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The effects of social comparison on social emotions and behavior during childhood: The ontogeny of envy and Schadenfreude predicts developmental changes in equity-related decisions



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ABSTRACT

Social comparison can elicit emotions such as envy, which can affect social interactions. The emergence and development of such social emotions through ontogeny, and their influence on social interaction, are unknown. We tested 182 children from 7 to 13 years of age with a novel monetary reward-and-punishment task measuring envy and Schadenfreude (i.e., gloating or taking delight in someone else's misfortune). Children were either rewarded or punished in a trial-by-trial evaluation of their performance on a speeded reaction time task. In a social condition, feedback of their own and a competitor's performance was given for each trial. Afterward, children rated how they felt about the outcome. The ratings suggest that when children won, they felt better if the competitor lost instead of winning (i.e., Schadenfreude). Conversely, when children lost, they felt worse if the competitor won instead of losing (i.e., envy). Crucially, levels of envy and Schadenfreude decreased with age. We also studied how these emotions relate to social decisions made separately during three resource allocation paradigms. In each, children chose between two options that differed in the distribution of valuable tokens between themselves and an anonymous other. The combination of choices allowed the measurement of inequity aversion (i.e., equality for all) and spite (i.e., self-profit to maximal disadvantage of the other). We found an age-related increase in inequity aversion and

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decrease in spite. Crucially, age-related changes in both envy and Schadenfreude predicted the developmental change in equity-related decisions. These findings shed light on the development of social emotions and demonstrate their importance in the development of prosocial behavior in children.

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Introduction

Comparing oneself with others happens universally across human cultures (Gibbons & Buunk, 1999; White & Lehman, 2005). From personal attributes such as beauty and intelligence to possessions such as cars and homes, social comparison processes can significantly influence how good one feels about oneself (Festinger, 1954). Think about how men compare the size of their vehicles; to improve their sense of self-worth, they compare themselves with those with smaller or cheaper cars or perhaps perform actions that sabotage those with larger or more expensive ones (see Taylor & Lobel, 1989, and Zizzo, 2003, for similar behavior in other domains). Particularly in competitive environments, it has been shown that social comparison leads to envy as well as Schadenfreude (i.e., gloating or taking delight in someone else's misfortune) (Smith & Kim, 2007). It has been argued that envy and Schadenfreude are strongly linked emotional states (Smith & Kim, 2007; Smith et al., 1996), as indicated by an alleviation of envy when misfortune befalls the envied other, resulting in Schadenfreude (Smith et al., 1996; Takahashi et al., 2009). Furthermore, both envy and Schadenfreude have been linked to grossly antisocial behavior (Hein, Silani, Preuschoff, Batson, & Singer, 2010; Zizzo, 2003). Given these potentially detrimental effects of emotions resulting from social comparison, understanding their emergence and development during childhood is of particular interest. However, to date, little is known about the ontogeny of envy and Schadenfreude and how they relate to the development of prosocial behavior.

The literature on the development of social comparisons has focused predominantly on the age at which children begin to compare themselves with their peers and how these comparisons affect subsequent self-appraisal, motivation, and performance judgments during competitive tasks (Butler, 1989; Pomerantz, Ruble, Frey, & Greulich, 1995; Rhodes & Brickman, 2008; Ruble, Eisenberg, & Higgins, 1994). Between 5 and 10 years of age, relative failures typically lead to negative self-appraisals and decreased motivation (Boggiano & Ruble, 1979; Butler, 1989; Pomerantz et al., 1995; Ruble, Boggiano, Feldman, & Loebel, 1980; Ruble et al., 1994; Ruble, Feldman, & Boggiano, 1976; Ruble, Parsons, & Ross, 1976). Given that the effect of social comparison on emotional states in adults is considerable (Smith & Kim, 2007), it is all the more surprising that only a few studies have investigated a direct link between social comparison and affective states in children (Carlson & Masters, 1986; Masters, Carlson, & Rahe, 1985). Importantly, to our knowledge, only one study has addressed the direct effects of both upward and downward social comparison (i.e., comparison with someone currently better and worse off, respectively) on affective states in children (LoBue, Nishida, Chiong, DeLoache, & Haidt, 2011), and none has studied how these effects change with age.

Previous research has reported an increase in the extent to which social comparison occurs during middle childhood (Butler, 1989; Pomerantz et al., 1995; Ruble et al., 1994). Therefore, one hypothesis is that these increases should be accompanied by a rise in the associated emotions such as envy and Schadenfreude. At the same time, however, it has been shown that with age, children become increasingly aware of the negative aspects of social comparison (Pomerantz et al., 1995). Thus, an alternative hypothesis is that increases in social comparison lead to greater regulation of negative emotions, resulting in less envy and Schadenfreude during childhood. To directly address these hypotheses, we devised a novel experimental paradigm and studied whether and how emotions that arise out of social comparison change through development in children from 7 to 13 years of age. Even though previous studies have focused predominantly on younger ages, we were interested in further developmental changes right throughout middle and late childhood. In addition, piloting suggested that the paradigm was easily followed by 7-year-olds but less so by younger children. Pragmatically, this represented the lower bound of our age range. Because our focus was on the development of social

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