Peer Victimization and Sympathy Development in Childhood: The Moderating Role of Emotion Regulation

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Abstract

Although peer victimization is widely considered to be detrimental to children's wellbeing, knowing what it feels like to be harmed is also thought to contribute to children's sense of concern for others. However, research has yet to establish a clear link between peer victimization and sympathy during childhood. Across two samples of Canadian 4- and 8-year-olds (total N = 504), we examined whether children's emotion regulation capacities (ER) moderated the victimization–sympathy link. Study 1 (n = 300; 33% European origin; 73% of caregivers held bachelor's degree or higher) examined the interactive effects of victimization and child- and caregiver-reported ER on children's self-reported sympathy assessed concurrently and one year later. Concurrently, victimization was positively associated with sympathy for children higher in self-reported ER, and for boys higher in caregiver-reported ER. Longitudinally, victimization positively predicted changes in sympathy from 4 to 5 years of age for children high in self-reported ER. No longitudinal interaction effects emerged for caregiver reported ER or in older children. Using the same caregiver-reported ER measure, Study 2 (n = 204; 30% European origin; 65% of caregivers held bachelor's degree or higher) replicated this pattern in a different cross-sectional sample of 4- and 8-year-olds. These results provide initial support for the hypothesis that victimization experiences may facilitate other-oriented concern in children who can effectively regulate their emotions.

Keywords: peer victimization; sympathy; emotion regulation; early childhood; middle childhood

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At one time or another, most children will be picked on or bullied by a peer (Glover, Gough, Johnson, & Cartwright, 2000; Wainryb, Brehl, & Matwin, 2005). Although chronic victimization can have lasting negative consequences on victims' health and wellbeing (McDougall & Vaillancourt, 2015), being the target of aggression also provides children with direct knowledge about the consequences of being harmed. As such, early victimization experiences are hypothesized to contribute to the development of young children's other-oriented concern (Arsenio & Lover, 1995; Dahl, Waltzer, & Gross, 2018; Smetana, Jambon, & Ball, 2018). To date, however, research has yet to establish a clear link between peer victimization and children's sympathy development (van Noorden, Haselager, Cillessen, & Bukowski, 2015), suggesting that this relation may depend on other factors.

How children experience and cope with negative emotions may factor into whether victimization promotes or encumbers the development of other-oriented concern. Emotional arousal directly influences how children perceive and interpret social interactions (Lemerise & Arsenio, 2000). Recent research also indicates that peer victimization is less likely to contribute to adjustment problems in youth who are better able to modulate their emotions compared to emotionally dysregulated children (Cooley & Fite, 2016; Kaynak, Lepore, Kliewer, & Jaggi, 2015; Rudolph, Troop-Gordon, & Granger, 2010). Using multi-informant data across two independent samples, we examined whether emotion regulation moderated the association between peer victimization and sympathy in early and middle childhood, a developmental period when individual differences in sympathy begin to stabilize.

Peer victimization refers to the experience of being physically or psychologically harmed by one's peers (Ostrov & Kamper, 2015). Much of the victimization literature has centered on the negative impact of these experiences on individuals' health and wellbeing. This work has demonstrated that repeated and severe victimization is associated with an increased risk of maladjustment in childhood and adolescence, including internalizing and externalizing problems, school difficulties, and poor social relationships (Casper & Card, 2017; Reijntjes et al., 2010). Frequent victimization in the elementary school years has also been linked to long-term adjustment problems in adulthood (McDougall & Vaillancourt, 2015).

Nevertheless, everyday experiences of victimization are an inevitable fact of social life, particularly in the early years. Peer interactions in early childhood are frequently characterized by conflicts involving harm and unfairness (Eisner & Malti, 2015), and victimization remains a common occurrence into adolescence (Nansel et al., 2001). Observations conducted in preschool classrooms (Killen & Smetana, 1999) and elementary and middle school playgrounds (Craig & Pepler, 1997; Craig, Pepler, & Atlas, 2000) indicate that acts of victimization can occur upwards of 14 times an hour, often outside the purview of adults. Even at extreme levels, many children who are chronically victimized go on to lead healthy and well-adjusted lives as adults (McDougall & Vaillancourt, 2015). The fact that nearly all children inevitably experience some form of victimization underscores the need to move beyond an exclusive focus on maladjustment to consider how these experiences—as difficult and painful as they may be—factor into children's normative development.

One domain in which early peer victimization experiences may be especially important is in the development of other-oriented emotions such as sympathy. Sympathy refers to feelings of sorrow or concern for others' wellbeing (Eisenberg, Spinrad, & Morris, 2014). Sympathy is

distinct from empathy, which reflects a value-neutral, relatively automatic capacity to feel the same or similar emotions as others (e.g., feeling sad when others are sad). Although sympathy may arise from empathy, drawing this distinction is crucial because unregulated forms of empathy can lead to intense feelings of self-focused anxiety or discomfort (personal distress) which can be detrimental to children's social functioning. Sympathy is considered a critical component of healthy social-emotional development that inhibits aggressive impulses, motivates prosocial action, and helps children build and maintain positive connections to others (Eisenberg et al., 1996; Malti, Gummerum, Keller, & Buchmann, 2009; Zuffianò, Colasante, Buchmann, & Malti, 2018).

The capacity for sympathy emerges during toddlerhood and gradually increases in frequency into adolescence (see Eisenberg et al., 2014). Despite evidence for considerable discontinuity (mean-level changes) across a large developmental timeframe, longitudinal studies indicate that individual differences in sympathy begin to stabilize between early and middle childhood (c.f. Kienbaum, 2014; Knafo, Zahn-Waxler, Van Hulle, Robinson, & Rhee, 2008; Zuffianò et al., 2018). Understanding the processes involved in the development of sympathy at these ages is therefore essential to inform efforts aimed at reducing violence and promoting kindness across the lifespan.

