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

Kyong-sun Jin[a,*], Jessica L. Houston[b], Renée Baillargeon[c], Ashley M. Groh[d], Glenn I. Roisman[e]

[a] Department of Psychology, Yonsei University, 50 Yonsei-ro, Seodaemun-gu, Seoul 03722, Republic of Korea
[b] Center of Excellence for Children in State Custody, University of Tennessee Health Sciences Center, Memphis, TN 38103, United States
[c] Department of Psychology, University of Illinois, 603 East Daniel Street, Champaign, IL 61820, United States
[d] Department of Psychological Sciences, University of Missouri, 204B McAlester Hall, Columbia, MO 65211, United States
[e] Institute of Child Development, University of Minnesota, 51 East River Parkway, Minneapolis, MN 55455, United States

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ABSTRACT

Do infants expect individuals to act prosocially toward others in need, at least in some contexts? Very few such expectations have been uncovered to date. In three experiments, we examined whether infants would expect an adult alone in a scene with a crying baby to attempt to comfort the baby. In the first two experiments, 12- and 4-month-olds were tested using the standard violation-of-expectation method. Infants saw videotaped events in which a woman was performing a household chore when a baby nearby began to cry; the woman either comforted (*comfort* event) or ignored (*ignore* event) the baby. Infants looked significantly longer at the ignore than at the comfort event, and this effect was eliminated if the baby laughed instead of cried. In the third experiment, 8-month-olds were tested using a novel forced-choice violation-of-expectation method, the infant-triggered-video method. Infants faced two computer monitors and were first shown that touching the monitors triggered events: One monitor presented the comfort event and the other monitor presented the ignore event. Infants then chose which event they wanted to watch again by touching the corresponding monitor. Infants significantly chose the ignore over the comfort event, and this effect was eliminated if the baby laughed. Thus, across ages and methods, infants provided converging evidence that they expected the adult to comfort the crying baby. These results indicate that expectations about individuals' actions toward others in need are already present in the first year of life, and, as such, they constrain theoretical accounts of early prosociality and morality.

1. Introduction

Over the past two decades, a wealth of research has explored two broad issues in the development of prosociality in infancy. One issue has to do with infants' *own* prosocial actions (i.e., overt actions intended to benefit others, such as helping or comforting others in need). Around their first birthday, infants begin to produce prosocial actions, and these actions steadily increase in frequency and

variety as infants grow older (for reviews, see Brownell, 2013; Davidov, Vaish, Knafo-Noam, & Hastings, 2016; Decety & Howard, 2014; Dunfield, 2014; Dunn, 2014; Eisenberg, Fabes, & Spinrad, 2006; Eisenberg, Spinrad, & Knafo-Noam, 2015; Hastings, Zahn-Waxler, & McShane, 2006; Martin & Olson, 2015; Paulus, 2014; Vaish & Tomasello, 2014; Warneken, 2015). In addition to documenting the emergence and development of early prosocial actions, investigations have shed light on the situational factors that influence normative patterns of prosocial responding as well as on the dispositional and environmental factors that contribute to individual differences in infants' prosocial repertoires.

The other issue has to do with infants' reasoning about *others'* prosocial actions (for reviews, see Baillargeon, Setoh, Sloane, Jin, & Bian, 2014; Baillargeon et al., 2015; Bloom & Wynn, 2016; Hamlin, 2013b; Premack, 2007; Van de Vondervoort & Hamlin, 2016; Wynn & Bloom, 2014). As we discuss in more detail in the next sections, investigations of early prosocial reasoning have addressed three main questions: whether infants can distinguish between prosocial and antisocial actions and correctly evaluate the moral valences of these actions, whether infants can identify appropriate targets for prosocial actions, and whether infants expect individuals, at least in some contexts, to act prosocially toward others in need. This last question was the focus of the present research. As will become clear, there have been very few demonstrations to date of social contexts in which infants expect individuals to engage in prosocial actions. Yet knowing when infants expect prosocial actions would seem to be critical for understanding how they interpret and evaluate interactions in their social environments.

Building on prior findings, the present research examined one possible context in which young infants might expect individuals to produce prosocial actions. In three experiments, we asked whether infants would expect an unfamiliar adult alone in a scene with a crying baby to attempt to comfort the baby, and would detect a violation if the adult ignored the baby instead. The first two experiments tested 12- and 4-month-olds using the standard violation-of-expectation (VOE) method; the third experiment tested 8-month-olds using a novel forced-choice VOE method, the infant-triggered-video (ITV) method. We reasoned that positive evidence across ages and across methods would be important for several reasons. First, such evidence would bring to light one particular context in which infants, from a very young age, expect individuals to act prosocially toward others. As noted above, very few prosocial expectations have been uncovered to date, and none in the first year of life; positive results would thus make a significant empirical contribution to our understanding of early prosocial reasoning.

