Toddlers prefer to help familiar people

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ARTICLE INFO

Article history:
Received 14 February 2018
Revised 15 May 2018

Keywords:
Instrumental helping
Familiarity
Altruism
Toddlers
Prosocial
Contingent reciprocity

ABSTRACT

Young children's willingness to spontaneously help others is the subject of a large body of research investigating the ontogeny of moral behavior and thought. A developing debate centers around the extent to which social factors influence the desire to help. Familiarity with the person needing help is one such factor that varies across many studies but has not been systematically investigated. In Experiment 1, we show that toddlers were significantly more likely to assist a person on an out-of-reach clothespin task when they had previously become familiar with that person. Moreover, and in contrast to previous work, we found that becoming familiar with a person increases helpfulness only toward that person and does not transfer to an unknown person. We further demonstrate, in Experiment 2A, that children were equally likely to approach and take a sticker from an experimenter with whom they were familiar or unfamiliar—thereby ruling out wariness of strangers as the key driver for familiarity effects in Experiment 1. Moreover, in Experiment 2B, we show that children were more likely to help the previously unfamiliar partner (from Experiment 2A) after the partner gave the child the sticker. We conclude that familiarity is an ecologically important social influencer of toddler helping behavior.

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https://doi.org/10.1016/j.jecp.2018.05.009
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Introduction

The striking observation that toddlers spontaneously perform altruistic acts despite no obvious benefit to themselves has led to important insights into the development of prosocial behavior (Eisenberg, Fabes, & Spinrad, 2006; Kuhlmeier, Dunfield, & O’Neill, 2014). For example, children as young as 14 months demonstrate instrumental helping that requires an understanding of the recipient’s goal and the obstacles to that goal (Carpenter, Uebel, & Tomasello, 2013; Hepach, Vaish, & Tomasello, 2012; Warneken, Hare, Melis, Hanus, & Tomasello, 2007; Warneken & Tomasello, 2006, 2007, 2009a, 2013). These behaviors may indicate that early altruistic behavior is innate and that socialization later builds on this tendency (Warneken & Tomasello, 2009b).

Whereas the spontaneity with which children offer unprompted help is well documented, more ambiguous is the set of factors that influence helping behavior through development. Based on research into children’s helping, sharing, and comforting, Hay (1994) suggested that with development children become more selective in their prosocial behavior in a manner fitting with social norms. Similarly, Warneken and Tomasello (2009a) proposed that “children start out as rather indiscriminate altruists who become more selective as they grow older” (p. 466) due to their increasing social-cognitive capabilities. Yet, referencing children’s tendency to offer comfort to parents more than to strangers, Warneken (2009, 2018) also acknowledged that familiarity with a recipient is a simple and salient factor that may influence children’s instrumental helping early in life, noting that “an altruistic bias toward familiar individuals (as a cue for kinship) might be one of the earliest mechanisms for selectivity in the domain of altruistic behaviors already emerging in children at two years of age” (p. 489)” (Warneken, 2009).

Wynn, Bloom, Jordan, Marshall, and Sheskin (2017) also argued that altruistic behavior may be influenced by familiarity with the recipient. Their arguments were based on a broad evaluation of research indicating that infants prefer some people over others based on both their level of familiarity with physical characteristics, such as voice, and some nonphysical characteristics, such as previous actions. The possible importance of familiarity in helping behavior is also consistent with Bornstein’s (1989) observation that familiarity, gained simply through unreinforced exposure, leads to an increase in positive affect for a stimulus—or, more simply put, “familiarity leads to liking” (p. 265). By this account, even mere exposure allows a child to become comfortable with another person.

Importantly, Hepach, Haberl, Lambert, and Tomasello’s (2016) study of anonymous helping demonstrated that under some conditions toddlers will help a person with whom they had little direct interaction. This could suggest that familiarity is not crucial to elicit helping behavior. However, the task used in that study elicited relatively low rates of helping overall (for familiar and unfamiliar partners) compared with other studies, leaving a gap in our understanding of how familiarity influences helping in more standard instrumental helping tasks.

Indeed, given its potential importance, the role of familiarity in studies of children’s instrumental helping behavior is rather understudied. Examining its role is important for a number of reasons. First, the extent to which familiarity affects instrumental helping informs us about the nature of children’s prosocial inclinations. Do toddlers really “quite readily help” other humans to achieve goals (Warneken & Tomasello, 2006), or does this description apply to a restricted set of situations in which young children are familiar with the person in need? Relatedly, the role of stranger anxiety may be important in whether children help. In this case, although stranger anxiety often wanes by 2 years of age, many toddlers still remain reluctant to approach and interact with strangers well beyond this age (Durkin, 1995). If familiarity increases toddler helpfulness, it may do so because it eliminates the element of stranger wariness. Alternatively, it may do so simply because children are more motivated to help familiar people.

