Three-Year-Old Children Detect Social Exclusion in Third-Party Interactions

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Three-Year-Old Children Detect Social Exclusion in Third-Party Interactions

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ABSTRACT
Humans are motivated to connect with others and are sensitive to social exclusion—intentionally leaving out others. This ability to detect social exclusion is suggested to be evolutionarily adaptive, biologically hardwired, and an important feature of social-cognitive development. Yet it is unclear when children start to independently detect social exclusion. Previous developmental research on social exclusion has focused on children older than 4 years of age, but recent infancy research has suggested younger children may be able to process complex social interactions such as social exclusion. The present study is the first to examine whether 2- to 3-year-old children detect social exclusion and if they prefer to affiliate with individuals who have been excluded over individuals who exclude others. Across 2 experiments, 2- and 3-year-old children (N = 140) viewed exclusive group interactions, in which 2 agents unjustly excluded 1 agent, and children were asked to choose whether they preferred to play with an excluded agent or an exclusive agent. Three-year-old children consistently preferred to play with the excluded agent, whereas 2-year-old children showed no preference. Three-year-old children did not show a preference among agents engaged in inclusive interactions and did not prefer an agent who refused to engage with a group, showing that 3-year-old children distinguish unjust exclusion from other types of interactions. Together, these findings suggest 3-year-old children detect social exclusion and are motivated to affiliate with unjustly excluded agents over those who exclude others, whereas these capacities are still developing in 2-year-old children.

Human nature is profoundly social and shaped by a desire to form and maintain relationships. This statement is evidenced by a strong motivation to belong and by distress in situations that undermine belonging: Children cry when separated from parents; adolescents suffer anxiety about being accepted by peers; and loneliness can exacerbate health problems in adults (Abrams, Hogg, & Marques, 2005; Baumeister & Leary, 1995). In fact, sensitivity to exclusion is argued to be evolutionarily adaptive and biologically hardwired from birth (Spoor & Williams, 2006). However, no empirical study to date has directly tested the claim that young children readily detect social interactions in which people intentionally leave out or ignore another person.

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Although social exclusion and bullying have been observed in children as young as 3 to 4 years old (Crick, Casas, & Mosher, 1997), experimental research examining children’s sensitivity to social exclusion has been mostly limited to children aged 4 years or older. Studies using sociometric measures have shown that 4- to 5-year-old children can reliably identify peers who are bullies and those who are victims of bullying (Crick & Grotpeter, 1995). Interview methods, in which experimenters tell children a story about unjust social exclusion (e.g., excluding someone based on race or gender), have revealed that by age 4 years, children judge unjust exclusion as wrong (Killen & Rutland, 2011). Social domain theory (Smetana, Jambon, & Ball, 2014; Turiel, 2006) and related perspectives (Killen & Smetana, 2015; Rutland, Killen, & Abrams, 2010) suggest children’s evaluation of social exclusion involves weighing moral judgments with social-conventional judgments and evolves with age.

These frameworks have significantly advanced our understanding of older children’s moral development and reasoning about social exclusion. However, little work has been conducted with children younger than 4 years old. Interviews and sociometric measures are unreliable with 2- to 3-year-old children, who tend to have limited language skills (Alsaker & Valkanover, 2001). Furthermore, previous studies have provided children with verbal descriptions of exclusion, thereby making it unclear whether children can independently detect social exclusion.

Recent efforts have begun to characterize children’s nonverbal responses to social exclusion. Studies have shown that 3- to 5-year-old children imitated an experimenter more after being primed with ostracism interactions than inclusive interactions; this increase in imitation was hypothesized to represent an adaptive, affiliative response to the threat of feeling excluded (Over & Carpenter, 2009; Watson-Jones, Legare, Whitehouse, & Clegg, 2014; Watson-Jones, Whitehouse, & Legare, 2015). One study, which more directly tested children’s detection of exclusion, showed that 4- and 5-year-old children could identify exclusion after watching geometric shapes being ostracized (Song, Over, & Carpenter, 2015); however, younger children were not tested. Thus, it is unclear if children younger than 4 years of age have the capacity to independently detect social exclusion in naturalistic situations without an adult’s explicit, verbal description.

