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EMPIRICAL REPORTS

CHILD DEVELOPMENT

What do I want to feel? Emotion goals in childhood, adolescence, and adulthood

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Abstract

Beliefs about emotion utility can influence context-sensitive emotion goals (i.e., desired emotional responses). Although key for emotion regulation, emotion goals have been overlooked in children and adolescents. In 2018–2019 results of Studies 1 and 2 showed that children (N = 192, M_{age} = 8.65, 47% girls, 96% White) were less motivated by and found anger less useful in confrontation than adolescents (N = 192, M_{age} = 12.96, 50% girls, 93% White) and adults (N = 195, M_{age} = 29.82, 51% women, 96% White). The link between emotion goals and beliefs about emotion utility was weaker in children. In 2021, Study 3 (N = 60, 8-year-olds, 47% girls, 90% White) ruled out expectations as a possible explanation for the previous findings. Context-sensitive utility of emotions may be acquired during development.

Emotion regulation involves implementing strategies to attain *emotion goals*, that is, desired emotional responses (Mauss & Tamir, 2014). Emotion goals can be driven by hedonic or instrumental motives (Tamir, 2016). Hedonically motivated emotion goals focus on increasing pleasant (e.g., happiness) and decreasing unpleasant (e.g., sadness) emotions (Tamir et al., 2007). On the other hand, instrumentally motivated emotion goals focus on increasing useful emotions and minimizing harmful emotions in specific contexts, independent of their valence. Instrumental emotion goals depend, partially, on *beliefs about emotion utility*, that is, the extent to which people believe an emotion is useful (Tamir et al., 2015). For instance, in confrontational contexts, adults are more motivated to experience anger, but only if they believe anger is useful in that context (Tamir & Ford, 2012). Conversely, in collaborative contexts, adults are more motivated to experience happiness and believe it to be more useful (Ford & Tamir, 2012; Netzer et al., 2015).

Given that emotion goals determine whether and in which direction people regulate their emotions (Tamir, 2021), investigating context-sensitive emotion goals can offer insights as to whether people understand how the utility of emotional responses depends on the context. In adults, greater context-sensitivity of emotion goals has been linked to higher emotional intelligence (Ford & Tamir, 2012) and well-being (Kim et al., 2015). In fact, lower context-sensitivity of emotion goals has been observed in clinical groups, which are characterized by difficulties in emotion regulation (for a review, see Millgram et al., 2020).

From a developmental perspective, the study of context-sensitive emotion goals is important for additional reasons. First, previous research has documented major changes in emotion regulation across development (e.g., Zimmermann & Iwanski, 2014). However, the study of those changes has been focused on the repertoire of emotion regulation strategies (e.g., De France & Hollenstein, 2019). Since emotion goals shape the direction of emotion regulation (Tamir, 2021) and influence the selection of emotion regulation strategies (Millgram et al., 2019), investigating them may offer a more nuanced

Abbreviation: LMM, linear mixed-effects model

understanding of developmental changes in emotion regulation.

Second, examining emotion goals can provide information as to whether children and adolescents are hedonically or instrumentally motivated in their emotional choices. Such information is especially relevant as it can inform predictions regarding what children and adolescents want to feel and why. In particular, are children and adolescents more likely than adults to prefer to experience emotions based on their valence, or are they equally likely to consider the emotions' utility in a given context? For instance, if children endorse more hedonically motivated emotion goals compared to adults, they may be less likely to want to decrease happiness after beating a good friend in a competition, or less likely to try to maintain anger in response to social injustice. Hence, studying the context sensitivity of emotion goals and beliefs about the utility of emotions in children might shed light on which emotion goals might be considered more desirable in specific contexts in members of different age groups and why. Furthermore, expanding our knowledge on beliefs about emotions and emotion goals can inform interventions that support healthy socioemotional development, considering new elements in emotion regulation (e.g., Zeman et al., 2006; Zimmermann & Iwanski, 2014).

Emotion goals and beliefs of emotion utility across the lifespan

Despite the importance of emotion goals in emotion regulation, existing developmental evidence is sparse. Available studies have focused exclusively on young adults (e.g., Netzer et al., 2015), the elderly (Charles & Carstensen, 2014), and adolescents (Riediger & Luong, 2016), overlooking children. Moreover, these studies have not compared different age groups. In addition, some studies have only considered hedonic motivation, overlooking the study of instrumental emotion goals across age groups. We argue that emotion goals might differ across age groups since emotion goals require an advanced understanding of emotions and their consequences, which is likely to become more nuanced and complex with age (e.g., Lagattuta & Kramer, 2021). Specifically, instrumentally driven emotion goals require insight into the potential consequences of specific emotions in specific contexts. Such insight requires exposure to the context, experience of the target emotion (and potentially alternative emotions) in that context, experiencing beneficial consequences of the emotion, and associating the emotion with these consequences. Therefore, developing instrumentally driven emotion goals may require more learning than hedonically driven emotion goals, which can be inferred directly from the hedonic phenomenology (pleasant vs. unpleasant) of emotions.

Studies on beliefs about emotion utility suggest that children employ a valence-matching-heuristic, attributing positive outcomes to positively valenced emotions (e.g., happiness) and negative outcomes to negatively valenced emotions (e.g., anger, fear). For example, 5 to 8-year-olds associate sadness and anger with negative characteristics and impaired cognitive performance (Amsterlaw et al., 2009; Bennett & Galpert, 1992). From middle childhood onwards, participants attributed positive features to happiness (Amsterlaw et al., 2009; Harris et al., 1981). This earlier elaboration of negative compared to positive emotions (Lagattuta, 2007) might be due to parents' emotion socialization practices (i.e., more explanations about negative emotions in conversations; Lagattuta & Wellman, 2002). Relatedly, children find it difficult to understand inverse connections between emotions and outcomes (e.g., Asaba et al., 2019), compared to direct connections (Lagattuta, 2005). Consequently, unlike adults, children's beliefs about emotion utility might be more hedonically driven and therefore less context sensitive. Adolescents, however, are better able to consider the potential utility of negative emotions (Loades et al., 2019). Accordingly, their emotion goals may not be driven solely by hedonic considerations.

It is not clear whether the pattern of valence-matching apparent in children's beliefs about emotion utility (Amsterlaw et al., 2009) extends to their emotion goals. Also, it is unknown whether beliefs about emotion utility and emotion goals in children are consistent across contexts or context-dependent. Finally, it remains unclear whether beliefs about emotion utility and emotion goals in adolescents are sensitive to context. This investigation addresses these questions.

