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Challenging the "'Mean Kid"' Perception: Boys' and Girls' Profiles of Peer Victimization and Aggression from 4th to 10th Grades

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Abstract

Student involvement in peer aggression is assumed to include the uninvolved, victims, aggressors, and victim-aggressor groups. Yet, evidence supporting this four-group configuration is equivocal. Although most studies report the four groups, several of the aggressor groups could have been labeled as moderate victim-aggressors. This study first reviews studies identifying subgroups of students involved in verbal, relational, and physical aggression. The study then assesses students' perceived involvement in elementary ($n = 2{,}071$; Grades 4–6) and secondary school ($n = 1{,}832$; Grades 7–10), as well as the associations with outcomes (school belonging, depressive thoughts, and perceived school violence). Latent profile analysis identified three profiles (uninvolved, victim-only, and victim-aggressor) across all grades and genders. In primary school, the uninvolved, victim, and victim-aggressor respectively included 54.56%, 37.51%, and 7.83% of the girls, and

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44.23%, 31.92%, and 23.85% of the boys. In secondary school, the uninvolved, victim, and victim-aggressor respectively included 80.16%, 14.93% and 4.91% of the girls, and 64.31%, 22.95% and 12.74% of the boys. Victims and victim-aggressors reported poorer adjustment than uninvolved students. Victims and victim-aggressors reported lower levels of school belonging and higher levels of depressive thoughts than uninvolved students. Also, victim-aggressors perceived more violence in their school than victims and uninvolved students, and victims perceived more violence than uninvolved students. These findings question the existence of an aggressor-only profile, at least, according to student perception, suggesting the need for a new perspective when intervening with students involved in peer aggression.

Keywords
peer aggression, victims, perpetrators, bullying, latent profile analysis

Introduction

The involvement of students in peer aggression deeply concerns parents, school practitioners, researchers, and governments. Research conducted worldwide shows that exposure to aggression poses risks to child well-being and educational success (e.g., Janosz et al., 2018; Savahl et al., 2019). An alarming average of 30% of students worldwide is involved in bullying, as victims or perpetrators (Modecki et al., 2014; Shetgiri, 2013). More specifically, the latest OECD (2019) data indicates that 22.7% of students report being victims of school bullying at least a few times a month. Belgian students are no exception, with 18.6% of them reporting being bullied. Most theoretical representations of youth involvement in peer aggression systematically assume the existence of four profiles of students: uninvolved, victims, aggressor, and victim-aggressors (e.g., Haynie et al., 2001; Nansel et al., 2001; Salmivalli & Nieminen, 2002; Solberg & Olweus, 2003). Yet, empirical evidence supporting these four profiles is equivocal. Studies that have adopted latent profile analysis (LPA) generally retain either the expected four profiles (e.g., Bettencourt & Farrell, 2013), or a three-profile configuration in which the aggressor-only profile is absent (e.g., Goldweber et al., 2013a).

The current study first reviews existing LPA studies seeking to identify subgroups of students involved in verbal, relational, and physical peer aggression. The study then relies on LPA to identify the most common profiles of students based on their perceived involvement in verbal, relational, and physical aggression. Arguably, the simultaneous consideration of all types of aggression experiences is critical to achieving a comprehensive representation of students' profiles. To verify the generalizability of the profiles, this

study systematically assesses their similarity across a series of cross-sectional samples of students recruited in Grades 4–10 and between samples of boys and girls. Finally, the study tests the convergent validity of the profiles by assessing their associations with students' depressive thoughts, school belonging, and perception of school violence. Conclusions that support, or not, the existence of the aggressor-only profile call for a discussion on how students perceive their involvement and the function of perpetrating aggression.

Student Involvement in Peer Aggression

Peer aggression includes actions that cause harm, sometimes intentionally, to a peer, whereas peer victimization refers to being the victim of aggression (Solberg & Olweus, 2003). Aggression and victimization can be perpetrated in the context of a power imbalance between the aggressor and the victim (Volk et al., 2017). Aggression is usually classified as acts of direct or overt aggression, comprising physical and verbal aggression, or acts of indirect or covert aggression, comprising relational aggression (Card et al., 2008). Physical aggression includes hitting, pinching, pulling hair, or throwing things at someone else (Solberg & Olweus, 2003). Verbal aggression includes name-calling, swearing, saying mean things, or making fun of a peer (Janosz et al., 2018). Relational aggression uses the relationship to harm, for instance, by undermining a peer's reputation. The victim may be the target of rumors, excluded from a group, or not allowed to play with others. This form of aggression is arguably more subtle than the other types as the victim is not necessarily present when it happens (Björkqvist et al., 1992).

Student involvement in peer aggression is not homogeneous across developmental periods and between boys and girls. Some found that girls are more likely to perpetrate and be victims of relational aggression (e.g., Björkqvist et al., 1992; Bradshaw et al., 2013). However, when all forms of aggression are considered simultaneously, boys remain more at risk of being victims, aggressors, or both (Bradshaw et al., 2013; Strohmeier et al., 2010; Wang et al., 2012). Studies generally show that boys' and girls' involvement decreases as they get older (Nansel et al., 2001; Strohmeier et al., 2010). According to studies conducted in the USA (Pellegrini & Long, 2002), there seems to be a peak around early adolescence, coinciding with the school transition, which occurs after the 5th or 6th grade. Thus, it remains unclear whether this increase is due to child maturation or entering a new environment (Juvonen & Ho, 2008). Studies conducted in school systems where the school transition occurs later (e.g., Finland, 7th grade) suggest that the peak may be attributed to maturation and not to the school transition (Salmivalli, 2010).

The Benefits of Using LPA to Identify Subgroups

An area that remains open to discussion is the different patterns (or profiles) taken by student involvement in peer aggression, especially when considering different developmental periods and potential gender differences. Several researchers have addressed this question using cutoffs (such as median split) or *k*-mean clustering (e.g., Solberg & Olweus, 2003). This initial stream of research has generally supported a four-group configuration (uninvolved, victims, aggressors, victim-aggressors) of student involvement in peer aggression (e.g., Haynie et al., 2001; Nansel et al., 2001; Salmivalli & Nieminen, 2002). However, this initial level of support should not come as a surprise given that the first approach (i.e., cutoffs) essentially establishes subgroups that match this expected configuration, whereas the second one has to rely rather strongly on theory (due to a lack of clear statistical guidelines) to select the optimal solution (e.g., Morin et al., 2011). Contrasting with these approaches, LPA is a model-based strategy within which prototypical subpopulations of students are identified using a more inductive process, strongly guided by statistical information, leading to the identification of naturally occurring profiles of students (Morin et al., 2019; Nylund et al., 2007) . LPA allows for tests of associations between profiles and covariates in a way that controls for classification errors and makes it possible to conduct systematic tests of profile similarity to quantitatively assess replication (Morin et al., 2011, 2016; Nylund et al., 2007). Interestingly, support for the aforementioned four-profile configuration (e.g., Bettencourt & Farrell, 2013) has not been as systematic in studies adopting LPA, with some researchers finding support for a three-profile configuration, excluding the aggressor-only profile (e.g., Goldweber et al., 2013b).

Although many now recognize the benefits of LPA, not everyone fully capitalizes on its benefits. Thus, a rigorous assessment of the relevance of LPA solutions must meet several criteria (Morin & Litalien, 2019). First, in addition to relying on various statistical indicators to guide the choice of the optimal solution, this solution has to be meaningful, resulting in profiles that make sense theoretically and differ from one another qualitatively. The proper way to select the optimal LPA solution is described in the "Analysis" section of this article. Second, the profiles should be differentially related to covariates (predictors or outcomes) to demonstrate their relevance for other aspects of people's functioning. Third, the profiles should display generalizability evidence, as documented either via qualitative comparisons of solutions obtained across distinct samples or time points or via formal tests of profile similarity across different samples (e.g., grade level, gender) or time points (Morin et al., 2016). These tests are required to clearly capture the extent to which the profiles generalize across these different subsamples and the presence of meaningful differences resulting in a modification of the developmental, social, and psychological processes underpinning the formation of these profiles.

