

Exploring the Stability and Instability of Aggressors, Victims and Aggressive-Victims  
from Childhood to Adolescence

by

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## ABSTRACT

It is widely recognized that peer-directed aggression and victimization are pervasive social problems that impact school-aged children and adolescents. This study investigated the developmental course of aggression and victimization, and more specifically, addressed three primary aims. First, distinct subgroups of children were identified based on similarities and differences in their physical, verbal and relational aggression and victimization. Second, developmental stability (and instability) were assessed by examining the extent to which individuals remain (or change) subgroups throughout childhood and adolescence. Third, group classifications and transitions over time were assessed as a function of children's individual characteristics and their relational and contextual experiences.

The sample for this longitudinal study consisted of 482 children (50% females) who were followed over time from grades 1 to 11. Multiple-informant data on children's physical, verbal and relational aggression and victimization (peer-reports), individual characteristics including emotion dysregulation, withdrawn behaviors (teacher-reports), and hostile and self-blaming attributions (self-reports), and their relational and contextual experiences including peer rejection, friendships, social hierarchy and classroom aggression (peer-reports) were assessed in grades 1, 5, 8, and 11. Data analyses primarily consisted of a series of person-centered methods including latent profile and latent transition analyses.

Most of the identified subgroups (e.g., aggressors, victims and aggressive-victims) were distinguishable by their frequencies (i.e., levels) of aggression and victimization, rather than forms (physical, verbal and relational), with the exception of

one group that appeared to be more form-specific (i.e., relational aggressive-victims).

Among children in each group there was a modest degree of intra-individual stability, and findings elucidated how some groups appeared to be more stable than others as well as developmental differences. Although group stability was fairly common across all groups, and over time, patterns of instability also emerged.

The combination of trends reflecting both stability and instability support the perspective that the development of aggression in childhood and adolescence is characterized by heterogeneity. In contrast to perspectives that highlight the individual stability of aggression (e.g., that it is a stable behavioral style or individual disposition), findings elucidate the individual, relational and contextual mechanisms by which developmental stability and instability were more pronounced.

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## Introduction

It is widely recognized that peer victimization and aggression are pervasive social problems in childhood and adolescence. Indeed, one inference that can be made from a growing body of research is that these experiences are not isolated to any specific age or demographic group. On the contrary, peer victimization and aggression impact children and adolescents of different ages, genders, social classes, ethnic groups and nationalities (Juvonen & Graham, 2001; Lansford et al., 2012). Moreover, some children are both perpetrators and victims of peer-directed aggression—*aggressive-victims*—and appear to have individual characteristics and social experiences that are unique from those of children who are *primarily* aggressors or victims (Olweus, 1978; Pellegrini, Bartini, Brooks, 1999; Perry, Kusel, & Perry, 1988; Schwartz, Dodge, Pettit, & Bates, 1997). Although distinguishing aggressive-victims from aggressors or victims appears to be an important conceptual distinction, most of the investigations on the development of peer aggression and victimization have focused on these factors independent of one another.

Thus, additional longitudinal research is warranted to provide further insights into the developmental course (i.e., intra-individual stability) of aggressors, victims and aggressive-victims from childhood to adolescence. Accordingly, this study investigates the developmental course of these three subgroups from childhood through adolescence (grades 1 to 11) and aims to address several unresolved questions. First, to what extent does the nature (i.e., frequencies and forms) of aggressor, victim and aggressive-victim groups change over time? Second, are individuals' group classifications developmentally stable such that they remain in the same subgroup throughout childhood and adolescence? Alternatively, are group classifications discontinuous and are different

children at risk during distinct developmental periods? Third, to the extent there is stability or instability in group membership over time, what other factors contribute to these developmental trends? Addressing these questions would not only provide theoretical insights into the developmental course of aggression and victimization, but may also have important practical implications for school based intervention efforts.

### **Form-Specific Development of Aggression and Victimization in Childhood and Adolescence**

Examining the developmental course of peer-directed aggression and victimization may also require greater scrutiny of their different forms or subtypes. To date, researchers have paid greater attention investigating the forms and stability of peer-directed aggression than victimization or aggressive-victimization per se (e.g. see Cote, Vaillancourt, Barker, Nagin, & Tremblay, 2007; Underwood, Beron, & Rosen, 2009; Vaillancourt, Brendgen, Boivin, & Tremblay, 2003); however, it is conceivable that several of the hypotheses that have been proposed about the stability of peer aggression may also be relevant for understanding the developmental course and forms of peer victimization and aggressive-victimization.

**Aggressors.** Researchers who have investigated the developmental trajectories and stability of aggression have considered the extent to which there is heterotypic continuity. According to the *heterotypic continuity hypothesis*, there are age-dependent variations in aggressive behaviors, such that its form changes as children get older. Consistent with this hypothesis, investigators have proposed a specific age-dependent developmental pattern such that children who are more physically aggressive in earlier childhood, become verbally aggressive by middle childhood and, in turn, relationally

aggressive in adolescence (e.g., Björkqvist, 1994; Björkqvist, Lagerspetz, & Kaukianen, 1992). The logic underlying this postulation is twofold. First, with normative gains in perspective-taking skills, verbal ability and emotional intelligence, children are able to more effectively harm their peers using non-physical means. Second, by adolescence, physical aggression becomes less normative and socially acceptable, and the sanctions (from adults and other peers) for physical aggression make it a less desirable behavior among children with aggressive behavioral styles. Therefore the heterotypic continuity hypothesis stipulates that adolescents use more sophisticated forms of relational aggression (e.g., social exclusion or friendship manipulation) as a substitute for physical aggression as it can be as damaging with fewer risks for retribution.

Although the rationale for this hypothesis appears plausible, the empirical evidence has been equivocal. Underwood et al. (2009) examined the joint development of social and physical aggression from grades 3 to 7 and did not identify a subgroup of children who exhibited a joint trajectory profile that could be characterized as following a heterotypic pattern. Rather, among the groups that were identified was one which exhibited high-increasing physical *and* social aggression and a second group with high-decreasing physical *and* social aggression. Thus, for these two groups of children who were the most aggressive, the co-development of physical and social aggression did not exhibit a pattern in which physical aggression was substituted for relational-social aggression.

**Victims.** The heterotypic continuity hypothesis can also be extended to describe the developmental course of peer victimization. That is, if by adolescence physical forms of aggression are replaced with relational forms, then it is plausible that children who are

physically victimized in childhood would become relationally victimized in adolescence. However, the empirical evidence to support this proposition is limited. One line of investigation that contradicts this proposition is evidence gleaned from studies that have used person-centered methodologies, such as latent class analysis, to identify distinct subgroups of victims. Nylund and colleagues used this methodology to assess distinct subgroups of victims during the middle school years (grades 6 to 8) based on six indicators of peer victimization that assessed physical, verbal and relational victimization (Nylund, Bellmore, Nishina, & Graham, 2007). They consistently identified three subgroups, children who were highly victimized, moderately victimized and not victimized. Notably, these subgroups distinguished children by their *frequency* (i.e., levels) of victimization experiences, but not by its *forms*. In other words, those who were highly relationally victimized also experienced the highest levels of other forms of victimization including physical and verbal. Thus, the premise that relational victimization replaces physical victimization in adolescence was not supported. Moreover, these findings are consistent with other investigations that have used variable-centered approaches and which report high inter-item correlations between indicators of victimization that assess different forms (e.g., Bellmore and Cillessen, 2006; Ladd, & Kochenderfer-Ladd, 2002).

In another investigation which also used latent class analysis, Wang et al. (2010) reported somewhat contradictory findings to the Nylund, Bellmore, et al. investigation. Although they identified one subgroup of highly victimized adolescents who experienced the highest levels of physical, verbal and relational victimization (consistent with Nylund, Bellmore, et al.), they also identified a second subgroup with lower levels of physical

victimization in combination with higher levels of verbal and relational victimization. Thus, although some adolescents were at risk for experiencing multiple forms of physical and non-physical victimization, others experienced more form-specific victimization which was primarily non-physical. Notably, these findings do not preclude the possibility for heterotypic continuity; however, because this investigation was cross-sectional, it was not able to directly test this hypothesis. That is, it was not possible to ascertain whether adolescents in the verbally-relationally victimized subgroup were primarily physically victimized earlier in childhood.

**Aggressive-victims.** Because original formulations of the heterotypic continuity hypothesis were intended to describe the development of aggression as an essentially independent phenomenon from peer victimization (i.e., irrespective of peer victimization) it remains unclear how this hypothesis would be applicable to the developmental course of children who are aggressive-victims. One logical extension of the heterotypic hypothesis pertaining to aggressive-victims could be that they shift from being physical aggressive-victims in childhood to being verbal and/or relational aggressive-victims as they get older; however, this proposition has not received much empirical attention.

Several investigators have used person-centered methodologies to identify subgroups of aggressive-victims and have found that they tend to engage in multiple forms of aggression and experience multiple forms of victimization across different grade levels. Giang and Graham (2008) identified 5 subgroups of 6<sup>th</sup> graders based on examining physical, verbal and relational aggression and victimization. Included among these groups were children who were victims, aggressors, and two groups of children who were aggressive-victims, one with high rates of aggression and moderate



victimization (labelled highly-aggressive aggressive-victims), and the other with high rates of victimization and moderate aggression (labelled highly-victimized aggressive-victims). Thus, there appeared to be heterogeneity in the degree to which aggressive-victims were primarily aggressors or primarily victims, but not in their forms.

Williford et al. (2011) examined several indicators of physical, verbal and relational aggression and victimization in grades 4 to 6. In grade 4, they identified four subgroups of children consisting of aggressive-victims, victims, aggressors and uninvolved (i.e., children with low levels of aggression and victimization). In grades 5 and 6 they identified three subgroups consisting of victims, aggressive-victims and uninvolved, but did not identify a subgroup of children who were primarily aggressors.

Bettencourt et al. (2013) examined multiple indicators which primarily assessed physical and verbal aggression and victimization in grades 6 and 7. They identified four subgroups in both grades consisting of aggressors, victims, aggressive-victims and uninvolved.

Taken together, these investigations consistently found that a relatively small but significant proportion of children were classified as aggressive-victims. Moreover, aggressive-victims tended to be differentiated more by the frequency, rather than forms, of aggression and victimization (results similar to Nylund, Bellmore, et al. who only investigated peer victimization). Thus, these findings did not provide much support for the premise that aggressive-victims specialized in particular forms of aggression or experienced specific forms of victimization, regardless of their age. Therefore, there has not been a consistent body of evidence that would indicate a heterotypic pattern among aggressive-victims.

## **Developmental Continuity of Aggressors, Victims and Aggressive-victims**

However, because these short-term longitudinal investigations were conducted during specific developmental epochs (i.e., across one or a few years), they were limited in their ability to capture patterns of heterotypic continuity which conceivably manifest over longer developmental periods (i.e., from early to middle childhood through adolescence). Perhaps in light of this limitation, and as a result of the nature of the subgroups that have been identified across these investigations, they have focused more on the stability and instability of groups (i.e., among aggressors, victims and aggressive-victims) rather than on changes in their forms (i.e., heterotypic continuity). Nonetheless, findings from these investigations, discussed below, have important implications about the developmental continuity of aggression, victimization and aggressive-victimization in childhood and early adolescence, and provide insights about whether some groups are more stable than others as well as the transitional patterns that are most likely to occur between and within groups over time.

**Aggressors.** Across investigations, the stability of those who were primarily aggressors (i.e., aggressive-non-victimized) appeared to exhibit some variability. Kochenderfer-Ladd (2003) examined the stability of aggressors from kindergarten to grade 3 and reported that 27% remained in this group over time. Bettencourt et al. (2013) examined stability from grade 6 to 7 and reported that 54% of aggressors remained in this group. Taken together, these findings suggest that either the stability of aggression increases with age or declines over longer periods of time. Perhaps, the early grade school years are a particularly volatile period for children in which their group status has yet to be solidified and it is not until later grades that it becomes more stable. Considering

the normative gains in self-regulation and behavioral inhibition that occur during childhood, it is plausible that aggression and victimization are more normative during earlier grades and therefore it is not until later grades that aggressors, victims and aggressive-victims can be more clearly distinguished from their uninvolved (i.e., non-aggressive and non-victimized) peers.

In contrast to these investigations which consistently identified a subgroup of aggressors, Williford et al. (2011) only identified this group in grade 4, but not in grades 5 or 6, and therefore could not examine the stability of this group over time. Although these findings appear at odds with other investigations, they could also be indicative of higher rates of instability among aggressors. One possible explanation for this instability is that children and adolescents who engage in aggressive behaviors are more likely to become victimized over time. The rationale underlying this proposition is that if children's aggressive behaviors are disapproved by peers and result in conflictual and problematic peer relationships, then they are more likely to become victimized. In support of this premise, findings from variable-centered studies reveal that aggression prospectively predicts greater victimization (Boivin, & Hymel, 1997; Giesbrecht, Leadbeater, & Macdonald, 2011; Leadbeater & Hoglund, 2009; Schwartz, McFadyen-Ketchum, Dodge, Pettit, & Bates, 1999). Similarly, among person-centered investigations (which were based on identifying subgroups), the transitional pattern from aggressor to victim or aggressive-victim was fairly common and 31% to 57% of aggressors exhibited one of these two patterns (Bettencourt et al., 2013; Kochenderfer-Ladd, 2003; Williford et al., 2011).

**Victims.** Stability rates for children who were primarily victims appeared to be fairly consistent and modest across most investigations, ranging from 24% to 32% (e.g., Bettencourt et al., 2013; Hanish and Guerra, 2004; Kochenderfer-Ladd, 2003; however, Williford et al. reported two stabilities, 48% from grade 4 to 5 and 28% from grade 5 to 6). These modest stability rates implied that the majority of victims were able to transition out of this group over time. Many victims appeared to show improvements in their adjustment over time, and consistently across studies, about 41% to 47% transitioned into the uninvolved group. Thus, these findings could be indicative of the heterogeneity among children who are primarily victims. That is, whereas some victims tend to have more transitory experiences of victimization and are able to transition out of this group, a substantial proportion are at risk for being chronically victimized.

Moreover, some victims exhibited transitional patterns into other risk groups. For these victims, experiencing victimization may have triggered aggressive behavioral responses such that they transitioned into aggressors and aggressive-victims. This transitional pattern is consistent with other variable-centered investigations that have found prospective associations between peer victimization and increases in aggressive behaviors (Leadbeater & Hoglund, 2009; Ostrov, 2010; Schwartz, McFadyen-Ketchum, Dodge, Pettit, & Bates, 1998; Yeung & Leadbeater, 2007). The rationale for this association, according to peer socialization perspectives, is that children model the behaviors of their peers, and if they experience peer victimization, they may adopt similar behaviors in future social interactions (Ostrov, 2010; Rose & Rudolph, 2006). In this regard, peer-directed aggression may be used by some children as a form of retaliation against their aggressors (Yeung and Leadbeater; 2007). On the one hand, if aggressive

retaliations prove effective at deterring subsequent victimization, then the child's transitional pattern would be from victim to aggressor. On the other hand, if aggression proves to be an ineffective behavioral response, then a transitional pattern from victim to aggressive-victim is more likely. In support of the latter, investigators have found that aggression does not appear to be an effective deterrent to peer victimization (Kochenderfer-Ladd, 2004; Leadbeater & Hoglund, 2009). For instance, Bettencourt et al. (2013) reported that 9% of victims in grade 6 became aggressors in grade 7, in contrast to 22% of victims who became aggressive-victims.

**Aggressive-victims.** Taken together, investigations on the stability of aggressive-victims from childhood to early adolescence revealed some developmental (i.e., age-graded) differences. It appeared that stability rates were fairly modest during the elementary school years, slightly dropped as children transitioned into middle school and then became relatively more stable thereafter. For instance, Kochenderfer-Ladd (2003) found that 29% of aggressive-victims in kindergarten either remained in this subgroup or transitioned into a group of aggressive-asocial victims in grade 3, essentially maintaining their aggressive behavioral style and peer victimization in addition to exhibiting asocial behaviors. Hanish and Guerra (2004) assessed the stability of aggressive-victims from grades 4 to 6 and found that about 34% maintained the same status. Williford et al. (2011) assessed the same grade levels as Hanish and Guerra (2004), but examined the transitional patterns from grades 4 to 5 and grades 5 to 6 separately. They reported that stability rates among aggressive-victims were higher from grades 4 to 5 (37%) than from grades 5 to 6 (21%), and attributed the greater rates of instability during the latter grades as a result of the middle school transition. These investigators posited that as children

transition to middle school there is a disruption in more stable peer networks that may have formed throughout the elementary school years, and with these changes, children attempted to reestablish their social positions within a new peer context resulting in increases in peer directed aggression and victimization and greater rates of instability (see Pelligrini, 2002). As a corollary to this argument, once social positions become more solidified after the middle school transition, it would be expected that stability rates should subsequently increase. Consistent with this viewpoint, Bettencourt et al. (2013) reported considerably higher stability for aggressive-victims from grades 6 to 7 (60%).

One implication of the modest stability estimates, particularly during elementary school, is that many aggressive-victims are able to transition out of this group. For instance, among several investigations, roughly 18-25% of aggressive-victims transitioned into the aggressor group, thus becoming less victimized over time. However, there was considerably greater variability in the likelihood that aggressive-victims transitioned into the uninvolved group (from 5% to 55%) or into the victim group (4% to 27%; see Bettencourt et al., 2013; Hanish & Guerra, 2004; Kochenderfer-Ladd, 2003; Williford et al., 2011). In light of this variability, it is plausible that there are other moderating factors that may contribute to the stability and instability of aggressive-victims and their likelihood of transitioning into other groups deserves further attention.

Collectively, these investigations provide important insights into the stability (and instability) of aggressors, victims and aggressive-victims over multiple years and during different developmental periods; however, it was not possible to assess the extent to which these rates of stability would carry over into the high schools years or across different developmental periods (i.e., childhood and adolescence). On the one hand, it is

possible that the transition to high school provides adolescents with an opportunity to reestablish their social positions and behavioral styles within a new peer context, similar to the transition to middle school, which may result in greater rates of instability. On the other hand, it is possible that over time, children's group status stabilizes as a result of their cumulative experiences over many years (i.e., through elementary and middle school). Thus, adolescents with a cumulative history of persistently being in one group throughout their childhood may have a difficult time transitioning out of this group regardless of changes in their school context.

