and children expected moms, rather than teachers, to provide care through comfort and sharing food. However, children made different predictions than adults in one of our key conditions—where we asked children whether a mom or sister would provide care. Adults had strong expectations that a mom would be much more likely to comfort their sad child and feed their hungry child than the child's sibling would. Children had weaker expectations when deciding between a mom and a sister, both family members, one an adult. Although not significantly different, this finding was qualitatively different in study 2, in which we found stronger evidence that children expected a mom rather than a sister to share food. In our studies, we did not find age effects, suggesting that children between 3 to 7 years had similar expectations.

One possibility is that children understand parent-child relationships as primarily intimate, rather than asymmetric (Fiske, 1992; Steele & Thomas, 2024). Interestingly, and perhaps contrary to this hypothesis, we found that compared to children, a qualitatively larger percentage of adults expected sisters, rather than friends, to comfort, even though the sister was meant to be more intimate (study 1). This result differs from past research on physical intimacy that found that children expected siblings rather than friends to share foods that would involve saliva-sharing (Thomas et al., 2022). One possibility is that saliva-sharing, a physically intimate act, is more associated with the nuclear family, while comforting, an emotionally intimate act, is seen by children as extending to friends. Related to this point, in the same set of studies, children did not expect other children to preferentially share items that did not involve physical intimacy (i.e., toys, food that could be divided without sharing saliva) with siblings over friends (Thomas et al., 2022). Taken together, our study results are not strongly consistent with the hypothesis that children integrate both cues, nor that they only use one cue. However, our study finding that both adults and children decisively expected parents, but not teachers, to comfort and share food with their child may suggest that children might use cues of intimacy along with asymmetry at least in some contexts to infer care.

Turning to other results, neither adults nor children seemed to have a general expectation that adults comfort more often than other children—neither adults nor children strongly expected a teacher rather than a friend to comfort a child, nor

a dad rather than a child to comfort a mom, nor a teacher rather than a child to comfort another teacher. There was some evidence, however, for a general expectation that adults share food. Adults, but not children, expected a dad, rather than a child, to share food with a mom, and both adults and children expected another teacher, rather than a child, to share food with a teacher. However, neither adults nor parents expected a teacher rather than a friend to comfort or share food with a child. This suggests that children and adults distinguish between particular contexts in which adults may be more likely to provide care.

These results leave open several questions that future studies could address. For example, how might children respond in situations that are less typically associated with family or intimacy, for example, more general instrumental helping? Second, was our operationalization of asymmetry and intimacy well controlled? In line with prior research and to better align the study with children's everyday lives, we used kinship terms: sister, friend, mom, dad, and teacher. However, children, at least in the US, develop an adult-like understanding of kinship terms slowly over the first 10 years of life (Mollica & Piantadosi, 2022; Piaget, 1928). Thus, the terms may have been interpreted differently by adults and children. Likewise, some of our results may be driven by norms that prohibit intimate actions and food sharing in classrooms (Andrzejewski & Davis, 2008; Behrmann, 2010; Bergnehr & Cekaite, 2018; Dupuis, 2020; Gill, 2018; Glabau, 2022; Karvonen et al., 2023; Rous & Hunt, 2004). A further limitation to our study is that our sample consisted of only children and adults from the US, although caregiving arrangements differ widely across cultures (Hrdy, 2009). Moreover, how did gender play a role in our studies? Although teachers are not, by definition, gendered, children may have assumed they were women in our study (Schaeffer, 2024). Further, we used "mom" primarily as opposed to "dad" or "parent". We may observe different intuitions about dads and brothers (Leder Mackley et al., 2020; Midgette et al., 2023; Stier & Hall, 1984). Future studies could investigate this by depicting or describing intimacy and asymmetry without using relationship labels, or by examining how children interpret these words.

Finally, how do these results speak to the distinction among asymmetric relationships based on dominance, prestige, and legitimate authority (Fiske, 1992; Henrich & Gil-White, 2001)? Several studies have found that children distinguish between dominant, prestigious, and legitimate leaders. For example, toddlers distinguish between leaders and bullies (Margoni et al., 2018). Toddlers prefer those who win because others defer to them, but not those who win by using force (Thomas et al., 2018). Several other studies have found that older children prefer prestigious, but not dominant, individuals (Amakusa et al., 2022; Cheng, 2020; Kajanus et al., 2020; Sequeira et al., 2024). Children also expect dominant, but not prestigious, individuals to take resources rather than provide resources (Creppy & Vélez, 2025). While these studies suggest that children differentiate among high-status individuals, other studies suggest that they do not

expect high-ranking people to provide care. While children expect leaders to protect subordinates from external threats, they do not expect them to be more likely to help (Thomas, Navarro Hernandez, et al., 2022). Moreover, they say that unhelpful individuals who are indifferent to the needs of others are "in charge" (Terrizzi et al., 2020).

