# Early Social Behaviors and the Trajectory of Peer Victimization across the School Years

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## Abstract

Research has established that long-term exposure to peer victimization is associated with higher levels of emotional and behavioral maladjustment. Yet, relatively little is known regarding predictors of stable versus declining victimization across extended periods of time. To fill this knowledge gap, the present study used latent growth curve modeling to examine the separate and unique contributions of three early social behaviors in 2nd grade (aggression, anxious solitude, and prosocial behavior) to victimization across 2nd to 8th grade. Five hundred and seventy-six youth ($M = 7.96$ years, SD = .34) reported their level of exposure to victimization once a year from 2nd to 8th grade, and their teachers rated each youth on the three social behaviors in 2nd grade. When examined separately, the analyses revealed that (a) all three social behaviors contributed to 2nd grade victimization; (b) anxious solitude and prosocial behavior contributed to the trajectory of victimization differently for boys and girls; and (c) aggression and anxious solitude contributed to significantly different levels of 8th grade victimization in girls. Of interest, some effects were stronger in boys during elementary school and others were stronger in girls after the transition to middle school. When examined simultaneously, aggression remained the only significant predictor of 2nd grade victimization; both anxious solitude and prosocial behavior uniquely predicted the trajectory of victimization, and aggression and anxious solitude uniquely predicted 8th grade victimization in girls. Results are discussed with regard to prevention of prolonged victimization, with attention to gender differences.

### Keywords

peer victimization; trajectory; aggression; anxious solitude; prosocial behavior

Peer victimization is a relatively common problem in youth (Boivin, Petitclerc, Feng, & Barker, 2010; Karna, Voeten, Little, Poskiparta, Kaljonen, & Salmivalli, 2011) and is associated with a variety of negative emotional and behavioral consequences (e.g., Hanish & Guerra, 2002). Some evidence suggests that greater levels of exposure to victimization over time are associated with more adjustment problems (Boivin et al., 2010; Sumter,

Baumgartner, Valkenburg, & Peter, 2012); moreover, growth in victimization over time predicts higher levels of maladjustment beyond the effect of early victimization (Rudolph, Troop-Gordon, Hessel, & Schmidt, 2011), thereby raising concerns among educators, parents, and researchers regarding effective prevention and intervention. Research suggests that some youth transition out of victimization whereas others remain stable in their level of victimization or even become more victimized over time (Boivin et al. 2010; Dempsey, Fireman, & Wang, 2006; Ladd & Kochenderfer-Ladd, 2002), in which case victimization can serve as a chronic stressor. Identifying factors that contribute to continued victimization is therefore important to effective intervention.

Although previous research has identified individual correlates or predictors of victimization across relatively short periods of time, few studies have examined factors that explain trajectories of victimization over an extended period of time. Additionally, the majority of previous studies examined risk and protective factors separately (for exceptions, see Brendgen, Girard, Vitaro, Dionne, & Boivin, 2016; Dhami, Hoglund, Leadbeater, & Boone, 2005; Fox & Boulton, 2006; Giesbrecht, Leadbeater, & MacDonald, 2011), hindering understanding of how each factor contributes to victimization when multiple factors are examined simultaneously; some factors may overlap with each other in predicting victimization whereas some may contribute to victimization above and beyond others. The main purposes of the present study were: (a) to investigate the extent to which early risk and protective factors, as reflected in social behaviors, contribute to victimization in 2$^{nd}$ grade and changes in victimization across the school years, and (b) to examine the separate and unique predictive roles of these risk and protective factors. Specifically, the primary goal was to examine how three social behaviors (aggressive behavior, anxious solitude, and prosocial behavior) early in the school years contribute separately (when considered independently from each other) and uniquely (when considered together) to victimization from 2$^{nd}$ through 8$^{th}$ grade, spanning the transition to middle school. As a secondary goal, given differences in social norms between boys and girls, this study also investigated gender differences in the effects of social behaviors on the trajectory of victimization.

## Peer Victimization across the School Years

Many investigators have studied continuity in victimization within elementary school, but little is known about trajectories of victimization over an extended period of time. Of particular interest is whether youth continue to be victimized as they progress through the school years. An extended investigation helps us understand changes in victimization across critical developmental transitions, such as the transition to middle school.

Some longitudinal research reveals that mean levels of victimization decline over time (Leadbeater & Hoglund, 2009; Reavis, Keane, & Calkins, 2010; Troop-Gordon & Ladd, 2005). Boivin and colleagues (2010) found that 4.5% of youth experience decreasing levels of victimization whereas 10% of youth experience increasing levels of victimization from 3$^{rd}$ to 6$^{th}$ grades (i.e., within elementary school). Additionally, Dempsey and colleagues (2006) found that 9.7% of boys and 7.3% of girls in 3$^{rd}$, 4$^{th}$, and 5$^{th}$ grades remain victimized over a year. Together, these findings suggest that although overall levels decline

and some victims transition out of victimization, others remain victimized as youth move toward the end of elementary school.

Little is known about the change in victimization across the middle school transition, a period during which youth experience multiple social challenges. To a varying degree, the transition may disrupt social networks, requiring youth to find new friends and to re-establish their status (Eccles, Wigfield, & Schiefele, 1998). As youth start forming cliques rather than having one big group of peers (for a review, see Rubin, Bukowski, & Parker, 2006), participating in cliques becomes necessary to avoid a feeling of isolation. Apart from changes in the social context, academic changes such as increases in competition and less structure in middle school present a challenge for youth as they try to fit in. In a period that is characterized by so many challenges and changes, reputations that youth have established since early school years may play an especially important role in their peer relationships. That is, youth who have been known for their aggressive or anxious solitary tendencies may have a more difficult time forming new relationships whereas youth who have been known for their prosocial tendencies may have an easier time forming new relationships during middle school. Moreover, youth's reputation as victims may contribute to continued victimization across the transition.

Findings are mixed with regard to changes in the prevalence of victimization across the elementary-middle school transition. A limited number of longitudinal studies suggest a decline in victimization across the transition (Brendgen et al., 2016; Haltigan & Vaillancourt, 2014; Pellegrini & Bartini, 2000; Shell, Gazelle, & Faldowski, 2014). On the other hand, in a cross-sectional study, more middle school students than elementary school students reported either experiencing or witnessing victimization (National Center for Education Statistics, 1995). Within middle school, cross-sectional studies reveal that victimization stabilizes (e.g., Davidson & Demaray, 2007; Holt & Espelage, 2007; Nansel et al., 2001). A couple of longitudinal studies also reveal that victimization shows moderate to high rank-order stability over three- to six-year periods ($r$s = .41 – .75; Bellmore, Jiang, & Juvonen, 2010; Brendgen et al., 2016), suggesting that certain youth are continuously more victimized relative to other peers.

Taken together, these findings suggest that victimization may increase or decrease as youth move from elementary to middle school, and decrease or stabilize during middle school, leaving certain youth continuously victimized. It is possible that investigators have found different trajectories of victimization over time due to differences in study design, such as the use of cross-sectional versus longitudinal investigations, the developmental periods studied, characteristics of the specific samples, or somewhat subjective aspects of statistical analyses in determining the number of trajectories within a dataset. At the same time, inconsistencies also may be explained by individual variation in the continuity of victimization. Indeed, in two prior studies (Brendgen et al., 2016; Haltigan & Vaillancourt, 2014), even though all groups showed a general decline from primary school to secondary school, there were a couple of different patterns in the trajectory of victimization. These findings suggest that we cannot fully understand variability in observed patterns of victimization across the transition to middle school without considering predictors of prolonged versus declining trajectories. Thus, the primary aim of this study was to elucidate

risk versus protective factors for continuity or discontinuity in victimization across elementary and middle school.

## Predictors of Victimization

To further our understanding of individual differences that contribute to continuity versus discontinuity in victimization over time, the present study aimed to identify predictors of initial levels of victimization, changes in victimization from $2^{nd}$ to $8^{th}$ grade, and final levels of victimization in $8^{th}$ grade (the last year of middle school). Examining the effects of early predictors on victimization over an extended period of time allows us to identify risk and protective factors that have long-lasting effects.

Several related theoretical perspectives suggest that early characteristics of children may set them on a developmental trajectory that persists over time. Evocative effects (Scarr & McCartney, 1983) and interactional continuity (Caspi, Bem, & Elder, 1989) models of development suggest that youth select and/or construct environments congruent with their own characteristics, creating continuity in their social contexts over time. We focused on three ways of interacting with the social world that likely elicit salient and persistent environmental responses: moving against the world (e.g., showing aggressive behavior), moving away from the world (e.g., showing shy, disengaged behavior), and moving toward the world (e.g., showing prosocial behavior; Caspi et al., 1988; Gazelle & Rudolph, 2004). We hypothesized that these behaviors would contribute to youths' exposure to victimization across the school years in either a harmful or protective manner.

### Aggressive behavior

Youth who move against the world may evoke hostility from others in the form of retaliation ("aggressive victims", Schwartz, Proctor, & Chien, 2001), thereby inviting continuing negative treatment from peers (interactional continuity; Caspi et al., 1989). Moreover, aggressive victims may remain victimized because other peers are not likely to stand up for them. According to the just world hypothesis (Lerner & Miller, 1978), individuals are inclined to believe that people experience what they deserve. Peers may perceive victims at fault if the victims are aggressive. Lerner and Miller (1978) identified empathy as one of the factors that reduces this tendency to perceive the world as just. When victims are aggressive, however, it is difficult for peers to feel empathy and stand up for them, thereby allowing victimization to continue or escalate. Consistent with these ideas, short-term longitudinal research consistently reveals that aggressive behavior predicts victimization (Dempsey et al., 2006; Schwartz et al., 2001) and aggressive victims are likely to remain victimized (Giesbrecht et al., 2011). Additionally, victims who became less aggressive were victimized less whereas youth who became more aggressive began to be victimized over a one-year-period (Goldbaum, Craig, Pepler, & Connolly, 2003). In one longer-span investigation, youth with higher levels of aggression in $4^{th}$ grade were more likely to experience higher levels of victimization through $9^{th}$ grade (Brendgen et al., 2016).