The present research

We focused on emotion goals and beliefs in middle childhood (8–10 years). During this period, children start using more regulation strategies (Thompson & Goodman, 2010) and have cultivated beliefs about positive and negative emotions (Halberstadt et al., 2013). Emotion goals imply thinking about what one *wants (would like) to* feel. Therefore, we set the minimum age to 8 years, since younger children cannot reliably report on future hypotheticals (e.g., Beck et al., 2006; Kominsky et al., 2021). Additionally, starting at the age of 8 years children start developing more emotion granularity, which was necessary to understand the different emotion terms used in the study (Nook et al., 2018). We also targeted adolescents, who generally show more efficient use of regulation strategies (e.g., Gullone et al., 2010), due to the development of executive function skills which allows further use of cognitive strategies and more controlled emotion expressivity (Thompson & Goodman, 2010). Moreover, adolescents can be hedonically motivated (Riediger & Luong, 2016), but they also understand the potential utility of negative emotions (Loades et al., 2019).

We focused on goals and beliefs pertaining to happiness and anger in the contexts of collaboration and confrontation, as those have been extensively studied in adults. Focusing on these emotions and these contexts allowed us to compare and connect our findings with previously established findings. Specifically, adults were more motivated and found it more useful to feel happiness in collaboration and anger in confrontation (Ford & Tamir, 2012; Tamir & Ford, 2012). Examining both a positively valenced (happiness) and a negatively valenced (anger) emotion in contexts where they may be more or less useful (collaboration and confrontation, respectively) allowed us to test whether emotion goals are guided by hedonic considerations (i.e., whether participants primarily want to feel pleasure, irrespective of context) or by instrumental considerations (i.e., whether participants adjust their emotion goals to optimize contextual utility).

We expected adults to exhibit context-specific instrumental emotion goals and beliefs about utility. Adults should be more motivated and believe it to be more useful to feel happiness in collaboration and anger in confrontation (Ford & Tamir, 2012; Tamir & Ford, 2012). Given that previous research found that adolescents understand the instrumentality of negative emotions (Loades et al., 2019), we expected them to exhibit a pattern of emotion goals and beliefs similar to that of adults. Finally, we expected children to endorse less context-specific emotion goals and beliefs. In this sense, we expected children to be guided primarily by valence—namely, be more motivated to feel happiness and consider it to be more useful in both collaboration and confrontation. This is in comparison to adolescents and adults, who have comparatively more opportunities for learning about the potential utility of emotions in different situations.

STUDY 1

We assessed emotion goals and beliefs about utility in children, adolescents, and adults, targeting the contexts of collaboration and confrontation.

Method

Participants

Demographic characteristics of the samples in both studies can be found in Supporting Information (p. 1). An a-priori power analysis in G*Power (Faul et al., 2007) indicated a minimum of 68 participants for each age group (f^2 = .10, power of .80, α = .05; effect sizes based on Tamir et al., 2015, considering within-between interactions in ANCOVA). We recruited 72 children (8–10 year-olds; M_{age} = 8.76, SD = 0.55; 32 girls) and 71 adolescents (12–15 year-olds; M_{age} = 12.98, SD = 0.63; 36 girls) from three primary schools and two secondary schools placed in middle-class socioeconomic areas in a major city in the United Kingdom. Seventy-five adults (19–72 year-olds; M_{age} = 29.79, SD = 13.45; 39 women) were recruited in the same city through the university participation pool and local advertisements. Participants took part in the study voluntarily and did not receive compensation.

Measures

Reliability coefficients for the measures appear in Supporting Information (Table S1, p. 7).

Current Emotions (Differential Emotion Scale; Izard et al., 1974)

Participants indicated whether they were experiencing happiness (average of delighted, happy, joyful), anger (average of enraged, angry, mad), and sadness (average of sad, discouraged, downhearted) at that moment (0 = not at all; 4 = very strongly).

Contextualized emotion goals

Following Tamir and Ford (2012), participants were presented with two scenarios in counterbalanced order. The scenarios and illustrations (see Supporting Information, pp. 1–6) were piloted for age-appropriateness and ease of understanding. For each scenario, participants were asked to imagine they were the main character (matched to the gender of the participant). In the collaboration scenario, the character had to collaborate with a classmate to complete a task. In the confrontation scenario, the character decided to confront people who laughed at her/him for slipping and falling while playing. Participants rated how much they wanted to feel happiness (i.e., happy, joyful), anger (angry, mad), and sadness (sad, downhearted; 1 = not at all, 5 = extremely). We included sadness as a comparison for anger, to establish specificity beyond valence.

Contextualized beliefs about emotion utility

After each scenario, participants rated the extent to which feeling happiness (happy, cheerful), anger (angry, mad), or sadness (sad, downhearted) would help them achieve their goal (collaborate or confront; 1 = not at all to 5 = extremely).

Procedure

The study received ethical clearance from the Ethics Committee at Liverpool Hope University. All participants were native English speakers. Data were collected between October 2018 and January 2019. Only children and adolescents who received parental/guardian consent and provided verbal assent participated in

the study at their schools. Adults were tested individually and were briefed and signed a consent form before participating. Participants first rated their current emotions. Next, participants were presented with collaboration and confrontation scenarios and rated their emotion goals and beliefs about emotion utility regarding each scenario (in counterbalanced order). After reading the scenarios, participants were asked to explain what happened in the story to ensure understanding. If explanations were incomplete, they were asked to re-read the story (n = 3, 8-year-olds). Children were also asked to define collaboration and confrontation to ensure understanding. Only three children with autism and two with Attention Deficit and Hyperactivity Disorders were excluded.

Results and discussion

Below, we report the key analyses which are confirmatory in nature as they serve to address the specific hypotheses previously outlined. Additional analyses, including tests of gender effects (which were not significant), appear in Supporting Information (p. 8). As people often match their emotion goals to their current emotions, we controlled for current emotions. To test for age and context differences, we ran ANCOVAs with emotion (anger, happiness, sadness) and context (collaboration, confrontation) as within-subject factors, age group (children, adolescents, adults) as a between-subjects factor and current emotions as covariates. To assess links between emotion goals and beliefs about emotion utility, we ran correlation analyses.

Age differences in contextualized emotion goals

We found a significant emotion × context × age group interaction, $F(4, 213) = 3.75$, $p = .006$, $\eta_p^2 = .03$. To evaluate whether children and adolescents might be less context-sensitive than adults in their emotion goals, we assessed the interaction of age group × emotion in each context. In confrontation, there was a significant age group × emotion interaction ($F(2, 215) = 4.044$, $p = .02$, $\eta_p^2 = .04$). Pairwise comparisons showed that children wanted to feel less anger compared to adolescents ($d = -0.71$, $SE = .19$, $p = .001$) and adults ($d = -0.49$, $SE = .20$, $p = .04$), whereas adolescents did not differ from adults ($d = 0.22$, $SE = .19$, $p = .72$; Figure 1a). There were no differences between the age groups in how much happiness ($ds > -.13$, $SE > .14$, $ps > .99$) and sadness ($ds > -.04$, $SE > .17$, $ps > .99$) participants wanted to feel. In collaboration, there was no significant age group × emotion interaction ($F(4, 213) = .99$, $p = .42$, $\eta_p^2 = .009$; Figure 1b). Participants across age groups wanted to feel more happiness than anger ($d = 2.76$, $SE = .07$, $p = .001$) and sadness ($d = 2.77$, $SE = .07$, $p = .001$), reporting medium-high values for happiness (Figure 1b), consistent with prior research with adults (Ford & Tamir, 2012; Tamir & Ford, 2012).

