Cheering My Friends up: The Unique Role of Interpersonal Emotion Regulation Strategies in Social Competence

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Abstract

A systematic investigation has been lacking regarding children's deliberate regulation of others' emotions which is labelled interpersonal emotion regulation (ER). Based on a theoretically derived model of Interpersonal Affect Classification (IAC, Niven et al., 2009), we examined children's interpersonal ER strategy use in the peer group. Participants were 398 4th and 5th grade children from the Midwestern United States. Children rated themselves regarding their use of intrapersonal and interpersonal ER strategies as well as attention to friends' emotions. Teacher-report and peer nominations were used to assess social competence regarding prosocial behavior and emotion sharing. Awareness of and attention to friends' emotions were positively and more strongly associated with interpersonal ER than intrapersonal ER. Children reported affective engagement most strongly followed by humor, cognitive engagement, and attention to improve friends' feelings. Among the four interpersonal ER strategies, only affective engagement was uniquely associated with social competence; intrapersonal ER was not associated with social competence. The findings support the significance of broadening the focus of ER to the interpersonal domain to promote the development of children's ER and social competence.

Keywords: children' interpersonal emotion regulation, prosocial behavior, social competence, emotion sharing

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Children's successful emotion regulation (ER; the processes by which individuals modify emotional experience and expression, Gross, 2008) or lack thereof is closely linked to academic and social adaptation (Blair et al., 2004; Eisenberg et al., 2010; Herndon et al., 2013). The association between ER and these outcomes in childhood has mainly been documented regarding intrapersonal ER, or children's ability to regulate their own emotional experience. However, this approach overlooks another aspect of ER process in which children attempt to alter the emotional state of others, called interpersonal ER (Niven et al., 2009). In this study, we defined interpersonal ER as the strategies children use to regulate the emotions of their peers (Gross et al., 2011; Niven et al., 2009) rather than children's support seeking from peers to improve their own mood (Zaki & Williams, 2013).

Children's deliberate efforts to change the affective states of others have been examined from various theoretical perspectives, including social-cognitive skills and efficacy (i.e., modifying others' emotional state while managing their own emotional arousal; Saarni, 1992), prosocial behavior (i.e., comforting, Persson, 2005), and emotion socialization (i.e., how friends respond to negative emotions; Klimes-Dougan et al., 2014). These divergent terms and labeling for similar phenomena have resulted in disconnected findings and hindered a systematic understanding of children's interpersonal ER. Indeed, changing others' affect is a normative social phenomenon (Butler & Randall, 2013) that has received increasing attention in the recent theories and models of ER. As delineated in Interpersonal Affect Classification (IAC), the construct of interpersonal ER was initially examined regarding the strategies individuals use to change others' affect and mood state based on samples of adults (Niven et al., 2009). Research further documented the relevance of IAC to children (López-Pérez et al., 2016). A theoretically derived classification such as IAC is

useful to advance the research on children's interpersonal ER and to compare findings across different age groups.

We focused on the peer group as a social context for children's interpersonal ER, sampling 4th and 5th graders. During middle childhood, children engage in extensive interactions outside home with peers at school and in extracurricular activities (Gifford-Smith & Brownell, 2003; McHale et al., 2003). Such transition also provides children with growing opportunities and expectations to help peers regulate their emotional state. Likewise, effective regulation of peers' emotions, in addition to the regulation of their own emotions, becomes an important developmental task. The extent to which children use effective strategies to improve the emotional state of peers might contribute to perceived social competence in the peer group, which lay the foundation for social development in adolescence and adulthood (e.g., Eccles, 1999). Beyond theory building, broadening ER to the regulatory efforts toward others in addition to the self may inform interventions to improve children's ER and social competence.

Interpersonal Emotion Regulation

Although the relevance of social relationships has been recognized for children's intrapersonal ER, it tends to be limited to young children's ER guided by caregivers or adults (e.g., Bariola et al., 2011). In contrast, interpersonal ER highlights individuals' deliberate efforts to change the emotions of *others* in social relationships (Niven et al., 2009; Zaki & Williams, 2013). Interpersonal ER is related to, yet distinct from empathy and prosocial behavior. Empathy refers to understanding and experiencing the emotional state of others (Cuff et al., 2016) as compared to changing or influencing others' emotional state. In fact, empathy has been suggested as a potential antecedent of interpersonal ER (Zaki, 2020) because people first need to understand how another person is feeling before changing their emotional state (e.g., Reeck et al., 2016). Prosocial behavior is intended to benefit others

(Eisenberg, 2003), and, depending on the nature of their need, prosocial behavior takes different forms of helping (i.e., alleviating an instrumental need), sharing (i.e., addressing a material need), or comforting (i.e., targeting an emotional need; Dunfield, 2014). In other words, prosocial behavior encompasses processes that fall outside the realm of interpersonal ER (i.e., helping and sharing) except comforting that aims at improving the affective state of others. However, it is important to note that interpersonal ER includes a broader range of strategies than comforting some of which are aimed at deteriorating others' moods (e.g., Gummerum & López-Pérez, 2020; Niven et al., 2009). Overall, the distinction of interpersonal ER from empathy and prosocial behavior is important because interpersonal ER uniquely focuses on the classification of different affect-regulation strategies directed towards others and their underlying goals and effectiveness (Niven et al., 2009), which is featured neither in empathy nor in prosocial behavior.