We therefore tested 2- and 3-year-old children’s social exclusion detection to further our understanding of the social-cognitive development that occurs in this age range. Social domain theory research has suggested children understand physical harm by 2.5 years of age, but understanding of psychological harm develops later (Smetana, 2006; Smetana & Braeges, 1990), possibly because psychological harm must be inferred, whereas physical harm is directly observable (Smetana, 1981; Wainryb & Brehl, 2006). Because social exclusion results in psychological harm rather than physical harm, 2-year-old children may not readily detect social exclusion compared with 3-year-old children. On the other hand, early-developing cognitive mechanisms may support social exclusion detection in young children. Infant research has suggested that the awareness of social interactions begins early in ontogeny. In the 1st year of life, infants distinguish between agents and nonagents (Johnson, Slaughter, & Carey, 1998) and begin to attribute intentions to agents (Gergely, Nádasdy, Csibra, & Biro, 1995; Meltzoff, 1995; Woodward, 2009). Infants also demonstrate an aversion to antisocial agents, but a preference for prosocial agents (Hamlin, Wynn, & Bloom, 2007), and show a rudimentary sense of fairness (Sommerville, Schmidt, Yun, & Burns, 2013). Two- and 3-year-old children also begin to understand more sophisticated
concepts shared in groups, such as cultural conventions (Diesendruck & Markson, 2011) and norms (Rakoczy & Schmidt, 2013). Thus, even 2-year-old children may already be equipped with the basic cognitive mechanisms to detect social exclusion.

To test these competing theoretical possibilities, 2- and 3-year-old children were presented with naturalistic inclusive- and exclusive-group interactions via a live puppet show (Experiment 1) or video clips of adults interacting (Experiment 2), all in the absence of any verbal description. Each social exclusion interaction depicted an agent who was unjustly excluded. We chose to investigate unjust social exclusion—although there are many types of social exclusion—as a first attempt to understand this multifaceted phenomenon.

Due to the limited verbal abilities of children younger than 4 years old, we employed a preference task to assess whether children can differentiate agents in a socially exclusive interaction. Preference tasks have proven to be a successful measure for assessing children’s social reasoning. Children’s preferences for individuals align with their explicit social judgments, as in the case of preference for linguistic ingroup versus outgroup members (Kinzler, Dupoux, & Spelke, 2007). Infants’ preference for prosocial agents converges with other dependent measures assessing social reasoning, such as looking time, gaze expectations, and sharing behaviors (Geraci & Surian, 2011; Hamlin et al., 2007; Kuhlmeier, Dunfield, & O’Neill, 2014).

We predicted that if children are unable to detect social exclusion, they should not differentiate between an exclusive versus excluded agent and will fail to show a preference to affiliate with one of these agents. However, if children can detect social exclusion, they should distinguish between exclusive and excluded agents and should prefer the excluded agent as children tend to show sympathetic responses to harmed agents (Zahn-Waxler, Radke-Yarrow, Wagner, & Chapman, 1992) and aversion toward antisocial agents (Hamlin et al., 2007).

Experiment 1a

Experiment 1a investigated whether 2- and 3-year-old children prefer an excluded agent over an exclusive agent after witnessing two puppets exclude a third puppet from a ball game.

Method

Participants
Twenty-four 2-year-old children (14 girls, $M_{age} = 2;2$, range = 2;0–2;8) and twenty-four 3-year-old children (14 girls, $M_{age} = 3;6$, range = 3;0–3;11) participated. Children were recruited from a database of families from a Midwestern U.S. metropolitan area. Most children were White (44 White, 3 African American, 1 Hispanic) and from middle-class families. Nine additional children were tested but excluded from analyses due to parental interference (1), experimenter error (2), or crying during familiarization and refusing to continue the experiment (6).

Materials
Stimuli included one ball and three animal puppets (lions and zebras). Half the children saw two lions and one zebra, and the other half saw two zebras and one lion (Figure 1a). Children watched two identical puppets (i.e., members of the same species) excluding a member of a different species to help children distinguish the excluded animal from the exclusive animals.
Children faced a puppet stage approximately 10.5 inches (26.67 centimeters) from their chair. Parents were instructed not to influence their children during the session and to close their eyes during the preference task.

**Procedure**

Children faced a puppet stage approximately 10.5 inches (26.67 centimeters) from their chair. Parents were instructed not to influence their children during the session and to close their eyes during the preference task.