As shown in Supporting Information (p. 9), children had stronger preferences for anger in confrontation than in collaboration, which indicates their emotion goals were not completely insensitive to context. Regardless, children were relatively less motivated than adolescents and adults to experience anger in confrontation. These findings provide support for our hypothesis that children's emotion goals are less context-sensitive compared to those of adolescents and adults.

Age differences in contextualized beliefs about emotion utility

The beliefs × context × age group interaction was not significant, $F(4, 213) = 2.29$, $p = .06$, $\eta_p^2 = .02$, but means were in the expected direction. All participants perceived happiness as more useful in collaboration, and adults and adolescents perceived anger as more useful in confrontation than children (Figure 1). Further analyses of the triple interaction can be found in Supporting Information (pp. 10–11). There was a significant interaction between beliefs about emotion utility and age group, $F(4, 213) = 3.67$, $p = .006$, $\eta_p^2 = .03$, with children perceiving sadness on average as less useful than adults ($d = -0.37$, $SE = .11$, $p = .002$) and adolescents ($d = -0.38$, $SE = .11$, $p = .002$), and anger less useful than adolescents ($d = -0.38$, $SE = .11$, $p = .004$). Other comparisons were not significant ($ds < .23$, $SE = 11$, $ps > .14$). The context × age group interaction, $F(4, 213) = 11.76$, $p < .001$, $\eta_p^2 = .10$, was significant, with children finding emotions on average less useful than adults in collaboration ($d = -0.22$, $SE = .08$, $p = .02$) and confrontation ($d = -0.27$, $SE = .09$, $p = .006$) and less useful than adolescents in confrontation ($d = -0.31$, $SE = .09$, $p = .002$). Across age groups, the more participants thought an emotion was useful the more motivated they were to experience that emotion. Details of this correlational analysis can be found in Supporting Information (pp. 11–12).

On average, children found emotions less useful across contexts compared to adolescents and adults, which might signal that children find it more difficult to perceive utility in emotions, consistent with prior research linking emotions with performance (e.g., Amsterlaw et al., 2009). Although the three-way interaction did not reach statistical significance, exploratory analyses suggest that consistent with their emotion goals, children perceived anger in confrontation as less useful than adolescents and adults (see Supporting Information, pp. 10–11). Importantly, the results showed that the obtained findings are specific to anger as there were no differences for sadness.

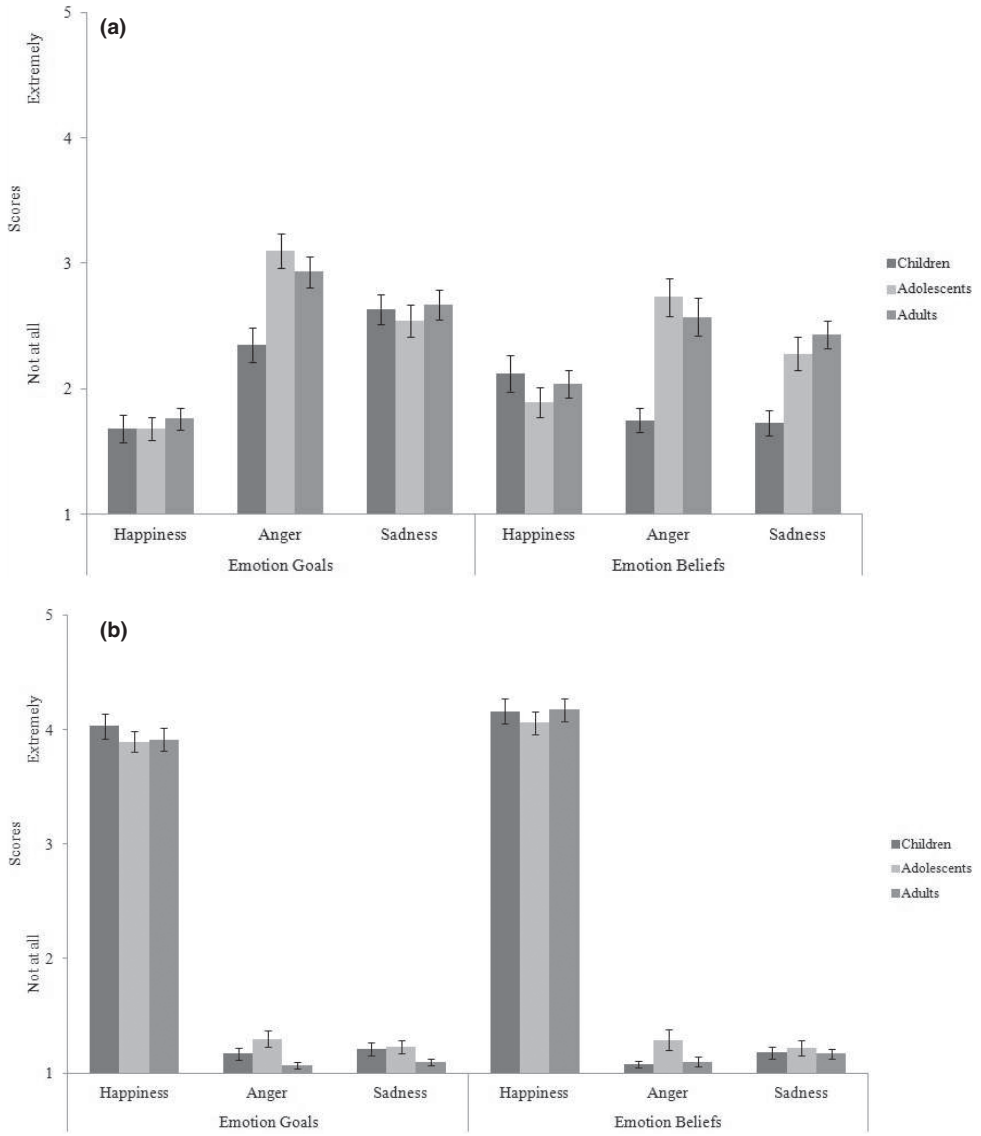

FIGURE 1 Mean and standard errors of emotion goals and beliefs of utility in (a) confrontation and (b) collaboration across age groups in Study 1

STUDY 2

Study 2 sought to replicate findings from Study 1 and further establish their validity by using items instead of scenarios. The use of items was designed to test the generalizability of the previous findings and rule out the possibility that such findings were due to the specific scenarios used in Study 1. To prevent fatigue among children, we excluded sadness from this study.