### Anxious solitude

Youth who move away from the world are likely to avoid conflicts, consistent with the notion that children create environments that are compatible with their characteristics ("niche-building;" Scarr & McCartney, 1983). Youth who show verbal inhibition and reticent behavior (anxious solitude; Gazelle & Rudolph, 2004; Rubin, 1982) often experience conflict between a desire to interact with peers and a fear of negative social evaluation (Rubin, 1982). Youth with high anxious solitude often are perceived as easy targets for victimization, namely, "passive victims" (Perry, Kusel, & Perry, 1988), who are not likely to retaliate. Other peers may not only overlook but also actively dislike withdrawn youth perhaps because such tendencies violate the age-appropriate expectations of sociability, resulting in exclusion of these youth (Avant, Gazelle, & Faldowski, 2011). Peers may notice such emotional and social vulnerabilities of youth with high anxious solitude. In one study, girls who showed higher levels of anxious solitude before age 5 were more likely to be victimized in first grade, albeit only in highly controlled classrooms with high hostility and chaos, but not in classrooms that were friendly and not too highly controlled (Gazelle, 2006). Additionally, supporting the idea that youth's characteristics and social environment reinforce each other over time (Caspi et al., 1989), once withdrawn youth experience negative treatment by peers, their avoidant tendencies are enhanced (Gazelle & Rudolph, 2004), thus limiting their opportunities to learn negotiation skills and resulting in continued negative treatment by peers. Moreover, withdrawn children become increasingly disliked by peers with age (Ladd, 2005), putting them at risk for increasing levels of victimization over time. Indeed, Boivin and colleagues (2010) found that withdrawal made a stronger contribution to victimization from 5th grade to 6th grade than from 3rd grade to 4th grade or 4th grade to 5th grade. In an older sample, Goldbaum and collegaues (2003) found that some 5th, 6th, and 7th graders experienced decreasing levels of victimization as their withdrawal decreased over a year.

### Prosocial behavior

Youth who move toward the world are likely to create positive social environments through prosocial behavior (Caspi et al., 1989; Scarr & McCartney, 1983). Prosocial behavior refers to voluntary positive behavior intended to benefit another (Eisenberg, Fabes, & Spinrad, 2006), such as including peers who are left out. Youth who show more prosocial behavior are better at emotion and behavior regulation as well as perspective taking, making them easy to get along with (for a review, see Eisenberg et al., 2006). They also are viewed by adults as socially skilled and able to engage in constructive coping (Eisenberg et al., 1996). These types of characteristics are likely to elicit positive responses from peers, thus reducing the likelihood of being victimized. Supporting this idea, youth who show less prosocial behavior are likely to remain victimized across a year (Dempsey et al., 2006). Similarly, youth with poor social skills experience more victimization over time (Dhami et al., 2005; Fox & Boulton, 2006).

## Gender Differences

Predictive effects of risk and protective factors may differ for boys and girls based on the social norms within each gender group. Because boys and girls shape their social

experiences, whether by eliciting certain responses from peers (Caspi et al., 1989) or selecting environments (Caspi et al., 1989; Scarr & McCartney, 1983) through their behavioral styles, gender-atypical characteristics and behavior may evoke stronger reactions from peers because they are perceived as violating social norms, thereby justifying victimization. Thus, displaying gender-atypical behavior, or lacking gender-typical behavior, may put youth at risk for higher initial levels and continuation of victimization over time.

When examining gender differences in the contribution of aggression to victimization, it is important to consider different forms of aggression. Overt aggression is more common in boys than in girls (e.g., Crick, 1997; for a meta-analysis, see Card, Stucky, Sawalani, & Little, 2008); although some evidence suggests relational aggression is more common in girls than in boys, this difference is small and less consistent (Card et al., 2008). Because overt aggression is gender-atypical in girls, we hypothesized that it would predict higher levels of initial victimization and stable or increasing levels of victimization over time more strongly in girls than in boys. Because the gender difference in relational aggression is less clear, we did not have a strong hypothesis regarding its contribution to victimization in girls versus boys.

Gender differences in social norms regarding anxious solitude and shyness may also result in these social behaviors differentially eliciting victimization among girls and boys. Given that anxious solitude and shyness tend to be more common in girls than in boys (for a review, see Else-Quest, Hyde, Goldsmith, & Van Hulle, 2006), peers may perceive shy or avoidant behaviors in boys in a particularly negative light. Thus, boys with high levels of anxious solitude may be at heightened risk for victimization. Indeed, shyness is more strongly associated with exclusion in 5th grade boys than girls (Miller, Tserakhava, & Miller, 2011). Also, anxious solitude in kindergarten more strongly predicts higher levels of exclusion in 4th grade boys than girls (Gazelle & Ladd, 2003). Given that youth increasingly perceive boys' withdrawal tendencies as gender-atypical with age (Younger & Boyko, 1987), it is possible that anxious solitude puts boys at higher risk for stable or increasing victimization relative to girls from 2nd through 8th grade.

Given that prosocial behavior also is more common in girls than boys (e.g., Fabes, Hanish, Martin, Moss, & Reesing, 2012), gender differences were expected in the protective role of prosocial behavior against peer victimization. Girls who show little prosocial behavior may be considered gender-atypical, putting them at risk for victimization. At the same time, because prosocial behavior is less common in boys than in girls, such behavior in boys might be perceived more positively by peers than the same type of behavior in girls. Indeed, prior research suggests that prosocial behavior plays a protective role against victimization over time for boys but not for girls (Dempsey et al., 2006). Thus, we conducted exploratory analyses to examine possible gender differences in the contribution of prosocial behavior to victimization.

## Separate versus Unique Contributions of Social Behaviors to Victimization

The first step of analysis in this study investigated the separate contributions of the three social behaviors to 2nd grade victimization and the trajectory of victimization over time,

allowing us to determine whether their contributions are similar to, or different from, the results of previous studies that spanned shorter periods of time. However, it also is important to examine the roles of multiple social behaviors simultaneously because some risk factors may overlap with each other whereas some may contribute to victimization above and beyond each other. Thus, the second step of analysis examined the unique contributions of aggression, anxious solitude, and prosocial behavior when considered together.

## Study Overview

To elucidate the predictive contribution of early social behaviors to peer victimization across the school years, we assessed social behaviors (aggression, anxious solitude, and prosocial behavior) in 2nd grade and tracked exposure to victimization across 2nd through 8th grades. We chose this approach because our primary goal was to investigate whether early social behaviors set the course of victimization across the school years. To avoid overlap in informants for the constructs, teachers provided reports of social behaviors and youth provided reports of peer victimization. Because research suggests that family income may contribute to youths' exposure to victimization (e.g., Barker et al., 2008), family income was included in all the models as a covariate.

Consistent with developmental perspectives that emphasize the lasting effects of early social behavior on youths' social contexts (Caspi et al., 1989; Scarr & McCartney, 1983), we hypothesized that early (2nd grade) behaviors oriented "against the world" (i.e., aggressive behavior) and "away from the world" (i.e., anxious solitude) would predict higher levels of 2nd grade victimization and a stable or increasing trajectory from 2nd through 8th grade whereas early behaviors oriented "toward the world" (i.e., prosocial behavior) would predict lower levels of 2nd grade victimization and stable or decreasing trajectories from 2nd through 8th grade. We also expected these early social behaviors to contribute in similar ways to differences in the level of victimization in 8th grade. Although existing research has provided some support for these hypotheses over shorter periods (e.g., a few months to five years), the effects of these early social behaviors on victimization over an extended period are not clear. It is possible that certain risk and protective factors have only short-lived effects or that they have only small immediate effects, but these effects accumulate over longer periods, resulting in significant differences over the course of several years. One contribution of this study is to examine whether diverging trajectories of victimization across the school years result in substantially higher levels of victimization by the end of middle school.

We further hypothesized that anxious solitude would predict victimization more strongly in boys than in girls, and overt aggression would predict victimization more strongly in girls than in boys; exploratory analyses were conducted to examine gender differences in the predictive role of prosocial behavior. With regard to the exploratory analysis of simultaneous effects of the three predictors, we did not have specific hypotheses as to which social behaviors would have unique effects on victimization.

This study extends existing research for this developmental period in several ways. First, most prior research examines predictors of victimization across relatively brief time intervals (for exceptions, Brendgen et al., 2016; Haltigan & Vaillancourt, 2014; Shell, Gazelle, &

Faldowski, 2014). The present study spans a seven-year period, including the transition to middle school, allowing us to clarify the effects of early social behaviors on victimization over an extended period and across a critical developmental transition. Second, only a few longitudinal studies (e.g., Dempsey et al., 2005; Dhami et al., 2005; Wolke, Woods, & Samara, 2009) examine gender differences in predictors of victimization. Third, we examined the unique contributions of moving against, away from, and toward the world to trajectories of victimization, allowing us to examine both risk and protective factors simultaneously. Addressing these three issues can make a significant incremental contribution both to developmental theory regarding how youth shape their environments as well as to early identification and targeted prevention efforts.

## Method

### Participants and Procedures

Participants were 576 2nd graders (273 boys, 303 girls, coded as 0 = male, 1 = female; $M$ = 7.96 years, $SD$ = .34) and their teachers from several Midwestern towns. The sample included youth from various ethnic groups (66.5% White, 21.5 % African American, 7.5% Asian American, 4.5% other) and socioeconomic backgrounds (34.3% received a subsidized school lunch; median annual family income was \$45,000–59,999). Consent forms were sent home through schools and were distributed at parent-teacher conferences. Parents provided written consent, and youth provided oral assent. In 2nd grade (Wave 1), of the 725 eligible children, 576 (80%) received parental consent to participate. Participants and nonparticipants at Wave 1 did not significantly differ in gender, ethnicity (white vs. minority), or full pay vs. subsidized lunch status ($\chi^2$s(1)s = .15 – .59, *ns*), or age, $t$(723) = . 63, *ns*. Of the 576 participants, 398 (69%) had full data for these analyses. Youth with no missing data were slightly younger than those with missing data ($M$ = 7.93 vs. 8.03, $t$(574) = 3.13, $p$ = .002). The two groups did not differ in the initial wave study variables ($t$s < 1.34), gender, ethnicity, or lunch status ($\chi^2$s(1) < 1.50). Full information maximum likelihood estimation was used in the analyses to maximize the available data.