### **Factors Associated with the Development and Continuity of Aggression and Victimization**

Although investigators have examined the development of aggressive-victimization during different developmental periods, it is less clear what other factors might contribute to its (dis)continuity, and whether such factors vary across childhood and adolescence. It is plausible that many factors that predict greater *rates* of aggression and victimization also contribute to its *stability* over time; however, this premise remains under-investigated. To further explore what factors may contribute to the stability (and instability) of aggressors, victims and aggressive-victims, this study applied a child-and-environment perspective (Kochenderfer-Ladd, & Ladd, 2010; Ladd, 2003). Consistent with this perspective, individual-, relational- and contextual-level influences were expected to be associated with children's group membership as well as certain transitional patterns (reflective of both stability and instability).

More specifically, at the individual level, investigators have found that compared to aggressors and victims, aggressive-victims are more likely to attribute hostile intent in

provocative situations, and are more emotionally dysregulated, (Schwartz, Proctor, & Chien, & 2001; Toblin, Schwartz, Gorman, & Abou-ezzeddine, 2005; Wolke, Woods, & Samara, 2009). Thus, it is possible that these individual characteristics contribute to the onset of aggressive-victimization and its stability over time, and thereby reduce the likelihood that children transition to less risky groups. Other individual risk factors may include children's withdrawn behaviors and self-blaming attributions. These risks appear to be more problematic and salient for peer victimization and contribute to its onset and stability over time (Graham & Juvonen, 1998; Kochenderfer-Ladd, 2003; Perry, Williard, & Perry, 1990; Schwartz, Dodge, & Coie, 1993).

Extant evidence provides mixed findings about the role of gender in children's aggression and victimization and the extent to which gender may contribute to the stability of distinct subgroups. On the one hand, many studies have found that boys tend to be more physically aggressive than girls, and although girls are sometimes found to be more relationally aggressive than boys, these differences appear to be trivial (Card, Stucky, Sawalani, & Little, 2008). On the other hand, other investigations have not reported subtype differences, but rather that boys are more likely to be aggressors, victims and aggressive-victims (Hanish & Guerra, 2004; Nylund, Bellmore, et al., 2007; Wang et al., 2010; Schwartz, 2000). Even if it is assumed that boys are more likely to be aggressors, victims or aggressive-victims, this does not necessarily imply that their group status is more stable. On the contrary, Wolke et al. (2009) found that direct (e.g., physical) forms of victimization were more stable among girls. They suggested that this may be the case because it is less salient among girls, and therefore those who develop a reputation of being a direct victim may have a more difficult time transitioning out of this



group. In contrast, Hanish and Guerra (2004) reported higher rates of stability for aggressive-victim boys (37%) than girls (27%).

At the relational level, perhaps one of the most consistent predictors of victimization is peer rejection (Hanish & Guerra, 2004; Kochenderfer-Ladd, 2003; Wolke et al., 2009). Moreover, investigators have consistently found that aggression is associated with greater rates of peer rejection (Card et al., 2008). According to the *interactional continuity* hypothesis (Caspi, Elder, & Bem, 1987), children's aggressive behaviors may also promote an interactional style with peers that further serve to maintain aggressive behaviors over time. More specifically, to the extent that aggressive behaviors prompt peer rejection, it is plausible that peer rejection functions to not only maintain children's aggressive behavioral styles, but also contributes to aggressive-victimization (Boivin, & Hymel, 1997). Thus, peer rejection may have an important role in both the stability of aggressors and aggressive-victims and the transition to these risk groups.

In contrast to peer rejection, friendships may function as an important relational protective factor, particularly for peer victimization (Hodges, Boivin, Vitaro, & Bukowski, 1999; Hodges, Malone, & Perry, 1997; Pellegrini et al., 1999), and may help explain the transition from being a victim to being uninvolved. In a similar vein, it is plausible that children who lack friends are more likely to remain or become victimized over time (e.g., from uninvolved to victim).

In addition to these individual and relational factors, there are also several contextual factors that may contribute to the stability of aggression and victimization over time. Among these factors, investigators have suggested that school transitions (e.g., from

elementary to middle school) may have implications for the instability of children's aggression and peer victimization (Pellegrini, 2002; Williford et al., 2011). As children transition between schools, they encounter new peer groups which provide opportunities for restructuring preexisting social hierarchies. At the same time, as children are no longer in self-contained classrooms, the transition to middle school may provide children with more opportunities to form friendships with different classmates and to access different social niches. However, this transition may also promote competition among children to gain access to more 'popular' niches which could result in transitory increases in peer directed aggression and victimization until social hierarchies become more established. Although this perspective is plausible and there is some evidence indicating an increase in peer-directed aggression and victimization in the first year of middle school (Nylund, Bellmore, et al., 2007; Pellegrini, 2002), its influence on aggressive-victims remains under-investigated. It may also be important to consider the role of school transitions in combination with individual level characteristics which tend to be more stable. For instance, if children exhibit individual risks for remaining aggressive-victims (e.g., are emotionally dysregulated), these risks may tamper their ability to transition out of this group even as they transition into new schools.

Although school transitions may offer opportunities for children to reestablish their positions within the social hierarchy, this may also depend on the nature of children's social hierarchies and degree to which these hierarchies are solidified and established. For instance, Schäfer et al. (2005) and Wolke et al. (2009) assessed children's social hierarchies at the group level by measuring the classroom level variation in children's social impact scores (a sociometric measure of social prominence). They

proposed that greater variability in these scores at the group- (i.e., classroom) level was indicative of a more established social hierarchy within that group, and that when social hierarchies were more established, children's risk group statuses were more stable. Consistent with their expectations, they found that children who were victims in classrooms that had more established social hierarchies were more likely to remain victims in subsequent years compared to children who were in classrooms with less established hierarchies.

In addition to measuring class or group-level variations in children's social hierarchies, it may also be important to consider the degree to which aggression and peer victimization are normative behaviors (Kuppens, Grietens, Onghena, Michiels, & Subramanian, 2008). It is plausible that aggressive-victim, aggressor and victim subgroups are more likely to be stable when children experience a social context in which aggression and peer victimization are socially acceptable and normative, making the transition to the uninvolved group less likely. Moreover, consistent with socialization hypotheses, when children are in a social context that supports aggressive behaviors, they are more likely to remain, or transition, into this group, even if they were not previously aggressive (e.g., from the uninvolved group).

### **Study Aims and Hypotheses**

This study aims to build on existing research by addressing four primary objectives. Aim 1 of this study was to explore the nature (i.e., forms and frequencies) of co-occurring peer aggression and victimization from childhood to late adolescence. Towards this end, at four different grade levels (grades 1, 5, 8 and 11), children and adolescents were classified into distinct subgroups based on similarities and differences

in their usage and experiences (i.e., frequencies) of different forms (i.e., physical, verbal and relational) of peer aggression and victimization. To address this aim, this study utilized latent profile analysis (LPA), a person-oriented methodology, to identify distinct subgroups of children and adolescents based on a combination of their physical, verbal and relational aggression and victimization. This methodology is ideal for differentiating the nature of distinct groups based on both the *frequency* and *forms* of aggression and peer victimization. Investigators have recommended this methodology as opposed to more traditional methods (e.g., using cut-off scores) as it is more flexible and has fewer drawbacks (e.g., it does not rely on an arbitrary cut-off score, better accounts for measurement error, and provides more accuracy in classifying children into distinct subgroups; see Nylund, Bellmore, et al., 2007 and Giang & Graham, 2008 for further discussions of this methodology and its advantages over other methods).

Consistent with the extant empirical evidence, it was expected that of the subgroups identified, several would be distinguishable primarily by their frequencies rather than forms of aggression and victimization. Accordingly, four subgroups were hypothesized to be identified at each grade level: 1) *aggressors* (i.e., children with high levels of physical, verbal and relational aggression and low levels of all three forms of peer victimization), 2) *victims* (i.e., children with high levels of physical, verbal and relational victimization and low levels of all three forms of aggression), 3) *aggressive-victims* (i.e., children with high levels of physical, verbal and relational aggression and victimization), and 4) *uninvolved* (i.e., children with low levels of physical, verbal and relational aggression and victimization). In addition to these four groups, whether additional groups would be identified which were more ‘specialized’ in certain forms of

aggression and peer victimization (e.g., *relational aggressors* or *relational aggressive-victims*) was explored. Although form-specific groups have not consistently emerged in prior investigations, they are theoretically warranted.

After identifying the nature of aggression and peer victimization subgroups at multiple grade levels, Aim 2 of this study was to explore the developmental continuity (i.e., stability and instability) of the identified subgroups across childhood and adolescence (grades 1 to 5, 5 to 8, and 8 to 11). Toward this end, the likelihood that children transition from one subgroup to another (i.e., instability), or remain within the same subgroup over time (i.e., stability), was assessed using latent transition analysis (LTA), a longitudinal extension of LPA. Although prior investigations have used similar methodological approaches to examine the continuity of aggressive-victimization subgroups, these investigations have focused on shorter developmental periods (e.g., over one year or a few grades levels). This study was the first of this kind to explore these associations across the majority of formal schooling (i.e., grades 1, 5, 8 and 11), an important need in the literature as a wealth of studies demonstrate that peer-directed aggression and victimization are not limited to any specific grade or developmental period, but rather are pervasive social problems that confront children and adolescents of all ages.

It was hypothesized that there would be multiple transitional patterns, both indicative of stability and instability. In terms of stability, it was expected that a substantial proportion of participants remain in the same group over time and that their group status at an earlier grade significantly increases the chances that they remain in that group during later grades. With respect to instability, several transitional patterns were

expected. More specifically, it was hypothesized that children who were primarily aggressors or victims were significantly more likely than uninvolved children to become aggressive-victims over time. Among children who were primarily victims, it was expected that the transitional pattern from victim to aggressor is least likely and the transition from victim to uninvolved is most likely.

Aim 3 of this study was to assess the individual, relational and contextual factors associated with children's group membership. Towards this end, multiple indicators were assessed at each grade level (i.e., grades 1, 5, 8, and 11) reflecting individual (i.e., hostile and self-blaming attributions, emotion dysregulation, and withdrawn behaviors), relational (i.e., peer rejection and friendships) and contextual (i.e., middle school transition, social hierarchy, and classroom level) processes. Several hypotheses were proposed to assess the associations between these factors and children's class membership. More specifically, it was hypothesized that: 1-2) hostile attributions and emotion dysregulation increased the likelihood of being aggressive-victims; 3-4) withdrawn behaviors and self-blaming attributions increased the chances of being victims; 5-7) peer rejection increased the chances of being aggressive-victims, aggressors and victims; 8) friendships decreased the chances of being victims; 9-10) classroom aggression increased the chances of being aggressors and victims; and 11-12) the middle school transition increased the chances of being aggressors and victims (assuming the hypothesized groups were identified in Aim 1).

Aim 4 of this study was to explore the moderating role of the indicated individual, relational and contextual factors on the continuity of children's group membership over time. In addition to examining the time-specific concurrent associations between these

factors and children's group membership (i.e., the covariate effects assessed in Aim 3), the objective of this aim was to assess whether these risk and protective factors moderated (i.e., contributed to) the stability and instability of subgroups over time and increased the likelihood of specific transitions, both within and between groups. One of the important implications of this objective was determining whether these moderating variables had differential effects depending on the nature of the transition under examination. Similar to the hypotheses proposed for Aim 3, it was expected that these moderating variables would not only contribute to the stability of specific risk groups over time, but also to their later onset (e.g., moderate the transition from the uninvolved group to one of the risk groups).

## **Method**

### **Participants**

Data for this study were part of a larger longitudinal project of children's social, emotional and academic development from kindergarten to grade 12. The sample for this study consisted of 482 children (242 females and 240 males) who had aggression and peer victimization data available at some point between grades 1 and 11. From this sample, the majority of participants ( $n = 383$ ) were recruited upon kindergarten entry ( $M_{\text{age}} = 5.59$ ) and an additional sample ( $n = 99$ ) of children were added to the longitudinal project in grade 5, and therefore had no available data from earlier years. Before participant recruitment began consent was first obtained from multiple school districts in the Midwestern United States and of the families invited to participate in this study, 95% consented to their child's participation. School districts were selected which served students from diverse backgrounds and to proportionately represent this locales'

population in terms of geographic, racial and socioeconomic characteristics. The sample contained nearly equal proportions of families from urban, suburban, or rural Midwestern communities. The median total household income was between \$30,001 to \$40,000 (19.1% low income, i.e., below \$20,000; 43.1% middle income or higher, i.e., over \$50,001). Children were primarily Caucasian (80.1%) and African American (15.8%), as well as a small percentage of Hispanic, biracial and other backgrounds (4.1%).

### **Procedure**

This study utilized multi-informant data collected across 4 grades (grades 1, 5, 8 and 11). To assess aggressor, victim and aggressive-victim subgroups, participants and their classmates completed peer report questionnaires which assessed student's physical, verbal and relational aggression and peer victimization. Peer nominations were also collected to assess children's peer rejection and mutual friendships (i.e., covariate and moderator effects). Over the course of this project, participants became increasingly dispersed across classrooms and schools. When children changed schools, permission was sought from administrators and teachers to extend the project into their respective schools, and after these consents were obtained, the parents of project children's classmates were contacted and asked to provide consent for their child's participation. Administration procedures varied slightly across grade levels to account for developmental differences and changing school settings. In grade 1, participants completed individual interviews with a trained staff member and were asked to provide nominations by pointing to photographs of their classmates that were displayed on a felt board. In grade 5, sociometric procedures were administered in self-contained classrooms by trained examiners. Before participants completed the peer nomination forms, they



used practice criteria to ensure that they knew their classmates' names and could perform the nomination procedures correctly. In higher levels of schooling (grades 8 and 11), because participants spent time in multiple classrooms and it was not feasible to interview all of their classmates in all of their classes (or all grade-mates for that matter), permission was obtained to review participants' class schedules, and grade-mates who shared a minimum of one class with the participant (referred to hereafter as classmates) were identified from which a pool of nominators (ranging from 25 to 40, depending on school size) was randomly selected. This procedure for collecting peer nomination data is well established in the sociometry literature (Parkhurst & Asher, 1992). To help ensure that respondents knew the persons they were nominating, respondents were instructed to nominate only those classmates they knew well, and all items were scaled so as to include a response category labeled "don't know this person."

In addition to this peer-report data, participants and their teachers completed additional questionnaires on a battery of behavioral, social and psychological measures. For the aims of this study, self-report data was used to assess children's attribution styles and teacher-report data was used to assess participants' withdrawn behaviors and emotion dysregulation (i.e., covariate and moderator effects).

## **Measures**

**Peers' reports of aggression and victimization.** To identify children's aggressor, victim, and aggressive-victim subgroups, six indicators of children's physical, verbal and relational peer-directed aggression and victimization were used. Trained research staff presented participants and their classmates with a class roster and asked them to nominate classmates who best fit each of the following descriptions (order

counterbalanced): (1) “Someone who hits, kicks, or pushes other kids” (i.e., physical aggression), (2) “Someone who teases, calls names, or makes fun of other kids” (i.e., verbal aggression), (3) “Someone who tell other kids they won’t like them or be their friend anymore just to hurt them or get their own way (i.e., relational aggression), (4) “Someone who gets hit, pushed, or kicked by other kids” (physical victimization), (5) “Someone who gets teased, called names, or made fun of by other children” (i.e., verbal victimization), and (6) “Those who other kids gossip about or say bad things about behind their backs” (i.e., relational victimization). Items pertaining to relational aggression and victimization were not collected in grade 1, but were assessed in subsequent grade levels. Peer nominations are a well-established and reliable methodology for assessing children’s aggressive behaviors and peer victimization experiences (see Coie, Dodge, & Coppotelli, 1982). For each indicator, standardized scores were computed by summing the total number of nominations participants received within their classroom, subtracting the total nominations from the class average, and then dividing by the class standard deviation. This transformation adjusted for the varying number of nominators per classroom.

**Peers’ reports of children’s peer rejection and mutual (reciprocated) friendships.** To assess peer rejection, participants were asked to nominate up to three classmates that they least liked (“Kids who you *don’t* like to play (hang out) with at school”). For participants in grades 8 and 11, the phrase “hang out” was substituted for “play”. Administration and scoring procedures were identical to those described for other peer nomination indicators. Prior research has established that this peer assessment

methodology yields reliable and valid data with both younger and older children (see Cillessen & Bukowski, 2000).

Participants' mutual (i.e., reciprocated) friendships were measured in grades 1, 5, and 8 by asking children to nominate up to five classmates that they considered to be a "best friend." Participants were considered to have a mutual friend if the person they nominated as a best friend nominated them as one of their five best friends (see Parker & Asher, 1993). For each child, a friendship score was computed by summing the total number of reciprocated friendships they had. These scores were standardized by classroom to adjust for nominator differences. Notably, friendship data was not available for all of the participants in grade 11 and therefore was not included in the data analysis for this grade level.

**Classroom measures of social hierarchy and peer aggression.** Peer nomination indicators were used to measure the peer/social hierarchy of each class based on the methodology proposed by Schaefer et al. (2005) and Wolke et al. (2009). To measure social hierarchy, social impact scores were computed for children by summing the total number of peer acceptance and rejection nominations they received. The standard deviation of children's social impact scores within the same classroom was estimated and classrooms with greater variability (standard deviations) in social impact were reflective of more established (greater) social hierarchies. In turn, each participant's social hierarchy score was equal to the classroom standard deviation in social impact; thus, each child in the same classroom received the same social hierarchy score, but compared to children in other classrooms, those who had higher social hierarchy scores were in classrooms with more established hierarchies.

To assess classroom aggression (i.e., normative levels of aggression) the total number of nominations each child received from the multiple aggression indicators (i.e., physical, verbal and relational) was summed and the classroom average was computed based on each participant's total aggression score. Classrooms with higher average scores were indicative of a greater degree of social acceptability (i.e., normative use) of aggression. Each participant was assigned the value corresponding to their classroom's average aggression score; thus, each child in the same classroom received the same classroom aggression score, but compared to children in other classrooms, those who had higher scores were reflective of being in classrooms with more normative uses of aggression.

**Teachers' reports of children's adjustment problems (emotion dysregulation and withdrawn behaviors).** At every assessment wave, teachers rated each of the 118 items on the Teacher's Report Form (TRF; Achenbach, 1991) using a three-point scale (0 = *not true*; 1 = *somewhat or sometimes true*; 2 = *very true or often true*). In this study, the 9-item withdrawn behaviors subscale was used which demonstrated adequate internal reliability ( $\alpha$ 's ranged from .78 to .85). Items on this subscale were intended to index participants' tendency to engage in shy or solitary behaviors (e.g., "Shy or timid"), avoid or withdraw from peer activities (e.g., "Would rather be alone than with others" or "Withdrawn, doesn't get involved with others"), and abstain from social overtures (e.g., "Secretive, keeps things to self").