Second, as pointed out by Gross, Stern, Brett, and Cassidy’s (2017) discussion of prosocial behavior through development, there are considerable individual differences in children’s willingness to trust and accept others; some do so immediately, and others do so with more hesitation. A direct study of how familiarity influences instrumental helping may clarify whether these individual differences are important to consider when interpreting studies on instrumental helping.
Given the importance of examining familiarity for the theoretical and practical reasons outlined above, the current study investigated the effect of familiarity on children's propensity for altruistic behavior in an instrumental helping task. The experiments induced familiarity with an experimenter over a 20-min familiarization period and used a single-trial “out-of-reach” paradigm to examine the likelihood and nature of helping when the person in need was familiar or unfamiliar to the children. Helping was also examined as a function of the time it took for children to warm up to the experimenter during the familiarization phase.

Experiment 1

Method

Participants

A total of 46 young children (\(M_{\text{age}} = 25.5\) months, \(SD = 5.8\), range = 18–36; 17 girls) contributed data to Experiment 1. An additional 7 young children were recruited but excluded from analysis due to procedural error (\(n = 1\)), video-recording malfunction (\(n = 2\)), or parental interference (e.g., prompting the children to help; \(n = 4\)). Children were recruited through a variety of print press and social media avenues. Guardians of all participating children gave written informed consent prior to experimentation. Prior to recruitment, all testing procedures were approved by the host university’s human research ethics committee.

Materials and procedure

Familiarization and testing occurred in a single playroom that included toys, a couch, and three video cameras that allowed recording of child and experimenter behavior from multiple vantage points.

Each child was randomly assigned to a familiar or unfamiliar condition and took part in a familiarization play phase and a helping test phase. The assigned condition determined whether the familiarization and helping phases involved the same experimenter (familiar condition) or two different experimenters (unfamiliar condition). Across all participants, experimenters in both phases were women and wore the same outfit. Each child was accompanied by a parent or other guardian who typically remained on the couch in the testing room. Guardians were provided with demographic forms to complete and were instructed to refrain from interacting with the children or the experimenter during the course of the study.

Familiarization phase. This phase began with an experimenter entering the room and inviting the child to see what she had brought into the room with her (e.g., “Do you want to see what I have here?”). Once the child approached the experimenter or began speaking with her, the experimenter encouraged the child to engage in a series of activities unrelated to the helping test phase. The activities consisted of sorting pictures of leaves (e.g., by color), tower building with blocks, sorting pictures of animals, object matching, and completing shape puzzles. The interaction between the child and the experimenter was largely child directed. The duration of this phase was approximately 20 min (determined by setting a stopwatch from the time that the experimenter entered the room). When the 20-min period ended, the experimenter attempted to move on to the next phase of the experiment as quickly as possible (although transitioning the child out of the current activity occasionally took up to 60 s of additional time). Due to practical constraints, the experimenter was not blind to the experimental condition.

This phase ended with the experimenter explaining to the participant that she (i.e., the experimenter) needed to leave. In the familiar condition, she indicated that she would return shortly; in the unfamiliar condition, she indicated that another person would be joining the child shortly.

Helping test phase. After approximately 45 s, either the same experimenter (familiar condition) or a new experimenter (unfamiliar condition) entered the playroom. This single-trial test phase was carried out similarly to Warneken and Tomasello’s (2006) clothespin task, and the method of prompting
was similar to that used by Carpenter et al. (2013). The experimenter hung one piece of fabric on a washing line using two pegs while explaining her actions to the child. She then hung up a second piece of fabric using the first peg and dropped the second. Pretending that the drop was accidental, she then reached over the washing line and appeared to unsuccessfully attempt to retrieve it. Cued by a silent vibrating timer on her person, she prompted the child every 10 s, as displayed in Table 1.

If the child helped at any point, the experimenter responded with “thank you” and the helping test phase was concluded. If the child made no response after 60 s, the experimenter said, “Oh well, I will get it myself,” and reached under the clothesline to retrieve the dropped peg, thereby concluding the helping test phase. Children’s helping responses were categorized as follows:

- **Unsolicited helping**: Helping undertaken between 0 and 30 s that was not prompted by an explicit request for help.
- **Solicited helping**: Helping undertaken between 31 and 60 s that was explicitly prompted.
- **Failure to help**: No help offered within 60 s.

**Coding and reliability**

The experimenter involved in the helping test phase coded the phase immediately after the experiment ended, noting at which point the child helped or failed to help and any other relevant information. In addition, a researcher blind to the experimental condition coded helping behavior from the video-recordings. Agreement was 100% between the experimenter and coder.

Warm-up time was coded from video-recordings and was defined as the amount of time that it took the child to move away from the parent to approach the experimenter.

In addition, a coder blind to the condition rated children’s enjoyment and inhibition displayed during the familiarization phase on a 4-point scale (where 4 denoted greatest inhibition/enjoyment and 1 denoted no inhibition/enjoyment). Inhibition scores were based on children’s behavior for the entire duration of the familiarity period, whereas enjoyment was based on the period of time once children had begun playing with the activities and/or the experimenter. The coder also rated the friendliness of the experimenter (also on a 1–4 scale) who engaged with children during familiarization. Enjoyment, inhibition, and experimenter friendliness all were coded based on the entirety of the familiarization phase (i.e., not with scores for individual time segments). Analyses showed no significant differences in each of these three measures between the familiar and unfamiliar conditions (all p values >.50).