Intra- and Interpersonal Emotion Regulation Strategies

Given the different goals and targets of intra- versus interpersonal ER, strategies involved in the two ER processes can also differ. On one hand, intrapersonal ER has been accounted for by the process model of emotion regulation (Gross & Thompson, 2007). The regulation strategies are conceptualized based on the sequence by which emotion is generated from situation to response. Antecedent-focused strategies are used prior to response generation (e.g., cognitive reappraisal) whereas response-focused ones (e.g., expressive suppression) are used later in the process for response modulation (Gross, 2008). From a functional perspective, regulation strategies are conceptualized as adaptive or maladaptive (Aldao et al., 2010; Evers et al., 2010; Kovacs, 2000). Adaptive regulation strategies, the focus of our study, help individuals to adapt to social demands by changing their thinking, engaging in distracting or calming behaviors, or seeking social support (Kovacs, 2000). These strategies help individuals to improve their negative affect and mood.

On the other hand, IAC (Niven et al., 2009) organizes interpersonal ER strategies broadly into improving (i.e., aimed at cheering others up) or worsening (i.e., aimed at exacerbating) another's affect. We focused on affect-improving strategies because children generally have stronger motives for improving than exacerbating the negative affective states of others (López-Pérez & Pacella, 2021). Using open-ended questions and interviews with parents and children, López-Pérez and colleagues (2016) demonstrated that children ages 3 to 8 use the four distinct affective-improving strategies suggested in IAC (Niven et al., 2009): Affective engagement (i.e., listening and talking to the target), cognitive engagement (i.e., modifying what the target thinks about the situation), attention (i.e., paying attention to the target by spending time together), and humor (i.e., acting silly to make the target laugh). Older children (7-8 years) used affective and cognitive engagement strategies more frequently than younger counterparts (3-4 years) whereas the pattern was the opposite for attention (López-Pérez et al., 2016). Children's social-cognitive maturity might account for the differences because the former is more cognitively demanding and complex than the latter. In this study, we examined the prevalence of these four strategies in mid- to late elementary years, using a quantitative approach.

Interpersonal Emotion Awareness

Regulating the emotional state of others is a complex process that begins with the identification of the emotional state of the target. The identification and awareness, in turn, activates the motivation to change the target's affective state through implementing different strategies (Nozaki & Mikolajczak, 2020; Reeck et al., 2016). Indeed, evidence indicates that boys who recognized the emotion of the regulatory target more accurately also used more adaptive/affect-improving strategies (López-Pérez & Pacella, 2021). This supports the significance of children' emotion awareness of others in interpersonal ER. Notably, the researchers measured children's emotion recognition or awareness with scenarios that had

correct or incorrect answers. Such knowledge, however, may or may not reflect children's typical behavior in a natural setting. To address the gap, we focused on children's awareness and interest in the affective state of their friends with whom children interact daily.

Intra- and Interpersonal Emotion Regulation Strategies and Social Competence

The definition of children's social competence has been many, including the status in the peer group, prosocial behavior, and socially skillful behavior (Rose-Krasnor, 1997; Rydell et al., 1997). Across the definitions, interpersonal effectiveness is a core feature of social competence (Rose-Krasnor, 1997). In this study, we focused on two aspects of social competence in the peer group. First, prosocial behavior toward peers has been recognized as a hallmark of children's social competence (Ladd et al., 2009). Second, we assessed the degree to which a child is approached by peers for emotion sharing and communication. Children increasingly engage their friends and peers in sharing their emotional experiences during middle childhood (Rimé et al., 1991). This results not only from intimacy but also from an increased capacity to deal with others' emotional displays (Rimé & Zech, 2001). Some children are solicited more frequently than others probably because they are effective in addressing friends' emotional experiences by attending to and supporting others (Rimé et al., 1996). That is, peers likely respond to children's interpersonal effectiveness by approaching them for emotion sharing. In this study, we asked children with whom they share feelings of happiness, sadness, and anger. Our focus differs from excessive sharing of problems (i.e., co-rumination, Rose, 2002) which has been considered maladaptive (e.g., Carlucci et al., 2018).

