A Meta-Analytic Review of School Bullying Involvement and Popularity in the Peer Group

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Abstract

School bullying is a widespread and pervasive occurrence that is robustly associated with several negative psychological, emotional, social, and academic outcomes in the individuals who are involved in the behaviour. Given the different types of involvement in bullying (e.g., as a bully, victim, defender, pro-bullying bystander), bullying should be understood as a group process involving group dynamics (e.g., social status). The current study aimed to evaluate the overall magnitude of association between bullying involvement roles and popularity by conducting a meta-analysis. To examine this, the following research questions were asked: (1) what is the magnitude of the association between popularity in the peer group and bullying involvement amongst school-aged children? (2) is the association moderated by sample characteristics (school level, gender) and by study characteristics (study design)? Out of 2,475 papers that were identified, 39 papers were included in the present study. The results indicated that bullying involvement was positively associated with popularity ($p < .001$). Specifically, being a bully, a pro-bullying bystander, and a defender were all positively associated with popularity ($p < .001$), whereas being a victim was negatively associated with popularity ($p < .001$). The associations were significantly moderated by all the moderators. The findings support the argument of bullying as a group process; they also demonstrate that social status in this group process has a role in the type of involvement individuals engage in. Several unique methodological, theoretical, and practical implications concerning researchers, educators and stakeholders are discussed.

Abstrait

Le harcèlement scolaire est un phénomène répandu et omniprésent qui est fortement associé à plusieurs conséquences psychologiques, émotionnelles, sociales et scolaires négatives chez les personnes impliquées dans ce comportement. Étant donné les différents types d'implication dans les harcèlements (par exemple, en tant que harceleur, victime, défenseur, spectateur proharcèlement), les harcèlements doivent être compris comme un processus de groupe impliquant une dynamique de groupe (par exemple, le statut social). L'étude actuelle visait à évaluer l'ampleur globale de l'association entre les rôles d'intimidation et la popularité en effectuant une méta-analyse. Pour ce faire, les questions de recherche suivantes ont été posées : (1) quelle est l'ampleur de l'association entre la popularité dans le groupe de pairs et l'implication dans les brimades chez les enfants d'âge scolaire ? (2) l'association est-elle modérée par les caractéristiques de l'échantillon (niveau scolaire, sexe) et par les caractéristiques de l'étude (conception de l'étude) ? Sur les 2 475 articles identifiés, 39 articles ont été inclus dans la présente étude. Les résultats indiquent que l'implication dans les brimades est positivement associée à la popularité ($p < 0,001$). Plus précisément, le fait d'être un tyran, un spectateur pro-harcèlement et un défenseur est associé positivement à la popularité ($p < 0,001$), tandis que le fait d'être une victime est associé négativement à la popularité ($p < 0,001$). Les associations étaient significativement modérées par tous les modérateurs. Les résultats soutiennent l'argument selon lequel l'intimidation est un processus de groupe ; ils démontrent également que le statut social dans ce processus de groupe joue un rôle dans le type d'implication des individus. Plusieurs implications méthodologiques, théoriques et pratiques uniques concernant les chercheurs, les éducateurs et les parties prenantes sont discutées.

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Introduction

Peers are significant figures in an individual's life who drive social interactions and consequently shape various outcomes and overall well-being (LaFontana & Cillessen, 2010). Due to this heightened susceptibility to peer influences, childhood and adolescence are also times when certain social factors, such as bullying and social status, emerge (Herd & Kim-Spoon, 2021). While these factors can support the positive development of children and adolescents, they can also have negative impacts on outcomes, such as well-being (Méndez et al., 2017).

Bullying, the intentional and repeated abuse of power to inflict harm onto someone, is one of those peer driven interactions that have been frequently studied (Hymel & Swearer, 2015). Extant literature has been examining this phenomenon given the host of pernicious implications that bullying has for those who are involved (Swearer et al., 2010). Within the bullying literature, there have been perspectives that posit bullying behaviour as situated in a complex and dynamic social context rather than one that is in an individual and isolated context (Salmivalli et al., 1996). Salmivalli (1996) proposed the participant role approach viewing bullying as a group phenomenon that is a product of the different participant roles in a bullying situation (e.g., bully, victim, bystander). As such, the larger group context and the roles that individuals take within it have been suggested to enable or disable bullying, making bullying a group process (Saarento & Salmivalli, 2015).

In line with this idea of bullying as a group process, the research on bullying has been delving into the role of social status in bullying (Hymel & Swearer, 2015). Bullying and social status has been explored in tandem in pursuit of better understanding the motivations or explanations behind the behaviour. In these explorations, it has been proposed that bullying may be used a way of gaining or maintaining social status (Hawley et al., 2011). Research has also

suggested that unpopular individuals are more likely to be targets of bullying (Rodkin et al., 2015). Thus, an integral part of understanding bullying as a group process would be the investigation of the role of social status in participant roles. When reviewing the extant literature that draws links between popularity as a construct of social status and bullying behaviours (e.g., van der Ploeg et al., 2020), there remains the question of the overall magnitude of association between popularity and different bullying roles. Several studies on bullying in relation to popularity have shown the association of popularity with higher prosocial behaviour (Malamut et al., 2021), but also higher overt and relational aggression (Rose et al., 2004), and bystander behaviour (Zhang et al., 2021). These findings suggest that an individual's popularity may have implications for how they are involved in school bullying. As such, popularity would be an important element when understanding bullying better.

Despite the growing body of literature on popularity and bullying, very little is still known about the magnitude of the specific associations between the two. Thus, the current study evaluated the magnitude of association between bullying involvement roles and popularity by conducting a meta-analysis. This meta-analysis has the potential to advance the current understanding of the role of popularity in bullying involvement to inform stakeholders of potential insight for developing intervention and prevention efforts. Thus, it is important to thoroughly review the existing research on bullying, popularity, the relationship between the two, and the factors that may potentially affect the findings on that said relationship.

