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Social Victimization Trajectories From Middle Childhood Through Late Adolescence

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Abstract

Social victimization refers to being targeted by behaviors intended to harm one's social status or relationships (Underwood, 2003), including malicious gossip, friendship manipulation, and social exclusion (both verbal and non-verbal). The current study examined social victimization experiences longitudinally from middle childhood through late adolescence. Participants (N = 273, 139 females) reported on their social victimization experiences in grades 4–11 (ages 9 to 16 years). Using mixture (group-based) modeling, four social victimization trajectories were identified: low, medium decreasing, medium increasing, and elevated. High parent-child relationship quality decreased the odds of being in the elevated group compared to the low group; however, parent-child relationship quality was no longer a significant predictor when emotional dysfunction was added to the model. Higher emotional dysfunction and male gender increased the odds of being in the elevated group and medium increaser group relative to the low group even after controlling for parent-child relationship quality. Implications for intervention and future research directions are discussed.

Keywords

peer victimization; social aggression; developmental trajectories

Introduction

Peer victimization is a pervasive problem of considerable concern to parents, school officials, and policy makers (Olweus, 1995; Rigby, 2007). Many students report having experienced forms of peer victimization at some time; in one study over 75% of respondents reported having been bullied (Hoover, Oliver, & Hazler, 1992). However, there appears to be considerable individual variation in the duration and timing of peer victimization experiences (Kochenderfer-Ladd & Wardrop, 2001; Rueger, Malecki, & Demaray, 2011), with approximately 10% of youth enduring chronic peer victimization (Nansel et al., 2001; Olweus, 1995). Given that the timing and duration of victimization may influence adjustment, there are a growing number of studies examining peer victimization trajectories (e.g., Barker, Boivin, et al., 2008; Biggs et al., 2010). Despite calls to examine trajectories of

different forms of victimization separately, previous research has focused on trajectories of peer victimization without differentiating subtypes of victimization (Sumter, Baumgartner, Valkenburg, & Peter, 2012). Thus, the purpose of the current study was to examine trajectories of social victimization and identify factors that might predict membership in different social victimization trajectory groups.

Social victimization refers to being targeted by behaviors intended to harm one's social status or relationships (Underwood, 2003). Experiences of social victimization may include being subject to social exclusion, malicious gossip, and friendship manipulation. Alternative terms such as indirect victimization (Lagerspetz et al., 1988) and relational victimization (Crick, Casas, & Nelson, 2002) have been used to refer to constructs that are similar to social victimization. We use the term social victimization in the current study in order to acknowledge that social victimization can be verbal or nonverbal in form (e.g., contemptuous facial expressions) and may be either direct or indirect in nature (Archer & Coyne, 2005).

We chose to focus our investigation on social victimization trajectories for several reasons. Researchers have continued to highlight the importance of focusing on social victimization. Fitzpatrick and Bussey (2014) recently advocated for the study of social victimization, stating that "the social victimization of adolescents at school is a significant problem worldwide" (p. 41). Social victimization is more frequently reported than is physical victimization (Light, Rusby, Nies, & Snijders, 2014; Prinstein, Boergers, & Vernberg, 2001; Wang, Iannotti, & Nansel, 2009). The prevalence of social victimization is concerning given that experiences of social victimization are concurrently associated with internalizing problems and externalizing problems even after controlling for experiences of overt victimization (Prinstein et al., 2001; Sullivan, Farrell, Kliewer, 2006). Social victimization may be distressing for victims given that these experiences interfere with individuals' fundamental need to belong (Baumeister & Leary, 1995). In fact, recent evidence suggests that experiences of social pain may be more readily re-experienced than experiences of physical pain (Chen & Williams, 2010). Based on these associations between social victimization and maladjustment, Crick et al. (2002) articulated the importance of examining predictors of social victimization, noting that "given the potentially harmful nature of relational [social] victimization, it will be important to identify factors that predict individual differences in children's risk for exposure to this type of maltreatment" (p. 100). By examining predictors of social victimization trajectories the findings of the current study may inform prevention and intervention work.

Moreover, our decision to focus on social victimization stemmed from the need to better understand developmental trends in social victimization. Researchers frequently argue for the importance of studying social victimization in adolescence pointing to research that suggests that while physical victimization declines across childhood, social victimization may persist into adolescence (Blake, Kim, McCormick, & Hayes, 2011). Desjardins and Leadbeater (2011) explain that while physical victimization decreases across childhood, this is not the case for social victimization and go on to suggest that "relational [social] victimization thus persists into adolescence, and research is needed to better understand it and to identify potential avenues for intervention and prevention in this age group" (p. 532).

Indeed, experiences of social aggression may become even more distressing to victims in adolescence given the growing importance of peer and romantic relationships (Furman & Burhmester, 1992), making it important to examine social victimization in its own right. However, claims about the development of social victimization are most often based on cross-sectional research (Craig, 1998; Finkelhor, Ormrod, & Turner, 2009) underscoring the importance of longitudinal studies of social victimization such as the current investigation to illuminate general developmental trends as well as identify groups following different trajectories of social victimization.