A wealth of research has centered on family influences on children's sympathy development (Kiang, Moreno, & Robinson, 2004; Jambon, Madigan, Plamondon, Daniel, & Jenkins, 2019). With age, however, individual differences in sympathy are increasingly accounted for by non-familial environmental factors (Knafo et al., 2008). Although peer relationships represent one of the most salient developmental contexts outside of the family, their role in children's sympathy development has received considerably less attention. Healthy peer

relationships are important for social development because they provide children with opportunities for mutual exchange and help to build interpersonal trust (Rubin, Bowker, McDonald, & Menzer, 2013). As such, research has traditionally focused on positive aspects of the peer experience, demonstrating that children and adolescents who are well-liked and accepted by their peers exhibit greater sympathy and prosociality towards others (Grutter, Gasser, Zuffianò, & Meyer, 2018; Malti, Gummerum, Keller, Chapparo, Buchmann, 2012).

Antagonistic peer interactions (e.g., victimization), by contrast, are often considered detrimental to children's psycho-social and emotional development (Rubin et al., 2013). Nonetheless, scholars have posited that early victimization experiences may provide an important foundation for the development of children's other-oriented concern (Arsenio & Lover, 1995; Dahl et al., 2018; Smetana et al., 2018). This theorizing stems from the fact that the physical and/or psychological pain that results from being victimized provides children with first-hand knowledge about the negative consequences of harmful behavior (Morrow, Hubbard, Barhight, & Thomson, 2014). Whereas prolonged and severe victimization may ultimately desensitize children to the needs of others, directly experiencing how it feels to be harmed may serve to heighten their sensitivity to the wrongness of aggressive actions and motivate a sense of concern for others' suffering. This hypothesis aligns with research in adults showing that past exposure to violence can increase prosocial and empathic tendencies in victims (termed *altruism born of suffering*; Vollhardt, 2009).

Despite this possibility, the relation between peer victimization and sympathy remains unclear. A systematic review of 14 studies by van Noorden et al. (2015) concluded that, although greater victimization is associated with lower cognitive empathy (i.e., perspective-taking), there is no evidence that victimization is associated with affective empathy (which included measures

tapping into sympathy). A subsequent meta-analysis of 23 studies by Zych, Ttofi, and Farrington (2016) similarly found no difference between victims of bullying and non-victims in affective empathy. When significant effects have emerged, they tend to be mixed. For instance, Malti, Perren, and Buchmann (2010) found that increased victimization from 6 to 7 years was associated with lower sympathy at age 7 (r = -.17), whereas Kokkinos and Kipritsi (2012) found a positive link between overt victimization and sympathy in early adolescence (r = .16).

Several different interrelated factors may account for these null and conflicting findings. Research to date has primarily focused on late childhood and adolescence, despite early and middle childhood representing key developmental periods when the prevalence of victimization is greatest and individual differences in sympathy begin to stabilize (Kienbaum, 2014; Knafo et al., 2008; Zuffianò et al., 2018). Many studies also utilize measures of affective empathy, which conflate other-oriented feelings of sympathy with the general tendency to feel the same or similar emotions as others (empathy; Eisenberg et al., 2014). Finally, little attention has focused on other potential moderating mechanisms that may influence how and whether exposure to harmful events may contribute to children's sense of care for others.

Our central hypothesis is that individual differences in how children experience and cope with negative emotions plays an important role in this process. Emotion regulation refers to a dynamic array of automatic and effortful processes that function to manage and modify the occurrence, intensity, duration, and expression of emotions to achieve one's goals (Cole, Martin, & Dennis, 2004; Thompson, 1994). Relatedly, negative emotionality reflects a temperamental trait pertaining to the frequency and intensity with which individuals experience negative emotions such as anger and sadness (Eisenberg & Fabes, 1992). Although the strategies children employ to alter their emotional experience and the overall intensity of an emotion are

conceptually distinct, regulation and reactivity are inherently intertwined and difficult to disentangle empirically (Campos, Frankel, & Camras, 2004; Lougheed, Benson, Cole, & Ram, 2019). Indeed, emotion regulation is often inferred from the absence of observable problematic behaviors rather than measured directly (Beauchaine, 2015). Moreover, being prone towards strong negative emotions is associated with difficulty using effective regulation strategies, particularly in early childhood (Calkins & Johnson, 1998; Lougheed et al., 2019). Thus, consistent with other scholars (e.g., Smith, Hastings, Henderson, & Rubin, 2019), we use the term emotion regulation to broadly reference observable levels of emotional reactivity and/or behaviors involved in managing strong emotional reactions (particularly negative emotions), with the acknowledgement that these two components may reflect distinct underlying processes.

How children express and cope with negative emotions impacts their ability to form and maintain relationships with others (Halberstadt, Denham, & Dunsmore, 2001). Children who have difficulty regulating their affect often display intense and/or situationally inappropriate emotional expressions of anger, anxiety, and fear, which can elicit negative responses from others. Indeed, numerous studies conducted in early and middle childhood indicate that having poor emotion regulation skills increases children's risk of being victimized by their peers (Hanish, Eisenberg, Fabes, & Spinrad, 2004; Shields & Cicchetti, 2001). The ability to adaptively regulate emotions is also linked to subsequent declines in victimization over time (Godleski, Kamper, Ostrov, Hart, & Blakely-McClure, 2015).