Literature Review

Bullying

Bullying is commonly defined as the act of intentionally inflicting harm (physically, socially, verbally) repeatedly and over time in an interpersonal relationship characterized by a

power imbalance (Olweus, 1993). It is important to note that the intentionality and the power dynamics inherent to bullying is what differentiates the behaviour from violence or aggression (Volk et al., 2014). The act of bullying is a widespread and pervasive occurrence that is associated with internalizing and externalizing symptoms (Naveed et al., 2019; Zhang et al., 2019), lower academic achievement (Samara et al., 2021; Tekel & Karadag, 2020), and social outcomes in youth (deLara, 2019). The literature suggests that a "sizeable minority" of primary and secondary school students are frequently involved in school bullying as victims or perpetrators (Salmivalli, 2010, p. 113). However, bullies and victims are not the only ones who are implicated in bullying. The more recent literature argues that bullying is a group process by including other participants in their investigations rather than looking at bullying as an isolated dyadic occurrence (Salmivalli, 2010). The participant role approach extends on this perspective of bullying as involving multiple individuals by suggesting that peer witnesses, called bystanders, are also present during bullying and that they play a role in the behaviour (2010). Prominent researchers of bullying have distinguished different types of bystanders, such as "assistants" who enable the bullies as an audience, "reinforcers" who actively encourage the bullying, "defenders" who attempt to defend the victims, and "passive bystanders" who ignore the bullying (Salmivalli et al., 1996). It has been found that approximately 85% of bullying instances occur in front of a peer audience and that there are a range of responses to viewing these instances (Craig & Pepler, 1998; Padgett & Notar, 2013). A study of 26,176 participants in Western Canada found that in the 54% of students who reported witnessing bullying, there were a range of participant responses to the bullying incidents, such as using active problem-solving, seeking support, and avoidance (Konishi et al., 2021). It is thus evident that there is a significant prevalence of bystanders in bullying incidences who display a variety of responses. Furthermore,

these individuals and their responses can affect the development of bullying, and they can be very critical in bullying incidents as findings indicate that they are effective in stopping or influencing the frequency of the behaviour (Hawkins et al., 2001; Salmivalli et al., 2011). In addition to playing a role in reinforcing or intervening in bullying, bystanders, like victims and bullies, also experience a host of consequences related to this bullying involvement, such as internalizing symptoms (Sigurdson et al., 2015; Zwierzynska et al., 2013) and suicide risk (Benatov et al., 2021; Klomek et al., 2010).

The investigation of bullying as a group process cannot ignore the influences of the larger social network in which the individual and the group process are situated (Koski et al., 2015). As is evident from the literature, bullying behaviours involve multiple participants and these incidents can be conceptualized as a group process. Furthermore, it is suggested that social status, as a component of the group, influences the role an individual plays in bullying incidents (Witvliet et al., 2010). Therefore, within these peer group dynamics, the hierarchical organization of the social context of the classroom may be shaping the different types of involvement in bullying behaviours that individuals take on, such as bullies, victims or bystanders (Kuppens et al., 2008). Therefore, it is critical to explore bullying as a group process involving social and relational hierarchy, such as popularity, in order to have a comprehensive understanding of the contextual factors that facilitate bullying (Espelage & Swearer, 2010; Kerzner, 2013; Salmivalli, 2014; Salmivalli et al., 2011; Swearer & Espelage, 2004).

Popularity

Popularity, also known as perceived popularity, is described broadly by Bukowski et al. (2011) as an index of an individual's position in a group's dynamics as well as their status amongst peers. This construct refers to students' social visibility, dominance and centrality

within their peer group and it reflects an individual's social prestige in a group (Cillessen & Rose, 2005; Guy et al., 2019; Parkhurst & Hopmeyer, 1998). Unlike sociometric popularity, another construct of social status, which asks about whether individuals are liked or disliked by their peers, perceived popularity indicates individuals' reputations in the peer group as being popular or not (Parkhurst && Hopmeyer, 1998). Studies have shown popularity to be prioritized over friendship or empathy for a peer in need (LaFontana & Cillessen, 2010); this finding highlights the importance of popularity and its potential influence on an individual's bullying involvement as they seek to gain status, especially as a bystander (Badaly et al., 2013). Research on perceived popularity posits its association with other outcomes too, such as being positively associated with aggression (Badaly et al., 2012), negatively associated with academic achievement (Bellmore, 2011), and behavioural engagement (Engels et al., 2016), and positively associated with other risky behaviours (Moody et al., 2011). Moreover, levels of perceived popularity do vary across the role individuals play in bullying involvement (Romera et al., 2019). However, there are mixed patterns of associations between popularity and certain variables – bullying is one of those correlates of popularity with mixed findings (e.g., Gest et al., 2001) – across findings; thus, this warrants a systematic analysis of relevant results.

Bullying and Popularity

During childhood and adolescence, when peers are increasingly important, popularity has been suggested as an underlying motive for bullying behaviour (LaFontana & Cillessen, 2010). With such a possibility, a growing body of studies has been investigating the role of popularity on bullying involvement (e.g., Kuppens et al., 2008). A review on bullying and the peer group posits that as children and adolescents increasingly feel the importance of peer acceptance and popularity, their needs to fit into their social environment may impact their involvement in

bullying (Salmivalli, 2010). This suggestion is further supported by findings indicating that popularity is associated with bullying participant role among adolescents (Guy et al., 2019; Pouwels et al., 2018). For example, Guy et al. (2019) found that bullies had higher levels of perceived popularity and victims had lower levels of perceived popularity. Similarly, Pouwels et al. (2018) found that bullies and their followers were in the popular cluster; but no significant associations between popularity and being a victim were found, indicating inconsistent results with Guy et al.'s study. Another study by Sitsema et al. (2009) indicated that an individual's likelihood of bullying others was related to the person's status goals.