Method

Participants

An a-priori power analysis in G*Power suggested a minimum of 110 participants for each age group ($f^2 = .05$, power of .80 and $\alpha = .05$). The effect size was lower because we included additional measures (which were not part of the current research), and we wanted to test potential interaction effects in regression analyses. Hence, we recruited 120 children (8- to 10-year-olds; $M_{age} = 8.75$, $SD = 0.60$; 60 girls), 121 adolescents (11- to 15-year-olds; $M_{age} = 12.94$, $SD = 0.74$; 60 girls), and 120 adults (19- to 72-year-olds; $M_{age} = 29.84$, $SD = 13.48$; 60 women). Data from children and adolescents were collected from three primary schools and three secondary schools from middle socioeconomic areas in a large city in the United Kingdom. Adult participants were recruited in the same city, tested at the first author's research laboratory, and received £5 for participating.

Materials

Reliability indices and descriptive statistics appear in Supporting Information (p. 18).

Current emotions were assessed using the same measures as in Study 1.

Contextualized emotion goals (Tamir & Ford, 2012)
Participants rated how much they wanted to feel happiness or anger in collaboration or confrontation (1 = not at all; 5 = extremely) by responding to two items for each emotion-context pair: happiness-collaboration, anger-confrontation, anger-collaboration, and happiness-confrontation. Items were presented with appropriate pilot-tested emoticons signaling intensity (see Supporting Information, pp. 13–18). We averaged across participants' responses to each emotion-context pair.

Contextualized beliefs about emotion utility
Participants indicated how much they found happiness or anger useful in collaboration or confrontation (1 = not at all; 5 = extremely) by responding to two emotion-context items (see Supporting Information, p. 16 and 17). We averaged responses to each emotion-context pair.

Procedure

The procedure was identical to that used in Study 1. Data were collected from March to June 2019.

Results and discussion

As in Study 1, to test for age and context differences, we ran ANCOVAs. These analyses are confirmatory in nature as they serve to address the specific hypotheses previously outlined. To assess links between emotion goals and beliefs about emotion utility, we ran correlation analyses and fitted linear mixed-effects models (LMM). The use of LMM allowed us to test whether the link between emotion goals and beliefs of emotion utility differed across different age groups in different contexts. These analyses were exploratory in nature.

Age differences in contextualized emotion goals

We found a significant emotion × context × age group interaction, $F(2, 355) = 6.42$, $p = .002$, $\eta_p^2 = .04$. As in Study 1, we assessed the interaction of emotion × age group in each context and then conducted pairwise comparisons to evaluate whether children and adolescents endorsed less context-sensitive emotion goals. In confrontation, there was a significant emotion × age group interaction ($F(2, 355) = 3.26$, $p = .04$, $\eta_p^2 = .02$). As in Study 1, children wanted to feel less anger than adults ($d = -0.54$, $SE = .15$, $p = .001$) and adolescents ($d = -0.56$, $SE = .15$, $p = .001$); adolescents and adults did not differ ($d = -0.02$, $SE = .15$, $p = .99$). There were no differences between age groups in how much happiness participants wanted to feel in confrontation ($ds > -.13$, $SE > .14$, $ps = .99$; Figure 2). In collaboration, there was a significant emotion × age group interaction ($F(2, 355) = 3.67$, $p = .03$, $\eta_p^2 = .02$). There were no differences between age groups in how much happiness participants wanted to feel ($ds > -.06$, $SE > .09$, $ps > .35$). However, adolescents wanted to feel more anger in collaboration than adults ($d = 0.28$, $SE = .09$, $p = .01$). There were no differences between adolescents and children ($d = 0.11$, $SE = .10$, $p = .82$) and children and adults ($d = 0.17$, $SE = .10$, $p = .24$) in how much anger they wanted to feel in collaboration (Figure 2). As in Study 1, children indicated they wanted to experience more anger in confrontation than in collaboration (see Supporting Information, pp. 19–20), like adolescents and adults. This again provides support for our hypothesis that children were not completely oblivious to context in their emotion goals, but they showed a weaker preference for anger in confrontation and believed it was less useful than adults and adolescents in that context.

Age differences in contextualized beliefs about emotion utility

There was a significant belief × context × age group interaction, $F(2, 355) = 5.74$, $p = .004$, $\eta_p^2 = .03$. As with emotion goals, we evaluated the interaction belief × age group interaction for each context to assess whether children hold different beliefs about emotion utility in collaboration and confrontation, compared to the other two age groups. In confrontation, there was a significant belief × age group interaction, $F(2, 355) = 40.02$, $p < .001$, $\eta_p^2 = .18$. As with emotion goals, children believed anger was less useful than adults ($d = -0.67$, $SE = .12$, $p = .001$) and adolescents ($d = -1.51$, $SE = .13$, $p = .001$). Adolescents believed anger was more useful than adults ($d = 0.83$, $SE = .12$, $p = .001$; Figure 2). This pattern is in line with the results of emotion goals, as children not only indicated wanting to experience less anger but also believed it was less useful. In addition, children believed happiness was more useful in confrontation than adults ($d = 0.43$, $SE = .14$, $p = .005$), but there were no differences between the other age groups (children and adolescents, $d = 0.21$, $SE = .14$, $p = .39$; adults and adolescents, $d = -0.21$, $SE = .13$, $p = .29$). This result is consistent with a potential valence-matching heuristic, with children attributing higher utility to positive and lower utility to negative emotions in confrontation.

In collaboration, there was a significant belief × age group interaction, $F(2, 355) = 23.18$, $p < .001$, $\eta_p^2 = .12$. Adolescents believed happiness was less useful than adults ($d = -0.68$, $SE = .12$, $p = .001$) and children ($d = -0.67$, $SE = .13$, $p = .001$), who did not differ ($d = 0.01$, $SE = .12$, $p = .99$). In addition, children believed anger was less useful than adults ($d = -0.38$, $SE = .12$, $p = .001$) and adolescents ($d = -0.56$, $SE = .12$, $p = .003$), whereas