Similarly, emotion regulation is considered essential for the development of sympathy. When faced with another's misfortune, emotionally dysregulated children may turn their focus inward on their own discomfort and anxiety, leading to a state of personal distress. In contrast, effectively managing one's emotional arousal is thought to allow for the capacity to re-direct

one's attention away from the self and towards another's suffering, thus contributing to feelings of sympathy (Eisenberg et al., 2014). In support of this proposition, Eisenberg and Fabes (1995) found that 4- to 6-year-old children exhibiting high levels of facial concern (e.g. furrowed brow) during a sympathy-inducing film, compared to those low in sympathy, scored lower in teacher-reported negative emotionality and were rated by teachers and parents as being more likely to employ constructive coping strategies (e.g., support seeking) when dealing with affectively charged conflicts. Using a similar sympathy-induction task with a sample K–3rd graders, Gurthrie et al. (1997) found that children exhibiting a high degree of personal distress—as indicated by an increasing pattern of physiological arousal (e.g., accelerating heart rate) and facial distress (e.g., averting gaze)—in response to the film were viewed by teachers and parents as especially high in negative emotionality. Greater regulatory control during the early school years, in turn, is associated with heightened sympathy in adolescence (Eisenberg et al., 2007).

Considering this evidence, it is reasonable to expect that children who experience intense and sustained negative emotional arousal may be more likely to ruminate on victimization experiences and adopt a defensive orientation, thus dampening their sensitivity to others' needs. Research adopting a social-information processing framework indicates that repeated negative experiences with peers (e.g., victimization) increases the likelihood that children will develop a view of others as threatening and untrustworthy (e.g., hostile attribution biases; Dodge, 2006), which in turn has been linked to lower levels of sympathy and prosocial behavior (Song, Colasante, & Malti, 2018). By contrast, children who are better able to control their emotions may be more equipped to reflect on harmful experiences to inform their beliefs about how others ought to be treated. Indeed, encouraging children and adolescents to engage in adaptive regulation strategies (e.g., cognitive reappraisal, narration) in response to distressing events

successfully reduces their experiences of anger and sadness and enhances their ability to learn from these encounters (Davis & Levine, 2013; Pasupathi, Wainryb, Oldroyd, & Bourne, 2019).

Consistent with this theorizing, there is growing evidence indicating that the well-documented link between children's and adolescents' experiences of victimization and subsequent antisocial behavioral problems (e.g., Casper & Card, 2017) is limited to emotionally dysregulated youth (Cooley & Fite, 2016; Kaynak et al. 2015; Rudolph et al., 2010). This suggests that the inability to manage strong emotional responses to victimization may interfere with children's capacity to adaptively process social information and generate peaceful conflict resolution strategies, leading to the adoption of a defensive or antagonistic stance towards others (Cooley & Fite, 2016; Dodge, 2006). Whether the reverse is true—that victimization *promotes* other-oriented tendencies in well-regulated children (Vollhardt, 2009)—remains untested.

Study 1

We tested this proposition using data collected from a Canadian sample of 4- and 8-year-olds as part of an ongoing longitudinal investigation of social-emotional development in early and middle childhood (Jambon, Colasante, Peplak, & Malti, 2019). At the first time point (T1), children reported on their own dispositional sympathy and emotion regulation coping skills, and caregivers rated children's exposure to peer victimization and propensity towards experiencing intense negative emotional states. We also collected a follow-up assessment of child-reported sympathy approximately one year later (T2). The inclusion of longitudinal data, although insufficient for establishing causality, does provide a more robust test of the hypothesis that victimization and emotion regulation skills are involved in the development of sympathy over time.

Based on the extant literature, we did not expect victimization to be associated with sympathy. However, we did expect emotion regulation to moderate the victimization–sympathy link. Given the novelty of this assertion, it was unclear whether more frequent victimization experiences would be associated with higher levels of sympathy in children who are relatively well-regulated, or if emotion dysregulation would exacerbate the detrimental effects of victimization on sympathy.

We also tested whether this interaction varied by gender and age group. Although gender differences in mean levels of sympathy, peer victimization, and emotion regulation abilities have been reported during the developmental periods studied here, past findings are inconsistent and vary depending on the operationalization (e.g., physical vs. relational victimization) and method of assessment (e.g., self-report vs. observations of sympathy) (Crick, Casas, & Ku, 1999; Davis, 1995; Eisenberg et al., 2014). Moreover, we had no theoretical or empirical basis from which to form predictions about whether the *associations* between these constructs would differ for boys and girls. With regards to age, individual differences in sympathy appear to stabilize by middle childhood (Kienbaum, 2014; Zuffianò et al., 2018), suggesting that the interactive effects may be more pronounced at younger ages when sympathy is more fluid. Yet with age children become more adept at regulating their thoughts, emotions, and behaviors, which might suggest that older children are better able draw on past victimization experiences to inform their beliefs about how others ought to be treated. Thus, we did not have *a priori* hypotheses concerning the moderating effects of gender and age grouping.

Given that chronically victimized children also have broader difficulties building and maintaining healthy social connections with others, we controlled for the overall quality of children's peer relationships in all analyses. In doing so, our goal was to strengthen the claim that

any links to sympathy were *unique* to victimization experiences. Finally, we also controlled for children's verbal ability to ensure that any observed effects were not merely due to individual differences in children's broader cognitive or language skills.

Method

Sample

Study 1 participants consisted of 300 four- (n = 150; T1 M_{age}= 4.53 years, SD = 0.30, Range = 4.03 to 4.99; 50% girls) and 8-year-olds (n = 150; T1 M_{age}= 8.53, SD= 0.29, Range = 8.01 to 9.78; 50% girls) and their primary caregivers (85% female; 98% biological parents) living in Mississauga, Ontario, Canada. T2 data collection occurred one year later when children were approximately 5 (M_{age}= 5.57 years, SD = .35, Range = 5.03 to 6.35) and 9 years of age (M_{age} = 9.59 years, SD = .33, Range = 9.04 to 10.81). Approximately 93% of caregivers reported being married or in a domestic partnership. Caregivers' self-reported highest level of education included 5% high school or less, 1% apprenticeship or trade school, 17% college degree, 49% bachelor's degree, 21% master's degree, and 3% Ph.D.; 4% chose not to answer. The ethnic background of the sample was: 33% European, 27% Asian, 4% Central/South American, 6% other, 19% multi-ethnic; 11% chose not to answer. Four and 8-year-olds did not differ along any demographic characteristics (ps = .20–.80).

