The interplay between sharing behavior and beliefs about others in children during dictator games

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A R T I C L E   I N F O

A B S T R A C T

Previous studies in adults demonstrated that beliefs and sharing decisions in social scenarios are closely related. However, to date, little is known about the development of this relationship in children. By using a modified dictator game, we assessed sharing behavior and beliefs about others in children between 3 and 12 years old. We performed four studies (N = 376) aimed to assess whether decisions were related to beliefs (Studies 1 and 2) and whether information about the recipient's forced sharing behavior would shape decisions and beliefs (Studies 3 and 4). Results of Studies 1 and 2 showed that beliefs about others' generosity were related to children's sharing behavior. In Studies 3 and 4, we found that only children older than 9 years shared more pieces of candy when they knew that the recipient would be forced to share (cooperative context) than when they knew that the recipient would be

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forced not to share (noncooperative context). Besides, children older than 6 years did not modify their beliefs about others' generosity according to these social contexts. These results suggest that normative or preconceived beliefs about the functioning of the social world may guide social behavior in children.

Introduction

Social behaviors such as altruism, aversion to inequality, and reciprocity are deeply rooted in human cognitive systems and are critical to the maintenance of cooperation (Almås, Cappelen, Sørensen, & Tungodden, 2010; Lieberman, 2007; Moore, 2009; Morelli, Rameson, & Lieberman, 2014). Different studies in adults have demonstrated that beliefs and predictions about others' actions influence social decisions (Akerlof & Dickens, 1982; Caprara & Steca, 2005; Di Tella, Perez-Truglia, Babino, & Sigman, 2015; Moll et al., 2006; Piff, Kraus, Cote, Cheng, & Keltner, 2010). For instance, an individual who interacts with another tends to generate beliefs about the other's altruism to guide future actions, and in turn the outcome of this interaction updates his or her beliefs (Caprara & Steca, 2005; Costa-Gomes, Huck, & Weizsäcker, 2014; Smith, 2013). Decisions and beliefs in adults seem to be intermingled, for example, in circumstances where individuals need to justify unfair decisions. Di Tella et al. (2015) showed that when adults faced the opportunity to be ungenerous, they took the chance and thought that their partners were corrupt. In other words, they adjusted their beliefs about others to justify their unfair decisions. Overall, these studies support the presence of a closed loop in which beliefs and decisions are dynamically intertwined; beliefs about others guide choices, which in turn may modify beliefs (Costa-Gomes et al., 2014; de Oliveira, Spraggon, & Denny, 2016; Di Tella et al., 2015; Smith, 2013).

In the current study, we aimed to examine the relationship between sharing behavior and beliefs about others' generous behavior in children. Although little is known about the development of this relationship, there are some studies that indirectly support an association between social behavior and beliefs in children. Findings of studies in developmental social psychology have suggested that cognitive schemas about the functioning of the social world regulate children's behavior (Guerra, Huesmann, & Spindler, 2003; Huesmann & Guerra, 1997). These social-cognitive schemas are based on children's social experiences and can modulate children's social behavior and beliefs (Guerra et al., 2003; Huesmann & Guerra, 1997; Tomasello & Vaish, 2013; Van Overwalle, 2009). For instance, children who act aggressively toward others might have previously experienced a threatening context, and hence they believe that others might be aggressive toward them (Guerra et al., 2003; Huesmann & Guerra, 1997). Another group of studies has demonstrated children could use beliefs to justify their decisions. Evans and Lee (2014) showed that children who had cheated and lied believed that other children would lie too and, conversely, children who had not cheated were biased toward judging their peers as honest. Similarly, some authors have found that children tend to blame others for initiating conflict before accepting responsibility themselves, a phenomenon called self-serving bias (Kearns & Fincham, 2005; Miller & Ross, 1975; Shalvi, Gino, Barkan, & Ayal, 2015; Vonk, 2002).

Continuing with this line of research, we examined whether children who are generous think that others are generous too and whether children who are selfish think that others are selfish too. We also explored to what extent information about others' forced altruistic and nonaltruistic behavior could modify children's decisions and beliefs. We performed four studies in which children between 3 and 12 years old played a modified dictator game (DG) adapted to children (Forsythe, Horowitz, Savin, & Sefton, 1994). In the DG, children were invited to share pieces of candy with an unknown recipient from another school. Participants were told that they participate only as allocators and that they should not assume a recipient role. After sharing, we inquired about participants' beliefs on the future sharing behavior of the unknown recipient when they played the same game (Studies 1, 3, and