Review of Studies Relying on LPA to Assess Peer Aggression Profiles

We conducted a comprehensive search of studies in which a person-centered LPA approach was used to assess profiles of children and adolescents involved in multiple forms (verbal, relational, or physical) of peer aggression. Despite the availability of additional studies focusing only on specific forms of aggression (e.g., Goldweber et al., 2013b; Wang et al., 2010), we elected to focus on studies in which multiple forms of aggression were considered to achieve a complete picture of the reality of aggression exposure. Indeed, despite the interest of identifying a pure aggressor profile in a study limited to, for example, physical manifestations of aggression, this observation would provide only an incomplete, and potentially misleading, picture of the reality by ignoring the possibility for members of this profile to have been exposed to other, non-physical, forms of victimization. The studies identified as part of this review are described in Table S1 (online supplements). This table reports the metrics used to guide the selection of the optimal solution, the number of profiles retained in the article, and our assessment of this decision.

Summary of Results

All studies reported in Table S1 expected to identify a four-profile solution (uninvolved, victim, aggressors, and victim-aggressors) regardless of student gender, age, grade, or developmental period. Despite this generalized theoretical expectation, a few of those studies retained a three-profile solution (uninvolved, victims, and victim-aggressors), excluding a pure aggressor profile (Davis et al., 2020; Goldweber et al., 2013a; Williford et al., 2011). Davis et al. (2020) and Goldweber et al. (2013a) attributed their results to the specificity of their sample or measures. The study conducted by Davis et al. (2020) is one of the very few that combined traditional aggression and cyber victimization measures. As such, the authors argue that not identifying an aggressor-only profile may indicate that students generally involved as aggressors only in traditional forms of aggression may be victims of cyber victimization, but not necessarily of other forms of aggression. Goldweber et al. (2013a) explained that the sample under investigation was mainly composed of African American students who, according to the authors, may have different tendencies and perceptions regarding aggression compared to Caucasians. In contrast to these two studies, Williford et al. (2011) do not attribute their three-profile solution to methodological artifacts. These authors argue that LPA may be more sensitive than the traditional cutoffs used in other studies. They suggest that students who perceive themselves as aggressors generally tend to also report being victims due to their more frequent involvement in aggression.

Many other studies retained a four-profile solution. Four of these studies retained a four-profile solution matching their theoretical expectations (Bettencourt et al., 2013; Bettencourt & Farrell, 2013; Kochel et al., 2015; Lovegrove et al., 2012). In six other studies, however, the fourth profile did not fully and clearly match the expected pure aggressor configuration (Lovegrove & Cornell, 2013; O'Connor, Farrell, et al., 2019; O'Connor, Hitti, et al., 2019; Pan et al., 2017; Shao et al., 2014; Williford et al., 2014). Indeed, in these studies, students classified in the profile labeled as aggressor-only still presented higher levels of victimization than uninvolved students and, most of the time, lower levels of perpetration than those observed in the aggressor-victim profile. As such, this profile could have been more accurately labeled "moderate victim-aggressors."

Finally, a few studies identified profiles mainly involved in specific forms of aggression (verbal, relational, or physical). Jenson et al. (2013) (4th to 6th grades) identified an uninvolved, a victim, and a victim-aggressor profile, along with an aggressor profile with specifically high levels of verbal aggression and moderate levels of relational and physical aggression. Likewise, although Zych et al. (2020) (5th to 11th grades) retained the expected four profiles, students corresponding to the pure victim or aggressor profiles displayed a high level of involvement in verbal and relational aggression, but not in physical aggression. Finally, two other studies retained a five-profile solution. Ettekal and Ladd (2017) (5th, 8th, and 11th grades) identified the expected four profiles, as well as an additional relational victim-aggressor profile. Giang and Graham (2008) (6th grade) also retained a five-profile solution in which the victim-aggressor students were found to form two distinct profiles: A highly victimized victim-aggressors profile and a highly aggressive victim-aggressors profile.

Possible Sources of Heterogeneity

We then assessed whether the type of aggression (verbal, relational, or physical), source of information (self-reported or peer nominations), developmental period (late childhood or adolescence), and gender could explain these inconsistent findings.

Indicators. Interestingly most studies identifying a pure aggressor profile focused only on verbal and physical, but not relational, aggression (Bettencourt et al., 2013; Bettencourt & Farrell, 2013; Lovegrove et al., 2012). In contrast, all studies (except for one) assessing relational aggression converged on a solution where the aggressor profile could be more accurately depicted as a moderate victim-aggressor profile, supporting the importance of considering all forms of aggression. This is the approach taken in this study.

Source of information. No systematic pattern emerged concerning the source of information. Although most studies relied on students' self-perceptions, relying on peer nominations or self-reports does not seem to foster any specific type of solution. Self-perceptions capture students' subjective experiences and are thus more representative of the distress caused by their involvement in peer aggression (Solberg & Olweus, 2003). Students' perceptions are also suitable predictors of psychological adjustment and well-being (Juvonen & Ho, 2008). In comparison, peer nominations are better predictors of social adjustment (Scholte et al., 2013). Given the lack of difference related to the source of information and our focus on outcomes closely aligned with students' subjective experiences and psychological distress, the present study thus focuses on students' self-reports of their own involvement in peer aggression, as victims and aggressors.

Developmental stage and gender. Studies encompassed the 4th to 12th grades. However, no age-related pattern that would explain retaining three, four, or five profiles could be identified. For instance, there was no tendency for younger students to be classified into four profiles (including the pure aggressor profile) or for older students into three profiles (excluding it). Similarly, even in studies that have identified profiles specific to one form of aggression, age did not influence the likelihood of being classified in such profiles. This suggests that, although relational aggression tends to increase with age and physical aggression tends to decrease (Archer & Côté, 2005), these changes may be specific to the frequency of aggression and not students' profiles.

Although many of these studies included children from various grade levels (cross-sectionally or longitudinally), only three qualitatively compared solutions across grades (Jenson et al., 2013; Williford et al., 2011, 2014), three conducted a partial quantitative comparison (Ettekal & Ladd, 2017; Pan et al., 2017; Zych et al., 2020), and a single one conducted a systematic quantitative comparison (Bettencourt et al., 2013; quantitative comparisons are described in the "Analysis" section of this article). Three of these studies reported solutions that changed as a function of grade level, but inconsistently. Thus, Ettekal and Ladd (2017) reported a three-profile solution (excluding a pure victims profile) in first grade, but a five profile solution in Grades 5, 8, and 11. Williford et al. (2011) identified a four-profile solution in Grade 4 (including a moderate victim-aggressor profile rather than a pure aggressor profile), but a three-profile solution (excluding the pure aggressor profile) in Grades 5 and 6. Zych et al. (2020) reported that the profiles differed between Grades 5–11, but did not provide further information on these different configurations. Finally, Bettencourt et al. (2013) formally assessed and found support for the quantitative similarity of the four profiles (uninvolved, victims, aggressors, and victim-aggressors) between Grades 6 and 7.

Likewise, most studies reported that boys tend to be more frequently involved in the aggressor and victim-aggressor profiles, whereas girls seem to be more numerous in the uninvolved profiles (gender differences are not clear for the victim profile; Lovegrove et al., 2012; Hong et al., 2019; Shao et al., 2014). However, only two of these studies verified gender differences. O'Connor, Farrell, et al. (2019) conducted a qualitative assessment and found support for the similarity of the profiles across samples of boys and girls. Zych et al. (2020) conducted a partial quantitative assessment that suggested that the configuration of profiles changed between boys and girls. However, the authors did not provide more information on these differences. Given that boys' and girls' involvement in various forms of aggression may vary (Card et al., 2008), it is important to investigate if the configuration, rather than only the prevalence, differs.