**Figure 1.** Study setup for Experiment 1: a) Children first saw three animals on stage and a ball placed in the middle; b) an example of a show that depicted exclusion; c) two animals shown during the preference question.
First, children were introduced to three animal puppets on the stage. The positions of the puppets were counterbalanced across children. The experimenter then announced the animal puppets were going to play a ball game and placed the ball on the stage. One of the identical puppets picked up the ball. In the first part of the show, all three puppets passed and received the ball equally, for three ball tosses. During the second part, the two identical puppets passed the ball only to each other and excluded the third puppet for three ball tosses. When the third puppet did not receive the ball, it expressed sadness by hanging its head for 3 s and repeated this behavior three times (Figure 1b). The show lasted approximately 60 s.

After the show, a second blinded experimenter presented one lion puppet and one zebra puppet and asked children, “Which one do you want to play with?” (Figure 1c). The experimenter coded children’s preferences as the first puppet to which children pointed, touched, or gave the ball. For reliability, a second coder, blinded to experimental hypotheses, coded children’s preferences from video, and there was 100% agreement in the current and following experiments.

**Results**

Binomial logistic regression analyses demonstrated that children’s preferences were not influenced by animal type, position, or children’s sex. Age was significantly associated with an increased likelihood of preferring the excluded puppet ($p = .029$; see Table 1). Two-tailed binomial analyses comparing children’s response to chance (50%) revealed that 75% of 3-year-old children preferred to play with the excluded puppet ($p = .023$), but only 41.67% of 2-year-old children preferred to play with the

| Table 1. Binomial logistic regression models from Experiment 1. |
|---------------|-------|-------|-------|-------|
| **Predictors** | **β** | **Wald** | **df** | **p** | **Odds Ratio** | **95% Confidence Intervals** |
| **Experiment 1a** | | | | | | |
| Age | 1.038 | 4.771 | 1 | .029* | 2.823 | 1.112, 7.162 |
| Animal Type of Third Agent: Lion or Zebra | −0.519 | 0.659 | 1 | .417 | 0.595 | 0.170, 2.084 |
| Position of Third Agent: Left or Right | −0.228 | 0.128 | 1 | .721 | 0.796 | 0.228, 2.780 |
| Participant Sex: Male or Female | 0.077 | 0.015 | 1 | .903 | 1.080 | 0.311, 3.751 |
| Constant | −2.293 | 2.459 | 1 | .117 | 0.101 | |
| **Experiment 1b** | | | | | | |
| Conditions: Exclusion (Experiment 1a) as reference | 9.311 | 3 | .025* | | |
| Inclusion with distress | −1.481 | 4.243 | 1 | .039* | 0.227 | 0.056, 0.931 |
| Unintentional exclusion | −2.089 | 7.634 | 1 | .006* | 0.124 | 0.028, 0.545 |
| Exclusion without distress | −0.483 | 0.424 | 1 | .515 | 0.617 | 0.144, 2.639 |
| Animal Type of Third Agent: Lion or Zebra | 0.499 | 0.871 | 1 | .351 | 1.647 | 0.578, 4.697 |
| Position of Third Agent: Left or Right | −0.855 | 2.592 | 1 | .107 | 0.425 | 0.150, 1.204 |
| Participant Sex: Male or Female | 0.199 | 0.141 | 1 | .707 | 1.220 | 0.432, 3.451 |
| Constant | 1.289 | 4.002 | 1 | .045* | 3.631 | |

* $p < .05$. 

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excluded puppet ($p = .541$). Two- and 3-year-old children’s preferences differed significantly (Fisher’s exact test, two-tailed, $p = .039$). Additionally, children’s attention toward the show and the excluded puppet was coded (see Supplementary Materials). Two- and 3-year-old children did not differ in their attention toward the show, $t(42) = 0.619, p = .539$, or the excluded puppet, $t(42) = 0.122, p = .904$, but both significantly looked more at the exclusive puppets than at the excluded puppet during the show: 3-year-old, $M_{\text{exclusive}} = 73.815\%$, $M_{\text{excluded}} = 26.185\%$, $t(22) = -12.154, p < .001$; and 2-year-old, $M_{\text{exclusive}} = 73.467\%$, $M_{\text{excluded}} = 26.533\%$, $t(20) = -11.219, p < .001$.

Discussion

Three-year-old children, but not 2-year-olds, preferred an agent who was excluded over an agent who excluded others, suggesting 3-year-old children detected social exclusion, whereas 2-year-old children did not. This age difference in preference was not driven by differing attention to the social interaction. However, 3-year-old children’s preferences could stem from other factors unrelated to detecting social exclusion. For example, they may have preferred the excluded agent due to its saliency over the excluders, as the excluded agent was a unique animal, was the only one that displayed distress, and received the ball less often. Two-year-old children’s lack of preference for the excluded agent suggests that such factors were insufficient to drive preference. Experiment 2 further tested the hypothesis that 3-year-old children’s preference for the excluded agent is driven by the detection of exclusion rather than saliency or distress.