To assess emotion dysregulation, an adapted subscale was computed based on 5 items (i.e., jealous behavior, screaming, irritability, sudden mood changes and temper displays) that were assessed in the TRF (see Olson et al., 2013). This subscale

demonstrated adequate internal reliability across each wave ( $\alpha$ 's ranged from .80 to .85). Subscale scores were computed by taking the average score of the item-ratings.

**Self-reports of children's attribution styles.** To assess children's hostile and self-blaming attribution styles, participants responded to a set of different hypothetical scenarios which were collectively intended to assess their reactions in events that could be perceived as accidental but potentially provocative (e.g., getting paint spilled on their class project; getting hit by a ball in the back; getting a drink poured on them, and having someone bump into them). They were asked to imagine why the hypothetical actor did this to them, and using a 5-point scale (1 = *not the reason* to 5 = *really the reason*), rated the degree to which they thought it was due to hostile intentions (e.g., "The kid wanted to make fun of me"), self-blame (e.g., "I must have done something to make it happen"), or accidental reasons. Participants responded to the same series of scenarios in the fall and spring semesters of grade 6. The hostile attributions subscale was derived by taking the average score of the indicators which assessed hostile intent. This subscale had adequate reliability for each assessment wave (fall:  $\alpha = .77$ ; spring:  $\alpha = .79$ ). For self-blaming attributions, only three items were retained for each assessment wave because one of the hypothetical scenarios exhibited low internal consistency and did not improve this measure's overall reliability (fall:  $\alpha = .59$ ; spring:  $\alpha = .59$ ). Scores from the fall and spring semesters were combined (averaged together) to create one hostile attributions subscale and one self-blaming attributions subscale (comprised of 8 items and 6 items, respectively). Because these measures were not collected during other assessment waves, they were only used to assess covariate effects in grade 8 and moderation effects in the transition from grades 5 to 8.

**School transitions.** Over time, participants in this study became increasingly dispersed and attended many different schools with varying school structures. To assess whether children made the middle school transition, a dummy-coded variable was computed. This variable indicated if children made the transition to either middle or junior high school at some point in grades 6 or 7 (0 = *no*, 1 = *yes*), or remained in the same school from K-8. Approximately 80% of children indicated making this transition. This variable was used to assess covariate effects in grade 8 and moderation effects in the transition from grades 5 to 8.

### **Data Analysis Plan**

The data analysis plan for this study was developed to address each of this study's four overarching aims. First, preliminary analyses were performed which included descriptive (e.g., bivariate correlations, means and standard deviations) and missing data analyses (e.g., reporting percentages of missing data over time, attrition rates, and examining differences between children who dropped out of the study and those who remained in the study). Full information maximum likelihood estimation (FIML) was used to account for missing data and to include cases with missing data on a particular indicator. Models were estimated in Mplus Version 7.2 (Muthén & Muthén, 1998-2012).

**Aim 1.** To investigate the nature (i.e., frequencies and forms) of co-occurring peer aggression and victimization from childhood to late adolescence based on four waves of data (collected in grades 1, 5, 8 and 11), latent profile analysis (LPA) was performed. LPA is a variant of latent class analysis (LCA) and is based on continuous-scale indicators (as opposed to dichotomous or binary variables used in LCA) to identify distinct subgroups (i.e., classes) of subjects who exhibit similar patterns (profiles) across

multiple empirical indices (see Collins & Lanza, 2010). LPA was performed separately at each assessment wave (i.e., four times). Multiple indicators of aggression and victimization were assessed at each assessment wave including three indicators that indexed physical, verbal and relational aggression, and three indicators which indexed similar forms of peer victimization. Note that the relational aggression and peer victimization items were not administered in grade 1; therefore for this assessment wave, LPA was based on the four available indicators.

At each grade level, a series of models were specified (i.e., models with varying numbers of classes) starting with a one-class model, which served as the baseline model, and then subsequently adding latent classes (e.g., models with two- through six-classes) until deriving the optimal model solution. In order to determine the optimal solution, multiple fit indices were examined as recommended by methodologists (Collins & Lanza, 2010; Nylund, Asparouhov, & Muthén, 2007) including the Bayesian Information Criteria (BIC), Akaike Information Criteria (AIC), sample-size adjusted Bayesian Information Criteria (SABIC), Lo-Mendell-Rubin adjusted Likelihood Ratio Test (LMR-aLRT), and the Bootstrap Likelihood Ratio Test (BLRT). Models with smaller AIC, BIC and SABIC values indicate better fitting solutions. Significant  $p$  values on the LMR-aLRT and BLRT indicate that a model with  $k$  classes has better fit to the data than a model with  $k - 1$  classes. Additionally, entropy and class assignment probabilities were assessed which measure classification precision, with values ranging from 0 to 1, and values closer to 1 indicating that individuals were more precisely classified into distinct classes. Finally, the qualitative nature of the classes derived within each model was

assessed to ascertain whether the solutions were conceptually meaningful and interpretable in consideration of extant empirical findings and theory.

**Aim 2.** To investigate the stability and instability of distinct subgroups over time, unconditional latent transition analyses (LTA) were performed. LTA can be conceived as a longitudinal extension to LPA/LCA and is a suitable and flexible methodology for investigating time-specific classifications of individuals (see Collins & Lanza, 2010). To maintain a consistent terminology, this study follows the convention recommended by Collins and Lanza (2010), such that latent classes in LTA are referred to as *latent statuses* to convey that they are temporary states and that children can shift in and out of these states. In addition to this convention, this study uses the term *subgroups* to refer to both latent classes and statuses and when interpreting findings collectively across the LPA and LTA models. In addition to identifying individuals' class membership (similar to LCA or LPA), LTA estimates *transition probabilities* which can be interpreted as the likelihood that children make specific transitions between two latent statuses over time. Transition probabilities may be reflective of both stability and instability; however, the notion that stability can be measured assumes that the nature of two latent statuses that are identified are qualitatively similar over time. If this assumption is not met (e.g., the nature of these subgroups changes over time), then it would not be possible to measure stability per se. To meet this assumption, measurement invariance was imposed when it appeared that the nature of the latent statuses were similar over time (i.e., the class-specific means of the latent statuses were constrained to be equal over time). Model fit indices from the constrained (i.e., measurement invariance) model were then compared to a second unconstrained model to further evaluate how these constraints impacted model fit and to



determine whether measurement invariance was a reasonable assumption empirically (i.e., it did not substantially impact model fit) in addition to being conceptually justifiable (i.e., it would allow for more accurate interpretations of stability effects).

To perform a LTA with measurement invariance, the manual *3-step* approach was used (see Asparouhov & Muthén, 2014). More specifically, in step 1, LPA models at two or more time points were estimated in parallel but independently of each other (i.e., without estimating transition probabilities) while constraining similar latent statuses to be equal over time. From this LTA measurement invariance model, the nominal class assignments were extracted. Next, in step 2, the log ratios were obtained which indicated the classification error around the nominal class assignments at each grade level. In step 3, the LTA was specified using the nominal class assignments (from step 1) and the error fixed at pre-specified values (from step 2). In this final step, the transition probabilities were also estimated.

**Aim 3.** To explore the characteristics of each subgroup, conditional LPAs were specified such that a series of individual, relational and contextual factors were treated as predictors (i.e., *covariates*) of children's class membership. The hypothesized factors included: (1) hostile and (2) self-blaming attributions, (3) emotion dysregulation, and (4) withdrawn behaviors (i.e., individual factors); (5) peer rejection, and (6) reciprocated friendships (i.e., relational factors); and (7) middle school transition, (8) social hierarchy, and (9) classroom aggression (i.e., contextual factors). Within the LPA framework, because class membership is specified as a latent categorical variable, covariate effects can be estimated using multinomial logistic regression and interpreted as odds ratios

(OR). Thus, this approach was suitable for assessing the time-specific effects of each of the hypothesized factors on children's class membership.

Because the introduction of covariates within an LPA can impact the nature of classes that are identified and individual class assignments, methodologists have recommended using the 3-step approach which allows for estimating covariate effects without having them influence class membership (Lanza, Tan, & Bray, 2013; Vermunt, 2010). In contrast to the more conventional '1-step' method in which the latent class model (i.e., the measurement model) and the latent class regression model (i.e., the prediction or secondary model) are estimated within the same model, in this study, the manual 3-step approach was used to estimate the measurement model separately from the secondary model, following the guidelines recommended by Asparouhov and Muthén (2014).

**Aim 4.** To assess the individual, relational and contextual factors that moderate specific status transitions over time, a series of LTAs were specified. Each of the hypothesized factors that were treated as covariates in Aim 3 were examined again as moderating variables to determine whether these factors had differential effects on certain transitional patterns. Stated differently, these analyses tested whether the hypothesized factors functioned as risk or protective factors that either increased or decreased the likelihood of children's subgroup transitions over time.

Towards this end, a series of LTAs were specified using procedures outlined by Muthén and Asparouhov (2011) to test for moderation effects in conjunction with the manual 3-step approach discussed. More specifically, status membership at *time 2* was regressed on each of the hypothesized factors conditional on status membership at *time 1*.

To interpret statistically significant moderation effects, odds ratios were computed and reported. Because of the complexity of these analyses, each moderator variable was assessed independently, not accounting for the effects of other moderators within the same model. Notably, because some transitional patterns were unlikely (i.e., very few children made specific subgroup transitions), it was not possible to assess moderation effects across all subgroups (i.e., for each transitional pattern).

## **Results**

### **Preliminary Analyses**

**Descriptive statistics and bivariate correlations.** Descriptive statistics (means, standard deviations, and ranges) were estimated for all study variables and are reported for grades 1, 5, 8, and 11 in Tables 1 – 4, respectively. Because of the large number of repeated measures assessed over time, bivariate correlations were reported for all variables measured within the same time, resulting in four correlation tables for grades 1, 5, 8, and 11 (Tables 5 – 8, respectively). Taken together, these analyses revealed some similar patterns over time as well as some developmental differences.

The bivariate correlations indicated that the aggression subtypes were moderately to highly correlated with each other, and similar results were found for the peer victimization subtypes. Aggression and victimization subtypes were also moderately correlated within time with a few exceptions. Withdrawn behaviors had small positive correlations with aggression in grade 1, were more strongly positively correlated with peer victimization than aggression in grades 5 and 8, and appeared to have less consistent associations with aggression and victimization in grade 11. Emotion dysregulation was more consistently positively associated with the aggression subtypes and correlated with

peer victimization to a lesser degree over time. Peer rejection was positively and moderately correlated with aggression and peer victimization subtypes in all grades, and although it was more strongly correlated with aggression in grade 1, it had stronger correlations with peer victimization by grade 5. Mutual friendships were negatively correlated with aggression in grade 1, more negatively correlated with peer victimization in grades 5 and 8, and not significantly correlated with aggression or victimization in grade 11. Social hierarchy and classroom aggression had small and inconsistent associations with aggression and peer victimization over time. Being male was positively correlated with both aggression and peer victimization, and more specifically, with physical and verbal subtypes.

**Missing data analyses.** Given the longitudinal nature of this study, participant attrition increased with the passage of time. For all study variables, the percentage of missing data is reported in Tables 1 – 4. Missing data analyses indicated that, for all study variables, 22.3% of the data were missing. Because additional participants were added to the longitudinal study in grade 5, roughly 20% of the missing data in grade 1 was attributable to this reason. Attrition rates increased with the passage of time, and ranged from 4.4% ( $n = 21$ ) in grade 5, 10.2% ( $n = 49$ ) by grade 8 and the total attrition by grade 11 was 28.2% ( $n = 136$ ). A series of univariate t-test comparisons were performed to assess some of the possible observable causes of missingness and to determine whether the likelihood of having missing data on study variables was associated with children's demographic characteristics (gender, race, family income). Across the repeated measures collected at multiple waves, the t-tests consistently did not reach statistical significance, indicating trivial differences with respect to race, gender, and family income between

children who had missing data and those with complete data. Missing data estimation was handled using full information maximum likelihood (FIML) which allows for cases with incomplete data to be included in the analyses.

### **Identifying Subgroups of Aggressors, Victims and Aggressive-victims (Aim 1)**

To identify subgroups of aggressors, victims, and aggressive-victims, a series of LPAs were performed. At each grade level, models with varying numbers of classes (e.g., one- through six-classes) were specified. For each model, multiple model fit indices were assessed. With respect to the information criteria (i.e., AIC, BIC, SABIC), the results for each grade level consistently indicated that the criteria values decreased as the number of classes increased. Although these criteria appeared to favor models with greater numbers of classes, several other factors were taken into consideration to determine the most parsimonious models. First, the information criteria were plotted to assess the change in these values as additional classes were added to model, and this approach illustrated when there were relatively larger or smaller changes in these values across models. Second, the results from the information criteria were compared with the likelihood ratio tests (i.e., BLRT and LMR-aLRT) to determine whether the findings converged on a single solution or indicated discrepancies among these various indices. Third, the class-specific means were plotted to assess the qualitative nature of the classes and to determine whether each class was conceptually meaningful and substantively distinct from other classes identified within the same model.

In grade 1, although the results indicated that the AIC, BIC and SABIC values decreased as the number of classes increased (see Table 9), it appeared that the decrease in these indices was rather small for models with three or more classes (see Figure 1).

Whereas the BLRT indicated that each model had better fit compared to a model with one fewer class, the results for the LMR-aLRT were discrepant. The LMR-aLRT was significant when comparing the one- and two-class solutions, near statistical significance comparing the two- and three- class solutions ( $p = .09$ ), and not statistically significant when comparing models with greater than three classes. In addition to the model fit indices, the qualitative nature of classes was examined in each solution. Compared to the classes that were identified in the three-class model, the additional classes in the four- and five-class models appeared to be qualitatively similar and were not conceptually meaningful. For instance, the four-class model identified two classes of children who could both be characterized as high aggressors, and one of these classes consisted of a small proportion of children (2.1%). Taken together, after considering the model fit indices and the qualitative nature of classes that were identified in each solution, the three-class model was selected as the most parsimonious solution. The three-class model (see Figure 2) consisted of 10.3% ( $n = 38$ ) of children who were highly aggressive with moderate levels of verbal victimization (labelled *High aggressors*), 14.1% ( $n = 52$ ) who were moderately aggressive (labelled *Moderate aggressors*), and 75.5% ( $n = 278$ ) who had low levels of aggression and victimization (labelled *Uninvolved*).

The model fit indices for grade 5 are presented in Table 10. Although the AIC, BIC and SABIC values decreased as the number of classes increased, this decline was smaller for models with four or more classes (see Figure 3). Whereas the BLRT indicated that each model had better fit compared to a model with one fewer class, the results for the LMR-aLRT were statistically significant for each model comparison with the exception of the four- and five class models. With respect to the qualitative nature of

classes that were identified in each model, the results indicated that the five-class model consisted of five distinct and conceptually meaningful classes. However, the additional class identified in the six-class solution was not qualitatively distinct from the classes identified in the five-class model. More specifically, in the six-class model, two classes of children who were highly victimized were identified (i.e., high victims and very-high victims). Taken together, the five-class model was selected as the most parsimonious solution. This model (see Figure 4) consisted of 4.1% ( $n = 17$ ) of children with high aggression and victimization scores (labelled *Aggressive-victims*), 6.9% ( $n = 29$ ) with high relational aggression and victimization scores (labelled *Relational aggressive-victims*), 15.5% ( $n = 65$ ) with high aggression and low victimization scores (labelled *Aggressors*), 12.4% ( $n = 52$ ) with low aggression and high victimization scores (labelled *Victims*), and 61.1% ( $n = 256$ ) with low aggression and victimization scores (labelled *Uninvolved*).

The model fit indices for grade 8 are presented in Table 11. After plotting the information criteria, it appeared that the decreases in these values were smaller for models with three or more classes (see Figure 5). Whereas the BLRT indicated that each model had better fit compared to a model with one fewer class, the results for the LMR-aLRT were discrepant. The LMR-aLRT was significant when comparing the one- and two-class models, near statistical significance comparing the two- and three-class, and four- and five-class models ( $p = .09$  and  $p = .13$ , respectively), and not statistically significant when comparing the three- and four-class, and five- and six-class models. With respect to the qualitative nature of the classes, the results indicated that the five-class model consisted of five distinct and conceptually meaningful classes. However, the

additional class identified in the six-class solution was not qualitatively distinct from the classes identified in the five-class model and contained a small proportion of children (2.1%). More specifically, in the six-class model, two classes of children who were highly aggressive were identified (i.e., high aggressors and very-high aggressors). Thus, the five-class model was selected as the most parsimonious solution. This model (see Figure 6) consisted of 4.5% ( $n = 18$ ) of children with high aggression and victimization scores (labelled *Aggressive-victims*), 7.4% ( $n = 30$ ) with high relational aggression and victimization scores (labelled *Relational aggressive-victims*), 12.1% ( $n = 49$ ) with high aggression and low victimization scores (labelled *Aggressors*), 11.4% ( $n = 46$ ) with low aggression and high victimization scores (labelled *Victims*), and 64.6% ( $n = 261$ ) with low aggression and victimization scores (labelled *Uninvolved*).

The model fit indices for grade 11 are presented in Table 12. After plotting the information criteria, the results indicated that the decreases in these values were smaller for models with three or more classes (see Figure 7). Whereas the BLRT indicated that each model had better fit compared to a model with one fewer class, the results for the LMR-aLRT were discrepant. The LMR-aLRT was significant when comparing the two- and three-class models, near statistical significance comparing the one- and two-class models ( $p = .06$ ), and not statistically significant when comparing models with greater than three classes. With respect to the qualitative nature of the classes, the results indicated that the five-class model consisted of five distinct and conceptually meaningful classes. However, in the six-class model, two classes of aggressive-victims were identified, one of which had a small proportion of children (2.6%). Thus, the five-class model was selected as the most parsimonious solution. This solution (see Figure 8)



consisted of 3.7% ( $n = 10$ ) of children with high aggression and victimization scores (labelled *Aggressive-victims*), 13.0% ( $n = 35$ ) with high relational aggression and victimization scores (labelled *Relational aggressive-victims*), 7.8% ( $n = 21$ ) with high aggression and low victimization scores (labelled *Aggressors*), 5.9% ( $n = 16$ ) with low aggression and high physical (and to a lesser degree verbal) victimization scores (labelled *Physical-verbal victims*), and 69.6% ( $n = 188$ ) with low aggression and victimization scores (labelled *Uninvolved*).