Longitudinal Examinations of Victimization

Several longitudinal studies that did not differentiate subtypes of peer victimization suggest that victimization may decrease across development (Reavis, Keane, & Calkins, 2010; Troop-Gordon & Ladd, 2005). However, as noted above, researchers have suggested that there is “heterotypic continuity” of aggression with social aggression becoming more prevalent in late childhood and early adolescence as physical aggression declines (e.g., Bjorkqvist, Lagerspetz, & Kaukianinen, 1992; Miller, Vaillancourt, & Boyle, 2009). This shift to subtler forms of aggression that are less likely to be detected by adults is believed to coincide with the development of increasingly complex verbal and social skills.

Despite the importance of studying change and development in social victimization, few longitudinal studies have specifically focused on social victimization (Giesbrecht, Leadbeater, & Macdonald, 2011). Giesbrecht et al. (2011) found that social victimization may decline from first through third grade. In contrast, the findings of Biggs et al. (2010) suggest that this form of victimization may slightly increase from third through fifth grade. Additional research is needed to examine the development of social victimization across the transition to adolescence.

A series of recent studies have highlighted the importance of moving beyond simply considering general developmental trends in victimization experiences to identifying whether subgroups follow different trajectories (Barker, Arseneault, Brendgen, Fontaine, & Maughan, 2008). If we focus only on the overall pattern, we may fail to consider individual variability in experiences of victimization. Possible subgroups may follow distinct trajectories of victimization, and this includes chronic victims who may experience the greatest distress and maladjustment (Biggs et al., 2010; Goldbaum, Craig, Pepler, & Connolly, 2003).

Subgroups following different developmental trajectories of victimization have been studied in the preschool years, childhood, and adolescence. To our knowledge, this existing work has been limited to assessments of general victimization without differentiating between different forms of victimization experienced. For an exception, see Sumter et al. (2012) for an assessment of what they termed “off-line” and “online” victimization trajectories to differentiate between children’s peer experiences in traditional settings as well as those that occur on the Internet. They identified three off-line victimization trajectories (i.e., low victimization, moderate and decreasing victimization, high and decreasing victimization) and two online victimization trajectories (i.e., low victimization, moderate victimization).

Only one known study has examined victimization trajectories across early childhood. Barker et al. examined victimization from age three to six (Barker, Boivin et al., 2008). For this and all other trajectory studies outlined, we provide the names of the trajectory groups followed by the percentage of participants in each group. Barker et al. identified three trajectory groups: low increasing (71%), moderate/increasing (25%), and high chronic (4%) groups.

Several studies have examined victimization trajectories during middle childhood. Biggs et al. (2010) examined victimization from third through fifth grade. They identified five victimization trajectories: low (56.2%), moderate (31.72%), increasing (4.04%), decreasing (5.9%), and chronic (2.14%). Similarly, Boivin et al. (2010) assessed victimization from third through sixth grade. Rather than five trajectories, they identified three trajectory groups: low stable (85.5%), high increasing (10%), and extreme decreasing (4.5%).

The study of victimization trajectories has also extended into adolescence. As previously mentioned, Sumter et al. (2012) identified three off-line victimization trajectories: low (48%), moderate (45%), and high (6%). Barker, Arseneault, et al. (2008) conducted another investigation of victimization trajectories during adolescence and identified a low (85%), high decreasing (10%), and high increasing group (5%).

Predictors of Victimization

Given that membership in certain victimization trajectory groups may predict maladjustment (Goldbaum et al., 2003), many of the investigations outlined above have also focused on identifying predictors of victimization trajectories. Discovering which factors predict different trajectories of social victimization has the potential to guide interventions. The current study examines three potential predictors of social victimization trajectories: participant sex, parent-child relationship quality, and emotion dysregulation. These factors were selected under the framework of emotions theory, drawing on Thompson's (1994) seminal review of emotion regulation, which outlined emotions theory's focus on "individual differences in personality and social functioning and the central role that emotive processes play in these differences" (p. 26). Emotion dysregulation has long been proposed as an important predictor of peer victimization because expressing negative emotions invites peer rebuke (see Hanish et al., 2004). Problems with regulating emotions likely arise partly from temperament but also from early, negative interactions with caregivers, and together these factors likely shape subsequent relationships with peers (Thompson, 2015). Both sex and parenting have been associated with emotional dysregulation (Bender, Reinholdt-Dunne, Esbjorn, & Pons, 2012; Spinrad, Stifter, Donedan-McCall, & Turner, 2004), which is a consistent predictor of victimization (Herts, McLaughlin, & Hatzenbuehler, 2012; Shields & Cicchetti, 2001). All three factors have been shown to predict victimization trajectories in previous research; however, these studies did not differentiate forms of victimization (Barker, Boivin et al., 2008) or focused on earlier, narrower periods of development (e.g., early elementary school, Giesbrecht et al., 2011).

Examining potential sex differences is important in the study of children's peer relations (Rose & Rudolph, 2006). Males may experience higher rates of physical victimization than

do females, but there do not appear to be consistent sex differences in levels of social victimization (Paquette & Underwood, 1999; Sullivan et al., 2006). There is some suggestion that males may follow higher trajectories of victimization than do females. Although focused on general victimization, Barker, Boivin et al. (2008) found that more boys than girls were in the moderate/increasing and high chronic groups. Likewise, Boivin et al. (2010) in an investigation of general victimization found a gender difference in trajectory group membership with significantly more boys in the high increasing trajectory. Barker, Arsenaault et al. (2008) considered socially aggressive behaviors (e.g., ignoring and excluding) in their conceptualization of general victimization. In this study, a higher percentage of males than females were in the high decreasing group (Barker, Arsenaault et al., 2008).