Experiment 1b

Experiment 1b investigated whether 3-year-old children continued to prefer the same third puppet from Experiment 1a after watching inclusion or unintentional exclusion interactions and whether this preference depended on displays of distress.

First, we tested whether children still preferred the third puppet when it was included but exhibited distress (inclusion with distress). We hypothesize that if the third puppet’s salience as a unique animal or distress was driving children’s preferences, they should still prefer the included third puppet. However, if children distinguish between exclusion and inclusion and preferred the third puppet because it was unjustly excluded, they should have no longer preferred the included third puppet.

Second, we tested whether children would still prefer the third puppet if it displayed disinterest in being included (unintentional exclusion). We hypothesize that if children cannot distinguish between unintentional and intentional exclusion, they should still prefer the third puppet. However, if they could distinguish exclusion based on intent, they should have no longer preferred the uninterested third puppet despite the third puppet not receiving the ball.

Third, we tested whether distress is necessary for children to prefer the unjustly excluded third puppet (exclusion without distress). We hypothesize that if distress drove children’s preferences, they should no longer prefer the nondistressed third puppet. However, if children can detect exclusion in the absence of distress, they should have continued to prefer the nondistressed third puppet.
Method

Participants
Forty-eight 3-year-old children (23 girls, $M_{age} = 3;4$, range = 3;0–3;11; 45 White, 2 Asian, 1 African American) participated. Children were recruited from the same database as in Experiment 1a. Ten additional children were tested but excluded from analyses due to parental interference (1), refusal to choose (3), and experimenter error (6).

Procedure
All setup, stimuli, counterbalancing, and durations of the puppet shows were identical to those in Experiment 1a. Participants were divided in thirds with each group assigned to one of three shows: 1) inclusion with distress, 2) unintentional exclusion, and 3) exclusion without distress. As in Experiment 1a, children were asked to choose which puppet they would like to play with after the show.

Inclusion with distress. The first part of the show was identical to the show in Experiment 1a. In the second part, the third puppet was included in the ball game but showed distress for the same duration and number of times as in Experiment 1a.

Unintentional exclusion. The first part of the show consisted of two identical puppets trying to engage a third puppet uninterested in a ball game: One of the identical puppets tossed the ball toward the third puppet, but the third puppet turned away. The second part of the show was identical to the show in Experiment 1a: The two puppets passed the ball only to each other and never to the third puppet. The third puppet did not express distress.

Exclusion without distress. The show was identical to that in Experiment 1a except the third puppet did not display distress; instead, it remained stationary for the same duration and number of times as in Experiment 1a when excluded.

Results
Binomial logistic regression analyses with children’s preference for the third puppet in Experiment 1a as the reference condition revealed that children’s preferences were significantly different across the shows ($p = .015$; see Table 1). Specifically, children’s preference for the third puppet in Experiment 1a was different from inclusion with distress ($p = .021$) and unintentional exclusion ($p = .003$) but not from exclusion without distress ($p = .339$).

Because we hypothesized that detection of social exclusion was driving children’s preference for the third puppet rather than saliency or distress, the following binomial analyses were conducted as one-tailed. After inclusion with distress, only 43.75% of the children preferred to play with the included third puppet ($p = .402$). Similarly, after unintentional exclusion, only 31.35% of children preferred to play with the uninterested third puppet ($p = .962$). After exclusion without distress, 68.75% of children preferred to play with the nondistressed third puppet ($p = .105$).
Discussion

Three-year-old children did not prefer to play with the third puppet after watching inclusion or unintentional exclusion interactions, suggesting that the detection of intentional exclusion drove children’s preferences in Experiment 1a and were not due to uniqueness or number of ball possessions. Further, distress was not sufficient to drive children’s preferences. Children did not prefer the included third puppet that displayed distress. Children’s preference for the nondistressed third puppet was marginally significant, and this preference was not statistically different from preferences for the distressed third puppet in Experiment 1a.

