

UNIVERSITÉ DU QUÉBEC À MONTRÉAL

FRIENDSHIP AND PHYSICAL AND RELATIONAL AGGRESSION IN
CHILDHOOD: AN EXAMINATION OF THE MODERATING ROLE OF NORMS
AMONG PEERS

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AMITIÉ ET AGRESSIVITÉ PHYSIQUE ET RATIONNELLE À L'ENFANCE:
UN EXAMEN DU RÔLE MODÉRATEUR DES NORMES SOCIALES ENTRE PAIRS

THÈSE PRÉSENTÉE COMME EXIGENCE PARTIELLE
DU DOCTORAT EN PSYCHOLOGIE

PAR
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RÉSUMÉ

L'âge scolaire, soit la période de 6 à 12 ans, est un stade développemental caractérisé par des interactions progressivement plus complexes et étendues avec les pairs. Comprendre les effets du comportement de l'enfant sur son adaptation sociale et l'influence des pairs sur le comportement individuel est au centre de la recherche sur les relations entre pairs depuis des décennies (Laursen, 2018). Plus récemment, certains chercheurs ont examiné les associations dynamiques entre l'individu et son environnement social, portant une attention particulière à comment les facteurs au niveau du groupe, tel que les normes sociales, influencent ces associations (Veenstra et al., 2018). Dans la présente thèse, les associations entre l'agressivité des enfants et diverses caractéristiques d'amitié, ainsi que le rôle modérateur potentiel des normes sociales dans ce contexte, sont examinées dans une perspective développementale.

L'objectif principal de la présente thèse de doctorat était d'examiner les associations entre l'agressivité physique et relationnelle des enfants et leurs expériences d'amitié, ainsi que le rôle modérateur des normes sociales sur ces associations. La première étude a examiné l'association longitudinale entre le comportement agressif des enfants et leurs expériences d'amitié, et le rôle modérateur des normes sociales dans ce contexte. La deuxième étude a examiné l'association longitudinale entre le comportement agressif des amis réciproques et les changements dans le comportement agressif des enfants au fil du temps, et le rôle modérateur des normes sociales dans ce contexte. Un objectif commun des deux études était d'examiner si l'effet modérateur des normes sociales dans les associations ci-dessus différait selon la forme d'agressivité et le sexe, un examen plus nuancé que dans les études antérieures (Laninga-Wijnen et al., 2017).

L'échantillon des deux études de la thèse est constitué d'enfants dans des classes de 4^e, 5^e et 6^e année ayant complété une procédure de nominations par les pairs à l'automne et au printemps de la même année scolaire. Les normes ont été opérationnalisées comme la corrélation spécifique à la classe et au sexe entre chaque forme d'agressivité (i.e., physique et relationnelle) et la préférence sociale, un indicateur du statut social.

Les résultats de la thèse ont permis dans un premier temps de distinguer entre l'agressivité physique et relationnelle. Les groupes de pairs acceptant mieux l'agressivité physique sont généralement moins propices à la formation d'amitiés, alors que les groupes acceptant mieux l'agressivité relationnelle peuvent favoriser la formation d'amitiés. Des effets de socialisation ont été observés, de sorte que les garçons avec des amis physiquement agressifs sont devenus plus physiquement agressifs au fil du temps. Des effets de socialisation de l'agressivité relationnelle n'ont été observés que chez les filles déjà hautement agressives, cet effet étant modéré par les normes sociales du groupe de pairs. Globalement, les résultats suggèrent que l'agressivité physique et l'agressivité relationnelles ne sont pas nécessairement préjudiciables aux expériences d'amitié des enfants et que les deux formes peuvent être bénéfiques dans certains contextes normatifs.

Dans un deuxième temps, les résultats de la thèse ont permis d'examiner le rôle modérateur des normes sociales. Le contexte normatif rend plus facile ou plus difficile pour les enfants agressifs de faire des amis, mais ne change pas le fait que les enfants agressifs maintiennent ou non leurs amitiés au fil du temps. De plus, le contexte normatif peut exacerber ou atténuer la socialisation de l'agressivité chez certains sous-groupes d'enfants, en particulier les filles hautement relationnellement agressives.