Procedure

The University of Toronto ethics review board granted approval prior to the start of data collection ("Longitudinal study of emotions, aggression, and physiology", # 00028256). At both time points, children and caregivers visited the laboratory for a 60- to 90-minute session. Verbal assent was obtained from children and written informed consent was obtained from caregivers. Child assessments were conducted in a designated room while caregivers remained in a waiting area and completed questionnaires on a touchscreen tablet. Children were instructed on the use

of all scales prior to task completion and trained research assistants conducted the sessions. At session end, children were gifted an age-appropriate book.

Following best practice guidelines (Teague et al., 2018), we implemented multiple barrier-reduction (e.g., flexible scheduling), reminder (e.g., birthday cards), and tracing strategies (e.g., collecting alternative contact info) to maximize retention. Caregivers were sent an email notice one month prior to their child's expected testing date. Weekly follow-up phone calls were made to families who did not respond to the initial contact attempt at different times of day and days of the week. Once scheduled for a testing session, families were sent a reminder emails one week and one day prior to their visit. Attempts to reach non-responsive families continued for a maximum of 3 months after their child's target testing date.

Measures

With the exception of child-reported sympathy, all measures described below are from the T1 assessment. Example items are listed below, and the full scales are included in the Online Supplemental Materials.

Sympathy (child report). At both time points, children's self-reported sympathy was assessed using a 5-item scale adapted from Eisenberg et al. (1996; e.g., "When I see someone being picked on, I feel sorry for them"), which has been successfully used with children as young as 4 to 5 years of age (Kienbaum, 2014; Jambon, Colasante, et al., 2019). The experimenter read each item aloud to the child and asked, "Does this sound like you? Or not?" Children were given the forced choice of responding "No, this does not sound like me" or "Yes, this sounds like me." Affirmative responses were followed up by asking, "Does it really sound like you? Or sort of sound like you?" Responses for each item were coded on a 3-point scale ranging from 0 (*not like me*) to 2 (*really sounds like me*). The five items were averaged to create a mean composite, with higher scores reflecting greater sympathy (T1 αs = .72, .77; T2 αs =.80, .74 for younger and

older children, respectively).

Peer victimization (caregiver report). Caregivers reported how often their child is victimized by peers using a single item from the Peer Problems subscale of the Strength and Difficulties Questionnaire (SDQ; Goodman, 1997): “How often is your child picked on or bullied by other children?” We selected this item because it directly pertains to experiences of harm, whereas the remaining subscale items pertain to aspects of children's broader social relationships (e.g., “solitary, tends to play alone”). Although multi-item scales are preferable to single-item measures, Navarro, Fernandez, de la Osa, Penelo, and Ezpeleta (2019) demonstrated that caregiver responses to this question are valid for assessing the prevalence and correlates of peer victimization in a large community sample of children. Caregivers rated the item on a 7-point scale ranging from 0 (*never*) to 6 (*almost always*).

Negative emotionality (caregiver report). Caregiver ratings of negative emotionality were assessed using a 5-item negative emotional intensity scale from Eisenberg et al. (1996; e.g., when my child gets angry, it is easy for him/her to still be rational and not overreact” [R]). Items were scored on a 7-point scale ranging from 0 (*never*) to 6 (*almost always*) and were averaged to create a single composite (αs = .67 and .77 for younger and older children, respectively), with higher scores reflecting greater negative emotionality (i.e., lower emotion regulation).

Emotion regulation (child report). At T1, children reported on their ability to manage feelings of anger and sadness using a total of nine items from the emotion regulation coping subscales of the Children’s Anger and Sadness Management Scale (Zeman, Shipman, Suveg, 2002; e.g., "When I’m feeling mad, I can control my anger", "When I'm feeling sad, I can control my crying and move on"). The original wording of some of the items was simplified for 4-year-old cohort to facilitate comprehension. The question and response formats and coding were

identical to the sympathy scale described above.

To determine whether anger and sadness regulation should be examined separately or combined into a single construct, the nine items were subjected to a principal components analysis (PCA) using varimax rotation. The PCA revealed a single factor solution accounting for 46.85% of the variance in scores (standardized loadings = .49 to .78). All nine items were averaged to create a single child-reported emotion regulation composite (αs = .87 and .80 for younger and older children, respectively), with higher scores reflecting better emotion regulation.

Control variables. Children's verbal ability was assessed using the verbal subtest of the Kaufman Brief Intelligence Test 2nd edition (KBIT-2; Kaufman & Kaufman 2004). Scores were calculated by subtracting each participant's number of errors from their total correct responses (*M*s = 13.89 and 29.04, SDs = 4.21 and 5.39, Ranges = 1–26 and 16–44, for younger and older children, respectively). Given the substantial age difference in verbal ability (Cohen's *d* = 3.13), scores were centered within age group. Caregivers rated the overall quality of their child's peer relations using the 4-item relationships with peers subscale of the Holistic Student Assessment-Parent Report (HSA-PR; Malti, Zuffianò, & Noam, 2018; e.g., "Is popular with other kids", "Gets along well with peers"). Items were scored on a 4-point-scale (0 = *not at all true*, 3 = *almost always true*) and were averaged to create a single composite (αs =.78 and .82 for younger and older children, respectively), with higher scores reflecting more positive relationships with peers.

Missing Data

A total of 258 children participated at T2 (86% of the full sample). Reasons for dropout were that the family was busy or declined participation (*n* = 28), could not be contacted (*n* = 7), had moved (*n* = 5), or were experiencing personal issues (e.g., death of family member; *n* = 2).

