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Insights into the biological foundation of human altruistic sentiments

Felix Warneken

Abstract

The contributions of biology versus socialization practices to the emergence of human altruism have been the focus of a long-standing debate. New research on the development and evolution of helping behaviors provides important insight into the origins of our altruistic psychology. Current empirical evidence shows that both young children and chimpanzees instrumentally help others struggling with a problem — suggesting that basic forms of altruism are based upon a biological predisposition with shared evolutionary roots. In humans, the internalization of social norms and moral education can then build upon this early emerging predisposition.

Address

Harvard University, Department of Psychology, William James Hall, 33 Kirkland Street, Cambridge, MA, USA

Corresponding author: Warneken, Felix (warneken@wjh.harvard.edu)

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Introduction

What is the foundation of human altruistic behaviors? One critical factor is the social standards that members of a community espouse and enforce [1–3]. Given the importance of these social standards for adults, many theoretical views treat such socialization practices as central and even necessary for human altruism [4–8]. This *socialization hypothesis* therefore suggests that our altruistic inclinations stem from the internalization of learned standards of behavior for interacting with others. In this model, children are posited to be initially insensitive to the needs of others, and it is only due to a human-unique constellation of social norms and extensive child rearing that altruism is inculcated over development [9,10]. Here I propose an alternative hypothesis. I will advance the notion of a *biological predisposition* for human altruism. Although social norms clearly play a critical role for mature altruism and guide child development, they are not the condition sine qua non of our core altruistic tendencies. Rather, social norms build upon and refine preexisting sentiments that very young children — and even some other apes — already exhibit.

I further argue that addressing the origins of human altruism requires looking beyond mature altruistic behaviors in adults. In particular, developmental research is critical to adjudicate hypotheses about the origins of human altruism, as studies of young children can look at the initial state of altruism in human ontogeny before norm internalization has a major impact. However, it is not possible to answer questions about the nature of human altruism by only studying humans: comparative studies of nonhumans — who lack explicit social norms or moral instruction — provide a second critical line of evidence. By comparing the behaviors of human children with that of chimpanzees, we can discriminate which aspects are human-unique from aspects that have a shared evolutionary history, and thus predate human forms of socialization.