### **Stability and Instability of Aggression-Victimization Subgroups over Time (Aim 2).**

To assess the developmental stability and instability of the subgroups that were identified in the LPAs (Aim 1), unconditional latent transition analyses (LTAs) were performed in which transition probabilities were estimated over adjacent time waves (i.e., grades 1 to 5, 5 to 8 and 8 to 11). In order to accurately assess stability estimates, it was important to first establish that the nature of the latent statuses remained qualitatively similar over time. Based on the findings from the cross-sectional analyses (i.e., LPAs), in grades 5, 8 and 11 (but not grade 1), the nature of the classes and the number of classes appeared to be comparable. Notably, although the identification of a group of physical-verbal victims in grade 11 was somewhat distinct from the victim groups identified in grades 5 and 8, these groups were fairly similar on five of the six aggression and victimization indicators, with the exception of relational victimization, and they nonetheless consisted of children who were primarily victimized and not aggressive. To evaluate the impact of imposing measurement invariance from grades 5 to 11, two models were specified. In the first model, the latent statuses were constrained to be identical over time in grades 5, 8 and 11 (i.e., constrained model: Logl = -7768.40; AIC

15656.79, BIC = 15905.70, SABIC = 15715.27). In the second model, the latent statuses were identified in parallel, but independently of one another, without constraining them to be equal (i.e., unconstrained model: LogL = -7646.73; AIC 15533.46, BIC = 16031.27, SABIC = 15650.42). A comparison of these models indicated that the unconstrained model had a lower log-likelihood, AIC and SABIC, and the constrained model had a lower BIC. Thus, although the model fit indices did not consistently indicate that either model had better fit, in order to facilitate the interpretation of the stability estimates, measurement invariance from grades 5 to 11 appeared to be a reasonable determination. Accordingly, the manual 3-step approach was used for estimating LTA models with measurement invariance (see Asparouhov & Muthén, 2014) between grades 5 to 8 and grades 8 to 11, but not from grades 1 to 5.

First, a LTA was specified to assess the transitions in latent statuses from grades 1 to 5. As can be ascertained from comparing the LPAs illustrated in Figures 2 and 4, the number and nature of subgroups clearly changed between these grades; however, two groups appeared to be similar over this time period. Most children who were uninvolved in grade 1 remained uninvolved in grade 5 (74.3%; see Table 13). Moreover, both high (46.2%) and moderate (32.2%) aggressors in grade 1 were significantly more likely than uninvolved children to be aggressors in grade 5. With the exception of the uninvolved and aggressors groups, other status transitions can be more accurately characterized as patterns of instability. For instance, both moderate (10.7%) and high (16.6%) aggressors in grade 1 were significantly more likely to become aggressive-victims in grade 5, in contrast to children who were uninvolved and highly unlikely to become aggressive-victims (<1%); however, they were not more likely to become relational aggressive-

victims or victims in grade 5. Taken together, roughly 4 of 5 children who were high-aggressors, and 2 of 3 children who were moderate aggressors (in grade 1), remained in one of the four risk groups in grade 5, whereas the remaining proportions were able to transition into the uninvolved group.

Second, a LTA was specified to assess the transitions in latent statuses from grades 5 to 8. All groups exhibited significant stability estimates over time such that 47.2% of aggressive-victims, 63.4% of relational aggressive-victims, 41.2% of aggressors, 48.3% of victims and 82.2% of uninvolved in grade 5 remained in the same group in grade 8 (see Table 14). With respect to instability estimates, the results indicated that aggressive-victims and relational aggressive-victims in grade 5 were also likely to transition into victims by grade 8 (20.0% and 11.9%, respectively). Aggressors (9.4%) and victims (7.9%) in grade 5 were significantly more likely than uninvolved (< 1%) to become aggressive-victims in grade 8, and these groups also had a higher likelihood of transitioning into the uninvolved group (43.2% and 35.5%, respectively) than aggressive-victims and relational aggressive-victims (24.8% and 24.7%, respectively).

Third, a LTA was specified to assess the transitions in latent statuses from grades 8 to 11. In contrast to the transitions from grades 5 to 8, the transition into high school was characterized by greater degrees of instability, especially among aggressive-victims and victims (see Table 15). Only about 30.7% of aggressive-victims and 26.7% of victims remained in the same group over time as opposed to relational aggressive-victims (73.2%), aggressors (51.8%), and uninvolved (81.7%) who appeared to be more stable. With respect to the instability estimates among aggressive-victims and victims, although aggressive-victims had a high likelihood of transitioning into other risk groups (22.2%

became relational aggressive-victims and 19.1% became victims); victims were more consistently able to transition out of victimization by grade 11 (63.8%).

### **Individual, Relational and Contextual Characteristics of Subgroups (Aim 3).**

To assess the characteristics of the identified subgroups, a series of conditional LPAs were specified in which children's class membership was regressed on a set of individual (i.e., emotion dysregulation, withdrawn behaviors, hostile and self-blaming attributions) relational (i.e., peer rejection, friendships), and contextual factors (i.e., school transition, social hierarchy, and classroom aggression). In grade 1, models were specified using the automatic 3-step approach in Mplus (*R3Step*) which ensured that the nature of the classes identified and children's class assignments were not impacted as a result of adding covariates to the model. Thus, this approach maintained the classes that were analyzed in Aims 1 and 2. In grades 5, 8, and 11, because measurement invariance was imposed (in Aim 2), the manual 3-step approach was used in these grade levels to maintain the same class assignments that were derived in Aim 2. All of the covariate effects assessed within each grade level were entered into one multivariate model and results are reported for each grade level separately (Tables 16 - 22). To comprehensively assess the characteristics of each subgroup, and how these characteristics distinguished the subgroups, each subgroup was compared with all other subgroups (i.e., multiple reference groups were utilized).

In grade 1, the results (see Table 16) indicated that high aggressors were significantly more emotionally dysregulated and rejected than all other groups. In turn, moderate aggressors were more likely to be rejected compared to uninvolved children.

Both aggression risk groups were more likely to be males compared to the uninvolved group.

In grade 5, the results indicated that all three aggression groups (i.e., aggressive-victims, aggressors, and relational aggressive-victims) had elevated levels of emotion dysregulation and significantly lower levels of withdrawn behaviors than non-aggressors, that is, those who were uninvolved (see Table 17) and victims (see Table 18; to simplify the presentation of results, two tables were created, one with the uninvolved group as the reference group and one with the different risk groups serving as the referent). Although it appeared that aggressive-victims had higher levels of emotion dysregulation than other aggressive groups, these effects did not reach statistical significance. Gender differences were also found such that aggressive-victims and aggressors were more likely to be males, and relational aggressive-victims were more likely to be females. With respect to relational risks, all of the four risk groups had elevated levels of peer rejection compared to the uninvolved group; however it was the aggressive-victims and victims who appeared to be the most rejected and friendless. In contrast, relational aggressive-victims had significantly more friends than all other groups (except for aggressors). With respect to contextual risks, although the effects for classroom aggression did not reach statistical significance, classrooms with more established social hierarchies had fewer relational aggressive-victims.

In grade 8, the results indicated that each of the subgroups were distinguishable by a unique set of risk characteristics (see Table 19 for group comparisons using the uninvolved group as the referent and Table 20 for comparisons across each of the risk groups). With respect to individual risks, aggressive-victims and victims had the most

elevated levels of hostile attributions compared to other groups and aggressors had the most elevated levels of emotion dysregulation (although aggressive-victims also appeared to have higher levels of emotion dysregulation, these effects were not statistically significant). In contrast, victims were the most withdrawn group. Gender differences were also found such that aggressors were the most likely to be males, and the relational aggressive-victim group was all females (for this reason, the gender effects for this group could not be estimated). Similar to the results in grade 5, all of the four risk groups had elevated levels of peer rejection compared to the uninvolved group, and the aggressive-victims and victims appeared to be the most rejected. In contrast, relational aggressive-victims had significantly more friends than all other groups, and aggressors had the fewest friends. With respect to contextual characteristics, aggressors were more likely to be in classrooms with high levels of class aggression, and aggressive-victims were more likely to be in classrooms with more established social hierarchies and from schools in which children did not have a middle school transition.

In grade 11, the results indicated that adolescents who had higher levels of emotion dysregulation were more likely to be in one of three aggression groups (i.e., aggressive-victims, aggressors and relational aggressive-victims) than uninvolved (see Table 21). Gender differences were also found such that aggressors were most likely to be males, and relational aggressive-victims were females (although it appeared that aggressive-victims and victims were more likely to be males, these effects did not reach statistical significance). Similar to the results from prior grades, all of the four risk groups had elevated levels of peer rejection compared to the uninvolved group, and it was the aggressive-victims and victims who appeared to be the most rejected (see Table 22). With

respect to the contextual factors, classroom aggression and social hierarchy were not found to be significantly associated with group membership.

#### **Moderating Effects of Individual, Relational and Contextual Factors on Subgroup Transitions (Aim 4).**

To assess whether status transitions were associated with children's individual, relational and contextual characteristics, a series of moderation analyses were performed within the LTA framework. Each moderator variable was assessed independently and models were estimated separately for adjacent time waves. Similar to the LTA models examining children's transition probabilities (Aim 2), measurement invariance was imposed on models assessing transitions from grades 5 to 8 and grades 8 to 11, but not from grades 1 to 5. As can be gleaned by examining the transition probabilities reported in Tables 13 to 15, certain transitions between subgroups were very unlikely. Thus, in cases in which few (or no) children made the transition between two subgroups, it was not possible to assess moderation effects for these transitions, and these effects were not specified in the models and not reported below.

First, a series of models assessed moderation effects in the transition from grades 1 to 5, and there were several significant effects across the moderating factors. Among children in the uninvolved group in grade 1, several risk factors increased their chances of transitioning out of this low risk group by grade 5. High emotion dysregulation and being male increased the chances of becoming aggressors (OR = 10.14,  $p \leq .001$  and OR = 3.99,  $p = .02$ , respectively) and victims (OR = 6.71,  $p < .01$  and OR = 2.71,  $p < .01$ , respectively). In addition to these individual risks, peer rejection increased and mutual friendships decreased the risks for becoming victims (OR = 2.56,  $p \leq .001$  and OR = .53,

$p \leq .001$ , respectively). High classroom aggression increased the chances of uninvolved children becoming aggressors and relational aggressive-victims (OR = 1.84,  $p = .03$  and OR = 1.92,  $p = .04$ , respectively). In contrast high friendships increased and withdrawn behaviors decreased the likelihood of becoming relational aggressive-victims (OR = 1.62,  $p < .05$  and OR < .01,  $p = .02$ , respectively). Because there were no children who transitioned from uninvolved to aggressive-victims, this pattern appeared to be highly unlikely and therefore it was not feasible to assess moderation effects. Moderation effects were more difficult to test for children who were moderate and high aggressors in grade 1 because these groups were relatively smaller than the uninvolved group and many of the transition probabilities were low. However, of the effects that could be assessed, mutual friendships decreased the risks of moderate aggressors becoming victims (OR = .07,  $p = .02$ ).

Second, a series of models assessed moderation effects from grades 5 to 8. Among children in the uninvolved group in grade 5, several risk factors increased their chances of transitioning out of this low risk group by grade 8. High hostile attributions, high classroom aggression, and being male increased the chances of becoming aggressors (OR = 1.97,  $p = .01$ ; OR = 1.93,  $p \leq .001$ , and OR = 8.11,  $p \leq .001$ , respectively). High peer rejection increased and mutual friendships decreased the chances that uninvolved children transitioned to victims by grade 8 (OR = 5.13,  $p \leq .001$ , and OR = .29,  $p \leq .001$ , respectively). Contrary to expectations, uninvolved children who made the middle school transition were less likely to become victims by grade 8 (OR = .23,  $p < .05$ ). Finally, uninvolved children were considerably less likely to transition to relational aggressive-victims by grade 8 if they exhibited high withdrawn behaviors (OR = .01,  $p < .01$ ). In



addition to these moderation effects which assessed transitions from the uninvolved subgroup, several moderation effects increased the *stability* of subgroups over time. Among aggressors in grade 5, those who were highly emotionally dysregulated and highly withdrawn were significantly more likely to remain in this group in grade 8 (OR = 9.52,  $p = .04$ , and OR = 23.90,  $p = .03$ , respectively). Among victims in grade 5, those in classes with more established social hierarchies were more likely to remain victims (OR = 5.10,  $p = .02$ ). Similar to the results reported in the transition from grades 1 to 5, it was not possible to test many of the moderation effects between the transitions from one risk group (in grade 5) to another risk group (in grade 8) because these transitions were either unlikely or consisted of only a few children.

Third, a series of models assessed moderation effects from grades 8 to 11. Similar to previous transitions, several risk factors increased the chances of children transitioning out of the low risk uninvolved group by grade 11. High emotion dysregulation and being male increased the chances of uninvolved children becoming aggressors (OR = 26.44,  $p = .02$  and OR = 7.74,  $p = .04$ , respectively), and having more mutual friendships increased the risks of becoming relational aggressive-victims (OR = 1.73,  $p < .05$ ). Similar to the results reported in the earlier transitions, it was not possible to test for moderation effects when children made transitions from one risk group (in grade 8) to another risk group (in grade 11) due to the scarcity of children making these specific transitions.

## **Discussion**

Taken together, the findings of this study provided several novel insights into the co-occurring development of multiple forms (physical, verbal, and relational) of peer aggression and victimization in childhood and adolescence. Findings highlighted the

utility of using person-centered methods to identify subgroups of children with similar patterns of aggression and victimization. Most of the identified risk groups were distinguishable by their frequencies of aggression and victimization rather than forms. Among children in these groups, those who engaged in aggression or victimization had relatively similar levels of physical, verbal and relational forms. There was one exception, however, a group that appeared to be more form specific and primarily involved in relational aggression and victimization. Among children in each group, transition probabilities indicated a moderately high degree of intra-individual stability, and findings elucidated how some risk groups appeared to be more stable than others as well as developmental differences. Although group stability was fairly common across all groups, patterns of instability also emerged as certain transitions between subgroups were more common than others. The combination of trends reflecting both stability and instability support the perspective that the development of aggression in childhood and adolescence is characterized by heterogeneity. In contrast to perspectives that highlight the individual stability of aggression (e.g., that it is a stable behavioral style or individual disposition), findings elucidate the individual and interactional (i.e., relational and contextual) mechanisms by which developmental stability or instability were more pronounced.

### **Identifying Subgroups Based on Peer Aggression and Victimization (Aim 1).**

The first aim of this study was to investigate the nature of co-occurring peer aggression and victimization from middle childhood to late adolescence. Towards this end, subgroups of children and adolescents were identified at four grade levels (grades 1, 5, 8 and 11) who exhibited similar patterns of physical, verbal, and relational aggression

and victimization. For the most part, findings provided support for the groups that were initially hypothesized. More specifically, four of the groups identified (aggressive-victims, aggressors, victims, and uninvolved) largely corroborated extant evidence (e.g., Bettencourt et al., 2013; Giang & Graham, 2008; Williford et al., 2011). Although previous findings have tended to focus on the identification of groups during the middle school years and have been conducted over shorter developmental periods (e.g., across two to three grades levels), the findings reported here demonstrate how group identification was fairly consistent during the elementary (grade 5), middle (grade 8) and high school (grade 11) years, a considerably longer developmental period than has been previously assessed. Given this longer developmental time frame, these findings allowed for a more nuanced examination of the developmental continuity of aggressive-victimization in childhood and adolescence and contrasted with heterotypic continuity perspectives which imply that the nature of aggressive and victimized groups should change qualitatively over time.

A small but significant proportion of children and adolescents, roughly 4 to 5%, could be characterized as aggressive-victims. Consistent with other investigations (Bettencourt et al., 2013; Williford et al., 2011) students in this group were not specialized in any particular form of aggression or victimization, but rather displayed high levels (frequencies) of multiple forms (i.e., physical, verbal and relational). Contrary to expectations, this group was not identified in grade 1; however, the reason for this inconsistency remains unclear. On the one hand, findings could be suggestive of developmental differences such that younger children were not able to consistently differentiate aggressive-victims. On the other hand, because relational aggression and

victimization were not measured in grade 1, it was not possible to rule out methodological differences.

A second group which could be characterized as being highly aggressive, but not victimized (i.e., aggressors), was consistently identified at every grade level. This group consisted of roughly 8 to 16% of children and adolescents, and it appeared that the proportion of students in this group declined slightly over time. However, the nature of this group remained fairly similar over time, and similar to other investigations (Bettencourt et al., 2013; Giang & Graham, 2008), this group was not specialized in any particular form of aggression, but rather displayed high levels (frequencies) of multiple forms.

A third group of children and adolescents were characterized as being highly victimized, but not aggressive (i.e., victims). Contrary to expectations, this group did not emerge in grade 1, but was identified in subsequent grades. In grades 5 and 8, this group consisted of roughly 11 to 12% of children, and similar to other investigations (Bettencourt et al., 2013; Williford et al., 2011), victims did not experience any particular form of victimization, but rather had high levels of multiple forms. Notably, the victim group identified in grade 11 was somewhat unexpected in that it had greater rates of physical and verbal victimization, but not relational victimization, and consisted of a smaller proportion (roughly 6%) of adolescents. Although it is unclear why the nature of the victim group was slightly different by grade 11, these findings are similar to the victim group identified by Giang and Graham (2008).

Consistent with expectations and previous investigations, a fourth group of children and adolescents were identified at every grade level who consistently had low

levels of peer aggression and victimization, regardless of their forms (i.e., uninvolved). Over time, the proportion of students in this group ranged from roughly 61% to 76%. Thus, most students were able to abstain from engaging in aggression and did not experience high levels of peer victimization.

In contrast to the identification of these four groups, the fifth group identified was less consistent with past investigations and more specialized in its aggression and victimization such that children in this group could be characterized as being primarily relationally aggressive and victimized (i.e., relational aggressive-victims). This group also exhibited somewhat higher levels of verbal, but not physical, aggression and victimization. In grades 5 and 8, this group consisted of roughly 7% of students, and by grade 11, the proportion of relational aggressive-victims had nearly doubled such that about 13% of adolescents were identified as part of this group. Although the proportion of those who were primarily aggressors and victims had declined over time, there was a corresponding increase in relational aggressive-victims. Conceptually, it is somewhat surprising that this group has not been more consistently identified in other investigations (e.g., Bettencourt et al., 2013; Giang & Graham, 2008; Williford et al., 2011). In particular during adolescence, it is a group that is theoretically plausible. According to heterotypic continuity perspectives, relational aggression and victimization are becoming more normative in adolescence, and there is a corresponding decline in physical aggression and victimization (Björkqvist, 1994; Björkqvist et al., 1992). By the time children reach adolescence, they have likely developed the social-cognitive skills to engage in different forms of relational aggression, and also recognize that it can be as

harmful to their victims as physical aggression with fewer risks of retribution from peers or punishment from adults (e.g., from teachers, parents, or school administrators).