Retention rates in the younger (n = 133, 89%) and older cohorts (n = 125; 83%) did not significantly differ, F (1, 298) = 1.77, p = .18. Little's missing-completely-at-random (MCAR) test conducted on all study variables was not significant in the full sample, χ^2 (77, N = 300) = 88.53, p = .17. Separate MCAR tests in each age group were also non-significant for younger, χ^2 (54, N = 150) = 60.75, p = .25, or older children, χ^2 (39, N = 150) = 50.10, p = .11. These null results suggest that the probability of having missing data was not associated with observed scores along any study variables. We therefore estimated missing data under the MCAR assumption using full information maximum likelihood estimation with robust standard errors (MLR). The Satorra-Bentler scaled chi-square difference test was used to compare models when appropriate.

Data Analysis Plan

All analyses were conducted using M*plus* 7.3. After screening for multivariate outliers, we first estimated separate cross-sectional models with sympathy scores regressed onto victimization, child-/caregiver-reported emotion regulation, and Victimization x Emotion Regulation interaction terms. We then conducted multi-group models to test whether the interaction effect differed by gender and age group. This was accomplished by comparing the χ^2 values of models with the interaction regression parameters across the groups (girls vs. boys; younger vs. older) constrained to equality to models with the parameters freely estimated. A significant χ^2 difference test suggests that the strength of the interaction effect is not equivalent across the groups. We conducted simple slopes analyses to probe significant interactions to examine the effect of victimization on sympathy at high and low (± 1 *SD*) values of emotion regulation. Finally, we tested two separate longitudinal models to examine whether child- and caregiver-reported emotion regulation moderated the effects of victimization on T2 sympathy

after controlling for T1 sympathy. We controlled for verbal ability and peer relationship quality (continuous variables) as well as gender and age group (categorical variables) in all models. All continuous variables were z-standardized; thus, all reported effects reflect standardized regression estimates.

Results

Outlier Detection and Preliminary Analyses

Two 8-year-olds (one boy and one girl) were identified as multivariate outliers in the models based on child-reported emotion regulation. Two additional 8-year-olds (one boy and one girl) were identified as multivariate outliers in the models based on caregiver-reported negative emotionality. Removal of these participants resulted in a final sample size of $N = 298$ for each model (see Online Supplemental Materials).

Compared to 4-year-olds, 8-year-olds scored higher in sympathy at both time points, χ^2s (1) = 441.06, 133.18, ps < .001, ds = 1.58, 1.51, peer victimization, χ^2 (1) = 3.65, p = .06, d = 0.20, and self-reported emotion regulation, χ^2 (1) =16.23, p < .001, d = 0.52, and were rated by caregivers as lower in negative emotionality, χ^2 (1) = 5.04, p = .03, d = 0.26. Boys and girls did not significantly differ in T1 or T2 sympathy, victimization, or child- or caregiver-reported emotion variables, χ^2s (1) = 1.22, 0.69, 0.36, 0.52, 0.00, ps = .27, .41, .55, .47, 1.00, ds = 0.14, 0.11, 0.08, 0.08, 0.00, respectively. Consistent with the assertion that most children have experienced some form of victimization, only 15% of participants were rated by caregivers as having "never" been victimized by their peers (i.e., scored 0).

Descriptive statistics and bivariate correlations among all variables are provided in Table 1. Estimates broken down by gender and age group are provided in the Online Supplemental Materials. Parameter estimates and confidence intervals for all regression models are included in

Table 2. The complete data are not publicly available because participants did not consent to having their data shared.

Cross-Sectional Analyses

Emotion regulation (child-reported). Child-reported emotion regulation was strongly and positively associated with T1 sympathy ($p < .001$), whereas victimization was not ($p = .24$). As hypothesized, the Victimization x Emotion Regulation interaction effect was significant ($p = .04$). More frequent victimization was associated with higher sympathy for children relatively high in emotion regulation ($\beta = .132$, $p = .03$, [.016, .249]), but was not associated with sympathy for children low in emotion regulation ($\beta = -.044$, $p = .41$, [-.148, .061]).

Multigroup comparisons indicated that the interaction did not differ between boys and girls, $\chi^2 (1) = 2.16$, $p = .14$, or 4- and 8-year olds, $\chi^2 (1) = 1.43$, $p = .23$.

Negative emotionality (caregiver-reported). Negative emotionality was not directly associated with T1 sympathy ($p = .15$). Consistent with the results of the child-reported emotion regulation model, the Victimization x Negative Emotionality interaction was significant ($p = .04$). More frequent victimization was associated with higher sympathy for children low in negative emotionality ($\beta = .139$, $p = .03$, [.015, .262]), but was not associated with sympathy for children high in negative emotionality ($\beta = -.070$, $p = .38$, [-.227, .086]).

In contrast to the child-reported findings described above, multigroup comparisons indicated that gender moderated the Victimization x Negative Emotionality interaction, $\chi^2 (1) = 17.09$, $p < .001$, such that the effect was present in boys ($\beta = -.255$, $p < .001$, [-.395, -.115]) but not girls ($\beta = -.033$, $p = .60$, [-.156, .089]). More frequent victimization was associated with higher sympathy for boys relatively low in negative emotionality ($\beta = .202$, $p = .03$, [.024, .381]), but was associated with lower sympathy for boys high in negative emotionality ($\beta =$ -

.307, $p < .001$, [-.471, -.143]). The interaction did not differ between 4- and 8-year-olds, χ^2 (1) = 1.66, $p = .20$.

Longitudinal Analyses

Emotion regulation (child-reported). Controlling for T1 sympathy ($p < .001$), neither child-reported emotion regulation ($p = .84$) or peer victimization ($p = .99$) were associated with T2 sympathy. Although in the expected direction, the Victimization x Emotion Regulation interaction was only marginally significant ($p = .097$).