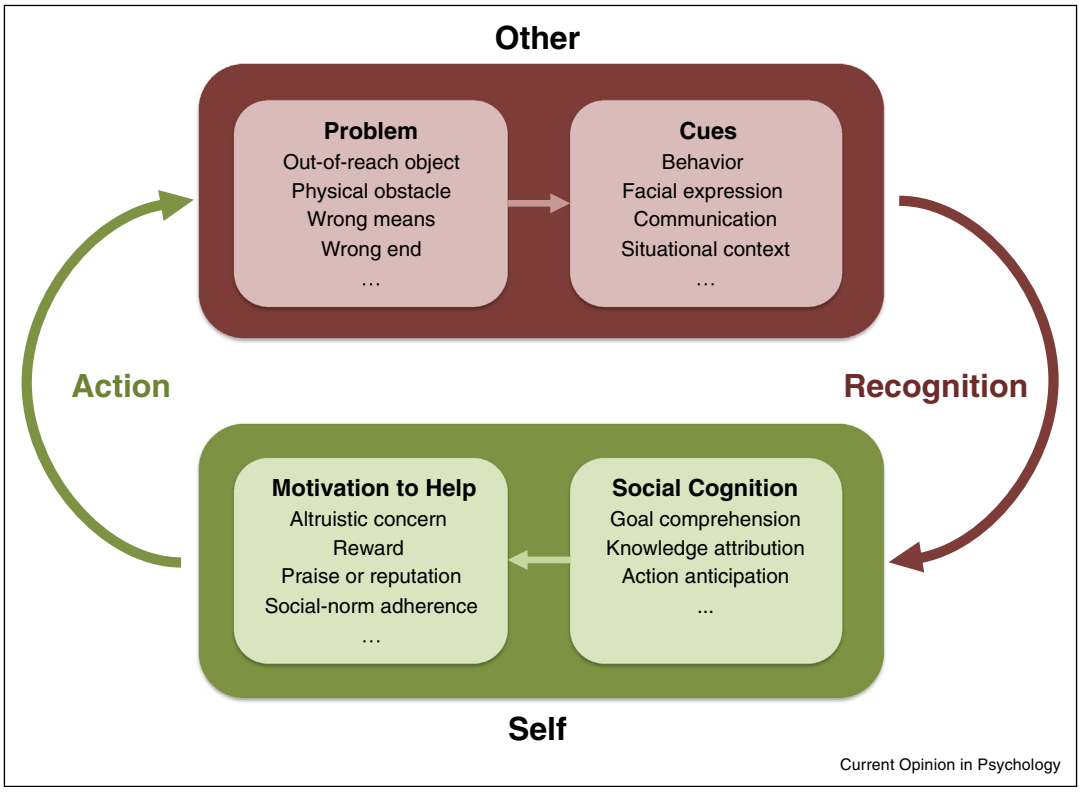
Helping emerges in early childhood

Helping behaviors are a good test case for the study of altruism in young children for three reasons. First, although children's instrumental helping is far less complex than the altruism of adults, these behaviors nonetheless share core features (Figure 1): even simple acts of helping require a representation of the goal another person is trying to achieve, and a potentially altruistic motivation to facilitate the other person's goal (as opposed to an immediate benefit for the self[1]). Second, infants do not yet know enough about the world to be good counselors, nor do they own many things they could sacrifice. However, they can already engage in manual tasks, enabling us to administer nonverbal, age-appropriate tests of altruistic behavior. Third, research on helping has flourished in recent years, providing a strong foundation for identifying the factors that are critical for altruism to emerge.

Studies of instrumental helping behaviors reveal that children start to help others at an early age, not long after their first birthday. When 14-month-olds see someone

[1] I focus on psychological (i.e. proximate) processes, not ultimate function. 'Altruistic' is thus used in terms of the underlying motivation, i.e. a behavior that is aimed at resulting in a concrete benefit to another individual rather than oneself. This does not necessarily imply altruism in terms of fitness costs to the actor and fitness benefits to the agent as a different level of analysis.

Figure 1



Model depicting the cognitive and motivational processes underlying helping behaviors.

reaching unsuccessfully for a dropped object, they will spontaneously pick it up and hand it over [11–13]. By at least 18 months, children help flexibly across a variety of problem situations (Videos S1–S4): retrieving out-of-reach objects, opening closed doors, assisting to stack objects, and even using a newly learned method to open a box for a klutz who uses the wrong approach [14•,15,16].

Children use fairly sophisticated social cognitive abilities to decide how to help in these situations. In particular, children specifically try to help other people with their intended goals, rather than just blindly join into the adult's activity. For example, when an adult is ignorant about the true location of a desired object and struggles to open an empty box, 18-month-olds do not join in to this futile attempt. Rather, they retrieve the desired object from its actual location [17]. Similarly, when a person is not aware that the locations of a desirable and a unpleasant object have been switched, 18-month-olds will warn the person beforehand — correctly inferring that when holding a false belief, the adult is likely to take the wrong course of action [18,19•].

With increasing age, toddlers are able to make such inferences based upon more subtle cues. Children at 14–18 months typically help only in response to a salient cue of the other's need, such as a person reaching for an object or directly asking for help [11,20]. However, 2-year-olds can help even when such behavioral cues are absent (Video S5). They assist an adult by returning cans to her if she had not noticed that they rolled off a table — and thus did not provide any cues that she needed help [21•] (significantly more often than in controls where cans dropping on the floor were not a problem for the adult). Thus, children can help even when concurrent cues to elicit helping are absent, demonstrating that they can use situational cues to infer what to do.

What motivates children's helping?

Taken together, these results provide evidence for an early emergence of our basic altruistic tendencies: toddlers harness their social cognitive capacities to help others in need. But what exactly motivates their helping? One possibility is that the same social concerns that are important for adult social interactions — such as explicit norm learning or reputation-based assessments — also account for the emergence of these altruistic behaviors in children. However, the sum of the evidence suggests that this is not the case.

First, early helping does not seem to depend on reputation or other forms of social signaling to others. Helping occurs spontaneously in the parent's absence, showing