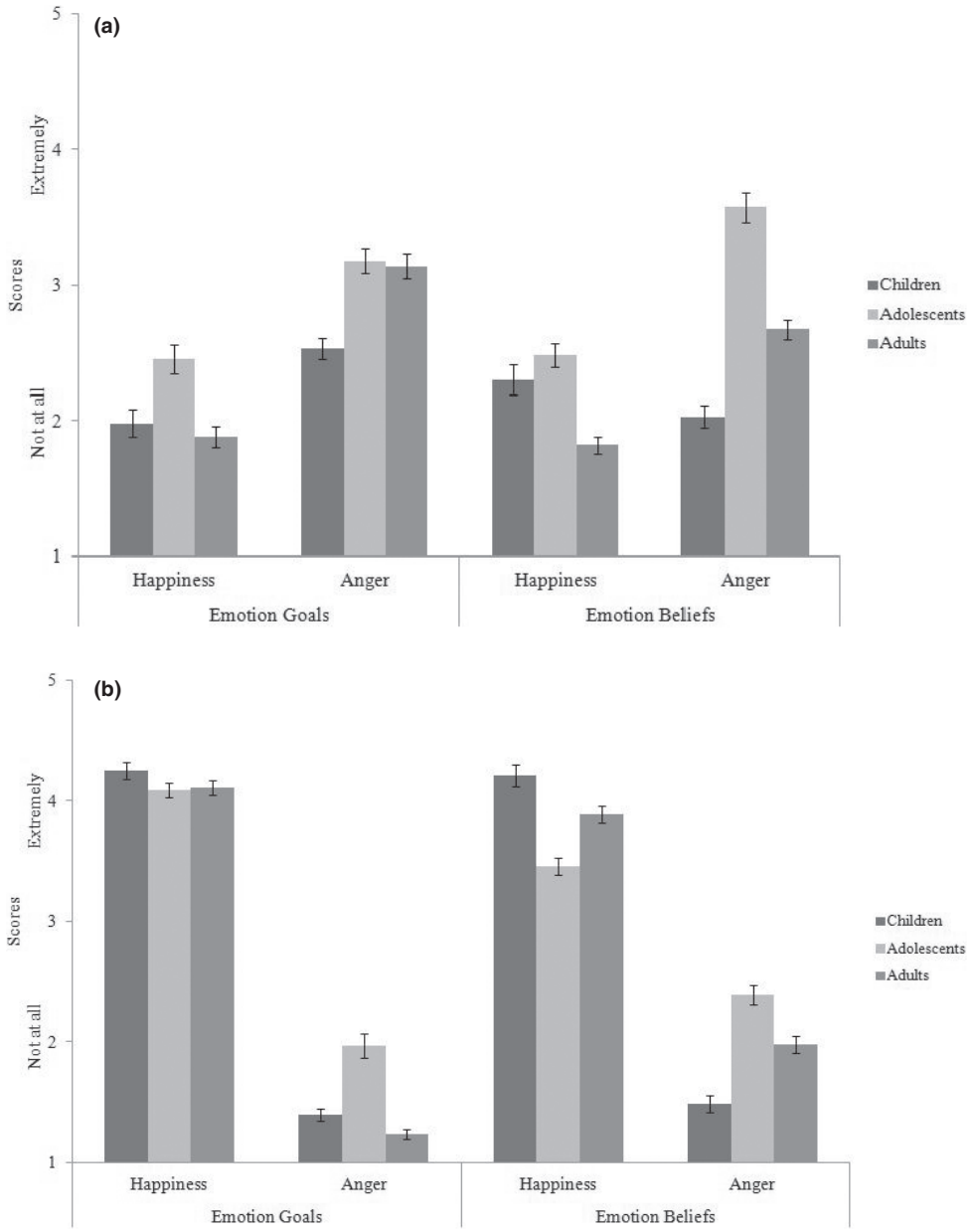

FIGURE 2 Mean and standard errors of emotion goals and beliefs of utility in (a) confrontation and (b) collaboration across age groups in Study 2

adults and adolescents did not differ (d = 0.18, SE = .11, p = .37; Figure 2). Again, children believed anger was less useful, suggesting a potential valence-matching heuristic attributing lower utility to anger across contexts compared to adolescents and adults.

Links between emotion goals and beliefs about emotion utility across age groups

We tested the links between contextualized emotion goals and contextualized beliefs about emotion utility (see Table S4). We fitted a LMM for each emotion goal (happiness, anger), with age group, context, emotion utility measures, and their interactions as fixed effects, and participants as random effects. The LMM analyses were carried out in R (R Core Team, 2021), version 4.2.0, using the package lme4 (Bates et al., 2015).

For happiness, believing that happiness was more useful was associated with a stronger preference for experiencing happiness. In the context of collaboration, this association was weaker in children than in adults ($t(710) = -2.02$, p = .043) but not statistically different between children and adolescents ($t(710)$ = 1.02, p = .307), and between adults and adolescents ($t(710)$ = 0.96, p = .340; Figure 3). On the other hand, in the context of confrontation, beliefs about the utility of happiness were less strongly related to preferences for experiencing

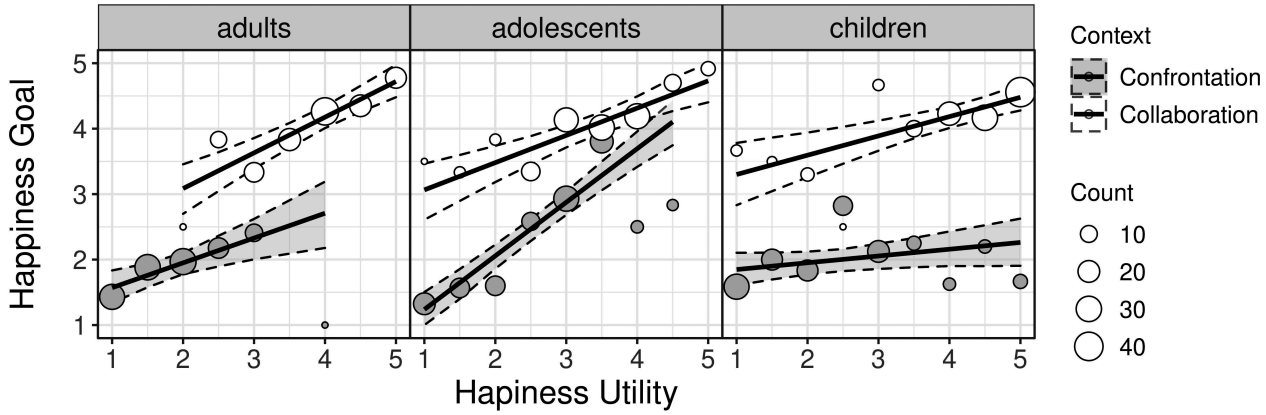

FIGURE 3 Relation between happiness goal and happiness utility belief for each context in Study 2

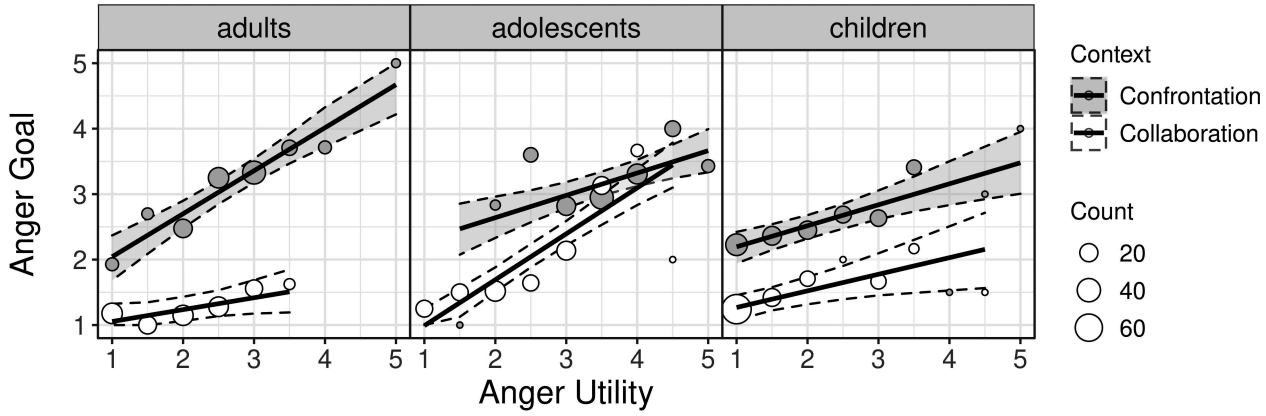

FIGURE 4 Relation between anger goal and anger utility belief for each context in Study 2

happiness in children than in adults ($t(710) = -2.16$, $p = .031$) and adolescents ($t(710) = -7.34$, $p < .001$; Figure 3). Details on other effects are reported in Supporting Information (p. 21 and Table S5).

