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Social and emotional adjustment across aggressor/victim subgroups: Do aggressive-victims possess unique risk?

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SOCIAL AND EMOTIONAL ADJUSTMENT ACROSS AGGRESSOR/VICTIM SUBGROUPS: DO AGGRESSIVE-VICTIMS POSSESS UNIQUE RISK?

A thesis submitted in partial fulfillment of the requirements for the degree of Master of Science in Clinical Psychology at Virginia Commonwealth University.

by

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Abstract

SOCIAL AND EMOTIONAL ADJUSTMENT ACROSS AGGRESSOR/VICTIM SUBGROUPS: DO AGGRESSIVE-VICTIMS POSSESS UNIQUE RISK?

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A thesis submitted in partial fulfillment of the requirements for the degree of Master of Science in Clinical Psychology at Virginia Commonwealth University

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Both theory and empirical evidence support the existence of "aggressive-victims," a subgroup of youth who have been found to experience the negative outcomes associated with being an aggressor *and* being a victim. It remains unclear, however, if aggressive-victims possess risk factors that are unique from youth who are either aggressive or victimized. The present study sought to: (a) identify subgroups of seventh grade adolescents who differ in their patterns of aggression and victimization, (b) determine the number and structure of subgroups differ by school or sex, and (c) investigate whether aggressive-victims differ from all other subgroups in their social and emotional functioning. Secondary analyses were conducted on baseline data from 984 seventh grade adolescents participating in a randomized controlled trial evaluating an expressive writing intervention. Latent class analysis (LCA) identified four subgroups of adolescents representing predominant-aggressors, predominant-victims, aggressive-victims, and youth with limited involvement. This pattern was consistent across sex and across schools that differed in the demographics of the adolescents. There was a significant main effect of aggression for all outcome variables, such that youth in the aggressive subgroups (i.e., predominant-aggressors, aggressive-victims) exhibited greater impairment in their social and emotional functioning than youth in the non-aggressive subgroups (i.e., predominant-victims,

limited involvement). There was also a significant main effect of victimization on self-reports of depression and dysregulated anger expression. There was a small but significant Aggression x Victimization interaction for beliefs supporting reactive aggression, with predominant aggressors holding stronger beliefs than aggressive-victims. The findings indicate that aggressive victims are highly similar to predominant-aggressors and do not possess any unique characteristics beyond their pattern of involvement in both aggression and victimization. Previous researchers have emphasized the importance of developing preventive interventions that target the specific needs of distinct subgroups. Further evidence of unique differences in risk factors is needed to support prevention and intervention efforts that are tailored to meet the specific needs of aggressive-victims. Future research should consider addressing methodological limitations of the present study, such as by examining continuous indicators, including additional indices of social and emotional functioning, or investigating differential item functioning.

Social and Emotional Adjustment Across Aggressor/Victim Subgroups: Do Aggressive-Victims Possess Unique Risk?

An extensive body of research has linked involvement in aggressive behavior as either the perpetrator or victim with numerous short- and long-term consequences. How youth behave in social situations is influenced by a variety of factors, such as beliefs about aggression, emotion regulation, and social competence. Although existing research provides some insight into these factors, researchers have focused primarily on the characteristics that differentiate youth who are aggressive and youth who are victims of aggression. In doing so, studies have overlooked the possibility that youth may be both a perpetrator and victim of aggression and that such youths may have a distinct set of risk and protective factors.

First described by Olweus (1978) as "provocative victims," aggressive-victims are theorized to be at the highest risk for future maladjustment and involvement in violence, as their psychosocial adjustment is believed to be worse than that of youth who are mostly aggressive or mostly victimized (Schwartz, Proctor, & Chien, 2001). Theoretical conceptualizations of aggressive-victims portray them as emotionally dysregulated, socially unskilled youth who display aggressive behavior that is reactive and impulsive (Schwartz et al., 2001). Whereas predominantly victimized youth also are thought to lack social skills, they are conceptualized as being more socially withdrawn and anxious than aggressive-victims (Schwartz et al., 2001). Conversely, prototypical conceptualizations of predominantly aggressive youth portray them as socially skilled, popular, and methodical in their use of aggression.

Whereas aggressors and victims both experience unique and adverse outcomes, aggressive-victims may experience negative outcomes associated with being an aggressor *and* being a victim. Findings of a meta-analysis of 153 studies indicated that aggressive-victims were

similar to predominantly aggressive youth in that they were negatively influenced by peers and similar to predominantly victimized youth in that they were rejected by their peers (Cook, Williams, Guerra, Kim, & Sadek, 2010). Further, whereas predominantly aggressive youth had negative other-related cognitions and predominantly victimized youth had negative self-related cognitions, aggressive-victims had negative attitudes and beliefs about both themselves and others (Cook et al., 2010). Aggressive-victims also exhibit comorbid externalizing and internalizing problems, whereas youth who are predominantly-aggressive exhibit externalizing behavior and those who are predominantly-victimized have high levels of internalizing symptoms (Cook et al., 2010; Toblin, Schwartz, Gorma, & Abou-ezzeddine, 2005). Taken together, these findings suggest that aggressive-victims have a pattern of adjustment that overlaps with both predominantly-aggressive and predominantly victimized youth. It remains unclear, however, if aggressive-victims possess risk factors that are unique from youth who are either aggressive or victimized.

A better understanding of the unique factors that distinguish aggressive-victims from other youth involved in aggression can inform interventions. Universal intervention programs target a broad population, such as all adolescents within a school (Farrell, Henry, & Bettencourt, 2013). A universal intervention targeting risk factors for aggression would hypothetically reduce aggressive behavior, and thus reduce victimization. The intervention is likely to benefit aggressive-victims as well if they simply share risk factors with youth who are either aggressive or victimized. However, the intended effects of the intervention may not be observed among aggressive-victims if they possess a set of risk factors that is distinct from other aggressive or victimized youth. To that end, identifying risk factors that vary across subgroups of youth can guide the development of selective interventions that are sensitive to the specific needs of

subgroups (Farrell & Camou, 2006). The creation of more focused and specific interventions for the prevention and treatment of problem behaviors is critical because "the greatest reduction will likely be realized only if the right program is offered to the right individuals" (Lanza & Rhoades, 2013, p.159). It has been suggested that aggressive-victims are at the greatest risk of maladjustment due to the combination of poor emotion regulation, inadequate social skills, and their use of aggression in a reactive and impulsive manner (Schwartz et al., 2001). The purpose of this study was to identify patterns of aggression and victimization among middle school adolescents, and to determine how subgroups defined by these patterns differ in their social and emotional functioning. To that end, the present study also sought to determine whether aggressive-victims possess risk factors that are unique from all other subgroups.

Literature Review

Patterns of Aggression and Victimization

Several studies have provided support for differentiating subgroups based on patterns of aggression and victimization, although the prevalence rates of these subgroups vary widely across studies (Schwartz et al., 2001). In general, findings support four distinct subgroups: (a) youth who report little to no involvement in aggression and peer victimization ("well-adjusted", "socially adjusted", or "non-involved"), (b) perpetrators of aggression who do not experience victimization themselves ("predominantly aggressive youth", "nonvictimized aggressors", or "bullies"), (c) victims of aggression who do not engage in aggressive behaviors ("predominantly-victimized" or "passive victims"), and (d) youth who are both victimized by their peers and perpetrate aggression ("aggressive-victims" or "bully victims"; Bettencourt & Farrell, 2013; Lovegrove, Henry, & Slater, 2012; Schwartz et al., 2001). In a review of the literature on subgroups of early and mid-adolescents that differ in their rates of aggression and victimization,

Schwartz et al. (2001) found that prevalence estimates across 10 studies using self-report measures ranged from approximately 2% to 29% for aggressive-victims, 6% to 22% for predominantly victimized youth, and 5% to 24% for predominantly aggressive youth. A probable reason for the wide range of prevalence estimates is the sizable variation in the criteria used to classify subgroups across studies, making it difficult to interpret or compare findings.

Many studies examining aggressor/victim subgroups have defined the subgroups using arbitrary cutoff methods. For example, Graham, Bellmore, and Mize (2006) categorized youth as aggressive-victims if both their aggression scores and victimization scores were 0.75 standard deviations above the mean. O'Brennan, Bradshaw, and Sawyer (2009) defined subgroups based on the reported frequency of involvement in aggression and victimization, such that youth were classified as aggressive-victims if they reported both being victimized and being aggressive toward others two or more times in the past month. Studies comparing subgroups identified through latent class analysis (LCA) to subgroups defined by cutoff points demonstrated the lack of congruency between methods in terms of the percentage of the sample categorized into each subgroup, the degree of various types of aggression and victimization displayed by each subgroup, and the relation between subgroups and outcomes (Giang & Graham, 2008; Yang, Li, & Salmivalli, 2016).

Person-centered approaches such as LCA have been used in recent research to more accurately distinguish subgroups of aggressive and victimized youth. LCA is a method of empirically defining subgroups (i.e., classes) based on individual response patterns, such that individuals within a subgroup have similar response patterns that are distinct from other subgroups (McCutcheon, 1987; Collins & Lanza, 2010). LCA addresses several challenges to subgroup analyses, such as arbitrary methods to define groups, high Type I error rates, lower

statistical power that may vary across subgroups, and the inability to examine higher-order interactions (Lanza & Rhoades, 2013). Another reason LCA is an advantageous method for subgroup analyses relative to cutoff points is that the uncertainty of membership in a subgroup can be considered by examining the posterior probability of each individual falling into the most likely latent class (Wang & Hanges, 2011). Lanza and Rhoades (2013) promoted the use of LCA to identify risk factors that can be used to inform interventions targeted toward individuals with the poorest outcomes and to examine differential treatment effects.

A search of the literature identified five studies that have used LCA to examine patterns of aggression and victimization across early adolescents. Among a predominantly African American sample of 502 adolescents at three urban middle schools, Bettencourt and Farrell (2013) identified four subgroups using binary indicators of physical and nonphysical aggression and overt victimization: *aggressive-victims* (12%), *predominantly victimized* (14%), *predominantly aggressive* (33%), and *well-adjusted* (41%) youth. Bettencourt, Farrell, Liu, and Sullivan (2013) examined latent classes of victimization and aggression among youth from one rural and two urban middle schools. The majority of the urban youth were African American and eligible to receive free or reduced-price lunches, whereas the youth from the rural school were primarily Caucasian and less than one quarter were eligible for subsidized lunches. Using data collected in the Fall of sixth grade and the Spring of seventh grade, latent class analyses conducted with the same indicators as Bettencourt and Farrell (2013) identified the same four subgroups. Different latent class prevalence rates were observed across sixth and seventh grade, respectively: *aggressive-victims* (21%; 24%), *predominantly victimized* (25%; 15%), *predominantly aggressive* (17%; 21%), and *well-adjusted* (37%; 39%) youth (Bettencourt et al., 2013). Among a predominantly (58%) Caucasian sample of over 3,000 seventh and eighth grade

adolescents from 20 middle schools across the United States, Lovegrove et al. (2012) identified four subgroups based on six binary indicator variables representing adolescents' self-reported involvement in bullying: *bullies* (13%), *bully/victims* (13%), *victims* (15%) and *noninvolved* (59%).

Two studies identified subgroup structures that were inconsistent with the traditional four subgroups seen in prior research (i.e., predominantly aggressive youth, aggressive-victims, predominantly-victimized, limited involvement). Giang and Graham (2008) conducted an LCA with six continuous indicators based on peer nominations of physical, verbal, and relational aggression and victimization in a sample of over 2,000 sixth grade adolescents from ethnically diverse public middle schools. They found a five-class solution best fit the data, with two subgroups of aggressive-victims— *highly-aggressive aggressive-victims* (5%) and *highly-victimized aggressive-victims* (3%). Giang and Graham (2008) found more youth in the *socially adjusted* subgroup (75%) relative to the findings of Lovegrove et al. (2012), Bettencourt et al. (2013), and Bettencourt and Farrell (2013), and fewer youth in the *aggressor* (10%) and *victim* (7%) subgroups. Williford, Brisson, Bender, Jenson, and Forrest-Bank (2011) identified three subgroups among a predominantly racial and ethnic minority sample of approximately 300 sixth grade adolescents: *victims* (22%), *aggressor victims* (27%), and *uninvolved* (51%). Compared with the latent class prevalence rates of the sixth grade sample analyzed by Bettencourt et al. (2013), Williford et al. (2011) classified a greater proportion of youth in the uninvolved subgroup.

Overall, the majority of studies have found support for a four-class solution with the following subgroups: (a) predominantly-aggressive, (b) aggressive-victims, (c) predominantly-victimized, and (d) limited involvement. These findings are consistent with the four subgroups

that have been supported by prior theory and research (e.g., Schwartz et al., 2001). Interestingly, Giang and Graham (2008) distinguished between two subgroups of aggressive-victims that differed in the frequency of the aggression and victimization they reported. The primary difference between the two aggressive-victim subgroups was their degree of social adjustment. Although both subgroups experienced greater peer rejection than all other groups, highly-victimized aggressive-victims were more rejected than highly-aggressive aggressive-victims. Additionally, highly-aggressive aggressive-victims and predominantly aggressive youth were perceived as most cool, whereas highly-victimized aggressive-victims and victims were the least cool. Given that these subgroups independently accounted for a small percentage of the sample and did not differ on the other six predictors examined, it is unclear whether these two aggressive-victim subgroups differ beyond the main effect of aggression that appears to have influenced the differences in their perceived coolness.

It is notable that many previous studies examining subgroups of aggressive and victimized youth have specifically sought to examine bullying rather than aggressive behavior more broadly (e.g., Lovegrove et al., 2012). Bullying is considered a more severe form of aggression in which the perpetrator intentionally targets a victim repeatedly over time and has or is perceived to have power over the victim in terms of social status, physical strength, or a combination of factors (Olweus, 1993). In a meta-analysis of 153 studies that examined predictors of aggressor/victim subgroups, 52% of studies measured bullying with items that included behavioral descriptors of aggression, and the remaining studies measured bullying with items that specifically referred to bullying (“Have you ever bullied someone?”) or provided a definition and asked adolescents if they had engaged in related behaviors (“This is what bullying is. Have you ever done that or has that ever happened to you?”; Cook et al., 2010). Results

indicated that the approach used to measure bullying (i.e., labels or definitions versus behavioral descriptions of aggression) did not moderate the relations between various predictor variables and subgroup membership. This suggests that these measurement differences did not reliably distinguish bullying from other forms of aggression in terms of predictors. Thus, throughout the remainder of this paper, the term aggression is used to refer to a broader range of aggressive behaviors including bullying.

Sex and Gender Differences in Subgroup Membership

Previous studies have differed in their findings regarding sex differences in physical and relational aggression and victimization. Although male adolescents and female adolescents may share similar environmental risk factors, sex and gender-normative behaviors may evoke and elicit different responses from the social environment (Giles & Heyman, 2005). In fact, certain gender-normative beliefs, such as decreased acceptance of female adolescents' engagement in physical aggression, may act as protective factors. Accordingly, some studies have found that male adolescents are more likely to engage in physical aggression and more severe delinquent behaviors than their female counterparts (Card, Stucky, Sawalani, & Little, 2008). Male adolescents also are more likely to be victimized through physical aggression (Casper & Card, 2016). However, these sex differences vary by age and culture, and research findings are equivocal (Card et al., 2008; Casper & Card, 2016). There is evidence to suggest that the prevalence of delinquency and overt aggression among female adolescents has increased over time, narrowing the gap between male and female levels of aggression (Nichols, Graber, Brooks-Gunn, & Botvin, 2006). Further, meta-analytic findings suggest that male and female adolescents do not differ on their levels of relational aggression and victimization (Archer, 2004; Card et al., 2008; Casper & Card, 2016). These findings are limited in that researchers have examined

aggression and victimization separately, and thus could not investigate sex differences among aggressive-victims.

Studies examining patterns of aggression and victimization have also yielded mixed findings with regard to sex and gender differences in subgroup membership. Bettencourt et al. (2013) found that boys and girls had a similar probability of being classified as predominantly aggressive youth. Boys were less likely than girls to be in the aggressive-victims subgroup in seventh grade, but not in the sixth grade (Bettencourt et al., 2013). In their review of the literature, Schwartz et al. (2001) found boys were generally overrepresented in the aggressive subgroups (i.e., predominantly aggressive youth and aggressive-victims). Lovegrove et al. (2012) found that boys were more likely to be in one of the victimized subgroups relative to the limited involvement subgroup. Williford et al. (2011) and Bettencourt and Farrell (2013) did not find evidence of gender differences in subgroup membership. These two studies focused specifically on primarily racial and ethnic minority samples of youth attending urban public schools characterized by high rates of problem behavior, whereas Lovegrove et al. (2012) analyzed a mostly White (58%) sample of youth from 40 middle schools in 20 communities that varied in urbanicity and socioeconomic status. It may be that youth living in communities or attending schools in which aggressive behavior is more prevalent may use aggression as an adaptive strategy to protect themselves. Overall, the lack of consistency in the aforementioned findings warrants additional studies exploring sex or gender differences across subgroups. Studies are needed that analyze samples that are diverse in terms of race/ethnicity, income, and environmental characteristics (e.g., prevalence of community violence), as these factors may influence gender socialization and norms around aggression.

Emotional Adjustment

Emotion regulation. Emotion regulation is a complex process responsible for initiating, inhibiting, or modulating one's emotions in response to a particular situation (Gross, 1998). Thompson (1994) defines emotion regulation as "extrinsic and intrinsic processes responsible for monitoring, evaluating, and modifying emotional reactions, especially their intensive and temporal features, to accomplish one's goals" (pp. 27-28). Emotion regulation involves processes that determine how quickly emotions are expressed in response to an emotion-eliciting stimulus, how long they last, and how slowly they dissipate (i.e., emotional lability), and processes that affect the intensity with which emotions are expressed behaviorally (Cole, Martin, & Dennis, 2004; Eisenberg & Spinrad, 2004). Such processes are important because they use emotion to support adaptive and organized behavioral strategies (Cicchetti, Ackerman, & Izard, 1995). Failure to regulate emotion is evidenced by an adolescent's lack of ability to inhibit overwhelming emotions or by using emotion control processes that result in maladaptive behavior (e.g., links between affect and cognition that motivate or organize socially inappropriate behavior; Cicchetti et al., 1995). Thus, emotion regulation is critical to the mastery of numerous competencies, such as effective social skills (Blair et al., 2015).

The ability to regulate one's emotions is particularly important during early adolescence, as it is during this developmental period that youth experience rapid changes in cognitive, social, and emotional skills (Rose & Rudolph, 2006; Steinberg, 2005). From middle childhood into adolescence, the ability of youth to regulate their emotions increases. Additionally, emotion regulation decisions become more strongly influenced by adolescents' motivation, the type of emotion, and various social-contextual factors (Zeman, Cassano, Perry-Parrish, & Stegall, 2006). Early adolescence is a period in which the importance of peer relationships is emphasized. During adolescence, relationships with peers more so than family relationships serve as a source

of knowledge regarding emotional experiences, norms for expression, and emotion regulation strategies during adolescence. More highly developed executive function skills also allow early adolescents to employ cognitive emotion regulation strategies and to be more controlled in their expression of emotions (Thompson & Goodman, 2010). On the other hand, these new cognitive capabilities can be challenged by the shifting roles and expectations that occur in early adolescence, accompanied by heightened levels of emotion and decreased reliance on caregivers for help in regulating emotions (Riediger & Klipker, 2014). Despite the importance of emotion regulation in early adolescence, prior research primarily has focused on infancy and early childhood (Zeman et al., 2006).

Within a developmental psychopathology framework, deviation from a normative developmental trajectory increases individuals' risk for psychopathology. Self-regulation of emotion represents a critical developmental task throughout childhood. Emotion regulation is associated with social competence (Blair et al., 2015; Denham et al., 2003; Rydell, Berlin, & Bohlin, 2003) and both internalizing (Kim & Cichetti, 2010) and externalizing problems (Eisenberg et al., 2001). Difficulties in adaptive emotion regulation can potentially signal social and behavioral problems later in development (Blair et al., 2015; Carlo, Crockett, Wolff, & Beal, 2012). For example, previous studies have found that preschool-aged children who are unable to develop adaptive strategies for emotional self-regulation are at a higher risk for numerous adverse outcomes, including diminished social competence and externalizing problems (Denham et al., 2003; Blandon, Calkins, & Keane, 2010).