Youth completed the victimization questionnaire at seven annual assessments. In the winter of each year, research assistants administered the questionnaire to youth during classroom sessions to small groups (3–4 students) in elementary school (2nd – 5th grades) and larger groups (15–20 students) in middle school (6th –8th grades). Teachers completed the social behavior questionnaires when youth were in 2nd grade. Youth received a small gift; teachers received a monetary reimbursement. Each participating elementary school classroom received a monetary honorarium, and middle schools received a school-wide honorarium. All of the procedures were approved by the university's Institutional Review Board.

### Measures

Table 1 presents descriptive and psychometric data, including Cronbach's alpha. All of the measures showed strong internal consistency. Analyses originally were conducted separately for overt and relational aggression and victimization. Most of the effects for these models remained similar to those found when combining overt and relational forms of aggression and victimization both in the overall models and when gender differences were examined.

Additionally, those effects that did change either shifted from marginal to significant, or marginal to nonsignificant. Thus, the overt and relational subscales were combined to provide a more parsimonious set of analyses. Descriptive and psychometric data are therefore presented for the overall aggression and victimization measures.

**Peer victimization**—Youth report on a revised (Rudolph et al., 2011) Social Experiences Questionnaire (Crick & Grotpeter, 1996) was used to assess exposure to peer victimization (e.g., "How often do you get hit by another kid?"). Eleven items were added to the original measure to provide a more comprehensive assessment (e.g., "How often does a friend spread rumors about you because they are mad at you?"), resulting in a total of 21 items. Youth checked a box indicating how often they experienced each type of victimization on a 5-point scale (1 = *Never* to 5 = *All the Time*). Victimization scores were computed as the mean of the overt and relational victimization subscales. Self-reports of victimization correspond to reports by peers (Graham & Juvonen, 1998; Ladd & Kochenderfer-Ladd, 2002), teachers (Kochel, Ladd, & Rudolph, 2012), and observers (Kochenderfer & Ladd, 1997). This revised version of the SEQ has established predictive validity (Rudolph et al., 2011)[1].

**Aggressive and prosocial behavior**—Teachers completed the Children's Social Behavior Scale (Crick, 1996). This measure includes items assessing overt and relational aggression (9 items; e.g., "This child hits or kicks peers." "This child spreads rumors or gossips about some peers.") and prosocial behavior (3 items; e.g., "When this child notices that another kid has been left out of an activity or game, s/he invites the kid to join the group."). Teachers rated each item on a 5-point scale (1 = *Never True* to 5 = *Almost Always True*). Aggression scores were computed as the mean of the overt and relational aggression subscales. Prosocial behavior scores were computed as the mean of the prosocial items. Teacher reports of aggression and prosocial behavior on this measure are strongly associated with peer reports (Crick, 1996; Monks, Smith, & Swettenham, 2003).

**Anxious solitude**—Teachers completed 8 items adapted from a measure developed by Gazelle and Ladd (2003) to assess youth's anxious solitary behavior on a 5-point scale (1 = *Not at all* to 5 = *Very much*). Items were modified to reflect a peer context by adding a comparison (e.g., "Child plays alone more than most other children.") or rewording the items (e.g., "Child is nervous, high-strung, or tense when around other children."). Scores were computed as the mean of the items. Teacher report on this measure corresponds with peer nomination and observers' ratings of youths' anxious solitary behavior (Gazelle & Ladd, 2003).

**Income**—Parents reported the family income by selecting one of seven categories[2]. The seven categories were reverse coded for the analysis (1 = *90,000 and over* to 7 = *0 – 14,999*) such that higher numbers reflect lower family income. This reverse coding was done based

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[1]Comparisons between the present study and previous studies suggest that the mean level of victimization in this study is comparable to that found in other community samples studied in previous research. Details are available to the interested reader from the first author.
[2]Information about income was available for 430 children. The missing data were estimated in Mplus.

on previous research showing that lower family income puts youth at a greater risk for victimization.

## Overview of Analyses

Latent growth curve modeling was used to test the hypotheses using the robust FIML estimator in Mplus version 7.1 (Muthen & Muthen, 2012) statistical software. The analyses were conducted in two steps. First, the contribution of each predictor was examined in three separate models (see Figure 1 for the general model). Second, the unique contribution of each predictor was examined in one combined model (see Figure 2). This step allowed us to examine whether each social behavior contributed to victimization above and beyond the other ones. For each model, two latent variables were created; one latent intercept and one latent slope. The latent intercept was estimated by setting indicator paths from the observed $2^{nd}$–$8^{th}$ grade victimization variables to be equal to 1. At first, the latent slope was estimated by setting indicator paths from $2^{nd}$ grade through $8^{th}$ grade victimization to 0, 1, 2, 3, 4, 5, and 6 respectively, setting the intercept, or the initial level, at $2^{nd}$ grade (Duncan, Duncan, Strycker, Li, & Alpert, 1999). To further probe whether youth differed significantly in their levels of victimization in $8^{th}$ grade depending on their gender and/or level of predictors, the latent slope was re-centered (Little, Bovaird, & Slegers, 2006) by setting indicator paths from $2^{nd}$ grade through $8^{th}$ grade victimization variables to –6, –5, –4, –3, –2, –1, and 0 respectively, which set $8^{th}$ grade victimization as the intercept. The model fit statistics and the means and variances of the latent slope variable do not change by re-centering the latent slope. Therefore, results are described only with regard to whether there was a significant effect of gender or predictor $\times$ gender interaction in $8^{th}$ grade (there was no significant effect of any of the predictors). Additionally, to take into account the possibility of a non-linear trajectory of victimization, we tested to see whether a quadratic growth term improved the model fit.

# General Results

## Descriptive Data and Preliminary Correlations

As shown in Table 1, there were no significant gender differences in the mean level of victimization across the school years ($t$s 1.42, $ns$) or in the predictors ($t$s .97, $ns$), except for girls scoring higher than boys on prosocial behavior ($t = 3.00$, $p = .003$). Table 2 presents correlations between the predictors and victimization. Aggression was moderately negatively correlated with prosocial behavior in both genders and modestly positively correlated with anxious solitude only in boys. Anxious solitude was not correlated with prosocial behavior in either gender. In boys, aggression and anxious solitude were positively, and prosocial behavior was negatively, correlated with victimization in most of elementary school but not in middle school. In girls, aggression was positively correlated with victimization across all of the school years and anxious solitude was positively correlated with $7^{th}$ and $8^{th}$ grade victimization. Fisher's $r$ to $z$ transformations revealed that the correlation was stronger in boys than in girls between anxious solitude and $3^{rd}$ and $4^{th}$ grade victimization ($Z$s = 2.21 – 3.48, $p$s < .05 or lower). Correlations were stronger in girls than in boys between aggression and victimization during middle school ($Z$s = 2.22 – 3.13, $p$s < .

05 or lower) and between anxious solitude and victimization in 8th grade ($Z = 2.09$, $p = .015$).

## Results

### Overall Trajectory of Victimization

To examine the mean trajectory of victimization, we fitted a series of unconditional growth models (see Table 3). The unconditional models provided estimates of the means and (co)variances of the latent intercept and slope that were not conditional on gender or predictors of interest. In this model, only grade was entered as a predictor of change in victimization. First, a model was fitted with a linear slope only, allowing the residual variance of the intercept and slope to vary between individuals. The residual variances of victimization within individuals were freely estimated over time. Given some evidence suggesting that the change in victimization may not be linear, we tested the possibility that the growth may speed up or slow down at some point in the school years. Thus, a quadratic growth, with its variance allowed to vary between individuals, was added to the model. The results of a Satorra-Bentler scaled chi-square difference test suggested that the model that included the quadratic growth significantly improved the fit over the model that included only the linear growth ( $\chi^2_{SB}(4) = 70.71$, $p < .001$). Moreover, there was significant variance in both linear and quadratic growth. Thus, the subsequent analyses were conducted using models including the linear and quadratic growth of victimization. The final unconditional growth model revealed that victimization consistently decreased from 2nd through 8th grade, but at a slower rate towards the end of middle school.

### Step 1: Separate Contributions of Early Social Behaviors to Initial Level and Trajectory of Victimization

To test their separate contributions, each predictor was added to the unconditional growth model separately. In each model, family income was entered as a covariate. Ethnicity (White vs. Other) was initially entered in each model as a covariate but did not significantly predict victimization in 2nd grade, the trajectory of victimization, or victimization in 8th grade. Thus, for parsimony, ethnicity was removed from each model. To aid in the interpretation of the estimates, we provide fitted growth plots in figures 3a–c, where the relation between the predictor and victimization is plotted as a function of the predictor (mean +/− SD) and gender. Patterns of trajectories within boys and girls were interpreted descriptively through visual inspection of these graphs. The results for predicting 2nd grade victimization and the trajectory of victimization are displayed in Table 4, under Separate Contributions. When the effect of the predictor × gender interaction on 8th grade victimization was significant, the interaction was further examined by comparing the fit of the original model and the model in which the estimates for youth with high and low levels of the predictor were constrained to be equal; this test was conducted separately for each gender, using the Satorra-Bentler scaled chi-square difference test. If the constrained model showed a significantly worse fit to the data, we concluded that there was a significant interaction between the predictor on the outcome within the gender. The level of victimization in 8th grade was also compared between youth with high vs. low level of each social behavior by conducting a contrast test within gender[3].

**Aggression**—As shown in Table 4, the analysis revealed a significant positive effect of aggression on 2$^{nd}$ grade victimization but no significant effect of aggression or the aggression × gender interaction on the linear or quadratic growth. There was a significant aggression × gender interaction on 8$^{th}$ grade victimization ($B = .18$, $SE = .07$, $p = .01$). In 2$^{nd}$ grade, across gender, youth with high levels of aggression experienced higher levels of victimization than youth with low levels of aggression (see Figure 3a). Boys with high and low levels of aggression converged in their trajectories over time, resulting in no significant difference in their levels of victimization in 8$^{th}$ grade ($B = -.02$, $SE = .07$, $ns$). Compared to girls with low levels of aggression, girls with high levels of aggression experienced higher levels of victimization throughout the school years, resulting in significantly higher levels of victimization in 8$^{th}$ grade ($B = .27$, $SE = .08$, $p = .001$).