For anger, we also found a positive link between preferences for experiencing anger and beliefs about the utility of anger. In the context of confrontation, the strength of this association was higher n adults than in children ($t(710) = 2.85$, $p = .005$) and adolescents ($t(710) = 2.36$, $p = .018$), but not statistically different between children and adolescents ($t(710) = 0.16$, $p = .870$; Figure 4). In the context of collaboration, this association was stronger in adolescents than in adults ($t(710) = 4.25$, $p < .001$) and children ($t(710) = 3.74$, $p < .001$; Figure 4). We also found an age group × context × anger utility belief interaction, $F(2, 636) = 10.71$, $p < .001$; $\eta_p^2 = .030$. The strength of the association between preferences for anger and beliefs about its utility did not differ between contexts for children, $t(656) = 0.563$, $p = .574$, but it did for adults ($t(619) = 3.63$; $p < .001$) and adolescents ($t(636) = 2.89$; $p = .004$). Details about other effects are reported in the Supporting Information (p. 22 and Table S6).

Study 2 replicates and extends Study 1, and shows that findings do not depend on specific scenarios/items. Children wanted to experience less anger in confrontation, and believed it was less useful in that context compared to adults and adolescents. The link between emotion goals and beliefs about emotion utility was weaker among children compared to adolescents and adults, further supporting the idea that children's emotion goals are less instrumentally driven.

STUDY 3

Studies 1 and 2 showed that children wanted to experience less anger than adolescents and adults and found anger less useful in confrontation. These findings are consistent with the possibility that children's emotion goals are less instrumentally driven than those of adolescents and adults. However, these patterns of findings might also arise if children are unable to differentiate between what they *want* to feel (i.e., their emotion goals) from what they *expect* to feel (i.e., their emotion expectations). In some instances, emotion goals and emotion expectations can overlap. For instance, a person may expect to feel happy when meeting a friend, and wants to feel happy when meeting a friend. However, what people want to feel and what they expect to feel

can often be in direct contradiction. For instance, a person may expect to feel nervous when speaking in public, yet wants to feel calm. Indeed, previous research with adults has demonstrated that beliefs about utility can shape emotion goals, even when they are inconsistent with expected emotional experiences (Tamir et al., 2015). Whether children can distinguish between desired and expected emotions, however, has not been tested directly. Therefore, in Study 3, we tested whether children's emotion goals are distinct from their emotion expectations. Evidence that children can distinguish between what they want to feel and what they expect to feel can further strengthen the interpretation of findings in Studies 1 and 2.

Method

Participants

An a-priori power analysis in G*Power suggested a minimum of 57 children (assuming $\eta_p^2 = .03$ from Study 1, power of .80 and $\alpha = .05$). We decided to recruit only 8-year-olds as these were the youngest participants in our previous studies. Sixty children took part in the study (53% boys and 47% girls, aged between 8 years and 1 month to 8 years and 11 months; M_{age} = 8 years and 6 months, SD = 3 months; 90% Caucasian, 5% Asian, 3% African, and 2% Mixed). In accordance with COVID-19 restrictions, data were collected between September and December 2021 remotely, thanks to the participation pool available at the first author's institution.

Materials

Reliability indices and descriptive statistics appear in the Supporting Information (pp. 28–29).

Current Emotions and Contextualized Emotion Goals were assessed using the same measures as in Study 1.

Emotion expectations

After being presented with the same scenarios as in Study 1, participants rated how much they expected to feel happiness (i.e., happy, joyful) and anger (i.e., angry, mad).

Procedure

Qualifying children and their families were contacted through the participation pool system at the first author's institution (95% of invited families agreed to participate in the study). Before taking part, parents provided consent for their children and children provided verbal assent. Testing happened over Zoom due to COVID-19 restrictions.

Children were shown the items on the screen so that they could indicate their responses. Before the actual measures, children were presented with definitions of emotion goals and emotion expectations and were asked to complete some example items to ensure understanding (see Supporting Information, pp. 27–29). They were presented with two practice scenarios: one that described the participant as winning a school context and another in which the participant was described as winning a school context at the expense of their best friend losing. After each of these practice scenarios, children indicated how much happiness and anger they wanted to feel (emotion goals) and expected to feel (emotion expectations), in counterbalanced order. Afterward, children were presented with the scenarios from Study 1 in a randomized order. Randomization was also applied to the emotion terms. The questions about emotion goals and emotion expectations were counterbalanced. Upon completion of the study, children were fully debriefed and received a certificate as a token of gratitude for their participation.

Results and discussion

The analyses conducted are confirmatory in nature as they serve to address the specific hypotheses outlined in this study.

Understanding the difference between emotion goals and emotion expectations

Before conducting the main analyses, we tested whether children understood the difference between emotion goals and emotion expectations, by relying on the two practice scenarios. We hypothesized that if children understood the difference between emotion goals and emotion expectations, there would be no differences in the amount of happiness and sadness they would like to feel and expected to feel when they were described as winning a contest. Conversely, when presented with the scenario of winning at the expense of their friend losing, we expected to find a discrepancy between how children wanted to feel and how they expected to feel. For the first scenario (i.e., participant winning a school contest), a repeated-measures ANOVA with emotion (happiness, anger) and outcome (emotion goal, emotion expectation) as within-subject factors resulted in a main effect of emotion, $F(1, 59) = 2589.88$, $p < .001$, $\eta_p^2 = .98$, with children wanting and expecting to feel greater happiness than sadness ($d = 3.04$, $SE = .06$, $p < .001$). There was no significant main effect of outcome, $F(1, 59) = 2.18$, $p = .15$, $\eta_p^2 = .04$, nor a significant emotion × outcome interaction, $F(1, 59) = 1.73$, $p = .19$, $\eta_p^2 = .03$. Hence, as expected, in the scenario in which children were described as winning a

school contest there were no differences in how children wanted to feel and how they expected to feel.