Although there is an extensive body of research linking popularity and bullying perpetrators (e.g., Sitsema et al., 2009), the findings are scarcer and more mixed when it comes to linking popularity to victims of bullying and to bystanders. Several studies found a positive association between popularity and bullying, indicating higher popularity for those who were bullies, and lower popularity for those who were victims (Becker & Luthar, 2007; Pouwels et al., 2018; Sandstrom & Cillessen, 2006; van den Berg et al., 2015). Other studies have found that in certain situations, such as in anti-bullying classrooms in which students perceive negative consequences of bullying involvement, bullying perpetrators have lower levels of popularity (Romera et al., 2019). Similarly, the smaller pool of findings on bystanders are mixed with the results indicating that popular students were more likely to intervene in bullying incidents (Troop-Gordon et al., 2019), whereas others indicating otherwise (Pozzoli & Gini, 2012). A qualitative study investigating bystanders and popularity found that students' thoughts on intervening in a bullying incident varied as some thought that intervening could come with the cost of losing popularity while others thought that it could emerge with the benefit of gaining popularity (Spadafora et al., 2020). This study examining students' thoughts on intervening in

bullying exemplifies the complexities of power dynamics and bullying involvement (Spadafora et al., 2020). Finally, the limited body of research on victims suggest that victims tend have low levels of popularity (Guy et al., 2019; Romera et al., 2019; Romera et al., 2021). The complex and nuanced nature of the findings on popularity and bullying highlight the importance of delving deeper into the status-behaviour association, suggesting a need to consider potential moderators.

Moderators

Although there are studies which investigate the relations between popularity and bullying, the results have indicated a complex relationship between popularity and bullying with findings indicating different directions and strengths of associations between social status and bullying involvement roles (Cillessen & Mayeux, 2007). These differences in the results may be driven by a range of factors that could be considered moderators, in which case, should be examined.

Student Gender

Research suggests that the associations between popularity and bullying involvement may differ depending on students' gender (Rose et al., 2011). For example, Smith et al. (2019) found that, in five large cross-national databases with participants between ages 11 to 15, boys were at more risk of bullying others than girls, and that both genders are nearly equally at risk of being bullied. Similarly, another study with a sample of 2,731 3rd to 5th graders found that relational aggression was associated with both gender and perceived popularity (Kuppens et al., 2008). Other studies have also documented the presence of gender differences in social status and bullying; for example, a longitudinal study on relational aggression and victimization in early adolescence found that victimization was associated with aggressive behaviour in more

popular girls, not boys, and that it was associated with less aggression among popular boys, not girls (Ferguson et al., 2016). This then necessitates the inclusion of gender as a moderator in the meta-analysis.

School Level

It has been suggested that there are developmental differences in the importance and effects of peer relations (LaFontana & Cillesen, 2009). The importance of social status in the peer group peaks in early and middle adolescence and is less important at earlier and later ages (LaFontana & Cillessen, 2009; Sullivan, 1953). In line with this, a study examining developmental changes in perceived popularity in the peer group during childhood and adolescence found school level differences in popularity, specifically that popularity was prioritized over other relational domains during early adolescence (LaFontana & Cillessen, 2009). Such school level differences have also been found in studies linking popularity and bullying involvement, indicating differences between primary and secondary schools (Pouwels et al., 2018; Romera et al., 2019). Specifically, Pouwels et al.(2018) found that bullies and defenders had similar levels of popularity in primary school, but bullies had an increase in popularity compared to defenders beginning in secondary school. Additionally, the study found that victims of bullying had lower levels of popularity in adolescence compared to childhood (Pouwels et al., 2018). Romera et al's study (2018) looked at differences in perceived popularity between bullying roles in 1,339 primary and secondary students. Their results showed developmental differences in popularity and bullying roles, such as defenders and bullies having similarly high levels of popularity in secondary school, but different levels in primary school (Romera et al., 2018).

Study Design

Since there is a host of varying results when it comes to the association between bullying and popularity, considering study design as a moderator may help explain some of these differences. For example, while a longitudinal study on bullying and popularity found that the association between the two became weaker from middle school to high school (Cillessen & Mayeux, 2007), and another found that the association becomes stronger as students proceed into secondary school (Sentse et al., 2015). Thus, study design could be an important moderator to investigate when trying to understand the magnitude of the relationships between popularity and bullying involvement roles.

Current Study

The number of studies investigating the relationship between bullying involvement and popularity is on the rise. However, the existing studies primarily focused on examining the popularity of bullies, and there are varying findings across studies. Furthermore, the previous meta-analyses investigating the relationship between popularity constructs and bullying involvement have either only focused on one participant role (i.e., defending as a bystander) (Ma et al., 2019), but not differentiated between perceived versus sociometric (e.g., peer nomination) popularity in their measures (Casper et al., 2020), or have used only a sociometric popularity measure (Cheek et al., 2020). To our knowledge, there has not been a systematic examination of perceived popularity and bullying across multiple different participant roles and also accounting for multiple moderators. This prompts a need for a comprehensive analysis to identify the common results across all relevant studies to date on bullying involvement (e.g., as a bully, victim, and bystander) and perceived popularity, examining potential moderators' roles. For the purpose of this meta-analysis, there were four overarching bystander groups: passive bystanders,

defenders, assisters, and enablers. Based on previous literature (E.g., Salmivalli, 2014) and the need to have at least five studies per group in a meta-analysis (Borenstein et al., 2009), assisters, enablers and passive bystanders were grouped into a pro-bullying bystander group. The objective of this meta-analysis was to understand the overarching associations between popularity and bullying involvement roles and the magnitude of these associations. To achieve this objective, the research questions asked: (RQ1) what is the magnitude of the association between popularity in the peer group and bullying involvement amongst school-aged children? (RQ2) is the association moderated by sample characteristics (school level, gender) and by study characteristics (study design)? It was hypothesized that: (H1) there will be a positive association between popularity and bullying involvement as a bully and a pro-bullying bystander, and a negative association between popularity and bullying involvement as a victim and as a defender of victims; and (H2) the associations will be significantly moderated by the stated sample and study characteristics.