**Anxious solitude**—As shown in Table 4, the analysis revealed a significant effect of anxious solitude on 2$^{nd}$ grade victimization, a significant anxious solitude × gender interaction on the linear growth, a significant negative effect of anxious solitude on the quadratic growth, and a significant anxious solitude × gender interaction on the quadratic growth. There was also a significant anxious solitude × gender interaction on 8$^{th}$ grade victimization ($B = .18$, $SE = .08$, $p = .027$). Across gender, youth with higher levels of anxious solitude experienced somewhat higher levels of 2$^{nd}$ grade victimization than youth with lower levels of anxious solitude (see Figure 3b). During elementary school (2$^{nd}$ – 5$^{th}$ grade), boys with high levels of anxious solitude followed a more curvilinear decline and maintained higher levels of victimization than boys with low levels of anxious solitude, who followed a flatter trajectory. In middle school (6$^{th}$ – 8$^{th}$ grade), boys with high and low levels of anxious solitude converged, with no significant difference in the levels of 8$^{th}$ grade victimization ($B = -.05$, $SE = .07$, $ns$). In contrast, girls with high and low levels of anxious solitude showed a similar, slow decline in victimization throughout elementary school. In middle school, girls with high levels of anxious solitude showed a less steep decline and reported significantly higher levels of 8$^{th}$ grade victimization than girls with low levels of anxious solitude ($B = .18$, $SE = .08$, $p = .022$).

**Prosocial behavior**—The analysis revealed a significant negative effect of prosocial behavior on 2$^{nd}$ grade victimization, a significant prosocial behavior × gender interaction on the linear growth, and a significant prosocial behavior × gender interaction on the quadratic growth (see Table 4). Across gender, youth with low levels of prosocial behavior experienced higher levels of 2$^{nd}$ grade victimization than youth with high levels of prosocial behavior (see Figure 3c). During elementary school, boys with high levels of prosocial behavior followed a flat trajectory and experienced lower levels of victimization than boys

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[3]As a supplemental set of analyses, we also examined the association between change in social behaviors and change in peer victimization from 2$^{nd}$ to 8$^{th}$ grade. Overall, the associations between the trajectories of two social behaviors (aggression and anxious solitude) and the trajectory of victimization ranged from .000 to .002 ($SE$s = .000 – .003, $ns$). There were gender differences for prosocial behavior. In boys, covariances between the linear or quadratic growth of prosocial behavior and the growth parameters of victimization ranged from .00 to .01 ($SE$s = .00 – .02, $ns$). In girls, however, the covariance between the linear growth of prosocial behavior and the linear growth of victimization was −.01 ($SE = .01$, $p = .011$) and the covariance between the linear growth of prosocial behavior and the quadratic growth of victimization was .001 ($SE = .001$, $p = .055$). The effects of 2$^{nd}$ grade social behaviors on the intercept, linear growth, and quadratic growth of victimization when adjusting for change in social behavior were similar in direction and magnitude to those found without adjusting for change in social behavior. The results of these supplemental analyses are available from the first author.

with low levels of prosocial behavior, who followed a more curvilinear decline. In middle school, boys with high and low levels of prosocial behavior converged, with no significant difference in their levels of victimization in 8th grade. In contrast, girls with both high and low levels of prosocial behavior showed a decline in victimization throughout elementary school and an increase in middle school, but girls with low levels of prosocial behavior maintained higher levels of victimization over time. There was no significant effect of prosocial behavior, gender, or the interaction between the two on 8th grade victimization (Bs = .01–.08, SEs = .04–05, ns).

### Step 2: Unique Contributions of Early Social Behaviors to Initial Level and Trajectory of Victimization

Next, we examined the unique contribution of each social behavior to the initial level and trajectory of victimization over time above and beyond other predictors. Income was entered as a covariate for the prediction of the intercept, linear growth, and quadratic growth. All of the effects of the three predictors on the intercept and the linear slope were included in the models. For the quadratic growth, the effects of predictors were included if (1) they were significant, or (2) the predictor × gender interaction was significant, in Step 1. The predictor × gender interactions that had a significant effect on the linear growth or quadratic growth in Step 1 also were included for the intercept, linear growth, and quadratic growth. This model showed an acceptable fit (see Table 4, Unique Contributions). There was a significant positive effect of aggression, a marginally significant effect of anxious solitude, and a marginally significant prosocial behavior × gender interaction on 2nd grade victimization. There also were significant anxious solitude × gender and prosocial behavior × gender interactions on the linear growth, and a significant positive effect of anxious solitude as well as significant anxious solitude × gender and prosocial behavior × gender interactions on the quadratic growth.

To test the unique contribution of each predictor to 8th grade victimization, all of the effects of the three predictors on the intercept (re-centered to 8th grade), linear growth, and quadratic growth were included. Income was entered as a covariate for the prediction of the intercept, linear growth, and quadratic growth. The aggression × gender and anxious solitude × gender interaction effects on the intercept were included as they were significant in Step 1. The prosocial behavior × gender interaction effect on the intercept was also included in the model because this effect was significant for the linear and quadratic growth in Step 1. Additionally, the anxious solitude × gender and prosocial behavior × gender interaction effects on the linear and quadratic growth were included based on the results from Step 1. Paths from each social behavior were examined simultaneously. This model showed an acceptable fit ($\chi^2$ (61) = 134.78, CFI = .936, RMSEA = .046). Table 4 presents the results of combining the predictors for 2nd grade victimization and the trajectory of victimization. In predicting 8th grade victimization, there was no significant effect of any of the three social behaviors, but there were significant aggression × gender and anxious solitude × gender interaction effects. Overall, the significant effects were consistent in direction with the results from Step 1. The magnitude of the effects for the intercept, linear growth, and quadratic growth also was similar to Step 1, except for the aggression × gender interaction

effect on 8th grade victimization, which became smaller when combined with other predictors.

## Discussion

This study aimed to examine the trajectory of victimization from 2nd to 8th grade and to remedy the paucity of knowledge regarding the separate and unique effects of three different early social behaviors on victimization over an extended period of time, spanning the transition to middle school. Overall, victimization declined across the school years, but at a slower rate after the transition to middle school. In general, the results suggest that social behaviors directed against the world (aggression) or away from the world (anxious solitude) put youth at risk for victimization whereas social behavior directed toward the world (prosocial behavior) protects youth from victimization. Also, the same social behaviors differentially determined exposure to victimization for boys and girls, perhaps due to differences in social norms for how boys and girls should act. These findings are consistent with developmental theories suggesting that youth's characteristics evoke certain responses from their environment that can shape the long-term social context in which youth live (Caspi et al., 1989; Scarr & McCartney, 1983).

### Overall Trajectory

Consistent with most previous longitudinal studies (e.g., Brendgen et al., 2016; Haltigan & Vaillancourt, 2014; Shell et al., 2014), the results suggested a consistent decline in the overall level of victimization across the school years. However, the decline slowed down across the transition to middle school, suggesting that even though victimization does not increase in middle school, certain youth remain victimized. This finding is in line with other changes in peer relationships across the transition to middle school. That is, peer rejection is stable across the transition to middle school while peer acceptance is less stable (Hardy, Bukowski, & Sippola, 2002), indicating that some youth have difficulty forming and maintaining positive peer relationships during the transition. Given that peer rejection is a predictor of peer victimization (Hodges & Perry, 1999; Kochenderfer-Ladd, 2003), such tendencies in peer relationships during this developmental stage are likely to influence peer victimization. It may be that once youth are victimized, their reputation as victims becomes established, making it difficult for them form new friendships that can serve as a support system.

### Separate Contributions of Social Behaviors to Victimization

Despite the general trend toward declining and then stabilizing victimization across the school years, there was significant variability in the trajectory of victimization. To elucidate factors underlying these individual differences, we examined the separate contributions of social behaviors early in elementary school to continuity and discontinuity in victimization across the school years. Results suggested each of these social behaviors contributed to the initial level and/or the trajectory of peer victimization. Consistent with the idea that social norms may create differences in the consequences of particular social behaviors for boys and girls, early social behaviors contributed to more differentiated trajectories in boys during elementary school and in girls during middle school. Boys with high and low levels of each

social behavior followed different trajectories of victimization during elementary school depending on their levels of each social behavior, but became similar in their levels of victimization during middle school, such that none of the social behaviors predicted different levels of victimization in boys in 8th grade. On the other hand, girls with high and low levels of each social behavior showed similar trajectories and/or levels of victimization during elementary school but ended in different levels of victimization in 8th grade.

This gender difference is congruent with the finding that friendships are less stable in girls than in boys across the transition to middle school (Hardy et al., 2002). Girls' social networks may be changing more rapidly than those of boys in middle school, and thus, the role of lasting reputation as aggressive, anxious solitary, or prosocial peers may be stronger in girls, making certain girls more vulnerable to victimization while protecting others from victimization. Alternatively, boys' experience of victimization in middle school may be better explained by risk factors other than early social behavior. Future research should further explore risk factors for adolescent boys that have been identified in previous research such as physical weakness (Egan & Perry, 1998) and poor athletic ability (Knack, Tsar, Vaillancourt, Hymel, McDougall, 2012), which may be more relevant than social behavior as boys move into adolescence. It also is possible that the stability of social behavior is different for boys and girls, which may have resulted in gender differences in the strength of effects of early social behavior on peer victimization over a seven-year period. Although our focus in this study was to examine possible enduring effects of early social behavior, examining the effects of these social behaviors at each time point would provide another interesting perspective on their role in victimization across the school years.

**Prediction of 2nd grade victimization**—Overall, results of the present study support theories suggesting that youth's early characteristics and behavior elicit certain responses from others surrounding them (Caspi et al., 1989) and influence youth's choice of environment (Scarr, 1983), resulting in either heightened or reduced levels of victimization. Consistent with our hypothesis and previous short-term studies (e.g., Giesbrecht et al., 2011), youth who were more aggressive were at higher risk for victimization in 2nd grade. Aggressive behavior may invite retaliation from peers, fostering victimization. Of course, because this effect is concurrent, it is possible that being victimized led children to engage in more aggression. Also as expected and consistent with prior research, anxious solitude (e.g., Boivin et al., 2010) predicted higher levels of victimization in 2nd grade, and prosocial behavior (e.g., Fox & Boulton, 2006) predicted lower levels of victimization in 2nd grade. Youth high in anxious solitude may seek environments in which they can avoid confrontations. Perpetrators may find such peers easy targets (Perry et al., 1988), resulting in higher levels of victimization. In contrast, peers are likely to respond positively to youth who show prosocial behavior because such behavior creates a positive emotional climate and is likely to prompt peers to reciprocate with friendliness. At the same time, given the concurrent nature of the associations, it also is possible that youth become more anxious solitary and less prosocial when they are victimized.