However, in the scenario in which children were described as winning a contest at the expense of their friend losing, we found a significant emotion × outcome interaction, $F(1, 59) = 359.09$, $p < .001$, $\eta_p^2 = .86$, in addition to the main effect of emotion, $F(1, 59) = 31.94$, $p < .001$, $\eta_p^2 = .36$. As expected, children wanted to feel less happiness than they expected to feel ($d = -1.70$, $SE = .15$, $p < .001$). Children also wanted to feel more sadness than they expected to feel ($d = 1.88$, $SE = .11$, $p < .001$). In this scenario, as expected, there was a discrepancy between children's emotion goals and emotion expectations, showing that children understand the difference between *wanting* to feel and *expecting* to feel.

Evaluating the difference in emotion goals and expectations in confrontation and collaboration contexts

Next, we tested whether there were differences in emotion goals between this study and Study 1. We did so, since in Study 3, we did not include another age group as comparison, and because we opted to minimize concerns that responses in Study 3 differed from those in Study 1. Therefore, we compared the means of how much happiness and anger children wanted to feel in collaboration and confrontation in Studies 1 and 3. Responses in Study 3 did not differ from those in Study 1 (happiness in collaboration, $t(131) = -0.11$, $p = .91$, $d = 0.01$; anger in collaboration, $t(131) = -1.47$, $p = .14$, $d = 0.13$; happiness in confrontation, $t(131) = 0.07$, $p = .95$, $d = 0.01$; and anger in confrontation, $t(131) = 0.18$, $p = .86$, $d = 0.03$).

Subsequently, we conducted a repeated-measures ANCOVA with emotion (anger, happiness), context (collaboration, confrontation), and outcome (emotion goal, emotion expectation) as within-subject factors and current emotion (happiness, anger) as covariates. Results showed a significant emotion × context × outcome interaction, $F(1, 59) = 5.02$, $p = .03$, $\eta_p^2 = .03$ (Figure 5). In confrontation, children wanted to experience ($d = 1.21$, $SE = .11$, $p < .001$) and expected to feel ($d = 0.30$, $SE = .11$, $p = .01$) more anger than happiness. Children also expected to feel more anger than they wanted to experience ($d = 0.68$, $SE = .19$, $p < .001$), while the opposite pattern was true for happiness ($d = -0.29$, $SE = .11$, $p = .01$). In collaboration, children wanted to experience ($d = 0.96$, $SE = .08$, $p < .001$) and expected to feel ($d = 0.87$, $SE = .09$, $p < .001$) more happiness than anger. In this context, they expected to feel less happiness than they wanted to experience ($d = -0.87$, $SE = .09$, $p < .001$), while they expected to feel more anger than they wanted to experience ($d = 0.98$, $SE = .09$, $p < .001$).

Overall, these results show that children can distinguish between what they want to feel and what they expect to feel in a given context. This helps rule out the possibility that children reported their emotion expectations rather than emotion goals in Studies 1–2. In addition, the results show that children are not completely oblivious to utility, yet instrumental considerations play a weaker role in shaping their emotion goals, compared to adolescents and adults. This is consistent with our findings in Studies 1 and 2, where we found that emotion goals in children were less driven by utility.

GENERAL DISCUSSION

Considering emotion goals from a developmental perspective enhances our understanding of how and why emotion regulation changes throughout the lifespan. Our results show that whereas adolescents are similar to adults in their emotion goals and beliefs about emotion utility, children show less context sensitivity to the potential utility of emotions. Thus, what people want to feel may change during development, as people learn about emotions and their implications in different contexts.

Across Studies 1 and 2, adults showed context sensitivity, as previously described in the literature (Ford & Tamir, 2012). Adolescents did not differ from adults in emotion goals and beliefs of emotion utility (*adolescent-emergent*; Casey, 2013). Although adolescents have been characterized as exhibiting loose emotionality, this depiction may be simplistic (Casey & Caudle, 2013). Indeed, adolescents exhibit the same impulse regulation as adults when presented with emotional stimuli (Casey et al., 2011), use emotion regulation strategies effectively (Gullone et al., 2010), and understand the instrumental potential of negative emotions (Loades et al., 2019). Results of Studies 1 and 2 show that, as found in adults (Ford & Tamir, 2012; Tamir & Ford, 2012), participants in all our age groups wanted to experience and perceived happiness as more useful than anger in collaboration. The fact that children did not differ from adolescents and adults suggests they can understand direct relations (positive emotions lead to positive outcomes; Lagattuta, 2005). However, in confrontation, children wanted to experience less anger and believed that anger was less useful, compared to adolescents and adults. In Study 1, we observed this pattern for anger, but not sadness. These patterns suggest that children are less sensitive to contextual instrumentality.

Although this may appear consistent with the idea that children use a valence-matching heuristic and reason about emotion goals based on hedonic rather than instrumental considerations (Amsterlaw et al., 2009), our findings were more nuanced. On average, children wanted to experience more anger than happiness in confrontation, so they were not devoid of context sensitivity. Instead, children may be relatively less flexible than adolescents and adults in adapting negative emotion goals in cultivating beliefs about the utility of negative emotions in relevant contexts. In fact, the association between