Intrapersonal ER strategies of emotion, thoughts, and behavior are associated with social and psychological adaptation. For example, in an experiment with a disappointment paradigm, children's regulatory behavior was observed after being presented with their least favorite and broken toy as a reward. Results indicated that children's active and adaptive engagement with the situation for a change (e.g., asking for the correct toy, trying to fix a

broken toy) at age 5 was positively associated with competent peer interactions at age 7 (Penela et al., 2015). Among adults, cognitive reappraisal has been positively associated with likeability by peers, social sharing of emotions with others, and having close relationships (Gross & John, 2003). In related research on coping with stress, a positive link has been indicated between children's adaptive coping strategies (e.g., problem solving, support seeking) and social competence (Zimmer-Gembeck et al., 2011). Although ER is broader than coping with stress (Compas et al., 2014), relying on adaptive strategies to manage difficult emotions and circumstances appears to play a critical role in adjustment.

Research has documented the overlap between intrapersonal and interpersonal ER strategies. That is, as evidenced by a moderate degree of correlation between adults' self-reported intrapersonal and interpersonal ER strategy use (Niven et al., 2011), individuals who use strategies to regulate their own emotions more frequently also do so to regulate others' emotions. Similarly, children good at using adaptive strategies to regulate their emotions might also actively try to improve their peers' affect. However, interpersonal ER is also distinct from intrapersonal ER in that it focuses on others, as compared to the self, as the target of regulation (Gross et al., 2011). The two regulation processes further encompass the activation of distinct brain regions (Reek et al., 2016). Given their related, yet distinct processes, we examined if interpersonal ER strategies have an incremental effect on children's social competence beyond the established effect of intrapersonal ER strategies.

Prior research involving adults indicates that improving others' affect (without distinguishing specific strategies) is positively linked to interpersonal effectiveness regarding building friendships and gaining others' trust (Niven et al., 2012). However, the link to social competence or effectiveness might not be equivalent across the types of interpersonal ER strategies. That is, IAC indicates a distinction among the types of interpersonal ER strategies, and the link to social functioning also seems to differ by strategy type. For example, in a

sample of adults, regulatory targets perceived affective engagement to be effective for improving their sadness and perceived cognitive engagement to be effective for reducing anxiety/stress. Importantly, neither attention nor humor was found effective in those cases (López-Pérez, 2018). The differential effects of interpersonal ER strategies might be attributed to the level of social-cognitive skills involved in a given strategy. For example, as compared to attention, engagement-oriented strategies (i.e., affective and cognitive engagement) require sophisticated social-cognitive skills, such as discussing feelings, attentive listening, and cognitive reframing. Although humor might also involve more sophisticated skills than attention, one could use it for distraction without directly addressing the present emotions (Strick et al., 2009). Given that affective and cognitive engagement strategies likely allow children to intervene with friends' negative moods more directly and deeply than humor or attention, the former might play a more important role in social competence than the latter.

Gender and Interpersonal ER

Socialization contributes to gender differences in social and emotional characteristics (Fagot et al., 2000; Root & Denham, 2010). Consistent with gender norms and expectations, girls are more likely than boys to report goals related to supportiveness (Rose & Asher, 2004) and nurturance (Jarvinen & Nicholls, 1996). Such patterns indicate that girls might engage in interpersonal ER more than boys to improve the negative emotional state of friends. Supporting the notion, prior research documented that women tend to use more affective and cognitive engagement strategies than men (López-Pérez et al., 2019) although gender differences were not found among children ages 3 to 8 (López-Pérez et al., 2016). Evidence also indicates gender differences might further depend on the strategy type. For example, boys tend to use humor more than girls to distract and divert themselves from a stressful situation (Rose & Asher, 2004), while women tend to use more reappraisal or cognitive

engagement than men to regulate their emotions (Rogier et al., 2019). It might be that boys are encouraged to modulate the situation by selectively distributing their attention whereas girls are encouraged to attend to emotions (Rogier et al., 2019). In addition, gender-specific behavior and expectations might further lead to differential association between interpersonal ER and social adaptation for boys and girls. However, beyond the mean level differences, evidence is not clear regarding the moderating effect of gender.

The Present Study

Building upon the emerging research on children's interpersonal ER, we had four objectives. First, we reported the frequency of different interpersonal ER strategies because the prevalence of strategies from IAC, thus far, has been examined based on a qualitative approach with children ages 3 to 8 (López-Pérez et al., 2016). Second, we examined children's awareness of and attention to friends' feelings in relation to intra- and interpersonal ER strategies. Given that understanding the emotional state of others is a key step in interpersonal ER (Reeck et al., 2016; Zaki, 2020) and is associated with children's interpersonal ER strategy use (López-Pérez & Pacella, 2021), we hypothesized that interpersonal emotional awareness (i.e., attention to friends' feelings) would be positively associated with interpersonal ER. Third, we examined if interpersonal ER was uniquely associated with social competence (i.e., prosocial behavior, emotion sharing). We hypothesized that interpersonal ER would be uniquely associated with social competence beyond intrapersonal ER because both interpersonal ER and social competence closely pertain to interpersonal processes (Gross et al., 2011; Rydell et al., 1997). Fourth, we examined the effect of gender. We hypothesized that girls would use cognitive and affective engagement strategies more than boys (López-Pérez et al., 2019), and boys would use humor more than girls (Rose & Asher, 2004). The moderating role of gender was examined in an exploratory manner due to limited evidence.