Ainsi, les deux études ont pu faire ressortir la présence de liens entre l'agressivité physique et relationnelle des enfants et leurs expériences d'amitié, ainsi que le rôle modérateur des normes sociales sur certaines associations. Finalement, les programmes de prévention et d'interventions s'intéressant aux problématiques de l'agressivité chez les enfants d'âge scolaire devraient considérer les normes sociales spécifiques non seulement à la forme de l'agressivité observée et au sexe, mais aussi à différentes conceptualisations du statut social dans le groupe de pairs.

MOTS-CLÉS: Agressivité physique, agressivité relationnelle, normes sociales, amis, pairs

SUMMARY

Middle childhood, the period from 6 to 12 years of age, is a developmental stage characterized by progressively more complex and extensive interactions with peers. Understanding the effects of children's behaviour on their social adjustment and the influence of peers on individual behaviour has been at the centre of peer relations research for decades (Laursen, 2018). More recently, some researchers have examined the dynamic associations between the individual and their social environment, paying particular attention to how group-level factors, such as social norms, influence these associations (Veenstra et al., 2018). In the present thesis, the associations between children's aggression and various friendship characteristics, as well as the potential moderating role of social norms in this context, are examined from a developmental perspective.

The main objective of this doctoral thesis was to examine associations between children's physical and relational aggression and their friendship experiences, as well as the moderating role of social norms in these associations. The first study examined the longitudinal association between children's aggressive behaviour and their friendship experiences, and the moderating role of social norms in this context. The second study examined the longitudinal association between reciprocal friends' aggressive behaviour and changes in children's own aggressive behaviour over time, and the moderating role of social norms in this context. A common aim of both studies was to examine whether the moderating effect of social norms in the above associations differed by form of aggression and sex, a more nuanced examination than in previous studies (Laninga-Wijnen et al., 2017).

The sample of the two studies of the thesis is made up of students in 4th, 5th and 6th grade classrooms who completed a peer nomination procedure in the fall and spring of the same school year. Norms were operationalized as the class- and sex-specific correlation between each form of aggression (i.e., physical and relational) and social preference, an indicator of social status.

The results of the thesis first made it possible to distinguish between physical and relational aggression. Peer groups more accepting of physical aggression are generally less conducive to friendship formation, whereas groups more accepting of relational aggression may promote friendship formation. Socialization effects were observed such that boys with physically aggressive friends became more physically aggressive over time. Socialization effects of relational aggression were observed only among girls who were already highly aggressive, with this effect being moderated by peer group social norms. Overall, the results suggest that physical aggression and relational aggression are not necessarily detrimental to children's friendship experiences and that both forms can be beneficial in certain normative contexts.

Secondly, the results of the thesis made it possible to examine the moderating role of social norms. The normative context makes it easier or harder for aggressive children to make friends, but does not change whether or not aggressive children maintain their friendships over time. Moreover, the normative context may exacerbate or attenuate the socialization of aggression in certain subgroups of children, particularly highly relationally aggressive girls.

Thus, the two studies were able to highlight the presence of links between children's physical and relational aggression and their friendship experiences, as well as the moderating role of social norms on certain associations. Finally, prevention and intervention programs addressing the problem of aggression in school-aged children should consider social norms specific not only to the form of aggression observed and to sex, but also to different conceptualizations of social status in the peer group.

KEYWORDS: Physical aggression, relational aggression, social norms, friends, peers