**Predicting the trajectory of victimization and 8th grade victimization**—It is interesting that early aggressive behavior predicted different levels of victimization in 8th

grade in girls but not in boys. It may be that the meaning of aggressive behavior differs between boys and girls over time. For instance, aggressive behavior in boys is sometimes perceived positively by peers in later years of elementary school (Rodkin, Farmer, Pearl, & Van Acker, 2000), which may protect aggressive boys against victimization. When examined separately in a preliminary set of analyses, both overt and relational aggression in 2nd grade predicted significantly higher levels of both types of victimization in 8th grade for girls (with the exception of relational aggression predicting only marginally higher levels of overt victimization). It is understandable that gender-atypical overt aggression puts girls at higher risk for being the target of negative treatment by peers. The fact that relational aggression, which is not gender-atypical in girls, also put them at higher risk for negative treatment by peers may suggest that any form of aggression is harmful to girls who are at a developmental stage in which closeness with others becomes very important (Rose & Rudolph, 2006).

In examining the effects of anxious solitude and prosocial behavior on the trajectory of victimization, interesting gender differences emerged, perhaps due to social norms within each gender. In line with our hypothesis and previous concurrent research (e.g., Miller et al., 2011), anxious solitude predicted sustained higher levels of victimization in boys during elementary school. Anxious solitude may put boys at particular risk for victimization earlier in the school years because such behavior is more common in girls (Else-Quest et al., 2006) and is thus perceived as violating social expectations in boys. Once highly anxious solitary boys are victimized, they may establish a reputation as reticent, thereby allowing victimization to continue throughout elementary school. Interestingly, anxious solitude did not contribute to differential trajectories of victimization in girls during elementary school but did predict girls' levels of 8th grade victimization. Perhaps anxious solitude mattered for 8th grade victimization in girls because they begin to value closeness with friends more than boys as they reach adolescence (for a review, see Rose & Rudolph, 2006); given that youth begin to form cliques during this developmental stage, being anxious and withdrawn may become a greater hindrance for girls to forming interpersonal ties that protect against victimization.

In contrast, boys seem to benefit more from prosocial behavior than girls, especially during elementary school; high levels of prosocial behavior predicted sustained lower levels of victimization in boys but not in girls. This is congruent with a previous study (Dempsey et al., 2006) in which boys who showed less prosocial behavior tended to remain victimized compared to boys who showed more prosocial behavior. These findings suggest that although prosocial behavior may be perceived as gender-atypical for boys, the nature of such behavior (i.e., friendly behavior that promotes positive peer relationships) plays a protective role. Of note, prosocial behavior did not contribute to different levels of victimization in 8th grade for either boys or girls, suggesting that the contribution of early prosocial behavior is not enduring through middle school. Perhaps because prosocial behavior becomes more normative with age (Eisenberg et al., 2006), youth need to show a particularly high level of prosocial behavior or more diverse types of prosocial behavior to be protected against negative treatment by peers.

### Unique Contributions of Social Behaviors to Victimization

The results from the simultaneous investigation of the three social behaviors elucidate how social behaviors that are oriented against, away from, or toward the world (Caspi et al., 1988; Gazelle & Rudolph, 2004) work together to predict peer victimization across the school years. These results are particularly helpful in depicting a profile of social behaviors, rather than a single social behavior, that may determine exposure to victimization. When exploring the effects of the predictors simultaneously, only aggression remained a significant predictor of $2^{nd}$ grade victimization. It may be that aggression matters more to how much youth are victimized in early elementary school years than anxious solitude or prosocial behavior. Youth may be more tolerant of peers' withdrawn tendencies when they are young. As they grow older, however, they may begin to perceive such tendencies as immature and to actively dislike anxious solitary peers (Ladd, 2005), particularly boys. Prosocial behavior may not have made a separate contribution to $2^{nd}$ grade victimization because it was moderately negatively correlated with aggression ($r = -.44$ for boys and $-.36$ for girls) and may have overlapped in the variance it explained. Alternatively, it is possible that prosocial behavior cannot protect youth against victimization beyond the effects of aggression.

Aggression also predicted the quadratic (but not linear) growth in victimization and the level of victimization in $8^{th}$ grade. Consistent with the results when examining the effects of social behaviors separately, the effect on $8^{th}$ grade victimization was found only for girls. The long-term adverse effects of early anxious solitude and protective effects of prosocial behavior were consistent even when examined simultaneously, suggesting their unique roles in enhancing or diminishing exposure to victimization. Moreover, consistent with our hypothesis and the results from the separate analyses, the unique contribution of anxious solitude and prosocial behavior to the trajectory of victimization was different for boys and girls, with boys' trajectories during elementary school being more differentiated by their level of anxious solitude and prosocial behavior. It is encouraging that early prosocial behavior remained a protective factor for boys even when adjusting for risk factors, particularly during elementary school. However, when examining levels of victimization in $8^{th}$ grade, early anxious solitude put girls at higher risk whereas prosocial behavior failed to provide a protective effect. These findings suggest the importance of addressing aggressive behavior and anxious solitude in girls early in the school years and recognizing the differential predictive roles of social behavior in boys versus girls.

### Implications

This research suggests that girls who show less aggressive behavior and anxious solitude and more prosocial behavior early in the school years are less likely to be victimized over time. It may be helpful, in the long run, to teach girls how to negotiate their needs and desires without threatening or hurting others. On the other hand, boys who show more early aggressive behavior and anxious solitude and less prosocial behavior are at highest risk for victimization in elementary school. Encouraging boys to participate proactively in peer interactions may reduce their chance of being victimized, particularly during the early school years. Moreover, the findings suggest that programs designed to prevent exposure to victimization will not be successful if they focus only on decreasing aggressive and withdrawn behavior. Given that low levels of prosocial behavior make a separate

contribution to the trajectory of victimization, efforts will need to be aimed toward teaching children how to engage actively in prosocial interactions within the peer group. The modest negative correlation between aggression and prosocial behavior also suggests that youth who show aggressive behavior are more likely to lack protective factors. As found in an intervention study (Caprara et al., 2014), encouraging prosocial behavior may result in less frequent aggressive behavior and less exposure to victimization.

These findings suggest enduring effects of early social behaviors on youth's exposure to victimization across the school years. The responses youth elicit from their peers may be different depending on their social behaviors (Caspi et al., 1988; Scarr & McCartney, 1983; Rudolph & Gazelle, 2004). These early social behaviors may not only influence youth's exposure to victimization in the short run but set youth on a path of victimization through middle school. Perhaps, peer perceptions of a particular youth's status as a victim may not change easily once established. Such perceptions may justify further victimization. Of course, these enduring effects also may be due to continuity in social behaviors over time. All of these possibilities suggest the need for early intervention to redirect youth along healthier trajectories.

### Limitations and Future Directions

Overall, this research contributes a novel perspective to theory and research regarding risk and protective factors for victimization across the school years and identifies important differences across boys and girls. However, it should be noted that the effect sizes were generally small. The modest effect sizes likely resulted in part from the extended time period covered by the research. Although the primary goal of this study was to examine the lasting contribution of early social behaviors to the course of victimization across the school years, how much youth are victimized at the end of middle school is also likely influenced by youth's more recent social behaviors. The use of different informants for social behaviors and victimization may also have contributed to the small effect sizes found in this study. In addition, many of the effects involved behavior × gender interactions; such interaction effects tend to be modest in size (Aiken & West, 1991). Nevertheless, future research may benefit from investigating other individual differences that contribute to victimization across the school years above and beyond youth's early social behaviors. That being said, we believe our findings are meaningful in showing the long-lasting effects of early social behaviors on youth's exposure to victimization across the school years.

Future research also will need to address other remaining questions regarding victimization risk. First, because the aim of this study was to examine how early social behavior sets children on a trajectory of chronic victimization, social behaviors were measured in 2nd grade. Although the findings from this study make a significant contribution to the literature by showing how between-person differences in early social behaviors can influence within-person change in victimization over time, it is possible that greater exposure to victimization may heighten aggressive behavior or anxious solitude over time. Future research can build on these findings by considering possible bidirectional effects between social behaviors and victimization over time. Second, these findings suggest that victimization may be predicted by different factors at different developmental stages, with certain social behaviors

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contributing more to victimization in boys during elementary school and in girls during middle school. Future research would benefit from an investigation of a wider set of risk factors. For example, in a focus group conducted as part of a mixed method study, weakness (physical or psychological) was mentioned as a reason for being victimized more often among elementary school students whereas being different from peers was mentioned more often among high school students (Guerra, Williams, & Sadek, 2011). Third, although this study was designed to examine the unique effects of different social behaviors, it also would be helpful to consider whether these behaviors interact to predict victimization. For example, children who show both aggression and prosocial behavior may follow a different trajectory of victimization than those who are aggressive but not prosocial. Of note, Brendgen and colleagues (2016) found that aggression in 4th grade put children at risk for heightened levels of victimization across the transition to middle school only if they showed more internalizing problems at the same time. Fourth, we did not examine the mediating roles of gender norms between early social behaviors and victimization explicitly. It would be helpful in future research to test this mechanism to elucidate why the same social behaviors may have different effects on boys' and girls' exposure to victimization.

In conclusion, three social behaviors contribute to the initial level and the continuity of victimization over time from 2nd through 8th grade. When examined simultaneously, aggressive behavior and anxious solitude continued to put youth at risk for victimization whereas prosocial behavior continued to protect youth against victimization across the school years. By encouraging youth to move more "toward the world," rather than "against the world" or "away from the world" (Caspi et al., 1988), parents and educators may be able to help improve youth's peer relationships and prevent chronic peer victimization.

## Acknowledgments

## References

Aiken, LS., West, SG. Multiple regression: Testing and interpreting interactions. Newbury Park, CA: Sage; 1991.