Method

Participants

Participants were 398 (204 boys and 194 girls) 4th and 5th grade children ages 9 to 12 (*M*age = 10 years, *SD* = .64). The racial composition of the children included 42% White, 33% Hispanic, 16% of Black, and 8% American Indian, Asian, or Mixed race. They were from 22 classrooms across eight public or public charter schools in the Midwestern United States. The participating schools are from low-to-middle socio-economic status communities. The number of participants in a classroom ranged from 13 through 28 with an average of 18. The overall sample size was deemed appropriate based on a power analysis with a small effect size f^2 = .05 and a power of .80 (minimum sample size of 279 children).

The classroom teachers also participated and consisted of 20 females and 2 males. Regarding the racial composition, 19 teachers were White, and the other three were either Black, Hispanic, or Mixed race. The average number of years for teaching ranged from 1 to 32 with an average of 11 (*SD* = 11) years.

Procedure

The institutional review board of the university where the research was conducted approved the study procedures (IRB#: 19.A.182). The overarching purpose of the project from which the current study came was to examine the interpersonal nature of children's emotions and their link to school-related functioning. We recruited 4th and 5th grade children from 33 classrooms across 8 schools. The researchers met with school principals and teachers to explain the study purposes and distributed parent consent forms with children. The study involved peer nominations and we required a 65% consent rate for a classroom to participate in the study. Active parent consent was required for a child to participate in the study. Of the classrooms recruited, 69% met the threshold for participation; the consent rate across the participating classrooms ranged from 65% to 100% with an average of 76%.

A team of two to three researchers administered the child questionnaire in the classroom. They explained the study purpose and confidentiality and obtained child assent prior to questionnaire administration. The questionnaire was group administered with one researcher reading aloud the questions and the other researcher(s) walking around the room to provide individual assistance as needed. For peer nominations, we provided children with a classroom roster that included names of classmates who had parental consent for study participation. The roster identified students with a unique number which the children used in place of the names of peers for the peer nomination items. The non-participating children in the classroom either engaged in a quiet activity at their seat or left the room with another staff member. Classroom teachers remained at their desk during the child survey administration. At the end of the survey, all students in the participating class, regardless of parental consent, received stationary items as a reward.

Teachers also completed questionnaires. We provided teachers with a packet with a list of the participating students in their classrooms and questionnaires for each participating student. They completed the questionnaires at their convenience, and they were collected back within approximately two weeks after distribution. Teachers received monetary honorarium for their participation.

Study Constructs and Measures

Intrapersonal ER Strategies. The strategies children use to improve their negative mood were assessed based on the Feelings and Me scale (FAM, Kovacs, 2000). The FAM scale was developed to assess children's responses to their sadness and distress in two broad categories of adaptive and maladaptive strategies across cognitive, behavioral/physical, and social domains. For the current study, we used nine items from the adaptive strategies. Children were provided with an instruction, stating "*Below is a list of different things kids do or think when they feel sad, grumpy, or upset. Please circle how true each statement is for*

you." Subsequently, children rated themselves on a 5-point scale (1= *not at all true*, 5 = *very true*) regarding their use of adaptive strategies (e.g., *I think about what I can do to feel better*; *I find an activity or project to do*; *I find someone to talk to*). An overall score of intrapersonal ER strategy use was determined based on the average of the nine items (α = .78).

Interpersonal ER Strategies. The IAC model (Niven et al., 2009) and a prior study that applied the model to children (López-Pérez et al., 2016) served as sources of the items for affect-improving interpersonal ER strategies. Children were provided with an instruction, stating "*Imagine your close friend is feeling upset because something bad happened to them. Think about what you usually do to make them feel better*." Subsequently, children rated themselves on a 5-point rating scale (1= *not at all true*, 5 = *very true*) regarding their use of 12 different strategies. Three items were used for each of the strategy categories from IAC: affective engagement (e.g., *I talk to my friend so that they feel better*, α = .79), cognitive engagement (e.g., *I tell my friend they are not alone,* α = .81), attention (e.g., *I write a message or draw a picture for my friend,* α = .69), and humor (e.g., *I act silly to cheer up my friend,* α = .86)[1]. The four scales were computed by averaging children's scores in their respective three items.