Quality of the parent-child relationship may predict victimization because interactions with family members lay the groundwork for peer relationships. Aversive family factors have been suggested as one of the risk factors for social victimization (Crick et al., 2002), whereas parental support has been suggested as one of the protective factors. Relationships with parents have the potential to help children develop self-regulatory and social skills (Reavis et al., 2010). Harsh parenting has been associated with lower emotion regulation, which in turn, is associated with greater aggression (Chang, Schwartz, Dodge, & McBride-Chang, 2003). Interactions with parents may also influence children's representations of interpersonal relationships which affect behavior in peer settings; negative representations may lead to greater maladaptive behavior with peers (Beran & Violato, 2004).

Measures of low parental warmth have been associated with victimization (Beran & Violato, 2004). Focusing on social victimization, researchers have found that parental support is inversely related to experiences of social victimization (Desjardins & Leadbeater, 2011; Wang et al., 2009). Moving to trajectory-based analysis of general victimization, Barker, Boivin et al. (2008) found that harsh parenting predicted membership in the high chronic victimization trajectory group compared with the low increasing victimization trajectory group. Additional support for the link between parent-child relationship quality and victimization comes from observational assessments of kindergartners and their primary caregivers (Ladd & Kochenderfer-Ladd, 1998). Parental responsiveness was negatively related to victimization, and intrusive-demanding parenting was positively related to victimization.

Regulatory skills are essential for successful peer relations, and thus, problems with emotion regulation may predict victimization (Schwartz & Proctor, 2000). Emotionally dysregulated behaviors such as becoming easily upset and having difficulty controlling the expression of emotion may be perceived as annoying by the peer group (Pope & Bierman, 1999). Children who exhibit deficiencies in emotion regulation may also display high levels of reactive aggression in response to peer provocation, and this retaliatory behavior in turn, is associated with victimization. These "aggressive victims" differ from more passive victims of aggression (Schwartz et al., 1998). In addition, problems with emotion regulation may signal an easy target for peer aggression who is unlikely to be able to defend him or herself (Boivin et al., 2010). Several studies have found that deficits in emotion regulation are related to general measures of victimization (e.g., Herts et al., 2012; Shields & Cicchetti, 2001), and

this relation holds when specifically examining social victimization (Giesbrecht et al., 2011; Rudolph et al., 2009). Furthermore, experiences of social victimization have been associated with both dysregulated anger and dysregulated sadness (McLaughlin, Hatzenbuehler, & Hilt, 2009).

Current Study

The current study extends past research by examining trajectories of social victimization from fourth through eleventh grade (ages 9–16 years). We expected social victimization trajectories to be similar to those found in earlier work on general victimization. Based on past research we expected to find a low, increasing, and decreasing trajectory (Barker, Arsenaault et al., 2008; Biggs et al., 2010; Boivin et al., 2010). Further, we hypothesized that we might find an elevated group (Biggs et al., 2010).

We also investigated possible predictors of social victimization trajectory group membership. There do not appear to be consistent sex differences in frequency of social victimization experiences (Crick & Grotpeter, 1996; Paquette & Underwood, 1999; Prinstein et al., 2001; Sullivan et al., 2006). Similarly, sex differences in general victimization trajectory group membership are inconsistent across studies (Barker, Arsenaault et al., 2008; Biggs et al., 2010; Boivin et al., 2010). When sex differences are found, males tend to follow higher trajectories than females (Barker, Arsenaault et al., 2008; Barker, Boivin et al., 2008; Boivin et al., 2010). Given that social victimization trajectories have not previously been examined from middle childhood through late adolescence, we tentatively predict membership in the increasing and elevated victimization groups would be predicted by male gender. Past research does consistently show that poor parent-child relationship quality and emotional dysregulation are associated with victimization. Thus, we also hypothesized that low parent-child relationship quality and problems with emotion regulation would predict membership in the increasing and elevated victimization groups (Beran & Violato, 2004; Pope & Bierman, 1999; Shields & Cicchetti, 2001).

Method

Participants

Participants included 273 students (139 girls) who were taking part in a longitudinal study on the origins and outcomes of social aggression. Students were recruited from a diverse, suburban school district when they were finishing third grade (8 years old) and have been followed with yearly assessments. The current study relies on data collected during participants fourth (9 years old) through eleventh grade (16 years old) visits. In this particular school district, students transitioned to middle school in seventh grade (12 years old) and to high school in ninth grade (14 years old). Thus barring family moves or other special circumstances, the majority of participants attended three schools during the course of the study.

Parents identified the ethnicity of target participants as follows: 20% African American, 55% European American, 19% Mexican American, and 6% other. Of those parents who reported household annual income on a five-point scale, 19.1% reported earning less than

\$25,000, 21.4% reported earning between \$26,000 and \$50,000, 23.0% reported earning between \$51,000 and \$75,000, 25.1% reported earning between \$76,000 and \$100,000, and 10.7% reported earning more than \$101,000. Approximately 4% of parents did not provide answers to these demographic questions, but the demographic profile of our participants is similar to that of the community from which they were recruited where the median annual income is \$69,000.