Both the under- and over-regulation of emotion are likely to be associated with aggressive behavior (see Roberton, Daffern, & Bucks, 2012 for a review). Under-regulation occurs when an individual is unable to contain difficult emotional experiences sufficiently to

continue to engage in goal-directed behaviors and inhibit impulsive behaviors. The link between under-regulation and aggression is exemplified by anger, such that individuals who are unable to appropriately contain their anger may act aggressively. Similarly, individuals who are unable to effectively acknowledge or display an emotion may engage in the avoidance and suppression of that emotion. According to Roberton and colleagues (2012), the over-regulation of difficult emotion experiences (e.g., peer victimization) can influence aggressive behavior by depleting available cognitive and social resources, increasing physiological arousal, and reducing inhibition (Roberton et al., 2012). This may explain why victimized children experience higher levels of negative arousal and emotional reactivity than do other children (Kochenderfer-Ladd, 2004).

Although theoretical conceptualizations of aggressive-victims suggest they are the most emotionally dysregulated subgroup, previous findings have been mixed. Garner and Hinton (2010) examined emotion regulation among a racially and economically diverse sample of youth ages 7 to 11 attending an after-school program. Findings indicated that aggressive-victims and predominantly aggressive youth had poorer emotion regulation skills than predominantly-victimized and youth with limited involvement. However, only six children were identified as aggressive-victims using standard deviation cut-offs, limiting the generalizability of the findings.

Two studies have examined emotion regulation across aggressor/victim subgroups based on peer nomination data. Toblin and colleagues (2005) examined several social cognitive and behavioral attributes of aggressive-victims in a primarily Hispanic/Latino sample of 240 fourth and fifth grade adolescents. Results indicated that aggressive-victims were more emotionally dysregulated and hyperactive than all other subgroups and had the lowest GPAs. Schwartz (2000) analyzed a predominantly racial and ethnic minority sample of 354 fourth through sixth

grade adolescents. They found that aggressive-victims exhibited greater emotion dysregulation than predominantly victimized youth and youth with limited involvement. However, aggressive-victims did not differ from predominantly aggressive youth in terms of emotion regulation. These studies were relatively similar in that the sample included youth from similar grades that were attending urban, public elementary schools. Additionally, Schwartz (2000) and Toblin et al. (2005) used teacher reports of the Emotion Regulation Checklist (Shields & Ciccheti, 2001), a frequently used measure of emotion regulation and emotion lability/negativity. The lack of consistency in findings may be due to the relative number of youth in each subgroup, as aggressive-victim subgroups in both studies contained less than 30 youth.

Additional research is needed to clarify how emotion regulation predicts subgroup membership due to the mixed findings and methodological inconsistency in studies examining the relation between emotion regulation and membership in aggressor/victim subgroups. Specifically, studies are needed that classify subgroups based on self-report data with large sample sizes. It also may be useful to examine emotion lability and negativity separately from emotional self-regulation. Studies that collected measures of these constructs frequently combine them to create a composite score (e.g., Schwartz, 2000; Toblin, 2005). Emotion lability is a distinct aspect of emotion regulation that involves how quickly youth respond to emotion-eliciting stimuli and how long it takes to recover from emotional reactions, particularly negative emotional reactions (Shields & Cicchetti, 1997).

Anger regulation. There is evidence to suggest that both aggressors and victims have difficulty regulating the expression of negative emotions such as anger (Camodeca & Goossens, 2005; Champion & Clay, 2007; Kochenderfer-Ladd, 2004; Shields & Cicchetti, 2001). Anger dysregulation is linked to higher rates of aggression both concurrently and longitudinally (e.g.,

Card & Little, 2006; McLaughlin, Hatzenbuehler, Mennin, & Nolen-Hoeksema, 2011; Sullivan, Helms, Kliewer, & Goodman, 2010; Trentacosta & Shaw, 2009). On the other hand, children who frequently are angry at home and school or who frequently exhibit intense anger within the classroom context are more likely than other children to be chosen as victims (Hanish et al., 2004). These findings are in line with the theoretical conceptualization of aggressive-victims as emotionally dysregulated and socially inept. It may be that some youth who are victimized become overwhelmed with feelings of anger, anxiety, and sadness, which could overwhelm their capacity for emotion regulation, thus leading them to be aggressive in response to provocation (Schwartz & Proctor, 2000; Schwartz et al., 2001).

Several studies have examined how anger regulation and the behavioral expression of anger differs across subgroups of youth based on their patterns of aggression and victimization. Marini, Dane, Bosacki, and YLC-CURA (2006) contrasted indirect aggressor/victim subgroups with direct aggressor/victim subgroups in a sample of 7,000 Canadian mid- to late-adolescents. Whereas direct aggression includes observable acts of physical or verbal aggression, indirect aggression refers to more covert acts of aggression such as spreading rumors or social ostracism. The subgroups were defined using standard deviation cutoffs. Direct aggressive-victims (7.1%) were more prevalent than indirect aggressive-victims (2.7%), although the prevalence rates of predominantly-aggressive and predominantly-victimized subgroups were comparable across direct and indirect subgroups. Marini et al. (2006) examined angry-externalizing coping across subgroups. A notable limitation of this study is that angry-externalizing coping was measured using only one item: “When things happen, I get angry and hit something or yell at someone.” With this limitation in mind, the findings indicated that youth who act aggressively through direct means are more likely to hit something or yell at someone in an emotion-eliciting situation

than are youth who are the victims of direct aggression, whereas the scores for direct aggressive-victims fell between those two subgroups. Among subgroups based on involvement in indirect aggression, youth with limited involvement had the lowest mean score on the item assessing angry-externalizing coping. No other differences were observed across the indirect aggressor/victim subgroups.

Camodeca, Goossens, Schuengel, and Terwogt (2003) examined whether aggressor/victim subgroups differed in the way they responded to provocation among a sample of elementary school children in the Netherlands. Subgroups were defined using an 85th percentile cutoff, such that an individual would be classified as an aggressive-victim if they scored above the 85th percentile on measures of both aggression and victimization. Compared with youth with limited involvement, aggressive-victims were found to attribute more blame, endorse retaliatory strategies, and report higher levels of anger. However, aggressive-victims did not differ from predominantly aggressive youth and predominantly victimized youth on these measures. These unexpected findings may be due to the developmental level of the sample, which had a mean age of eight years old. Children at this age typically do not yet have the cognitive capabilities that allow for theory of mind and other advanced social skills that are developed in early adolescence.

Two studies have examined anger-related constructs across aggressor/victim subgroups identified through latent class analysis. Bettencourt et al. (2013) found that youth with high levels of anger dysregulation were more likely to be members of the predominantly-aggressive subgroup than all other subgroups and were more likely to be members of the aggressive-victims subgroup than the predominantly-victimized or limited involvement subgroups. Lovegrove et al. (2012) found that adolescents had a higher likelihood of being in the predominantly-aggressive

and aggressive-victim subgroups if they reported more feelings of anger toward others. An increase of one standard deviation in the feelings of anger toward others scale significantly increased the odds of membership in the predominantly-aggressive subgroup by 88% and the aggressive-victim subgroup by 77% (Lovegrove et al., 2012). These findings suggest that both predominantly aggressive youth and aggressive-victims exhibit elevated levels of anger in terms of anger toward others and behavioral displays of anger dysregulation.

Taken together, empirical work to date on feelings of anger toward others, anger regulation, and anger coping across aggressor/victim subgroups does not fully align with theoretical conceptualizations of predominantly aggressive youth and aggressive-victims. Aggressive-victims have been described as "ineffectual aggressors" who become involved in emotionally charged exchanges with their peers, but consistently lose conflicts amid displays of anger, frustration, and poorly modulated emotional distress (Perry, Perry, & Kennedy, 1992). On the other hand, "effectual aggressors" (i.e., predominantly aggressive youth) can use controlled aggression as an instrumental strategy during social exchanges. Perry et al. (1992) argued that these youths are distinct from ineffectual aggressors because their behavior is not driven by underlying states of intense anger but, instead, is an efficacious social strategy. However, there is evidence to suggest that both aggressive-victims and predominantly aggressive youth exhibit difficulties regulating their feelings of anger. Accordingly, more intense anger and more retaliatory motivation are related to both youths' intentions to aggress in response to hypothetical provocation scenarios and the frequency of victimization they experience (Champion & Clay, 2007).

Depression. As a further manifestation and consequence of their difficulties modulating negative affective states, aggressive-victims also may experience internalized emotional distress.

Compared with all other subgroups, aggressive-victims are more likely to have two or more comorbid psychiatric disorders (e.g., depression, anxiety, substance use disorder; Kaltiala-Heino, Rimpelä, Rantanen, & Rimpelä, 2000) and receive more referrals for psychiatric consultation by parents and teachers (Kumpulainen et al., 1998). Several studies have specifically examined depressive symptoms across aggressor/victim subgroups, and an even larger body of empirical work has demonstrated the relation between peer victimization and depression (e.g., Reijntjes, Kamphuis, Prinzie, & Telch, 2010).

Several studies have examined depressive symptoms as a function of subgroup membership. Aggressive-victims exhibit higher levels of depressive and anxious symptoms than all other subgroups in some studies (Haynie et al., 2001; Kaltiala-Heino et al., 2000; Kumpulainen et al., 1998; Schwartz, 2000). In contrast, other studies have found that aggressive-victims differ from youth with limited involvement in terms of depressive symptoms, but do not differ from predominantly victimized youth (Austin & Joseph, 1996) or predominantly aggressive youth (Rigby, 1998; Toblin et al., 2005). Three studies were identified that found that aggressive-victims did not differ from youth with limited involvement in terms of their depressive symptoms (Bijttebier & Vertommen, 1998; Craig, 1998; Graham et al., 2006).

In a study using peer nomination procedures to identify aggressor/victim subgroups in an ethnically diverse sample of sixth grade adolescents, Graham et al. (2006) found that aggressive-victims and predominantly victimized youth reported similarly elevated levels of depressive symptoms that were significantly greater than those reported by predominantly aggressive youth. However, they found that only predominantly victimized youth differed from youth with limited involvement (Graham et al., 2006). These findings were similar those of Marini et al. (2006), who identified subgroups based on involvement in direct aggression among a large sample of

Canadian adolescents. However, Marini et al. (2006) found that youth with limited involvement exhibited significantly lower levels of depressive symptoms than all other youth. Additionally, whereas 2% of the total variance in depression was associated with subgroup membership in the Graham et al. (2006) study, Marini et al. (2006) found that subgroup membership explained 12% of the total variance in depression.

Juvonen, Graham, and Shuster (2003) analyzed data from a mostly racial and ethnic minority sample of 1,985 sixth grade adolescents living in low socioeconomic status urban communities. Predominant victims had the highest level of depressive symptoms, followed by aggressive-victims. Both victimized subgroups differed from predominant-aggressors and youth with limited involvement in terms of their depressive symptoms, but did not differ from one another. A broadband measure of internalizing symptoms also was assessed across subgroups in this study. Predominantly victimized youth remained the most impaired group on this measure, and differed significantly from both predominantly aggressive youth and aggressive-victims. Interestingly, aggressive-victims and predominantly aggressive youth did not differ from each other in terms of internalizing problems. These differences may be due to the use of teacher-report for the internalizing problems measure, whereas depression was measured using self-report.

Two studies have examined depressive symptoms across latent classes of youth based on patterns of aggression and victimization. Giang and Graham (2008) found that highly-victimized aggressive-victims and highly-aggressive aggressive-victims did not differ from predominantly victimized youth. Highly-victimized aggressive-victims did however report higher levels of depressive symptoms than predominantly aggressive youth and youth with limited involvement. Additionally, predominantly victimized youth reported more depressive symptoms than youth

with limited involvement (Graham et al., 2008). Bettencourt et al. (2013) found that depressive symptoms were significantly related to latent class membership. Youth with high levels of depressive symptoms were almost four times more likely to be classified as an aggressive-victim compared with those classified as limited involvement. When dysregulated anger expression and anxiety were added to the model, the subgroups no longer differed on depression. As noted by the authors, this finding may be a function of the strong correlation between anxiety and depression.

These findings depict aggressive-victims as youth with difficulties in multiple domains of emotional adjustment, including emotion regulation more broadly, and anger regulation and depressive symptoms. However, most prior studies have found that aggressive-victims overlap with predominantly aggressive and/or predominantly victimized youth in these domains. Additional work is needed to explore these constructs within latent classes of aggressive and victimized youth, as only three studies were identified that have done so (Bettencourt et al., 2013; Lovegrove et al., 2012; Giang & Graham, 2008). Examining emotional adjustment across latent classes of youth will build on prior research and may provide insight as to whether aggressive-victims possess unique risk factors and thus require more specific and focused interventions.

Reactive and Instrumental Aggression

Aggressive-victims are theoretically distinct from predominantly aggressive youth in terms of the motivation underlying their aggressive behavior. Whereas predominantly aggressive youth are hypothesized to use aggression as an efficacious strategy for reaching social goals (i.e., instrumental aggression), the aggression displayed by aggressive-victims is characterized by impulsive and emotionally-charged behavior (i.e., reactive aggression; Schwartz et al., 2001).

Theoretical perspectives have emphasized the role of deficits in self-regulation among aggressive-victims and have hypothesized that poorly modulated anger and irritability underlies their aggressive behavior (Olweus, 1997; Schwartz, Dodge, Pettit, & Bates, 1997). Reactive aggression has been linked to peer rejection, victimization, poorly regulated emotional responses to provocation, impulsivity, and a tendency to misinterpret ambiguous behaviors as hostile provocation (see Card & Little, 2006 for meta-analysis; see Hubbard, McAuliffe, Morrow, & Romano, 2010 for review).

Aggressive-victims differ from predominantly victimized youth in their response to provocation. For example, Mahady-Wilton, Craig, and Pepler (2000) used observational coding of first through sixth grade children during interactions involving an aggressor and a victim. Results indicated that victims exhibited two primary coping styles: (a) problem-solving strategies aimed at deescalating and resolving conflict, and (b) aggressive strategies that perpetuated and escalated conflict with the aggressors (Mahady-Wilton et al., 2000). Despite being 13 times less likely than problem-solving approaches to deescalate the interaction, 43% of youth who were victimized were found to rely on aggressive strategies. Although most previous studies have relied on quantitative survey methods, these observational findings provide support for the prototype of aggressive-victims as youth that are victimized and act aggressively in response to provocation, rather than using a passive coping style that is more aligned with theoretical conceptualizations of victims as withdrawn, socially anxious, and submissive (Schwartz et al., 1997; Schwartz et al., 2001).

Several studies have examined reactive and instrumental aggression across subgroups of aggressive and victimized youth. Consistent with theoretical conceptualizations of aggressor/victim subgroups, the findings of Unnever (2005) suggest that aggressive-victims

engage in aggressive behavior both to respond to peer provocation (i.e., reactive aggression) and to achieve social goals (i.e., instrumental aggression). Aggressive-victims are thought to be socially unskilled and disliked by their peers, and it may be that they lack the skills to use instrumental aggression to effectively achieve their social goals. Unnever (2005) also found that aggressive-victims engaged in less instrumental aggression than predominantly aggressive youth, but more than predominantly victimized youth. In a study that relied on peer- and teacher-reports of reactive and instrumental aggression, Salmivalli and Nieminen (2002) found that aggressive-victims were the most aggressive subgroup in terms of both teacher- and peer-reported reactive and instrumental aggression. These findings question Schwartz et al.'s (1997) contention that predominantly aggressive youth should exhibit more instrumental aggression than aggressive-victims given that these youths are more likely to hold positive beliefs regarding the outcome of aggressive behavior.

Aggressive subgroups have been distinguished from non-aggressive subgroups (i.e., predominant victims, limited involvement) in their normative beliefs supporting aggression (Marini et al., 2006). Bettencourt and Farrell (2013) provided the only study identified from the literature review that examined beliefs about aggression across latent classes of youth based on patterns of aggression and victimization. They found significant differences in beliefs supporting the use of both reactive and instrumental aggression across subgroups with generally large effect sizes. Compared with both the predominantly-victimized and limited involvement subgroups, both aggressive subgroups reported more agreement with beliefs supporting the use of reactive and instrumental aggression. These findings do not support the theoretical conceptualization of aggressive-victims as reactively rather than instrumentally aggressive. Bettencourt and Farrell (2013) suggested that the lack of congruence may be due to the fact that beliefs about reactive

and instrumental aggression were measured, rather than reactive and instrumentally aggressive behaviors. However, it should also be noted that internalized beliefs and social information processing patterns depend on both context and culture, which may have implications for the findings given that the study focused on an urban, predominantly African American sample of youth from high-risk communities. The aggressive subgroups may have been socialized to believe that reactive and instrumental aggression can both be useful forms of aggression in certain situations, particularly given that exposure to violence is more prevalent in low-income, urban communities with high rates of violence (Bettencourt & Farrell, 2013; Farrell et al., 2008).

Overall, the findings of studies examining reactive and instrumental aggression across subgroups of aggressive and victimized youth are inconsistent. Theoretical conceptualizations of aggressive-victims portray them as reactively aggressive and socially unskilled, thus struggling to achieve social goals (e.g., popularity; Schwartz et al., 2001). It appears that aggressive-victims are indeed reactively aggressive, yet there is mixed evidence as to whether they are more reactively aggressive than predominantly aggressive and predominantly victimized youth. A similar dilemma is seen with instrumental aggression, as the findings are inconsistent regarding whether aggressive-victims and predominantly aggressive youth differ in their use of instrumental aggression.

The strategies used to define subgroups in these studies may have influenced the results. For example, whereas Unnever (2005) distinguished subgroups using cutoffs based on the frequency of aggressive behavior and peer victimization, Bettencourt and Farrell (2013) used latent class analysis to identify subgroups of youth who differ in their patterns of aggression and victimization. The strong main effect of aggression in beliefs supporting reactive and instrumental aggression demonstrated by Bettencourt and Farrell (2013) suggests that

aggressive-victims are not unique from all other subgroups in terms of their reactive and instrumental aggression. More research is needed to clarify whether aggressive-victims can be distinguished from all other groups in terms of their use of instrumental and reactive aggression.

It may be that frustration tolerance, rather than reactive aggression, is a more accurate measure of the emotion dysregulation and social-cognitive deficits that are theoretically typical of aggressive-victims and impair their ability to respond appropriately in social situations. Previous research indicates that frustration intolerance is related to anger and aggressive behavior among adolescents (Fives, Kong, Fuller, & Dryden, 2010). However, no studies were identified that examined frustration tolerance across aggressor/victim subgroups.

Social Adjustment

Aggressive-victims are theorized to be more emotionally dysregulated than other subgroups, and a growing body of research has underscored the importance of emotion regulation for adolescents' social skills. The ability to regulate one's own emotions is an important predictor of current and future social skills (Blair et al., 2015; Carlo et al., 2012; Eisenberg et al., 1997). Youth who are more competent in modulating their emotional reactions are likely to be able to use their social skills in a range of situations (Eisenberg, Fabes, & Spinrad, 2006). Given their hypothesized lack of proficiency in regulating their emotions, it logically follows that aggressive-victims would be socially inept and have difficulty modulating their emotional reactions in social situations, leading them to be reactively aggressive toward their peers. Accordingly, previous studies have found that aggressive-victims tend to provoke negative interactions (Andreou, 2001), have difficulty making friends (Olweus, 2003), and are disliked by their peers (Schwartz, 2000).

Aggressive-victims' lack of social skills may impair their ability to interpret social cues without bias and respond to others in nonviolent ways. For example, instrumental aggression, which is theorized to be typical of predominantly aggressive youth, likely requires a certain level of social intelligence to carry out successfully. Whereas aggressive-victims may support the use of instrumental aggression in response to problem situations (Bettencourt & Farrell, 2013), their lack of social skills may inhibit them from using instrumental aggression effectively to achieve social goals. In a study examining self-efficacy for aggression across aggressor/victim subgroups, Toblin et al. (2005) found that aggressive-victims differed from predominantly aggressive youth in that they were less confident in their ability to successfully enact an aggressive response when faced with a problem situation. Sutton, Smith, and Swettenham (1999) contended that some aggressive youth are likely to be socially intelligent and have superior theory of mind skills, thus enabling these aggressive youths to achieve social goals (e.g., popularity). This is consistent with the findings that predominantly aggressive youth are more preferred and less rejected than aggressive-victims (Juvonen et al., 2003; Shin, 2010; Veenstra et al., 2005).

Findings of previous research generally support the notion that aggressive-victims lack social skills, especially relative to predominantly aggressive youth and youth with limited involvement. Haynie and colleagues (2001) found that early adolescent aggressive-victims exhibited the lowest levels of social competence, self-control, and peer acceptance compared with all other subgroups. Yang, Li, and Salmivalli (2016) found that aggressive-victims had the poorest peer relationships of any subgroup. Schwartz (2000) found that aggressive-victims were more socially rejected than any other youth. Interestingly, aggressive-victims also exhibit more hyperactive and impulsive behaviors than all other subgroups (e.g., Schwartz, 2000; Toblin et al.,

2005). Schwartz (2000) hypothesized that other youth may find the impulsive and disruptive behaviors of aggressive-victims to be aversive. Further, in addition to emotion dysregulation, these behaviors may potentiate and maintain peer victimization given that aggressors may be more likely to victimize peers that will reward their provocation with displays of emotional distress and anger (Schwartz, 2000). This is consistent with the findings of studies that indicate that aggressive-victims are more disliked by their peers than predominantly aggressive and predominantly victimized youth (Toblin et al., 2005; Veenstra et al., 2005).