**Results**

**Effects of familiarity**

To determine whether familiarity with the recipient influenced helpfulness during the test phase, an ordinal logistic regression was performed on children’s responses to the recipient’s instrumental need. Children’s responses were ranked from most helpful to least helpful: unsolicited helping (0–30 s), solicited helping (31–60 s), and failure to help (after 60 s). The influence of familiarity (familiar or unfamiliar), sex, age, and all interactions between these variables on children’s responses was investigated. Only familiarity had a significant effect on helping behavior, \( \chi^2(1, N = 46) = 9.63, p = .002 \). No significant effects were found for age, \( \chi^2(1, N = 46) = 0.003, p = .96 \), or sex, \( \chi^2(1, N = 46) = 0.72, p = .40 \). Furthermore, no significant interactions were observed (all p values >.50).

**Table 1**

<table>
<thead>
<tr>
<th>Time (s)</th>
<th>Experimenter’s actions and prompts</th>
</tr>
</thead>
<tbody>
<tr>
<td>0–10</td>
<td>Focused on the object only</td>
</tr>
<tr>
<td>11–20</td>
<td>Alternated her gaze between the peg and the child</td>
</tr>
<tr>
<td>21–30</td>
<td>Said “My peg!” and continued to alternate her gaze</td>
</tr>
<tr>
<td>31–40</td>
<td>Said “Look, [child’s name]! My peg fell down” and then continued to alternate her gaze</td>
</tr>
<tr>
<td>41–50</td>
<td>Said “Look, [child’s name]! My peg fell down; I need it!” and then continued to alternate her gaze</td>
</tr>
<tr>
<td>51–60</td>
<td>Asked for help, saying, “[Child’s name], can you help me?”</td>
</tr>
</tbody>
</table>
>.20). Therefore, subsequent analyses were collapsed over sex and age, focusing on children’s familiarity with the recipient.

The precise effect of familiarity was clarified with a likelihood ratio test, which revealed that children who were familiar with the recipient were more likely to provide help (19 of 24, 79%) than children who were unfamiliar with the recipient (9 of 22, 40%), $\chi^2(1, N = 46) = 7.25, p = .007$ (see Fig. 1). A similar analysis compared solicited versus unsolicited help, evaluating only those children who helped ($n = 28$); this analysis showed that familiarity with the recipient appeared to have no influence on the type of help children gave. Help given to a familiar recipient was unsolicited 68% of the time (13 of 19) compared with 67% (6 of 9) for an unfamiliar recipient, $\chi^2(1, N = 28) = 0.01, p = .93$.

**Warm-up time and subsequent helping**

All children eventually warmed up to and approached the experimenter. The warm-up times ranged from 0 to 720 s ($M = 102.7$ s, $SD = 147.8$). A preliminary analysis was conducted on warm-up times coded as a categorical variable based on whether children immediately approached the experimenter (i.e., within the first 10 s; 30%) or not (70%). Importantly, this showed that the proportion of children who immediately warmed up to the experimenter did not differ by condition (7 of 22 children in the unfamiliar condition vs. 7 of 24 children in the familiar condition). A nominal logistic regression also revealed no evidence of an age effect on the need for warm-up time, $\chi^2(1, N = 46) = 0.85, p = .35$.

All but 1 of the 14 children (93%) who warmed up immediately during the familiarization phase subsequently helped, significantly exceeding the likelihood to help among those who took longer to warm up (48%), $\chi^2(1, N = 46) = 8.80, p = .003$. Because there were not enough cases in each cell to analyze the warm-up status by condition interaction with a nominal logistic regression (given that so few of the immediately warmed up children did not help), a logistic regression on helping was performed with warm-up time in seconds as a continuous predictor. This revealed a significant main effect of condition, $\chi^2(1, N = 46) = 7.09, p = .008$, and a significant warm-up time by condition interaction, $\chi^2(1, N = 46) = 4.38, p = .037$. Individual regressions on helping for each condition confirmed that warm-up time significantly predicted helping for children in the unfamiliar condition, $\chi^2(1, N = 46) = 9.21, p = .002$, but did not do so for children in the familiar condition, $\chi^2(1, N = 46) = 0.02, p = .89$. For children in the unfamiliar condition, shorter warm-up times were associated with greater helping. This finding is consistent with the categorical data, which showed that even with an unfamiliar experimenter, 6 of 7 children who were quick to warm up offered help.

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Fig. 1. Bar graphs depicting the mean percentages of children helping (Experiments 1 and 2B) or taking a sticker from (Experiment 2A) a familiar experimenter and an unfamiliar experimenter. * $p < .01$. 

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Discussion

Familiarity with the experimenter had a large impact on young children’s propensity to help. Conversely, familiarity did not seem to affect the type of help (solicited or unsolicited) given. Thus, the effect of familiarity appears constrained to overall willingness to help and remains stable even when an explicit request occurs. Furthermore, the familiarity effect appears to be driven by the children who took time to warm up to the experimenter. Children who warmed up to the experimenter immediately were less discriminative in their helping behavior.