In summary, more studies are needed to clarify how children conceptualize caregiving relationships. Previous theories of intuitive sociology have proposed that humans may have early-emerging primitives that distinguish between asymmetrical and communal relationships (Fiske, 1992; Kaufmann & Clément, 2014; Thomas, 2024; Thomsen & Carey, 2013). If that is the case, then caregiving concepts may emerge later because it requires learning a new role or relationship or combining these primitives. Existing priors about asymmetric relationships (e.g., where higher-ranked individuals "win" or get more resources) could compete with priors about intimate relationships (e.g., linking acts of intimacy with the provision of care). While power struggles occur in parent-child relationships (Harach & Kuczynski, 2004; Hoffman, 2013; Liu, 2023; Punch, 2005; Studer-Perez & Musher-Eizenman, 2022; Walton et al., 2017), it is possible that children conceive of parent-child relationships as communal in which people see themselves as "one" entity (Fiske, 1992). This would align with a recent proposal that intuitions about family relationships are grounded in a primitive that enables infants to distinguish between intimate and non-intimate social partners (Steele & Thomas, 2024) and scientific theories conceiving parents and children as a single symbiotic system (Bowlby, 1958; Mahler et al., 2018). To our knowledge, whether these conceptions match folk intuitions have not been directly tested. Children may also learn about caregiving from firsthand experiences with different relationships (e.g., witnessing their moms comfort or provide food) or from linguistic input that distinguishes among relationships (e.g., learning that "moms" comfort). Finally, children may conceive of the asymmetric aspect of caregiving as primarily power-based. Often, children do not fully understand the reasoning behind parenting decisions and may see adults as usually "getting their way".

In sum, our studies shed light on the similarities and differences between adults' and children's conceptions of caregiving. The differences between adults and children are perhaps surprising, given the centrality of parent-child relationships in children's lives and attachment theory's proposal that our ideas of relationships stem from our experiences with our caregivers. While more work is needed to draw firm conclusions, our work supports the hypothesis that children may not view parent-child relationships as both intimate and asymmetrical as adults do, but rather as simply intimate.

Acknowledgments

We thank the families who participated and the Harvard Laboratory for Developmental Studies, and Children Helping Science for recruitment.