Method

Literature Search and Selection of Studies

A collection of relevant publications was compiled by searching the following databases: ERIC, Medline, Scopus and PsycINFO. In an attempt to secure a systematic and representative sample of published studies, the search strategy included key terms that encompassed the variables of interest, for example “bully*, victimi*ation, aggressive behavi*or, victim*, bystander*, group dyanmic*, social influence*, popularity*, peer relation*, adolescen*, child*, middle school*, high school*, secondary school*”. The search strategy was not restricted by date. The literature search yielded a total of 2,475 studies.

Articles were selected as relevant and included in the meta-analysis if they (a) were published in a peer-reviewed journal in English; (b) were made up of a normative sample of students in Kindergarten – grade 12; included a measure of (c) traditional school-bullying involvement (as a bully, victim, bully-victim, or bystander); and of (d) perceived popularity which was defined as social visibility and dominance in the peer group for the purpose of this study (e.g., Cillessen & Rose, 2005); and (e) had statistical data on the relevant measures (i.e., correlations, Odds Ratio, t-value). If data were not reported in the paper, authors were contacted and asked to provide the relevant data findings, if available, needed for the analyses. The corresponding authors were contacted twice, with one week in between. Authors who did not respond within that time span had their paper excluded from the meta-analysis.

Screening of Studies

The studies were screened by two independent reviewers on Rayyan QCRI (Ouzzani et al., 2016) using the Preferred Reporting Items for Systematic Reviews and Meta-analyses (PRISMA) guidelines (Moher et al., 2010). Figure 1 shows the PRISMA flow diagram of the study selection process. First, an initial screening was conducted on the exhaustive list of papers; both reviewers assessed the eligibility of papers applying the inclusion criteria on all titles and abstracts. Next, the second screening on the complete texts of the accepted articles was done independently by the reviewers. This second screening led to the identification of the final list of studies that had its data extracted for the meta-analysis. Before proceeding to the data extraction, the two reviewers went over any conflicts in their decisions to include/exclude studies. Once a consensus was reached, coding of variables began. For studies that did not provide the sufficient correlational statistics needed to run the analyses, the authors were contacted through email. Of

the contacted authors, only two were able to provide the necessary statistics. Overall, the sample consisted of 39 papers (Figure 1).

Coding of Studies

The data from each selected study were coded to include sample characteristics (sample size, mean age if reported, school level(s), gender composition), study design (longitudinal or cross-sectional), publication year, and statistics for effect size calculations. A study was distinguish as longitudinal, as compared to concurrent, when the variables of interest were measured with the same sample across multiple time points. When coding for gender, based on previous meta-analyses (e.g., Gini et al., 2017), the proportion of girls in the sample was coded. The coding of the studies was fully completed by the author with 50% of the studies randomly selected and independently coded by a second coder.

Interrater Agreement

Inter-rater reliability was substantial after the initial screening (96.8% Cohen's k = .74), and substantial after the full-text article screening (89.9%, Cohen's k = .76). All conflicts resulting from the full-text article screening were resolved through discussions amongst the two reviewers.

Analyses

The data extracted from the included papers were analyzed using the Comprehensive Meta-Analysis software (CMA; Borenstein et al., 2013). The studies were coded for effect size calculation information. For studies that reported statistics in other metrics, the data were transformed using the CMA software. The Pearson correlation coefficients were transformed into the Fisher's Z to perform the analysis to avoid bias caused by larger r's being assigned more weight given their smaller standard errors; the metrics were then transformed back into

correlation coefficients for interpretation purposes (Borenstein et al., 2009). Effect size interpretations were based on Cohen (1992) which indicates r = .10 as small, r = .30 as medium, and r = .50 as large.

Moderation Analyses

The impact of heterogeneity across all studies on the meta-analysis was assessed using Cochrane's Q and I^2 (Mikolajewicz & Komarova, 2019). Cochrane's Q is the traditional test for heterogeneity due to variations in sampling error and other factors (Higgins et al., 2003). I^2 is an indication for the percentage of variability in the effects that is caused by heterogeneity rather than sampling error (2003). For the interpretations, 25% indicates small, 50% indicates moderate, and 75% indicates large percentages of heterogeneity (2003). Moderation analyses were conducted when significant Cochrane's Q and F distributions were observed, indicating heterogeneity in effect sizes (Assink & Wibbelink, 2016). However, moderation estimates were only conducted if the moderator category contained at least five studies, because otherwise, the parameter estimates would be poor (Borenstein et al., 2009).

Publication Bias

Publication bias is a result of systematic selectivity in the publication process and is a measure of the even distribution of effect sizes against the sample size (Rosenthal, 1997; Sutton, 2009); Vevea et al., 2019). A funnel plot presents the presence or absence of publication bias; in the presence of publication bias, the funnel plot is asymmetrical (Lin & Chu, 2018; Peters et al., 2008). Funnel plots are used with meta-analyses that include more than 10 studies (Sterne et al., 2008). Egger's test, an indication of funnel plot asymmetry, was then used to evaluate the significance of the funnel plots (Egger et al., 1977). Finally, to adjust for the funnel plot

asymmetry, the Duval and Tweedie trim and fill method was used to impute the missing effects in order to make the plot symmetrical (Duval &Tweedie, 2000).