The parent most knowledgeable about the child's social life was also invited to participate in the yearly research visits, and parent-child relationship quality was assessed through the coding of observational tasks with parent and child. Only one parent participated in the study along with their child, and in the majority of cases (83%) this was the mother. Past investigations of peer relations have also relied upon assessments from the "person most knowledgeable about the child", with a similar percentage of mothers participating (e.g., Cote et al., 2007).

In addition, teachers were invited to provide ratings of the target children's social behaviors and adjustment in the school setting. The current study relied on assessments made by the target children's fourth and fifth grade teachers. Teacher ratings were available for 215 children in fourth grade and 227 children in fifth grade.

Procedures

Prior to any data collection, the study was approved by the university's Institutional Review Board. At the beginning of the study, researchers distributed letters describing the nature of the longitudinal investigation and consent forms in the participants' third grade classrooms. Approximately 55% of the consent forms were returned, which is comparable to studies involving one-time assessments in school classrooms (Betan, Roberts, & McCluskey-Fawcett, 1995; Sifers, Warren, Puddy, & Roberts, 2002). In addition to providing consent at the start of the study, parents also provided consent before each yearly visit. As with any longitudinal study, data for some participants were missing at certain time points. The observations available in each grade for the indicators needed to create the variable we use to construct the trajectories ranged from 168 to 221.

From third through seventh grade, assessments were conducted in the laboratory around the time of the target child's birthday. Visits were laboratory-based to allow participants to complete a series of observational tasks. Participants were given a series of observational tasks to complete with their parent. Of relevance to the current study were ratings of parent-child relationship quality, which were assessed across six observational tasks conducted in fourth grade. The observational tasks included parent-child discussion of the following: an ideal birthday celebration, a talented person at school, friendships, how children treat each other, a recent family disagreement, and positive aspects of the family. Target children also completed the Revised Social Experience Questionnaire (Paquette & Underwood, 1999) to obtain a measure of children's social victimization experiences in fourth, fifth, and sixth grades.

In the summer following seventh through eleventh grades, research visits were conducted either in the home or laboratory depending on the preference of the family. At these later

visits, participants and parents completed assessments, but an observational component was no longer included. Of relevance to the current study, participants completed the Revised Adolescent Social Experience Questionnaire (Rosen et al., 2012), which is an upward extension of the Revised Social Experience Questionnaire (Paquette & Underwood, 1999) to obtain a measure of the children's social victimization experiences in seventh, eighth, ninth, tenth, and eleventh grades.

Target children's fourth and fifth grade teachers were invited to provide ratings of social behaviors and adjustment. Of relevance to the current study, teachers completed the Child Behavior Checklist – Teacher Report Form (Achenbach & Rescorla, 2001), which was used to derive an emotional problems subscale (Carlson, Egeland, Sroufe, 2009). To make maximal use of available data, emotional problems were assessed using teacher data collected in fourth grade, but fifth grade teacher ratings were used when fourth grade teacher ratings were not available. Although we considered imputation as a method for expanding our sample, we decided that using the actual student data when available would be more valid than imputation. Both imputation and using a different grade's data lead to some amount of measurement error; however, we chose to use fifth grade ratings when fourth grade ratings were unavailable given the closeness in proximity of these assessment periods and the fact that this was actually measured data rather than imputationally constructed.

Measures

Parent-Child Relationship Quality—Parent-child relationship quality was assessed based on observations made across the entire series of tasks. Ratings were made on a 1 (*very low*) to 7 (*very high*) scale. Coders took into account both verbal and nonverbal communication, and thus considered factors such as content of verbalizations, tone of voice, and any physical interaction. Low parent-child relationship quality was signaled by a lack of mutuality and concern for one another, tenseness, and closed communication. Conversely, high parent-child relationship quality was signaled by concern and positive regard for one another, open communication, warmth, and respect. Approximately 20% of interactions were double-coded to assess inter-rater reliability. Ratings of parent-child relationship quality were reliable, with a Cronbach's alpha of .76.

Social Victimization—The Revised Social Experience Questionnaire (Paquette & Underwood, 1999) was used to assess social victimization experiences in fourth through sixth grades. Target children self-reported the frequency with which they experienced socially aggressive behaviors on a Likert scale ranging from 1 (*never*) to 5 (*all the time*). There were seven items including “how often does a child who is mad at you try to get back at you by not letting you be in their group anymore” and “how often does another child say they won't like you unless you do what they want you to do.”

In longitudinal research, it is often necessary to modify measures to ensure age-appropriateness (Schmidt & Teti, 2004), and this was the case in the current study. However, there was a core of five items that were asked throughout all grades that form a bridge across years. Beginning with the research visit conducted in the summer after the target children's seventh grade year, we transitioned to an upward extension of the Revised Social Experience

Questionnaire (Rosen et al., 2012). The Revised Adolescent Social Experience Questionnaire uses wording more appropriate for adolescent participants; for example, “How often do other kids leave you out on purpose when it is time to play or do an activity?” was changed to “How often do other kids exclude you or leave you out on purpose?” In addition, new items were included to assess socially aggressive behaviors that might become increasingly evident in adolescence (e.g., “How often do other kids befriend your enemies for revenge against you?”). A total of 14 items was used to assess social victimization experiences in adolescence. As was the case in grades four through six, participants indicated how often they experienced each form of socially aggressive behavior using a 1 (*never*) to 5 (*all the time*) scale. Past research has found this measure demonstrates factorial invariance and is appropriate for assessing social victimization from middle school through the transition to high school (Rosen et al., 2012). Reliabilities of scores were in the good to excellent range at all assessment points from fourth through eleventh grades (α 's > .83).