References

- Ainsworth, M. S. (1979). Infant-mother attachment. *The American Psychologist*, 34(10), 932–937. <https://doi.org/10.1037/0003-066X.34.10.932>
- Amakusa, M., Meng, X., & Kanakogi, Y. (2022). Children's social evaluation toward prestige-based and dominance-based powerholders. *BMC Research Notes*, 15(1), 180–185. <https://doi.org/10.1186/s13104-022-06072-6>
- Andrzejewski, C. E., & Davis, H. A. (2008). Human contact in the classroom: Exploring how teachers talk about and negotiate touching students. *Teaching and Teacher Education*, 24(3), 779–794. <https://doi.org/10.1016/j.tate.2007.02.013>
- Aptaker Ben-Dori, S., Atzaba-Poria, N., & Frenkel, T. I. (2025). Individual differences in infants' expectations and preferences for responsive vs. unresponsive parent-puppets and their associations with early maternal behavior. *Attachment & Human Development*, 27(6), 868–892. <https://doi.org/10.1080/14616734.2025.2562511>
- Behrmann, J. (2010). Ethical Principles as a Guide in Implementing Policies for the Management of Food Allergies in Schools. *The Journal of School Nursing*, 26(3), 183–193. <https://doi.org/10.1177/1059840510364844>
- Bergnehr, D., & Cekaite, A. (2018). Adult-initiated touch and its functions at a Swedish preschool: Controlling, affectionate, assisting and educative haptic conduct. *International Journal of Early Years Education*, 26(3), 312–331. <https://doi.org/10.1080/09669760.2017.1414690>
- Biro, S. (2023). Twelve months old infants' evaluation of observed comforting behavior using a choice paradigm: The role of animacy cues and self-distress. *Infancy*, 28(4), 807–819. <https://doi.org/10.1111/infa.12542>
- Bowlby J. (1958). The nature of the child's tie to his mother. *International Journal of Psychoanalysis*, 39(5), 350–373.
- Bürkner, P.C. (2017). Brms: An R package for Bayesian multilevel models using Stan. *Journal of Statistical Software*, 80(1). <https://doi.org/10.18637/jss.v080.i01>
- Cheng, J. T. (2020). Dominance, prestige, and the role of leveling in human social hierarchy and equality. *Current Opinion in Psychology*, 33, 238–244. <https://doi.org/10.1016/j.copsyc.2019.10.004>
- Ciftci, B. G., Kominsky, J. F., & Csibra, G. (2025). Do infants use cues of saliva-sharing to infer close relationships? A replication of Thomas et al. (2022). *Royal Society Open Science*, 12(4), Article 240229. <https://doi.org/10.1098/rsos.240229>
- Creppy, R., & Vélez, N. A. (2025). Children's expectations of dominant and prestigious leaders. *Proceedings of the Annual Meeting of the Cognitive Science Society*, 47. Retrieved from <https://escholarship.org/uc/item/3gt7k2d7>
- Dahmani, A., Amir, D., Thomas, A. J., & Gopnik, A. (2024). Caregiver presence promotes judgements of exploration. *Proceedings of the Annual Meeting of the Cognitive Science Society*, 46. Retrieved from <https://escholarship.org/uc/item/6s33x461>
- Dupuis, R., Kinsey, E. W., Spergel, J. M., Brown-Whitehorn, T., Graves, A., Samuelson, K., Epstein, C., Mollen, C., & Cannuscio, C. C. (2020). Food Allergy Management at School. *The Journal of School Health*, 90(5), 395–406. <https://doi.org/10.1111/josh.12885>
- Fiske, A. P. (1992). The four elementary forms of sociality: Framework for a unified theory of social relations. *Psychological Review*, 99(4), 689–723. <https://doi.org/10.1037/0033-295X.99.4.689>
- Gill, M. (2018). Precarious Kisses and Risky Interactions: Allergic Reactions through Fluid Exchanges. *Feminist Formations*, 30(1), 184–205. <https://doi.org/10.1353/ff.2018.0009>
- Glabau, D. (2022). *Food allergy advocacy: parenting and the politics of care*. University of Minnesota Press.
- Gopnik, A. (2023). Caregiving in Philosophy, Biology & Political Economy. *Daedalus (Cambridge, Mass.)*, 152(1), 58–69. https://doi.org/10.1162/daed_a_01961
- Gopnik, A., Levi, M., & Ugołnik, Z. (2025). Introduction: The Social Science of Caregiving. *Daedalus (Cambridge, Mass.)*, 154(1), 6–13. https://doi.org/10.1162/daed_e_02120
- Gülgöz, S., & Gelman, S. A. (2017). Who's the Boss? Concepts of Social Power Across Development. *Child Development*, 88(3), 946–963. <https://doi.org/10.1111/cdev.12643>
- Harach, L. D., & Kuczynski, L. J. (2005). Construction and maintenance of parent-child relationships: Bidirectional contributions from the perspective of parents. *Infant and Child Development*, 14(4), 327–343. <https://doi.org/10.1002/icd.393>
- Harlow, H. F., & Zimmermann, R. R. (1958). The development of affectional responses in infant monkeys. *Proceedings of the American Philosophical Society*, 102, 501–509.
- Henrich, J., & Gil-White, F. J. (2001). The evolution of prestige: freely conferred deference as a mechanism for enhancing the benefits of cultural transmission. *Evolution and Human Behavior*, 22(3), 165–196. [https://doi.org/10.1016/S1090-5138\(00\)00071-4](https://doi.org/10.1016/S1090-5138(00)00071-4)
- Hoffman, D. M. (2013). Power Struggles: The Paradoxes of Emotion and Control among Child-Centered Mothers in the Privileged United States. *Ethos (Berkeley, Calif.)*, 41(1), 75–97. <https://doi.org/10.1111/etho.12003>
- Hrdy, S. B. (2009). *Mothers and Others: The Evolutionary Origins of Mutual Understanding*. Harvard University Press.
- Hung, M. S., Thomas, A. J., Radkani, S., Tenenbaum, J., & Saxe, R. (2022). Modeling risky food sharing as rational communication about relationships. *Proceedings of the Annual Meeting of the Cognitive Science Society*, 44. Retrieved from <https://escholarship.org/uc/item/1066w77t>
- JASP Team (2026). JASP (Version 0.18.3) [Computer software]
- Jin, K., Houston, J. L., Baillargeon, R., Groh, A. M., & Roisman, G. I. (2018). Young infants expect an unfamiliar adult to comfort a crying baby: Evidence from a standard violation-of-expectation task and a novel infant-triggered-