Interpersonal Emotion Awareness. A subscale from the emotion awareness questionnaire (Rieffe et al., 2008) was used to assess the extent to which children attend to friends' emotions. Children rated themselves on a 5-point rating scale (1= *not at all true*, 5 = *very true*) regarding their attention to and interest in friends' feelings (e.g., *It is important to*

[1] A confirmatory factor analysis confirmed an appropriate fit of the four-factor structure ($\chi^2(48) = 94.63$, $p < .001$; CFI = .98, RMSEA = .05 (90% confidence interval [.04, .06]), SRMR = .04). The factor loadings can be found in the supplementary material. We also examined a two-factor model (engagement and relationship-oriented strategies, Niven et al., 2009) and a one-factor model (single factor of interpersonal ER) for comparison. The indices signified poor fit of both the two-factor model (CFI =.87, RMSEA = .11 [90% confidence interval, .10 - .13], SRMR = .09) and the one-factor model (CFI = .78, RMSEA = .15 [90% confidence interval, .14 - .16], SRMR = .08) to the data.

know how my friends are feelings; If a friend is upset, I try to understand why). Interpersonal emotion awareness was computed by averaging the scores of the five items (α = .67).

Prosocial Behavior. The prosocial subscale from the Child Behavior Scale (Ladd et al., 2009) was used to assess children's behavior and peer interactions in the school. Teachers rated each child on a 5-point scale (1 = *never true*, 5 = *almost always true*) regarding the extent to which a child displays a range of prosocial acts and empathy toward their peers (e.g., *helps other children*; *seems concerned when classmates are distressed*; *is kind toward peers*). A child's prosocial behavior was computed by averaging the scores of the seven items (α = .93).

Emotion Sharing. Children nominated peers with whom they like to share their feelings. A peer nomination procedure has been broadly used to assess children's social behavior (Masten et al., 1985) and emotional characteristics (Kwon et al., 2018; Perry-Parrish et al., 2012). We asked three questions by the emotion type of happiness, sadness, and anger. For example, we asked children "*which classmates do you talk to when you feel happy or excited?*" and provided five spaces for nominations. Children were allowed to nominate the same peer for more than one item. On average, children nominated approximately four peers (M = 3.6, SD = 1.4) for sharing happiness and two peers for sharing sadness (M = 2.3, SD = 1.6) and anger (M = 2.2, SD = 1.7). To compute a child's score of emotion sharing, we summed the number of nominations each child received and then standardized it by the class size (M = 0, SD = 1), controlling for class size differences. The standardized score, in turn, indicates the extent to which a child is selected by their peers for emotion sharing. The bivariate correlations among the three items ranged from r = .65 to r = .79, indicating that children who were chosen for sharing one type of emotion more frequently were also more frequently chosen for sharing other types of emotion. Accordingly, we created a scale based on the average of the three items (α = .88).

Results

Analyses Overview

We first provided descriptive analyses of the study variables. Second, we compared the frequency of different interpersonal ER strategies. Third, we examined the correlation between ER (intra – and interpersonal ER strategies) and interpersonal emotion awareness (i.e., attention to friends' feelings). Finally, we conducted regression analyses to examine if interpersonal ER strategies were associated with social competence above and beyond intrapersonal ER. We used gender and race as covariates. Given the nested structure of the data, we calculated intra-class correlations (ICC) to estimate the proportion of the total variance in the dependent variable that is accounted for by the clustering (i.e., school class). Because emotion sharing was measured with peer nominations which were standardized by class, we calculated ICC for prosocial behavior only. The ICC for prosocial behavior was .26, indicating that 26% of its total variance is accounted for by class. Accordingly, we conducted regression analysis while taking into account the hierarchical nature of the data. In M*plus* statistical software, we used maximum likelihood estimation with robust standard errors (MLR) which is robust to violations of normality and independence of observations when used with Type = Complex. With this approach, clustering is taken into account in the calculation of the standard errors (Muthén & Muthén, 2017).

Descriptive Analyses

The means, standard deviations, and bivariate correlations of the study variables can be found in Table 1. Regarding interpersonal ER strategies, girls reported higher levels of use than boys across strategies except humor. Gender differences were also found in attention to friends' emotions, intrapersonal ER, prosocial behavior, and emotion sharing, favoring girls over boys. Intrapersonal ER strategy was positively and significantly associated with each of the interpersonal ER strategies. Further, interpersonal ER strategies were significantly and

positively related to prosocial behavior and emotion sharing except for a non-significant correlation between humor and prosocial behavior. Race effects were significant for prosocial behavior only, F (3, 392) = 5.16, $p < .01$. Hispanic students (M = 3.95, SD = .72) were rated higher than Black students (M = 3.53, SD = .70) for which the difference was significant (d = 4.23, SE = .12, $p < .01$).