Results

The final sample consisted of 39 articles describing 52 studies. Most of the studies were based in the U.S. (n=11), followed by the Netherlands (n = 9), Finland (n = 5), Italy (n = 4), South Korea (n = 4), and others (n = 6). The studies had publication years ranging from 1993 (Slee & Rigby, 1993) to 2021 (Choi & Park, 2021). The total sample of students was 56,459 (N) with sample sizes varying from 11,296 (Garandeau et al., 2014) to 205 (Breslend et al., 2018). The majority of studies included both boys and girls (n = 26), and a few ran the analyses separately for girls (n = 13) and for boys (n = 13). Furthermore, the samples were classified as primary school (n = 22), secondary school (n = 19), or combined (n = 11). Primary school covered kindergarten to grade seven, and secondary school covered grade seven to twelve. Most of the studies were concurrent (n = 31), and some were longitudinal (n = 21). Moreover, there were 34 studies that reported bully-popularity, 10 that reported victim-popularity, 5 that reported pro-bullying bystander-popularity, and 8 studies that reported defender-popularity.

Effect Size for the Overall Model

An objective of this meta-analysis was to assess the associations between popularity and bullying involvement roles and then to assess the strength of these associations. Table 1 shows that bullying involvement had a significant but weak positive association with popularity (r = .145, p <.001). In other words, overall students who have been involved in bullying are likely to have a little more popularity than those who have not been involved in bullying.

Effect Sizes Across Bullying Involvement

There were differences in association of popularity with bullying involvement roles. Being a bully perpetrator had the strongest effect size; it had a weak positive association with popularity (r = .193, p <.001). Next, being a defender of victims had the second strongest effect size; it had a weak positive association with popularity (r = .187, p = .001). Being a victim of bullying had a weak negative association with popularity (r =.171, p <.001). Finally, being a pro-bullying bystander had the smallest effect size; it had a weak positive association with popularity (r = .180, p < .001). In other words, students who were perpetrators of bullying had higher levels of popularity and this relationship was the strongest out of all involvement groups; similarly, pro-bullying bystanders and defenders of victims both had higher levels of popularity; however, victims of bullying had lower levels of popularity. The differences between types of bullying involvement were statistically significant Cochran's Q, $\chi^2(4) = 875.410$, $p < .001$ (Table 1).

Effect Sizes Across Gender

An objective of the current study was to assess whether the associations were moderated by gender. The differences between genders were statistically significant, Cochran's Q, $\chi 2(3) = 25.853$, $p < .001$ (Table 2). The results indicate that the effect size between popularity and bullying involvement was the strongest for boys (r =.210, p <.001). Then, the second strongest effect size between popularity and bullying involvement was for girls (r =.146, p <.001), followed by studies with boys and girls combined (r =.137, p <.001). This means that the relationship between bullying involvement and popularity was the strongest for boys, then for the girls, and then the combined groups.

Effect Sizes Across School Level

Another objective of the current study was to assess whether the associations were moderated by school level. The differences between school levels were statistically significant, Cochran's Q, $\chi 2(3) = 194.069$, $p < .001$ (Table 2). The results indicate that the effect size between popularity and bullying involvement was the strongest for secondary school students ($r = .190$, $p < .001$). Then, the second strongest effect size between popularity and bullying involvement was for primary school students ($r = .104$, $p < .001$). The effect size for studies with combined school levels was not significant ($r = -.009$, $p = .573$). In other words, the relationship between bullying involvement and popularity was stronger in secondary schools as compared to elementary schools.

Effect Sizes Across Study Design

The last moderator that this study aimed to examine was study design. The difference between study design was statistically significant, Cochran's Q, $\chi 2(2) = 77.271$, $p < .001$ (Table 2). The results indicate that the effect size between popularity and bullying involvement was the strongest for concurrent studies ($r = .191$, $p < .001$), and then for longitudinal studies ($r = .117$, $p < .001$).

Publication Bias

The funnel plot (Figure 2) showed an asymmetry which may indicate the presence of publication bias. The studies with smaller sample sizes may be more likely to be published if they have larger than average effect sizes, meaning they are more likely to meet the criterion for statistical significance. However, upon inspection of the Egger's regression test, there was no significant publication bias ($z = -1.838$, $p = .171$). This absence of significant publication bias was further confirmed by computing Rosenthal's fail-safe N.

Additionally, results indicated that the number of missing studies that would be needed to bring the p-value above the significance level ($p > .05$) was large (fail-safe $N = 6631$, $p < .05$). The Duval and Tweedie trim and fill method indicated that six missing studies had to be imputed on the right side of the mean. The point estimate and 95% confidence interval for the combined studies was .145 (.137, .153), but using the trim and fill method imputed the point estimate to .166 (.158, .174).

Discussion

Despite the substantial number of studies conducted on bullying and popularity, there has been ambiguity regarding the overall associations between bullying involvement and popularity. These variations in findings have warranted a meta-analysis to synthesize and quantify the overall magnitude of associations of popularity across different bullying involvement roles. Moreover, the current study examined the role of sample and study characteristic moderators in the complex relationship between the variables to inform our understanding of the results across extant studies.