- video task. *Cognitive Psychology*, 102, 1–20. <https://doi.org/10.1016/j.cogpsych.2017.12.004>
- Johnson, S. C., Dweck, C. S., & Chen, F. S. (2007). Evidence for Infants' Internal Working Models of Attachment. *Psychological Science*, 18(6), 501–502. <https://doi.org/10.1111/j.1467-9280.2007.01929.x>
- Johnson, S. C., Dweck, C. S., Chen, F. S., Stern, H. L., Ok, S., & Barth, M. (2010). At the Intersection of Social and Cognitive Development: Internal Working Models of Attachment in Infancy. *Cognitive Science*, 34(5), 807–825. <https://doi.org/10.1111/j.1551-6709.2010.01112.x>
- Kajanus, A., Afshordi, N., & Warneken, F. (2020). Children's understanding of dominance and prestige in China and the UK. *Evolution and Human Behavior*, 41(1), 23–34. <https://doi.org/10.1016/j.evolhumbehav.2019.08.002>
- Karvonen, U., Routarinne, S., & Tainio, L. (2023). "Don't touch": Negotiating the boundaries of acceptable touching in classrooms. *Learning, Culture and Social Interaction*, 41, 100730. <https://doi.org/10.1016/j.lcsi.2023.100730>
- Kaufmann, L., & Clément, F. (2014). Wired for Society: Cognizing Pathways to Society and Culture. *Topoi*, 33(2), 459–475. <https://doi.org/10.1007/s11245-014-9236-9>
- Leder Mackley, K., Yiannoutsou, N., Price, S., Atkinson, D., & Jewitt, C. (2020). Social Norms of Touch. In *Interdisciplinary Insights for Digital Touch Communication*. Springer International Publishing AG.
- Liu, R. (2023). Constructing childhood in social interaction: How parents assert epistemic primacy over their children. *Social Psychology Quarterly*, 86(1), 74–94. <https://doi.org/10.1177/01902725221130751>
- Mahler, M. S., Pine, F., & Bergman, A. (2018). *The Psychological Birth of the Human Infant: Symbiosis and Individuation* (1st edition.). Routledge. <https://doi.org/10.4324/9780429482915>
- Mammen, M., Köymen, B., & Tomasello, M. (2021). Young children's moral judgments depend on the social relationship between agents. *Cognitive Development*, 57, 100973. <https://doi.org/10.1016/j.cogdev.2020.100973>
- Margoni, F., Baillargeon, R., & Surian, L. (2018). Infants distinguish between leaders and bullies. *Proceedings of the National Academy of Sciences - PNAS*, 115(38), e8835–E8843. <https://doi.org/10.1073/pnas.1801677115>
- Margoni, F., & Thomsen, L. (2024). How infants predict respect-based power. *Cognitive Psychology*, 152, 101671. <https://doi.org/10.1016/j.cogpsych.2024.101671>
- Marshall, J., Gollwitzer, A., Mermin-Bunnell, K., Shinomiya, M., Retelsdorf, J., & Bloom, P. (2022). How Development and Culture Shape Intuitions About Prosocial Obligations. *Journal of Experimental Psychology. General*, 151(8), 1866–1882. <https://doi.org/10.1037/xge0001136>
- Maslow, A. H. (1943). A theory of human motivation. *Psychological Review*, 50(4), 370–396. <https://doi.org/10.1037/h0054346>
- Midgette, A. J., Ma, D., Stowe, L. M., & Chernyak, N. (2023). US and Chinese preschoolers normalize household labor inequality. *Proceedings of the National Academy of Sciences - PNAS*, 120(38), 1–3. <https://doi.org/10.1073/pnas.2301781120>