The results of two studies have indicated that aggressive-victims do not differ from predominantly victimized youth in terms of the quality or quantity of peer relationships. In a cross-national study from 25 countries, Nansel and colleagues (2004) found that aggressive-victims and predominantly victimized youth had poorer relationships with their classmates than nonvictimized subgroups. Similarly, Unnever (2005) found that aggressive-victims and predominantly victimized youth reported having a similar number of friends, and both victimized subgroups had fewer friends than predominantly aggressive youth. Despite these findings, the majority of studies have found that aggressive-victims have poorer social skill or are less accepted by their peers than other youth.

Statement of the problem

Aggressive-victims remain an important subgroup of youth for empirical study given their social and emotional maladjustment. However, it remains unclear whether and to what degree aggressive-victims differ uniquely from youth who are mostly aggressive or mostly victimized in terms of their adjustment. In almost all domains of social and emotional adjustment reviewed, prior research has demonstrated inconsistent findings. This is problematic given that

implications for interventions are dependent on whether aggressive-victims possess risk factors unique from all other subgroups.

One of the primary limitations of prior research in this area is the inconsistency in how aggressor/victim subgroups are identified. Studies that have examined emotional and social adjustment across subgroups have relied on different sources of information on involvement in aggression and victimization (e.g., peer nomination, self-report) using different measures (e.g., Olweus Bullying Questionnaire (Olweus, 1996, 2002), Problem Behavior Frequency Scale (Farrell, Thompson, Mehari, Sullivan, & Goncy, 2018), and different methods to categorize youth into subgroups (e.g., standard deviation cutoffs, LCA). The vast majority of studies in this research area have used arbitrary cutoff points to define groups, increasing the risk for classification error and inaccurate subgroup prevalence rates, which could influence findings when comparing outcomes across groups. Further, cutoffs are based on the distribution of the sample rather than the population (Farrell et al., 2013). In other words, an individual's level of aggression (e.g., high, moderate, low) is dependent on the overall level of aggression within their group. Although some studies have used a standard deviation adjustment to minimize the impact of this assumption (e.g., Juvonen et al., 2003), this does not eliminate the issue. When considered with the variation in sample characteristics (e.g., age, race/ethnicity, socioeconomic status), it is difficult to determine the potential source(s) of divergence that have led to the inconsistency in findings.

The first aim of the present study was to determine whether latent classes of seventh grade adolescents who differ in their patterns of aggression and victimization can be identified. To address limitations of previous work in this area, the present study used latent class analysis (LCA) to identify subgroups. LCA addresses the drawbacks of previous methods for classifying

subgroups. Cutoff methods often exclude a portion of the sample that does not meet criteria to be classified as predominantly-aggressive, aggressive-victims, predominantly-victimized, or limited involvement. Some studies have excluded more than 20% of their sample from analyses for this reason (e.g., Graham et al., 2006; Toblin et al., 2005). Previous studies using cutoff methods to define subgroups have also assumed that these four subgroups adequately represent the variability in aggression and victimization without explicitly testing this assumption. LCA, on the other hand, makes use of the entire sample, minimizes measurement error, and produces statistical fit indices that can serve to inform decisions regarding the number of subgroups. For these reasons, LCA is a superior classification method relative to cutoff points.

Consistent with prior empirical findings and theoretical conceptualizations of aggressive-victims, it was expected that support would be found for a four-class model. The item response patterns were hypothesized to reveal the following subgroups: (a) aggressive-victims, (b) predominantly aggressive youth, (c) predominantly victimized youth, and (d) youth with limited involvement. Previous research has varied in the relative proportion of the sample classified into each subgroup. However, aggressive-victims generally account for the smallest proportion of the sample, whereas youth with limited involvement tend to account for the largest proportion of the sample (e.g., Schwartz et al., 2001; Bettencourt & Farrell, 2013). It was hypothesized that youth with limited involvement would account for the largest proportion of the sample, followed by predominantly aggressive youth, predominantly victimized youth, and aggressive-victims.

Although LCA addresses many of the limitations of the inconsistent and arbitrary categorization methods used in previous research, prior studies using LCA have varied in the number of latent class indicators used and the different forms of aggression and victimization assessed by latent class indicators. Previous research has typically included anywhere from six

(e.g., Lovegrove et al., 2012) to 12 latent class indicator variables (Williford et al., 2011), with most indicators focused on physical forms of aggression and victimization (e.g., Bettencourt et al., 2013; Lovegrove et al., 2012). In person-centered analyses such as LCA, the number and type of variables used to determine latent classes (i.e., latent class indicators) can influence latent class enumeration and interpretation. Findings of a simulation study by Wurpts and Geiser (2014) suggested that the inclusion of a greater number and higher quality of indicators leads to more converged replications, fewer boundary parameter estimates, and less parameter bias.

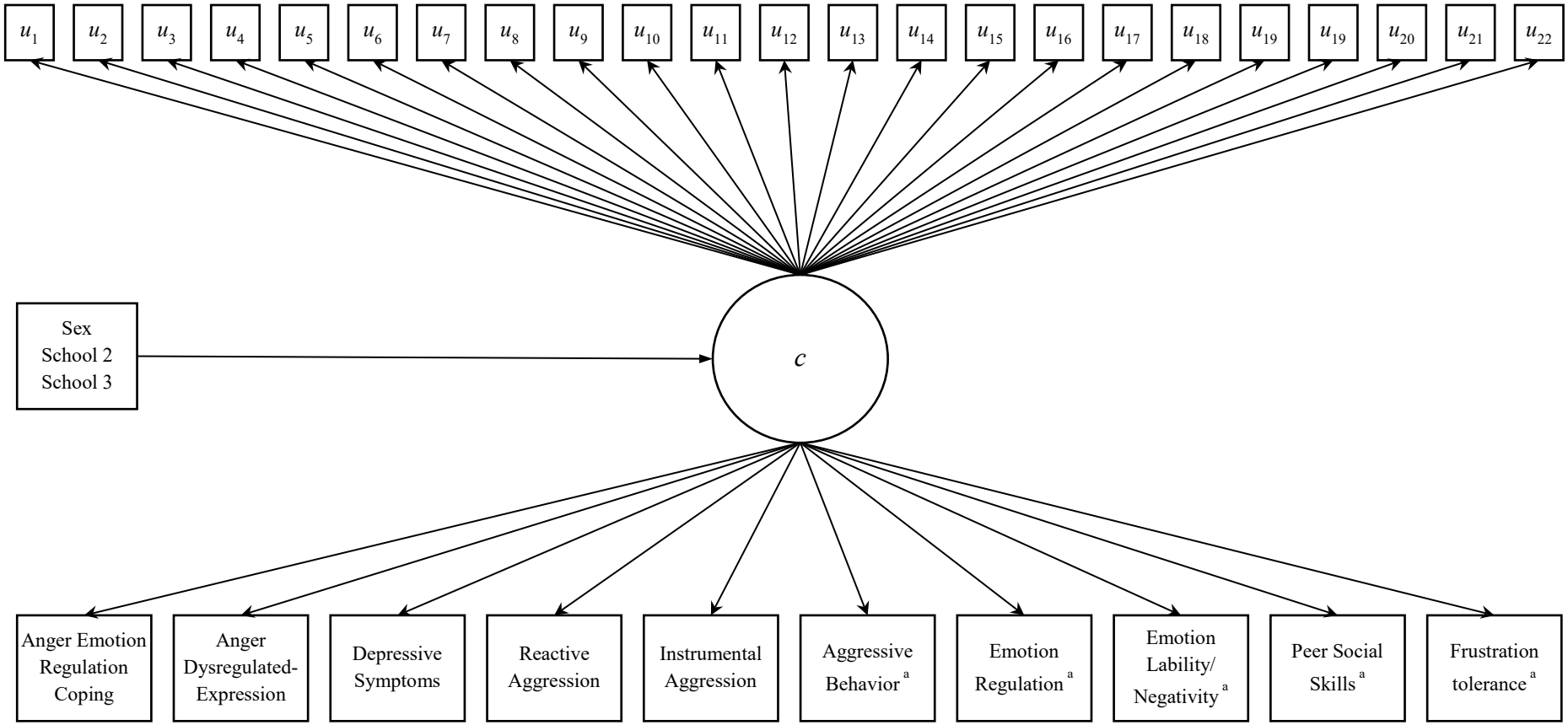
In the present study, both relational and physical forms of aggression and victimization were included among the latent class indicators, with approximately the same number of indicators for each form. Meta-analytic findings from Card et al. (2008) and Casper and Card (2016) suggested that physical and relational forms of aggression and victimization are highly correlated ($\bar{r}$ = .76 for aggression; $\bar{r}$ = .72 for victimization), indicating that they frequently co-occur. Casper and Card (2016) also found that the magnitude of the association between direct and indirect victimization decreased with age, with rates of relational aggression increasing from childhood through adolescence. This may be due to adolescents' increased focus on creating and maintaining peer relationships, and the development of more advanced social-cognitive abilities (Choudhury, Blakemore, & Charman, 2006). Thus, it is important to include latent class indicators that represent both physical and relational forms of aggression and victimization.

The second aim of the present study was to determine whether the number of latent classes, item-response probabilities, and latent class prevalence rates vary by gender and school. Measurement invariance in LCA is achieved when individuals from different populations (e.g., male adolescents and female adolescents) who are in the same subgroup demonstrate the same item-response probabilities (Collins & Lanza, 2013). Consistent with studies examining

aggressor/victim subgroups in samples of urban youth (e.g., Bettencourt & Farrell, 2013; Williford et al., 2011), gender differences in item response probabilities and latent class structure were not expected to be present in the present study. Measurement invariance also was examined across two of the schools in the present study that differed in their racial/ethnic composition, socioeconomic status of adolescents, and location. Most of the previous studies using LCA to classify subgroups have identified a four-class structure, regardless of the demographic characteristics of their sample and the use of different latent class indicators. Further, the latent class indicators that were used in the present study were drawn from a measure that has demonstrated measurement invariance across site and gender among a large sample of youth from 37 schools from four different sites as part of the Multisite Violence Prevention Project (MVPP; Henry, Farrell, & MVPP, 2004). Thus, it was expected that item response probabilities and latent class structure would not differ significantly across schools.

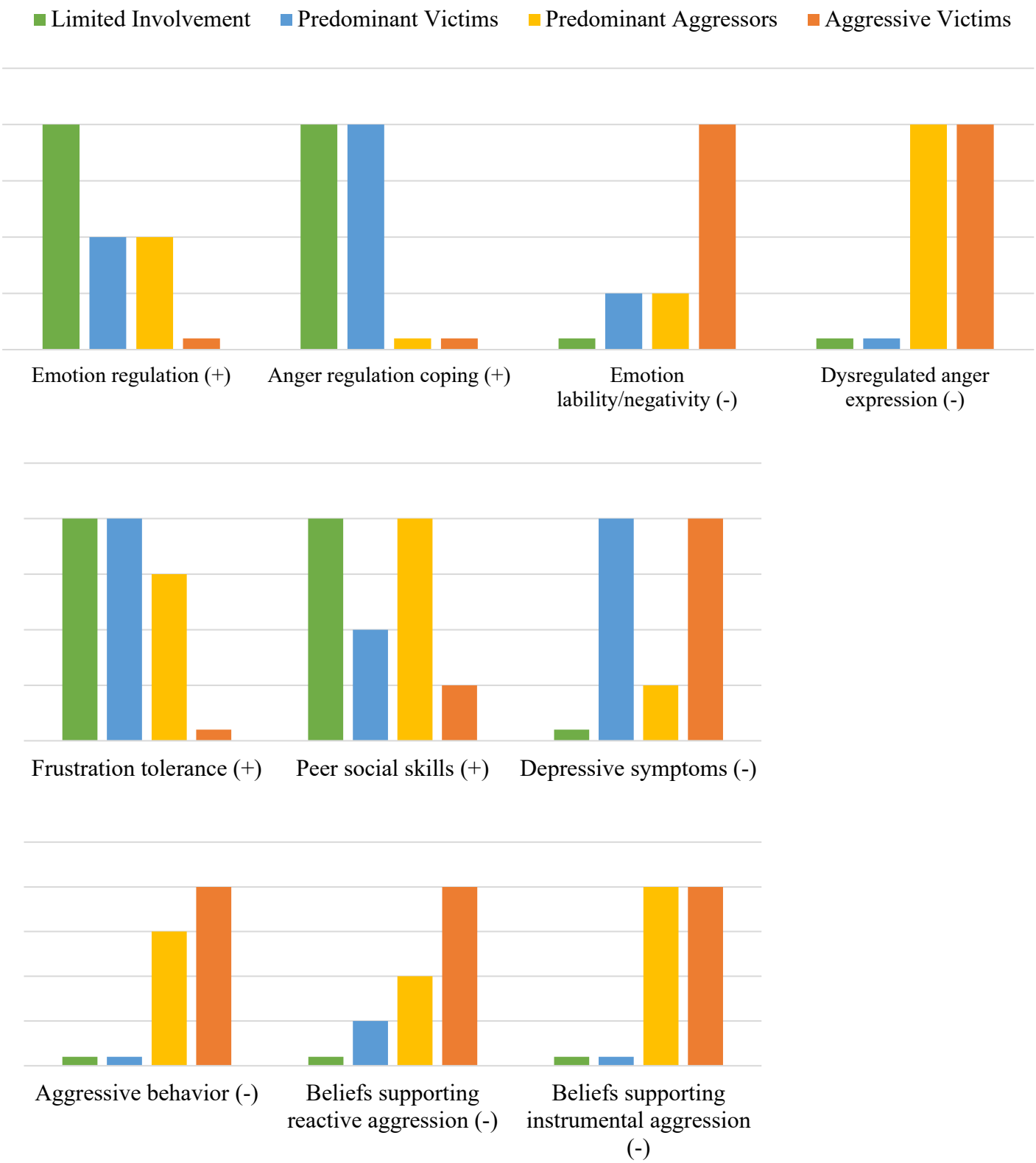
The third aim of the present study was to examine differences in indices of social and emotional functioning across subgroups. The theoretical model for this aim is outlined in Figure 1. The hypothesized results for each covariate included in the present study are displayed in Figure 2. Greater impairment in emotion regulation among aggressive-victims, particularly in their ability to modulate emotions once aroused, would be consistent with the prototype of aggressive-victims as youth who are socially inept, reactively aggressive in problem situations, and exhibit impulsive and disorganized behavior that is thought to elicit conflict with peers and experiences of victimization (Schwartz et al., 2001). There has been some evidence that supports aggressive-victims as more impaired on various indices of emotional adjustment than all other subgroups (e.g., Garner & Hinton, 2010; Haynie et al., 2001); however, there has been conflicting evidence in other studies as to whether they differ from predominantly aggressive or

Figure 1. Graphical representation of the latent class model with predictors and outcomes.



Note: c refers to the latent class variable, $u_1, u_2, \ldots u_{20}$ refer to the manifest indicators of *c*. [a] Based on teacher-report measure.

Figure 2. Hypothesized relations between subgroup membership and indices of social-emotional functioning.



Note: For each construct, (+) indicates higher values are more favorable, whereas (-) indicates higher values are less favorable.

predominantly victimized youth (e.g., Camodeca et al., 2003; Graham et al., 2006). Consistent with theory, I hypothesized that aggressive-victims would be more emotionally dysregulated than all other groups, particularly regarding lability and negativity in their emotional displays and frustration tolerance.

I further predicted that both aggressive subgroups would report the greatest difficulties with anger regulation, whereas both victimized subgroups would exhibit elevated levels of depressive symptoms. Given that anger has been linked to aggressive behavior (Roberton et al., 2012), I hypothesized that there would be a main effect of aggression when examining anger regulation across subgroups. On the other hand, it was hypothesized that there would be a main effect of victimization for depressive symptoms given the established link between depression and victimization (e.g., Reijntjes et al., 2010). Taken together, although aggressive-victims were hypothesized to differ from other subgroups in their level of emotion dysregulation, lability/negativity, and frustration tolerance, they were also expected to show similar patterns as predominantly aggressive youth in terms of anger dysregulation and as predominantly victimized youth in terms of depressive symptoms.

Several studies have found that aggressive-victims exhibit high levels of reactive aggression, but there is mixed evidence as to whether their level of reactive aggression differs from predominantly-aggressive and predominantly victimized youth (e.g., Salmivalli & Nieminen, 2002; Unnever, 2005). In the only study identified examining beliefs supporting the use of reactive aggression, Bettencourt and Farrell (2013) found that both aggressive subgroups endorsed both reactive and instrumental aggression in response to problem situations more often than non-aggressive subgroups. Despite these findings, theory suggests that the use of reactive aggression is one of the primary characteristics distinguishing aggressive-victims from

predominantly aggressive youth (e.g., Schwartz et al., 2001). In accordance with theory, I hypothesized that aggressive-victims would report the strongest beliefs supporting the use of reactive aggression in response to hypothetical problem situations relative to all other subgroups. In terms of instrumental aggression, I expected there to be a main effect of aggression such that aggressive-victims and predominantly aggressive youth would report stronger beliefs supporting instrumental aggression than non-aggressive subgroups. This hypothesis is based on the findings from prior research that both aggressive subgroups endorse the use of instrumental aggression, regardless of their level of self-efficacy to carry it out effectively (Unnever, 2005; Salmivalli & Nieminen, 2002; Schwartz et al., 1997).

Prior research suggests that aggressive-victims actually repel their peers with their maladaptive and disruptive behaviors (e.g., Andreou, 2001). As a result, I hypothesized that teachers' ratings of adolescents' social skills would indicate that aggressive-victims exhibit poorer social skills than all other subgroups, followed by predominantly-victimized and predominantly aggressive youth. Finally, I hypothesized that teachers would report the highest levels of aggression for aggressive-victims and predominantly aggressive youth, with aggressive-victims exhibiting slightly more aggressive behavior. If confirmed, this finding would be consistent with conceptualizations of aggressive-victims as disruptive, hyperactive, and impulsively aggressive. These behaviors are likely to draw the attention of teachers. Instrumental aggression may require more thoughtfulness or planning, and thus teachers may be less likely to observe predominantly aggressive youth harassing their peers.

Method

Setting and Participants

Secondary analyses were conducted on data from a large multi-site, multi-wave randomized controlled trial evaluating an expressive writing intervention for middle school adolescents that was designed to reduce the adverse effects of exposure to community and peer violence. The study was conducted in seventh grade classrooms in three middle schools, including one urban school in Philadelphia, Pennsylvania and two schools from the metropolitan area of Richmond, Virginia. Two schools served adolescents from predominantly low-income families; 61% of adolescents from one of the Richmond-area schools and 81% of adolescents from the Philadelphia school were eligible for the federal subsidized lunch program. The other Richmond-area school had only 6% of adolescents eligible for free or reduced lunch, and served youth from predominantly middle-subgroup backgrounds. There were high participation rates, as 77% of the 1,280 eligible adolescents participated in the study.

The present study analyzed data from adolescents who participated in the first wave of data collection (i.e., pre-intervention; $n = 986$). The overall sample had a mean age of 12.8 years ($SD = 0.48$). There were slightly more female adolescents (53.7%) in the sample. Nearly half (49.2%) of participants identified as White, followed by 18.6% Black/African American, 7.8% bi- or multi-racial, 4.9% Asian, 3.7% Native Hawaiian or other Pacific Islander, and 2.3% American Indian or Alaskan Native. Eleven percent of participants did not report their race. A total of 240 participants (24.3%) self-identified as Latino/a. Among the 29.4% of participants who endorsed speaking a language other than English at home, 63.8% reported that Spanish was the primary language used in their home.

The demographic characteristics for participants from each school are displayed in Table 1. The gender distribution was consistent across schools; approximately half of adolescents at each school identified as female. Whereas School 1 was primarily composed of White

Table 1.
Demographic characteristics by school.