Overall, when exploring the first research question, the findings indicated that bullying involvement roles and popularity had a weak, but significant association. The results were consistent with the hypothesis that there would be a positive association between popularity and involvement in bullying as a bully or a pro-bullying bystander; they were also consistent with the hypothesis that popularity would have a negative association with being a victim of bullying. However, the finding that popularity was positively associated with being a defender of victims was counter to the hypothesis. This means that bully perpetrators, pro-bullying bystanders and defenders of victims were more likely to have higher rankings of perceived popularity, whereas victims of bullying are more likely to have lower rankings. Based on these results, it can be

speculated that bullying involvement is instrumental and in part driven by status and status-related goals (Caravita & Cillessen, 2012). As such, perpetators may be engaging in bullying in an effort to obtain more popularity through power and dominance in the peer group; moreover, pro-bullying bystanders may be trying to attain popularity as well by affiliating with those individuals who are more socially visible in the classroom – the bullies (Sitsema et al., 2009). The unfavourable and less socially dominant position of victims of bullying in the classroom may be a reason behind their low levels of popularity. Finally, defenders of bullying may have higher levels of popularity since their courageous acts of standing up for someone may place them in a central and prominent locus in the classroom. These results can be further interpreted based on prior literature on bullying involvement roles and popularity.

The finding that bullies and pro-bullying bystanders have high levels of popularity suggests that bullying and being affiliated with the behaviour is socially rewarding. This result is in line with other studies that have explored bullying roles and popularity; for example, a study investigating the effect of bullying role (i.e., bully, victim, uninvolved, bully-victim) and perceived popularity in 2,721 11- to 16-year-old secondary students found that bullying role had a significant main effect on popularity and that bullies and other non-victim groups had higher levels of perceived popularity (Guy et al., 2019). Another study examining bullying as a strategic behaviour for obtaining or maintaining social dominance in 1,129 9- to 12-year-old children found that, in addition to the bullies, children who contributed to the bullying were also socially dominant in the peer group (Olthof et al., 2011). Olthof's study (2011) also found that bullies and pro-bullying bystanders were more socially dominant and had more resource control in the peer group, in addition to being popular. Thus, being involved in bullying as a perpetrator or supporter may be a strategic decision and motive to increase popularity in the peer group; at the

same time, popularity may also be a social reward for the bullying involvement (Caravita & Cillesen, 2012).

As for the victims of bullying, the findings are also in line with previous research indicating that being victimized is associated with lower levels of popularity (e.g., de Bruyn et al., 2009). Similarly, the low levels of popularity that victims have could be considered a consequence or a risk factor for bullying victimization. A potential explanation for this association is that less popular individuals may be easier targets for bullies because the bullies recognize that the individual's lack of popularity may justify the act of bullying them, and that this act will go unpunished in the peer group (Hodges & Perry, 1999). Moreover, victimization may be perpetuating lower levels of popularity in the peer group (Sentse et al., 2015). Additionally, it can be argued that high popularity may buffer against victimization to a certain extent. There seems to be a vicious cycle between bullying victimization and popularity.

Surprisingly, and counter to the current study's hypothesis, was the result indicating that defenders of victims also had higher levels of popularity. It has been previously suggested that peers may not choose to associate with victims of bullying because of apprehension of losing social status in the group and of becoming victims (de Bruyn et al., 2010; Huitsing et al., 2014; Sentse et al., 2015). However, the current meta-analysis shows that school-aged children and adolescents who defend victims of bullying still have significantly high popular standings in the peer group. A potential explanation to this finding is offered by Pöyhönen et al.'s study (2010) which examines personal and social factors at play when defending victims of bullying in 489 Finnish students in grades four to eight. The researchers suggest that defenders of victims may feel that they can rely on their popularity in the peer group, giving them courage to defend victims. They go on to suggest that defending victims could be leading to increased social status

as power and dominance is demonstrated in the act of defending (Pöyhönen et al., 2010). Another explanation for this finding can be based on Latané and Darley's (1970) model on the five stages of psychological processes underlying helping behaviour. In this model, step four highlights that an individual must have the self-competencies to intervene (Latané & Darley, 1970). Therefore, if an individual is defending a victim of bullying, it can be posited that they believe in their skills and competencies (Powerls et al, 2019). Furthermore, it is likely that individuals who are confident in themselves may then also hold socially favourable, and popular, positions in the peer group. Once again, it is evident that bullying is a complex and dynamic group process and there is still more to uncover about the mechanisms that are implicated in the involvement roles.

The second research question asked whether the associations between bullying involvement and popularity were moderated by student gender, school level, or study design. In line with the hypothesis, the associations were significantly moderated by student gender, school level, and study design. Specifically, the association between popularity and bullying involvement was stronger for boys, for secondary school students, and in concurrent studies.

Firstly, previous research has found that boys do appear to be more involved in bullying instances than girls (Cook et al., 2010; Khoury-Kassabri et al., 2004; Seals & Young, 2003). Similarly, prior research has found that, in line with the current study's results, the associations between social status and bullying and victimization was stronger for boys than it was for girls (de Bruyn et al., 2010). Based on the current and prior findings, it is important to take gender into consideration when trying to understand and to disrupt bullying and status dynamics in classrooms.

Secondly, the finding regarding secondary school students was also consistent with investigations drawing attention to school-level differences in bullying roles (e.g., Yang & Salmivalli, 2013). Secondary school is a period characterized by change as students move into new classrooms and re-establish their social relationships; all the while, this is also a time in which peers and status are both important for students (Pellegrini & Long, 2004). The association between bullying involvement roles and popularity would be more prominant in the secondary school level. Therefore, this finding highlights the importance of having an effort in bullying interventions in relation to popularity in the secondary school years, and preventative efforts in the years leading to secondary school.

Finally, regarding the moderator findings, concurrent studies had the largest effect size when compared to longitudinal studies. This finding is also in line with previous research that has shown that study designs – longitudinal versus concurrent study designs more specifically – do have an impact on the effect size of the association between popularity and bullying (Sentse et al., 2015).