- Miller, L., Rozin, P., & Fiske, A. P. (1998). Food sharing and feeding another person suggest intimacy; two studies of American college students. *European Journal of Social Psychology*, 28(3), 423–436. [https://doi.org/10.1002/\(SICI\)1099-0992\(199805/06\)28:3<423::AID-EJSP874>3.0.CO;2-V](https://doi.org/10.1002/(SICI)1099-0992(199805/06)28:3<423::AID-EJSP874>3.0.CO;2-V)
- Mollica, F., & Piantadosi, S. T. (2022). Logical word learning: The case of kinship. *Psychonomic Bulletin & Review*, 29(3), 766–799. <https://doi.org/10.3758/s13423-021-02017-5>
- Olson, K. R., & Spelke, E. S. (2008). Foundations of cooperation in young children. *Cognition*, 108(1), 222–231. <https://doi.org/10.1016/j.cognition.2007.12.003>
- Piaget, J. (1928). *Judgment and reasoning in the child*. Harcourt, Brace. <https://doi.org/10.4324/9780203207260>
- Punch, S., & Bass, L. (2005). The Generationing of Power: A Comparison of Child-Parent and Sibling Relations in Scotland. In *Sociological Studies of Children and Youth* (Vol. 10, pp. 169–188). Emerald Group Publishing Limited. [https://doi.org/10.1016/S1537-4661\(04\)10009-3](https://doi.org/10.1016/S1537-4661(04)10009-3)
- R Core Team (2026). *R: A language and environment for statistical computing*. R Foundation for Statistical Computing, Vienna, Austria. <https://www.R-project.org/>
- Rous, T., & Hunt, A. (2004). Governing peanuts: the regulation of the social bodies of children and the risks of food allergies. *Social Science & Medicine* (1982), 58(4), 825–836. [https://doi.org/10.1016/S0277-9536\(03\)00257-0](https://doi.org/10.1016/S0277-9536(03)00257-0)
- Scott, K., & Schulz, L. (2017). Lookit (Part 1): A New Online Platform for Developmental Research. *Open Mind* (Cambridge, Mass.), 1(1), 4–14. https://doi.org/10.1162/OPMI_a_00002
- Scott, K., Chu, J., & Schulz, L. (2017). Lookit (Part 2): Assessing the Viability of Online Developmental Research, Results From Three Case Studies. *Open Mind* (Cambridge, Mass.), 1(1), 15–29. https://doi.org/10.1162/OPMI_a_00001
- Schaeffer, K. (2024, September 24). *Key facts about public school teachers in the U.S.* Pew Research Center. <https://www.pewresearch.org/short-reads/2024/09/24/key-facts-about-public-school-teachers-in-the-u-s/>
- Sequeira, M.-E., Afshordi, N., & Kajanus, A. (2024). Prestige and dominance in egalitarian and hierarchical societies: Children in Finland favor prestige more than children in Colombia or the USA. *Evolution and Human Behavior*, 45(4), 106591. <https://doi.org/10.1016/j.evolhumbehav.2024.05.005>
- Shachnai, R., Leonard, J. A., Gopnik, A., Kleiman-Weiner, M., & Powell, L. J. (2025). The cognitive science of caregiving. *Proceedings of the Annual Meeting of the Cognitive Science Society*, 47. Retrieved from <https://escholarship.org/uc/item/00r08735>
- Sorokowska, A., Saluja, S., Sorokowski, P., Frackowiak, T., Karwowski, M., Aavik, T., Akello, G., Alm, C., Amjad, N., Anjum, A., Asao, K., Atama, C. S., Atamtürk Duyar, D.,