	School 1 (VA) *n* = 593		School 2 (VA) *n* = 88		School 3 (PA) *n* = 305	
	n	*%*	*n*	*%*	*n*	*%*
Gender						
Female	324	54.6	50	56.8	155	50.8
Race						
White	455	78.9	11	15.5	19	9.3
Black/African American	52	9.0	45	63.4	86	42.2
Bi-racial or multi-racial	39	6.8	11	15.5	27	13.2
Asian	24	4.2	1	1.4	23	11.3
Native Hawaiian or other Pacific Islander	4	0.7	1	1.4	31	15.2
American Indian or Alaskan Native	3	0.5	2	2.8	18	8.8
Ethnicity						
Latino/a	44	7.5	24	27.3	172	58.3
Family Structure						
Single parent household	73	12.3	30	34.1	115	37.7
Two parent household	511	86.2	54	61.4	176	57.7
Speaks language other than English at home	81	15.3	27	30.7	182	59.7
Cohort						
Cohort 1	287	48.4	0	0.0	158	51.8
Cohort 2	306	51.6	88	100.0	147	48.2

adolescents, most adolescents in School 2 identified as Black or African American. School 2 also had a greater percentage of adolescents identify as Latino/a than School 1. School 3 was more diverse than Schools 1 and 2 in terms of race and ethnicity; just under half of adolescents at School 3 identified as Black or African American and more than one third of adolescents identified as either Native Hawaiian or other Pacific Islander, bi-racial or multi-racial, or Asian. Over half of adolescents at School 3 identified as Latino/a and/or reported speaking a language other than English at home.

Measures

Student-reported aggression and victimization. The Problem Behavior Frequency Scale – Adolescent Report (PBFS-AR) is a self-report measure of adolescents' frequency of

problem behaviors, including aggression and victimization. Farrell, Sullivan, Goncy, and Le (2016) conducted a confirmatory factor analysis and found support for a seven-factor model that differentiated among delinquent behavior, drug use, and different forms of aggression (i.e., physical, verbal, relational) and victimization (i.e., overt, relational). They also established measurement invariance across site and gender among a large sample of youth from 37 schools from four sites (Henry et al., 2004). The current study focused on four PBFS-AR scales assessing physical aggression (6 items; e.g., "hit or slapped someone"), relational aggression (6 items; e.g., "told another kid you wouldn't like them unless they did what you wanted them to do"), overt victimization (6 items; e.g., "been pushed or shoved by another kid"), and relational victimization (6 items; e.g., "someone spread a false rumor about you"). Verbal aggression was not included in the present study, as there is mixed evidence regarding the degree to which it is distinct from or similar to relational and physical forms of aggression (see Farrell et al., 2018). Participants were asked to indicate the frequency of each behavior over the 30 days prior to the survey. They rated the frequency on a 6-point scale, with 0 (*never*), 1 (*1–2 times*), 2 (*3–5 times*), 3 (*6–9 times*), 4 (*10–19 times*), 5 (*20 or more times*). The PBFS-AR has demonstrated good internal consistency in previous research (e.g., MVPP; Henry et al., 2004), and concurrent validity with teacher- and self-report ratings of adolescents' behavior on related measures of problem behaviors, beliefs, values, and peer associations (Farrell et al., 2016; Farrell et al., 2018).

Emotion regulation. Teachers rated each student on the Emotion Regulation Checklist (ERC; Shields & Cicchetti, 1997), which assesses adolescents' emotion regulation abilities and the situational appropriateness of a student's emotions. The lability-negativity subscale consists of 16 items assessing a lack of flexibility (e.g., "Is easily frustrated."), mood lability (e.g.,

"Exhibits wide mood swings."), and dysregulated negative affect (e.g., "Responds angrily to limit-setting by adults."). The emotion regulation subscale consists of eight items assessing situationally appropriate emotional displays (e.g., "Responds positively to neutral or friendly overtures by peers."), empathy (e.g., "Is empathic towards others; shows concern when others are upset or distressed."), and emotional self-awareness (e.g., "Can say when s/he is feeling sad, angry or mad, fearful or afraid."). Teachers rate each item on a 4-point scale, with 1 (*never*), 2 (*sometimes*), 3 (*often*), and 4 (*always*). Scores for the subscales are the sum across all items within each subscale. Higher scores on the lability-negativity subscale indicate more frequent and intense shifts in mood. For the emotion regulation subscale, higher scores indicate that the child has a greater ability to regulate his/her affect. The lability-negativity and emotion regulation subscales have demonstrated high internal consistency, with alphas of .96 and .83 respectively (Shields & Cicchetti, 1997). The ERC has also demonstrated convergent validity with established measures of affect regulation and discriminant validity with constructs such as ego resiliency (Shields & Cicchetti, 1997). The ERC has been found to be negatively associated with teacher-rated aggressive behavior in a study of inner-city youth (Shields & Cicchetti, 1998).

Anger regulation. The Children's Anger Management Scale (CAMS) is a student-report measure used to assess the extent to which youth can deal with and control their anger (Zeman, Shipman, & Suveg, 2002). The original measure consists of 11 items that form the following subscales: Inhibition, Dysregulated Expression, and Emotion Regulation Coping. The present study examined the latter two subscales. The five-item Anger Emotion Regulation Coping subscale (5 items; "When I am feeling mad, I control my temper") was used to assess how often in the prior two weeks youth regulated their anger. The Anger-Dysregulated Expression subscale was included to determine how often in the prior two weeks youth did *not* appropriately regulate

their anger (e.g., "I do things like slam doors when I am mad"). Consistent with previous research (e.g., Bettencourt et al., 2013), two additional items were added to the original three-item subscale to increase internal consistency (Sullivan & Kliewer, 2011). Adolescents are asked to rate each of the five items on a 3-point scale, with 1 (*hardly ever*), 2 (*sometimes*), and 3 (*often*). Subscale scores were calculated by summing the ratings for the items within each subscale. The maximum possible score for each scale was 15. Higher scores on the Anger Emotion Regulation Coping subscale indicate a greater frequency of using positive coping skills to manage feelings of anger. Higher scores on the Anger-Dysregulated Expression subscale indicate that the individual engages in more frequent displays of poorly modulated responses to anger. The scale has demonstrated adequate reliability and validity in previous research (Zeman et al., 2002). The CAMS Anger-Dysregulated Expression and Anger Emotion Regulation Coping subscales have demonstrated associations with internalizing and externalizing symptoms in the expected direction (Zeman et al., 2002).

Depression. Adolescents completed the Children's Depression Inventory – Short form (CDI-SF; Kovacs, 1985), a self-report measure of cognitive, affective, and behavioral symptoms of depression experienced in the previous two weeks. The scale consists of 10 items, each of which includes three statements graded in order of increasing severity as response options, ranging from 0 (*absence of symptoms*) to 2 (*definite symptoms*). For example, one item states "In the last two weeks, which best describes you…" with the response options: "I have fun in many things" (rating of 0), "I have fun in some things" (rating of 1), "Nothing is fun at all" (rating of 2). Scoring involves summing the numerical values assigned to each selected item response. Total scores may range from 0 to 20, with higher scores indicating more severe depressive

symptomatology. The CDI-SF has good sensitivity and specificity, and relatively high test–retest reliability and internal consistency with coefficients ranging from 0.71 to 0.89 (Kovacs, 1992).

Frustration tolerance. Teachers completed three subscales from the Teacher–Child Rating Scale (TCRS; Hightower et al., 1986) to assess their perceptions of each student's adjustment in terms of frustration tolerance, assertive social skills, and peer social skills. The TCRS has demonstrated adequate reliability in previous work, with moderate to high internal consistency and test-retest reliability (Hightower et al., 1986). The measure has also been shown to correlate in the expected direction with other behavior checklists, and grades and standardized test scores (Hightower et al., 1986; Trickett, McBride-Chang, & Putman, 1994). For the present study, the five-item frustration tolerance subscale of the TCRS was used to assess children's ability to accept limits, cope with failure, ignore teasing, and accept things not going their way. Each item is rated on a 5-point scale, with 1 (*Not at all*), 2 (*A little*), 3 (*Moderately well*), 4 (*Well*), and 5 (*Very well*). The frustration tolerance subscale score represents the mean across items, with higher scores indicative of greater tolerance of frustration.

Peer social skills. The peer social skills subscale of the TCRS (Hightower et al., 1986) was used to measure teacher's perceptions of each student's social skills in the school context. The five items in this subscale assess whether a student has many friends, is well-liked by their classmates, is friendly toward their peers, is able to make friends easily, and whether their classmates wish to sit near them. Each item is rated on a 5-point scale, with 1 (*Not at all*), 2 (*A little*), 3 (*Moderately well*), 4 (*Well*), and 5 (*Very well*). The peer social skills subscale score represents the mean across items, with higher scores indicative of greater social skills.

Teacher-reported aggression. The Teacher Report Form (TRF) was completed by teachers to assess adolescents' behaviors in an academic setting. The TRF is a widely used,

reliable, and well-validated measure that is part of the Achenbach System of Empirically Based Assessment (Achenbach, 1991). The aggressive behavior subscale of the TRF, which consists of 20 items, was used in the present study to assess whether the teacher has observed each student behaving aggressively (e.g., "physically attacks people"). Teachers were asked to rate how true each item is for a student, with 1 (*Not True (as far as you know*), 2 (*Somewhat or Sometimes True*), and 3 (*Very True or Often True*). Mean item scores were computed for the subscale, with a maximum possible score of 3. Higher scores indicate a greater frequency of aggressive behavior at school as observed by the teacher. The TRF aggressive behavior subscale has demonstrated high internal consistency, adequate two-week test-retest reliability, and moderate cross-informant agreement with both self-report (r = .25) and caregiver-report (r = .33) on the same scale (Achenbach & Rescorla, 2001).

Beliefs about instrumental and reactive aggression. The Beliefs About Fighting Scale (BAFS; Farrell, Bettencourt, & Mehari, 2017) consists of 23 items that assess adolescents' beliefs about the acceptability of aggression and nonviolent alternatives in response to specific provocations. The items in this self-report measure were developed based on the findings of a qualitative study among a predominantly African American sample of middle school adolescents examining barriers and supports to the enactment of aggressive and prosocial behaviors (Farrell et al., 2008; 2010). The BAFS is composed of four subscales that have been supported in confirmatory factor analyses (see Farrell et al., 2017) and include beliefs against fighting, beliefs that fighting is sometimes necessary, beliefs supporting reactive aggression, and beliefs supporting instrumental aggression. Two subscales of this measure were examined in the present study: Reactive Aggression (6 items; e.g., "It's okay to fight someone if they do something to make you mad"), and Instrumental Aggression (5 items; e.g., "It's okay to use physical force to

get someone to do what you want"). Items are rated on a 4-point scale, from 1 (*Strongly Agree*) to 4 (*Strongly Disagree*). Scores are based on the mean across all items within each subscale, such that higher scores indicate greater agreement with the items on each subscale. The BAFS has demonstrated adequate internal consistency and reliability, with alpha coefficients ranging from .67 to .86 in a previous study using this measure (Farrell et al., 2012). Farrell and colleagues (2017) found support for strong measurement invariance across sex, grade, and intervention status. The BAFS subscales have demonstrated associations in the expected direction with measures of aggression, victimization, and nonviolent behavior (Farrell et al., 2017).

Procedure

The Institutional Review Board at each of the two institutions conducting the study reviewed and approved all procedures. Adolescents completed a computer-assisted self-administered interview during the school day at each school. The survey was administered by research staff members that monitored the completion of questionnaires to maximize the integrity of responses. Each respondent was provided with a laptop and connected headset that allowed the respondent to hear each question read aloud through the headset and read each question on the laptop monitor before selecting an answer. Research staff members were available to answer any questions and keep respondents on task during the assessments. Teachers also used CASI software to complete student assessments. Participating schools received compensation for allowing adolescents and teachers to participate in the study.

Baseline data were collected from two cohorts of youth in the Fall of 2008 and 2009. Although data were collected twice per year in the Fall and Spring semesters of seventh and eighth grade, the current study focused on data collected from each cohort in the Fall of the

seventh grade prior to implementing any intervention activities. All analyses were conducted on a deidentified dataset.

Data Analytic Strategy

Descriptive Statistics

Apart from initial data screening, all analyses were completed using Mplus version 8 (Muthén & Muthén, 2017), including the calculation of descriptive statistics for latent class indicators, predictors of subgroup membership, and dependent variables. The proportion of adolescents endorsing the aggression and victimization items and means and standard deviations for the emotional (i.e., anger emotion regulation coping, dysregulated anger expression, emotion regulation, lability/negativity, depression, frustration) and social (i.e., peer social skills, beliefs about reactive and instrumental aggression) outcome variables were calculated. Correlations between outcome variables were also calculated.

Latent Class Analysis

In order to determine the number and structure of aggressive and victimized subgroups in the sample, a series of unconstrained latent class models were estimated. Items from the PBFS-AR physical and relational aggression and victimization scales were used as latent class indicators. LCA assumes local independence, which means that all indicators within a subgroup are independent and the latent class variable explains the relations among indicators (Collins & Lanza, 2010). The local independence assumption was evaluated by examining the modification indices for each parameter and the standardized bivariate residuals for each model. A violation of local independence is indicated by a significant chi-square statistic (Collins & Lanza, 2010).

Consistent with the recommendations of Masyn (2013) and others (Nylund, Asparouhov, & Muthén, 2007), model fit statistics, subgroup size considerations, and theory were used to

decide upon the optimal number of subgroups. Fit indices for solutions specifying *k* number of subgroups were tested sequentially (*k, k* + 1, etc.). The number of *k*-class solutions tested was determined by the point at which adding an additional subgroup led to model non-identification or led the model to be empirically not well-identified. Specifically, when a *k*-class model was not identified despite increasing starts or including start values from an earlier solution (*k* – 1, *k* – 2, etc.), this indicated that adding additional subgroups was no longer necessary and all models that should be compared had been identified. Model non-identification is indicated by a condition number less than 10^{-6}, poor replication of the best loglikelihood, and/or a substantial number of unperturbed start values that did not converge. Additionally, if one of the subgroups includes only a small proportion of the sample (i.e., less than 5%), the substantive meaning and interpretation of the latent class variable becomes more limited. Thus, in the current study, models with one or more subgroups composed of less than 5% of the data were considered to lack empirical identification and indicate that additional *k* + 1 models were not necessary because the subgroups were unlikely to represent meaningful subgroups.

The proportion of individuals in each subgroup was also considered in the latent class enumeration process, as the proportion of individuals within each subgroup is important in determining how meaningful each subgroup is within a solution and ensuring each subgroup is truly distinct (i.e., face and content validity). Incorporating theory and previous research findings in latent class enumeration is also critical in this way. For example, if four and five-class solutions have similar fit indices but the five-class solution identifies a subgroup that includes a very small portion of the sample, its importance or meaningfulness should be considered relative to the research question, previous research, and relevant theory.

Indices of relative fit were examined across solutions with different numbers of latent classes, including the loglikelihood value, Bayesian information criterion (BIC; Sclove, 1987), sample-size adjusted BIC, and entropy. The log likelihood is the basis for the BIC and is what is maximized by the estimation algorithm (Nylund et al., 2007). A higher log likelihood value indicates a better fit. The BIC is a measure of the goodness of fit of a model that takes into account the number of parameters and the number of observations (Nylund et al., 2007). The sample-adjusted BIC takes into account the sample size such that models with larger sample sizes receive a smaller penalty (Nylund et al., 2007). Nylund et al. (2007) concluded that the BIC was superior to other information criterion statistics, and the sample-adjusted BIC correctly identified the number of subgroups more consistently across different models and sample sizes. Both the BIC and the sample-adjusted BIC were used to compare relative fit goodness of fit in the analyses for the current study. Entropy is a measure of the quality of classification; values range from 0 to 1, with values closer to 1 suggesting greater accuracy in classification. Entropy will only affect latent class enumeration at values of less than .6, which indicate poor classification quality.

The significance of likelihood ratio tests was also used as an indicator of relative model fit. Likelihood ratio tests produce a *p* value that represents the increase in model fit between the *k* – 1 class model and the *k*-class model (Nylund et al., 2007). A small probability ($p < .05$) indicates the $k - 1$ class model should be rejected in favor of the *k*-class model. In the current study, the significance of the bootstrap likelihood ratio test (BLRT; McLachlan & Peel, 2000) and the Lo-Mendell-Rubin likelihood ratio test (LMR-LRT; Lo, Mendell, & Rubin, 2001) were considered. Nylund et al. (2007) found the BLRT generally outperformed other likelihood ratio tests with simulated data. However, in practice with real data, the BLRT often continues to be

significant across all *k*-class models, which may be because the BLRT depends on distributional and model assumptions. Thus, the LMR-LRT was included as an additional index of comparative fit between neighboring class models. The LMR-LRT is based on the variance of the parameter estimates, which are robust and valid under various different model and distributional assumptions (Nylund et al., 2007).

Importantly, a useful mixture model should yield highly-differentiated, well-separated subgroups whose members have a high degree of homogeneity in their responses on the latent class indicators (Masyn, 2013). Thus, the solution identified as fitting the data well relative to other solutions was examined to ensure that the subgroups demonstrated adequate separation and within-subgroup homogeneity. The average posterior probability (AvePP) enables evaluation of the classification uncertainty for each of the latent classes separately, with values greater than 0.8 indicating adequate separation and classification precision. The item endorsement probabilities within each subgroup were also examined, with adequate separation and homogeneity evidenced by item response probabilities above .7 and below .3 (Masyn, 2013).

Next, a series of latent class models was tested separately for male adolescents and female adolescents to determine whether they were best represented by models with the same number of subgroups. This procedure was repeated with the grouping variable as school, excluding the school that had the smallest sample size (School 2; $N = 88$). Models for School 1 and School 3 were compared to clarify whether the setting and demographic differences (e.g., race/ethnicity) between these schools influenced the number of subgroups or item-response probabilities. These differences are otherwise difficult to compare because they are conflated with school. For example, whereas most adolescents at School 1 identified as White, the racial group encompassing the greatest number of adolescents at School 3 was Black/African

American. The experience of adolescents of color is likely to differ between a school in which they are the majority racial/ethnic group and one in which they are the minority racial/ethnic group (Mehari & Farrell, 2015). Further, the experience of two youth from the same racial/ethnic group may differ by the broader context in which the school is situated in (e.g., urbanicity).

Although separate latent class models indicated whether the number and structure of subgroups differed by sex and school, these models did not provide a direct comparison of the degree to which sex and school influenced subgroup-specific posterior probabilities. Prior to testing social and emotional functioning across subgroups, the latent class variable for the full sample was regressed onto sex in the third step of the Bolck-Croon-Hagenaars (BCH) approach (Asparouhov & Muthén, 2014) to determine whether the probability of membership in each subgroup varied between male adolescents and female adolescents. The BCH method calculates weights for each subgroup in the second step of the analysis, which prevents subgroup shifts (Asparouhov & Muthén, 2014). Other approaches to explore the relations between a latent categorical variable and auxiliary variables are limited in that they are either susceptible to latent class shifts (Vermunt, 2010) or perform poorly when the variance of the auxiliary variable differs substantially across subgroups (Lanza, Tan, & Bray, 2013). The probability of membership in each subgroup given sex was calculated by dividing the exponentiated logit for each subgroup (versus the reference subgroup) by the sum of exponentiated logits for each subgroup.

To understand how school influences subgroup membership, the influence of school on posterior subgroup probabilities was examined in the third step of the BCH method using the final model with the full sample. School 1 was treated as the reference group given that it is most distinct in terms of student demographics (see Table 1). Specifically, whereas the majority of adolescents at School 2 and School 3 were racial or ethnic minorities, adolescents at School 1

were predominantly White. Schools 2 and 3 also had larger proportions of adolescents from single-parent households and of adolescents who spoke a language other than English at home. The probability of membership in each class given school was calculated using the same equation noted for sex.

Following examination of the influence of covariates on posterior probabilities, the three-step BCH approach was then used to estimate a distal outcomes model in which the outcomes of interest were regressed onto latent class membership accounting for the influence of sex and school (see conceptual model in Figure 1). To determine whether to constrain the effects of sex and school to be the same across subgroups, a model in which the effects of sex and school were allowed to vary across subgroups was compared to a model in which the influence of sex and school on the outcome variables were constrained to be equal across subgroups. In both models, sex was a dummy coded variable (0 = female; 1 = male). School was represented by two dummy-coded variables with School 1 as the reference group: School 2 (0 = School 1 or 3; 1 = School 2) and School 3 (0 = School 1 or 2; 1 = School 3). A chi-square difference test was calculated based on loglikelihood values and scaling correction factors obtained with the MLR estimator from each model. A significant result indicated that including covariates in the second model significantly improved the fit of the unconstrained model.

Planned contrasts were used to minimize the Type I error rate resulting from multiple pairwise comparisons. Specifically, parameters were created using the Model Constraint function in Mplus that represented the main effect of aggression, the main effect of victimization, and the interaction of aggression and victimization for each outcome. The results of the contrasts were converted into Cohen's *d* coefficients to interpret the magnitude of the effect. A *d* of .2 represents a small effect, .5 a medium effect, and .8 a large effect (Cohen, 1992).