Children’s preferences in these experiments thus appear to rely on the ability to detect intentional social exclusion. However, social exclusion was always depicted via a ball game with an observable consequence, a lack of possession of the ball. Also, the interactions portrayed in Experiment 1 were all intergroup exclusions, in which the excluded agent is of a different species than the exclusive agents. Therefore, Experiment 2 tested whether children’s sensitivity to social exclusion generalizes to human agents and other exclusive interactions.

Experiment 2

Experiment 2 replicated and extended the previous experiment by testing 2- and 3-year-old children’s preferences for excluded agents after watching video clips of people engaging in two different types of exclusive or inclusive social interactions, a ball game and a conversation.

Method

Participants

Twenty-four 2-year-old children (11 girls, $M_{age} = 2;6$, range = 2;0–2;9) and thirty-six 3-year-old children (19 girls, $M_{age} = 3;7$, range = 3;0–3;11) participated. Most children were White (55 White, 2 African American, 1 Asian, 1 Latino, 1 Other). Two-year-old children were recruited from the same database as in Experiment 1, and 3-year-old children were recruited from preschools in the same metropolitan area. Eight additional children were tested but excluded from analyses for refusing to watch the videos (3) or refusing to choose an agent (5).

Materials

Two sets of female adults were recorded engaging in an inclusive ball game, exclusive ball game, inclusive conversation, and exclusive conversation. Ball-game videos lasted 44 s and began with three adults sitting on the floor with a ball. The adult in the center picked up the ball and asked the others if they would like to play. After both answered yes, the ball was tossed in a clockwise direction and each adult got to receive and throw the ball. In the inclusion version, adults continued to pass the ball equally among each other for six tosses. In the exclusion version, two of the adults tossed the ball only to each other and excluded the third adult for three tosses. When excluded, the third adult displayed distress by
looking disappointed and sad (e.g., furrowed brows, looking down, shaking head) the first time for 1 s, second time for 3 s, and third time for 5 s.

Conversation videos lasted 32 s and began with the third adult saying hi to the other two adults, who received her warmly (inclusion) or disdainfully (exclusion). In the inclusion version, all adults were equally included in the conversation, with each adult asking questions about favorite things to do in the park and responding positively. In the exclusion version, all verbal content remained identical, but every time the third adult spoke, the other two adults responded with a negative tone and looked away from her, while continuing to respond positively to each other. The third adult attempted to engage the others in conversation three times but was rejected after each attempt and showed distress in the same manner as the ball-game videos.

**Design**
Each child viewed two videos, one inclusion and one exclusion. One video was of a ball game and the other was of a conversation. The order in which interaction and activity was presented first was counterbalanced across participants.

**Procedure**
The experiment was conducted in a quiet room at the children’s preschool or in the laboratory. Children sat in front of a laptop computer that displayed the stimuli. Children first saw two pictures side by side on a white background. One picture was of the third adult, and the other picture was of one of the other two adults (Figure 2); the third adult and one of the other two adults were of the same race (White American) and same sex (female). The experimenter pointed and named each adult (names and position of the pictures were counterbalanced across participants) and then played the video. After the video, pictures of the adults reappeared and children were asked, “Who do you want to play with?” They were encouraged to point to indicate their preference. The procedure was then repeated for the second video.

**Results**
Binomial logistic regression analyses indicated that type of activity (ball game or conversation), the order in which videos were shown, and other counterbalancing factors did not affect preferences (see Table 2). Age was significantly associated with an increased likelihood of preferring the excluded third adult after exclusion videos ($p = .045$) but was not related to preferences after inclusion videos ($p = .329$).

Because we hypothesized children would prefer the third adult more after exclusion videos than inclusion videos, the following analyses were conducted as one-tailed. Binomial analyses indicated that after viewing exclusion videos, 72.22% of 3-year-old children preferred to play with the excluded third adult rather than the exclusive adult ($p = .006$). In contrast, after viewing inclusion videos, only 50% of 3-year-old children preferred to play with the third adult ($p = .566$). Three-year-old children’s preference after exclusion videos was significantly different from their preference after inclusion videos (Fisher’s exact test, $p = .045$). Two-year-old children did not prefer the third adult after exclusion videos (50% preferred the excluded third adult, $p = .581$) or inclusion videos (37.5% preferred the third adult, $p = .924$). Two-year-old children’s preferences did not differ between exclusion and inclusion videos (Fisher’s exact test, $p = .281$).
Discussion

Three-year-old children preferred to play with the excluded person over the exclusive person but showed no preference for either individual after witnessing an inclusive interaction. Two-year-old children’s preferences did not differ between exclusion and inclusion interactions, replicating the findings of Experiment 1a. Three-year-old children were equally likely to prefer the excluded person regardless of whether they observed a ball game or a conversation. These results suggest that 3-year-old children’s sensitivity to social exclusion and their preference for unjustly excluded individuals generalizes across different types of agents and contexts.