CHAPTER I

GENERAL INTRODUCTION

Middle childhood, the period between 6 and 12 years of age, is a distinct and pivotal developmental period characterized by increasingly complex and extensive interactions with peers. Learning to navigate the peer context has been described as a major challenge in this stage of children's social and emotional development (Hartup, 1984). While younger children naturally look to caregivers for support in navigating difficult emotions and social interactions, the period of middle childhood involves an essential shift towards greater autonomy in managing emotions and relationships (Carr, 2011). Understanding the effects of children's behaviour on their peer relationships has been an ongoing objective of peer relations research for decades (Ladd, 1999). Early peer relations research pointed to a social skills hypothesis, suggesting that negative relational outcomes such as peer rejection or lack of friends may be due to social skills deficits and the excess of antisocial behaviour such as aggression (Ladd, 1999). The influence of friends and classmates on individual behaviour has also been a large focus of peer relations research (Laursen, 2018), altogether highlighting the importance of considering links between individual and peer characteristics. More recently, some peer researchers have utilized a sociological approach to examine dynamic associations between the individual and their social environment, emphasizing how group-level social factors such as norms may influence these associations (Veenstra et al., 2018). In the present thesis, associations between children's aggression and various friendship characteristics, and the potential moderating role of group norms in this context, are examined from a developmental perspective.

1.1 Distinct forms of aggression

Aggression is most commonly and broadly defined in psychology as behaviour intended to harm another person who is motivated to avoid that harm (Allen & Anderson, 2017). In a review of several proposed taxonomies of aggression in the literature, Allen and Anderson (2017) describe the most prevalent distinctions. For instance, aggressive behaviour may serve different *functions*. Hostile or reactive aggression is driven by anger, retaliation, impulsivity and a desire to cause harm, whereas instrumental or proactive aggression is more controlled, planned and driven by desire to attain some other goal. However, the distinction of interest in the present thesis is that between different *forms* of aggressive behaviour, mainly physical and relational aggression (Bjorklund & Hawley, 2014; Vaillancourt et al., 2003; Vitaro et al., 2006). While both forms may serve a reactive or proactive function, physical aggression involves active, direct and overt behaviour that inflicts bodily harm or injury by violent actions such as hitting, pushing or fighting. In contrast, relational aggression involves both covert and overt actions harmful to others' social standing or reputation within a group, such as ridicule, manipulation, threatening to withdraw friendship, spreading rumours or social exclusion (Archer & Coyne, 2005; Benenson et al., 2011).

There is ongoing discussion in the literature as to whether relational aggression is distinct or rather synonymous with indirect and social aggression. In contrast with direct aggression, indirect aggression is a broad term referring to covert behaviour used to harm others in such a way that is less observable and so as to avoid reprimand (Björkqvist, et al., 1992). Social aggression is similar to relational aggression in its function and includes other harmful and overt gestures or actions such as eye rolling or giving dirty looks (Coyne et al., 2006). Some authors

conclude that social, relational and indirect aggression are essentially one and the same (Archer & Coyne, 2005). Although the term relational aggression is used throughout the present thesis, the literature cited includes studies examining each of these constructs given their high degree of similarity. Considering the extensive literature on direct forms of aggression, especially physical aggression, it may be assumed that direct aggression refers primarily to acts of physical aggression. However, direct aggression may also refer to verbal aggression (e.g., threatening violence or physical harm). Although the term physical aggression is used throughout the present thesis, the literature cited also includes studies examining verbal threats of physical aggression.

One fundamental evolutionary and developmental theory of aggression suggests that the period of middle childhood includes a critical shift from primarily direct to indirect forms of aggressive behaviour (Björkqvist et al., 1992; Ingram, 2014). Specifically, it is theorized that younger children may use physical aggression most frequently due to underdeveloped verbal and social cognitive skills. As these skills develop, older children may not become *less* aggressive, but rather come to use indirect aggression as an alternative, more adaptive aggressive strategy when direct aggression is tied to potential retaliation or reprimand (Archer & Coyne, 2005). Developmental trajectories of physical and relational aggression provide empirical evidence of this shift. A majority of children (52.2%) follow a trajectory of occasional use of physical aggression at age 2 and infrequent use of physical aggression by age 11, and approximately one third of children (31.1%) follow a trajectory of low use of physical aggression at age 2 and practically no physical aggression by age 11 (Côté et al., 2006). In contrast, from ages 2 to 8, a majority of children (67.9%) follow a low relational aggression trajectory and about a third (32.1%) follow a high-rising trajectory of relational aggression (Côté et al., 2007). Most children

(62.1%) follow a joint trajectory of decreasing physical aggression and low relational aggression, while a smaller, but significant proportion of children (14.2%) follow a decreasing physical aggression and increasing relational aggression trajectory from 2 to 8 years of age (Côté et al., 2007). Nevertheless, findings from a path analysis in children aged 4 to 11 years, indicate, that children tend to remain relatively consistent in the primary form of aggression they use and that preference for one form over the other begins as early as 4 years of age (Vaillancourt et al., 2003).