Avant TS, Gazelle H, Faldowski R. Classroom emotional climate as a moderator of anxious solitary children's longitudinal risk for peer exclusion: A child × environment model. Developmental Psychology. 2011; 47:1711–1727. http://dx.doi.org/10.1037/a0024021. [PubMed: 21688897]

Barker ED, Boivin M, Brendgen M, Fontaine N, Arseneault L, Vitaro F, … Tremblay RE. Predictive validity and early predictors of peer-victimization trajectories in preschool. Archives of General Psychiatry. 2008; 65:1185–1192. http://dx.doi.org/10.1001/archpsyc.65.10.1185. [PubMed: 18838635]

Bellmore A, Jiang XL, Juvonen J. Utilizing peer nominations in middle school: A longitudinal comparison between complete classroom-based and random list methods. Journal of Research on Adolescence. 2010; 20:538–550. http://dx.doi.org/10.1111/j.1532-7795.2010.00640.x.

Boivin M, Petitclerc A, Feng B, Barker ED. The developmental trajectories of peer victimization in middle to late childhood and the changing nature of their behavioral correlates. Merrill-Parmer Quarterly. 2010; 56:231–260. http://dx.doi.org/10.1017/s0954579400006830.

Brendgen, M., Girard, A., Vitaro, F., Dionne, G., Boivin, M. Personal and familial predictors of peer victimization trajectories from primary to secondary school. Developmental Psychology. 2016. Advance online publication. http://dx.doi.org/10.1037/dev0000107

Caprara GV, Kanacri BPL, Gerbino M, Zuffiano A, Alessandri G, Vecchio G, … Bridglall B. Positive effects of promoting prosocial behavior in early adolescence: Evidence from a school-based intervention. International Journal of Behavioral Development. 2014; 38(4):386–396. DOI: 10.1177/0165025414531464

Card NA, Stucky BD, Sawalani GM, Little TD. Direct and indirect aggression during childhood and adolescence: A meta-analytic review of gender differences, intercorrelations, and relations to maladjustment. Child Development. 2008; 79:1185–1229. http://dx.doi.org/10.1111/j.1467-8624.2008.01184.x. [PubMed: 18826521]

Caspi A, Bem DJ, Elder GH. Continuities and consequences of interactional styles across the life course. Journal of Personality. 1989; 57:375–406. [PubMed: 2769561]

Caspi A, Elder GH, Bem D. Moving away from the world: Life-course patterns of shy children. Developmental Psychology. 1988; 24:824–831. http://dx.doi.org/10.1037/0012-1649.24.6.824.

Crick NR. The role of overt aggression, relational aggression, and prosocial behavior in the prediction of children's future social adjustment. Child Development. 1996; 67:2317–2327. [PubMed: 9022243]

Crick NR. Engagement in gender normative versus nonnormative forms of aggression: Links to social-psychological adjustment. Developmental Psychology. 1997; 33:610–617. [PubMed: 9232376]

Crick NR, Grotpeter JK. Children's treatment by peers: Victims of relational and overt aggression. Development and Psychopathology. 1996; 8:367–380. http://dx.doi.org/10.2307/1131625.

Davidson LM, Demaray MK. Social support as a moderator between victimization and internalizing-externalizing distress from bullying. School Psychology Review. 2007; 36(3):383–405.

Dempsey JP, Fireman GD, Wang E. Transitioning out of peer victimization in school children: Gender and behavioral characteristics. Journal of Psychopathology and Behavioral Assessment. 2006; 28:273–282. http://dx.doi.org/10.1007/s10862-005-9014-5.

Dhami MK, Hoglund WL, Leadbeater BJ, Boone EM. Gender-linked risks for peer physical and relational victimization in the context of school-level poverty in first grade. Social Development. 2005; 14:532–549. http://dx.doi.org/10.1111/j.1467-9507.2005.00315.x.

Duncan, TE., Duncan, SC., Strycker, AL., Li, F., Alpert, A. An introduction to latent variable growth curve modeling: Concepts, issues, and applications. Mahwah, NJ: Erlbaum; 1999.

Eccles, JS., Wigfield, A., Schiefele, U. Motivation to succeed. In: Damon, W.Lerner, R., Eisenberg, N., editors. Handbook of child psychology: Vol 3. Socialization, personality, and social development. 5. New York: Wiley; 1998. p. 1017-1095.

Egan SK, Perry DG. Does low self-regard invite victimization? Developmental Psychology. 1998; 34(2):299–309. DOI: 10.1037/0012-1649.34.2.299 [PubMed: 9541782]

Eisenberg N, Fabes RA, Karbon M, Murphy BC, Wosinski M, Polazzi L, … Juhnke C. The relations of children's dispositional prosocial behavior to emotionality, regulation, and social functioning. Child Development. 1996; 67:974–992. http://dx.doi.org/10.2307/1131874. [PubMed: 8706539]

Eisenberg, N., Fabes, RA., Spinrad, TL. Prosocial development. In: Damon, W.Lerner, R., Eisenberg, N., editors. Handbook of child psychology: Vol 3. social, emotional, and personality development. 6. New York: Wiley; 2006. p. 647-702.

Else-Quest NM, Hyde JS, Goldsmith HH, Van Hulle CA. Gender differences in temperament: A meta-analysis. Psychological Bulletin. 2006; 132:33–72. http://dx.doi.org/10.1037/e341392004-001. [PubMed: 16435957]

Fabes RA, Hanish LD, Martin CL, Moss A, Reesing A. The effects of young children's affiliations with prosocial peers on subsequent emotionality in peer interactions. British Journal of Developmental Psychology. 2012; 30:569–585. http://dx.doi.org/10.1111/j.2044-835x.2011.02073.x. [PubMed: 23039333]

Fox CL, Boulton MJ. Friendship as a moderator of the relationship between social skills problems and peer victimisation. Aggressive Behavior. 2006; 32:110–121. http://dx.doi.org/10.1002/ab.20114.

Gazelle H. Class climate moderates peer relations and emotional adjustment in children with an early history of anxious solitude: a child × environment model. Developmental Psychology. 2006; 42:1179–1192. http://dx.doi.org/10.1037/0012-1649.42.6.1179. [PubMed: 17087551]

Gazelle H, Ladd GW. Anxious solitude and peer exclusion: A diathesis-stress model of internalizing trajectories in childhood. Child Development. 2003; 74:257–278. http://dx.doi.org/10.1111/1467-8624.00534. [PubMed: 12625449]

Gazelle H, Rudolph KD. Moving toward and away from the world: Social approach and avoidance trajectories in anxious solitary youth. Child Development. 2004; 75:829–849. http://dx.doi.org/10.1111/j.1467-8624.2004.00709.x. [PubMed: 15144489]

Giesbrecht GF, Leadbeater BJ, MacDonald SWS. Child and context characteristics in trajectories of physical and relational victimization among early elementary school children. Development and Psychopathology. 2011; 23:239–252. http://dx.doi.org/10.1017/s0954579410000763. [PubMed: 21262051]

Goldbaum S, Craig WM, Pepler D, Connolly J. Developmental trajectories of victimization. Journal of Applied School Psychology. 2003; 19(2):139–156. DOI: 10.1300/j008v19n02_09

Graham S, Juvonen J. Self-blame and peer victimization in middle school: An attributional analysis. Developmental Psychology. 1998; 34:587–599. http://dx.doi.org/10.1037/0012-1649.34.3.587. [PubMed: 9597367]

Guerra NG, Williams KR, Sadek S. Understanding bullying and victimization during childhood and adolescence: A mixed methods study. Child Development. 2011; 82(1):295–310. http://dx.doi.org/10.1111/j.1467-8624.2010.01556.x. [PubMed: 21291443]

Haltigan JD, Vaillancourt T. Joint trajectories of bullying and peer victimization across elementary and middle school and associations with symptoms of psychopathology. Developmental Psychology. 2014; 50:2426–2436. http://dx.doi.org/10.1037/a0038030. [PubMed: 25313592]

Hanish LD, Guerra NG. A longitudinal analysis of patterns of adjustment following peer victimization. Development and Psychopathology. 2002; 14:69–89. http://dx.doi.org/10.1017/s0954579402001049. [PubMed: 11893095]

Hardy C, Bukowski WM, Sippola LK. Stability and change in peer relationships during the transition to middle-level school. Journal of Early Adolescence. 2002; 22(2):117–142.

Hodges EVE, Perry DG. Personal and interpersonal antecedents and consequences of victimization by peers. Journal of Personality and Social Psychology. 1999; 76:677–685. [PubMed: 10234851]

Holt MK, Espelage DL. Perceived social support among bullies, victims, and bully-victims. Journal of Youth and Adolescence. 2006; 36(8):984–994. DOI: 10.1007/s10964-006-9153-3

Kärnä A, Voeten M, Little TD, Poskiparta E, Kaljonen A, Salmivalli C. A large-scale evaluation of the KiVa antibullying program: Grades 4–6. Child Development. 2011; 82(1):311–330. DOI: 10.1111/j.1467-8624.2010.01557.x [PubMed: 21291444]

Knack JM, Tsar V, Vaillancourt T, Hymel S, McDougall P. What protects rejected adolescents from also being bullied by their peers? The moderating role of peer-valued characteristics. Journal of Research on Adolescence. 2012; 22(3):467–479. DOI: 10.1111/j.1532-7795.2012.00792.x

Kochel KP, Ladd GW, Rudolph KD. Longitudinal associations among youth depressive symptoms, peer victimization, and low peer acceptance: An interpersonal process perspective. Child Development. 2012; 83:637–650. http://dx.doi.org/10.1111/j.1467-8624.2011.01722.x. [PubMed: 22313098]

Kochenderfer BJ, Ladd GW. Victimized children's responses to peers' aggression: Behaviors associated with reduced versus continued victimization. Development and Psychopathology. 1997; 9:59–73. http://dx.doi.org/10.1017/s0954579497001065. [PubMed: 9089124]

Kochenderfer-Ladd B. Identification of aggressive and asocial victims and the stability of their peer victimization. Merrill-Palmer Quarterly: Journal of Developmental Psychology. 2003; 49:401–425.