Results

Descriptive Statistics

SPSS 25 (IBM Corp., 2017) was used to screen and clean the dataset prior to importing data into MPlus for analysis. Skewness and kurtosis were examined for each dependent variable to assess the normality of their distributions. Four scales were found to have positively skewed and kurtotic distributions: depressive symptoms, instrumental aggression, teacher-reported aggressive behavior, and teacher-reported emotion lability/negativity (see Table 2). Scores on these four scales were therefore log-transformed to increase their normality and improve the precision of analysis (Tabachnick & Fidell, 2007). The log-transformed variables were used in all subsequent analyses. Each scale was then screened for outliers. Extreme scores represented less than 2% of the sample for each scale. Thus, all available cases were included in analyses.

All subsequent analyses were conducted in Mplus version 8. For the latent class indicators, more than 98% of respondents completed each item. Two respondents had missing data on all of the latent class indicators, and thus were excluded from analyses.

The rate of missing data on scales of social and emotional functioning in the overall sample ranged from <1% to 7%. Full information maximum likelihood estimation (FIML) was used to address missing data. FIML estimates the value of a population parameter by identifying the value that maximizes the likelihood function based on the available data. Correlations among the dependent variables are displayed in Table 3. Apart from the association between depressive symptoms and instrumental aggression, all dependent variables were significantly correlated with one another at $p < .01$ in the expected direction. Regarding the relations among constructs of social functioning, self-reported beliefs supporting reactive and instrumental aggression were

Table 2.
Descriptive statistics for dependent variables.

	M	*SD*	Skew	Kurtosis	Min	Max
Self-Report Scales						
Dysregulated anger expression	7.6	2.2	-0.3	-0.7	5.0	15.0
Anger emotion regulation coping	11.3	2.7	0.9	0.5	5.0	15.0
Depressive symptoms	7.4	3.1	1.9	3.4	4.3	22.5
Depressive symptoms (log)	3.5	3.5	*0.6*	*-0.8*	*0.0*	*13.0*
Beliefs supporting reactive aggression	1.7	0.6	0.9	0.4	1.0	4.0
Beliefs supporting instrumental aggression	1.3	0.4	2.0	5.0	1.0	4.0
Beliefs supporting instrumental aggression (log)	0.1	0.1	*1.3*	*0.9*	*0.0*	*0.6*
Teacher-Report Scales						
Aggressive behavior	1.2	0.4	2.7	7.6	1.0	3.0
Aggressive behavior (log)	0.6	1.0	*2.1*	*3.8*	*0.0*	*4.8*
Emotion regulation	3.2	0.6	-0.7	-0.2	1.1	4.0
Emotion lability/negativity	1.4	0.5	2.1	5.6	1.0	4.0
Emotion lability/negativity (log)	0.1	0.1	*1.2*	*1.0*	*0.0*	*0.6*
Frustration tolerance	3.7	1.1	-0.6	-0.5	1.0	5.0
Peer social skills	3.9	1.0	-0.7	-0.4	1.0	5.0

positively correlated with one another (r = .64, p < .01) and teacher-reported aggressive behavior (rs = .29 and .18 respectively, p < .01) and negatively correlated with teacher-report of peer social skills (rs = -.20 and -.13 respectively, ps < .01). Teacher-reported aggressive behavior and peer social skills were negatively correlated with one another (r = -.49, p < .01).

Among constructs of emotional functioning, self-reported anger emotion regulation coping was positively correlated with teacher-reported emotion regulation and frustration tolerance (rs = .20 and .27 respectively, ps < .01) and negatively correlated with teacher-reported emotion lability/negativity (r = -.24, p < .05) and self-report measures of dysregulated anger expression and depressive symptoms (rs = -.39 and -.29 respectively, ps < .01). Self-report measures of dysregulated anger expression and depressive symptoms were positively correlated

Table 3.
Correlation coefficients for dependent variables.

	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**
1. Dysregulated anger expression									
2. Anger emotion regulation coping	-.39**								
3. Depressive symptoms	.26**	-.29**							
4. Beliefs supporting reactive aggression	.39**	-.40**	.12***						
5. Beliefs supporting instrumental aggression	.33**	-.29**	.06	.64**					
6. Aggressive behavior [T]	.15**	-.25**	.10*	.29**	.18**				
7. Emotion regulation [T]	-.12**	.20**	-.13**	-.22**	-.14**	-.42**			
8. Emotion lability/negativity [T]	.15**	-.24*	.11**	.29**	.17**	.86**	-.57**		
9. Frustration tolerance [T]	-.16**	.27**	-.13**	-.31**	-.20**	-.76**	.52**	-.77**	
10. Peer social skills [T]	-.12**	.20**	-.17**	-.20**	-.13**	-.49**	.63**	-.51**	.69**

Note: [T] indicates teacher-report measure. *$p < .05$, **$p < .01$, ***$p < .001$.

with one another (r = .26, p < .01), negatively correlated with teacher-report measures of emotion regulation and frustration tolerance (*r*s = -.16 to -.12, *p*s < .01), and positively correlated with teacher-reported emotion lability/negativity (*r*s = .11 to .15 respectively, *p*s < .01). Teacher-report measures of emotion regulation and frustration tolerance were positively correlated with one another (r = .52, p < .05) and negatively correlated with emotion lability/negativity (r = -.57 and -.77 respectively, p < .01).

The percentage of the sample endorsing each of the 24 potential indicator variables was examined to identify items with low endorsement rates. A low endorsement rate, defined in the current study as less than 5% of the sample endorsing the frequency of a behavior as occurring at least once in the past 30 days, may suggest that the item would not adequately assist in identifying homogeneity within the data. There were low rates of endorsement for the three highest response categories of the PBFS-AR scales ("6–9 times", "10–19 times", "20 or more times"). I therefore combined these response categories, resulting in trichotomous variables with 0 (*never*), 1 (*1-2 times*), and 2 (*3 or more times*) (see Table 4). Approximately half of the items were endorsed by less than 5% of the sample as occurring three or more times in the past 30 days. As a result, I chose to dichotomize all indicators, with the student-reported occurrence of each item recoded as 0 (*never*) or 1 (*one or more times*).

Even with the indicators treated as binary, less than 5% of the sample endorsed items assessing threatening someone with a weapon or being threatened or injured by someone with a weapon. The low endorsement rate for these items suggests that, relative to other indicators, these two items represent more severe and less common indicators of aggression and victimization. Given that the smallest subgroup (i.e., aggressive-victims) is expected to be greater than five percent of the sample, these two weapon- related items are unlikely to

Table 4.
Proportion of sample endorsing the frequency of each indicator as never, 1-2 times, or 3+ times.

	Never		1-2 times		3+ times	
	%	*n*	%	*n*	%	*n*
Physical aggression						
Thrown something at someone to hurt them	71.4%	700	22.1%	217	6.5%	63
Been in a fight in which someone was hit	76.7%	750	16.1%	157	7.2%	71
Shoved or pushed someone	46.4%	456	34.8%	342	18.8%	184
Threatened someone with a weapon	96.6%	948	2.4%	24	1.0%	9
Hit or slapped someone	52.2%	511	30.9%	302	16.9%	165
Threatened to hit or physically harm someone	84.6%	829	11.0%	108	4.4%	43
Relational aggression						
Didn't let another kid be in your group anymore because you were mad at them	82.4%	808	15.0%	147	2.6%	26
Told someone you wouldn’t like them unless they did what you wanted them to do	94.9%	930	3.5%	34	1.6%	16
Tried to keep others from liking another kid by saying mean things about him/her	90.1%	885	8.4%	82	1.5%	15
Spread a false rumor about someone	92.3%	906	6.4%	63	1.3%	13
Left another kid out on purpose when it was time to do an activity	87.6%	858	10.0%	98	2.4%	23
Said things about kids to make other kids laugh	58.4%	572	26.8%	262	14.8%	145
Overt victimization						
Been hit by another kid	66.6%	653	21.6%	212	11.8%	116
Been pushed or shoved by another kid	60.1%	590	27.9%	274	12.0%	118
Been yelled at or called mean names by another kid	60.7%	595	25.0%	245	14.3%	140
Another kid threatened to hit or physically harm you	84.5%	831	10.7%	105	4.8%	47
Been threatened or injured by someone with a weapon	95.9%	944	2.7%	27	1.4%	13
Another kid tried to get you to fight	73.9%	726	19.3%	190	6.8%	67
Relational Victimization						
Had a kid try to keep others from liking you by saying mean things about you	67.3%	657	20.4%	199	12.3%	120
Had someone spread a false rumor about you	66.1%	650	23.4%	230	10.5%	103
Been left out on purpose by other kids when it was time to do an activity	83.5%	817	10.8%	106	5.7%	55
Had a kid say they won’t like you unless you do what he or she wanted you to do	89.8%	880	6.9%	68	3.3%	32
Had a kid tell lies about you to make other kids not like you anymore	74.5%	729	17.3%	169	8.2%	81
Had a kid who was mad at you try to get back at you by not letting you be in their group anymore	87.1%	855	9.6%	94	3.3%	33

distinguish between subgroups. Thus, the two items were not included as latent class indicators. Among indicators assessing different types of aggression, the most commonly endorsed physically aggressive behaviors were "Shoved or pushed someone" (54%) and "Hit or slapped someone" (48%). The most commonly endorsed indicator of relational aggression was "Said things about kids to make other kids laugh" (42%). Other indicators of relational aggression had relatively low rates of endorsement, ranging from 5% to 18%.

Unconditional Latent Class Analysis

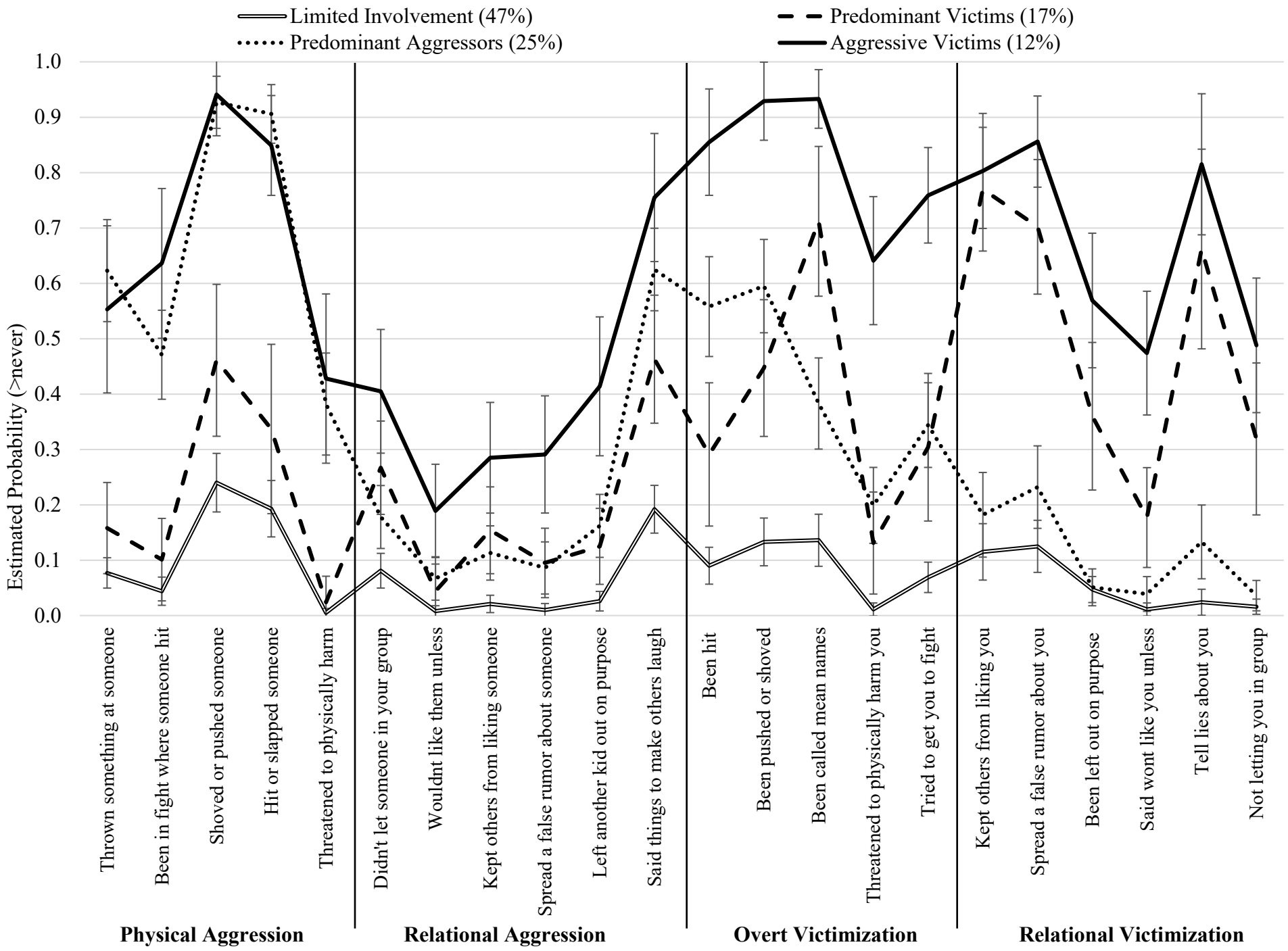
Latent class enumeration. Model fit indices for a series of one- to eight-class solutions were compared to identify the number of distinct subgroups that best represented the heterogeneity of individual response patterns for the 22 items representing aggression and victimization (see Table 5 for model fit indices). Whereas the four-class model produced the lowest BIC value, the aBIC continued to decrease as the number of subgroups increased. The current recommended practice when this occurs is to identify the point at which the information criterion begins to plateau in terms of decreases from the *k*-class model to the *k*+1 class model (i.e., the "elbow" on a scree plot of the IC values; Masyn, 2013). In the current study this occurred between the four- and five-class models. The significance of the LMR-LRT for the four-class model indicated that a three-class model should be rejected in favor of the four-class model. Moreover, the lack of significance of the LMR-LRT for the five-class model indicated that the addition of another subgroup (i.e., from the four-class to the five-class model) did not significantly improve overall model fit. The BLRT was significant across all *k*-class models up to and including a model with eight subgroups and thus was not considered a reliable fit index, particularly because all other fit indices examined (with the exception of the loglikelihood) suggested that a four-class model best represented the heterogeneity within the sample. The four-

class model also aligns with previous research (e.g., Bettencourt & Farrell, 2013) and theory (Schwartz et al., 2001). The smallest subgroup in the four-class model represented 12% of the sample, which is large enough to suggest it adds substantive meaning to the three-class model. Finally, the average posterior class probabilities (AvePPs) ranged from .86 to .93, indicating adequate subgroup separation and classification precision.

Homogeneity and separation of subgroups. Item response probabilities were examined to identify the response patterns within each subgroup, and to ensure the homogeneity and separation of subgroups (see Figure 3). Subgroup 1 represented the largest proportion of the sample (47%) and had a low estimated probability of endorsing each item as occurring one or more times in the past 30 days (i.e., probability < .30). It was therefore labeled "limited involvement" to reflect a low—but not zero—probability of engaging in aggression and victimization.

Subgroup 2 included 17% of the sample and was like the limited involvement subgroup in that there were relatively low endorsement rates across the indicators of physical and relational aggression. These ranged from .02 to .27 across items, except for the items "shoved or pushed someone" and "hit or slapped someone" (Probability = .46 and .34, respectively). As noted previously, these two items were the most commonly endorsed by the sample. Adolescents in Subgroup 2 showed more variability in the probabilities of endorsing items related to victimization. Items with low probabilities included being hit by another kid, having another kid threaten to hurt or physically harm them, and having another a kid tell lies about them to make other kids not like them (Probability = .29, .13, and .18, respectively). Adolescents in Subgroup 2 had higher probabilities of endorsing that they have been yelled at or called mean names by another kid, have had someone try to keep others from liking them by saying mean things about

Figure 3. Item probability plot for 4-class unconditional model among full sample.



them, and have had someone had spread a false rumor about them at least once in the past 30 days (Probability = .71, .77, and .70, respectively). Subgroup 2 was characterized by a low probability of endorsing most items related to aggression and a high probability of endorsing three of the five items related to victimization and was therefore labelled “Predominant-victims”.

Subgroup 3, representing 25% of the sample, had a moderate to high probability of endorsing several items related to physical aggression, and a low probability of endorsing items related to relational aggression and victimization. Individuals within Subgroup 3 evidenced high estimated probabilities of endorsing that they have hit or slapped someone and shoved or pushed someone at least once in the past 30 days (Probability = .91 and .93, respectively). When taken with their moderate probability of endorsing other indicators of physical aggression, the response pattern within Subgroup 3 is consistent with the theoretical subgroup of “Predominant-aggressors”.

Subgroup 4, representing 12% of the sample, displayed a response pattern that starkly contrasted that of the limited involvement subgroup. Subgroup 4 tended to overlap with the predominantly-aggressive subgroup on indicators of physical aggression (i.e., “hit or slapped someone”; “shoved or pushed someone”), and with the predominantly-victimized subgroup on indicators of relational victimization (i.e., someone tried to keep others from liking you by saying mean things about you; someone spread a false rumor about you). Subgroup 4 also had a high likelihood (Probability > .7) of endorsing the following items: “Said things about kids to make other kids laugh”, “Been hit by another kid”, “Been pushed or shoved by another kid”, “Another kid tried to get you to fight”, and “Had a kid tell lies about you to make other kids not like you anymore”. This pattern of item response probabilities indicates that individuals within

this subgroup are both aggressive and victimized, consistent with the theoretical subgroup of "Aggressive-victims".

All subgroups had a low probability of endorsing items related to relational aggression. Aggressive-victims were the only subgroup with estimated probabilities above .30 for two specific items (i.e., "left another kid out on purpose when it was time to do an activity"; "Didn't let another kid be in your group anymore because you were mad at them"). All subgroups had an estimated probability less than .30 on the remaining relational aggression items. Nevertheless, a priori hypotheses underscored the theoretical and empirical significance of these items and they were retained in all analyses.

Sex Differences

To determine whether the latent class structure differed by sex, a series of LCAs were conducted separately for male adolescents (n = 455) and female adolescents (n = 529). A four-class solution was identified for both male adolescents and female adolescents (see Table 5 for model fit indices). Consistent with the findings in the overall sample, item response patterns indicated the following subgroups among males and females, respectively: predominant victims (15%; 16%), predominant aggressors (27%; 24%), aggressive-victims (12%; 10%), and limited involvement (46%; 50%) (see Figures 4-7).

Among female adolescents, the LMR-LRT indicated that the addition of another subgroup to the four-class model did not significantly improve model fit. Additionally, the four-class solution had the lowest BIC value and examination of a scree plot indicated that the reduction in aBIC values across models diminished greatly after the four-class model. The BLRT indicated models with increasing number of classes improved in fit from the $k - 1$ class model. However, given conflicting evidence from several other fit indices, the BLRT significance value

Table 5.
Fit indices for unconstrained latent class models for the full sample and subsamples by sex and school.

	No. of subgroups	No. of parameters	Log likelihood	BIC	aBIC	LMR-LRT sig.	BLRT sig.	Entropy	Smallest subgroup size	Condition number
Full sample (N = 984)	1	22	-11034	22220	22150	-	-	-	100%	3.72E-02
	2	45	-9688	19686	19543	.000	.000	.860	43%	1.47E-02
	3	68	-9336	19141	18925	.000	.000	.866	21%	1.02E-02
	4	**91**	**-9156**	**18940**	**18651**	**.000**	**.000**	**.849**	**12%**	**4.91E-03**
	5	114	-9080	18945	18583	.292	.000	.854	7%	1.49E-03
	6	137	-9006	18956	18521	.234	.000	.829	7%	7.86E-04
	7	160	-8944	18990	18482	.528	.000	.831	6%	1.59E-03
	8	183	-8897	19055	18474	.565	.000	.811	6%	1.01E-04
Female adolescents (n = 529)	1	22	-5824	11786	11717	-	-	-	100%	2.87E-02
	2	45	-4964	10211	10068	.000	.000	.905	44%	5.82E-03
	3	68	-4747	9921	9705	.000	.000	.908	22%	6.09E-03
	4	**91**	**-4631**	**9833**	**9544**	**.013**	**.000**	**.891**	**10%**	**4.58E-03**
	5	114	-4586	9887	9525	.349	.000	.905	6%	1.56E-03
	6	137	-4538	9936	9501	.126	.000	.900	5%	1.31E-03
	7	160	-4497	9998	9490	.504	.000	.885	5%	9.39E-04
Male adolescents (n = 455)	1	22	-5138	10411	10342	-	-	-	100%	4.09E-02
	2	45	-4616	9507	9364	.000	.000	.846	38%	2.22E-02
	3	68	-4472	9360	9144	.005	.000	.859	18%	2.42E-02
	4	**91**	**-4396**	**9349**	**9060**	**.018**	**.000**	**.851**	**12%**	**5.80E-03**
	5	114	-4336	9369	9008	.371	.000	.838	8%	3.43E-03
	6	137	-4313	9465	9030	.707	.600	.873	6%	4.48E-04
	7	160	-4242	9464	8956	.216	.000	.878	6%	1.01E-03
School 1 (n = 591)	1	22	-6227	12594	12524	-	-	-	100%	2.93E-02
	2	45	-5430	11147	11004	.000	.000	.875	39%	1.11E-03
	3	68	-5221	10876	10660	.001	.000	.887	20%	9.38E-03
	4	**91**	**-5101**	**10783**	**10494**	**.560**	**.000**	**.866**	**10%**	**3.62E-03**
	5	114	-5039	10805	10443	.192	.000	.870	7%	5.03E-03
	6	137	-4993	10859	10424	.160	.000	.864	6%	2.93E-03
	7	160	-4954	10928	10420	.294	.000	.847	5%	2.41E-04
School 3 (n = 305)	1	22	-3647	7420	7350	-	-	-	100%	3.97E-02
	2	45	-3240	6736	6594	.000	.000	.859	39%	1.52E-02
	3	68	-3116	6620	6405	.006	.000	.873	26%	1.78E-03
	4	**91**	**-3052**	**6625**	**6337**	**.020**	**.000**	**.875**	**12%**	**4.57E-03**
	5	114	-3005	6663	6302	.540	.000	.898	12%	2.87E-03
	6	137	-2973	6730	6295	.202	.000	.902	7%	8.51E-05

Note: BIC = Bayesian Information Criterion; aBIC = Sample size adjusted BIC; LMR-LRT = Lo-Mendell-Rubin likelihood ratio test; BLRT = Bootstrap likelihood ratio test; LRTs and Entropy not applicable for 1-class models.

was not considered in the latent class enumeration process. The four subgroups were well separated and demonstrated within-subgroup homogeneity,with AvePPs ranging from .91 to .96.

