

The prosocial functions of early social emotions: the case of guilt

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To safeguard human cooperation, it is vital that when cooperative relationships break down, they are repaired. This requirement is met by the social emotion of guilt, at two levels: the *experience* of guilt motivates transgressors to repair the damage they have caused, and transgressors' *displays* of guilt appease victims and bystanders and elicit cooperation toward the transgressor. I review recent evidence that guilt functions in both of these ways from early in development. The experience of guilt motivates reparative behavior in children 2–3 years of age, and transgressors' displays of guilt appease and elicit cooperation in children 4–5 years of age. Thus, over the first few years of ontogeny, guilt becomes an important mechanism for upholding cooperation.

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Humans benefit greatly from living in groups by exchanging goods and services and by coordinating efforts to obtain food, defend ourselves against predators, assist with child care, and so forth. This ultra-cooperativeness is thought to account for our success as a species [1]. However, although individuals benefit by being part of a group, it may be in each individual's interest to be selfish, and in the long term, such selfishness can lead to the breakdown of cooperation.

Yet human cooperation is ubiquitous. Even young children, who have limited socialization experiences, demonstrate remarkable prosocial and cooperative propensities across cultures [2,3]. Thus, from early on, humans are equipped with psychological attributes that enhance their ability to engage in and profit from cooperation [4]. What is the nature of these psychological attributes? What motivates young children to be prosocial rather than purely self-interested? Answers to these questions are

critical for understanding the roots and nature of cooperation. It is thus broadly these questions that guide this paper.

Specifically, I focus on one fundamental requirement for safeguarding cooperation: when a cooperative interaction breaks down, it must be repaired. I propose that this requirement is met by the social emotion of guilt. To understand the ontogenetic roots of prosociality, therefore, we must understand the emergence and prosocial functions of guilt.

The social functions of emotions

The dilemma of cooperation must be solved at two levels [5,6]. First, we must resist selfish actions in the service of our commitments to others. Second, we must reliably identify who is committed to us and disinclined to cheat us, so that we can enter into long-term relationships with those individuals. We must make these decisions rapidly to avoid being exploited, and ultimately, to safeguard cooperation. How do we solve these problems?

One important answer lies in emotions. Emotions are often viewed as antithetical to our judgments and as such, in need of being controlled (see [7]). However, within a functionalist approach, emotions motivate behaviors of adaptive import [8]. For instance, fear draws our attention to threats and highlights escape-relevant behaviors. When emotions serve these basic survival functions, they are known as *basic* emotions [9]. *Social* emotions coordinate our social interactions, thus helping us regulate relationships and maintain group cohesion — which have also been critical for human survival and success [10].^a My focus is thus on the latter.

From a young age, social emotions help regulate social interactions at both of the levels described above. The *experience* of social emotions informs children about specific social events or conditions and prepares them to respond. Anger, for instance, can provide an appraisal of the fairness of events and motivate children to remedy the unfairness [12]. Others' *displays* of emotions help children identify those others' emotions, beliefs, and intentions, and thus help coordinate social interactions. A sadness display, for example, informs children of another's suffering and motivates them to ease that

^a Note that a single emotion might serve both kinds of functions; for example, disgust keeps us from consuming toxic foods but also ensures adherence to social-cultural norms surrounding sex, death, and so forth [11].

suffering [13]. Moreover, since emotion displays are involuntary and hard to fake, they provide reliable clues to others' commitments and inform us about whom we should (not) cooperate with.

Equipped with this approach to emotions, we can ask: which social emotion motivates relationship repair and thus helps uphold cooperation? I argue that from early in development, this function is served by the experience and display of guilt.

The prosocial function of experiencing guilt

Guilt is the aversive emotion that follows the realization that one has harmed someone [14].^b It focuses a transgressor's attention on the harm, inflicts subjective discomfort, and critically, motivates the transgressor to make amends [16]. This in turn restores equity and repairs damage to the relationship [17]. Work with adults supports these ideas [18,19]. For instance, college students who believed they had caused someone great harm (and presumably felt guilty) were subsequently more likely to help that individual than students who believed they had caused only minor harm [18]. Experiencing guilt thus helps adults identify and reverse the damage done to a relationship.