Card and colleagues (2008) conducted an extensive meta-analysis of 148 studies on direct and indirect aggression in children and adolescents to examine the magnitude of gender differences and correlations between these two forms, as well as their unique associations with maladjustment. The authors adopted inclusive search terms such that indirect aggression included the terms social, relational and covert aggression and direct aggression included especially physical aggression, but also verbal aggression (e.g., threatening violence or physical harm). Regarding gender differences, direct forms such as physical aggression are consistently found to be more prevalent in boys. In contrast, gender differences in indirect forms such as relational aggression are small and inconsequential, suggesting that the prevalence of indirect aggression is similar among boys and girls. The misconception that indirect aggression is more prevalent in girls may be driven by perceptual biases that support a focus on gender differences. For instance, it has been reported that as early as age 3, children associate being female with engaging in relational aggression and being male with engaging in physical aggression (Giles & Heyman, 2005). These organized patterns of beliefs about gender affect how children process social information and may contribute to the statistically significant yet trivial gender differences

that appear in the literature on indirect aggression. Regarding associations between direct and indirect forms of aggressive behaviour, results of the meta-analysis conducted by Card and colleagues (2008) indicate a high average correlation of .76, suggesting that these two constructs are distinct yet overlapping. Statistical methods can be used to distinguish between two highly correlated constructs. For instance, residual variables may be computed by regressing one form of aggression on to the other, effectively controlling overlapping or shared variance. Residual variables have been used in previous research to examine unique effects of physical and relational aggression (Brendgen et al., 2015) as well as of other highly correlated but distinct subtypes of aggression such as proactive and reactive aggression (Cima, & Raine, 2009).

Physical and relational aggression have distinct genetic and environmental etiologies. Results of genetically informed studies suggest that half of the variance of physical aggression could be explained by genetic factors, and the remaining half by environmental factors (Brendgen et al., 2005). In contrast, strong environmental effects but only weak genetic effects have been found with regards to relational aggression, suggesting that this form may be primarily influenced by environmental factors (Brendgen et al., 2005). Physical and relational aggression also have distinct cognitive, behavioural and social correlates. For instance, cognitive correlates of physical aggression include impairments in expressive language (Dionne et al., 2003) and difficulties in emotion regulation (Card et al., 2008). Behavioural correlates of physical aggression include conduct problems and antisocial behaviour (e.g., stealing, vandalism) (Card et al., 2008). Social correlates of physical aggression include family-related factors such as early exposure to high interparental conflict (Jambon et al., 2019) and coercive parenting behaviour (Tremblay et al., 2004) as well as peer-related factors such as low peer acceptance (Card et al., 2008) and friends'

physical aggression (Werner & Crick, 2004). In contrast, cognitive correlates of relational aggression include above average language, theory of mind and executive functioning skills (Shahaeian et al., 2017), supporting the notion that more developed verbal and social cognitive skills facilitate the use of relational aggression. Relational aggression is associated with maladjustment outcomes, particularly internalizing problems (e.g., depression/anxiety symptoms), though also positively associated with prosocial behaviour (e.g., sharing, helping) (Card et al., 2008). Social correlates of relational aggression include family-related factors such as psychologically controlling and uninvolved parenting styles (Kawabata et al., 2011) and peer-related factors such as friends' relational aggression (Werner & Crick, 2004). Given these unique correlates and notable gender differences, the distinction between physical and relational aggression will be carefully considered throughout the present thesis.