Emotional Problems—Fourth and fifth grade teachers completed the Child Behavior Checklist – Teacher Report Form (CBCL – TRF, Achenback & Rescorla, 2001). Carlson et al. (2009) proposed an emotional problems subscale using certain CBCL-TRF items to assess difficulties with emotion regulation (e.g., “cries a lot” and “temper tantrums or hot temper”). Carlson et al. (2009) reported strong psychometric qualities for this emotional problems subscale within the context of their longitudinal investigation. Similarly, this subscale proved reliable in the current study, Cronbach's alpha of .80 or higher.

Analytic Plan—We began by visually examining the pattern of victimization across the eight years of available data and estimating a standard hierarchical linear model. The extensive variation observed in the data suggested that this single regression line was not likely to be adequate. We then expanded the analysis to look for evidence of more than one trajectory. These mixture (group-based) models allow for the identification of different trajectories that the participants may cluster around rather than creating a single, average trajectory as was done in the single regression line approach (Nagin, 1999). Through each of these analyses an investigation of whether a linear or quadratic specification better captured the data was undertaken. The determination of the polynomial degree and number of classes was made both by using the Bayesian Information Criterion (BIC), a lower BIC was better, and smaller differences between BICs suggested evidence that the models were not statistically distinguishable as well as provided an evaluation of the class assignments (Kass & Raftery, 1995; Nagin, 2005). Following the recommendation of Nagin (2005), we analyzed the natural logarithm of victimization to account for the skewed nature of the data.

The reliability of the models was evaluated by computing the average posterior probability of assignment (AvePP) and the odds of correct classification (OCC; Nagin, 2005). The AvePP can be determined by averaging the actual (posterior) probability of being assigned to the class to which the student was actually assigned. Nagin (1999, 2005) suggests that models with average posterior probability of assignment of 0.70 or greater for each class are preferred. The second reliability measure, the OCC for class j , is computed by (Nagin, 2005):

$$OCC_j = \frac{\text{AvePP}_j / (1 - \text{AvePP}_j)}{\hat{\pi}_j / (1 - \hat{\pi}_j)}.$$

In this formula, the numerator is the odds of correct assignment based on the average posterior probability and the denominator uses the estimated population proportion of class j , $\hat{\pi}_j$, and provides an estimate of what the odds are of a student being classified in class j if they were randomly assigned. Thus, a higher OCC_j suggests better classification by the model compared to random assignment to classes. Nagin (2005) proposed that the criterion for reliable assignment to groups is an OCC_j greater than five for each group.

After establishing the trajectory structure, we classified target children into different victimization trajectory classes. We estimated a multinomial logit model to predict trajectory group assignment. This analysis was done hierarchically in four blocks: first, examining gender in isolation, second, examining gender and parent-child relationship quality, third, examining gender and emotional dysfunction, and fourth, examining gender, parent-child relationship quality and emotional dysfunction simultaneously. We chose to enter participant sex in the first step given the importance of considering gender differences in victimization. Steps 2 and 3 enabled us to examine the unique effects of parent-child relationship quality controlling for sex and the unique effects of emotion regulation controlling for sex, respectively. All predictors were included in the fourth and final model to enable us to examine the relative contributions of the four predictors.

Estimation of the mixture models and the multinomial logits was done using a combination of Mplus (Muthén & Muthén, 2006) and Stata (StataCorp, 2011). We used two approaches to account for missing data. The mixture models were estimated using a maximum likelihood approach that allowed all observations to contribute to the estimated results (Muthén & Muthén, 2006). We chose a robust maximum likelihood estimator to account for non-normalities that might exist in our data. The multinomial logits were estimated using multiple imputation, which we describe below (Graham, 2009).

Results

Growth and Change in Social Victimization

Descriptive statistics and correlations are presented in Table 1. We began our trajectory analysis by estimating linear models with one class up through six classes. We then estimated quadratic versions of these models. The BICs for these models, shown in Table 2, were first evaluated based on a preference for lower BICs. The lowest BICs were for the linear five and six class models. In choosing between these two we focused on three issues: the difference in the BICs, the number of children assigned to each group, and a bias toward parsimony. The difference in the BICs between the five- and six-class models was approximately three. Based on Jeffrey's Bayes factors, this provided relatively weak support at best for the six-class model over the five-class model (Kass & Raftery, 1995; Nagin, 2005). Next we assessed the distribution of children across the classes. The smallest class in the five class model consisted of only six target children, with the other four classes

containing between 44 and 85 target children. In the six-class model there were two small groups, one containing four and the other containing six children. Given these results we followed a rule of parsimony in choosing the five-class model (see, for example, Li & Lerner, 2011, for another example of choosing the class structure based on an inspection of the results). Finally, as suggested by Nagin (2005), we evaluated the five-class model by calculating the OCC_j and the AvePP. All classes met the OCC_j criteria of being greater than five, with the lowest being above nine. All classes but one were above the recommended AvePP of 0.70, with the medium decreaser class being just below at 0.68.