Does the experience of guilt also serve these functions in early development? Some research indicates that following minor transgressions (e.g. accidentally breaking someone's favorite doll), children as young as 2 years show signs of guilt such as accepting responsibility and attempting to repair the damage [20–22]. Though suggestive, these studies are inconclusive because it is unclear whether they tapped into guilt specifically or into related but distinct processes. In particular, guilt is composed of two critical components: sympathy (feelings of concern) for a victim of harm and the awareness that one has caused that harm [16]. Neither component is by itself sufficient for guilt, yet each component separately can motivate repair. For instance, when children harm someone, their concern and reparative behavior could either arise from sympathy alone — without any recognition that they caused the harm, or from the recognition that they caused the outcome and the desire to fix it — without any sympathy. Thus, to study the prosocial effects of guilt specifically, we must use controlled experiments that can tease these processes apart.

^b Guilt is often confused with the related social emotions of shame and embarrassment. However, though all three emotions are elicited by transgressions, they are distinct in critical ways. Specifically, guilt pertains to one's *harmful actions* and motivates reparative behavior, which benefits one's relationships. On the other hand, shame involves feelings that the *whole self* is a failure and thus leads one to withdraw from social contact rather than to repair, and embarrassment generally follows transgressions of social conventions rather than moral transgressions [15]. Guilt is thus considered the quintessential moral emotion — one that plays a critical role in restoring and maintaining cooperation.

Toward this end, we recently compared 2-year-old and 3-year-old children's reparative behavior after they caused a harmful outcome (guilt condition), someone else caused the harmful outcome (sympathy condition), or children or someone else caused the same outcome but in a non-harmful context [23**]. Three-year-olds (but not 2-year-olds) showed greater verbal and physical reparative behavior in the guilt condition than in the other conditions. This design enabled us to isolate the effects of guilt from its component processes and to show that the reparative motivation created by guilt is greater than that created only by sympathy or only by the desire to undo an unwanted but non-harmful outcome. We thus demonstrated that early in development, guilt distinctly serves to motivate children's reparative behavior.

In a different approach to this question, we examined whether after harming someone, children are especially motivated to repair the harm themselves — because they recognize that *they* need to fix the relationship that they damaged. Using pupil dilation to measure internal arousal, we found that 3-year-olds' (and more weakly, 2-year-olds') arousal decreased when they were able to repair damage that they had caused, but remained high if someone else repaired damage that the children had caused [24**]. However, if children had not caused the damage, then their arousal was similarly reduced when they or someone else repaired it. Thus, as bystanders, children are primarily motivated to see a person in need be helped regardless of who provides the help (see also [25]). Guilt alters this motivation such that children not only want the other to be helped but also want to be the helpers — as a way of repairing and showing commitment to the disrupted relationship.

All in all, by 3 (perhaps even 2) years of age, children recognize when they have caused harm and are motivated to repair that harm and restore their ruptured relationships. The experience of guilt thus helps maintain cooperation from early in development.

The prosocial function of transgressors' guilt displays

Why do transgressors display their feelings of guilt? What social functions do such displays serve? A prevailing view is that guilt displays serve appeasement functions by communicating vital information to victims and bystanders. They communicate that the transgressor is also suffering [26,27], the transgressor did not mean harm and is not generally the kind of person that means harm [28], and the transgressor intends to make amends and behave more appropriately in the future [29]. A remorseful transgressor is thus seen as self-policing, dependable, and cooperative, and elicits forgiveness, affiliation, and cooperation from victims and bystanders [30,31]. Among adults, guilt displays do serve these functions. For instance, victims positively evaluate and show reduced

aggression toward an apologetic transgressor [32], and bystanders state that remorseful transgressors need not make as many restitutions as unremorseful ones [33].

A sizable body of work shows that guilt displays also serve these functions in childhood. Some work has explored children's responses to apologies, which are admissions of blameworthiness and regret and thus a stand-in for guilt. When 4-year-olds to 8-year-olds hear stories about transgressions, they blame and punish the transgressor less, and forgive and like her more, if she apologized than did not apologize (e.g. [30,34,35]). They also judge situations in which a transgressor apologized as more just, and attribute improved feelings to a victim who received an apology [35–37]. A similar pattern emerges when children are themselves the victims. For instance, 4-year-olds to 7-year-olds who suffered minor transgressions reported feeling better, rated the transgressor as being nicer, and were more prosocial toward the transgressor if she apologized [38,39]. Apologies are thus effective elicitors of preschool-aged children's forgiveness and prosociality.