Overall, it is not surprising that all the moderators (study design, gender, and school level) had a significant effect on the association between bullying involvement roles and popularity. The alignment in the current study's results with the existing findings can be seen in Hymel and Swearer's (2015) introductory overview of school bullying research from the past 40 years. In their article, Hymel & Swearer thoroughly review research on school bullying and its definition, assessment, prevalence, stability, and forms. By reviewing these studies, the authors identify that there are variations across studies in the findings on school bullying across methodological approaches, gender, and age, among other variables (Swearer & Hymel, 2015).

Limitations and Future Directions

The current study is not without its limitations. Firstly, the goal of the meta-analysis was to assess the magnitude of associations between school bullying involvement and perceived popularity; however, there are different types of school bullying (e.g., relational, physical, verbal) that the current study did not differentiate. To obtain an even better understanding of the layers to school bullying, future research can examine overall magnitude of associations of popularity with bullying involvement roles across different forms of bullying. Secondly, the adoption of a correlational analysis limits the ability to make causal inferences. Also, in an effort to obtain a sufficient number of effect sizes for the analysis, bullying involvement as an enabler, assister and passive bystander was grouped into a pro-bullying involvement role as guided by previous research. However, in doing so, potential nuances in the mentioned bullying involvement roles may have been overlooked. Lastly, as this is a meta-analysis, the results are quantitative in nature providing a limited understanding of potential explanations to the results. Future studies should use qualitative methods to explore the reasoning of school-aged children and adolescents on the relationships between bullying involvement and popularity.

Implications

Beyond the outlined limitations, this meta-analysis has important implications for research and practice. The results support the argument of bullying as a product of complex and interactional group processes. Thus, when examining bullying it is important to consider the role of the larger group dynamic. Additionally, the findings posit that there are gender and school level differences, as well as methodological designs considerations that should be addressed when trying to understand the association between the current variables of interest. Based on these results, there are several implications. First of all, gender and school level factors need to

be considered when designing and implementing bullying interventions. Specifically, it is evident that popularity and bullying involvement roles are more strongly associated for boys and for secondary school students. Therefore, there should be interventions tailored to address specific genders, as well as for specific school levels. Secondly, as is evident, bullying and popularity have stronger associations in concurrent studies compared to longitudinal studies. This implies that the contemporary peer context, such as popularity and group dynamics, has an immediate and large role in shaping outcomes, such as bullying. Thus, educators should encourage prompt action to dismantle group processes and individual behaviours that enable bullying.

Moreover, the results stress the importance of addressing bullying behaviours at a group level. Intervention and prevention efforts should move beyond the individual and dyadic level and should account for the entire peer group. Overall, it can be said that there are underlying rewards structures in schools and classrooms that need to be considered when addressing bullying. Specifically, when approaching the peer group, it is important to balance out the power dynamics by reducing the social rewards received by bullies and pro-bulling bystanders, and to increase the social appeal of those who are victims. Alternatively, teachers can leverage the social hierarchies in classrooms by mobilizing high status individuals to intervene, thus balancing the uneven power dynamics at play during bullying. Restructuring the social environment will mean bullies have fewer opportunities to engage in the behaviour, and when they do, they will have fewer social rewards (Olweus, 1993). Additionally, if all students in the classroom feel accepted, included and supported, bullies and pro-bullying bystanders may be less likely to identify easy “excluded” targets. These feelings of acceptance and support are also

important since positive peer relationships provide resilience against victimization (Guy et al., 2019).

When considering defenders of bullying, adults should try to increase their self-efficacy beliefs. This can be done through experiential learning exercises (e.g., role-play), or through seeing examples of defending and support behaviours in clips. Finally, it is important to try to increase the affective empathy skills, the ability to resonate with other people's feelings and emotions (Dodaj et al., 2013) of all children and adolescents in hopes that they will be less likely to engage in bullying or they will be more likely to defend victims. To help children and adolescents understand other people's emotions, activities and workshops can encourage reflection and expression of feelings. For example, the "Roots of Empathy" program has been designed to teach empathy and has been found to decrease aggression in children who attended the program (Dodaj et al., 2013).

When considering implications, it is important to push beyond the human enabler and defender, and to also ask what systemic and structural elements may be fueling or preventing bullying behaviours and involvement. Policies can work to dismantle these structures of power and bullying as a group process by influencing educators, school personnel and institutions. Moreover, policies can provide foundations for interventions and practices to be launched across a larger body of institutions and individuals. However, these policies are more efficacious if they are based on evidence and implemented with consistency (Hall, 2017). Given the large impact that policies can have, they should be developed with certain considerations. The policies that are crafted and put into place should refrain from adopting punitive and zero-tolerance approaches because they can be counter-productive (Berlowitz et al., 2015). Instead, policies should emphasize peer mediation, conflict resolution, empathy, and reintegration; doing so would equip

and empower individuals with the skills and confidence to stand up for victims in instance of bullying, while also incorporating bullies and their supporters into inclusive, moral social environments in hopes of decreasing bullying behaviours (Borgwald & Theixos, 2013 Hall, 2017). To conclude, policies and practices across stakeholders should foster cultures of inclusion, acceptance, and empowerment in an effort to prevent group dyanmics that enable school bullying.

Conclusion

Arguably, the greatest contribution of the current meta-analysis is the identification of the associations of popularity and bullying across multiple involvement roles while also considering moderators. Together, the results of this meta-analysis clearly support the argument that bullying is a group process. Moreover, within this group process, there are evident social hierarchical processes, namely popularity, which may be an underlying influencer for bullying involvement roles. Recognizing the group dyanmics implicated in school bullying is pivotal to addressing the behaviours. All individuals in the classroom, whether involved as a bully, a victim, a passive bystander, or an enabler of bullying, play a role in bullying episodes. Finally, the group process of bullying involves more than the students; educators, policymakers and other stakeholders also have a role in the group process of bullying by enabling or preventing the behaviours through the actions they decide to take – or lack thereof.