### **Developmental Continuity (Aim 2)**

After identifying the nature of co-occurring peer aggression and victimization subgroups, Aim 2 of this study was to investigate the developmental continuity (i.e., stability and instability) of the identified subgroups in childhood and adolescence (grades 1 to 5, 5 to 8, and 8 to 11). Collectively, the results of the LTAs indicated transitional patterns that were both indicative of stability and instability. Not only do these findings highlight the heterogeneous development of aggression and peer victimization, but they also support and extend developmental perspectives on the stability of aggression. For instance, with advances in methodologies such as growth mixture modeling (GMM), there has been a growing evidence base in support of the premise that aggression is fairly stable among a subsample of children throughout their childhood and adolescence (see Broidy et al., 2003; Etekal & Ladd, 2009). Findings from this study provide support for this individual stability perspective, even though they are based on a different methodology (i.e., LTA as opposed to GMM). Moreover, the current findings also imply that developmental *instability* is far more common than has been conceived in these previous studies using GMM. Indeed, these patterns of instability demonstrate that although some children remain on a pathway of high aggression or peer victimization (or both), many other children are able to transition out of this pathway into less risky groups. Perhaps developmental theories on aggression and peer victimization should further consider this observed heterogeneity and more comprehensively account for patterns of instability.

Among aggressive-victims, who were initially identified in grade 5, maintaining high levels of multiple forms of aggression and peer victimization (in grade 8) appeared to be the norm. More specifically, nearly half of aggressive-victims in grade 5 remained aggressive-victims in grade 8, findings consistent with Bettencourt and colleagues (2013) who found that 60% of aggressive-victims maintained this status from the fall of grade 6 to the spring of grade 7. Among aggressive-victims in grade 5 who were able to transition out of this group by grade 8, the results indicated that they were more likely to become victims than aggressors or relational aggressive-victims, and nearly one in four were able to completely transition out of the four risk groups (i.e., became uninvolved).

Notably, previous investigations have painted an unclear picture of how likely aggressive-victims are to transition out of this group during the middle school years. For instance, Bettencourt et al. (2013) reported that only 5% of aggressive-victims transitioned to uninvolved group (what they referred to as the ‘well-adjusted’ group). In contrast, Williford et al. (2011) reported considerably higher transition probabilities of 37% and 55% with respect to the transition from grade 4 to 5 and 5 to 6, respectively. Whereas the former findings imply that it is very unlikely for aggressive-victims to become uninvolved, the latter findings seem to have the opposite implication. In light of these findings, the results reported in this study appear to provide a more balanced perspective. That is, whereas some aggressive-victims are able to transition out of this group, they were roughly twice as likely to remain in this group.

With respect to the transition from grade 8 to 11, one in three aggressive-victims maintained this status. Although the proportion of aggressive-victims who transitioned to victims or uninvolved was comparable to the findings reported from grade 5 to 8, the

proportion who transitioned to relational aggressive-victims by grade 11 was considerably higher. This latter transitional pattern provides some empirical support for the heterotypic continuity hypothesis (Björkqvist, 1994; Björkqvist et al., 1992) such that it reflects a transition in which children who were physically aggressive and victimized in middle school (in addition to being verbally and relational aggressive and victimized) shifted to primarily non-physical forms of aggression and victimization in high school. With respect to the form-specific continuity of aggression, these findings implied that the heterotypic continuity perspective was primarily applicable to a subset of youth, mostly girls, who demonstrated this specific transitional pattern. Stated differently, although the heterotypic continuity perspective has been conceptualized as reflecting *normative* development in children's aggressive behaviors in childhood to adolescence, this perspective appears to be insufficient for explaining the developmental continuity found across the identified aggressive subgroups.

Taken together, the findings for aggressive-victims in grade 8 imply multiple distinct patterns of stability and instability. Whereas some aggressive-victims continued to exhibit multiple forms of aggression and victimization that remained stable in childhood and adolescence, others showed reductions in their physical aggression and victimization, but maintained higher levels of relational (and to a lesser extent verbal) aggression and victimization (i.e., heterotypic continuity), and yet others showed declines in all three forms of aggression and victimization.

Among students who were identified as aggressors in childhood and adolescence, the results indicated transitional patterns that were indicative of high rates of stability and instability. With respect to this subgroups' stability, roughly half of aggressors at each



grade level maintained this behavioral style at the subsequent grade level. These findings are consistent with Bettencourt et al. (2013) who found that 54% of aggressors maintained this status from the fall of grade 6 to the spring of grade 7, and extend these findings by demonstrating that many aggressors maintained this behavioral style across childhood and adolescence even as they made transitions to new schools where they encountered new peer groups.

With respect to instability, the findings revealed multiple transitional patterns indicative of the heterogeneous development of aggression during childhood and adolescence. First, roughly 7% to 17% of aggressors were at risk for becoming victimized in subsequent grades in addition to maintaining their aggressive behavioral styles (i.e., aggressive-victims), findings consistent with previous investigations (Bettencourt et al., 2013). Second, a substantial minority of students (roughly 19% to 43% across grade levels) appeared to exhibit more transient aggressive behavioral styles and became uninvolved in aggression in subsequent grades. These findings were less consistent with Bettencourt et al. who found that only 15% of aggressors became uninvolved. It is plausible that as the time span between transitions increases, aggressors had more opportunities to transition out of this group.

Compared to other groups, students who were primarily victimized, but not aggressive, exhibited the least stability over time, findings that appeared fairly consistent with past investigations (Bettencourt et al., 2013; Williford et al., 2011). In the middle school years (grades 5 to 8), roughly one third of victims transitioned to being uninvolved, and about half remained victims in grade 8. Moreover, a small but significant proportion of victims (about 8% to 10%) became aggressive-victims, a rate somewhat

lower than previous investigations in which over 20% of victims transitioned to the aggressive-victim group. Thus, for some students, it appeared that being victimized resulted in increasing their aggressive behavioral responses, a retaliatory strategy that did not necessarily reduce their experiences of victimization over time.

Rates of instability increased during the adolescent years. From grade 8 to 11, the proportion of victims who transitioned to uninvolved status was considerably higher than those who remained victims (64% and 27%, respectively). Thus, it may have been the case that for children who were primarily victimized in middle school, the transition to high school afforded new social opportunities which decreased their chances of remaining victimized.

The highest rates of stability emerged among students who were uninvolved in peer aggression and victimization. Consistently in childhood and adolescence, most students (roughly 74% to 82%) who were uninvolved remained uninvolved in subsequent grade levels. Among children who were uninvolved, transitions to the risk groups occurred considerably less frequently. At all grade levels, uninvolved children were very unlikely to become aggressive-victims (less than 1%) and a small proportion became aggressors (about 7% to 8%), and relational aggressive-victims (about 4% to 7%) in childhood and adolescence. Transitions from uninvolved to victims appeared to be more common in the elementary school years (about 13%) compared to the middle and high school years (roughly 5% and 3%, respectively).

The results also indicated high rates of stability in both the middle and high schools years among relational aggressive-victims (roughly 63% from grades 5 to 8 and 73% from grades 8 to 11). Consistent with the premise that some students are more

‘specialized’ in their aggressive behaviors and victimization experiences, students in this group exhibited very low rates of transitions to groups of aggressors, victims or aggressive-victims who engaged in multiple forms of aggression and/or victimization. Although most students in this group appeared to remain in this group over time, a significant minority (about 22% to 25%) was able to abstain from relational aggression and victimization in subsequent grade levels and thus transitioned to the uninvolved group.

#### **Individual, Relational and Contextual Characteristics (Aims 3 and 4).**

Aims 3 and 4 of this study were to assess the cross-sectional and longitudinal associations between several individual (emotion dysregulation, hostile and self-blaming attributions, withdrawn behaviors, and gender), relational (peer rejection and friendships) and contextual factors (school transition, social hierarchy, and classroom aggression) on aggressive-victimization group membership. Collectively, the findings reflected how subgroups were distinguishable by a unique set of characteristics (covariates) which also contributed to (i.e., moderated) the stability and instability of groups over time. To be specific, the combination of individual level factors such as emotion dysregulation, and relational factors such as peer rejection, appeared to have a pronounced effect on the likelihood that children would be involved in some form of aggression or peer victimization during childhood and adolescence. Moreover, these findings indicate several processes which promote the developmental continuity of aggression and peer victimization, findings in support of *interactional continuity hypotheses* (see Caspi et al., 1987). Interactional continuity hypotheses posit that children’s antagonistic behaviors contribute to maladaptive social interactions such that they evoke behavioral responses

from others which maintain these antagonistic behaviors. Expanding on this perspective, the findings demonstrated how a unique combination of individual risk including multiple forms of aggressive behaviors and emotion dysregulation, were associated with problematic relational experiences, namely peer rejection and victimization, which further stabilized children's aggressive and dysregulated behaviors, and reduced the likelihood that they would transition to less risky groups over time. Indeed, these factors consistently co-occurred with being an aggressive-victim over time, and helped explain why some children were more likely to maintain this group status, yet others were able to transition out of this group. Thus, while there was modest heterogeneity (e.g., both stability and instability) in the development of aggression and peer victimization across the entire sample, much of this heterogeneity was attributable to children's individual differences in combination with variations in their relational-contextual experiences.

**Individual factors.** Emotion dysregulation appeared to be the most pervasive individual risk factor associated with membership in the three aggression groups identified over time (i.e., aggressive-victims, aggressors, and relational aggressive-victims), and non-aggressive victims did not exhibit higher rates of emotion dysregulation. For the most part, findings were consistent with initial hypotheses and corroborate and extend findings about aggressive-victims from previous studies. Several investigators have conceptualized aggressive-victims as “ineffectual aggressors” or “provocative victims” characterized as being hot-tempered, hostile and emotionally dysregulated, and whose antagonistic behavioral styles annoy and irritate peers and subsequently lead to further victimization (Kochenderfer-Ladd, 2003; Perry et al., 1992; Schwartz, 2000). Building on findings from previous studies which have most

consistently found these associations during middle and late childhood (e.g., grades 4 to 6; see Schwartz, 2000; Toblin et al., 2005), the results reveal that these associations are not limited to any specific developmental period, but rather that aggressive-victims are persistently at risk for having higher levels of emotion dysregulation throughout childhood and adolescence.

Results also revealed that aggressors and relational aggressive-victims were at elevated risk for emotion dysregulation. With respect to the former, the longitudinal moderation analyses indicated two mechanisms by which emotion dysregulation was associated with membership in this group. First, emotion dysregulation increased the chances that children who were initially uninvolved became aggressors. Second, among children who were initially aggressive, emotion dysregulation increased its stability and the likelihood that children would remain aggressive over time. Although relational aggressive-victims appeared to have higher levels of emotion dysregulation than the uninvolved group, compared to aggressors and aggressive-victims, they appeared to be less emotionally dysregulated, in particular during later grades. Thus, emotion dysregulation typically co-occurred with children using multiple forms of aggression, and may have contributed to why children were not able to more effectively control their aggressive behavioral styles.

Although both aggressive-victims and aggressors reported greater emotion dysregulation, it was the aggressive-victims who also reported higher rates of hostile attributions. Thus, the combination of emotion dysregulation and hostile attributions more clearly differentiated these two groups. Notably, findings for victims also indicated higher rates of hostile attributions, thus, it appeared that aggressive-victims shared similar

individual risks as both aggressors and victims. Collectively, findings implied that the experience of being victimized altered children's perceptions about their peers, and the extent to which they believed their peers were antagonistic, such that both aggressive-victims and non-aggressive-victims had elevated rates of hostile attributions. Considering that relational aggressive-victims were not as likely to have hostile attributions as other victim groups, it may have been the case that experiencing multiple forms of victimization increased children's susceptibility to having perceptions that their peers are hostile. Contrary to expectations, being a victim appeared to be more strongly associated with having hostile than self-blaming attributions. Although it was hypothesized that victims would endorse more self-blaming attributions, these effects were in the expected direction, but did not reach statistical significance.

Across the four risk groups, children in the victimized group most consistently exhibited internalizing difficulties in the form of withdrawn behaviors. Consistent with expectations, victims had higher rates of withdrawn behaviors than other groups and group differences emerged across multiple grade levels. Considering the importance of belonging and fitting in within ones peer group throughout late childhood and adolescence, it may have been the case that children's withdrawn behaviors were perceived aversively by peers and elicited negative peer feedback, increasing their risks for peer victimization (Boivin, Hymel, & Bukowski, 1995; Rubin, LeMare, & Lollis, 1990; Schwartz, 2000; Schwartz et al., 1993).

As hypothesized, gender differences consistently emerged among some of the risk groups. Over time, relational aggressive-victims disproportionately consisted of girls, and aggressors were significantly were more likely to be boys. These findings are consistent

with other investigations which have found that girls tend to be more relationally, and boys more physically, aggressive and victimized (Crick & Bigbee, 1998; Crick & Grotpeter, 1995). Although the findings indicated a tendency for boys to be over-represented in the aggressive-victim and victim groups, these effects did not consistently reach statistical significance. Perhaps, after other individual, relational, and contextual effects were taken into account, gender differences were attenuated.

Taken together, findings across the individual factors illustrated several distinct behavioral profiles among the identified risk groups. First, aggressive-victims and aggressors were characterized by emotion dysregulation and hostile attributions (especially among aggressive-victims). Second, victims had a passive-submissive behavioral profile characterized by high levels of withdrawal. Third, the individual profile of relational aggressive-victims was distinct from other aggressive groups in that they were primarily girls, and had more moderate levels of emotion dysregulation and hostile attributions. In the following section, an examination of these risk groups relational characteristics further clarifies how each of these groups were qualitatively distinct.

**Relational factors.** Peer rejection appeared to be the most pervasive relational risk factor associated with membership in the aggression and peer victimization risk groups over time. Taken together, findings from the cross-sectional and longitudinal analyses provided support for the premise that peer rejection exacerbated children's risks for peer victimization, and revealed two processes by which peer rejection was associated with risk group membership and onset. First, among children who were already at risk (e.g., aggressive-victims, victims) peer rejection was a strong concurrent predictor of risk

group membership at every grade level that was assessed. Second, among children who were initially uninvolved in aggression or peer victimization, peer rejection increased the chances of becoming victimized and transitioning to the victim group over time.

Not only were the four identified risk groups more at risk for being rejected than the uninvolved group, subgroup differences also emerged among the risk groups. To be specific, aggressive-victims displayed the highest rates of peer rejection and were significantly more rejected than aggressors or relational aggressive-victims, findings consistent with previous investigations (e.g., Schwartz, 2000). Thus, in support of conceptualizations of aggressive-victims as ineffectual aggressors (Perry et al., 1992; 1993), children in this group appeared to be distinguishable from their aggressive (but not victimized) counterparts partly based on being more disliked by peers. Stated differently, whereas some aggressors were able to use aggression more effectively and abstain from being victimized or highly rejected, other aggressors experienced a combination of co-occurring relational difficulties including peer victimization and rejection (Ettedal & Ladd, 2015).

The results based on children's mutual friendships revealed several noteworthy group differences, indicative of multiple distinct processes by which children's friendships may be associated with peer aggression and victimization. First, among children who were initially uninvolved, having more friends provided a buffering effect and reduced the likelihood of becoming victimized in subsequent grades. These findings were consistent with previous investigations which have highlighted the potentially protective effect of friendships on peer victimization (Hodges et al., 1999).



Second, for relational aggressive-victims (who were primarily girls), the results indicated they had more friends than children in the uninvolved group. Many forms of relational aggression (e.g., friendship manipulation, gossiping, social exclusion) can be used to promote social standing and popularity and as a means to maintain social boundaries and friendships (Neal, 2010). Moreover, the longitudinal analyses indicated that children were more likely to become relational aggressive-victims over time if they had more friendships. Perhaps having some degree of friendships may be a prerequisite for engaging in relational aggression (Ettekal & Ladd, 2015; Kawabata, Tseng, & Crick, 2014); however, for girls in this group, using relational aggression also increased their risks for being relationally victimized and rejected by other children.

Third, with the exception of relational aggressive-victims, the findings provided some support for the hypothesis that children who were victimized would have fewer friends. More specifically, developmental differences emerged such that children who were aggressive-victims and victims had fewer friends in grade 5; however, why these effects were attenuated (and non-significant) by grade 8 was unclear. Notably, other investigators have not consistently found that aggressive-victims are at increased risk for having fewer friends (e.g., Toblin et al., 2005). Perhaps, being an aggressive-victim is more strongly associated with other aspects of children's friendships (e.g., quality, stability) than whether children have friends or not.

Taken together, findings across the relational factors (i.e., peer rejection and friendships) imply that for some aggressors (i.e., aggressive-victims), their disruptive behavioral styles were aversive and associated with multiple forms of relational maladjustment. However, for other aggressors (i.e., relational aggressive-victims), their

uses of aggression had both costs and benefits with respect to their relational outcomes. Thus, the divergent associations across different subgroups may reflect the heterogeneous nature of aggression and the extent to which some children are able to use it more or less effectively (Ettekal & Ladd, 2015).

**Contextual factors.** Among the contextual factors assessed, the findings were mixed with respect to the associations between classroom aggression, social hierarchies and middle school transition on group membership. Whereas the results for classroom aggression and social hierarchies were fairly consistent with expectations, this was not the case when examining the role of transitioning to middle school.

Findings on classroom aggression supported the hypothesis that it is a risk factor for the onset of aggression. More specifically, among uninvolved children, those in classrooms with higher levels of aggression were more likely to transition to the aggressor group over time. This finding replicated in the transition from grades 1 to 5 and 5 to 8. These findings are consistent with previous investigations which have assessed the role of classroom influences on aggression and support the premise that higher levels of classroom aggression foster an environment in which children believe aggression is normative and socially acceptable (Kuppens et al., 2008).

Findings on social hierarchies supported the hypothesis that victims in classrooms with more established social hierarchies would have a more difficult time transitioning out of this group. More specifically, it appeared the effects of social hierarchies were more pronounced during the middle school years than other periods, and among victims in grade 5, those in classes with more established social hierarchies were more likely to remain victims in grade 8. These findings are consistent with previous investigations and

support the premise that the more established the dominance structure within a classroom, the more difficult it is for victims to change their position within the social hierarchy and evade further victimization (Wolke et al., 2009). It remains unclear exactly why these effects were more pronounced during the middle school years. Perhaps social dominance structures become more salient to children during the middle school years, and in particular as children are transitioning to adolescence. The extent to which children's social impact scores are an accurate measure of classroom social hierarchies also warrants further empirical attention. During adolescence, when children's social priorities are shifting, it is plausible that social dominance hierarchies would be more accurately measured by assessing multiple indicators of social standing (e.g., perceived popularity) in addition to social impact scores (LaFontana & Cillessen, 2010).