Consistent with the cross-sectional child-report model, the Vicitimization x Emotion Regulation interaction did not differ between boys and girls, χ^2 (1) = 0.40, $p = .53$. However, the interaction did significantly vary across age groups, χ^2 (1) = 7.99, $p = .01$, such that the effect was present in younger (β = .236, $p = .02$, [.045, .427]) but not older children (β = -.037, $p = .57$, [-.162, .089]). More frequent victimization at age 4 was associated with relatively higher sympathy at age 5 for children high in emotion regulation (β = .313, $p = .02$, [.057, .568]), whereas age 4 victimization was negatively (albeit not significantly) associated with later sympathy for children low in emotion regulation (β = -.160, $p = .21$, [-.410, .091]).

Negative emotionality (caregiver-reported). Controlling for T1 sympathy, greater caregiver-reported negative emotionality was (marginally) associated with lower sympathy scores at T2 ($p = .09$). The Victimization x Emotion Regulation interaction was not significant ($p = .32$).

Follow-up multi-group comparisons further indicated that the interaction effect did not differ by gender or age group, χ^2 s (1) = 0.35, 0.09, ps = .55, 92, respectively.

Study 2

Study 1 provided initial support for the proposition that peer victimization may positively

contribute to sympathy development in children who can manage their negative emotions. However, relying on a single-item peer victimization measure raises concerns about the validity and generalizability of the findings. The goal of Study 2 was to test whether these findings would replicate in a different sample of 4- and 8-year-olds drawn from the same community population. Caregiver ratings of peer victimization, negative emotionality, and peer relationship quality and child-reported sympathy were collected as part of a larger project investigating the attentional mechanisms underlying the development of social emotions (Dys, Zuffianò, Orsanka, Zaazou, & Malti, 2019). Children's verbal ability and child-reported emotion regulation were not assessed.

Based on the findings from Study 1, we hypothesized that more frequent peer victimization would be associated with higher sympathy for children relatively low (but not high) in negative emotionality, and that this effect would be stronger in boys than girls. As the cross-sectional effects from Study 1 did not differ across age groups, we did not expect the interaction to differ between 4- and 8-year olds.

Method

Sample

Participants included 204 four- (n = 111; 56 girls) and 8-year-olds (n = 93; 45 girls) and their primary caregivers (83% female; 97% biological parents) recruited from the same population as Study 1. Approximately 94% of caregivers reported being married or in a domestic partnership. Caregivers' self-reported highest level of education included 7% high school, 2% apprenticeship or trade school, 18% college degree, 41% bachelor's degree, 23% master's degree, and 1% Ph.D.; 8% chose not to answer. The ethnic background of the sample was 30% European, 30% Asian, 3% Middle Eastern, and 19% other; 18% refused/chose not to answer. Four- and 8-year-olds did not differ along any demographic characteristics (ps = .19–.33).

Procedure

The University of Toronto ethics review board granted approval prior to the start of data collection ("Children's Attentional Control and Emotions", # 30633). Procedures were like those reported in Study 1.

Measures

Child-reported sympathy (αs = .81 and .68 for 4- and 8-year-olds, respectively) and caregiver ratings of peer victimization, negative emotionality (αs =.67 and .76), and peer relationship quality (αs =.84 and .86) were assessed using the same measures and scoring procedures as described in Study 1.

Missing Data

There was a relatively small amount of missing data (*range* = 0%–14%). Little's MCAR test was not significant χ^2 (24, N = 204) = 26.35, p = .34. Missing data were estimated under the MCAR assumption using MLR.

Data Analysis Plan

We attempted to replicate the results of Study 1 by regressing sympathy scores onto caregiver ratings of victimization, negative emotionality, and their interaction (controlling for gender, age group, and peer relationship quality). The same multi-group modeling procedures described in Study 1 were used to test whether the interaction differed between boys and girls and younger and older children.

Results

Outlier Detection and Preliminary Analyses

Three participants (one 4- and two 8-year-olds) were identified as multivariate outliers and removed, resulting in a final sample size of N = 201 (see Online Supplemental Materials). Compared to 4-year-olds, 8-year-olds scored higher in self-reported sympathy, χ^2 (1) = 67.86, p

< .001, d = 1.25, and caregiver-reported victimization, χ^2 (1) = 7.64, p = .01, d = 0.41, but not in caregiver ratings of negative emotionality, χ^2 (1) = 0.53, p =.47, d = 0.11. Boys and girls did not significantly differ in sympathy, victimization, or negative emotionality, χ^2s (1) = 0.34, 0.16, 0.08, ps = .56, .70, .77, ds = 0.09, 0.06, 0.05, respectively. Similar to the prevalence reported in Study 1, approximately 20% of participants were rated by caregivers as having "never" been victimized. Descriptive statistics and bivariate correlations among all study variables are provided in Table 3. Estimates by gender and age group are provided in the Online Supplemental Materials.

Regression Analyses

Parameter estimates from the regression model are provided in Table 4. Victimization (p = .92) and negative emotionality (p = .32) were not directly associated with children's sympathy. Replicating the findings from Study 1, the Victimization x Negative Emotionality interaction was significant (p = .01). More frequent victimization was associated with greater sympathy for children low in negative emotionality (β = .238, p = .04, 95% CI [.009, .510]), whereas victimization was negatively associated with sympathy for children high in negative emotionality (β = -.221, p = .01, [-.391, -.051]; in Study 1 this slope was also negative but not significantly different from zero).

Unlike Study 1, the interaction effect did not significantly differ between boys and girls, χ^2 (1) = 2.35, p = .13. Nevertheless, exploratory follow-up analyses suggested that it trended towards being more pronounced in boys (β = -.320, p < .001, [-.491, -.149] compared to girls (β = -.101, p = .48, [-.379, .177]. Consistent with the cross-sectional results of Study 1, the interaction did not differ between 4- and 8-year-olds, χ^2 (1) = 0.10, p = .75.

Discussion

Considerable research has documented the adverse effects of peer victimization on children's wellbeing. Drawing on contemporary theorizing about the origins of other-oriented emotions, we tested whether experiences of harm in peer contexts may, in certain circumstances, positively contribute to children's sympathy development. Using data collected from two ethnically diverse Canadian samples of 4- and 8-year-olds, our findings indicate that individual differences in how children experience and regulate negative emotions may play a key role in this process. These preliminary results suggest important new avenues for research into the multifaceted ways in which social interactions facilitate the early development of children's concern for others.