The results of Experiment 1 clearly show that young children are more likely to help a familiar person. However, given that willingness to approach a new person during the familiarization phase had such a substantial effect, it is plausible that the children who withheld help did so simply because they were too afraid to approach an unfamiliar experimenter and not because familiarity with the experimenter increased their desire to help. By this account, the warm-up phase commonly used in much of the prior work on instrumental helping simply overcomes the participants’ stranger anxiety. To further examine this possibility, Experiment 2A was conducted to assess children’s willingness to approach a familiar person and an unfamiliar person to take something other than to help.

Experiment 2

To investigate whether young children are too fearful to approach an unfamiliar recipient in situations similar to Experiment 1, Experiment 2A examined how familiarity influences children’s likelihood to approach and take a sticker from an experimenter. In this experiment, the sticker was offered using a scripted set of actions (see Table 2) similar to those used to demonstrate a need for help in Experiment 1. This design allowed us to examine stranger anxiety independently of intrinsic motivation to provide help. We reasoned that if familiarity affects children’s propensity to take the sticker, it would mean that stranger anxiety was at least partially responsible for the results of Experiment 1.

Whereas the main purpose of Experiment 2A was to ascertain whether and how stranger wariness can explain the results of Experiment 1, Experiment 2B had a different focus. As posited in the Introduction, high helping rates with familiar experimenters could possibly mask other influences on children’s instrumental helping—such as the previous prosocial behavior of the partner in need. The relatively low helping rates toward the unfamiliar person in Experiment 1 opened up an opportunity to collect preliminary evidence to assess this possibility. Previous work has indicated that a partner’s history of prosocial action does not influence subsequent prosocial behavior by children under 3 years of age (Sebastián-Enesco, Hernández-Lloreda, & Colmenares, 2013; Warneken & Tomasello, 2013). However, in that work children had the opportunity to become familiar with the experimenters prior to the test phase of the study. Therefore, the possibility remains that children do consider previous prosocial action by otherwise unfamiliar partners. This idea was examined in Experiment 2B by conducting an additional helping phase (as in Experiment 1) directly after children completed Experiment 2A.

<table>
<thead>
<tr>
<th>Time (s)</th>
<th>Experimenter’s actions and prompts</th>
</tr>
</thead>
<tbody>
<tr>
<td>0–10</td>
<td>Looked at the child with a closed smile</td>
</tr>
<tr>
<td>11–20</td>
<td>Alternated her gaze between the child and the sticker in her hand</td>
</tr>
<tr>
<td>21–30</td>
<td>Made a verbal observation, “It is a sticker,” and then continued to alternate her gaze</td>
</tr>
<tr>
<td>31–40</td>
<td>Said “Look, [child’s name]; it is a sticker” and then continued to alternate her gaze</td>
</tr>
<tr>
<td>41–50</td>
<td>Said “Look, [child’s name]. It is a sticker; you can have it” and then continued to alternate her gaze</td>
</tr>
<tr>
<td>51–60</td>
<td>Said “[Child’s name], it is a sticker; would you like to take it?” and then continued to alternate her gaze</td>
</tr>
</tbody>
</table>
Experiment 2A

Method

Participants

A total of 39 children (M_age = 24.6 months, SD = 5.6, range = 18.0–35.9; 17 girls) contributed data to this experiment. An additional 5 children participated but were eliminated from analysis due to procedural error (n = 2), video-recording failure (n = 2), or unhappiness on arrival in lab (n = 1). Recruitment strategies were the same as those in Experiment 1.

Procedure

Children were randomly assigned to the familiar or unfamiliar condition prior to participating in the experiment. Each participant took part in a familiarization phase identical to that described in Experiment 1. This phase was followed by the test phase described below.

Taking test phase. In the familiar condition, the same experimenter who played with the child left the playroom briefly, telling the child that she (i.e., the experimenter) was going to get something in the other room, and then returned with a sticker. In the unfamiliar condition, the familiar experimenter left the playroom, telling the child that she needed to do something in the other room but that someone else was coming to play with the child. The unfamiliar experimenter then entered the playroom with a sticker and extended her hand to the child with the sticker placed on it. Cued by a silent vibrating timer on her person, the experimenter prompted the child every 10 s to take it, as displayed in Table 2.

If the child took the sticker at any point, the experimenter made a comment about it (e.g., regarding the character depicted on the sticker) and directed the child to give the sticker to the parent/guardian for safekeeping. Alternatively, if the child made no response following the experimenter’s blatant offer, the experimenter said, “Oh well, how about I give it to Mum/Dad/[other],” and gave the sticker to the child’s parent or guardian. The parent/guardian then put the sticker away to ensure that the child was not distracted during the helping test phase.

Measures. In addition to the measures used in Experiment 1, the taking test phase was coded as “taking” if the child took the sticker within 60 s of it being offered to him or her or as “failure to take” if not.