Findings pertaining to the effects of the middle school transition did not support the initial hypotheses and results were in an unexpected direction. More specifically, among children in the uninvolved group, those who made the transition to a middle school were less likely to become victims by grade 8. Contrary to expectations, children who made the middle school transition were not more likely to become aggressors or victims as they attempted to reestablish their social boundaries within a new peer climate. Perhaps, the effects of the middle school transition are more immediate than long term such that they should be assessed within the year the transition is made as opposed to multiple years after. Alternatively, a new school environment may afford children unique opportunities for social niche seeking and chances to form new friendships, experiences that may ultimately buffer victimization. Thus, although some investigators have tended to view the middle school transition as being developmentally risky, further research is

needed to qualify the conditions under which the middle school transition may impact children's adjustment.

### **Limitations and Future Directions**

Although this study investigated multiple forms of aggression and victimization, there are other behavioral manifestations, in particular of relational aggression and victimization that were not assessed. Future investigations should also consider the implications of cyber-aggression on developmental theories of aggression and its role in the potentially heterotypic development of aggression. In order to further qualify the extent to which aggressive-victims, relational aggressive-victims, aggressors and victims are distinct groups, future studies should continue to explore how other individual, relational and contextual level factors, outside the scope of this study, are associated with group membership and the developmental stability and instability of these groups. Replication studies in large scale longitudinal samples are also warranted and would allow for greater statistical power to further investigate group transitions that were highly unlikely and therefore not possible to investigate here.

### **Conclusion**

Collectively, the findings of this study contribute to ongoing research that has been interested in exploring the development of different forms of aggression and peer victimization in childhood and adolescence. For the most part, the findings demonstrated that children who were either perpetrators (aggressors) or victims of peer aggression, or both (aggressive-victims), engaged in multiple forms of these behaviors (i.e., physical, verbal, and relational). However, by the late elementary school years, a subgroup also emerged (mostly girls), who was more specialized in aggression and victimization such

that this group primarily engaged and experienced relational forms. Across all groups, intra-individual stability was found such that many children maintained the same group status over time. Instability was also consistently observed as many children transitioned in between groups over time. Across all subgroups, developmental stability and instability were significantly associated with children's individual characteristics and their relational and contextual experiences, and among the factors examined—emotion dysregulation and peer rejection—were the most persistent predictors of aggressive-victimization. These findings support the premise that heterogeneity in the development of peer aggression and victimization is likely the result of multiple interacting individual and social processes.

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APPENDIX A  
TABLES AND FIGURES

*Table 1*

*Descriptive and Missing Data Statistics for Variables in Grade 1*

	N	Min	Max	M	SD	% Missing
1. Physical aggression	368	-1.43	4.10	-0.05	0.95	0.24
2. Verbal aggression	368	-1.61	3.79	-0.06	0.93	0.24
3. Physical victimization	368	-2.03	3.00	0.04	0.98	0.24
4. Verbal victimization	368	-2.11	3.19	0.00	1.01	0.24
5. Withdrawn behaviors	382	1.00	2.56	1.18	0.27	0.21
6. Emotion dysregulation	382	1.00	3.00	1.14	0.32	0.21
7. Peer rejection	377	-1.30	3.25	-0.09	0.90	0.22
8. Mutual friendships	371	-2.56	3.24	0.01	0.97	0.23
9. Social hierarchy	371	0.75	4.42	2.67	0.70	0.23
10. Classroom aggression	369	0.00	4.00	1.91	1.02	0.23

Note: Because additional participants were added into the longitudinal study in grade 5, roughly 20% of the missing data in grade 1 was attributable to this reason.

Table 2

*Descriptive and Missing Data Statistics for Variables in Grade 5*

	N	Min	Max	M	SD	% Missing
1. Physical aggression	419	-1.33	4.09	0.09	1.06	0.13
2. Verbal aggression	419	-1.51	3.93	0.11	1.04	0.13
3. Relational aggression	418	-1.49	3.47	0.07	1.04	0.13
4. Physical victimization	418	-1.11	4.00	0.15	1.12	0.13
5. Verbal victimization	419	-1.69	3.60	0.16	1.12	0.13
6. Relational victimization	418	-1.60	3.62	0.16	1.08	0.13
7. Withdrawn behaviors	430	1.00	2.44	1.23	0.29	0.11
8. Emotion dysregulation	433	1.00	3.00	1.20	0.35	0.10
9. Peer rejection	416	-1.59	3.08	0.12	1.04	0.14
10. Mutual friendships	418	-2.32	2.34	-0.03	0.99	0.13
11. Social hierarchy	420	0.55	4.13	2.54	0.57	0.13
12. Classroom aggression	420	0.00	7.50	3.16	1.49	0.13

Table 3

*Descriptive and Missing Data Statistics for Variables in Grade 8*

	N	Min	Max	M	SD	% Missing
1. Physical aggression	404	-1.55	4.15	0.05	1.06	0.16
2. Verbal aggression	404	-1.56	4.79	0.03	1.05	0.16
3. Relational aggression	403	-1.62	4.59	-0.01	1.02	0.16
4. Physical victimization	403	-1.35	5.52	0.16	1.14	0.16
5. Verbal victimization	404	-1.37	4.13	0.15	1.09	0.16
6. Relational victimization	404	-1.71	5.22	0.11	1.04	0.16
7. Withdrawn behaviors	419	1.00	3.00	1.25	0.35	0.13
8. Emotion dysregulation	420	1.00	3.00	1.18	0.36	0.13
9. Peer rejection	404	-1.90	4.19	0.12	1.08	0.16
10. Mutual friendships	400	-1.80	3.24	-0.12	0.93	0.17
11. Social hierarchy	335	1.05	4.63	2.68	0.71	0.30
12. Classroom aggression	334	0.00	13.00	4.84	2.70	0.31
13. Hostile Attributions*	472	1.00	5.00	2.58	0.89	0.02
14. Self-blaming Attributions*	472	1.00	5.00	2.42	0.88	0.02
15. Middle School Transition	466	0.00	1.00	0.80	0.40	0.03

\*Hostile and self-blaming attributions were collected in grade 6 but analyzed as part of the grade 8 data.



Table 4

*Descriptive and Missing Data Statistics for Variables in Grade 11*

	N	Min	Max	M	SD	% Missing
1. Physical aggression	270	-1.40	5.25	0.18	1.17	0.44
2. Verbal aggression	270	-1.20	4.87	0.19	1.11	0.44
3. Relational aggression	270	-1.05	4.08	0.09	1.02	0.44
4. Physical victimization	269	-3.07	5.09	0.01	0.99	0.44
5. Verbal victimization	270	-1.33	3.74	0.08	0.95	0.44
6. Relational victimization	270	-1.30	3.81	0.05	0.98	0.44
7. Withdrawn behaviors	313	1.00	2.78	1.30	0.37	0.35
8. Emotion dysregulation	315	1.00	3.00	1.13	0.32	0.35
9. Peer rejection	270	-1.32	3.99	0.15	1.01	0.44
10. Social hierarchy	269	1.31	3.69	2.35	0.43	0.44
11. Classroom aggression	269	0.00	8.50	2.58	1.64	0.44

Table 5

*Bivariate Correlations Among Study Variables Assessed in Grade 1*

	1	2	3	4	5	6	7	8	9	10
1. Physical aggression										
2. Verbal aggression	.80**									
3. Physical victimization	.02	.04								
4. Verbal victimization	.27**	.29**	.30**							
5. Withdrawn behaviors	.13*	.13*	.02	-.02						
6. Emotion dysregulation	.43**	.40**	.03	.17**	.46**					
7. Peer rejection	.61**	.60**	.04	.27**	.30**	.37**				
8. Friendships	-.22**	-.22**	.08	-.09	-.27**	-.19**	-.42**			
9. Social hierarchy	-.01	.01	.01	.00	.02	-.03	.05	-.01		
10. Classroom aggression	.06	.02	.02	-.03	.12*	.13**	.02	.01	-.19**	
11. Sex (male = 1)	.41**	.38**	.01	.00	.07	.16**	.28**	-.13*	.04	.08

\*  $p < .05$ ; \*\*  $p < .01$

Table 6

Bivariate Correlations Among Study Variables Assessed in Grade 5

	1	2	3	4	5	6	7	8	9	10	11	12
1. Physical aggression												
2. Verbal aggression	.81**											
3. Relational aggression	.42**	.59**										
4. Physical victimization	.24**	.19**	.15**									
5. Verbal victimization	.21**	.21**	.21**	.82**								
6. Relational victimization	.23**	.33**	.37**	.64**	.76**							
7. Withdrawn behaviors	.10	.02	-.10	.14**	.15**	.13*						
8. Emotion dysregulation	.37**	.41**	.23**	.02	.05	.13**	.43**					
9. Peer rejection	.37**	.38**	.34**	.60**	.69**	.69**	.14**	.12*				
10. Friendships	-.12*	-.09	.00	-.43**	-.49**	-.39**	-.22**	-.02	-.50**			
11. Social hierarchy	.04	-.01	-.01	.01	-.03	-.02	-.01	-.11*	.02	.06		
12. Classroom aggression	-.02	.01	-.06	-.02	-.01	-.03	.06	.06	-.01	.03	-.10*	
13. Sex (male = 1)	.43**	.30**	-.07	.31**	.14**	.04	.15**	.17**	.11*	-.08	.06	.05

\*  $p < .05$ ; \*\*  $p < .01$

Table 7

Bivariate Correlations Among Study Variables Assessed in Grade 8

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1. Physical aggression															
2. Verbal aggression	.76**														
3. Relational aggression	.40**	.63**													
4. Physical victimization	.24**	.20**	.01												
5. Verbal victimization	.18**	.24**	.17**	.70**											
6. Relational victimization	.14**	.37**	.45**	.29**	.59**										
7. Withdrawn behaviors	.08	.02	-.10*	.32**	.29**	.11*									
8. Emotion dysregulation	.42**	.44**	.21**	.09	.16**	.18**	.40**								
9. Peer rejection	.31**	.32**	.20**	.57**	.70**	.46**	.26**	.21**							
10. Friendships	-.13*	.00	.03	-.28**	-.24**	-.03	-.21**	.01	-.28**						
11. Social hierarchy	.01	.05	.12*	-.04	.01	.14*	-.09	-.01	.02	.01					
12. Classroom aggression	-.04	-.01	-.03	-.04	-.03	-.03	.02	.10	-.01	.04	.12*				
13. Hostile attributions (G6)	.10*	.18**	.05	.15**	.15**	.13*	.08	.10*	.11*	-.03	-.09	.01			
14. Self-blaming attributions (G6)	-.10*	-.11*	-.04	-.06	-.06	-.02	-.06	-.09	-.08	.01	.09	.09	-.22**		
15. Middle school transition (DC)	-.07	-.06	-.06	-.04	-.06	-.06	.08	.04	-.08	-.01	-.10	.05	.03	-.11*	
16. Sex (male = 1)	.39**	.17**	-.12*	.35**	.12*	-.23**	.17**	.10*	.20**	-.10*	-.12*	-.01	.07	-.05	.02

Note: Hostile and self-blaming attributions were collected in grade 6 (G6), but analyzed as part of the grade 8 data.

\*  $p < .05$ ; \*\*  $p < .01$

Table 8

Bivariate Correlations Among Study Variables Assessed in Grade 11

	1	2	3	4	5	6	7	8	9	10	11
1. Physical aggression											
2. Verbal aggression	.63**										
3. Relational aggression	.32**	.57**									
4. Physical victimization	.38**	.22**	.11								
5. Verbal victimization	.35**	.46**	.39**	.41**							
6. Relational victimization	.26**	.45**	.61**	.17**	.61**						
7. Withdrawn behaviors	.22**	.13*	-.04	.12	.16*	.00					
8. Emotion dysregulation	.19**	.29**	.32**	.02	.22**	.24**	.38**				
9. Peer rejection	.38**	.45**	.36**	.29**	.58**	.42**	.24**	.17*			
10. Social hierarchy	-.02	.04	.04	-.02	-.01	.05	.01	.03	-.03		
11. Classroom aggression	.03	.07	-.08	.05	.05	-.05	.16*	.08	-.02	.05	
12. Sex (male = 1)	.30**	.11	-.16**	.26**	-.03	-.26**	.20**	-.03	.13*	-.12*	.03

\*  $p < .05$ ; \*\*  $p < .01$

Table 9

*Model Fit Indices for Latent Profile Analyses in Grade 1*

Model	LogL	AIC	BIC	SABIC	Entropy	BLRT	LMR-aLRT
One-class	-2038.00	4092.00	4123.27	4097.89	-	-	-
Two-class	-1771.75	3569.49	3620.30	3579.05	0.96	532.51***	515.07***
Three-class	-1701.82	3439.63	3509.98	3452.87	0.95	139.86***	135.28
Four-class	-1676.48	3398.96	3488.84	3415.87	0.95	50.68***	49.02
Five-class	-1651.98	3359.97	3469.40	3380.56	0.90	48.99***	47.39

*Note.* LogL = Loglikelihood, AIC = Akaike information criteria, BIC = Bayesian information criteria, SABIC = Sample-size adjusted Bayesian information criteria; BLRT = Bootstrap likelihood ratio test; LMR-aLRT = Lo Mendell Rubin adjusted likelihood ratio test. \*\*\* $p < .001$

Table 10

*Model Fit Indices for Latent Profile Analyses in Grade 5*

Model	LogL	AIC	BIC	SABIC	Entropy	BLRT	LMR-aLRT
One-class	-3743.62	7511.24	7559.70	7521.62	-	-	-
Two-class	-3274.05	6586.10	6662.82	6602.52	0.96	939.15***	917.44***
Three-class	-3037.67	6127.33	6232.32	6149.81	0.96	472.76***	461.84*
Four-class	-2896.59	5859.18	5992.42	5887.71	0.98	282.16***	275.64**
Five-class	-2807.17	5694.34	5855.86	5728.93	0.96	178.83***	174.70
Six-class	-2735.64	5565.27	5755.05	5605.91	0.96	143.08***	139.77**

*Note.* LogL = Loglikelihood, AIC = Akaike information criteria, BIC = Bayesian information criteria, SABIC = Sample-size adjusted Bayesian information criteria; BLRT = Bootstrap likelihood ratio test; LMR-aLRT = Lo Mendell Rubin adjusted likelihood ratio test. \* $p < .05$ ; \*\* $p < .01$ ; \*\*\* $p < .001$

Table 11

*Model Fit Indices for Latent Profile Analyses in Grade 8*

Model	LogL	AIC	BIC	SABIC	Entropy	BLRT	LMR-aLRT
One-class	-3589.78	7203.55	7251.57	7213.49	-	-	-
Two-class	-3271.85	6581.71	6657.73	6597.45	0.94	635.85***	621.06***
Three-class	-3102.47	6256.93	6360.97	6278.47	0.94	338.78***	330.90
Four-class	-3007.08	6080.16	6212.21	6107.49	0.95	190.77***	186.33
Five-class	-2914.87	5909.75	6069.80	5942.88	0.96	184.41***	180.13
Six-class	-2856.19	5806.39	5994.46	5845.32	0.96	117.36***	114.63

*Note.* LogL = Loglikelihood, AIC = Akaike information criteria, BIC = Bayesian information criteria, SABIC = Sample-size adjusted Bayesian information criteria; BLRT = Bootstrap likelihood ratio test; LMR-aLRT = Lo Mendell Rubin adjusted likelihood ratio test.

\*\*\* $p < .001$



Table 12

*Model Fit Indices for Latent Profile Analyses in Grade 11*

Model	LogL	AIC	BIC	SABIC	Entropy	BLRT	LMR-aLRT
One-class	-2347.69	4719.39	4762.57	4724.52	-	-	-
Two-class	-2128.47	4294.95	4363.32	4303.07	0.92	438.44***	427.53
Three-class	-2025.61	4103.23	4196.79	4114.35	0.93	205.72***	200.60*
Four-class	-1969.06	4004.13	4122.88	4018.24	0.95	113.10***	110.29
Five-class	-1924.68	3929.36	4073.30	3946.47	0.96	88.76***	86.56
Six-class	-1888.64	3871.28	4040.40	3891.38	0.96	72.09***	70.29

*Note.* LogL = Loglikelihood, AIC = Akaike information criteria, BIC = Bayesian information criteria, SABIC = Sample-size adjusted Bayesian information criteria; BLRT = Bootstrap likelihood ratio test; LMR-aLRT = Lo Mendell Rubin adjusted likelihood ratio test.