We made one adjustment to the trajectories model post-hoc. Due to the very small class representing just two percent of the sample, we combined this class with the next highest class, creating what we termed the elevated group. Therefore, although the analyses resulted in a five-class model, we modified this model to be four classes by taking the six observations that are in the fifth class and combining it with the closest class to it, thus resulting in four classes. Even though this fifth class is potentially interesting, we combined this class because its small size precludes its inclusion in any specific analysis. Thus, our final model consisted of four classes: low, medium decreasing, medium increasing and elevated. As a check of the effect of this combining of classes we compared the results from doing this to the results obtained when omitting the six observations and re-estimating a four-class model. The results both for the trajectory model (BIC analysis pointing now to the four-class model we used) and the outcome analysis (multinomial logits) were quite similar. Therefore, we report the combined four-class model to avoid a focus on what might be considered an outlier class.

Figure 1 shows the trajectories for the final four-class model. All parameter estimates were significant except for the slope of the elevated group in the four-class model, which was only marginally significant ($p = .08$), so we depict that trajectory as flat. Based on these trajectories, participants were assigned to four classes: low ($N = 76$), medium decreasers ($N = 44$), medium increasers ($N = 62$), and elevated ($N = 91$).

Predicting Social Victimization Trajectory Membership

In predicting victimization trajectory membership, we first estimated multinomial logit models to assess the likelihood of being in a particular victimization trajectory group using the low trajectory group as our reference category. Parallel analyses are later presented in which the elevated victimization trajectory group is used as the reference category. For both sets of analyses (low group as the reference and elevated group as the reference), four multinomial models were estimated with the first including only participant sex, the second adding parent-child relationship quality, the third including participant sex and emotional dysfunction, and the fourth and final model including all three variables.

An issue we confronted was the missing data for the relationship quality (18%) and emotional dysfunction (28%) variables. To account for this we estimated the models using multiple imputation based on multivariate methods that allowed for both variables to be imputed jointly (StataCorp, 2011). The imputation step allowed for the inclusion of variables, outside the proposed model, that did not have missing data to be included to aid in the quality of the imputation. The one other variable available in the data not subject to

missing data was race, and so it was included in the imputation step. The imputation model also accounted for the scale of the variables—ordinal for relationship quality and continuous for emotional dysfunction. We used 20 imputations and report the pooled results in Tables 3 and 4 based on Rubin's combination formulas (Rubin, 1987).

Table 3 presents the relative-risk ("odds") ratios with the elevated, medium increasing, and medium decreasing groups compared to the low trajectory group using the multiple imputation model. A ratio above one indicated that the variable increased the likelihood of being in that class relative to the low trajectory group whereas a value below one indicated that the variable decreased the likelihood of being in that class relative to the low trajectory group. Poor parent-child relationship quality predicted membership in the elevated group; however, parent-child relationship quality was no longer a significant predictor when emotional dysfunction was added to the model. Both male gender and high emotional dysfunction predicted membership in the medium increaser and elevated groups relative to the low group.

As discussed above, we also explored an alternative contrast with the reference category being the elevated group rather than low victimization trajectory group. This allowed us to determine whether we could differentiate the medium increasing and medium decreasing group from the elevated group. We found no significant relationships ($p > .10$) between our predictor variables (i.e., participant sex, parent-child relationship quality, and emotional dysfunction) when we compared the medium increasing and medium decreasing groups relative to the elevated group (see Table 4).

Discussion

Overall, the statistically distinguishable groups that were estimated supported our hypotheses that there would be variability in social victimization experiences with subgroups following different trajectories from childhood through adolescence. We identified four social victimization trajectory groups: low, medium decreaser, medium increaser, and elevated. These findings are generally similar to longitudinal studies of general victimization not differentiating forms of aggressive behavior. Biggs et al. (2010) identified five general victimization trajectories from third through fifth grade: low, moderate, decreasing, increasing, and chronic. The chronic group in the Biggs' investigation consisted of only 2.14% of their sample, which was similar in proportion to our highest group in the five-class model in the current investigation (2.20% of our sample); however, we collapsed this with the next highest category to avoid considering a possible outlier class. Although it would have been interesting to examine this fifth class, we chose to collapse with the next highest group given that we would have been unable to conduct analyses given the small size of this group.

Interestingly, being male was a significant predictor of membership in the elevated and medium increasing social victimization trajectory group. Our predictions regarding sex differences in social victimization trajectory group membership were tentative given inconsistent findings in past research on social victimization (Crick & Grotpeter, 1996; Paquette & Underwood, 1999). The findings for social victimization from the current study

are consistent with previous investigations of general victimization, which find that males tend to follow higher victimization trajectories than females (Barker, Arseneault et al., 2008; Biggs et al., 2010; Boivin et al., 2010).

Investigations have begun to examine the association between emotional dysfunction and specific measures of social victimization (Giesbrecht et al., 2011; Rudolph et al., 2009). Our longitudinal findings are consistent with these previous concurrent and shorter term studies, and suggest that emotional dysfunction increased the odds of being in both the elevated and medium increaser groups relative to the low group. Children who have difficulty regulating their emotions may be easy targets for aggressive behavior, and crying or retaliating in response to peer victimization may elicit future social victimization (Schwartz et al., 1998; Smith, Shu, Madsen, 2001). However, it is also important to note that another possibility is that children who have difficulty regulating their emotions are also more sensitive to perceived maltreatment, and therefore report higher levels of social victimization.