Consistent with past research (van Noorden et al., 2015; Zych et al., 2016), we did not find a direct relation between victimization and sympathy. However, cross-sectional analyses indicated that more frequent victimization was associated with greater sympathy for children who could effectively manage their negative emotions, whereas null or negative associations were found for children low in emotion regulation. These findings support the assertion that early aggressive encounters may provide a window into the negative consequences of such behavior (Arsenio & Lover, 1995; Dahl et al., 2018; Smetana et al., 2018). Although well-regulated children likely experience a similar degree of immediate pain from victimization as other youth, their ability to cope with these stressful experiences may reduce the amount of time spent dwelling on self-focused negative thoughts and emotions. In turn, this may facilitate their capacity to reflect on and integrate these experiences into their beliefs about how others ought to be treated. By contrast, children prone to strong and dysregulated emotional responses may subjectively experience victimization to be more hostile and threatening to their overall sense of wellbeing. As a result, they may be more likely to ruminate on their experiences and become

personally distressed when faced with suffering in others, which impedes sympathy development (Eisenberg et al., 2014).

We found mixed evidence regarding potential gender differences in this process. In Study 1, the victimization by caregiver-reported (but not child-reported) emotion regulation interaction at T1 was stronger in boys compared to girls. This gender difference was not replicated in Study 2, although exploratory analyses suggested a similar trend favoring boys. Males are more likely than females to be the victims of, and engage in, direct and physical forms of aggression in early and middle childhood, whereas relational acts of victimization and aggression are more typical of females (Crick et al., 1999; Ostrov & Kamper, 2015). Thus, caregivers may view direct victimization encounters as more typical for boys compared to girls and, consequently, view boys as less distressed by and better able to grow from these experiences. Relational victimization, by contrast, may be more strongly linked to sympathy in well-regulated girls. As our single-item victimization assessment focused broadly on being picked on or bullied by others, studies employing multi-item measures that differentiate between physical and relational victimization are needed before drawing conclusions regarding gender-specific pathways.

For both boys and girls, more frequent victimization predicted changes in sympathy from 4 to 5 years of age (but not from 8 to 9 years) in children reporting greater emotion regulation abilities. Because entry into the peer group presents unique opportunities and challenges for building social skills and relationships (Rubin et al., 2013), researchers have speculated that the potential for victimization experiences to positively contribute to children's other-oriented dispositions may be greatest during the first few years of life (Dahl et al., 2018). Moreover, individual differences in sympathy appear to solidify during middle childhood (Eisenberg et al., 2014; Knafo et al., 2008). Thus, affective arousal and regulation may play an integral role in how

conflictual peer interactions are interpreted and understood in early childhood. These early emerging individual differences may then persist across development, as evidenced by the similar pattern of cross-sectional effects for 4- and 8-year-olds in both studies. By middle childhood, other factors, such as the quality of close friendships, may be more closely linked to subsequent *changes* in other-oriented concern (e.g., Grutter et al., 2018). Additional longitudinal research spanning a larger developmental timeframe will bring clarity to this issue.

It is also important to consider this study's limitations and outline directions for future study. First and foremost, we relied on a broad, single-item assessment of caregiver reported victimization. With a few exceptions outlined above, we were able to replicate the same patterns of effects across samples, measures, and informants, alleviating some concern about the validity of a one-item measure. Nevertheless, past research indicates that child self-reports (in early childhood) and measures that aggregate across self-, peer-, teacher-, and parent-reports (in middle childhood) are more likely than other single-informant assessments to yield the accurate estimates of victimization prior to adolescence (Ladd & Kochenderfer-Ladd, 2002). Moreover, as with most victimization measures, the identity of the perpetrator was not specified. This a limitation given that children think and reason differently about aggressive interactions occurring in distinct interpersonal relationships (e.g., friends vs. enemies; Smetana & Ball, 2018). In addition to considering distinct types of victimization experiences (e.g., physical, verbal, relational), future studies should include multiple-informant assessments that incorporate information about the various relationship contexts in which these events occur.

Relatedly, our assessments of sympathy and emotion regulation were limited to global questionnaire and/or self-report measures. Children's reports of sympathy are subject to social desirability biases (Eisenberg et al., 2014) and questionnaire ratings of emotion regulation

broadly focus on the presence or absence of intense and prolonged states of dysregulation (Beauchaine, 2015). Employing observational and physiological assessments in different sympathy-inducing and emotionally arousing contexts would provide a richer and more nuanced understanding of these processes. For instance, observing children's behavioral responses towards others in distress would help to differentiate low levels of sympathy from an active disregard for others' wellbeing (Rhee, Woodward, Corley, & du Pont, 2020). Converging evidence from behavioral, physiological, and questionnaire ratings would also clarify whether the moderating effect of emotion regulation we observed is more strongly tied to temperamental reactivity or regulation strategy use (Beuchaine, 2015; Cole et al., 2004; Lougheed et al., 2019). Furthermore, a multi-method approach would likely provide greater opportunity to examine whether the management of discrete emotional states (e.g., anger vs. sadness) has different implications for the development of sympathy, which we did not address in Study 1 due to substantial overlap between the child-reported emotion regulation coping scales. Disentangling these distinct mechanisms would aid parents' and practitioners' efforts to identify appropriate targets of intervention to more effectively counteract the deleterious effects of victimization and promote healthy sociomoral functioning in early and middle childhood (Wyman et al., 2010).