\* $p < .05$ ; \*\*\* $p < .001$

Table 13

*Latent Transition Probabilities Examining Subgroup Stability and Instability from Grades 1 to 5*

		Grade 5				
		Aggressive- Victims (AV)	Relational Aggressive-Victims (RA-RV)	Aggressors (A)	Victims (V)	Uninvolved (U)
Grade 1	High Aggressors	16.6%	5.8%	46.2%	13.0%	18.5%
	Moderate Aggressors	10.7%	7.5%	32.2%	13.5%	36.0%
	Uninvolved	0.0%	6.2%	6.5%	13.1%	74.3%

Table 14

*Latent Transition Probabilities Examining Subgroup Stability and Instability from Grades 5 to 8*

		Grade 8				
		Aggressive-Victims (AV)	Relational Aggressive-Victims (RA-RV)	Aggressors (A)	Victims (V)	Uninvolved (U)
Grade 5	AV	47.2%	0.0%	7.9%	20.0%	24.8%
	RA-RV	0.0%	63.4%	0.0%	11.9%	24.7%
	A	9.4%	6.2%	41.2%	0.0%	43.2%
	V	7.9%	1.0%	7.3%	48.3%	35.5%
	U	0.3%	4.1%	8.4%	4.9%	82.2%

Table 15

*Latent Transition Probabilities Examining Subgroup Stability and Instability from Grades 8 to 11*

		Grade 11				
		Aggressive-Victims (AV)	Relational Aggressive-Victims (RA-RV)	Aggressors (A)	Victims (V)	Uninvolved (U)
Grade 8	AV	30.7%	22.2%	0.0%	19.1%	28.0%
	RA-RV	4.8%	73.2%	0.0%	0.0%	21.9%
	A	6.8%	6.3%	51.8%	3.8%	31.2%
	V	9.5%	0.0%	0.0%	26.7%	63.8%
	U	1.3%	7.2%	7.1%	2.8%	81.7%

Table 16

Conditional Latent Profile Analyses Examining Individual, Relational and Contextual Effects in Grade 1

	High Aggressors			Moderate Aggressors		
	<i>Est</i>	<i>SE</i>	<i>OR</i>	<i>Est</i>	<i>SE</i>	<i>OR</i>
<i>Uninvolved (ref)</i>						
Sex (male =1)	3.50	1.18	33.05**	2.37	0.55	10.67***
Withdrawn	-1.79	0.95	0.17	-1.49	1.34	0.23
Emotion dysregulation	2.76	1.04	15.82**	1.40	1.13	4.04
Peer rejection	2.26	0.46	9.54***	1.46	0.27	4.28***
Friendships	-0.14	0.41	0.87	0.16	0.24	1.17
Social hierarchy	0.07	0.38	1.07	-0.54	0.29	0.59
Classroom aggression	0.19	0.27	1.20	0.07	0.20	1.07
<i>Moderate aggressors (ref)</i>						
Sex (male =1)	1.13	1.20	3.10			
Withdrawn	-0.30	1.03	0.74			
Emotion dysregulation	1.36	0.60	3.91*			
Peer rejection	0.80	0.37	2.23*			
Friendships	-0.30	0.39	0.74			
Social hierarchy	0.61	0.38	1.83			
Classroom aggression	0.12	0.25	1.12			

*Est* = Estimate, *SE* = Standard error, *OR* = Odds ratio, *ref* = reference group; \**p* < .05, \*\**p* < .01, \*\*\**p* < .001

Table 17

Conditional Latent Profile Analyses Examining Individual, Relational and Contextual Effects in Grade 5 Using the Uninvolved Group as the Referent

	Aggressive-victims			Relational Aggressive-victims			Aggressors			Victims		
	<i>Est</i>	<i>SE</i>	<i>OR</i>	<i>Est</i>	<i>SE</i>	<i>OR</i>	<i>Est</i>	<i>SE</i>	<i>OR</i>	<i>Est</i>	<i>SE</i>	<i>OR</i>
Sex (male =1)	2.76	1.25	15.85*	-1.33	0.93	0.26	2.82	0.57	16.76***	1.90	0.57	6.70***
Withdrawn	-4.24	1.66	0.01**	-6.08	2.00	<.01**	-2.05	0.91	0.13*	-0.11	0.78	0.90
Emotion dysregulation	3.88	1.09	48.18***	2.88	1.07	17.83**	2.44	0.88	11.50**	-0.02	0.85	0.98
Peer rejection	2.54	0.54	12.69***	1.50	0.38	4.46***	1.55	0.26	4.69***	1.90	0.33	6.69***
Friendships	-1.67	0.67	0.19*	0.84	0.35	2.32*	0.22	0.24	1.25	-0.65	0.28	0.52*
Social hierarchy	-0.23	0.62	0.80	-1.57	0.58	0.21**	-0.20	0.32	0.82	-0.62	0.40	0.54
Classroom aggression	-0.59	0.37	0.56	-0.18	0.17	0.83	-0.01	0.14	0.99	0.00	0.14	1.00

*Est* = Estimate, *SE* = Standard error, *OR* = Odds ratio, \**p* < .05, \*\**p* < .01, \*\*\**p* < .001

Table 18

Conditional Latent Profile Analyses Examining Individual, Relational and Contextual Effects in Grade 5

	Aggressive-victims			Relational Aggressive-victims			Aggressors		
	<i>Est</i>	<i>SE</i>	<i>OR</i>	<i>Est</i>	<i>SE</i>	<i>OR</i>	<i>Est</i>	<i>SE</i>	<i>OR</i>
<i>Victims (ref)</i>									
Sex (male =1)	0.86	1.24	2.37	-3.23	0.99	0.04***	0.92	0.63	2.50
Withdrawn	-4.14	1.57	0.02**	-5.97	2.09	<.01**	-1.94	0.86	0.14*
Emotion dysregulation	3.89	0.90	49.06***	2.90	1.22	18.17*	2.46	0.78	11.70**
Peer rejection	0.64	0.51	1.89	-0.41	0.45	0.67	-0.36	0.26	0.70
Friendships	-1.02	0.65	0.36	1.49	0.42	4.42***	0.87	0.30	2.38**
Social hierarchy	0.39	0.53	1.47	-0.95	0.65	0.39	0.42	0.42	1.51
Classroom aggression	-0.59	0.35	0.56	-0.18	0.20	0.83	-0.01	0.16	1.00
<i>Aggressors (ref)</i>									
Sex (male =1)	-0.06	1.29	0.95	-4.15	1.01	0.02***			
Withdrawn	-2.20	1.64	0.11	-4.03	2.21	0.02			
Emotion dysregulation	1.43	0.93	4.19	0.44	1.22	1.55			
Peer rejection	1.00	0.50	2.70*	-0.05	0.44	0.95			
Friendships	-1.89	0.67	0.15**	0.62	0.40	1.86			
Social hierarchy	-0.03	0.63	0.97	-1.37	0.64	0.26*			
Classroom aggression	-0.58	0.37	0.56	-0.18	0.20	0.84			
<i>Relational aggressive-victims (ref)</i>									
Sex (male =1)	4.09	1.49	59.98**						
Withdrawn	1.84	2.56	6.27						
Emotion dysregulation	0.99	1.37	2.70						
Peer rejection	1.05	0.63	2.85						
Friendships	-2.51	0.73	0.08***						
Social hierarchy	1.34	0.80	3.81						
Classroom aggression	-0.40	0.39	0.67						

*Est* = Estimate, *SE* = Standard error, *OR* = Odds ratio, *ref* = reference group; \**p* < .05, \*\**p* < .01, \*\*\**p* < .001

Table 19

Conditional Latent Profile Analyses Examining Individual, Relational and Contextual Effects in Grade 8 Using the Uninvolved Group as the Referent

	Aggressive-Victims			Relational Aggressive-Victims			Aggressors			Victims		
	<i>Est</i>	<i>SE</i>	<i>OR</i>	<i>Est</i>	<i>SE</i>	<i>OR</i>	<i>Est</i>	<i>SE</i>	<i>OR</i>	<i>Est</i>	<i>SE</i>	<i>OR</i>
Sex (male =1)	-0.21	0.85	0.81	-	-	-	2.85	1.06	17.34**	-0.31	0.65	0.74
Hostile attribution	1.80	0.54	6.05***	0.59	0.39	1.81	0.39	0.35	1.48	1.20	0.36	3.32***
Self-blaming attribution	0.27	0.45	1.31	-0.20	0.46	0.82	-0.04	0.38	0.96	0.65	0.35	1.92
Withdrawn	-0.69	1.71	0.50	-0.43	1.25	0.65	-1.43	0.96	0.24	1.72	0.87	5.61*
Emotion dysregulation	1.99	1.11	7.28	0.55	0.72	1.73	3.27	0.75	26.31***	-0.09	1.18	0.91
Peer rejection	3.34	0.61	28.11***	1.99	0.73	7.30**	1.21	0.49	3.37*	2.91	0.54	18.28***
Friendships	0.38	0.57	1.46	1.15	0.48	3.17*	-0.47	0.24	0.63*	0.16	0.32	1.17
Social hierarchy	1.51	0.62	4.52*	0.48	0.42	1.61	-0.03	0.37	0.97	0.58	0.44	1.79
Classroom aggression	-0.34	0.30	0.71	0.13	0.08	1.14	0.25	0.12	1.28*	0.07	0.13	1.07
Middle school transition	-1.50	0.90	0.22	-0.30	0.69	0.74	1.11	0.72	3.04	0.22	0.90	1.25

*Est* = Estimate, *SE* = Standard error, *OR* = Odds ratio, \**p* < .05, \*\**p* < .01, \*\*\**p* < .001



Table 20

Conditional Latent Profile Analyses Examining Individual, Relational and Contextual Effects in Grade 8

	Aggressive-Victims			Relational Aggressive-Victims			Aggressors		
	<i>Est</i>	<i>SE</i>	<i>OR</i>	<i>Est</i>	<i>SE</i>	<i>OR</i>	<i>Est</i>	<i>SE</i>	<i>OR</i>
<i>Victims (ref)</i>									
Sex (male =1)	0.10	0.84	1.10	-	-	-	3.16	1.12	23.57**
Hostile attribution	0.60	0.49	1.82	-0.61	0.43	0.55	-0.81	0.40	0.45*
Self-blaming attribution	-0.38	0.44	0.68	-0.85	0.57	0.43	-0.69	0.55	0.50
Withdrawn	-2.41	1.72	0.09	-2.16	1.50	0.12	-3.16	1.06	0.04**
Emotion dysregulation	2.08	1.30	7.98	0.64	1.40	1.90	3.36	1.14	28.88**
Peer rejection	0.43	0.45	1.54	-0.92	0.60	0.40	-1.69	0.50	0.18***
Friendships	0.22	0.60	1.25	1.00	0.50	2.71*	-0.63	0.34	0.54
Social hierarchy	0.93	0.58	2.53	-0.10	0.56	0.90	-0.62	0.49	0.54
Classroom aggression	-0.41	0.30	0.66	0.06	0.14	1.06	0.17	0.13	1.19
Middle school transition	-1.72	0.97	0.18	-0.52	1.11	0.59	0.89	1.01	2.43
<i>Aggressors (ref)</i>									
Sex (male =1)	-3.06	1.23	0.05*	-	-	-			
Hostile attribution	1.41	0.57	4.09*	0.20	0.48	1.22			
Self-blaming attribution	0.31	0.59	1.36	-0.16	0.58	0.85			
Withdrawn	0.74	1.79	2.10	1.00	1.56	2.71			
Emotion dysregulation	-1.29	1.06	0.28	-2.72	0.87	0.07**			
Peer rejection	2.12	0.55	8.35***	0.78	0.74	2.17			
Friendships	0.85	0.59	2.33	1.62	0.52	5.07**			
Social hierarchy	1.54	0.64	4.67*	0.51	0.53	1.67			
Classroom aggression	-0.59	0.31	0.56	-0.12	0.14	0.89			
Middle school transition	-2.61	1.06	0.07*	-1.41	0.91	0.24			
<i>Relational aggressive-victims (ref)</i>									
Sex (male =1)	-	-	-						
Hostile attribution	1.21	0.61	3.34*						
Self-blaming attribution	0.47	0.66	1.60						
Withdrawn	-0.26	2.04	0.77						
Emotion dysregulation	1.44	1.15	4.20						
Peer rejection	1.35	0.69	3.85*						
Friendships	-0.78	0.69	0.46						
Social hierarchy	1.03	0.72	2.80						
Classroom aggression	-0.47	0.31	0.63						
Middle school transition	-1.20	1.04	0.30						

*Est* = Estimate, *SE* = Standard error, *OR* = Odds ratio, *ref* = reference group; \**p* < .05, \*\**p* < .01, \*\*\**p* < .001

Table 21

Conditional Latent Profile Analyses Examining Individual, Relational and Contextual Effects in Grade 11 Using the Uninvolved Group as the Referent

	Aggressive-Victims			Relational Aggressive-Victims			Aggressors			Victims		
	<i>Est</i>	<i>SE</i>	<i>OR</i>	<i>Est</i>	<i>SE</i>	<i>OR</i>	<i>Est</i>	<i>SE</i>	<i>OR</i>	<i>Est</i>	<i>SE</i>	<i>OR</i>
Sex (male =1)	1.11	0.85	3.04	-1.43	0.72	0.24*	2.73	1.21	15.38*	1.77	0.92	5.88
Withdrawn	-0.37	1.44	0.69	-2.04	1.28	0.13	0.05	0.62	1.05	0.04	0.73	1.04
Emotion dysregulation	2.62	1.30	13.79*	1.78	0.75	5.91*	2.33	1.03	10.26*	-0.62	1.84	0.54
Peer rejection	1.97	0.34	7.20***	1.08	0.26	2.93***	1.04	0.30	2.82***	1.57	0.52	4.82**
Social hierarchy	-0.72	0.88	0.49	0.49	0.61	1.63	0.11	0.70	1.12	0.42	1.33	1.52
Classroom aggression	-0.19	0.26	0.83	-0.10	0.22	0.90	-0.14	0.23	0.87	0.20	0.25	1.22

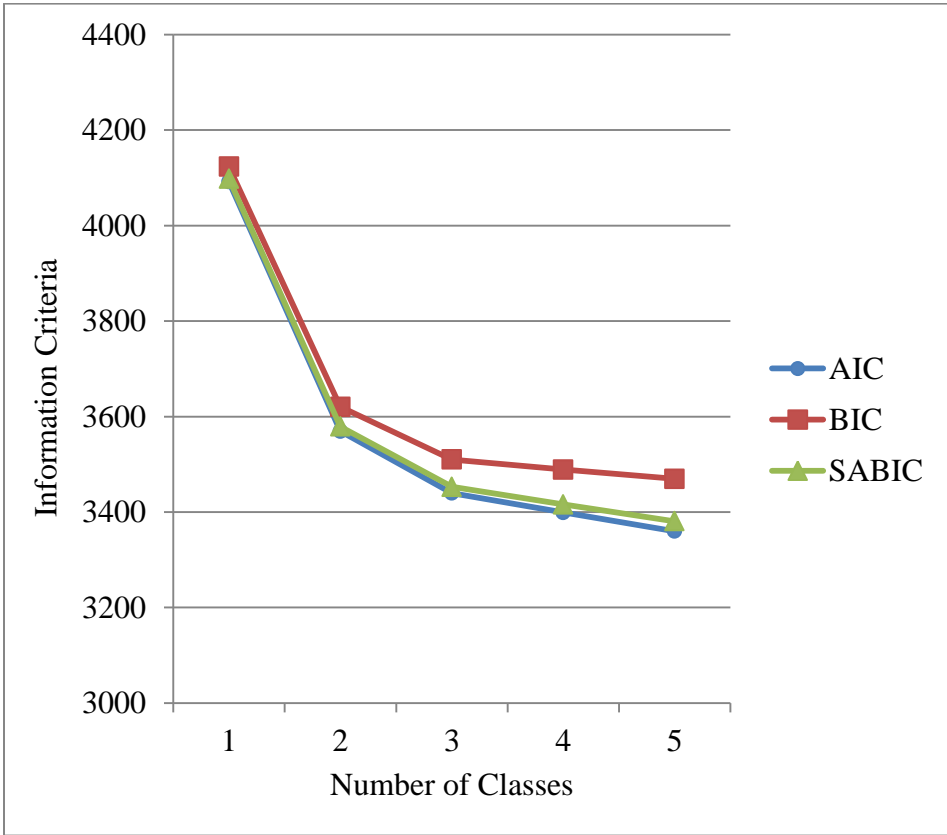
*Est* = Estimate, *SE* = Standard error, *OR* = Odds ratio, \**p* < .05, \*\**p* < .01, \*\*\**p* < .001

Table 22

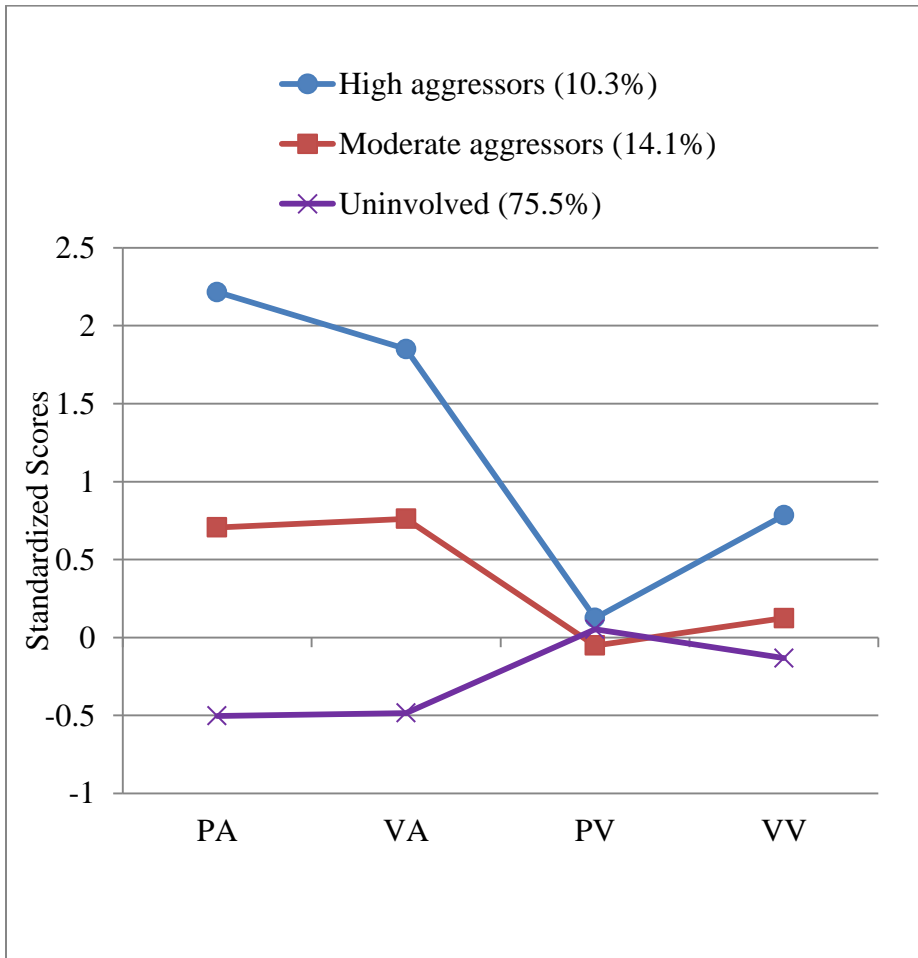
Conditional Latent Profile Analyses Examining Individual, Relational and Contextual Effects in Grade 11

	Aggressive-Victims			Relational Aggressive-Victims			Aggressors		
	<i>Est</i>	<i>SE</i>	<i>OR</i>	<i>Est</i>	<i>SE</i>	<i>OR</i>	<i>Est</i>	<i>SE</i>	<i>OR</i>
<i>Victims (ref)</i>									
Sex (male =1)	-0.66	1.10	0.52	-3.20	1.05	0.04**	0.96	1.36	2.61
Withdrawn	-0.40	1.53	0.67	-2.08	1.34	0.12	0.01	0.78	1.01
Emotion dysregulation	3.25	2.21	25.66	2.40	1.86	11.00	2.95	1.93	19.09
Peer rejection	0.40	0.51	1.50	-0.50	0.50	0.61	-0.54	0.55	0.59
Social hierarchy	-1.14	1.43	0.32	0.07	1.39	1.07	-0.31	1.30	0.74
Classroom aggression	-0.39	0.30	0.68	-0.30	0.30	0.74	-0.34	0.31	0.71
<i>Aggressors (ref)</i>									
Sex (male =1)	-1.62	1.30	0.20	-4.16	1.30	0.02***			
Withdrawn	-0.41	1.48	0.66	-2.09	1.29	0.12			
Emotion dysregulation	0.30	1.46	1.34	-0.55	0.92	0.58			
Peer rejection	0.94	0.39	2.55*	0.04	0.35	1.04			
Social hierarchy	-0.83	0.84	0.43	0.38	0.87	1.46			
Classroom aggression	-0.05	0.32	0.95	0.04	0.32	1.04			
<i>Relational aggressive-victims (ref)</i>									
Sex (male =1)	2.54	0.99	12.67*						
Withdrawn	1.68	1.68	5.36						
Emotion dysregulation	0.85	1.31	2.33						
Peer rejection	0.90	0.35	2.46**						
Social hierarchy	-1.21	1.04	0.30						
Classroom aggression	-0.08	0.31	0.92						

*Est* = Estimate, *SE* = Standard error, *OR* = Odds ratio, *ref* = reference group; \**p* < .05, \*\**p* < .01, \*\*\**p* < .001



*Figure 1.* Plot of information criteria values from latent profiles analyses based on one-through five-class models in grade 1.