1.2 Aggression and friendship

Friendship is distinct from other close interpersonal relationships such as those with parents or siblings. Childhood friendships are voluntary, dyadic and reciprocal relationships defined by equality, mutual liking and affection between two peers (Bagwell & Bukowski, 2018). Children's friendships have been identified using various approaches such as teacher or parent nominations, behavioural observations and most commonly by sociometric methods (Gifford-Smith & Brownell, 2003). Sociometric methods involve having children nominate a limited or unlimited number of friends within a group of classmates or schoolmates. A friendship is typically considered reciprocal when two children nominate each other as a friend and unilateral when a nomination is unreciprocated. Thus, unilateral nominations capture whom children believe they are friends with, or would like to be friends with, rather than true mutual

friendships.

The developmental significance of friendship is indisputable. Firstly, having friends contributes directly to children's social, emotional and cognitive functioning. Children who have friends have more opportunities to receive emotional and instrumental support in addition to developing social skills and a sense of self-worth (Bagwell & Bukowski, 2018). Secondly, friendship plays a moderating role as a crucial protective factor in associations between various individual risk factors - such as internalizing and externalizing problems - and negative outcomes (Bagwell & Bukowski, 2018). For instance, the friendship protection hypothesis suggests that having friends mitigates the risk of peer victimization among children (Hodges et al., 1997). However, having friends may support children's positive development only if these friends are well adjusted, well liked and prosocial. In contrast, having friends who are victimized, rejected or aggressive themselves might exacerbate the risk of social maladjustment (Bagwell & Bukowski, 2018).

A literature review (Deptula & Cohen, 2004) suggests that the friendships of aggressive children are comparable to those of non-aggressive children in regard to the number of friends, stability of friendships over time and behavioural similarity between friends. Indeed, some studies have shown that in grades 4 and 7, peers equally nominate highly aggressive children and non-aggressive children as best friends (Cairns et al., 1988). However, other studies have shown that at age 7, highly aggressive children have fewer friends and more volatile friendships than non-aggressive children (e.g., Hektner et al., 2000) and that chronically friendless 5th graders are significantly more aggressive than 5th graders in stable friendships (Bowker et al, 2006). Children and adolescents aged 8 to 15 years with a rotating friendship pattern (i.e., high levels of

new friendship formation and low friendship durability/stability) have been characterized as high in attractive personal qualities (i.e., playfulness, sense of humor) and in negative personal qualities such as aggressiveness (Parker & Seal, 1996). These discrepant findings suggest that the friendship experiences of aggressive children are complex and that different forms of aggression may be associated with different degrees of friendship maladjustment. To date, only few studies have examined associations between different forms of aggression and the specific friendship adjustment outcomes examined in the present thesis. Ellis and Zaratany (2007) examined friendship formation and stability as a function of physical and relational aggression among children in 5th through 8th grade ($M_{age}=12.1$ years). Results of that study suggest that, although neither form of aggression was associated with significant difficulties with friendship formation, physical aggression specifically was associated with greater friendship instability, suggesting that physical aggression may implicate deficits in skills needed to maintain friendships over time. In comparison to physical aggression, relational aggression was associated with greater friendship stability, especially among friends with similar levels of relational aggression (Ellis & Zaratany, 2007). In addition, Etekal and Ladd (2015) examined associations between children's co-occurring physical aggression and relational aggression trajectories and reciprocated friendships from grade 4 ($M_{age}=10.0$ years) to grade 8 ($M_{age}=13.9$ years). Children following joint high-physical and high-relational aggression trajectories had fewer reciprocal friends over time. Girls with joint high-relational aggression and low-physical aggression trajectories had more reciprocal friends over time. Furthermore, research indicates that prosocial behaviour moderates the association between aggression and friendship outcomes among 6th graders, such that aggression is positively associated with having a best friend when prosocial behaviour is high and negatively associated with having a best friend when prosocial

behaviour is low (McDonald et al., 2011). Taken together, the above findings suggest that relational aggression may be associated with more positive friendship adjustment relative to physical aggression, further emphasizing the need to carefully distinguish between these two forms when examining associations between aggression and friendship experiences.