Unfortunately, as noted above, only one of these studies (Bettencourt et al., 2013) relied on a formal, quantitative, proper profile comparison process (Morin et al., 2016) to contrast the profiles obtained across different grade levels, genders, or a combination of both. As noted by Solinger et al. (2013), person-centered evidence is cumulative in nature, requiring accumulation of evidence in order to identify the core set of profiles that will systematically emerge across situations from the peripheral set of profiles that appear to be more context-specific, and finally from the idiosyncratic profiles simply reflecting random sample variations. Importantly, formal tests of profile similarity are required to differentiate whether observed differences are real or the simple reflection of random sampling variations (Morin et al., 2016). This is the approach taken in the present study in which profile solutions obtained among grade-specific (Grades 4–10), gender-specific, and gender-grade combinations will be systematically, and quantitatively, compared.

Concurrent Validity: School Belonging, Depressive Thoughts, and Perceived Violence

A key component of assessing a person-centered solution is related to the demonstration that the profiles share distinct relations with covariates. Except for four studies in which no covariates were considered, the other studies found that students corresponding to the victim, aggressor, or victim-aggressor profiles could be distinguished from uninvolved students on a variety of social, emotional, and behavioral adjustment indicators (e.g., Davis et al., 2020; Lovegrove et al., 2012). Likewise, the distinction between victims and victim-aggressors appeared to be relatively clear, whereas that between aggressors and victim-aggressors was far more rarely established with clarity (e.g., Bettencourt & Farrell, 2013; Lovegrove & Cornell, 2013; O'Connor, Farrell, et al., 2019).

In this study, we focus on the associations between the profiles and adjustment indicators (i.e., outcomes) known to share associations with self-reported perceptions of peer aggression: depressive thoughts, school belonging, and perception of school violence (Goldweber et al., 2013b; O'Brennan et al., 2009). Depressive thoughts include negative emotions and thoughts such as sad or morose thoughts, as well as feelings of guilt, uselessness, or being out of place (APA, 2020). Depressive thoughts are probably the most documented consequence of student involvement in peer aggression. Students who are victims, as well as those who are aggressors, report having more negative thoughts (e.g., Galand et al., 2009; Moore et al., 2017; Wang et al., 2010), which can persist into adulthood (Copeland et al., 2013). Among LPA studies of peer aggression, there is a general agreement that victims, aggressors, and victim-aggressors report higher levels of depressive thoughts (Bettencourt et al., 2013; Davis et al., 2020; Hong et al., 2019; Lovegrove & Cornell, 2013; Williford et al., 2014). Yet, students involved as aggressors and victims simultaneously are those for whom the consequences in terms of depressive thoughts tend to be the most severe (Bettencourt et al., 2013; Williford et al., 2014).

Students' perceptions of school belonging are conceptualized as a motivational need to feel related to others and share minimally positive social relationships (Baumeister & Leary, 1995). In the school context, students who perceive belonging to their school tend to feel included, proud to be part of their school, and happy to come to school (Roeser et al., 1996). Victimized students or aggressors tend to feel lonely and less related to others (Nansel et al., 2001). As such, most of them report lower levels of school belonging (Davis et al., 2020; Goldweber et al., 2013b; Lovegrove et al., 2012; O'Brennan et al., 2009).

Finally, student exposure to school violence (verbal and physical) as witnesses can also be impacted by their involvement in peer aggression and impede their feeling of safety at school (Janosz et al., 2018). Students involved in aggression are more likely to report witnessing school violence (Goldweber et al., 2013b; Nylund et al., 2007; O'Brennan et al., 2009). Regardless of the outcome—depressive thoughts, school belonging, or perceived violence—there is a general agreement that victim-aggressors have the poorest adjustment (Haynie et al., 2001; Nansel et al., 2001; Shao et al., 2014).

Objectives and Hypotheses

Student involvement in peer aggression is generally expected to correspond to four configurations: uninvolved, victims, aggressors, and victim-aggressors. However, empirical studies only provide mixed support for this configuration. Whereas some studies support the expected four profiles, others fail to identify

a pure aggressor profile, potentially because they considered aggression more comprehensively (relational, verbal, and physical). This potential three-profile configuration of student involvement in peer aggression challenges the widespread idea that a significant proportion of kids are mean toward others without suffering the consequences of their actions (i.e., the "mean kid" stereotype). Importantly, despite empirical evidence showing that the frequency of involvement in aggression may change as a function of age or gender, current evidence is very limited and inconclusive regarding possible changes in the nature of the profiles as a function of these characteristics. The current study addresses these issues by investigating, through LPA and quantitative tests of profile similarity, the nature of the peer aggression profiles across samples of boys and girls from Grades 4–10. As found in most existing studies (see Table S1), Hypothesis 1 expects to identify profiles representing the three or four types of involvement, but no profile varying according to the form of aggression (i.e., verbal, relational, physical). Given the lack of consistent trend (see Table S1), Hypothesis 2 anticipates that the profiles will remain the same across grade levels, but that the proportion of involved students will be lower among adolescents compared to children (e.g., Strohmeier et al., 2010). Also, Hypothesis 3 expects the profiles to remain the same between genders, but that boys will be overrepresented in the involved profiles (e.g., Bradshaw et al., 2013). Finally, we document the meaningfulness of these profiles by assessing their differential association with student adjustment outcomes (depressive thoughts, school belonging, perceived violence). Hypothesis 4 anticipates that involved students will report a more negative adjustment, but the worst consequences will be observed among students involved as aggressors and victims (e.g., Goldweber et al., 2013b; Haynie et al., 2001).

Methods

Sample and Procedure

The study included 3,903 French-speaking Belgian students recruited within elementary and secondary schools. In French Belgium, students attend elementary school from 1st to 6th grades and secondary school from 7th to 12th grades. Both elementary and secondary schools were recruited in urban, semi-urban, and rural locations, thus composing a sample representative of the student population in French Belgium in terms of socioeconomic and ethnic background. All schools participated voluntarily. Fewer than 2% of students who were present on the day of data collection declined to participate.

Elementary school. The elementary school sample includes 2,071 students recruited in 28 elementary schools. Students were aged between 8 and

14 years (M = 10.21; SD = 1.01), and 48.14% were girls. Similar numbers of students were recruited in Grade 4 (n = 708, 34.19%), 5 (n = 727, 35.10%), and 6 (n = 636, 30.71%).

Secondary school. The secondary school sample includes 1,832 students recruited in five secondary schools. Students were aged between 12 and 20 years (M = 14.88; SD = 1.61) and 54.50% were girls. Grade retention rates are high in Belgium (Galand et al., 2019), which explains why some students were 18 years or older at the time of the study (n = 111). Students were recruited in Grade 7 (n = 453, 24.73%), 8 (n = 592, 32.31%), 9 (n = 369, 20.14%), and 10 (n = 418, 22.82%).

Procedure. The procedure was identical in the two samples. The research ethics committee of the last author's Institution approved of the study. The research team received active consent from the students and teachers to participate in the study. With the ethics review board and local school authorities' approval, a passive consent procedure was used with parents to maximize representativeness (Pokormy et al., 2001). In February–March (secondary: 2015; elementary: 2016), students completed a 45-minute online questionnaire. Teachers supervised the data collection with help from a school coordinator. After a group meeting in each school with a trained research assistant to explain the purpose of the study, all teachers received a personalized phone call (elementary) or email (secondary) from the same research assistant to explain the data collection procedure.