Among male adolescents, the LMR-LRT indicated that, relative to the four-class model, the addition of another subgroup (i.e., five-class model) did not significantly improve model fit. The four-class solution also had the lowest BIC value, and examination of a scree plot indicated that the magnitude of the reduction in aBIC values across models diminished after the four-class model. AvePPs ranged from .86 to .93, indicating adequate separation of subgroups and within-subgroup homogeneity.

Analyses were conducted to examine proportions of male and female adolescents in each subgroup within models of the full sample. Comparison of posterior subgroup probabilities revealed significant sex differences in subgroup membership, Wald χ^2 (3, 984) = 11.18, p = .011 (see Figure 8). Given membership in either the limited involvement subgroup or the predominantly-aggressive subgroup, male adolescents were significantly more likely than female adolescents to be in the predominantly-aggressive subgroup (OR = 1.78, p = .002). Male adolescents were also significantly more likely than female adolescents to be predominant aggressors given membership in either the predominantly-aggressive or the predominantly victimized subgroup (OR = 1.85, p = .012).

School Differences

A series of LCAs were conducted separately for adolescents at School 1 (n = 591) and adolescents at School 3 (n = 305) to investigate whether the latent class structure differed by school. School 2 was not examined because the sample size was insufficient (n = 88). A four-class solution was identified for both School 1 and School 3 (see Table 5 for model fit indices). Consistent with the findings in the overall sample, item response patterns indicated the following

Figure 4. Item probability plot for Limited Involvement subgroup in 4-class unconditional models conducted separately by full sample (with error bars), school, and sex.

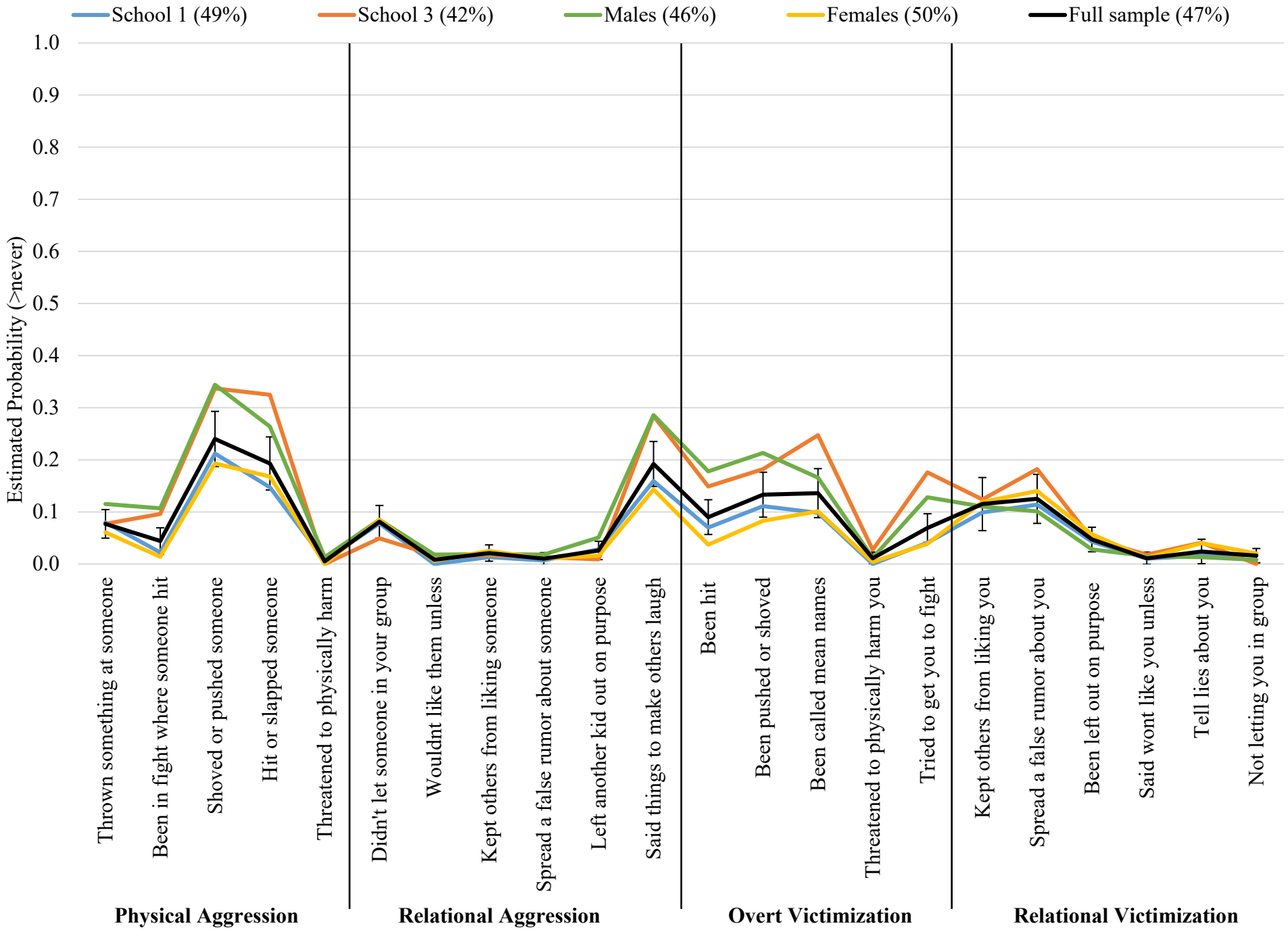


Figure 5. Item probability plot for Predominant-Victims subgroup in 4-class unconditional models conducted separately by full sample (with error bars), school, and sex.

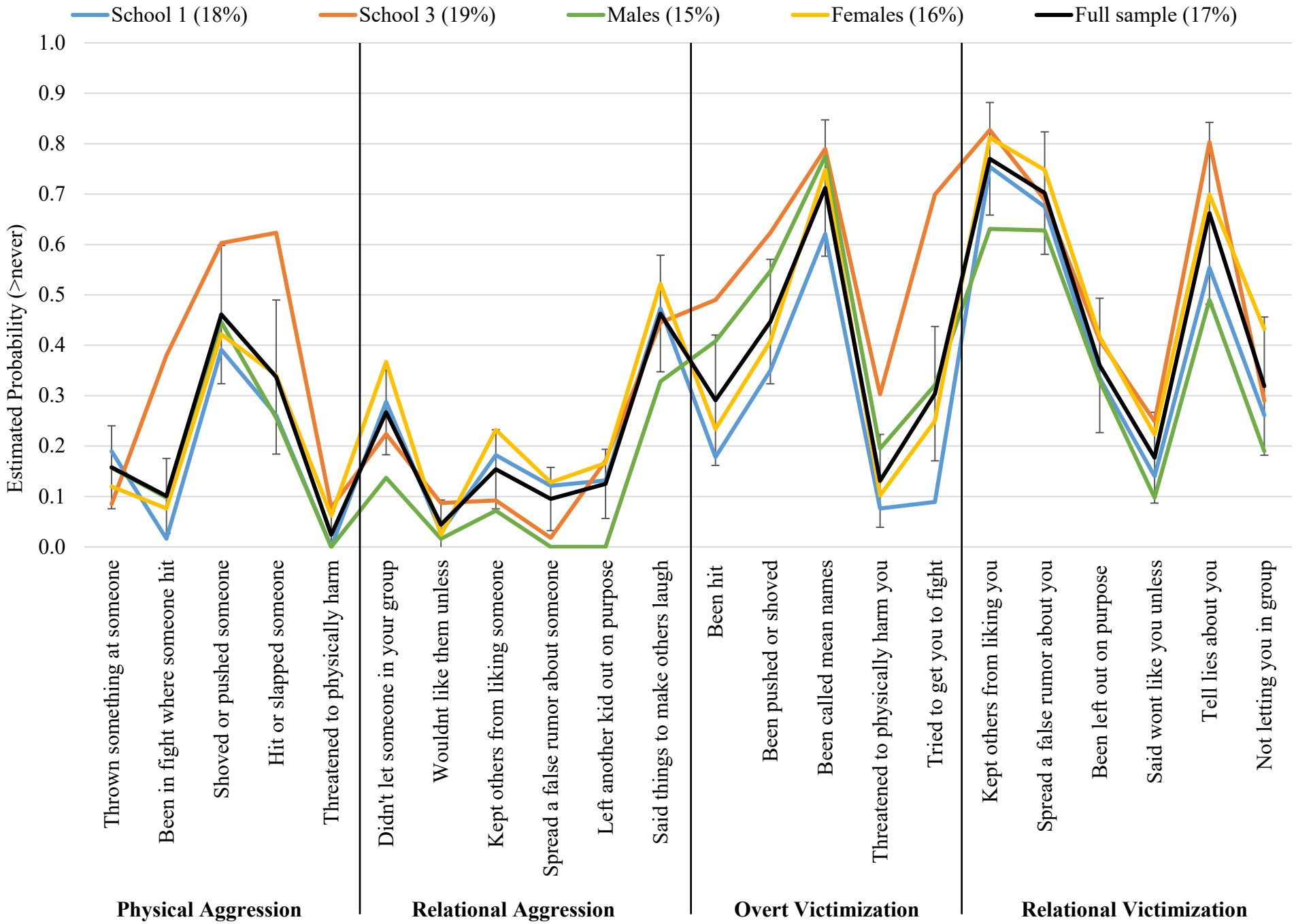


Figure 6. Item probability plot for Predominant-Aggressors subgroup in 4-class unconditional models conducted separately by full sample (with error bars), school, and sex.

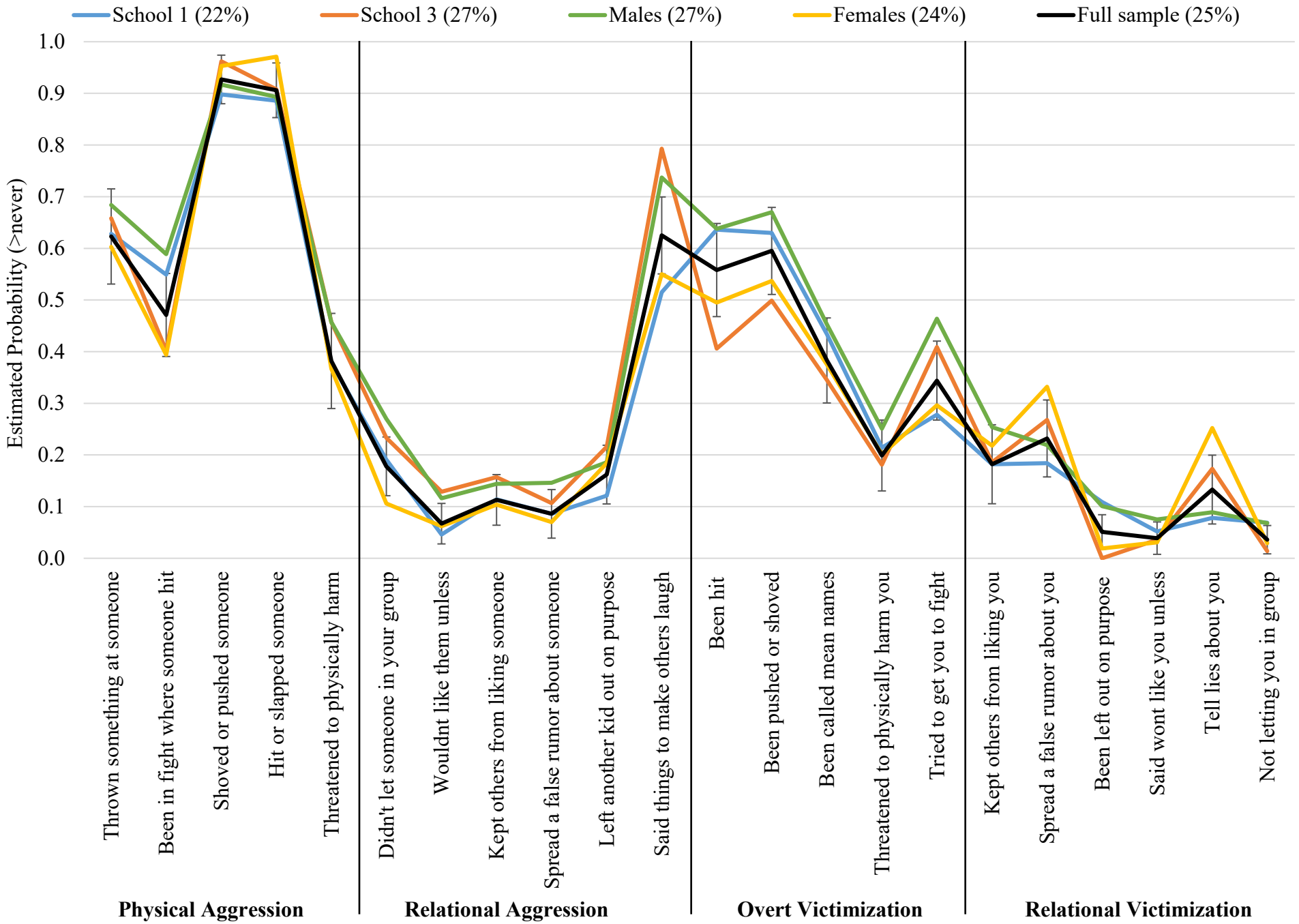
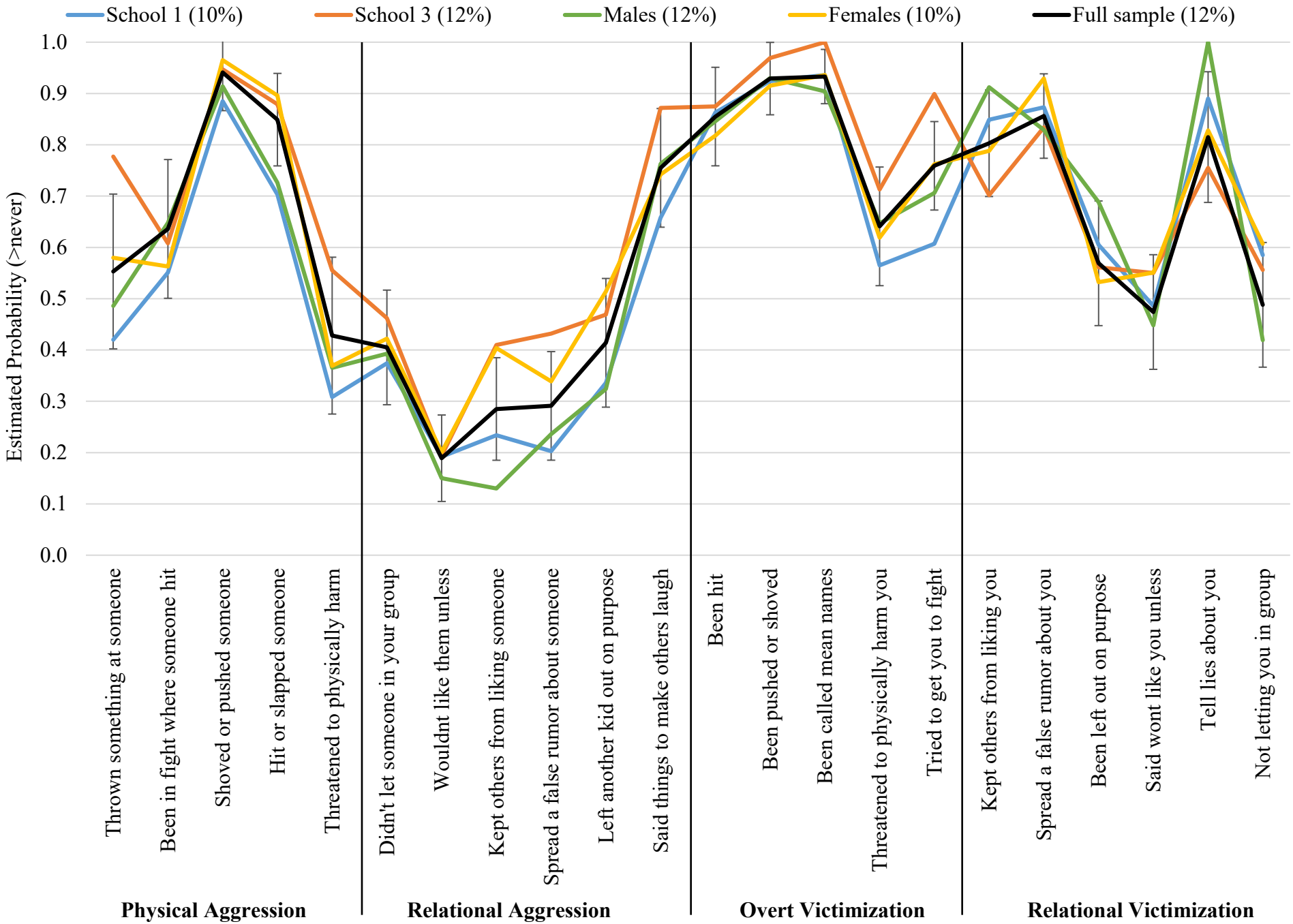


Figure 7. Item probability plot for Aggressive-Victims subgroup in 4-class unconditional models conducted separately by full sample (with error bars), school, and sex.



subgroups: predominant victims (School 1 = 18%; School 3 = 19%), predominant aggressors (School 1 = 24%; School 3 = 27%), aggressive-victims (School 1 = 10%; School 3 = 12%), and limited involvement (School 1 = 49%; School 3 = 42%) (see Figures 4-7).

Among adolescents at School 1, both the three-class model and the four-class model fit the data well. The LMR-LRT was not significant for the four-class model compared with the three-class model, indicating that the addition of another subgroup did not significantly improve the fit of the model. On the other hand, the four-class model had a lower BIC and aBIC. Given these findings, the four-class model did not improve upon the fit of the three-class model, but both models fit similarly well. Further, the substantive interpretation of the subgroup-specific response patterns in the four-class model was more consistent with previous research and theory (e.g., Bettencourt & Farrell et al., 2013; Schwartz et al., 2001). In examining the item response probabilities of the three-class model, the subgroups appeared to represent physical aggressive-victims (22%), highly victimized aggressive-victims (20%), and limited involvement (59%). On the other hand, the four-class model revealed the same patterns as prior studies and models for other subsamples within this study. The four-class model also demonstrated adequate homogeneity and separation, with AvePPs ranging from .88 to .95.

Among adolescents attending School 3 (n = 305), the four-class model fit the data well relative to the other k-class models. Although the three-class model had the lowest BIC value, the significance of the LMR-LRT for the four-class model indicates that the three-class model should be rejected in favor of a four-class model. Further, the aBIC was lower in the four-class model. AvePPs ranged from .92 to .97 for the four-class model, indicating adequate separation between subgroups and within-subgroup homogeneity.

Figure 8. Probability of class membership by sex with 95% confidence intervals.