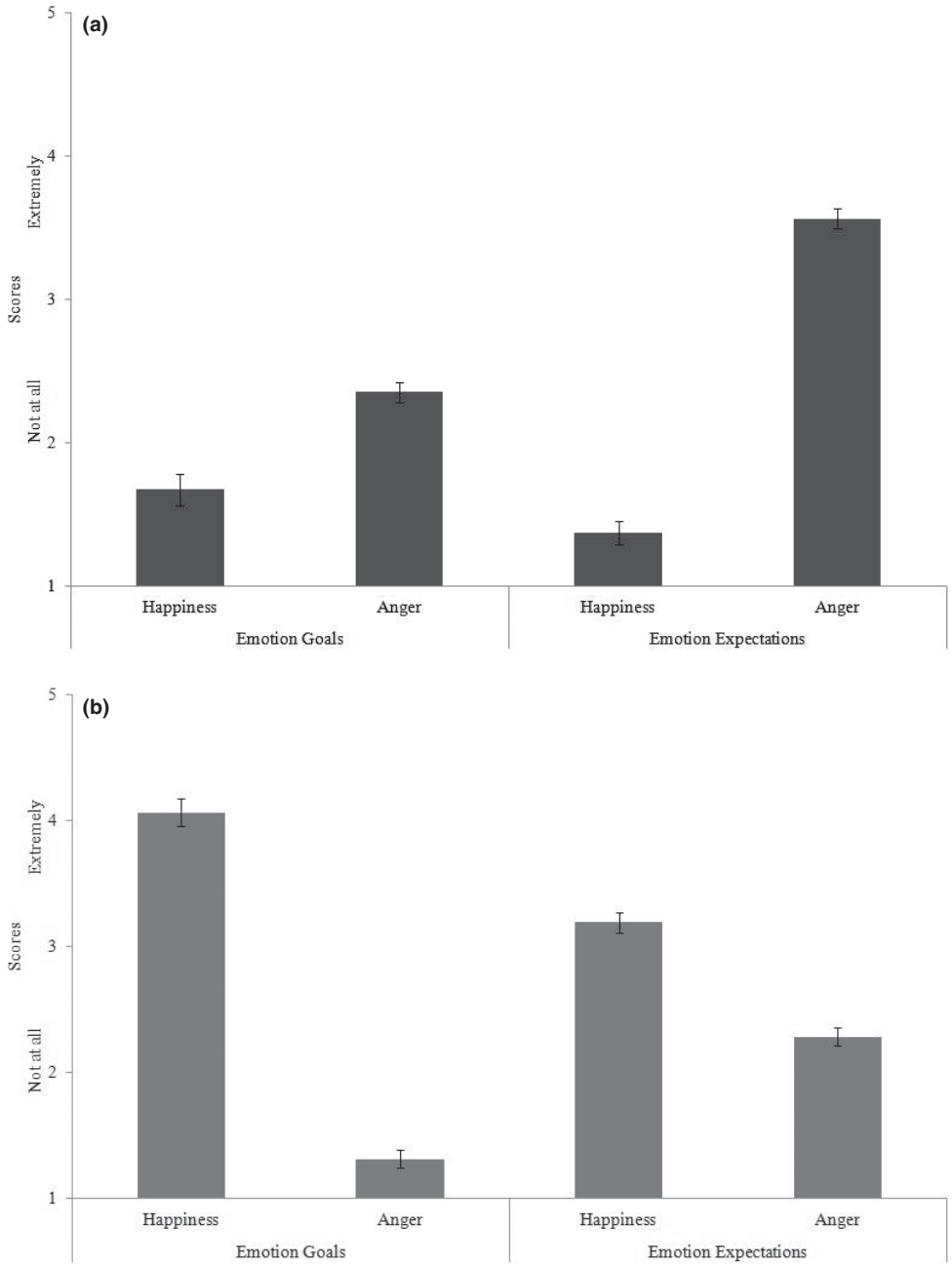

FIGURE 5 Children's emotion goals and emotion expectations in Study 3 (a) in confrontation (b) in collaboration

wanting to experience anger in confrontation and believing that anger is useful in that context was significantly weaker in children, compared to adolescents and adults. Hence, beliefs about emotion utility might underlie emotion goals in children, adolescents, and adults, but to different degrees.

Finally, findings from Study 3 showed that children's emotion goals (what they want to feel) differ from their emotion expectations. While in collaboration, children wanted to experience more happiness than they expected to feel, in confrontation they wanted to feelless anger than they expected to feel. This indicates three things. First, children are not completely oblivious to context, as both their emotion goals and expectations were different in collaboration compared to confrontation. Second, the discrepancies between emotion goals and emotion expectations indicate that children are able to distinguish between a desired emotional state (i.e., emotion goal) and a predicted emotional state (i.e., emotion expectation) in a given context. Finally, children are aware of the potential utility of emotions, but are relatively less affected by it, compared to adults and adolescents.

The findings of Study 3 ruled out a possible alternative account that children's responses in Studies 1 and 2 might reflect emotional expectations. Instead, we argue that these differences might be explained by developmental

differences in understanding *valence* (i.e., the extent to which emotions feel pleasant or unpleasant, linked to hedonic considerations; Barrett, 2006) and *instrumentality* (i.e., understanding whether emotions likely lead to beneficial or detrimental outcomes; e.g., Cohen-Chen et al., 2020). Understanding valence is present in infants (e.g., Bigelow, 1999; Oatley & Jenkins, 1996), and preschoolers understand valence similarly to adults (e.g., Russell, 1980; Widen & Russell, 2010). Some argue that understanding valence could be considered innate as the neural generators of pleasure are present in human newborns, chimpanzees, and even rats (e.g., Berridge & Kringelbach, 2008). Conversely, understanding instrumentality in emotions emerges later in development: Only between 8- and 10-years of age do children understand reverse relations (e.g., negative emotions can have positive effects; Lagattuta, 2005; Lara et al., 2019) and only by adolescence is there a shift from valence to other features of emotions (e.g., Nook et al., 2018). These ideas are consistent with the role of experience in influencing children's views and attitudes toward negative emotions. In fact, there is an emphasis on the downregulation of negative emotions (e.g., Rydell et al., 2003; Zeman et al., 2002), reflected in unsupportive parental responses (Hurrell et al., 2015). Such experiences may shape children's beliefs and emotion goals, and it may not be until later in development that they learn that negative emotions, such as anger, can sometimes be adaptive. These insights could potentially inform socioemotional interventions.

Limitations and future research

Our research has several limitations. First, we only considered happiness, anger, and sadness (in Study 1) to compare our findings to existing findings with adults. Future research could consider other pleasant and unpleasant emotions to test a broader range of emotion goals and beliefs (e.g., fear when facing potential threats, Netzer et al., 2015), as well as different contexts (e.g., seeking support, avoidance) or situations involving different targets (e.g., contexts of confrontation with peers vs. authority figures). Second, because we used methodologies previously used with adults, we did not study younger children. Future research could assess younger children (e.g., 5-year-olds) since they have been shown (Amsterlaw et al., 2009) to display a valence-matching-heuristic and might report even lower perceptions of utility and preferences for negative emotions than the youngest participants in our studies. Additionally, studies considering not only children and adolescents but their families could shed light on the role of emotion socialization and parents' beliefs about emotions in the development of emotion goals and beliefs of emotion utility (e.g., Halberstadt et al., 2013).

Third, our studies did not evaluate other variables that may account for developmental differences. For example, future research could test whether emotion knowledge is linked to the development of beliefs about utility, and comprehending the causes and consequences of emotions (Izard et al., 2011). Fourth, although our materials differed slightly for children and adults (e.g., replacing classmates with work colleagues), we acknowledge that some situations might be less relatable to adults (e.g., designing a poster). Furthermore, our samples were relatively homogenous. Future research should address these shortcomings.

Finally, although we observed differences between age groups, our designs were cross-sectional and did not allow us to draw conclusions about developmental trends. Future research could include longitudinal designs to better understand how emotion goals and beliefs about emotion utility develop and change across the lifespan and the role of experience in shaping them.

CONCLUSION

Results across three studies showed that children are less sensitive to the potential utility of emotions in different contexts. Such findings suggest that what people want to feel may change through the course of development, as people learn about emotions and their consequences in different contexts.

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DATA AVAILABILITY STATEMENT

The data are available at https://osf.io/r8ct6/?view_only=4d2562cff49243b78f0b5fff84c309d2.

Analytic code: The analytic code necessary to reproduce the analyses presented in this paper is not publicly accessible.

Materials: The materials necessary to attempt to replicate the findings presented here are publicly accessible in Supporting Information.

Preregistration: The analyses presented here were not preregistered.

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SUPPORTING INFORMATION

Additional supporting information can be found online in the Supporting Information section at the end of this article.

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