Coding and reliability

The experimenter involved in the taking and helping coded whether the child took the sticker. A secondary researcher, blind to the familiarity condition, coded the taking phase of every participant from video-recordings. There was 100% agreement.

In addition, a coder blind to the condition rated the child’s enjoyment and inhibition displayed during the familiarization phase on a scale from 1 to 4. The coder also rated the friendliness of the experimenter who engaged with the child during the familiarization. Analyses showed no significant differences in any of these three measures between the familiar and unfamiliar conditions (all p values >.60).

Results and discussion

All but 3 children took the sticker offered by the experimenter (20 of 21 in the familiar condition vs. 16 of 18 in the unfamiliar condition) (see Fig. 1). Because of the high taking rates, the full-factorial regressions performed in Experiment 1 were not possible. Therefore, individual likelihood ratio tests were performed on taking behavior coded as a took/did-not-take categorical variable, revealing no significant effects of familiarity, $\chi^2(1, N = 39) = 0.55$, p = .46, warm-up status, $\chi^2(1, N = 39) = 1.06$, p = .30, or sex, $\chi^2(1, N = 39) = 2.50$, p = .11. The effect of warm-up time ($M = 78.1$ s, SD = 127.1, range = 0–607) was also assessed as a continuous variable, with a logistic regression showing no significant effect on
taking, $\chi^2(1, N = 39) = 1.06, p = .30$. A logistic regression examining taking behavior also revealed no significant effect of age, $\chi^2(1, N = 39) = 2.00, p = .16$. To assess whether condition influenced the delay in taking the sticker, we also conducted an ordinal logistic regression using unsolicited taking, solicited taking, and failure to take as the ordinal categories (analogous to the helping ordinal analysis in Experiment 1). The ordinal regression revealed no effect of condition on taking behavior, $\chi^2(1, N = 39) < 0.001, p > .99$. Similarly, an evaluation of latency to take the sticker in seconds (among the 36 children who took the sticker) revealed no evidence of familiarity effects, $F(1, 35) = 0.41, p = .53$, with children in both conditions taking the sticker with little hesitation (unfamiliar: $M = 5.2$ s, $SD = 9.9$; familiar: $M = 7.3$ s, $SD = 9.4$). These results suggest that the nonhelpful children in Experiment 1 were not simply too shy to interact with the experimenter given that nearly all children in Experiment 2 took the sticker regardless of familiarity with the experimenter. Thus, familiarity is a significant influence on children’s motivation to help beyond any effects of stranger anxiety.

**Experiment 2B**

**Method**

**Participants and procedure**

The participants were the same as those taking part in Experiment 2A described above, with an additional 3 children removed because they did not take the sticker in Experiment 2A, 2 removed due to failure of the video-recording during the helping phase, and 1 removed due to procedural error. This left 33 children’s data in the analysis ($M_{age} = 24.7$ months, $SD = 5.6$; 16 girls). Experiment 2B was initiated moments after Experiment 2A ended. The procedure for Experiment 2B was identical to that in Experiment 1, and the assigned condition remained the same from Experiment 2A. That is, if a child was offered the sticker by the familiar experimenter in Experiment 2A, the familiar experimenter was the partner in need of help.

**Results**

**Effects of familiarity**

As in Experiment 1, an ordinal logistic regression was performed on children’s responses to the recipients’ instrumental need (see Experiment 1 results for variable details). The influence of familiarity, sex, age, and all interactions between these variables on children’s responses was investigated. No significant effects were found for familiarity, $\chi^2(1, N = 33) = 0.04, p = .84$, age, $\chi^2(1, N = 33) = 2.77, p = .10$, or sex, $\chi^2(1, N = 33) = 2.07, p = .15$. Furthermore, no significant interactions were observed (all $p$ values $> .15$). Therefore, subsequent analyses are collapsed over sex and age, focusing on children’s familiarity with the recipient.

For consistency with Experiment 1 analyses, the role of familiarity as a predictor of helping was assessed with a likelihood ratio test, which revealed no evidence of helping rate differences; familiar recipients were helped 84% of the time (16 of 19) compared with 86% (12 of 14) for unfamiliar recipients, $\chi^2(1, N = 33) = 0.01, p = .91$ (see Fig. 1). In addition, familiarity with the recipient did not have a significant effect on the type of help children gave. Help given to a familiar recipient was unsolicited 69% (11 of 16) of the time, compared with 91% (11 of 12) of the time for an unfamiliar recipient, $\chi^2(1, N = 33) = 2.34, p = .13$.