Over the past decades, studies have consistently found that children's behaviour is similar to that of their friends, such that aggressive children tend to have similarly aggressive friends. Homophily theories suggest that behavioural similarity between friends is due to a combination of selection and socialization processes (Brechwald & Prinstein, 2011). A *selection* effect refers to children's tendency to affiliate and seek friendship with peers who possess similar attitudes or behavioural characteristics. The similarity-attraction hypothesis (Byrne, 1997; Veenstra, & Dijkstra, 2011) suggests that, because humans have a fundamental need for a logical and consistent world-view, individuals naturally seek to affiliate with others who validate and reinforce their ideas, attitudes and behaviours. In contrast, a *socialization* effect refers to the tendency of children and their friends to influence each other's attitudes and behaviour through modeling and reinforcement processes and thus to become increasingly similar over time. The present thesis will explore longitudinal associations between children's aggression and friend's aggression in the context of desired friendship (i.e., selection effects) as well as between friends' aggression and children's own aggression (i.e., socialization or influence effects) in reference to reciprocal friendships. Both selection and socialization processes may operate to produce similarity in aggression among friends (Laninga-Wijnen et al., 2017; Werner & Crick, 2004). From a similarity-attraction perspective, selecting aggressive friends can be highly rewarding for aggressive children, providing a sense of understanding and belongingness and also supporting

aggressive acts. However, the social default hypothesis suggests that aggressive children may have similarly aggressive friends not due to a preference for similarity, but rather due to a lack of other friend options because they are often rejected by normative peers (Sijtsema, Lindenberg, et al., 2010). Another process underlying friends' similarity on aggression is youth's tendency to be *influenced* or socialized by friends, adopting friends' aggressive behaviour over time (Laninga-Wijnen et al., 2017). Socialization of aggression may involve different underlying mechanisms (see Vitaro, Boivin and Poulin, 2018 for a review). Aggressive friends may reinforce aggressive acts or persuade less aggressive children to engage in aggressive acts (i.e., deviancy training). Children may also observe certain desirable effects of friends' aggressive behaviours and come to behave more aggressively to achieve similar outcomes (i.e., observational learning). Lastly, conflict and aggression between friends may also contribute to an increase in individual aggression as both friends struggle for dominance within the dyad. When controlling for the overlap between physical and relational aggression, socialization effects are more pronounced in relational aggression relative to physical aggression (Sijtsema, Ojanen, et al., 2010) and have only been found in regard to the same form of aggression (Werner & Crick, 2004), but not across forms (Brendgen et al., 2008). In other words, friends' relational aggression predicted increases in children's relational aggression specifically and friends' physical aggression predicted increases in children's physical aggression specifically.

Children's friendship experiences may differ on the basis of sex. In a review of sex differences in peer relationship processes, Rose and Rudolph (2006) found that by middle childhood, boys have a greater tendency to play in large groups, whereas girls tend to have more extended dyadic interactions. The authors also found that girls may experience more friendship stress regarding

their number of friends or loss of friends than boys (Rose & Rudolph, 2006). Chan and Poulin (2007) examined changes in friendships among young adolescents ($M_{\text{age}} = 12.6$ years) over a 5-month period and found that approximately a third of friendships were unstable over that time, with girls' friendships tending to be less stable than boys' friendships. Sex differences have also been found pertaining to socialization of aggression. Specifically, in a sample of 2nd to 4th grade children affiliation with relationally aggressive friends has been found to predict increases in relational aggression over time for girls, but not for boys, whereas affiliation with physically aggressive friends predicts increases in physical aggression in both sexes (Werner & Crick, 2004). Sex differences regarding aggression and friendship experiences will therefore also be examined throughout the present thesis project.

Friendships are dynamic in that they are affected not only by the characteristics and interactions of the two individuals involved, but also by environmental factors external to the dyad. Given that children's friendships are embedded in the larger peer group, the present thesis will examine how peer-level factors may moderate associations between aggression and friendship experiences from two complementary perspectives.