Frequency of Interpersonal ER

We examined if children used certain interpersonal ER strategies more than others to improve the negative mood of their friends. The results of one-way repeated measures ANOVA with a Greenhouse-Geisser correction indicated a significant effect, F(2.68, 1056.85) = 169.00, $p < .001$. Subsequent pairwise comparisons with a Bonferroni correction indicated significant differences in all comparisons. Children reported more use of affective engagement than cognitive engagement (d = .44, SE = .04, $p < .001$), attention (d = 1.11, SE = .05, $p < .001$), and humor (d = .28, SE = .05, $p < .001$). They also reported more use of humor than cognitive engagement (d = .16, SE = .06, p = .02) and attention (d = .83, SE = .06, $p < .001$). Finally, they reported more use of cognitive engagement than attention (d = .67, SE = .05, $p < .001$). Overall, children reported affective engagement most frequently, followed by humor, cognitive engagement, and attention as a strategy to improve friends' negative feelings.

Interpersonal Emotion Awareness and ER strategies

The correlation between interpersonal emotion awareness and interpersonal ER strategies was positive and statistically significant ($p < .01$). That is, children who use strategies to improve friends' negative feelings to a greater extent also attend to friends' emotional states to a higher degree (see Table 1). Attention to friends' emotions was also significantly correlated with intrapersonal ER strategies. Subsequently, we examined if interpersonal emotion awareness was more strongly associated with interpersonal ER

strategies than intrapersonal ER strategies, using a test of the difference between two dependent correlations with one variable in common (Lee & Preacher, 2013). The correlation between interpersonal emotion awareness and interpersonal ER strategies was higher than the correlation between interpersonal emotion awareness and intrapersonal ER regarding affective engagement (z = -6.10, p < .001) and cognitive engagement (z = -3.23, p = .001). The correlations did not differ for attention (z = -1.07, p = .29) or humor (z = -.39, p = .69). Overall, interpersonal emotion awareness was more strongly associated with interpersonal ER than intrapersonal ER regarding affective and cognitive engagement.

Intra- and Interpersonal ER and Social Competence

The results of multiple regression analyses are described below for prosocial behavior and emotion sharing (see Table 2). We examined interaction effects between gender and independent variables in each analysis. None of the interaction effects were significant; as such, we reported main effects only for parsimony.

Prosocial behavior. Gender was uniquely associated with prosocial behavior with girls scoring higher than boys. Intrapersonal ER strategy use was not uniquely associated with prosocial behavior. Among the interpersonal ER strategies, only affective engagement was uniquely and positively associated with prosocial behavior.

Emotion Sharing. Gender was uniquely associated with emotion sharing with girls scoring higher than boys. Intrapersonal ER strategy use was not associated with emotion sharing. Among the interpersonal ER strategies, only affective engagement was uniquely and positively associated with emotion sharing.

Discussion

Although a widespread phenomenon that emerges early in development, children's interpersonal ER or deliberate attempts to change the emotional state of others has received little systematic attention in ER research. To address this gap, we examined children's

regulation of the emotional state of friends, using IAC (Niven et al., 2009) as a framework for interpersonal ER strategies. We focused on friends and peers as a target for children's interpersonal ER strategies because the peer group plays an increasingly important role in social and emotional development during middle childhood (Gifford-Smith & Brownell, 2003; McHale et al., 2003). We examined the manner in which interpersonal ER is unique from intrapersonal ER regarding underlying social-cognitive processes (i.e., interpersonal emotion awareness) and association with social competence (i.e., prosocial behavior, emotion sharing). The differentiation not only broadens our understanding of children's ER but also provides practical insights regarding the specific skills to be targeted to better support children's development of ER and social competence.

Children's Interpersonal ER Strategies

Similar to the results of a prior study involving younger children (ages between 3 and 8, López-Pérez et al., 2016), children in the 4th and 5th grade used affective engagement more frequently than attention. Children's ability to identify and understand others' feelings and thoughts evolves through middle childhood (Hoglund et al., 2008; Selman, 2003), and they might become increasingly sophisticated in their strategy use to influence the target's emotional state. Relative to attention, engagement strategies (affective, cognitive) are more advanced because the regulator directly addresses the emotional state and associated thoughts of the target (López-Pérez & Pacella, 2021). Interestingly, children used humor more frequently than cognitive engagement. Among children ages between 3 and 8, no age difference was found for humor, indicating preschool through early elementary children use humor in a similar frequency (López-Pérez et al., 2016). Notably, whereas López-Pérez and colleagues (2016) did not specify the target of ER, we assessed children's interpersonal ER in the peer group. The target of the regulation may partly determine the type of strategies, and our findings indicate that humor is more normative than cognitive engagement among

children in mid- to late elementary years as they attempt to improve the negative emotional state of their friends.