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Table 1

Weighted Mean Effect Sizes (r) for Overall Model & Across Bullying Involvement Roles

			95% CI			
	k	*r*	Lower	Upper	*Q*	I^2
Overall Model	52	.145**	.137	.153	1795.847**	97.16
Bullying Involvement					**875.410 ****	
Bully	34	.193**	.184	.202	521.733**	93.675
Victim	10	-.171**	-0.193	-.149	273.595**	96.710
Defender	8	.187**	.160	.214	125.109**	94.405
Pro-Bullying Bystander	5	.180**	.145	.215	144.524	97.232

Note. CI = confidence interval, *$p < .05$, **$p < .001$.

Table 2

Weighted Mean Effect Sizes (r) for Moderator Variables

			95% CI			
	k	*r*	Lower	Upper	*Q*	I^2
Gender					**25.853****	
Girls	13	.146**	.118	.174	198.77**	93.963
Boys	13	.210**	.184	.237	299.501**	95.993
Combined	26	.137**	.129	.146	1271.723**	98.034
School Level					**194.069****	
Primary	22	.104**	.091	.117	723.116	97.096
Secondary	19	.190**	.179	.201	554.529	96.754
Combined	11	-.009**	-.041	.023	324.134	96.915
Study Design					**77.271****	
Concurrent	31	.191**	.178	.204	503.924**	94.047
Longitudinal	21	.117**	.106	.127	1214.652**	98.353

Note. CI = confidence interval, *$p < .05$, **$p < .001$.

Figure 1

PRISMA Flow Diagram of the Study Selection Process

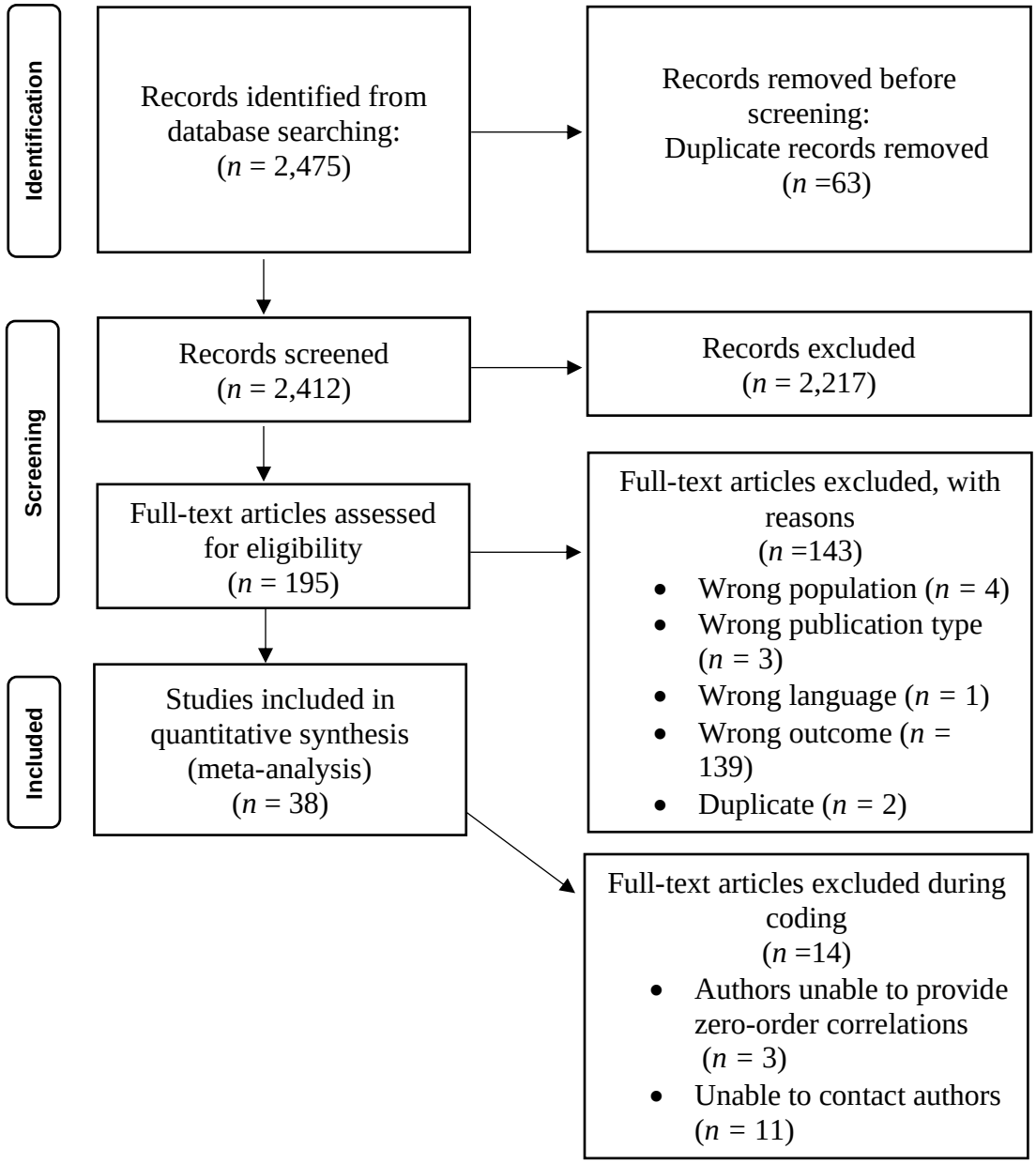

Figure 2

Funnel Plot for Publication Bias