As predicted, high parent-child relationship quality decreased the odds of being in the elevated group compared to the low group. Our results are consistent with past research demonstrating inverse associations between parental warmth and victimization (Beran & Violato, 2004). However, it is important to note that parent-child relationship quality was no longer a significant predictor of membership in the elevated group when emotional dysfunction was added to the model. This suggests that positive relationships with parents may foster the development of emotion regulation skills, which in turn, decrease the risk of social victimization (Reavis et al., 2010). Parents may affect emotion regulation, in part, through sensitive responding (Bell & Ainsworth, 1972).

Gender, parent-child relationship quality, and emotional dysfunction did not differentiate the elevated group relative to the medium increasing and medium decreasing groups. Given that we assessed parent-child relationship quality and emotion dysregulation in middle childhood, it is possible that both the medium increasing and medium decreasing groups experienced increases or decreases in these factors that were beyond the scope of the current study. Future research should examine how changes in parent-child relationship quality and emotion dysregulation relate to changes in social victimization.

These findings must be interpreted in light of the current study's methodological limitations. Our focus was solely on social victimization, and a limitation of the current study was that we did not examine other forms of victimization (e.g., physical victimization, verbal victimization, and property damage). Future research is needed to examine how trajectories of social victimization relate to trajectories of other forms of victimization. Another limitation is the reliance on self-reports of social victimization, which may be influenced by differing conceptions of what constitutes peer harassment, abilities to recall instances of victimization, and willingness to report negative experiences (Ladd & Kochenderfer-Ladd, 2002). Therefore, it is important to note that the present investigation examines children's perceptions of social victimization. In addition, the current study was limited to the assessment of one parent, most often the mother. Although previous studies have utilized the "parent most knowledgeable" design and thus typically consider only the mother (Cote et

al., 2007), fathers may have a significant effect on their children's social behaviors with peers (Chongming et al., 2004).

It is also important to note that we transitioned from using the Revised Social Experience Questionnaire (Paquette & Underwood, 1999) to its upward extension, the Revised Adolescent Social Experience Questionnaire (Rosen et al., 2012) following participants' seventh grade year. This ensured the items to assess social victimization were developmentally appropriate across the large time span investigated; however, a weakness may be that additional items were included to consider socially aggressive behaviors that might become more evident in adolescence. Previous longitudinal investigations examining the stability of aggressive behavior have also transitioned to different versions of measures to accommodate the age of the developing child (e.g., van Beijsterveldt, Bartes, Hudziak, & Boomsma, 2003), and this is a common challenge in the field with the *Handbook of Research Methods in Developmental Science* acknowledging instrumentation as a threat to validity in longitudinal research (Schmidt & Teti, 2004). Schmidt and Teti (2004) discuss this issue of instrumentation in detail noting that "often it is the case that researchers need to use different instruments at different ages" (p. 7), and highlight a conundrum for developmental researchers in that different versions of measures may be tapping different phenomenon but at the same time there is the pressing need to maintain age-appropriate measures as there could be "developmental discontinuities of the behavior in question" (p. 7).

Our sample size was also limited in the current study. However, the maximum likelihood approach used allows for missing values, and resulted in 273 unique students that were used to form the trajectories over the eight assessment points. Our approach also used a maximum likelihood estimator that is robust to non-normality, which may also help with our sample size. Further, this approach met the evaluation criteria of average probability of assignment and the OCC.

Still, this study had important strengths. Whereas most longitudinal studies focus on general victimization, the current study highlights continuity and change in social victimization. Researchers have called for investigations to examine trajectories of different forms of peer victimization separately (Sumter et al., 2012), and the current study answers this call. Moreover, a major strength of this study is that we examined trajectories of social victimization from middle childhood through late adolescence. This longitudinal study provides much needed information on the development of social victimization as the past research has largely been cross-sectional (e.g., Finkelhor, Ormrod, & Turner, 2009). In so doing, the current study provides additional support for the importance of investigating social victimization in adolescence (e.g., Desjardins & Leadbeater, 2011); however, it is also apparent from the findings that there is significant variability in individuals' experiences of social victimization across development. Given the subtlety of social aggression, another strength may have been the use of self-reports to assess victimization by behaviors that are extremely hurtful yet unable to be seen by teachers and parents, especially as youth mature and become more discreet about social manipulation. This is also one of the first studies to examine predictors of social victimization trajectories, including an observational assessment of the quality of the parent-child relationship.

Future research can further our understanding of continuity and change in social victimization by examining younger age ranges and other predictors. Some children emerge as victims of social aggression in preschool (Crick, Casas, & Ku, 1999; Vaillancourt, Miller, Fagbemi, Cote, & Tremblay, 2007). Future research should begin to examine social victimization trajectories in early childhood, as this is the developmental period when social aggression first emerges. In addition, future studies should continue to examine social victimization experiences across the transition to emerging adulthood (Rosen, Underwood, Gentsch, Rahdar, & Wharton, 2012). Further, future research should also consider focusing on differences across trajectories that occur during school transitions. Due to the linear specification that best fit these data we were unable to directly assess whether the trajectories have a break at school transitions. Possible extensions for future work include switching regression models and spline models adapted for trajectory analysis, which will allow a focus on these pivotal points in the lives of youth. It will also be important to examine other possible predictors of social victimization trajectories. Parent-child relationship quality, emotional dysfunction, and participant sex were predictive of trajectory group membership but other variables may also be relevant. Important predictors to examine in future studies include being overweight (Hayden-Wade, Stein, Ghaderi, Saelens, Zabinski, & Wilfley, 2005; Neumark-Sztainer, Falkner, Story, Perry, Hannan, & Mulert, 2002), pubertal timing (Reynolds & Juvonen, 2011), submissive behavior (Schwartz, Dodge, Coie, 1993), learning difficulties (Mishna, 2003), or identifying as a sexual minority (Williams, Connolly, Pepler, & Craig, 2005).