Interpersonal Emotion Awareness and Interpersonal ER Strategies

Consistent with our second hypothesis, children's interpersonal emotion awareness (i.e., attention to friends' feelings) was positively related to each of the interpersonal ER strategies. Furthermore, interpersonal emotion awareness was more strongly correlated with two interpersonal ER strategies (i.e., affective engagement, cognitive engagement) as compared to intrapersonal ER strategy. Our results corroborate the conceptual distinction between intrapersonal and interpersonal ER regarding the target of emotion awareness and regulation (self versus others, Gross et al., 2011). It is also theorized that identification of the emotional state of others is one of the first steps in the process of regulating others' emotional state (Reek et al., 2016; Zaki, 2020), highlighting the relevance of interpersonal emotion awareness in interpersonal ER. In addition, children's accurate emotion recognition of others (i.e., correct emotion identification in a scenario) is positively associated with adaptive interpersonal ER strategy use (López-Pérez & Pacella, 2021). We further demonstrated the relevance of children's interpersonal emotional awareness to interpersonal ER in an ecologically relevant manner by focusing on children's typical behavior in their daily interactions with peers. Overall, children who use interpersonal ER more frequently might not only have greater emotional knowledge and awareness but also better attend to others' emotions in their social interactions.

Interpersonal ER Strategies and Social Competence

Our third hypothesis regarding the unique role of interpersonal ER in social competence beyond intrapersonal ER was partially supported. Specifically, only affective engagement was uniquely associated with social competence in the regression analyses wherein the effect of each strategy was evaluated while other strategies and intrapersonal ER

were controlled for. That is, affective engagement (e.g., listening and talking to friends about their feelings) appears to play a more important role in social competence than cognitive engagement, attention, or humor. Prior research involving samples of adults similarly documented a relatively stronger effectiveness of affective engagement over other strategies. For example, regulatory targets perceived affective engagement most effective in improving sadness (López-Pérez, 2018). Additionally, among strategies, affective ones (e.g., confiding, encouraging, and listening) were positively associated with popularity in a social network (Niven et al., 2015). As compared to other strategies, individuals might be able to influence the target's emotional state most intimately and directly by listening to and clarifying their feelings. The ability to help others process their emotions might play a critical role in interpersonal effectiveness. Our results indeed indicate that children who use affective engagement more frequently were approached by peers more frequently for sharing their feelings. The contribution of interpersonal ER to social competence found in our study is considered robust because social competence was evaluated by two different informants (i.e., peers, teacher) who have a close knowledge of social interactions in the peer group.

Similar to the results of prior research involving adults (e.g., López-Pérez et al., 2019; Niven et al., 2011), intrapersonal ER was moderately associated with each of the interpersonal ER strategies. That is, children who use adaptive strategies to improve their own negative mood to a greater degree also use interpersonal ER strategies more frequently to improve the emotional state of their friends. Despite the convergence between the two, intrapersonal ER was not associated with social competence. It might be that the ability to use adaptive strategies to regulate their own emotions alone might not be sufficient for social competence unless children also deliberately attempt to improve the negative affect of others. Alternatively, we examined adaptive regulation strategy use globally, and it could be that the association with social competence depends on the type of intrapersonal ER. For example,

research has documented a positive link between cognitive reappraisal and adaptive interpersonal functioning among adults (Gross & John, 2003). The measure used in the study included a broader range of adaptive strategies (i.e., cognitive, behavioral/physical, and social strategies, Kovacs, 2000) than a cognitive strategy. Further research seems warranted wherein intrapersonal ER strategies are examined by distinct strategy type, as compared to a global, adaptive strategy.

Gender Differences

Consistent with our fourth hypothesis, girls generally reported higher levels of interpersonal ER strategy use than boys except for humor. The findings corroborate prior research and gendered socialization, indicating girls display higher levels of support toward friends than boys (Klimes-Dougan et al., 2014; Rose & Asher, 2004). Our hypothesis regarding gender differences in humor was not supported. Whereas some evidence indicates that boys tend to use humor more than girls as a coping mechanism (Rose & Asher, 2004), we did not find such a difference regarding interpersonal ER strategy. Notably, coping is different from ER in that coping refers to people's responses towards stress whereas ER entails processes aimed at modifying different emotions (i.e., sadness, anger, fear, etc., Folkman & Mosowitz, 2004). Such distinction might partly explain the divergent findings of gender differences in humor. In addition, whereas a prior study documented no gender differences in interpersonal regulation strategy use in children ages between 3 and 8 (López-Pérez et al., 2016), we found gender differences in the majority of strategies. These divergent findings might be partly due to different age groups between the two study samples. Further, the prior study was based on a qualitative method, and the researchers coded only the first strategy when multiple strategies were mentioned by participants. Finally, despite mean level differences in strategy use between boys and girls, our results did not support gender differences in the relation between interpersonal ER and social competence.