Measures

Peer aggression (profile indicators). Students reported their experiences of physical (2 items; ρ[1] = 0.724), verbal (2 items; ρ = 0.696), and relational (2 items; ρ = 0.725) aggression as victims and physical (2 items ρ = 0.754), verbal (2 items ρ = 0.583), and relational (2 items ρ = 0.663) aggression as aggressors having occurred within the past three months. Combined, the victimization (α = 0.880) and aggression (α = 0.851) items have good internal consistency. The items were drawn from the Olweus (1993) and Hodges and Perry (1999) scales, validated in French by Galand and Hospel (2013) for victimization and Galand et al. (2009) for perpetration. Exact item labels are presented in Table S2, and inter-item correlations are reported in Table S4 of the online supplements. Each item was rated on a five-point scale ranging from 0 (*never*) to 4 (*four times or more*).

School belonging (outcome). Students' sense of belonging was assessed using a four-item scale (elementary: α = 0.768; secondary: α = 0.741; e.g., "I feel that I belong in this school") by (Roeser et al. 1996; Galand & Philippot, 2002 [French version]) rated on a five-point scale (0 for *totally disagree* and 4 for *totally agree*).

Depressive thoughts (outcome). Students reported their depressive thoughts using a three-item scale (elementary: $\alpha = 0.738$; secondary: $\alpha = 0.854$; e.g., "I have sad thoughts or think of bad things") from Billings and Moos (1984). Participants rated each item using a five-point scale ranging from 0 (never) to 4 (very often).

Perceived school violence (outcome). Students reported their perception of the frequency of occurrence of violent acts in their school during the actual school year (elementary: $\alpha = 0.661$; secondary: $\alpha = 0.843$; e.g., "I have seen students bickering or physically fighting") using a five-item scale developed as part of the School Environment Questionnaire developed and validated in French (Janosz et al., 2007). Participants rated each item using a five-point scale ranging from 0 (*never*) to 4 (*very often*).

Sex and grade. Students reported their sex (0 = male; 1 = female) and grade (4 = 4th grade; 5 = 5th grade; 6 = 6th grade; 7 = 7th grade; 8 = 8th grade; 9 = 9th grade; 10 = 10th grade).

Analyses

Preliminary Analyses

Preliminary analyses were conducted to verify the psychometric properties and invariance of the measures used in the present study as a function of grade level and gender. Descriptive statistics related to participants' levels of self-reported aggression and victimization across grade level and gender, and correlations among all variables included in this study are reported in the online supplements.

Latent Profile Analyses

Estimation. LPA models (Hypothesis 1), including one to eight profiles, were estimated from the 12 aggression (victim and aggressor) items using Mplus 8.4 robust maximum likelihood estimator (MLR). Models were estimated using 3,000 random sets of start values, 500 iterations, and 200 final stage optimization to avoid converging on a suboptimal solution (Hipp & Bauer, 2006). These models were estimated while allowing the indicators' means, but not their variances, to vary across profiles. Despite the recognized advantages of allowing indicators' variances to vary across profiles (Peugh & Fan, 2013), models specified in this manner generally resulted in major convergence problems (e.g., nonconvergence, impossible parameter estimates, etc.). These issues indicate that this more flexible parameterization was not appropriate for the present study (overparameterization) and support our more parsimonious specification (Bauer & Curran, 2003). Full Information Maximum Likelihood (Enders, 2010) was used to handle missing data. In the elementary

school sample, 76.78% of students had complete data on all profile indicators (victim and aggressor items), and 76.10% had complete data on all outcome indicators (school belonging, depressive thoughts, and perceived violence). In the secondary school sample, corresponding numbers were 87.45% for the profile indicators and 67.69% for the outcome indicators.

Selection. The most adequate solution was selected based on three criteria: statistical adequacy, meaningfulness, and theoretical adequacy (Morin et al., 2016; Morin et al., 2020). Several statistical indicators were examined: the Akaïke Information Criterion (AIC), the Constant AIC (CAIC), the Bayesian Information Criterion (BIC), the Sample-Size-Adjusted BIC (ABIC), the adjusted Lo-Mendell-Rubin (aLMR) likelihood ratio test, and the bootstrap likelihood ratio test (BLRT) (e.g., Peugh & Fan, 2013). Lower values on AIC, CAIC, BIC, and ABIC suggest a better solution. However, these indicators often keep improving with the addition of profiles. A graphical examination of "elbow plots" is recommended to facilitate decision making (e.g., Petras & Masyn, 2010). The inflection point in the curve suggests that the optimal number of profiles might have been reached. The aLMR and BLRT compare the estimated model to the model with one less profile. Nonsignificant aLMR or BLRT ($p > .05$) indicate that the previous model, with one less profile, should be retained. We also report the model entropy as an indicator of classification accuracy of cases into profiles. Entropy values range from 0 to 1, with values closer to 1 indicating higher levels of classification accuracy. The entropy is only reported for descriptive purposes as it should not be used to guide the selection of the optimal solution.

Profile similarity. Following the selection of the optimal LPA solution in the total sample, as well as within each grade and gender, tests of profile similarity were conducted to assess the extent to which this solution could be replicated across grades (from 4th to 10th; Hypothesis 2), genders (boys and girls; Hypothesis 3), and grade by gender groupings (elementary school boys, elementary school girls, secondary school boys, secondary school girls; it was not possible to conduct these tests across all 14 grade by gender groups). These tests were performed following the sequence proposed by Morin et al. (2016), which involves the estimation of a series of nested models in which parameters are progressively constrained to equality across groups: (a) same number of profiles (configural similarity), (b) same within-profile means on the indicators (structural similarity), (c) same within-profile variances on the indicators (dispersion similarity); (d) same proportion of students in each profile (distributional similarity). The similarity is considered to be supported when two indicators out of the CAIC, BIC, and ABIC show a decrease relative to the previous step (Morin et al., 2016). Failure to uphold similarity at any stage was followed by tests of partial similarity limited to a subset of profiles, indicators, or groups (Morin et al., 2016).

Outcomes. Outcomes (Hypothesis 4) were added to the most similar LPA solution (Morin et al., 2016). Outcome levels (factor scores saved from the preliminary analyses) were first freely estimated across profiles and groups. In a second model of explanatory similarity, outcome levels were constrained to be equal across groups within each of the profiles. The similarity is supported when two indicators out of the CAIC, BIC, and ABIC showed a decrease in the second relative to the first model, and failure to uphold similarity was followed by tests of partial similarity. Tests of statistical significance for outcomes comparisons were realized using the multivariate delta method (Raykov & Marcoulides, 2004). Essentially, the parameters of interest (i.e., the profile-specific means on the outcomes) are assigned a unique label, and mean comparisons across profiles are requested using these labels in the Mplus MODEL CONSTRAINT function, allowing for a calculation of mean-differences across profiles (together with proper standard errors and tests of significance) that takes into account the full model-implied multivariate distribution of the parameters of interest. (Morin & Litalien 2019, also see Morin et al., 2020) provide an extensive illustration of how to implement this method for tests of outcome comparisons across profiles. Readers interested in a more technical presentation should consult Raykov & Marcoulides (2004).[2]

Results

Latent Profile Solution

The results from the LPA (Hypothesis 1) estimated on the total sample are reported at the top of Table 1. The matching results from solutions estimated separately for each elementary grade, secondary grade, and gender are respectively reported in Tables S5, S6, and S7 of the online supplements. Elbow plots from these solutions are reported in Figure S1 (total sample), S3 (elementary grades), S4 (secondary grades), and S5 (gender) of the online supplements. All information criteria kept on decreasing without reaching a minimum in the total sample, although the elbow plot showed a relatively clear plateau corresponding to the three-profile solution. This conclusion was supported by the aLMR, which also supported the 3-profile solution, whereas the BLRT supported the six-profile solution. Importantly, results from the matching LPA solutions estimated separately across grades and gender seemed to converge on highly similar conclusions, with the elbow plots revealing a relatively clear plateau in the decrease in the value of the information criteria around three profiles, the aLMR generally suggesting fewer than four profiles, and the BLRT often failing to support any specific solution (but suggesting seven profiles in 5th and 6th grades).