Second, from a methodological standpoint, positive evidence in our ITV experiment would introduce to the field of infancy research a novel method for assessing infants' expectations about events in the social domain as well as in other domains of cognition.

Finally, positive evidence that young infants expect an unfamiliar adult to comfort a crying baby would pave the way for future inquiries into the mechanisms responsible for this expectation. One possibility might be that from a young age, infants feel, and expect others to feel, empathic concern for the distress of others (e.g., Davidov, Zahn-Waxler, Roth-Hanania, & Knafo, 2013; de Waal, 2008; Decety, Michalska, & Kinzler, 2011; Eisenberg et al., 2006; Hastings et al., 2006; Hoffman, 2007; Knafo, Zahn-Waxler, Van Hulle, Robinson, & Rhee, 2008; Vaish & Warneken, 2012). Another possibility might be that most infants detect a regularity, in the first months of life, in how adults typically act toward crying babies (e.g., Killen & Cooley, 2014; Killen, Rutland, Abrams, Mulvey, & Hitti, 2013; Paulus, 2014; Paulus & Moore, 2012; Perner, 2010; Ruffman, Taumoepeau, & Perkins, 2012; Sripada & Stich, 2006). Yet another possibility might be that this expectation is sociomoral in nature. According to some accounts of morality, infants are born with a small set of moral principles that guides their expectations about how individuals will act toward others; this "first draft" of moral cognition (which is later revised by culture; Graham et al., 2013) includes not only principles of harm avoidance and fairness, which capture obligations that apply broadly to all individuals within the same moral circle, but also principles of ingroup support and authority, which capture obligations that are more limited in scope and depend on group affiliations or roles (e.g., Baillargeon et al., 2015; Brewer, 1999; Cosmides & Tooby, 2013; Graham et al., 2013; Jin & Baillargeon, 2017; Rai & Fiske, 2011; Shweder, Much, Mahapatra, & Park, 1997; Spokes & Spelke, 2017). From this sociomoral perspective, finding that infants as young as 4 months of age already expect caregivers to respond to crying babies might be taken as evidence of early sensitivity to harm avoidance and/or ingroup support. We return to these possibilities in the General Discussion.

1.1. Infants' expectations about helping actions

Much of the research on early prosocial reasoning has focused on helping actions. Initial investigations examined whether infants could distinguish between helping and hindering actions and correctly judge the moral valences of these actions (e.g., Hamlin, 2013a, 2014; Hamlin & Wynn, 2011; Hamlin, Wynn, & Bloom, 2007, 2010; Hamlin, Wynn, Bloom, & Mahajan, 2011; Kuhlmeier, Wynn, & Bloom, 2003; Premack & Premack, 1997). In a series of experiments, for example, Hamlin and her colleagues familiarized infants ages 3–10 months to a live scenario involving three non-human agents (blocks with eyes or animal puppets; e.g., Hamlin, 2014; Hamlin & Wynn, 2011; Hamlin et al., 2007, 2010). In a typical scenario, a character tried in vain to achieve a goal (e.g., reach the top of a steep hill or open a clear box to retrieve a toy); on alternate trials, a helper helped the character achieve its goal (*help* event), and a hinderer prevented the character from achieving its goal (*hinder* event). Following the familiarization trials, infants tested with a forced-choice affiliative-preference task consistently preferred the helper over the hinderer (e.g., Hamlin, 2014; Hamlin & Wynn, 2011; Hamlin et al., 2007, 2010), and (beginning at about 10 months) infants tested with a VOE task expected the character to show the same preference and detected a violation when the character approached the hinderer instead (Hamlin et al., 2007; see also Fawcett & Liszkowski, 2012; Lee, Yun, Kim, & Song, 2015). These results suggest that from a young age, infants can correctly evaluate a variety of helping and hindering actions and can use these evaluations to generate affiliative attitudes: Infants prefer, and expect others to prefer, individuals who have produced helping actions over individuals who have produced hindering actions.

Additional investigations examined whether infants could identify appropriate targets for individuals' helping actions. Köster, Ohmer, Nguyen, and Kärtner (2016) asked whether infants ages 9–18 months would selectively expect a protagonist to help a