Limitations and Future Directions

Our findings need to be interpreted in light of limitations that could guide the direction for future research. First, our study involved a non-clinical sample of 4th and 5th grade children; as such, findings might not be generalizable to children in different age groups or clinical groups. Developmental differences in different strategy use might be better understood with a sample of children with wider age ranges. In addition, there might be differences between clinical and non-clinical samples regarding strategy use and its association with social adaptation. Second, we focused on interpersonal affect improvement in response to friends' distress (i.e., feeling upset). Extant research has highlighted that interpersonal ER strategies may depend on the type of emotions (López-Pérez & Pacella, 2021); hence, future research should evaluate whether children differentiate strategy use based on the emotion experienced by the target and how it relates to social adaptation. Third, we measured intrapersonal and interpersonal ER with self-report only. Although children's self-report becomes more reliable over development (Conijn et al., 2020) and their perceptions are important to consider, self-report has limitations regarding social desirability and accuracy. Observations or third-party reports are suggested for future studies to advance our understanding of the link between interpersonal ER and social competence. Fourth, the current study was based on a cross-sectional design, limiting the conclusions about developmental trends and temporal relations between constructs. Future research should focus on the use of interpersonal regulation strategies over the course of development. For example, some evidence indicates non-engagement strategies such as attention are linked with better adaptation in older age (Scheibe et al., 2015). Finally, we did not collect information on children's disability status, and future research is warranted regarding the role of a disability in children's interpersonal ER and its link to social adaptation.

Implications and Conclusion

Supporting children's ER development has significant and long-term implications for social and academic adaptation (e.g., Raver et al, 2007; Rydell et al., 2003). Corroborating the emerging research, we demonstrated the significance of broadening the focus of ER to the interpersonal domain. Specifically, our results indicate that intrapersonal ER might not be sufficient but regulatory efforts toward others are necessary to achieve interpersonal effectiveness and competence. Our results also indicate the importance of identifying and intervening with social-cognitive skills that underlie interpersonal ER. For example, attention to others' emotional state might need to be explicitly and routinely incorporated in social-emotional intervention programs. Attention to others' affect and the use of affect-improving strategies could be taught directly, practiced, and reinforced. Regarding the type of strategies, affective engagement appears to be particularly important to target for children in mid- to late elementary years. Ultimately, a systematic approach to intervening children's interpersonal ER has potential to promote adaptive social functioning in the peer group.

A classification of regulation strategies appears to be a useful framework to guide research and practice of children's interpersonal ER. The emergence of the strategies outlined in IAC varies by development, and, by middle childhood, affective engagement appears not only prevalent but also key for interpersonal effectiveness. As such, children who rely on attention primarily might be at risk for interpersonal difficulties. The classification system could be used to guide developmental expectations and also to design intervention programs. At the same time, the classification system of children's interpersonal ER strategies warrant continued refinement based on the integration of related theories and conceptual frameworks. Hence, we expect the current findings will stimulate further research that will help to advance our knowledge of interpersonal ER in childhood.

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Table 1

Means, Standard Deviations, and Correlations of the Study Variables

Variable	1	2	3	4	5	6	7	8	9
1. Gender (girl)									
2. Interpersonal emotion awareness	.16**								
3. Intrapersonal ER strategy	.14**	.28**							
Interpersonal ER strategy									
4. Affective engagement	.30**	.56**	.44**						
5. Cognitive engagement	.25**	.43**	.49**	.67**					
6. Attention	.50**	.33**	.51**	.56**	.57**				
7. Humor	.04	.30**	.43**	.43**	.49**	.43**			
Social Competence									
8. Prosocial behavior	.19**	.11*	.04	.27**	.20**	.15**	.02		
9. emotion sharing	.20**	.22**	.07	.24**	.12*	.20**	.12*	.29**	
M	.49	4.34	3.01	4.23	3.79	3.11	3.95	3.77	.00

SD	.50	.56	.86	.84	1.02	1.13	1.12	.78	.88

* $p < .05$. ** $p < .01$

Table 2

Regression Analyses of Associations between Emotion Regulation Strategy and Social Competence

Predictors	Prosocial behavior			Emotion sharing		
	B	*SE*	*β*	*B*	*SE*	*β*
Gender (Girl)	.17	.08	.11*	.22	.10	.13*
Black	-.25	.15	-.12	-.00	.13	-.00
Hispanic	.22	.12	.13	-.01	.09	-.01
Other races	-.22	.17	-.08	-.22	.21	-.07
Intrapersonal ER strategy	-.07	.04	-.08	-.07	.07	-.07
Interpersonal ER strategy						
Affective engagement	.28	.06	.31**	.23	.06	.23**
Cognitive engagement	.02	.06	.03	-.09	.06	-.10
Attention	.01	.05	.01	.06	.07	.08
Humor	-.05	.05	-.08	.05	.05	.06
R^2		.15			.09	

* $p < .05$. **$p < .01$

Note. White served as a reference group for race. We also examined cross-school differences in the variables. Cross-school differences were present for prosocial behavior only. We included schools as fixed effects in the regression analysis involving prosocial behavior. The patterns of results did not change in that gender ($\beta = .15$, $p < .01$) and affective engagement ($\beta = .26$, $p < .01$) were still significant. Children from one school scored lower than those from the reference school on prosocial behavior ($\beta = -.23$, $p < .05$).