Table 1. Results from Latent Profile Analyses in the Overall Sample.

Model	LL	#fp	SCF	AIC	CAIC	BIC	ABIC	Entropy	aLMR (*p*)	BLRT (*p*)	Post. Prob.
1 profile	–74491.688	24	1.263	149031.377	149205.869	149181.869	149105.608	–	–	–	–
2 profiles	–68119.380	37	1.608	136312.760	136581.770	136544.770	136427.201	0.921	.000	.000	0.965–0.983
3 profiles	–65564.207	50	2.007	131228.414	131591.940	131541.940	131383.063	0.923	.000	.000	0.930–0.981
4 profiles	–64571.164	63	2.414	129288.328	129746.371	129683.371	129483.185	0.926	.262	.000	0.882–0.982
5 profiles	–63660.130	76	2.006	127472.260	128024.820	127948.820	127707.327	0.921	.030	.000	0.880–0.976
6 profiles	–63155.221	89	2.148	126488.441	127135.518	127046.518	126763.716	0.931	.296	.000	0.875–0.982
7 profiles	–62712.905	102	1.898	125629.811	126371.404	126269.404	125945.295	0.942	.729	1.000	0.870–0.979
8 profiles	–61494.689	115	2.167	123219.378	124055.489	123940.489	123575.071	0.948	.499	.000	0.871–0.980
Profile similarity: Grade Level											
Configural	–70441.429	356	1.908	141594.857	144183.164	143827.164	142695.959	0.976	–	–	–
Structural	–71615.078	140	2.632	143510.156	144528.029	144388.029	143943.173	0.971	–	–	–
Partial structural	–70931.852	164	2.249	142191.704	143384.070	143220.070	142698.953	0.973	–	–	–

Continued

Table 1. Continued

Model	LL	#fp	SCF	AIC	CAIC	BIC	ABIC	Entropy	aLMR (*p*)	BLRT (*p*)	Post. Prob.
Dispersion	−72319.370	92	1.689	144822.740	145491.629	145399.629	145107.295	0.974	–	–	–
Partial dispersion	−71051.364	104	2.218	142310.727	143066.862	142962.862	142632.398	0.972	–	–	–
Distributional	−71202.461	92	2.521	142588.922	143257.810	143165.810	142873.476	0.872	–	–	–
Partial distributional	−71080.636	94	2.388	142349.271	143032.700	142938.700	142640.011	0.972	–	–	–
Profile similarity: Sex											
Configural	−67566.466	101	1.966	135334.933	136069.152	135968.152	135647.221	0.955	–	–	–
Structural	−67830.211	65	2.044	135790.422	136262.939	136197.939	135991.399	0.953	–	–	–
Partial structural	−67616.803	89	2.120	135411.607	136058.592	135969.592	135686.791	0.955	–	–	–
Dispersion	−67919.420	77	2.006	135992.839	136552.591	136475.591	136230.920	0.954	–	–	–
Partial dispersion	−67632.584	85	2.114	135435.168	136053.076	135968.076	135697.985	0.955	–	–	–
Distributional	−67657.853	83	2.117	135481.706	136085.074	136002.074	135738.339	0.955	–	–	–
Profile similarity: Grade by sex											
Configural	−68042.788	203	2.225	136491.577	137967.285	137764.285	137119.244	0.968	–	–	–
Structural	−69234.248	95	2.277	138658.496	139349.099	139254.099	138952.232	0.963	–	–	–

Continued

Table 1. Continued

Model	LL	#fp	SCF	AIC	CAIC	BIC	ABIC	Entropy	aLMR (*p*)	BLRT (*p*)	Post. Prob.
Partial structural	–68241.489	143	2.079	136714.975	137754.513	137611.513	137157.125	0.968	–	–	–
Dispersion	–69770.592	107	1.971	139755.185	140533.021	140426.021	140086.024	0.966	–	–	–
Partial dispersion	–68292.819	124	1.928	136833.638	137735.056	137611.056	137217.041	0.969	–	–	–
Distributional	–68426.610	118	2.134	137089.219	137947.020	137829.020	137454.070	0.968	–	–	–
Explanatory similarity: Grade by sex											
Free	–85073.682	39	1.017	170225.365	170509.045	170470.045	170346.121	0.968	–	–	–
Explanatory Similarity	–86408.128	12	.980	172840.256	172927.542	172915.542	172877.411	0.967	–	–	–
Partial Explanatory Similarity	–85105.144	21	1.032	170252.288	170405.039	170384.039	170317.311	0.968	–	–	–

Notes. LL = Model LogLikelihood; #fp = Number of free parameters; SCF = Scaling correction factor; AIC = Akaïke Information Criteria; CAIC = Constant AIC; BIC = Bayesian Information Criteria; ABIC = Sample-size adjusted BIC; aLMR = Lo-Mendell-Rubin adjusted likelihood ratio test; BLRT = Bootstrap likelihood ratio test; Post. Prob = Posterior probability of classification into the most likely profile.

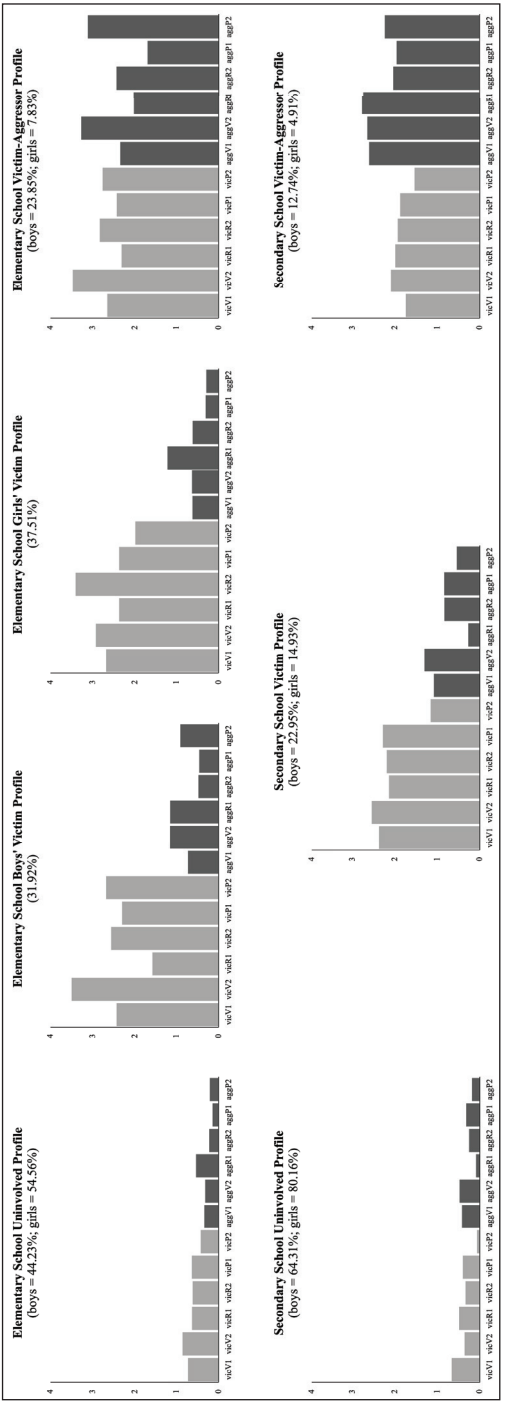

Figure 1. Most similar three profile latent profile solution in the elementary and secondary school samples.