The results of the current study have the potential to help guide the development of effective prevention and intervention programs for socially victimized youth. The focus has largely been on preventing physical aggression (Capella & Weinstein, 2006); however, it is also important to help youth who are targeted by social aggression given the myriad of negative outcomes associated with this form of peer victimization (Crick & Grotpeter, 1996; Sullivan et al., 2006). Our findings suggest that prevention and intervention efforts might focus on both child- and parent-level risk factors. Fostering high parent-child relationship quality may be associated with a reduction in social victimization, possibly in part through the promotion of self-regulatory skills. Further, intervention efforts could include strategies to help victimized youth better recognize and control their emotions (Herts et al., 2012). Our findings indicate that a significant number of children follow a high, stable social victimization trajectory across middle childhood and adolescence. Successful intervention efforts may help protect victimized youth from developing various forms of psychopathology that are so frequently associated with peer victimization.

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Figure 1.
4-Class Estimated Linear Model with $N = 273$ Observed Data.

Table 1

Descriptive Statistics and Correlations

	Mean (SD)	1	2	3	4	5	6	7	8	9
Social Victimization Grade 4	2.03 (.74)	–								
Social Victimization Grade 5	1.82 (.67)	.46**	–							
Social Victimization Grade 6	1.70 (.61)	.52**	.53**	–						
Social Victimization Grade 7	1.62 (.54)	.42**	.41**	.33**	–					
Social Victimization Grade 8	1.76 (.59)	.53**	.49**	.44**	.65**	–				
Social Victimization Grade 9	1.82 (.66)	.37**	.31**	.37**	.45**	.52**	–			
Social Victimization Grade 10	1.73 (.62)	.45**	.33**	.38**	.51**	.50**	.69**	–		
Social Victimization Grade 11	1.63 (.67)	.42**	.21*	.22**	.49**	.44**	.49**	.64**	–	
Parent-child Relationship Quality	4.71 (1.32)	-.24**	-.05	-.06	-.17*	-.13	-.06	-.11	-.09	–
Emotion Dysregulation	1.35 (2.36)	.16*	.07	.07	.18*	.15	.23**	.21*	.22**	-.19**

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

Note: Participants indicated whether they had experienced social victimization on a 1 (*never*) to 5 (*all the time*) scale, and all items were averaged. Ratings of parent-child relationship quality were made on a 1 (*very low*) to 7 (*very high*) scale. Teachers evaluated emotion dysregulation on a 0 (*not true*) to 2 (*very true or often true*) scale, and all items were summed.

Table 2

Bayesian Information Criteria by Number of Classes and Polynomial Degree

Number of Classes	Polynomial Degree	BIC
1	Linear	1110
	Quadratic	1107
2	Linear	728
	Quadratic	729
3	Linear	679
	Quadratic	687
4	Linear	644
	Quadratic	657
5	Linear	625
	Quadratic	641
6	Linear	622
	Quadratic	640

Table 3
Relative-risk ("Odds") Ratios for Predicting Membership in Trajectory Groups with Low Group as Reference

	Medium decrease				Medium increase				Elevated group			
	1	2	3	4	1	2	3	4	1	2	3	4
Female	.66	.66	.69	.68	.40**	.40**	.42**	.42**	.43**	.43**	.47**	.46**
Relationship Quality		.80		.82		.96		1.00		.77*		.82
Emotional Dysfunction			1.11	1.11			1.17*	1.17*			1.27**	1.25**

* $p < 0.05$
 ** $p < 0.01$
 *** $p < 0.001$.

Note: The reference group is the low social victimization trajectory group. The multiple imputation multinomial logit analysis was done hierarchically in four blocks, represented by each of the columns under each group: first, examining gender in isolation, second, examining gender and parent-child relationship quality, third, examining gender and emotional dysfunction, and fourth, examining gender, parent-child relationship quality and emotional dysfunction simultaneously.

Relative-risk (“Odds”) Ratios for Predicting Membership in Trajectory Groups with Elevated Group as Reference

Table 4

	Medium decrease				Medium increase			
	1	2	3	4	1	2	3	4
Female	1.53	1.53	1.45	1.46	.92	.93	.89	.90
Relationship Quality		1.04		1.01		1.25		1.23
Emotional Dysfunction			.87	.87			.92	.94

* $p < 0.05$
** $p < 0.01$
*** $p < 0.001$.

Note: The reference group is the elevated social victimization trajectory group. The multiple imputation multinomial logit analysis was done hierarchically in four blocks, represented by each of the columns under each group: first, examining gender in isolation, second, examining gender and parent-child relationship quality, third, examining gender and emotional dysfunction, and fourth, examining gender, parent-child relationship quality and emotional dysfunction simultaneously.