- Ayebare, R., Batres, C., Bendixen, M., Bensafia, A., Bizumic, B., Boussena, M., . . . Croy, I. (2021). Affective interpersonal touch in close relationships: A cross-cultural perspective. *Personality & Social Psychology Bulletin*, 47(12), 1705-1721. <https://doi.org/10.1177/0146167220988373>
- Spokes, A. C., & Spelke, E. S. (2016). Children's expectations and understanding of kinship as a social category. *Frontiers in Psychology*, 7, 440-440. <https://doi.org/10.3389/fpsyg.2016.00440>
- Steele, C., & Thomas, A. J. (2024, September 9). How do humans think about family? Perspectives from Developmental Psychology. <https://doi.org/10.31234/osf.io/bd3a9>
- Steele, C., & Thomas, A. J. (2025). Navigating Family Ties: Young Children's Cognitive Representations of the Family Network. *Proceedings of the Annual Meeting of the Cognitive Science Society*, 47. Retrieved from <https://escholarship.org/uc/item/6ff0f593>
- Stier, D. S., & Hall, J. A. (1984). Gender differences in touch: An empirical and theoretical review. *Journal of Personality and Social Psychology*, 47(2), 440-459. <https://doi.org/10.1037/0022-3514.47.2.440>
- Studer-Perez, E. I., & Musher-Eizenman, D. (2022). Children's influence on parents: The bidirectional relationship in family meal selection. *Journal of Child and Family Studies*, 1-9. <https://doi.org/10.1007/s10826-022-02520-w>
- Suvilehto, J. T., Nummenmaa, L., Harada, T., Dunbar, R. I. M., Hari, R., Turner, R., Sadato, N., & Kitada, R. (2019). Cross-cultural similarity in relationship-specific social touching. *Proceedings of the Royal Society. B, Biological Sciences*, 286(1901), 20190467-20190467. <https://doi.org/10.1098/rspb.2019.0467>
- Terrizzi, B. F., Brey, E., Shutts, K., & Beier, J. S. (2019). Children's Developing Judgments about the Physical Manifestations of Power. *Developmental Psychology*, 55(4), 793-808. <https://doi.org/10.1037/dev0000657>
- Terrizzi, B. F., Woodward, A. M., & Beier, J. S. (2020). Young children and adults associate social power with indifference to others' needs. *Journal of Experimental Child Psychology*, 198, 104867. <https://doi.org/10.1016/j.jecp.2020.104867>
- Thomas, A. J. (2024). Cognitive Representations of Social Relationships and their Developmental Origins. *The Behavioral and Brain Sciences*, 1-53. <https://doi.org/10.1017/S0140525X24001328>
- Thomas, A. J., Garcia, V., Sommerville, J. A., & Saxe, R. (2023, December 1). Do children have asymmetrical expectations about sharing in parent-child relationships? <https://doi.org/10.31219/osf.io/782ta>
- Thomas, A. J., Navarro Hernandez, S., Sumner, E., & Sarnecka, B. (2022). Children Expect Leaders to Oust Intruders, Refrain From Unprovoked Aggression, but Not to Be Generally Prosocial. *Collabra. Psychology*, 8(1). <https://doi.org/10.1525/collabra.33956>
- Thomas, A. J., Stanford, P. K., & Sarnecka, B. W. (2016). Correction: No Child Left Alone: Moral Judgments about Parents Affect Estimates of Risk to Children. *Collabra*, 2(1). <https://doi.org/10.1525/collabra.58>
- Thomas, A. J., Steele, C., Saxe, R., & Gopnik, A. (2025). *How do infants experience caregiving?* Daedalus 2025: The Social Science of Caregiving.
- Thomas, A. J., Thomsen, L., Lukowski, A. F., Abramyan, M., & Sarnecka, B. W. (2018). Toddlers prefer those who win but not when they win by force. *Nature Human Behaviour*, 2(9), 662-669. <https://doi.org/10.1038/s41562-018-0415-3>
- Thomas, A. J., Woo, B., Nettle, D., Spelke, E., & Saxe, R. (2022). Early concepts of intimacy: Young humans use saliva sharing to infer close relationships. *Science (American Association for the Advancement of Science)*, 375(6578), 311-315. <https://doi.org/10.1126/science.abh1054>
- Thomsen, L. (2020). The developmental origins of social hierarchy: how infants and young children mentally represent and respond to power and status. *Current Opinion in Psychology*, 33, 201-208. <https://doi.org/10.1016/j.copsyc.2019.07.044>
- Thomsen, L., & Carey, S. (2013). Core Cognition of Social Relations. In *Navigating the Social World*. Oxford University Press. <https://doi.org/10.1093/acprof:oso/9780199890712.003.0004>
- Thomsen, L., Frankenhuys, W. E., Ingold-Smith, M., & Carey, S. (2011). Big and mighty: Preverbal infants mentally represent social dominance. *Science (American Association for the Advancement of Science)*, 331(6016), 477-480. <https://doi.org/10.1126/science.1199198>
- Walton, K., Kuczynski, L., Haycraft, E., Breen, A., & Haines, J. (2017). Time to re-think picky eating?: A relational approach to understanding picky eating. *The International Journal of Behavioral Nutrition and Physical Activity*, 14(1), 62-62. <https://doi.org/10.1186/s12966-017-0520-0>
- Yoshida, S., & Funato, H. (2021). Physical contact in parent-infant relationship and its effect on fostering a feeling of safety. *iScience*, 24(7), 102721. <https://doi.org/10.1016/j.isci.2021.102721>
- Zoom Video Communications, Inc. (2025). Zoom Cloud Meetings (Version 6.7.2) [Computer software]. <https://zoom.us>.