Note. The exact item labels of all profile indicators (vicV1 to aggP2) are reported in Table S2 of the online supplements.

We thus systematically examined the three-profile solution, as well as the adjacent two- and four-profile solutions across all subsamples. This examination supported the theoretical value and meaningfulness of adding a third profile, showing a three-profile solution characterized by three very similar profiles across grades and genders corresponding to uninvolved students, victimized students, and students involved in both as victim and aggressor. In contrast, adding a fourth profile to the model generally resulted in estimating a much smaller profile, displaying limited consistency across subsamples, and typically only reflecting an arbitrary division of one of the existing profiles into separate profiles differing only in terms of intensity of victim and aggressor experiences. Importantly, none of these solutions revealed the expected pure aggressor profile (likewise, none of the five-profile solutions revealed the existence of such a profile). These results thus led us to retain the three-profile solution across all samples and subsamples.

This three-profile solution was retained for tests of profile similarity reported in Table 2. When first considering tests of profile similarity realized as a function of grade levels (Hypothesis 2), the results revealed an increase in the value of all information criteria associated with each step of the sequence, thus failing to support the structural, dispersion, and distributional similarity of the models as a function of students' grade levels. We thus pursued tests of partial similarity, which revealed that all differences in profile structure, dispersion, and distribution were limited to elementary relative to secondary school students, with no apparent difference occurring between elementary students from different grade levels, or between secondary students from different grade levels. Generally, these results revealed that the profile shape remained constant, but that within-profile levels and variability, as well as profile sizes, differed across elementary and secondary school students.

Tests of profile similarity conducted across gender similarly (Hypothesis 3) revealed differences in terms of profile structure, dispersion, and distribution, leading us to retain a final solution of partial structural (indicator levels were found to differ in one profile as a function of gender) and dispersion (within profile variability was found to differ on a subset of indicators) similarity. The relative sizes of the profiles were, however, found to differ as a function of gender. Finally, based on the observation of full profile similarity across elementary school grades and across secondary school grades, we conducted a final set of tests of profile similarity across four subsamples based on grade (elementary versus secondary) and gender (boys versus girls) combinations. The results from these tests fully supported the previous conclusions of partial structural and dispersion similarity as a function of grade levels (all profiles) and gender (one profile) and revealing differences in the relative size of the profiles as a function of gender and grade levels. Interestingly, these results also showed that structural differences between boys and girls were limited to elementary school students.

Table 2. Outcome Means and Pairwise Comparisons between the Three Profiles in Elementary and Secondary Schools.

	Uninvolved (U)	Victim (V)	Victim–Aggressor(VA)	Differences between Profiles
Elementary school sample				
School belonging	0.204(0.024)	–0.166(0.033)	–0.376(0.057)	U > V > VA
Depressive thoughts	–0.406(0.023)	0.292(0.030)	0.375(0.051)	U < V = VA
Perceived violence	–0.304(0.023)	0.192(0.026)	0.368(0.046)	U < V < VA
Secondary school sample				
School belonging	–1.242(0.021)	–1.610(0.047)	–1.587(0.056)	U > V = VA
Depressive thoughts	0.164(0.039)	0.462(0.066)	0.435(0.084)	U < V = VA
Perceived violence	–0.231(0.049)	1.276(0.092)	1.074(0.131)	U < V < VA
Profile-specific mean differences by grade level (elementary (E) and secondary (S))				
School belonging	E > S	E > S	E > S	
Depressive thoughts	E < S	E = S	E = S	
Perceived violence	E = S	E < S	E < S	

Notes. SE = standard error. Reported mean differences were significant at $p < .05$. Outcomes were estimated from factor scores estimated across both samples with a mean of zero and a standard deviation of one. Tests of explanatory similarity across level by sex revealed that the means of the outcomes were equivalent between boys and girls within each profile, but not between levels.

The results from this final solution are graphically represented in Figure 1, and detailed results are reported in Tables S7 (elementary) and S8 (secondary) of the online supplements. These results suggest that the three-profile solution included an Uninvolved profile, a predominantly Victim profile, and a Victim-aggressor profile in both samples. The indicators for all three profiles varied between elementary and secondary school samples, showing that elementary school students reported slightly higher levels of the victim and aggressor items, but the shape of the profiles remained similar. Similarly, the means of the indicators of the predominantly Victim profile varied between

elementary school boys and girls, showing slightly higher levels of victimization and lower levels of perpetrating aggression among girls, although the shape of this profile also remained similar. In terms of within-profile variability, the few observed differences generally suggested slightly higher levels of within-profile variability in boys relative to girls, and in elementary relative to secondary school students. Finally, in terms of variations in the relative sizes of all profiles, whereas the Uninvolved profile corresponded to roughly two-thirds (64.31%) of the boys and to close to four out of five (80.16%) girls in secondary school, it only corresponded to about half of the boys (44.23%) and girls (54.56%) in elementary school. In contrast, the Victim profile corresponded to one-fifth of the secondary boys (22.95%) and one-sixth of the secondary girls (14.93%), relative to one-third of the elementary boys (31.92%) and girls (37.51%). The smallest profile was the Victim-aggressor one, corresponding to less than 10% of elementary (7.83%) and secondary (4.91%) girls, but showing an important reduction in boys between elementary (23.85%) and secondary (12.74%) school.

Profile Outcomes

Outcomes (Hypothesis 4) were added to this final model of partial dispersion similarity as a function of grade (elementary versus secondary) by gender (boys versus girls) combinations. Results from the alternative models are reported at the bottom of Table 1 and are consistent with a model of partial explanatory similarity consistent with grade, but not gender, differences in outcome levels across profiles. These mean differences are reported in Table 2. These results indicate that, for all outcomes, students corresponding to the Uninvolved profile displayed more desirable outcome levels (higher school belonging, lower depressive thoughts, lower perceived violence) than students corresponding to the Victim and Victim-aggressor profiles. Moreover, in the elementary school sample, students corresponding to the Victim-aggressor profile displayed lower levels of school belonging than students corresponding to the Victim profile. Finally, in both the elementary and secondary school samples, students corresponding to the Victim-aggressor profile reported similar levels of depressive thoughts, but higher levels of perceived school violence, relative to students corresponding to the Victim profile.

Discussion

This study sought to identify the most commonly occurring profiles of students defined based on their levels of involvement in verbal, relational, and physical aggression, and to systematically assess the extent to which these

configurations would generalize, or differ, across samples of boys and girls enrolled in 4th–10th grades. Matching previous findings, preliminary results revealed that girls and older students tended to report higher levels of relational aggression as victims and aggressors, whereas boys and younger students tended to be more frequently involved in verbal and physical forms of aggression. In terms of profiles, however, our results failed to support the presence of the generally agreed-upon taxonomy of uninvolved, victims, aggressors, and victim-aggressors. Instead, our results supported Hypothesis 1 and the accumulating evidence suggesting that most students involved as aggressors also tend to be involved as victims (i.e., thus failing to identify a pure aggressor profile). Importantly, these three profiles were consistently found in students enrolled in 4th–10th grades, as well as in boys and girls, supporting Hypotheses 2 and 3. Yet, the prevalence of the victim and victim-aggressor profiles were lower in older students and in girls (particularly for the victim-aggressor profile). Moreover, the frequency at which students were involved in each form of peer aggression also varied slightly between younger and older students, with older students generally reporting less frequent experiences of aggression both as victim and aggressor across all three profiles. We discuss the implications of these findings for research and practice.