Ladd, GW. Children's peer relations and social competence: A century of progress. New Haven and London: Yale University Press; 2005.

Ladd GW, Kochenderfer-Ladd B. Identifying victims of peer aggression from early to middle childhood: Analysis of cross-informant data for concordance, estimation of relational adjustment,

prevalence of victimization, and characteristics of identified victims. Psychological Assessment. 2002; 14:74–96. http://dx.doi.org/10.1037/1040-3590.14.1.74. [PubMed: 11911051]

Leadbeater BJ, Hoglund WLG. The effects of peer victimization and physical aggression on changes in internalizing from first to third grade. Child Development. 2009; 80:843–859. http://dx.doi.org/10.1111/j.1467-8624.2009.01301.x. [PubMed: 19489907]

Lerner MJ, Miller DT. Just world research and the attribution process: Looking back and ahead. Psychological Bulletin. 1978; 5:1030–1051. http://dx.doi.org/10.1037/0033-2909.85.5.1030.

Little, TD., Bovaird, JA., Slegers, DW. Methods for the analysis of change. In: Mroczek, DK., Little, TD., editors. Handbook of personality development. Mahwah, NJ: Erlbaum; 2006. p. 181-211.

Miller SR, Tserakhava V, Miller CJ. My child is shy and has no friends: What does parenting have to do with it? Journal of Youth and Adolescence. 2011; 40(4):442–452. http://dx.doi.org/10.1007/s10964-010-9550-5. [PubMed: 20496047]

Monks CP, Smith PK, Swettenham J. Aggressors, victims, and defenders in preschool: Peer, self, and teacher reports. Merrill-Palmer Quarterly. 2003; 49:453–469. http://dx.doi.org/10.1353/mpq.2003.0024.

Muthén, LK., Muthén, BO. Mplus user's guide. 7. Los Angeles, CA: Muthén & Muthén; 1998–2012.

Nansel TR, Overpeck M, Pilla RS, Ruan WJ, Simons-Morton B, Scheidt P. Bullying behaviors among US youth. Journal of the American Medical Association. 2001; 285(16):2094–2100. DOI: 10.1001/jama.285.16.2094 [PubMed: 11311098]

National Center for Education Statistics. Statistics in brief: Student victimization at school. 1995. http://nces.ed.gov/pubs95/web/95204.asp

Pellegrini AD, Bartini M. A longitudinal study of bullying victimization, and peer affiliation during the transition from primary school to middle school. American Educational Research Journal. 2000; 37:699–725. http://dx.doi.org/10.3102/00028312037003699.

Perry DG, Kusel SJ, Perry LC. Victims of peer aggression. Developmental Psychology. 1988; 24:807–814. http://dx.doi.org/10.1080/10926771.2016.1121188.

Reavis RD, Keane SP, Calkins SD. Trajectories of peer victimization: The role of multiple relationships. Merrill-Palmer Quarterly. 2010; 56:303–332. [PubMed: 20938488]

Rodkin PC, Farmer TW, Pearl R, Van Acker R. Heterogeneity of popular boys: Antisocial and prosocial configurations. Developmental Psychology. 2000; 36(1):14–24. DOI: 10.1037/0012-1649.36.1.14 [PubMed: 10645741]

Rose AJ, Rudolph KD. A review of sex differences in peer relationship processes: Potential trade-offs for the emotional and behavioral development of girls and boys. Psychological Bulletin. 2006; 132(1):98–131. http://dx.doi.org/10.1037/0033-2909.132.1.98. [PubMed: 16435959]

Rubin K. Nonsocial play in preschoolers: Necessarily evil? Child Development. 1982; 53:651–657. http://dx.doi.org/10.2307/1129376.

Rubin, K., Bukowski, W., Parker, J. Peer interactions, relationships, and groups. In: Damon, W.Lerner, R., Eisenberg, N., editors. Handbook of child psychology: Vol 3. Social, emotional, and personality development. 6. New York: Wiley; 2006. p. 571-645.

Rudolph KD, Troop-Gordon W, Hessel E, Schmidt J. A latent growth curve analysis of early and increasing peer victimization as predictors of mental health across elementary school. Journal of Clinical Child and Adolescent Psychology. 2011; 40:111–122. http://dx.doi.org/10.1080/15374416.2011.533413. [PubMed: 21229448]

Scarr S, McCartney K. How people make their own environments: A theory of genotype → environment effects. Child Development. 1983; 54:424–435. http://dx.doi.org/10.2307/1129703. [PubMed: 6683622]

Schwartz, D., Proctor, L., Chien, D. The aggressive victim of bullying: Emotional and behavioral dysregulation as a pathway to victimization by peers. In: Juvonen, J., Graham, S., editors. Peer harassment in school: The plight of the vulnerable and victimized. New York: Guilford Press; 2001. p. 147-174.

Shell MD, Gazelle H, Faldowski RA. Anxious solitude and the middle school transition: A diathesis × stress model of peer exclusion and victimization trajectories. Developmental Psychology. 2014; 50:1569–1583. http://dx.doi.org/10.1037/a0035528. [PubMed: 24491212]

Sumter SR, Baumgartner SE, Valkenburg PM, Peter J. Developmental trajectories of peer victimization: Off-line and online experiences during adolescence. Journal of Adolescent Health. 2012; 50:607–613. http://dx.doi.org/10.1016/j.jadohealth.2011.10.251. [PubMed: 22626488]

Troop-Gordon W, Ladd GW. Trajectories of peer victimization and perceptions of the self and schoolmates: Precursors to internalizing and externalizing problems. Child Development. 2005; 76:1072–1091. http://dx.doi.org/10.1111/j.1467-8624.2005.00898.x. [PubMed: 16150003]

Wolke D, Woods S, Samara M. Who escapes or remains a victim of bullying in primary school? British Journal of Developmental Psychology. 2009; 27:835–851. [PubMed: 19994482]

Younger AJ, Boyko KA. Aggression and withdrawal as social schemas underlying children's peer perceptions. Child Development. 1987; 58:1094–1100. http://dx.doi.org/10.2307/1130549. [PubMed: 3608658]
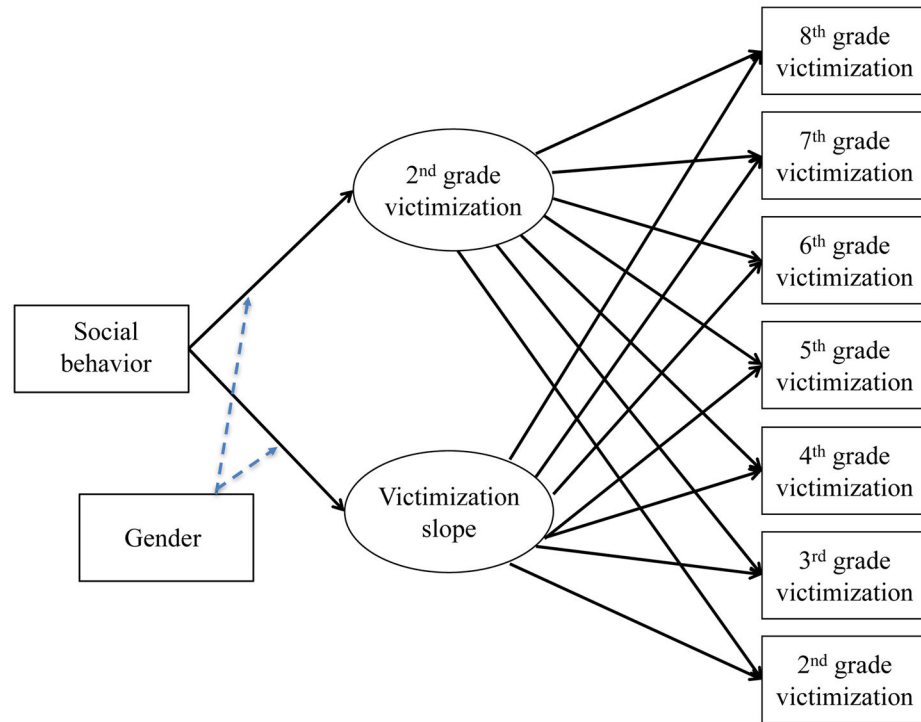
**Figure 1.**
Predicting 2nd grade victimization and 2nd –8th grade trajectory from social behavior
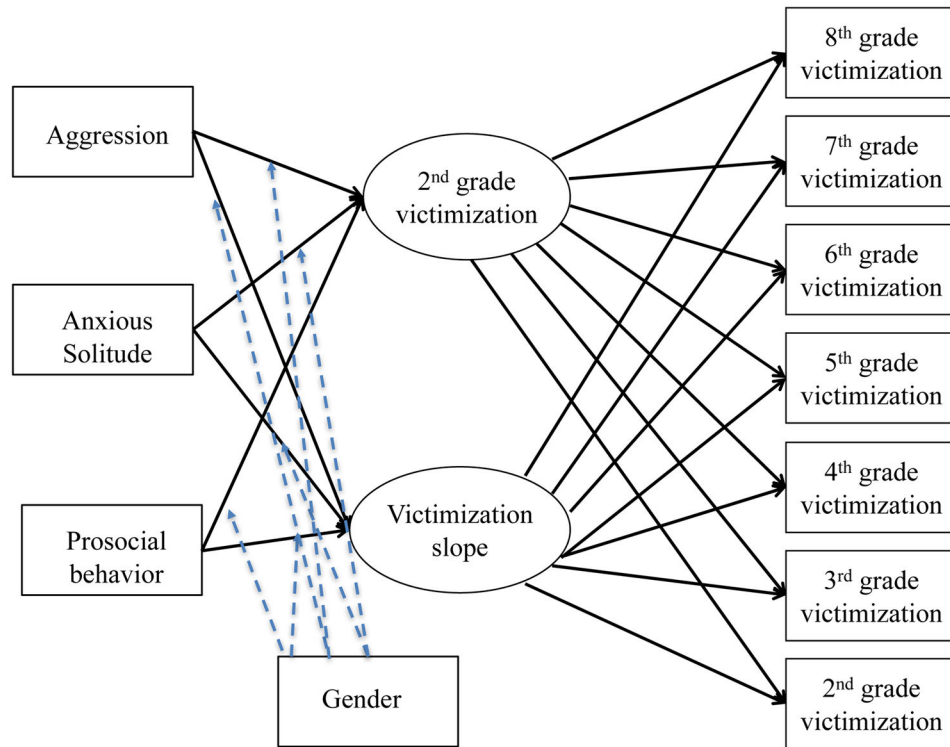
**Figure 2.**
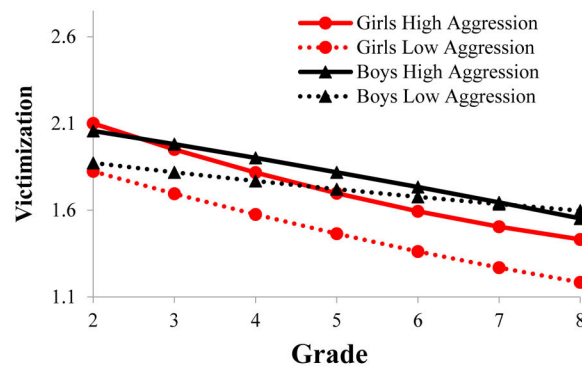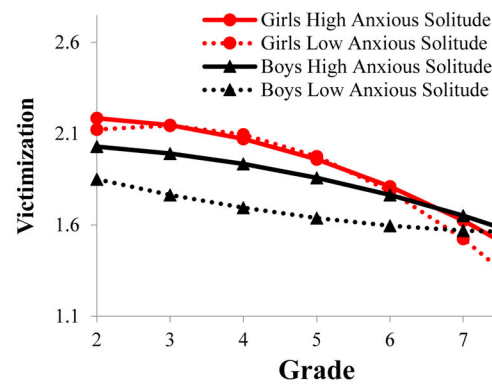Predicting 2nd grade victimization and 2nd–8th grade trajectory from all social behaviors