1.3 Aggression in the peer context

The peer group provides a dynamic context for social learning. Children learn from and with their peers how to get along with others and how to succeed socially. Traditionally, aggressive behaviour has been viewed as an indicator of maladaptation given its association with outcomes such as low peer acceptance (i.e., being liked and included by many peers) and high peer

rejection (i.e., being disliked and excluded by many peers). A meta-analysis of peer-related correlates of aggression indicates that physical aggression is uniquely associated with low peer acceptance ($r = -.17$) and both physical and relational aggression are positively associated with peer rejection ($r = .39$ and $r = .35$ respectively) (Card et al. 2008). Peer rejection may in turn exacerbate aggressive behaviour in some children. A meta-analysis of 88 experimental research studies on rejection concluded that aggressive responses to rejection are driven by the need to regain control in a situation rather than the need to restore belonging (Gerber & Wheeler, 2009). As the importance given to peer status intensifies from childhood to adolescence, youth may develop social status insecurity, that is, a sense of doubt or concern regarding their social standing within their peer group (Li & Wright, 2013). Social status insecurity has been positively associated with physically and relationally aggressive behaviour aimed at promoting or defending one's social status among peers (Wright et al., 2021). Thus, from a social function perspective, some youth may use aggressive strategies to maintain and improve their position within the social hierarchy (Farmer et al., 2007; Wright et al., 2021).

Resource control theory (Hawley, 1999) suggests that, from an evolutionary standpoint, aggression may indeed be an effective means of achieving social dominance within the peer group, as friendship and status are limited social resources. As described by Hawley and Bowker (2018), “some children are successful *because* of their aggression, and not simply in spite of it” (p. 114). It thus has been hypothesized that prosocial as well as aggressive resource control strategies may serve the same purpose or function, and that success in the peer context requires strategic flexibility (Hawley & Bowker, 2018). However, the association between aggression and status among peers may vary according to the form of aggression used (Salmivalli et al., 2000). Thus, when shared variance between physical and relational aggression is controlled, physical

aggression is positively associated with rejection, whereas relational aggression is positively associated with social acceptance. It has been suggested that relationally aggressive youth must be accepted to some degree, as rejected youth lack the social power needed to entice peers to participate in rumor spreading and other relational aggression tactics (Salmivalli et al., 2000). In line with this notion, positive associations have been identified between relational aggression and Machiavellianism, described as a tendency to manipulate and exploit others for one's personal gain (Kerig & Stellwagen, 2010). It has been suggested that Machiavellianism may be especially relevant for understanding relational aggression, particularly when it is used to manipulate social hierarchies, as this form of aggression requires the sophisticated ability to orchestrate social situations involving multiple peers without drawing negative attention to oneself (Kerig & Stellwagen, 2010). In sum, while aggressive behaviour is certainly maladaptive in many contexts, specific forms of aggressive behaviour may be adaptive in some.

Different theories have been proposed to explain why aggressive behaviours might be adaptive within the peer context (for a review see Crick et al., 2009). For instance, social dominance theory suggests that peers may admire aggressive children who possess qualities such as physical strength and leadership. In contrast, gender normativity theory suggests that aggression leads to peer rejection only when it violates gender-norms (Crick & Rose, 2000). For example, physically aggressive girls may experience rejection while the same behaviour may be considered more acceptable and normative among boys. In the peer context, social norms may provide some explanation as to why aggressive behaviour is maladaptive in some peer contexts but not in others.

1.4 Social norms regarding aggression

Social scientists define norms as social rules that can influence interactions between individuals and their environment (Veenstra et al., 2018). Through their attitudes and behaviours, group members establish and communicate a consensus as to what is appropriate, expected and acceptable behaviour in a given setting. Distinct types of norms have been described in the literature. For instance, in their focus theory of normative conduct, Cialdini and colleagues (Cialdini et al., 1990; Kallgren et al., 2000) distinguish between *descriptive* and *injunctive* norms, two types of social norms that may influence human behaviour. Descriptive norms refer to how most group members behave and are typically operationalized as the prevalence or mean level of a given behaviour within the group (i.e., what people *actually* do). Injunctive norms refer to what is expected of group members (i.e., what people *should* do), regardless of the actual behaviour prevalence. Injunctive norms can be measured explicitly by asking individual group members what they believe is acceptable or unacceptable behaviour and aggregating individual attitudes to estimate the mean attitude towards (i.e., the mean level of acceptance of) that behaviour within the group. *Norm salience* is a broad term capturing the degree to which a behaviour norm is made salient or explicit by group members, for example, by its association with sociometric indices of status within the group such as popularity or social preference (Veenstra et al., 2018) or peer-rated rejection (Henry et al., 2000). Thus, norm salience can be considered an implicit measure of injunctive norms. The term *status norms* employed throughout the present thesis is synonymous with norm salience given that norm salience can be based on various indices of status within the peer group, including sociometric popularity, social preference and rejection. Furthermore, norms may be described as *favourable* when they encourage, promote or reinforce a given behaviour (e.g., by a positive association with indices of