**Warm-up time and subsequent helping**

As in Experiment 1, warm-up times were assessed as a categorical variable based on whether children immediately approached the experimenter (36%) or did not (64%). Importantly, the proportion of children who immediately warmed up to the experimenter did not differ by condition, with 36% of children (5 of 14) assigned to the unfamiliar condition immediately warming up to the experimenter, compared with 37% of children (7 of 19) assigned to the familiar condition, $\chi^2(1, N = 33) = 0.004, p = .95$. In contrast to Experiment 1, children who warmed up fast to the experimenter did not differ from the remaining children in their likelihood to help, $\chi^2(1, N = 33) = 1.37, p = .24$, with the helping rates
being high for both groups (75% and 74%, respectively). For consistency with Experiment 1, we also assessed warm-up time as a continuous predictor on helping, revealing no significant main effect of warm-up time, $\chi^2(1, N = 33) = 0.94, p = .33$, and no warm-up time by condition interaction, $\chi^2(1, N = 33) = 0.90, p = .34$.

**Discussion**

These results significantly bolster the interpretability of Experiment 1. In particular, the results of Experiment 2A demonstrate that the results of Experiment 1 were unlikely to have been driven by fear of approaching the unfamiliar experimenter. If this were the case, the children in Experiment 2A should not have been so willing to take the sticker from the unfamiliar experimenter. Although an argument could be made that the sticker was so enticing that the children would suppress their fear, the results of Experiment 2B suggest otherwise. In that experiment, a high proportion of the children helped the experimenter after taking the sticker (regardless of condition and warm-up time). This strongly suggests that the children were not too fearful to approach an unfamiliar person. Instead, the simplest interpretation of the data is that children were relatively unmotivated to help the unfamiliar experimenter in Experiment 1 and that sharing the sticker in Experiment 2A led to an increased desire to help, which manifested in Experiment 2B. This strongly suggests that children were not too fearful to approach an unfamiliar person. Instead, the simplest interpretation of the data is that children were relatively unmotivated to help the unfamiliar experimenter in Experiment 1 and that sharing the sticker in Experiment 2A led to an increased desire to help, which manifested in Experiment 2B. More generally, Experiment 2B suggests that factors influencing helping are likely to be nonlinear in that contingent reciprocity or high levels of familiarity may influence children's motivation to offer help to a recipient in need; however, when both contingent reciprocity and high levels of familiarity occur together, motivation to help does not significantly increase compared with when either of these occurs separately.

**General discussion**

Here, we show that toddlers discriminate in their helping behavior based on familiarity with the person in need. As predicted, children in Experiment 1 were most likely to provide help when the person in need was familiar to them. Experiment 2A showed that the familiarity effect could not be wholly explained by a fear of approaching the unfamiliar person. Experiment 2B showed that toddlers' propensity to help also significantly increased if the unfamiliar person in need had previously shared with the toddlers. These results, when considered in the context of prior research findings, have important theoretical implications for our understanding of the ontogeny of prosocial behavior as well as practical implications for how we should interpret past findings and carry out new studies on instrumental helping in young children.

The key implication of this work is that the common description of young children as indiscriminate helpers who readily assist others achieve their goals should be qualified; children help readily but mainly restrict their helping to familiar partners. Our analysis of warm-up times revealed that whereas the subset of toddlers who warmed up immediately during the familiarization phase (~30–40%) were ready to offer indiscriminative help, such help for the unfamiliar partner was rarely forthcoming from the larger group of children.

When considering our findings in conjunction with those from other labs, our results suggest that, for children under 3 years of age, familiarity may be the main factor influencing their instrumental helping. Specifically, if the partner is sufficiently familiar, toddlers are very likely to offer help and are generally unaffected by other aspects of the partner such as the partner's prosocial reputation (e.g., Sebastián-Enesco et al., 2013). However, if the partner is not familiar, toddlers may discriminate on the basis of other cues.

The first part of this claim—that toddlers are relatively unaffected by other cues (i.e., unfamiliarity) when they are sufficiently familiar with the experimenter—is consistent with much of the published work on reciprocal altruism. For example, Warneken and Tomasello (2013) found that 2-year-olds were no more likely to help someone who had previously shared with them than to help someone who had not done so. Importantly, however, that study used an extensive warm-up period during which the participants were made familiar with the partner in need of help. Similarly, Sebastián-Enesco et al. (2013) found that children act prosocially toward both prosocial and selfish
partners. Again, however, the children were made familiar with both actors before being given the opportunity to act prosocially. Moreover, although children did not discriminate on the basis of partner prosociality, they were less likely to behave prosocially with a less familiar neutral partner than they were with the more familiar selfish partner.

The second part of this claim—that toddler instrumental helping is more influenceable when the partner is unfamiliar—is consistent with the current results as well as with prior research. With respect to the current study, we found that children were more likely to help an unfamiliar experimenter who had given them a sticker (Experiment 2B) than to help an unfamiliar experimenter who had not given them anything (Experiment 1). We acknowledge that some caution is warranted in interpreting this result because we did not include a control condition to ensure that it was precisely the partner’s prosocial act of giving the sticker that led children to help more often. However, it seems unlikely that it was simply the extra few seconds (<10 s on average) of exposure to the partner (while she held out the sticker to the children) that led them to help. If such a short nonverbal exposure was sufficient to lead children to help, most children should have helped the unfamiliar experimenter in Experiment 1 after a slight delay during which the children would have gained familiarity with the experimenter.