Profile Configuration

This study revealed several noteworthy findings. (a) The three-profile configuration remained the same across boys and girls from all school grades considered. (b) Nevertheless, the prevalence of student involvement in peer aggression was lower in secondary school than in elementary school. (c) There were no profiles of victim or aggressor students who appeared to be dominated with any one form of aggression (verbal, relational, or physical). (d) Boys were more frequently represented in the victim and victim-aggressor profiles than girls, except for the victim-only profile in elementary school, which included a similar proportion of boys and girls and presented a slightly different gender structure.

First, the uninvolved, victim, and victim-aggressor profiles were identified across all grades considered and between boys and girls. This suggests that, at least from students' perspectives, these three profiles reflect stable and distinctive patterns of involvement that apply equally to boys and girls and across grade levels. This result is consistent with previous studies (see Table S1), which rarely reported differences in terms of profile structure as a function of grades or gender (Bettencourt et al., 2013; Jenson et al., 2013; O'Connor, Farrell, et al., 2019; Pan et al., 2017; Williford et al., 2014), or only reported inconsistent differences based on an incomplete comparison process (Ettekal & Ladd, 2017; Williford et al., 2011; Zych et al., 2020).

Second, although the configuration of the profiles remained the same across grade levels, the prevalence of each profile was subject to differences. Fewer secondary students were involved in the victim or victim-aggressor profiles relative to elementary students. In this study, the elementary school sample included students from 4th to 6th grades. This period corresponds to the early adolescent years, a developmental period reported coinciding with a temporary increase in peer aggression involvement, both for victims and aggressors (Salmivalli, 2010). Besides, the general decrease in aggression from early childhood to adulthood is not new knowledge (Broidy et al., 2003), and matches the observation of decreasing rates of involvement in peer aggression observed in the present study. Indeed, only a small proportion of children crystalize their aggressive behaviors into adolescence and, eventually, adulthood (Broidy et al., 2003). Moreover, some have shown that, especially for boys, perpetrating aggression was positively related to peer acceptance in middle childhood, but negatively at the beginning of adolescence (Veenstra et al., 2010). This might explain why there is a decrease in the prevalence of student involvement between elementary and secondary schools. Still, a proper investigation of the developmental and possibly maturational effects involved in these differences would require longitudinal data, as well as the simultaneous consideration of even younger children.

Third, none of the profiles showed a marked tendency for any specific form of peer aggression (verbal, relational, or physical). This result is interesting given previous reports that girls tend to be more frequently involved in relational aggression, whereas boys tend to be more frequently involved in verbal and physical aggression (Bradshaw et al., 2013; Ettekal & Ladd, 2017). Our results do not entirely contradict these observations. Indeed, considering each indicator on its own, preliminary analyses revealed differences matching these expectations. However, when students' overall profiles of involvement in aggression were considered, our results showed that irrespective of these mean-level differences, students involved in any one form of aggression tended to be also involved in all other forms as well. As reported in Table S1, most studies combining victimization and aggression have reached similar findings. Although there might be slight subgroups variations regarding types of peer aggression, these slight variations are not large enough to result in distinct profiles as a function of the type of aggression considered. Thus, it seems that the three core profiles that are unequivocally identified across studies, age groups, gender, and countries are the uninvolved, victim, and victim-aggressor profiles.

However, the nature and prevalence of the profiles identified in the present study might fluctuate across countries and cultures. The present study was conducted in French Belgium, and student exposure to peer aggression varies

between countries as it could be influenced by national and cultural norms (OECD, 2019). For instance, in the United States, where most of the studies reviewed in this article were conducted, students are more likely to report being victims of aggression than Belgian students (25.9% vs. 18.6%). Variations of bullying prevalence between countries were found to be related to income inequality (Due et al., 2009). Between countries, student risk factors for victimization may also vary. For instance, ethnicity is related to the risk of peer victimization in the USA, but not in studies conducted in Europe (Vitoroulis & Vaillancourt, 2015). In contrast, the (weak) association between low socioeconomic status and peer victimization is similar in Europe and the USA (Tippett & Wolke, 2014). Overall, these national and cultural differences call for studies investigating students' perception of their aggression and victimization involvement worldwide.

Fourth, boys were found to be more frequently involved in the victim and victim-aggressor profiles than girls. A strong gender stereotype is that males are generally more aggressive than females (Frieze & Li, 2010). Peer aggression is more frequent and tolerated among boys than girls (Archer & Côté, 2005). Conversely, the frequency of aggression is not independent of peer influence. The peer group can exert social control, sometimes through aggression, to encourage or discourage boys and girls who adopt behaviors that do not fit their gender roles (Basow, 2008). As there is typically segregation between boys and girls peer groups, especially in younger students, boys tend to exert social pressure on their male peers and girls on their female peers (Basow, 2008). The social pressure for boys to conform to typically male behaviors is usually stronger than girls' pressure to adopt typically feminine behaviors (Basow, 2008). The feminine role is somewhat more flexible than the male role, so that students generally tolerate girls who adopt a greater variety of roles. In contrast, peers generally frown upon boys who do not match the more restricted sets of acceptable roles (i.e., athletic, aggressive, etc.; Basow, 2008). These gender stereotypes and peer-processes could explain that boys are, in general, more involved than girls in peer aggression both as victims and aggressors.

There was, however, one exception to this conclusion. Elementary school girls were as numerous as boys to correspond to the victim-only profile, while secondary school girls reported being less frequently the target of peer harassment than boys. Perhaps further studies should look at changes in peer or teacher norms regarding aggressive behavior toward girls. Also, comparing the configuration of this profile in girls versus boys revealed that girls reported slightly higher rates of relational victimization in this profile. Some have argued that girls tend to be more involved in, or more sensitive to, relational forms of aggression due to their earlier maturation (Archer & Côté, 2005).

According to Archer and Côté (2005), both boys and girls slowly transition from direct (verbal and physical) to indirect (relational) aggression. Yet, as girls' biological maturation begins earlier than boys', they tend to adopt these behaviors slightly earlier. This would explain that in the elementary school sample (from 4th to 6th grade, coinciding with early pubertal maturation for girls), girls were as numerous as boys in the victim-only profile.

Absence of a Pure Aggressor Profile

A key finding of this study, deserving a separate consideration, was the consistent absence of a pure aggressor profile across all grades and genders. As such, it does not seem that "mean kids" are numerous enough to constitute a separate profile, which raises questions about the possibility that pure aggressors, or bullies, might be isolated cases. A few considerations may help explain these results and their consequences for our understanding of peer aggression. Methodologically, an LPA approach is more sensitive to the identification of naturally-occurring subpopulations of students relative to the reliance on a cutoff score (e.g., median split) approach, which forces the identification of the a priori subgroups one expects or to cluster analyses where theoretical expectations play a greater role in the identification of the final set of profiles (Williford et al., 2014; Nylund et al., 2007). As such, the systematic identification of a pure aggressor profile in early research relying on these approaches could have been, at least in part, an artifact of procedures lacking sensitivity. Thus, these studies might have overestimated the number of pure aggressors by disregarding the fact that these students also tend to be victims. This hypothesis appears particularly likely considering our observation that, even in prior LPA studies, many reports of pure aggressor profiles were, in fact, more suggestive of a moderate victim-aggressor profile. Consistent with this, several LPA studies assessing the concurrent validity of students' profiles failed to find significant psychosocial adjustment differences between aggressors and victim-aggressors, and even sometimes between aggressors and victims (Bettencourt & Farrell, 2013; Hong et al., 2019; Lovegrove & Cornell., 2013; O'Connor, Farrell, et al., 2019). Overall, the bulk of evidence seems to lean toward the non-existence of a pure aggressor profile, at least when multiple forms of aggression are considered (relational, verbal, and physical).