Figure 2. Examples of stimuli used in Experiment 2. The left column depicts an example of the exclusive conversation condition. The right column depicts an example of the exclusive ball-game condition. The shirt colors of the adults were distinct. From left to right: conversation condition: gray, green, and blue; ball-game condition: black, navy, and gray.
General discussion

The present study is the first to trace the emergence of a human sensitivity to third-party social exclusion. This sensitivity appears to emerge by 3 years of age. Three-year-old, but not 2-year-old, children consistently preferred an excluded agent over an exclusive agent across laboratory puppet shows and naturalistic human interactions (Figure 3). Three-year-old children’s preferences suggest an understanding of intentional exclusion as children did not prefer agents who were included, disinterested, or simply salient. Children’s responses were particularly striking as no verbal descriptions of exclusion were provided. Furthermore, 3-year-old children’s detection of exclusion did not depend on displays of distress. Children did not show a difference in preference between a distressed versus a nondistressed excluded agent, therefore corroborating findings that young children show empathetic concern even when the victims do not express distress (Vaish, Carpenter, & Tomasello, 2009). Nonetheless, distress cues may still play a role in how children process exclusion, as children only marginally preferred an excluded agent who did not express distress. Because even young children incorporate emotion in their social and moral evaluations (Arsenio, 1988; Dahl, Campos, & Witherington, 2011), children’s sympathy and prosocial behavior toward excluded individuals may be heightened by distress. Future work should further explore the role of distress in this process.

In contrast, 2-year-old children in the present study did not prefer excluded agents, suggesting they were unable to detect third-party social exclusion. This finding may be

<table>
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<tr>
<th>Predictors</th>
<th>β</th>
<th>Wald</th>
<th>df</th>
<th>p</th>
<th>Odds Ratio</th>
<th>95% Confidence Intervals</th>
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<td></td>
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</table>

* p < .05.
because social exclusion is a psychological harm, which is difficult for 2-year-old children to comprehend (Killen & Smetana, 2015). With development, children start to apply moral criteria to more abstract and unfamiliar events (Smetana et al., 2014). Thus, certain aspects of moral development may be necessary for social exclusion detection. Furthermore, children have more social experiences with age. Three-year-old children are more likely than 2-year-old children to attend preschool and to witness complex social interactions like social exclusion. Children also shift from more solitary play to group play from 2 to 3 years of age (Smith, 1978). Thus, social exclusion detection may rely on moral reasoning and social-cognitive skills that develop with age. Nonetheless, the present study represents only one task in which 2-year-old children failed to demonstrate a preference after witnessing social exclusion. Whereas attentional differences cannot account for 2-year-old children’s failure to detect social exclusion in these studies, it is possible that they needed more exposure to the events or additional cues highlighting the nature of the social dynamics to fully process exclusion. Further research is needed to clarify 2-year-old children’s understanding of social exclusion.

Although the present study did not explicitly test the difference between intragroup and intergroup exclusion, 3-year-old children showed consistent preference for the excluded agent in both intergroup (Experiment 1) and intragroup (Experiment 2) exclusion. Children may have consistently preferred the excluded agent because the agent was unjustly excluded—whether exclusion was intragroup or intergroup may not have affected children’s sympathetic responses. However, children may respond differently when exclusion is necessary for group cohesion. Depending on contexts, older children interpret social exclusion as a moral transgression, a social conventional issue, or a psychological issue (Killen & Rutland, 2011). Thus, more work is needed to explore young children’s response to different instances of social exclusion.

Lastly, the present findings did not distinguish between children’s preference for the excluded agent and an aversion toward exclusive agents. Early in life, children show
sympathy to victims (Zahn-Waxler et al., 1992) but also an aversion toward antisocial agents (Hamlin et al., 2007). The forced-choice task makes it difficult to disambiguate these competing possibilities. Theoretically, both forces—sympathy and aversion—could have played a role in children’s preferences.

The present set of experiments provides a glimpse into how sensitivity to social exclusion emerges. Future research utilizing more diverse methods, such as eye-tracking and physiological measures, will further illuminate the mechanisms involved in the crucial skill of social exclusion detection.

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Declaration of interest

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