Consistent with the notion that victimization constitutes a normative feature of social life, most caregivers reported that their child had experienced at least some form of victimization. Because the overall mean levels of victimization were relatively low in our community samples, however, caution should be used when generalizing these findings to children who are chronically victimized. Whereas some exposure to harm may be important for sympathy development, severe and prolonged victimization may have deleterious effects regardless of children's ability to regulate their emotions. Conversely, even extreme acts of violence and

trauma can, under certain circumstances, increase altruistic and prosocial tendencies in adults (Vollhardt, 2009). Greater theorizing and research are needed to understand how intra-personal (e.g., social information processing) and contextual factors (e.g., social and family support) alter the impact of past harmful experiences on children's other-oriented tendencies.

Finally, we focused on early and middle childhood because these ages constitute a key period for the development of individual differences in sympathy. Nevertheless, rates of aggression and victimization peak between 2 and 3 years (Eisner & Malti, 2015), suggesting that peer influences on children's developing concern for others likely begin during the toddler years (Dahl et al., 2018). Examining how both positive and negative experiences with peers contribute to sympathy during the early years, with a specific emphasis on the mechanisms driving these developmental changes (e.g., perspective-taking abilities), represents a critical next step for future study.

In conclusion, being harmed by peers is a painful-but-inevitable part of social life. The ability to cope with and regulate emotional responses to these encounters may allow children to reflect on and glean valuable insight into the negative consequences of antagonistic behaviors for others' welfare. Understanding how sympathy and prosocial tendencies arise from adverse experiences, rather than existing despite them, will provide a more nuanced account of children's early social-emotional development and can inform our capacity to effectively promote healthy functioning and ameliorate future suffering.

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Table 1

Descriptive Statistics and Correlations Among Study 1 Variables

		M	*SD*	Observed Range	1	2	3	4	5	6	7	8	9
1.	Age group (8-year-olds)	5.97	2.00	4 or 8	–	.00	.02	.09	.64**	.60**	.05	.25**	-.15**
2.	Gender (boys)	.50	0.50	0 or 1		–	-.05	-.06	-.05	-.05	.04	.01	.04
3.	Verbal ability	0.08	4.76	-20.04 to 17.96			–	.01	.16**	.13*	.04	.04	-.01
4.	Peer relationship quality	2.35	0.56	0.67 to 3.00				–	.04	.07	-.19**	.04	-.28**
5.	Time 1 sympathy	1.15	0.66	0.00 to 2.00					–	.58**	.08	.59**	-.16**
6.	Time 2 sympathy	1.25	0.64	0.00 to 2.00						–	.03	.28**	-.19**
7.	Victimization	1.29	0.86	0 to 5							–	-.03	.11†
8.	ER (child-report)	0.87	0.56	0.00 to 2.00								–	-.15*
9.	NE (caregiver-report)	2.50	1.10	0.00 to 5.20									–

Note. ER= emotion regulation; NE= negative emotionality. Estimates based on subsample ($N = 296$) with multivariate outliers excluded. Estimates for the full sample are provided in the Online Supplemental Materials.

† $p \leq .10$ * $p \leq .05$ ** $p \leq .01$.

Table 2

Study 1 Parameter Estimates

	Sympathy			
	Cross-sectional model		Longitudinal model	
	β	95% CI	β	95% CI
Child-reported ER model				
Prior sympathy	--	--	.310**	[.152, .468]
Age group	.517**	[.450, .585]	.402**	[.284, .525]
Gender	-.058	[-.130, .014]	-.028	[-.125, .065]
Verbal ability	.124**	[.053, .195]	.070	[-.018, .158]
PRQ	-.014	[-.095, .066]	.022	[-.080, .125]
Victimization	.044	[-.036, .125]	.000	[-.106, .107]
ER	.458**	[.387, .529]	-.013	[-.134, .109]
Victimization x ER	.088*	[.005, .158]	.101†	[-.018, .220]
R^2		.63		.44
Caregiver reported NE model				
Prior sympathy	–	–	.296**	[.162, .430]
Age group	.623**	[.553, .693]	.398**	[.281, .515]
Gender	-.052	[-.139, .036]	-.022	[-.115, .072]
Verbal ability	.153**	[.058, .249]	.061	[-.031, .152]
PRQ	-.052	[-.157, .054]	.017	[-.094, .128]
Victimization	.025	[-.072, .106]	.016	[-.104, .137]
NE	-.080	[-.174, .013]	-.087†	[-.188, .015]
Victimization x NE	-.110*	[-.223, -.009]	.047	[-.046, .140]
R^2		.44		.43

Note. PRQ= peer relationship quality; NE= negative emotionality.
† $p \leq .10$ * $p \leq .05$ ** $p \leq .01$.

Table 3

Descriptive Statistics and Correlations Among Study 2 Variables

	M	*SD*	Observed Range	1	2	3	4	5	6
1. Age group (8-year-olds)	5.81	1.99	4 or 8	–	.02	-.01	.53**	.19**	-.08
2. Gender (boys)	0.51	0.50	0 or 1		–	-.04	-.04	.03	-.01
3. Peer relationship quality	2.38	0.57	0.75 to 3.00			–	-.01	-.44**	-.45**
4. Sympathy	0.96	0.64	0.00 to 2.00				–	.08	-.03
5. Victimization	1.18	0.89	0 to 5					–	.28**
6. Negative emotionality	1.60	0.37	0.00 to 2.41						–

Note. Estimates based on subsample ($N = 201$) with multivariate outliers excluded. Estimates based on the full sample are provided in the Online Supplemental Materials.

* $p \leq .05$ ** $p \leq .01$.

Table 4

Study 2 Parameter Estimates

	Sympathy	
	β	95% CI
Age group	.547**	[.429, .658]
Gender	-.034	[-.157, .089]
PRQ	-.064	[-.221, .093]
Victimization	.008	[-.149, .166]
NE	-.083	[-.246, .079]
Victimization x NE	-.229**	[-.393, -.065]
R^2	.33	

Note. PRQ= peer relationship quality; NE= negative emotionality
** $p \leq .01$.