The absence of such a pure aggressor profile also makes sense substantively when considering more specifically the distinction between reactive and proactive forms of aggression, and the different functions served by aggression. Salmivalli and Nieminen (2002) note that reactive aggression is a "hostile, angry reaction to perceived frustration" (p. 30), whereas proactive

aggression is an "acquired instrumental behavior controlled by external rewards and reinforcement" (p. 31). Aggressors are generally thought to rely on proactive aggression, whereas victim-aggressors are seen as relying on reactive aggression, that is, to react aggressively in response to experiences of victimization (Salmivalli & Nieminen, 2002).

Yet, peer aggression has a function. Some students rely on aggression to gain a higher social status or establish their dominance (e.g., Salmivalli, 2010). These students are generally viewed as socially skillful and manipulative, as well as able to calculate their actions in terms of the social gains they can achieve by being verbally, relationally, of physically aggressive towards weaker peers, as well as by being prosocial toward others (e.g., Pouwels et al., 2018). According to Veenstra et al. (2010), such bi-strategic behavioral control—combining prosocial behaviors and proactive aggression—allows these students to maintain or even gain a social status while avoiding losing the affection of their peers. However, O'Brennan et al. (2009) found that students classified as aggressors or victim-aggressors tend to be more impulsive than victims and uninvolved students. Such results are inconsistent with the argument that aggressors are socially skillful, calculated, and manipulative students who do not easily lose control (Salmivalli & Nieminen, 2002).

Similarly, it also seems that students identified as aggressors report feeling lonely at school and having a poor bond to others or school in general (Goldweber et al., 2013b; Lovegrove et al., 2012; O'Brennan et al., 2009). Again, such findings seem to contradict the existence of a widespread profile of manipulative and socially skillful aggressors who perpetrate proactive aggression to gain a better social status. Even more compelling are Euler et al.'s (2017) findings. Indeed, these authors identified subgroups of students who use proactive and reactive aggression, reactive aggression only, and no aggression, but identified no subgroup of students relying only on proactive aggression. Finally, among studies reported in Table S1, two have also contrasted the profiles on proactive and reactive aggression and found no difference between the aggressors and victim-aggressors on these two measures (O'Connor, Farrell, et al., 2019; Bettencourt & Farrell, 2013). Thus, our results are consistent with a view of aggressors as students who are also victims, and who may rely on a combination of proactive and reactive aggression. Different levels of social skills and popularity may characterize the victim-aggressors, but these different levels do not necessarily lead to different peer aggression profiles. In other words, involvement in any form of aggressive behavior seems to be associated with more conflictual peer interactions.

Furthermore, some have proposed that aggression may be driven by social norms or by the rejection of such norms (Espelage & Swearer, 2009; Hirshi, 1969). Students tend to develop friendships with students sharing similar

characteristics (Dishion & Patterson, 2006). As such, marginalized students (i.e., rejected or victimized), notably because of their tendency for proactive or reactive aggression, are likely to become friends with one another and to encourage each other to be aggressive toward their peers (i.e., peer deviancy training; Dishion & Patterson, 2006). In such peer groups, aggression can be valued and encouraged to be "part of the gang" (Dishion et al., 2012). Indeed, Hong et al. (2019) report that aggressors and victim-aggressors tend to have more delinquent friends than uninvolved students. Likewise, Bettencourt and Farrell (2013) found that both aggressors and victim-aggressors tend to perceive more support from their peers to be aggressive than pure victims and uninvolved students. Importantly, neither of these studies reported any difference between aggressors and victim-aggressors on measures of peer deviancy training. Overall, in this view of proactive and reactive aggression, perpetrating peer aggression is not independent of being a victim of such aggressions and could even be a consequence of repeated victimization, explaining the absence of a pure aggressor profile (Marsh et al., 2011).

Even so, these results do not exclude the possible existence of a few isolated "pure aggressors." As a complementary verification, we created a mean score (ranging from 0 to 4) of victimization and aggression items. Out of 3,903 students, only 22 rated high on aggression (≥ 3) and low on victimization (≤ 1). Thus, at least from the students' perspective, the pure aggressor type is an isolated phenomenon. These results invite researchers and practitioners to use caution when planning interventions, as it seems that aggressive students also tend to see themselves as victims and suffer from similar consequences.

In our sample, in line with Hypothesis 4, victims and victim-aggressors reported a poorer adjustment than uninvolved students. Victims and victim-aggressors had higher levels of depressive thoughts, lower levels of school belonging, and higher levels of perceived school violence than uninvolved students. Victim-aggressors were even more at risk than pure victims on some outcomes (i.e., school belonging in elementary school, and perceived violence in all grades), supporting the idea that victim-aggressors have the poorest adjustment (Bettencourt et al., 2013; Haynie et al., 2001; Williford et al., 2014). Both profiles (i.e., victims and victim-aggressors) thus seem to represent important risk factors for adjustment and that victim-aggressors present a greater risk than pure victims for some problems.

Limitations and Future Research

This study assessed only one part of a very complex phenomenon and is thus not without limitations. First, this study relied on cross-sectional samples. Although this allowed to assess the generalizability of the results across grades

and genders, it precluded true developmental analyses. Thus, although the current configuration of profiles was replicated (i.e., similar) across grade levels, it does not mean that the same students remained associated with the same profiles over time, even if involvement in peer aggression is known to be quite stable (Zych et al., 2020). The reliance on a longitudinal sample would have allowed to consider more directly intra-individual mechanisms of development underpinning students' transitions across profiles throughout development.

Second, this study relied on students' perceptions of their involvement as victims and aggressors. Although relying on students' perceptions helps capture drivers of psychological functioning, relying on peer nomination would have added a complementary source of information and might have helped enrich our understanding of the mechanisms involved in peer aggression. This is particularly important because youth involved in peer aggression, especially as aggressors, may be sensitive to social desirability biases when reporting their involvement (Pellegrini & Long, 2002). Adding this source of information would have allowed verifying whether victim-aggressors were also perceived as such by their peers, or whether they would have been seen more as pure aggressors.

Third, conceptually, some aspects of peer aggression were not captured in this study. For example, no distinction was made between proactive and reactive aggression (Salmivalli & Nieminen, 2002). This distinction would have helped understand why some students may be aggressive to others. Likewise, despite our attempt to cover a broad range of peer aggression experiences, cyber-victimization (Modecki et al., 2014) was not captured. Student involvement is also not independent from their social status, how much they value popularity, and how they seek to attain it (Malmut et al., 2020).

Finally, no information was available on the bystander role. Students who witness aggression have a key role in encouraging the perpetrator, defending the victim, or remaining neutral (Pouwels et al., 2018) and have been reported to experience negative consequences from this indirect exposure (Janosz et al., 2018). Understanding how the bystander role functions in conjunction with the roles of victims and victim-aggressors would also allow researchers to develop even richer perspectives on this phenomenon.

Practical Implications and Conclusion

Student involvement in peer aggression has lifelong consequences (Copeland et al., 2013). Several universal prevention and intervention programs show promising results in reducing student bullying throughout whole schools (Gaffney et al., 2019). Our results suggest that pure aggressors, those who, in the popular conception, are seen as calculated and manipulative students, are not a

widespread phenomenon. This suggests that, on average, when students are reported to have been aggressive to their peers, they are likely to also see themselves as victims. In addition, the negative repercussions of this involvement, in terms of depressive thoughts, school belonging, and perception of violence, are likely to be similar to those of the pure victims. As such, school professionals and stakeholders may keep in mind that aggressors might also require psychosocial support, rather than to be considered, by default, as "mean kids."

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Notes

1 The Spearman-Brown split half formula (represented by the Rho coefficient: ρ) is considered a better estimate of scale score reliability for two-item measures than Cronbach's alpha and Pearson correlation (Eisinga et al., 2013).

2 As an additional verification, we also ensured that our conclusions remained unchanged when all main models where re-estimated while controlling for students nesting within classrooms and within schools using the Mplus type = complex option. All conclusions remained unchanged.

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