Moreover, outside the realm of reciprocal altruism, when other factors have been found to influence toddlers’ instrumental helping, these studies generally involve less familiar targets (e.g., Cirelli, Einarson, & Trainor, 2014; Over & Carpenter, 2009) or a forced-choice situation where both partners are equally familiar to the toddlers (e.g., Dahl, Schuck, & Campos, 2013). For example, Over and Carpenter (2009) found that young children who were primed with images evoking feelings of “affiliation” were more likely to later help an experimenter than children who were primed with images evoking “individuality.” Importantly, the authors noted that the partner in need of help may have seemed less familiar to the children than is typical in instrumental helping studies because the children interacted with a new experimenter after their brief warm-up period with the partner who later needed help. Similarly, there was no extended warm-up period in Cirelli et al.’s (2014) study showing that toddlers are more likely to help a person with whom they moved in synchrony.

Another contribution of the current work is the revelation that behavior during warm-up periods reflects individual differences in children’s proclivity to help unfamiliar partners. Whereas it was previously established that stranger wariness has longitudinal predictive value on children’s later sociability (Bohlin & Hagekull, 1993), here we demonstrated an analogous relationship in a single session. In Experiment 1, approximately 30% of the children tested warmed up to the experimenter immediately during the familiarity phase, and these children were overwhelmingly likely to subsequently help both the same experimenter and a new, and hence unfamiliar, experimenter. Moreover, the likelihood of children helping the unfamiliar experimenter dropped to approximately 20% among the children who did not immediately warm up to the experimenter during the familiarization phase. Put another way, among children who did not immediately warm up to a new person, helping an unfamiliar person was rarely forthcoming. This finding further demonstrates how important recipient familiarity is to children’s subsequent helping tendencies.

The influence of warm-up time on subsequent helping is suggestive of important individual differences, but the nature of these differences needs to be further explored. Some children may feel instantly familiar with a new friendly person, perhaps particularly when a parent/guardian is present (e.g., giving tacit but implicit approval for the child–stranger interaction). Alternatively, some children simply might not need to feel familiar with a person to offer help. In either case, our findings provide a very strong argument for relevant future studies not only to provide more information about the methods of their warm-up periods (e.g., duration, whether the test phase experimenter was in the room) but also to record and report data on the warm-up times for the children.

Indeed, a practical implication of our results is that the common use of warm-up periods and multiple test trials that familiarize toddlers with the partner may mask other social influences on helping behavior. For example, Warneken and Tomasello (2013) reported that young children are very likely (i.e., are at near-ceiling levels) to help a partner regardless of whether the partner had previously shared with and helped those children. However, because that study included a 5- to 10-min warm-up period, it would be interesting to know whether previous help by the partner affected the subset of children who did not immediately warm up to the experimenter during that phase. Without
the warm-up period used by Warneken and Tomasello, helping rates may have dropped precipitously, but the drop would be lessened when help was sought by a recipient who had previously acted prosocially toward the children. Such a finding could help to bridge the gap between the looking time work, which suggests that children have strong preferences for prosocial actors (e.g., Hamlin & Wynn, 2011), and the instrumental helping work, which often fails to show significant effects of prosociality.

It is also instructive to compare our findings with those recently reported by Barragan and Dweck (2014), who found that synchronous activity promotes subsequent helpfulness. In that work, either toddlers engaged in a game that involved passing an item back and forth between the children and an experimenter or the children engaged in parallel nonsynchronous play with an experimenter. The results showed that toddlers involved in the synchronous activity were considerably more likely to subsequently help not only the same experimenter but also a new unfamiliar experimenter. Thus, our study reveals that children discriminate in their helping behavior based on familiarity, whereas Barragan and Dweck's study found the opposite.

Whereas Barragan and Dweck (2014) concluded that pretesting synchrony experiences underlie much of the prior literature on helping, our results suggest that this conclusion may be overstated. It may be that Barragan and Dweck essentially set up a situation in which children perceived themselves as taking part in a turn-taking game. Conceivably, the rules of the game (e.g., “You do something for me, then I do something for you”) may have generalized to a new person rather than to a specific motivation to help, which is consistent with previous research by Rakoczy, Warneken, and Tomasello (2008). Perhaps, then, Barragan and Dweck’s (2014) results are best interpreted as an interesting and effective method of eliciting help, but one that may do so for reasons unrelated to the factors that underlie intrinsic helping. This view is supported by Hepach et al.’s (2017) recent finding that children’s natural helping patterns are fundamentally altered in the context of a game situation.