Figure 3a *Trajectory of victimization predicted by 2nd grade aggression and gender*



Figure 3b *Trajectory of victimization predicted by 2nd grade anxious solitude and gender*



Figure 3c *Trajectory of victimization predicted by 2nd grade prosocial behavior and gender*
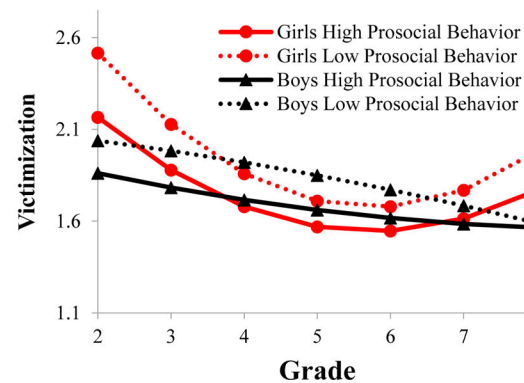


**Figure 3. EARLY SOCIAL BEHAVIORS AND VICTIMIZATION**

Figure 3a Trajectory of victimization predicted by 2nd grade aggression and gender

Figure 3b Trajectory of victimization predicted by 2nd grade anxious solitude and gender

Figure 3c Trajectory of victimization predicted by 2nd grade prosocial behavior and gender

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**Table 1**

Descriptive data

| Variable | Boys | | | | Girls | | | |
|---|---|---|---|---|---|---|---|---|
| | N | M | α | SD | N | M | α | SD |
| 2nd grade victimization | 273 | 2.09 | .90 | .74 | 303 | 2.16 | .92 | .81 |
| 3rd grade victimization | 253 | 1.92 | .92 | .67 | 284 | 2.00 | .94 | .73 |
| 4th grade victimization | 243 | 1.88 | .94 | .72 | 276 | 1.80 | .92 | .61 |
| 5th grade victimization | 237 | 1.77 | .93 | .63 | 266 | 1.78 | .94 | .65 |
| 6th grade victimization | 221 | 1.75 | .93 | .61 | 257 | 1.71 | .93 | .58 |
| 7th grade victimization | 201 | 1.66 | .93 | .53 | 228 | 1.64 | .94 | .57 |
| 8th grade victimization | 198 | 1.60 | .93 | .51 | 231 | 1.67 | .93 | .56 |
| 2nd grade aggression | 273 | 1.75 | .93 | .84 | 303 | 1.69 | .92 | .75 |
| 2nd grade anxious solitude | 273 | 1.45 | .92 | .63 | 303 | 1.49 | .91 | .65 |
| 2nd grade prosocial behavior[a] | 273 | 2.90 | .85 | .98 | 303 | 3.14 | .84 | .95 |
| Income | 202 | 3.53 | --- | 2.02 | 228 | 3.84 | --- | 2.09 |

Note: Income was categorized as *1 = 90,000 and over* to *7 = 0–14,999*. Gender differences

[a]
p < .01 or lower.

**Table 2**

Correlations between victimization and predictors (N = 576)

| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
|---|---|---|---|---|---|---|---|---|---|---|
| 1. 2nd grade victimization | --- | .48 | .38 | .30 | .22 | .27 | .21 | .18 | .07 | -.21 |
| 2. 3rd grade victimization | .40 | --- | .54 | .41 | $.29^b$ | .27 | .24 | .20 | $-.02^b$ | -.18 |
| 3. 4th grade victimization | .35 | .61 | --- | .54 | .43 | .39 | .31 | .17 | $-.07^b$ | -.14 |
| 4. 5th grade victimization | .28 | .49 | .60 | --- | .58 | .51 | .42 | .17 | $.03^a$ | -.13 |
| 5. 6th grade victimization | .25 | $.51^b$ | .50 | .56 | --- | .72 | .48 | $.23^a$ | -.01 | -.09 |
| 6. 7th grade victimization | .16 | .39 | .42 | .43 | .64 | --- | .70 | $.24^b$ | .14 | -.10 |
| 7. 8th grade victimization | .18 | .25 | .45 | .41 | .56 | .62 | --- | $.25^b$ | $.16^a$ | -.17 |
| 8. 2nd grade aggression | .12 | .17 | .11 | .15 | $.05^a$ | $-.02^b$ | $.01^b$ | --- | .02 | -.36 |
| 9. 2nd grade anxious solitude | .08 | $.20^b$ | $.22^b$ | $.21^a$ | .06 | .05 | $-.02^a$ | .14 | --- | .04 |
| 10. 2nd grade prosocial behavior | -.09 | -.21 | -.19 | -.17 | -.12 | -.01 | -.06 | -.44 | -.11 | --- |

Note: $rs$ = .12 and above are significant at p < .05 or lower. Values above the diagonal are for girls. Values below the diagonal are for boys. Differs between boys and girls at $p < .05$.

[b]Differs between boys and girls at $p < .01$.

**Table 3**

Unconditional Growth Models (N = 576)

| | Linear Slope Only | Linear + Quadratic Slopes |
|---|---|---|
| Mean | | |
| Intercept | 2.04 *** | 2.11 *** |
| *SE* | .03 | .03 |
| Linear Slope | −.08 *** | −.15 *** |
| *SE* | .01 | .02 |
| Quadratic Slope | --- | .01 *** |
| *SE* | --- | .00 |
| Variance | | |
| Intercept | .30 *** | .32 *** |
| *SE* | .04 | .04 |
| Linear Slope | .01 *** | .07 *** |
| *SE* | .00 | .01 |
| Quadratic Slope | --- | .001 *** |
| *SE* | --- | .00 |
| AIC | 5646.00 | 5571.06 |
| BIC | 5698.27 | 5640.76 |
| RMSEA | .08 | .05 |
| CFI | .90 | .97 |

*** *p* < .001.

**Table 4**

Separate and Unique Contributions of Predictors to Victimization across the School Years (N =576)

| | Separate Contributions | | | Unique Contributions | | |
|---|---|---|---|---|---|---|
| | **Aggression** B (SE) | **Anxious Solitude** B (SE) | **Prosocial Behavior** B (SE) | **Aggression** B (SE) | **Anxious Solitude** B (SE) | **Prosocial Behavior** B (SE) |
| **2nd grade victimization** | | | | | | |
| Mean | 1.93 (.07)*** | 1.89 (.07)*** | 1.91 (.07)*** | | 1.79 (.10)*** | |
| Predictor | .12 (.05)* | .14 (.06)* | −.09 (.04)* | .09 (.04)* | .14 (.06)* | −.09 (.04)* |
| Income | .04 (.02)* | .05 (.02)** | .04 (.02)* | .03 (.02)^ | | |
| Gender | .00 (.15) | .21 (.15) | .39 (.20)^ | | .12 (.06)^ | −.11 (.06)^ |
| Predictor × gender | .06 (.08) | −.09 (.09) | −.09 (.06) | --- | −.06 (.09) | |
| **Linear slope** | | | | | | |
| Mean | −.05 (.04) | −.04 (.04) | −.05 (.04) | .00 (.01) | −.05 (.04) | −.02 (.03) |
| Predictor | −.01 (.03) | .05 (.04) | −.02 (.02) | | .05 (.04) | |
| Income | −.02 (.01) | −.02 (.01)^ | −.01 (.01) | --- | −.02 (.01) | |
| Gender | −.08 (.08) | .08 (.08) | −.32 (.11)** | | −.09 (.04)* | .08 (.03)* |
| Predictor × gender | .00 (.04) | −.11 (.05)* | .08 (.03)* | --- | −.11(.05)* | |
| **Quadratic growth** | | | | | | |
| Mean | .00 (.01) | .00 (.01) | .00 (.01) | | .00 (.01) | .01 (.00) |
| Predictor | .00 (.00) | −.01 (.01)* | .01 (.00) | --- | −.01(.01)* | |
| Income | .00 (.01) | .00 (.00) | .00 (.00) | | .00 (.00) | |
| Gender | .01(.01) | −.03 (.01)* | .05 (.02)** | | .01 (.01)* | −.01 (.01)* |
| Predictor × gender | .00 (.01) | .03 (.01)*** | −.01 (.01)* | --- | .03 (.01)*** | |
| $\chi^2$ | 106.37 (df= 38) | 85.09 (df= 38) | 91.80 (df= 38) | | 129.14***(df=54) | |
| CFI | .936 | .957 | .951 | | .935 | |
| RMSEA | .056 | .046 | .050 | | .049 | |

^
*p* < .10,

*
*p* < .05,

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**
$p < .01$,

***
$p < .001$.