*Figure 2.* Three-class solution based on four indicators of aggression and peer victimization in grade 1. PA = physical aggression, VA = verbal aggression, PV = physical victimization, VV = verbal victimization.

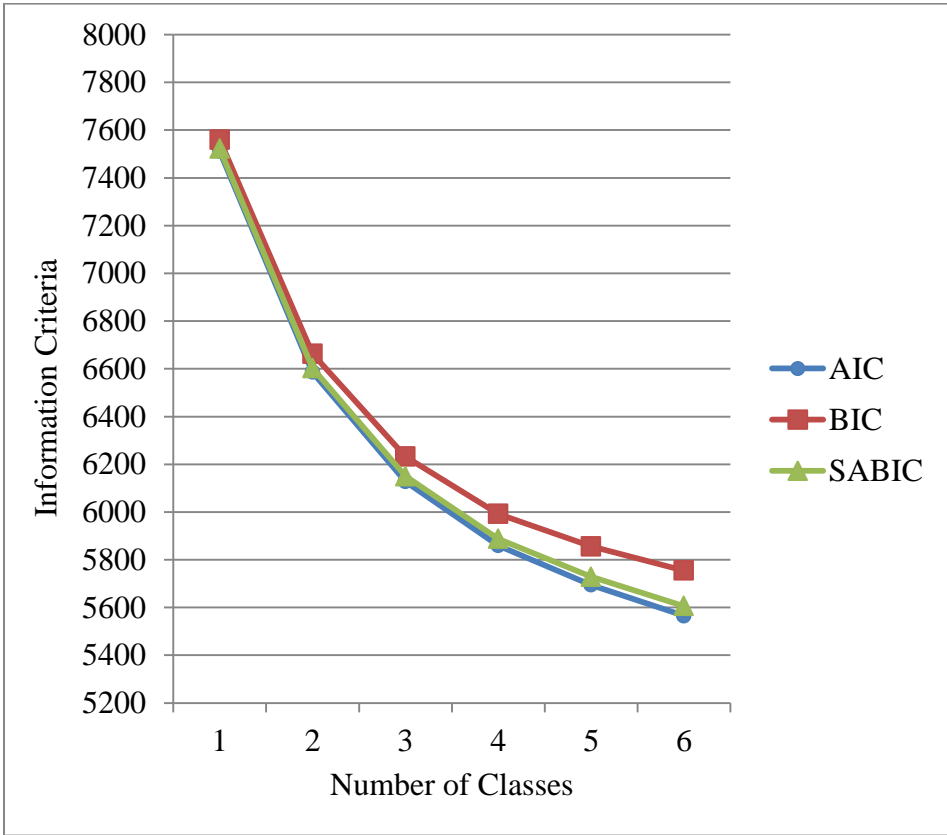
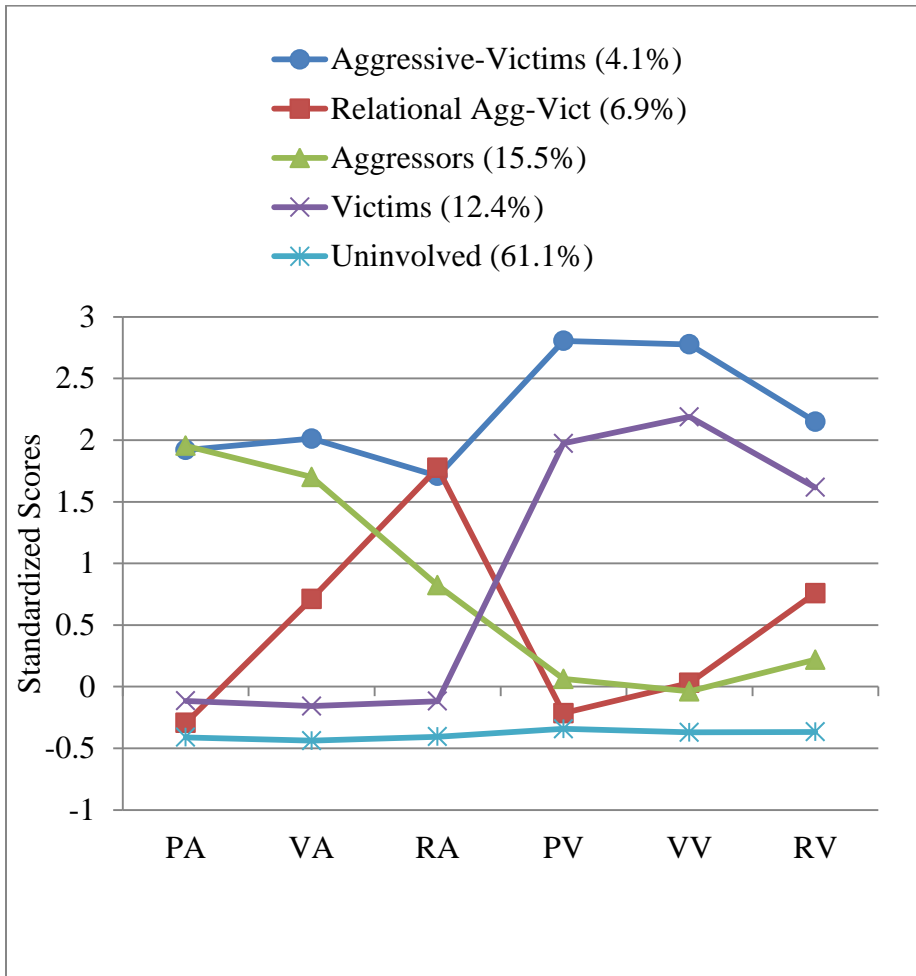


Figure 3. Plot of information criteria values from latent profiles analyses based on one-through six-class models in grade 5.



*Figure 4.* Five-class solution based on six indicators of aggression and peer victimization in grade 5. PA = physical aggression, VA = verbal aggression, RA = relational aggression, PV = physical victimization, VV = verbal victimization, RV = relational victimization.

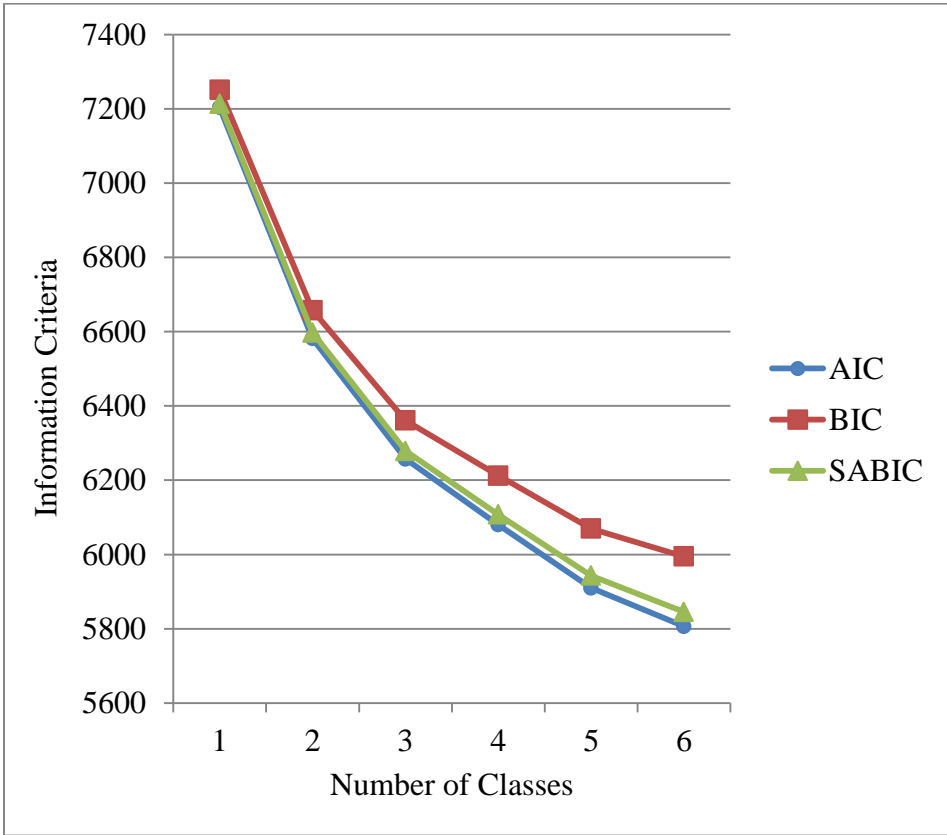


Figure 5. Plot of information criteria values from latent profiles analyses based on one-through six-class models in grade 8.



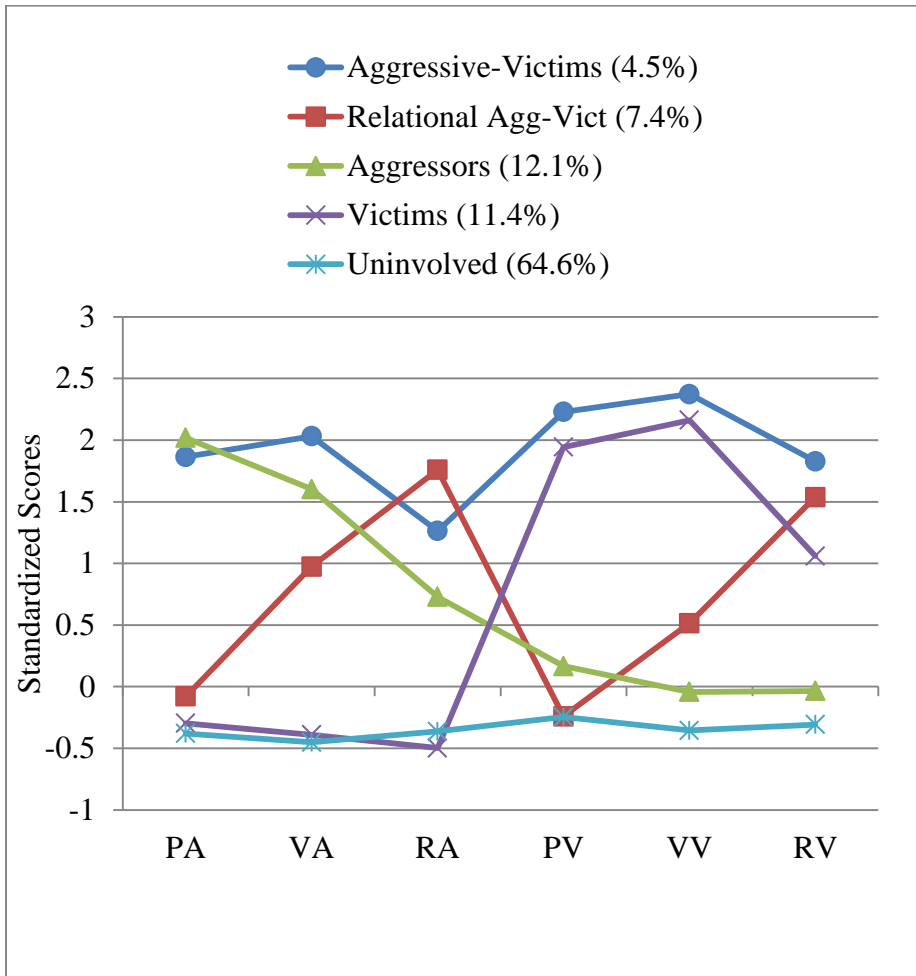
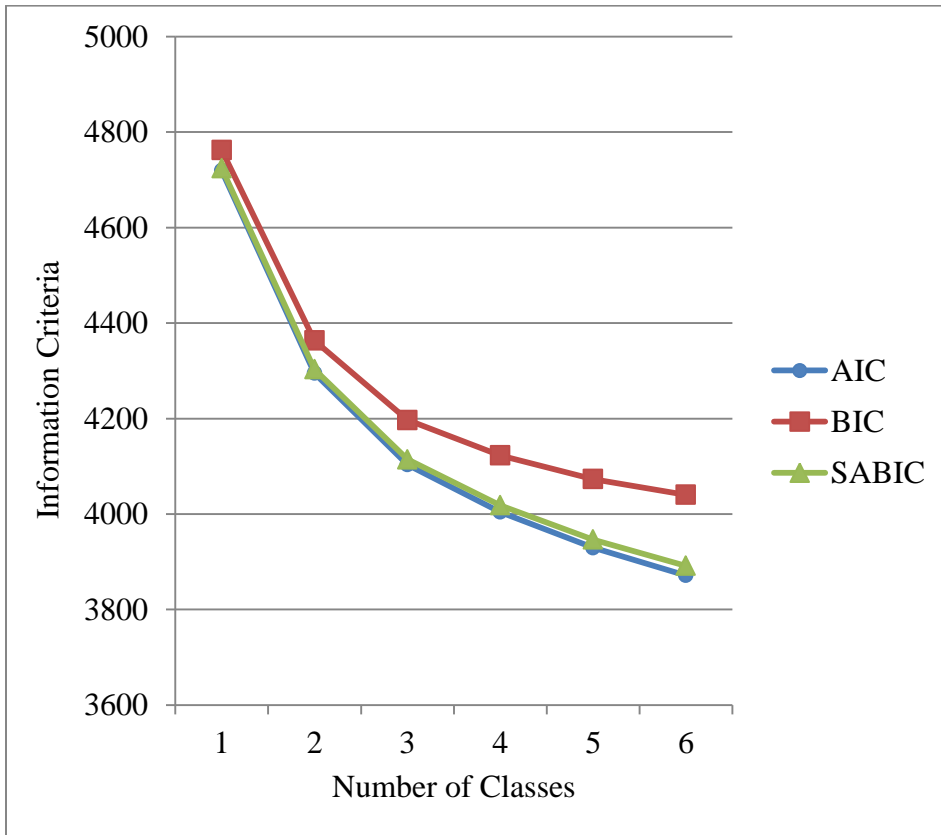


Figure 6. Five-class solution based on six indicators of aggression and peer victimization in grade 8. PA = physical aggression, VA = verbal aggression, RA = relational aggression, PV = physical victimization, VV = verbal victimization, RV = relational victimization.



*Figure 7.* Plot of information criteria values from latent profiles analyses based on one-through six-class models in grade 11.

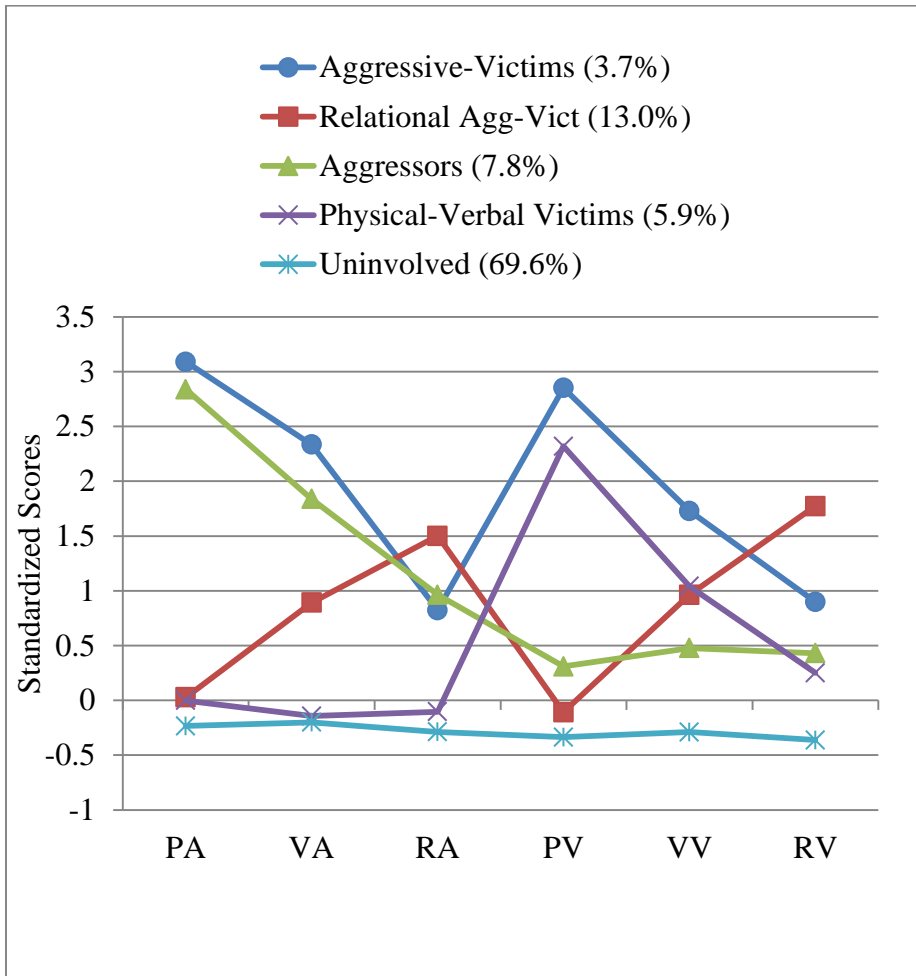


Figure 8. Five-class solution based on six indicators of aggression and peer victimization in grade 11. PA = physical aggression, VA = verbal aggression, RA = relational aggression, PV = physical victimization, VV = verbal victimization, RV = relational victimization.