Note, however, that from an early age, children are heavily prompted to apologize, even when they might not *feel* sorry [40]. Children's positive evaluations of apologetic transgressors may thus be based on hearing key words they expect to hear ('sorry') rather than on the remorse as such. One recent study thus examined children's responses to transgressors' remorse in the absence of explicit apologies. Four-year-olds and 5-year-olds watched two videos of third-party transgressions. One transgressor was remorseful without explicitly apologizing ('I did not mean to do that. It's my fault.'), whereas the other was unremorseful [41]. Five-year-olds preferred and distributed more resources to the remorseful than the unremorseful transgressor, whereas 4-year-olds showed no systematic preference or distribution pattern. In a follow-up study, when the transgressor apologized explicitly ('sorry'), 4-year-olds did prefer and distribute more resources to her. A similar pattern of results was found in a new study in which children were themselves the victims (Oostenbroek & Vaish, unpublished). Thus, by age 5, children respond positively and with greater cooperation toward remorseful transgressors; a year earlier, children show a similar appreciation when transgressors provide conventional cues of remorse such as explicit apologies.

In sum, transgressors' displays of guilt serve appeasement and cooperation-enhancing functions by the late preschool years. Interestingly, as described in 'The prosocial function of experiencing guilt,' children begin to display their own guilt by 2–3 years of age. It is likely that these displays appease others and lessen the negative consequences that children might otherwise receive (e.g. time-outs). Thus, children might benefit from displaying their own guilt substantially earlier than they respond positively to such displays in others.

Conclusions

Guilt serves vital prosocial functions from early in ontogeny. By 2–3 years, children *experience* guilt about causing harm: they show non-verbal and verbal signs of guilt and are motivated to repair the damage. By 4–5 years, children respond favorably to transgressors' *displays* of guilt: they positively evaluate and are more prosocial toward remorseful transgressors. At age 4, these responses hinge on the transgressor using conventional phrases such as 'sorry,' but by age 5, even remorse without such phrases elicits these responses.

Why might the experience of guilt motivate prosociality earlier than guilt displays? In part, this discrepancy might be a methodological byproduct. Since studies on children's responses to guilt displays involve asking children interview questions (which very young children find challenging), these studies have not generally assessed children younger than age 4. However, one study that included 3-year-olds found that they did not evaluate apologetic transgressors more positively than non-apologetic ones [36]. Thus, perhaps children's appreciation of guilt displays does only emerge around 4 years. If so, it is important to consider why. One proposal is that as guilt has no single facial expression and is instead expressed through actions such as confessions, apologies, and repair [15,21], young children might have a hard time identifying it in others. By age 4, they have the capacity and sufficient experience to identify and respond to the most common sign of remorse (apologies), and by age 5, to other, less common signs of remorse as well.

Future directions

I end with three thoughts about future directions. First, work with adults suggests that the experience of guilt motivates prosocial behavior even toward non-victims [42]. But if guilt serves to repair one's breached relationships, why should it promote prosociality toward non-victims? I propose that the experience of guilt not only informs transgressors about the threat to the ruptured relationship but also their relationship with and standing in the group in general. It thus motivates transgressors to reaffirm their commitments to other potential cooperation partners as well. Whether guilt serves this 'upstream repair' function among children is a question ripe for research.

Second, though my focus has been on experiencing guilt about one's own transgressions, adults also experience guilt about the transgressions of close others such as in-group members [43]. This *collective* guilt motivates individuals to accept responsibility and compensate for the negative actions of in-group members, thereby reducing intergroup conflict and regulating group life [44,45]. Yet the developmental foundations of collective guilt are largely unexplored. In one recent study, 5-year-olds reported greater willingness to accept responsibility for

harm caused by an in-group than an out-group member [46*]. However, children did not attempt to repair the damage caused by the in-group more than the out-group member, leaving open whether children's acceptance of collective responsibility translates into reparative behavior. Moreover, no research has examined collective guilt in children younger than 5. This is a fascinating direction for future work.

Finally, guilt is certainly not the only social emotion that enables cooperation [4,47]. As just one example, consider gratitude. The experience of gratitude signals that a benefactor has contributed to one's well-being and motivates one to respond prosocially, thus turning selfish receivers into givers and upholding the cycle of reciprocity [48,49]. Displays of gratitude indicate that one appreciates the kindness and is likely to reciprocate, thus communicating one's commitment to the norms of reciprocity and to one's relationships [48,50]. Gratitude displays should thus elicit affiliation and cooperation from benefactors and bystanders. These fascinating prosocial functions of gratitude (and other social emotions) remain largely untested in early ontogeny. We still have a long way to go before we fully understand the role of social emotions in early prosociality.

Conflicts of interest

Nothing declared.

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