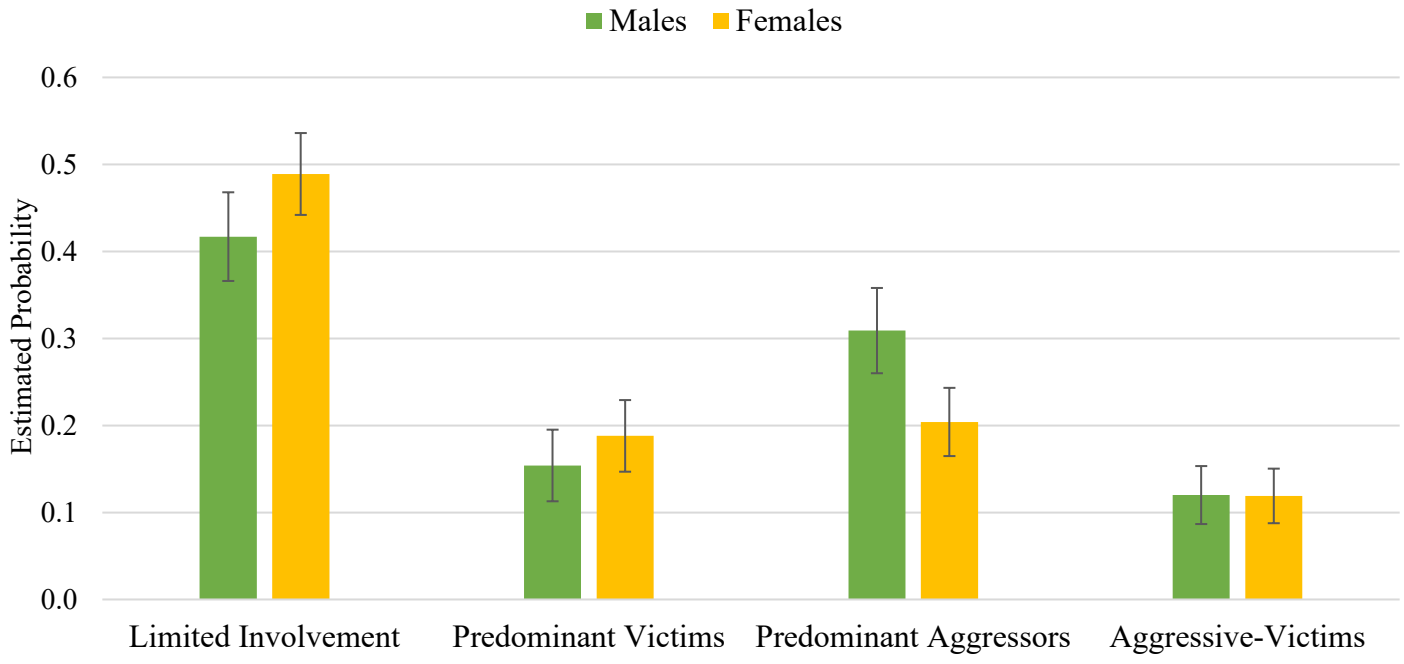
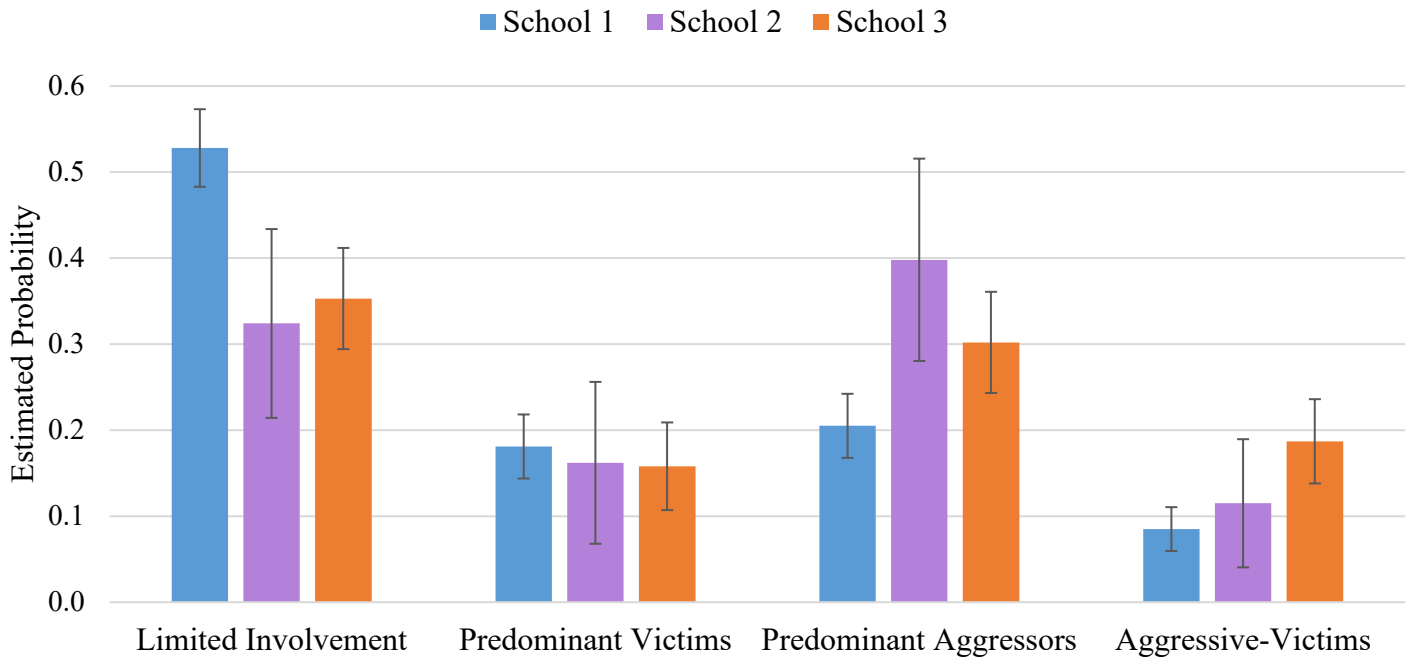


Figure 9. Probability of class membership by school with 95% confidence intervals.



Analyses were conducted to examine proportions of adolescents at each school in each subgroup within models of the full sample, with School 1 as the reference group. School significantly predicted subgroup membership, Wald $\chi 2$ (6, 984) = 40.18, $p < .001$. The probability of subgroup membership for adolescents at each school is displayed in Figure 9. Given membership in either the limited involvement or predominantly-aggressive subgroup, adolescents at School 2 (OR = 3.16, $p < .001$) and adolescents at School 3 (OR = 1.78, $p = .002$) are significantly more likely to be in the predominantly-aggressive subgroup than adolescents at School 1. Adolescents at School 3 are also significantly more likely than adolescents at School 1 to be in the aggressive-victims subgroup relative to the limited involvement subgroup (OR = 2.19, $p < .001$), given membership in either subgroup. Among those in either the predominantly-victimized subgroup or the aggressive-victims subgroup, adolescents at School 3 are significantly more likely to be in the aggressive-victims subgroup than adolescents at School 1 (OR = 2.52, $p = .003$).

Differences in Social and Emotional Functioning Across Subgroups

Planned contrasts were used to test mean differences in social emotional functioning among the four latent classes (see Table 6). I compared a model in which the effects of sex and school (with School 1 as the reference group) on the outcome variables were allowed to vary across subgroups to a second model in which the effects were constrained to be equal across

Table 6.
Contrast codes for planned contrasts.

	Main effect of Aggression	Main effect of Victimization	Aggression x Victimization Interaction
Limited Involvement	-.5	-.5	.5
Predominant Victims	-.5	.5	-.5
Predominant Aggressors	.5	-.5	-.5
Aggressive-Victims	.5	.5	.5

subgroups. Results indicated that the second model fit the data better than the unconstrained model, TRd (30, $N = 984$) = 52.8, $p = .006$. As a result, the influence of sex and school was constrained to be equal across subgroups in subsequent analyses. Table 7 displays the effect size estimates for each contrast.

Main effect of aggression. Relative to non-aggressive subgroups (i.e., limited involvement, predominant victims), I hypothesized that aggressive subgroups (i.e., aggressive-victims, predominant aggressors) would exhibit greater levels of dysregulated displays of anger, poorer coping skills to manage anger, stronger beliefs supporting the use of instrumental aggression, and higher levels of teacher-reported aggression. These hypotheses were supported, with large main effects of aggression on dysregulated anger expression ($d = .86$) and beliefs supporting instrumental aggression ($d = .78$). Results also indicated a moderate main effect of aggression on anger emotion regulation coping ($d = -.64$), and a small main effect of aggression on teacher-reported aggressive behavior ($d = .20$).

Table 7.
Effect size estimates (Cohen's d) for planned contrasts.

	Main effect of aggression	Main effect of victimization	Aggression x Victimization Interaction
Dysregulated anger expression	0.86***	0.25**	-0.04
Anger emotion regulation coping	-0.63***	-0.13	0.17*
Depressive symptoms	0.41***	0.66***	-0.10
Reactive aggression	0.71***	0.01	-0.20*
Instrumental aggression	0.78***	-0.10	-0.10
Aggressive Behavior [T]	0.20*	0.13	0.03
Emotion regulation [T]	-0.23**	0.01	-0.07
Emotion lability/negativity [T]	0.27**	0.14	0.08
Frustration Tolerance [T]	-0.23**	-0.13	0.01
Peer Social Skills [T]	-0.21*	0.00	0.00

Note: [T] indicates teacher-report measure.
*$p < .05$, **$p < .01$, ***$p < .001$.

In addition to hypothesized main effects, the results also indicated a main effect of aggression on all other indices of social and emotional functioning examined. Overall, aggressive and non-aggressive subgroups were significantly different in their social and emotional functioning based on both teacher- and self-report, with effect sizes ranging from small to large (|*d*|s = .20 to .86). The magnitude of the effect was largest for dysregulated anger expression and beliefs supporting instrumental aggression (*d*s = .86 and .78, respectively). The direction of the effects favored the non-aggressive subgroups, with the mean score among aggressive subgroups indicating poorer functioning.

Main effect of victimization. I hypothesized that there would be a significant main effect of victimization on depressive symptoms. This hypothesis was supported, as results indicated that high levels of victimization had a moderate effect on depressive symptoms (*d* = .66). There was also a small main effect of victimization on dysregulated anger expression (*d* = .25). Overall, there were significant mean differences between victimized (i.e., predominant victims, aggressive-victims) and non-victimized subgroups (i.e., predominant aggressors, limited involvement), with victimized subgroups reporting greater depressive symptoms and dysregulated expression of anger. There were no other significant mean differences between victimized and non-victimized subgroups.

Aggression x Victimization interaction effect. I hypothesized that there would be an Aggression x Victimization interaction effect for emotion regulation, emotion lability/negativity, frustration tolerance, beliefs supporting the use of reactive aggression, and peer social skills. Specifically, I hypothesized that aggressive-victims would exhibit poorer functioning than all other subgroups for these constructs. Only two significant Aggression x Victimization interaction effects emerged. There was a small interaction effect for beliefs supporting reactive aggression

Figure 10. Aggression x Victimization interaction for beliefs supporting reactive aggression using standardized subgroup-specific intercepts.

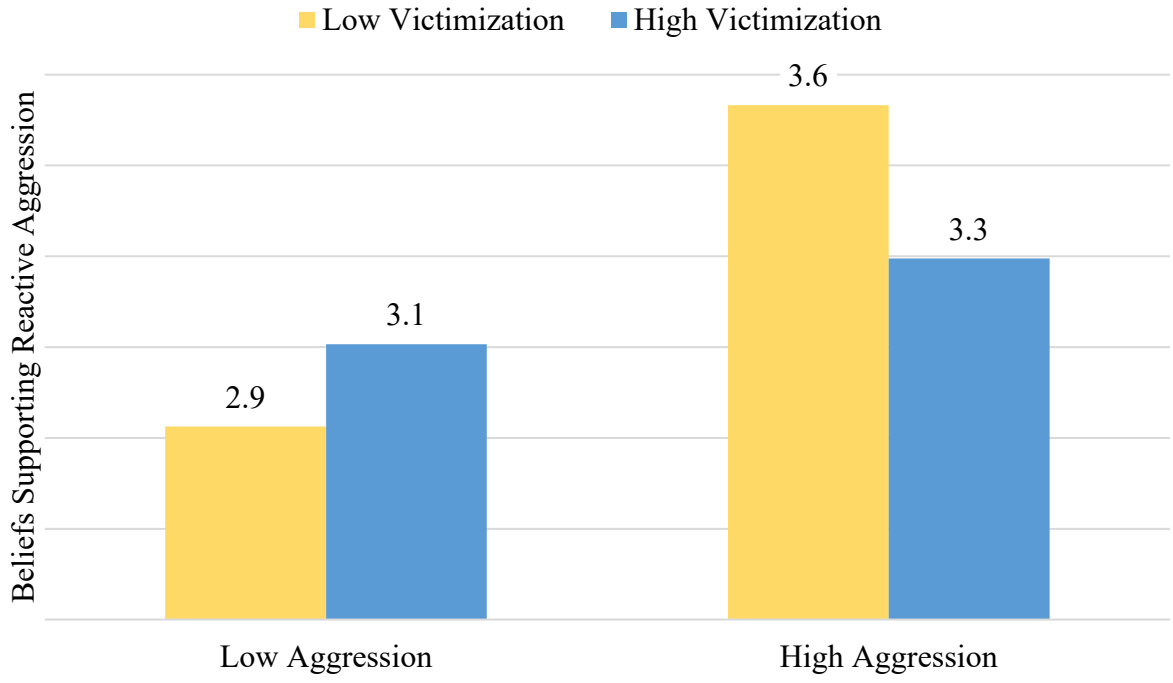
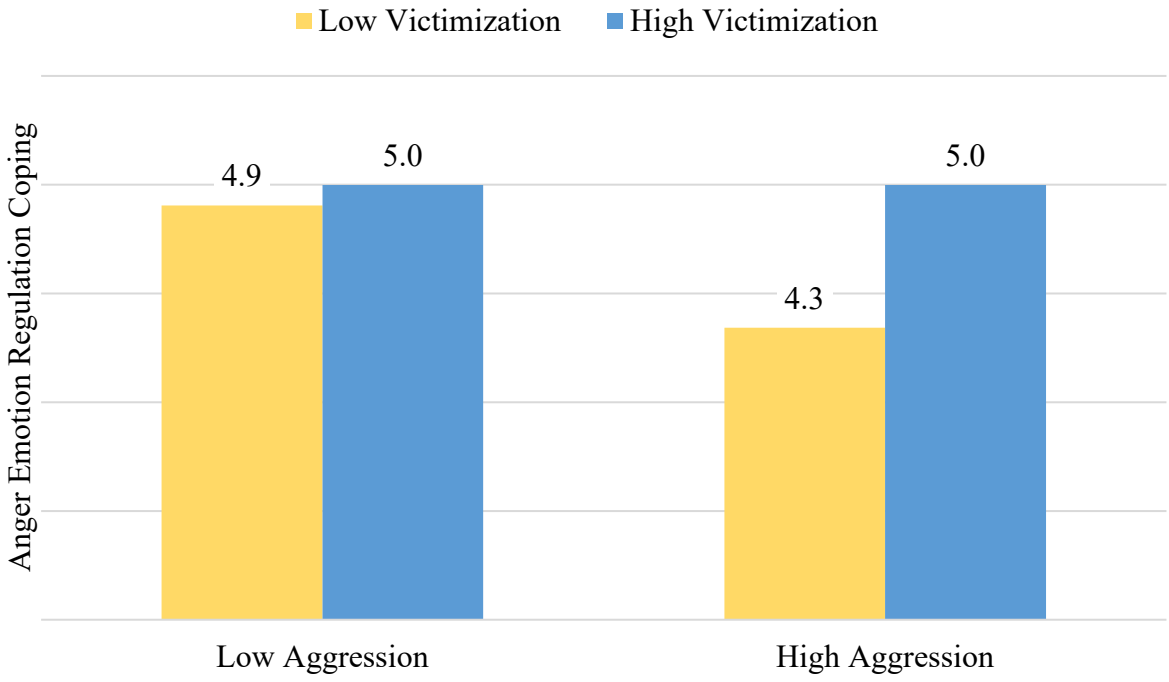


Figure 11. Aggression x Victimization interaction for anger emotion regulation coping using standardized subgroup-specific intercepts.



(d = .20). Among subgroups with low levels of aggression (i.e., predominant victims, limited involvement), membership in the predominant victim subgroup predicted greater beliefs supporting reactive aggression (see Figure 10). The difference among subgroups with high levels of aggression (i.e., aggressive-victims, predominant aggressors) was more pronounced; contrary to hypotheses, membership in the predominantly-aggressive subgroup predicting more beliefs supporting reactive aggression.

Results indicated a small Aggression x Victimization interaction effect for anger emotion regulation coping (d = .17). I hypothesized that both aggressive subgroups would exhibit a similar ability to cope with anger, but would differ from non-aggressive subgroups. Subgroups with low levels of aggression did not differ in their ability to cope with their anger. However, contrary to hypotheses, differences were found between the two aggressive subgroups such that those in the aggressive-victim subgroup had a greater ability to cope with anger relative to those in the predominant aggressor subgroup (see Figure 11). My other hypotheses were also not supported; results indicated a lack of interaction effects for emotion regulation (d = -.07), emotion lability/negativity (d = .08), frustration tolerance (d = .01), and peer social skills (d = .00).

Discussion

The aims of the present study were to determine whether subgroups of early adolescents who differ in their patterns of aggression and victimization could be identified, clarify whether the number and structure of subgroups differ by school or sex, and ascertain whether and to what degree the social and emotional functioning of aggressive-victims differs from youth with other patterns of aggression and victimization. Schwartz et al. (2001) and others have described aggressive-victims as a subgroup of youth who are distinct from youth who are only aggressive,

only victimized, or are neither aggressive nor victimized. Theoretical conceptualizations of these subgroups distinguish aggressive-victims from youth with other patterns of involvement in aggression and victimization by their emotionally dysregulation, poor social skills, and tendency to engage in reactive aggression (Schwartz et al., 2001). Predominant aggressors, on the other hand, are portrayed as socially skilled, popular, and methodical in their use of aggression (Schwartz et al., 2001). Predominantly victimized youth are conceptualized as being more anxious and withdrawn than aggressive-victims (Schwartz et al., 2001).

Based on theory and prior research, I hypothesized that four patterns of aggression and victimization would be identified. Results supported this hypothesis, with response patterns within each subgroup representing aggressive-victims (12%), predominant victims (17%), predominant aggressors (25%), and youth with limited involvement (47%). These findings are consistent with most previous studies that have used latent class analysis (LCA) to examine patterns of aggression and victimization (Bettencourt & Farrell, 2013; Bettencourt et al., 2013; Lovegrove et al., 2012). The findings are also aligned with theory that describes aggressive-victims as a subgroup that is distinct from other youth given their aggressive behavior and concurrent experiences of peer victimization (see Schwartz et al., 2001).

The consistency of these findings with prior work is notable given that I used a greater number of latent class indicators. The indicators used in the present study were also more balanced in terms of the types of aggression and victimization examined relative to prior work. Previous studies have included 6 (e.g., Lovegrove et al., 2012) to 12 latent class indicator variables (Williford et al., 2011), with most indicators focused on physical forms of aggression and victimization (e.g., Bettencourt et al., 2013; Lovegrove et al., 2012). The present study examined 22 indicators, with five representing physical aggression, six for relational aggression,

five for physical victimization, and six for relational victimization. Given evidence that the inclusion of a greater number and higher quality of indicators can lead to more converged replications, fewer boundary parameter estimates, and less parameter bias (Wurpts & Geiser, 2014), the congruency of the findings with those of previous studies lends validity to the four distinct patterns of aggression and victimization that have been identified consistently in the literature (Schwartz et al., 2001).

In the present study, the inclusion of items representing relational aggression revealed relatively small differences across subgroups in their endorsement and most were infrequently endorsed by all four subgroups. This indicates that relational aggression was of limited value in identifying homogenous subgroups within the sample. Previous studies examining aggressor-victim subgroups tend to rely largely on indicators of physical aggression. As a result, retaining indicators of relational aggression in analyses for the present study provided valuable information about the absence of differences on these indicators. Future work is needed to examine whether this finding is replicated in other samples, as relational aggression is widely regarded as an important and prevalent type of aggression.

Differences by Sex and School

Support was found for the hypothesis that patterns of aggression and victimization could be represented by four subgroups for both male and female adolescents. Although the characteristics of the subgroups did not differ by sex, there were differences in subgroup membership for female and male adolescents such that male adolescents were more likely than female adolescents to be classified as predominant aggressors rather than predominant victims or limited involvement. These findings are consistent with Schwartz et al.'s (2001) review of the literature, which indicated that boys were generally overrepresented in the aggressive subgroups

(i.e., predominantly aggressive youth and aggressive-victims). However, the studies reviewed by Schwartz et al. (2001) relied on arbitrary cutoff methods to define groups, making the findings less reliable.