A point of difference between our work and much of the prior work (cf. Over & Carpenter, 2009) on children’s instrumental helping is that we used only a single trial in a single task. Although there are advantages to using multiple trials (e.g., statistical power) and multiple tasks (e.g., generalizability), taking this approach also comes at the cost of introducing confounds and losing a degree of ecological validity. Mainly, we are unsure how a child approaches a helping task when it follows multiple similar helping tasks in the same experimental session. It seems likely that at least some children who are repeatedly placed in situations where an adult needs help may perceive and treat it as a game. In addition, as mentioned above, as helping tests accumulate, the children would become more familiar with the adult in need, which may explain why the rate of helping the unfamiliar experimenter was considerably lower in our study (40%) than it was for unfamiliar experimenters in prior research that included multiple tasks and trials (e.g., ~90% in Warneken & Tomasello, 2006). We recommend that future work more specifically examine order effects to determine how each additional helping trial affects likelihood to help. Comparing behavior over blocks of multiple trials (as in Newton, Goodman, & Thompson, 2014) might not provide a sensitive enough measure of order effects depending on how each individual trial affects children’s feelings of familiarity with the experimenter and the extent to which children begin to treat the experimental task as a game.

Finally, considering reasons why familiarity has such a significant effect on helping behavior is important. Although Experiment 2 established that familiarity does more than simply help toddlers to overcome stranger anxiety, several possibilities are still left to investigate. One possibility is that children prefer to help members of an “in-group.” Accordingly, our 20-min familiarity session established the experimenter as a member of the trusted in-group, which is consistent with previous research demonstrating that even infants are influenced by in-group and out-group dynamics (Buttelmann, Zmyj, Daum, & Carpenter, 2013; Over & Carpenter, 2009). Conversely, in-group effects could essentially be cognitively constructed extensions of familiarity effects. In other words, perhaps a child who perceives herself as jointly belonging to the same group as a partner imputes to the partner a degree of familiarity without the need to spend time establishing that familiarity.

Another possibility is that familiarity could influence spontaneous altruistic behavior by changing the threshold at which action is initiated based on lower-level processes. For example, awareness of a person in need may trigger some level of arousal in children, and if this arousal reaches a given threshold, it could work as a signal for the children to act. Thus, familiarity may increase this level of arousal or decrease the arousal threshold for providing help. Such an explanation is consistent with well-
established findings that familiarity affects arousal from a very early age (e.g., infants' heart rates increase when they hear their mothers' voices even before birth; DeCasper & Fifer, 1980). By this account, lower-level processes are reparameterized due to familiarity, meaning that familiarity affects helping behavior implicitly rather than explicitly. Future work could assess this possibility by examining pupil dilation as a measure of sympathetic arousal as a function of partner familiarity (e.g., Hepach & Westermann, 2016; Hepach et al., 2012). In addition to examining the role of arousal, future studies should also assess the degree to which familiarity is established simply through mere exposure rather than through interactions with children. Indeed, it is important to establish whether familiarity increases empathy or whether it increases the willingness to act helpfully toward someone with whom children already feel empathy.

**Limitations and directions for future research**

In this article, we have attempted to adequately acknowledge where our interpretations require some caution in the absence of additional data. For example, although the results of Experiment 2B are consistent with the idea that children engage in contingent reciprocity, the nature of the study does not allow us to rule out the possibility that children showed increased helping simply because they had a brief opportunity to become familiar with the experimenter as she held out the sticker in Experiment 2A.

In addition, future research could better establish exactly why the approach rates in the taking task (Experiment 2A) differed from those in the helping task (Experiment 1). Here, we interpret the sticker-taking results to mean that, across our three experiments, children simply did not experience considerable stranger anxiety preventing them from approaching an unfamiliar experimenter. However, it is also possible that children felt significant anxiety but were willing to suffer through it in order to obtain an attractive item. Notably, if this were the case, it could have profound implications for our understanding of the altruistic nature of young children. That is, it would suggest that to whatever extent young children have the desire to help others in need, such altruistic tendencies are not nearly as strong as the desire to obtain attractive things.

Finally, we further acknowledge that we have examined only one particular method of familiarization that involved a friendly interaction between an adult and a child. This type of familiarization was chosen because it is similar to that used (but not varied) in most of the canonical studies of children's helping and, therefore, was of primary importance. Nonetheless, much could be learned from future work employing different familiarization paradigms. For instance, it would be informative to know whether mere exposure to an adult who had no interaction with the child would result in similar familiarity effects. If so, this could help to explain why Hepach et al. (2017) found similar anonymous helping rates toward people who had varied extensively in their interactions with children during the warm-up phase. In addition, future research may reveal more about children's drive to help by using a wider range of partners, including children and even nonhuman entities (e.g., Martin, Pedell, & Kaufman, 2017).

**Conclusion**

The main contribution of this study is the revelation that helping behavior by young children is influenced by familiarity with the person in need. In contrast to earlier work, our findings do not support the notion that interacting with a new person increases the likelihood of a child helping anyone. Instead, we report that familiarization with an experimenter only affects the tendency to help the newly familiar person. In addition, our experiments reveal that important individual differences in children's inclination to engage with a new person have a strong influence on their subsequent helping behavior. These findings raise interesting questions about the development of helpfulness and point to new directions for research. Specifically, future research could clarify how arousal, thresholds for action, and familiarity work together to shape helping behavior. Investigations could also examine the relationship between in-group status and familiarity.
Appendix A. Supplementary material

Supplementary data associated with this article can be found, in the online version, at https://doi.org/10.1016/j.jecp.2018.05.009.

References