On the other hand, the findings of the current study differ from previous studies that did not find evidence of sex/gender differences in the probability of membership in the predominantly-aggressive subgroup (i.e., Bettencourt et al., 2013) or any of the subgroups (i.e., Williford et al., 2011; Bettencourt & Farrell, 2013), and one study that found boys were more likely to be in one of the victimized subgroups (Lovegrove et al., 2012). Variability in the findings regarding sex differences across studies may reflect contextual differences. Both Williford et al. (2011) and Bettencourt and Farrell (2013) did not find gender differences based on primarily racial and ethnic minority samples of youth attending urban public schools. It may be that gender socialization differs by context. For example, youth residing in neighborhoods with high rates of crime and poverty may receive more messages supporting the use of aggression from their peers and caregivers regardless of their gender, as aggression can serve to protect oneself or prevent future victimization in high-risk contexts. Research is needed that investigates whether the interaction between gender and community contextual factors impacts the probability of membership in aggressor/victim subgroups.

In alignment with hypotheses, patterns of aggression and victimization could be represented by four subgroups for both School 1 and School 3 despite differences in the demographic characteristics and location of these schools. Four subgroups have also been found in other studies that have differed in sample characteristics (e.g., Lovegrove et al., 2012; Bettencourt & Farrell, 2013). There were, however, differences in the probabilities of subgroup membership between schools. School 1 is a suburban school primarily composed of White

adolescents, whereas School 2 and School 3 are in semi-urban or urban settings, with a more racially and ethnically diverse student body. Adolescents at School 3 were more likely than adolescents at School 1 to be in one of the aggressive subgroups relative to the limited involvement subgroup. Further, adolescents at School 3 were more likely than adolescents at School 1 to be in the aggressive-victims subgroup relative to the predominantly-victimized subgroup. Given there were fewer adolescents sampled from School 2, comparisons to School 1 and School 3 may have lacked enough power to detect an effect (i.e., Type II error). Nevertheless, adolescents at School 2 were found to be significantly more likely than adolescents at School 1 to be classified as predominant aggressors compared with limited involvement. These findings suggest that contextual influences do not necessarily impact the number of patterns of aggression and victimization that are observed yet remain important predictors of subgroup membership.

To my knowledge, this is the first study to examine patterns of aggression and victimization among early adolescents separately by sex or school. Although four subgroups were consistently found for each sex and school, there was some evidence to suggest that the specific patterns may have varied somewhat. Examination of the item probability plots (Figures 4-7), reveals some potentially meaningful differences across groups. For example, it appears that female aggressive-victims had a higher probability of reporting that they kept others from liking someone than male aggressive-victims. Predominant victims at School 3 appeared to have a higher probability of endorsing items related to physical aggression compared with predominant victims at School 1. Future studies should investigate whether sex and school have a direct effect on item response probabilities. This can be done by testing differential item functioning (Masyn, 2017), a relatively new advancement in mixture modeling.

Social and Emotional Functioning Across Subgroups

The third aim of this study was to determine whether aggressive-victims are distinct in various facets of their social and emotional functioning. Prototypical descriptions of aggressor/victim subgroups suggest that aggressive-victims are the most impaired subgroup in terms of their social and emotional functioning (Schwartz et al., 2001). Schwartz et al., (2001) suggested that it is their poor emotion regulation abilities combined with their inadequate social skills and use of reactive aggression that puts aggressive-victims at the greatest risk of future maladjustment. Indeed, the findings of some studies have supported this theory (e.g., Garner & Hinton, 2010; Haynie et al., 2001). On the other hand, studies have also found that aggressive-victims do not differ from predominantly-aggressive or predominantly victimized youth in one or more aspects of social-emotional functioning (e.g., Camodeca et al., 2003; Graham et al., 2006).

Contrary to theory and my hypotheses, the findings of the present study indicate that aggressive-victims do not differ from predominant aggressors in their emotion regulation abilities, emotion lability/negativity, and frustration tolerance. However, differences in these aspects of emotional functioning were observed between the two aggressive subgroups (i.e., aggressive-victims, predominant aggressors) and the two non-aggressive subgroups (i.e., predominantly-victimized, limited involvement), such that youth with high aggression exhibited greater emotion dysregulation, emotion lability/negativity, and frustration intolerance than youth with low levels of aggression. These findings align with those of Schwartz (2000) who found that, although aggressive-victims differed from predominant victims and youth with limited involvement, aggressive-victims and predominant aggressors did not differ in terms of their emotion regulation. Notably, Schwartz (2000) used the same measure of emotion regulation as in the present study, although the emotional lability/negativity and they combined emotion

regulation scales into a single composite score. Contrary to hypotheses, the results of the present study suggested that emotional lability/negativity and emotion regulation did not provide unique information about emotional functioning; thus, it seems appropriate to combine these scales, as most previous studies have done (e.g., Tobin et al., 2005; Schwartz et al., 2005).

My hypothesis regarding the similarity in depressive symptoms among youth in the aggressive-victim and predominantly-victimized subgroups was confirmed. Membership in either of the victimized subgroups was associated with higher levels of depressive symptoms than in the two non-victimized subgroups. This finding is consistent with a large body of research linking depression and victimization (e.g., Reijntjes et al., 2010), and prototypical characterizations of aggressive-victims and predominant victims as socially isolated (Schwartz et al., 2001). There was also a main effect of aggression on depressive symptoms. Although this is a less common finding in the literature, two previous studies have found that aggressive-victims did not differ from predominant aggressors in terms of their depressive symptoms (Rigby, 1998; Toblin et al., 2005). The findings of the present study did not support a significant interaction effect for depressive symptoms. The lack of an interaction is consistent with some previous studies that found aggressive-victims are not unique from other subgroups in terms of depressive symptoms (Austin & Joseph, 1996; Graham et al., 2006; Rigby, 1998; Toblin et al., 2005). Overall, the findings of the present study indicate that involvement in aggression or victimization as the victim and/or perpetrator is associated with higher levels of depressive symptoms.

Prior work has consistently found an association between anger and aggressive behavior (Bettencourt et al., 2013; Lovegrove et al., 2012). As a result, I hypothesized that aggressive-victims would be similar to predominantly aggressive youth in terms of anger dysregulation (i.e., dysregulated anger expression, anger emotion regulation coping). Relative to those in the two

low aggression subgroups (i.e., predominantly-victimized and limited involvement subgroups), those in the two higher aggression subgroups (i.e., aggressive-victims and predominant aggressors) displayed higher levels of dysregulated anger expression. Although the two subgroups with low levels of aggression (i.e., predominant victims, limited involvement) did not differ from each other in their ability to cope with their anger, differences were found between the two aggressive subgroups. Compared with predominant aggressors, aggressive-victims had a greater ability use effective coping strategies to manage their anger. This directly contradicts theoretical conceptualizations of aggressive-victims as more emotionally dysregulated and socially inept than predominant aggressors. Aggressive subgroups did not differ on teacher-reported measures of emotion dysregulation, emotion lability/negativity, and frustration intolerance. Although predominantly aggressive youth and aggressive-victims display poor social and emotional functioning relative to youth in non-aggressive subgroups, aggressive-victims may receive more consequences at home and school for their poorly modulated emotional displays (Schwartz et al., 2001) and thus receive intervention to minimize or prevent anger outbursts (e.g., advice from teacher/parent about how to cope with anger) . Future research should investigate whether aggressive-victims receive more guidance and support from caring adults than predominant aggressors.

Theory suggests that the use of reactive aggression is one of the primary characteristics distinguishing aggressive-victims from predominantly aggressive youth (e.g., Schwartz et al., 2001). Predominant aggressors are thought to use controlled aggression as an instrumental strategy during social exchanges, thus differing from aggressive-victims in that their behavior is not driven by underlying states of intense anger, but represents an efficacious social strategy (Perry et al., 1992). In the present study, I examined beliefs supporting the use of reactive and

instrumental aggression across subgroups. I hypothesized that aggressive-victims would hold stronger beliefs supporting reactive aggression compared with all other subgroups, whereas both aggressive-victims and predominant-aggressors would exhibit stronger beliefs supporting the use of instrumental aggression. Only the latter hypothesis was supported; aggressive subgroups reported stronger beliefs supporting the use of both reactive and instrumental aggression in response to problem situations. These findings are in line with Bettencourt and Farrell (2013) findings, which indicated that both aggressive subgroups reported stronger beliefs supporting the use of instrumental and reactive aggression compared with non-aggressive subgroups, but did not differ from one another. Bettencourt and Farrell (2013) noted that beliefs supporting the use of instrumental and reactive aggression do not necessarily indicate that the behavior is carried out successfully. Whereas aggressive-victims endorse beliefs supporting the use of instrumental aggression, they may lack the social skills to successfully enact instrumental aggression to achieve social goals.

Results of the present study also revealed a small but significant Aggression x Victimization interaction effect for beliefs supporting the use of reactive aggression. Among subgroups with low levels of aggression, predominant victims reported stronger beliefs supporting reactive aggression than those with limited involvement. The difference among subgroups with high levels of aggression (i.e., aggressive-victims, predominant aggressors) was more pronounced, with predominant aggressors reporting more beliefs supporting reactive aggression. These findings contrast the theoretical notion of aggressive-victims as more prone to reactive aggression than predominant aggressors, who have sufficient social and emotional skills to avoid reactive and impulsive aggression and instead use aggression to achieve social goals (Schwartz et al., 2001). Prior research suggests that aggressive-victims repel their peers with

their maladaptive and disruptive behaviors (e.g., Andreou, 2001), whereas predominant aggressors are socially skilled and methodical in their use of aggression to gain social status (i.e., instrumental aggression; Schwartz et al., 2001). The results of the present study suggest that both aggressive subgroups have poor social skills relative to non-aggressive subgroups, according to teacher-report measures. This finding is contrary to the hypothesis that predominantly aggressive youth have better social skills than victimized subgroups, a prediction based on the prototype of predominant aggressors as socially intelligent youth who use aggression to gain status and manipulate their peers (Schwartz et al., 2001).

Teachers reported higher levels of aggression for aggressive-victims and predominantly aggressive youth relative to non-aggressive youth, with a small effect size. This finding is consistent with the notion that aggressive-victims are disruptive and impulsively aggressive, as these behaviors are likely to draw the attention of teachers. The results do not fit with theoretical conceptualizations of predominant aggressors, however (Schwartz et al., 2001). Specifically, the prototypical predominant aggressor uses more instrumental aggression than aggressive-victims, which may require more thoughtfulness or planning and thus is less likely to observed by teachers. Clearly, the findings of the present study paint a picture of both aggressive subgroups as both instrumentally and reactively aggressive, with similarly dysregulated emotions and poor coping skills and social skills.

Implications and Future Directions

The results of this study address an important gap in the literature regarding whether aggressive-victims are distinct from other subgroups. Although empirical evidence and theory suggest that aggressive-victims experience consequences of both aggression and victimization, previous research has not explicitly addressed the question of whether they possess

characteristics that distinguish them from predominant aggressors and predominant victims. The findings of the present study indicate that aggressive-victims are not qualitatively different from youth with other patterns of aggression and victimization in terms of their social and emotional functioning. More specifically, mean levels of social and emotional functioning among aggressive subgroups (i.e., aggressors and aggressive-victims) differed significantly from non-aggressive subgroups (i.e., predominant victims and limited involvement), suggesting that aggression plays a critical role in the maladjustment of aggressive adolescents regardless of the degree to which they experience victimization.

These findings have important implications for intervention and prevention programs aimed at reducing aggression and victimization. Universal interventions targeting social and emotional risk factors related to aggressive behavior would likely reduce aggressive behavior among both predominant aggressors and aggressive-victims, and thus reduce victimization. Moreover, the findings of the current study indicate that developing or implementing more focused and specific interventions to address unique characteristics of aggressive-victims may not be necessary, as they share an abundance of characteristics with predominant aggressors and are likely to benefit from similar interventions. Future research should validate this hypothesis by examining differences between aggressive-victims and predominant aggressors in intervention program outcomes.

The present study improved upon previous research in terms of the more rigorous approach to clarifying differences in the number and structure of latent classes by sex and school, and by determining whether the probability of subgroup membership differs as a function of sex or school. Recently, statisticians have emphasized the importance of investigating differential item functioning (i.e., the direct effect from the predictor to each latent class indicator) in

addition to determining the indirect effect of predictors on the latent class indicators (Masyn, 2017). This is an important advancement, as the prediction model can yield biased estimates if direct effects from the predictors to the indicators are omitted in the stepwise procedure (Masyn, 2017). Future studies should consider how predictors or covariates influence within-subgroup item response probabilities.

The findings of longitudinal studies indicate that some youth transition into different subgroups across early adolescence. Bettencourt and colleagues (2013) found that youth who were classified as predominant-aggressors or predominant-victims in sixth grade were more likely than youth in the well-adjusted subgroup to transition into the aggressive-victims subgroup in seventh grade. Further, whereas the well-adjusted subgroup was the most stable in subgroup membership over time, the predominantly victimized class was the least stable (Bettencourt et al., 2013). Despite these intriguing findings, most previous studies examining aggressor/victim subgroups are cross-sectional. Future research should examine transitions between latent classes over time, and whether social and emotional functioning influence transitions to subgroups with more or less involvement in aggression and/or victimization. Examining transitions within multiple short-interval time points may also shed light on the stability of subgroup membership within each year of middle school and points at which intervention may be most critical (e.g., times when a large proportion of adolescents' transition to a more aggressive subgroup).

Limitations

Although the present study sought to address the limitations of prior work, it is not without limitations itself. The present study is inherently limited by its cross-sectional design, which precludes examination of the direction of effects, transitions in class membership over time, and potential confounding effects, such as seasonal variation in aggressive behavior

(Farrell et al., 2018) and history effects. It may be that schools had recently enacted policies to mitigate relational aggression. Notably, in 2008 (i.e., when data were collected from Cohort 1 in the present study), the Pennsylvania state department of education passed comprehensive anti-bullying legislation that included policy recommendations, disciplinary methods, cyberbullying, and intervention methods. In 2009 (i.e., when data were collected from Cohort 2 in the present study), Virginia amended their state anti-bullying policy to include electronic bullying, harassment, and intimidation in the State Board of Education model policies. Thus, systemic changes may have also influenced either the frequency of or the willingness to report relational aggression.

The current study sampled seventh grade adolescents from three middle schools; two schools in counties nearby Richmond, Virginia, and one school in inner-city Philadelphia, Pennsylvania. The results may not generalize to other grades or age groups. Further, the results may not generalize to youth residing in different regions of the country. The study's focus on two settings (Richmond, Virginia and Philadelphia, Pennsylvania) provided the opportunity to examine the consistency of findings. We found the same number of subgroups between School 1 and School 3, but we found differences in the proportion of individuals in each subgroup by School. Further work is needed with a broader range of settings and age groups to investigate how development and context influence subgroup membership.

Other limitations of the present study are related to the measurement of social and emotional functioning variables. Measures of beliefs supporting the use of reactive and instrumental aggression do not necessarily equate to actual engagement in reactive and instrumental aggression. For example, although aggressive victims endorsed the use of both instrumental and reactive aggression in the present study, it remains unclear whether aggressive-

victims and predominant aggressors would be able to successfully enact instrumental aggression. Future research should focus on assessing whether engaging in reactive and instrumental aggression varies across groups.

Given that the PBFS-AR has been validated in several samples (e.g., Farrell et al., 2018), the low base rate of relational aggression raises concerns regarding the accuracy of adolescents' self-report. Self-report measures are more commonly used among adolescents than teacher- or peer-report measures, as adolescents can provide more specific information about their own relationally aggressive behaviors and victimization, which are often covert, complex, and subtle (Serico, NeMoyer, Goldstein, Houck, & Leff, 2018). However, it is important to acknowledge validity concerns related to self-report data, particularly given that relational aggression is often seen undesirable (Serico et al., 2018). Social desirability, or one's desire to be perceived favorably, may lead an individual to underreport negative behaviors such as relational aggression (Serico et al., 2018). In the sample examined in present study, one specific relational aggression item was endorsed by 42% of the adolescents ("Said things about kids to make other kids laugh"). Interestingly, recent work by Farrell and colleagues (2018) indicated that, among a predominantly African American sample of middle school students, this item fit best with the verbal aggression scale of the PBFS-AR. Future studies are needed to clarify unique features of verbal and relational aggression and examine the degree to which perceptions of specific behaviors influence reporting. Additionally, future studies should consider including measures of relational aggression from additional reporters, such as teachers or peers.

Given that the present study examined a limited set of constructs related to social and emotional functioning across subgroups, it is possible that there may be other constructs that distinguish aggressive-victims from all other subgroups. The findings of the present study

indicated a main effect of aggression on teacher-reported peer social skills. However, a self-report measure of peer social skills was not examined. This is important to include in future work, as teachers only observe adolescents' social interactions in a specific context. Another construct related to social and emotional functioning that was not included in the present study is social rejection. Consistent with theory, two previous studies have found that aggressive-victims are unique from all other subgroups in that they experience a greater degree of social rejection than other youth (Schwartz, 2000; Toblin et al., 2005). Based solely on the findings of the present study, it is difficult to draw clear conclusions regarding whether aggressive-victims possess other unique characteristics that were not examined. Future research should examine both additional indices of social and emotional functioning and indices that have been used in previous work. Such studies would move the field forward by determining whether there are other characteristics that might differentiate aggressive-victims and whether the findings of previous work can be replicated.

A limitation of the present study and prior work is the use of binary indicators. Binary indicators provide the latent class model with less information about the individual's response on an indicator than ordered categorical or continuous indicators, increasing the potential for classification error. Unfortunately, the present study was limited by small cell sizes for item endorsement at a frequency of three or more times. It will be important for future studies to use larger samples or samples that endorse a higher frequency of aggression and victimization to investigate how the findings of the present study compare to models that use trichotomous or continuous indicators. The lack of studies examining patterns of aggression and victimization using continuous variables may result from a file drawer problem. Namely, some researchers may have attempted to use continuous indicators representing physical and relational aggression

and victimization, yet ran into problems regarding the distribution of the variables. Problem behavior scales can often be highly skewed and kurtotic. Although aggression and victimization are highly prevalent in early adolescence, the frequency of these behaviors is unlikely to mirror a Gaussian distribution, which would require 69% of the sample to endorse involvement at a moderate frequency. Although there are currently tools available in MPlus to deal with non-normal indicators in mixture modeling (e.g., skew-normal, t, and skew-t), these methods do not work well when continuous variables have strong floor or ceiling effects. I am hopeful that this issue will be addressed by statisticians as mixture modeling methods and best practices are continuously developed and refined.

It is important to note that LCA is an exploratory method. Similar to determining the number of factors that best fits the data in a factor analysis, latent class models specifying different numbers of subgroups must be compared to determine the number of subgroups that best represent the heterogeneity in the data. As a result, subgroups can be identified in the sample regardless of whether they truly exist in the population. Nevertheless, the benefits of LCA far outweigh its limitations. LCA addresses several challenges to subgroup analyses, such as arbitrary methods to define groups, high Type I error rate, lower statistical power that may vary across subgroups, and the inability to examine higher-order interactions (Lanza & Rhoades, 2013). Further, it minimizes measurement error and produces statistical fit indices that can serve to inform decisions regarding the number of subgroups. The use of LCA in the present study is an important strength, as it addresses the limitations of previous work that has defined subgroups using arbitrary cut-offs.

Conclusion

The findings of the present study provide support for a distinct subgroup of adolescents that are both perpetrators and victims of aggression. Aggressive-victims generally exhibited poor social and emotional functioning, with shared characteristics of both predominant-aggressors (e.g., emotion dysregulation, beliefs supporting reactive and instrumental aggression, poor social skills) and predominant-victims (i.e., dysregulated anger expression, depressive symptoms). Contrary to theoretical conceptualizations of aggressor/victim subgroups (Schwartz et al., 2001), aggressive-victims were not found to be unique from other subgroups on any of the indices of social and emotional functioning that were included in the present study.

The findings of this study provide evidence that aggressive-victims are highly similar to predominantly aggressive youth in terms of key aspects of their social and emotional functioning. As a result, universal interventions targeting risk factors for aggression are likely to impact aggressive-victims. At present, there is a lack of consistency in empirical findings to support the notion that aggressive-victims are unique from other youth besides their involvement in aggression and victimization. Further evidence of unique differences in risk factors is needed to support prevention and intervention efforts that are tailored to meet the specific needs of aggressive-victims. Future research should consider addressing methodological limitations of the present study, such as examining continuous indicators, including additional indices of social and emotional functioning, or investigating differential item functioning.

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Vita

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