social status) or *unfavourable* when they discourage that behaviour (e.g., by a negative association with indices of social status).

A few empirical studies have examined the effect of status norms on children's aggressive behaviour. In a key study of classroom normative influences on aggression in children, Henry and colleagues (2000) operationalized norms as the within-classroom correlation between general aggression and peer-nominated rejection. Results suggested that general aggression declined in classrooms in which norms were unfavourable (i.e., where aggressive behaviour was associated with higher peer rejection). Researchers have also begun to explore the role of status norms as a moderator of the risk factors and outcomes of different forms of aggression. For example, genetic susceptibility for physical or relational aggression (i.e., the likelihood of developing aggressive behaviour based on a person's genetic makeup) was more readily expressed in children when norms were favourable to that specific form of aggression (i.e., when aggression was positively associated with social preference) (Brendgen et al., 2013). Moreover, children with a high genetic risk for physical aggression were more likely to behave aggressively when norms were favourable to that behaviour (i.e., when aggression was positively associated with social preference) (Brendgen et al., 2015). Status norms were also found to moderate the predictive association between aggression and victimization by peers (Brendgen, et al., 2015). More specifically, relational aggression was associated with higher rates of peer victimization when norms were unfavourable (i.e., when relational aggression was negatively associated with social preference). In contrast, physical aggression was associated with lower peer victimization when norms were favourable towards this behaviour (i.e., when physical aggression was positively associated with social preference). Together, these results highlight the importance of

considering not only main effects but also the potential moderating role of norm salience in association between different forms of aggressive behaviour and children's experiences with peers, including their friendships.

Status norms may influence aggressive children's friendships in various ways. For instance, when aggressive behaviours are associated with lower status in the peer group and highly aggressive children are disliked or rejected by most peers, they may have limited opportunities to form friendships with non-aggressive peers. In this unfavourable context, highly aggressive children may form fewer friendships in general, have difficulty maintaining friendships and affiliate with similarly aggressive peers due to a lack of other alternatives. However, when aggressive behaviours are associated with higher status in the peer group and highly aggressive children are liked by many, they may have equal opportunity to form friendships with aggressive and non-aggressive peers. Having a greater number of potential friends to choose from may also allow aggressive children to develop more friendships. Moreover, when aggression is deemed acceptable, aggressive children may have less difficulty maintaining their friendships over time. Status norms may also moderate the predictive link between friends' aggression and change in children's own aggression over time. Specifically, socialization processes of aggression within friendships may be facilitated when aggression is also considered acceptable within the larger peer group. Inversely, when the peer group rejects aggression, socialization of aggression between friends may be weakened as children may attempt to fit in with the larger peer group and avoid peer rejection. In addition to status norms, however, it may also be important to consider children's initial levels of aggression as a potential moderator in socialization processes. For example, results of a meta-analysis (Müller & Minger, 2013) suggest that an individual's

pre-existing behaviour problems and positive attitude towards antisocial and aggressive behaviours are associated with greater susceptibility to peer influence (i.e., greater tendency to adopt friends' aggressive and antisocial behaviour). Friends' aggression may thus predict increases in children's own aggression most strongly when norms are favourable *and* when children already have a tendency for high levels of aggression, suggesting a potential triple interaction.

To our knowledge, only one study so far has examined status norms in the peer group as a potential moderator of the link between children's aggression and friendship experiences. Specifically, Laninga-Wijnen and colleagues (2017) found that status norms regarding *generalized* aggression (operationalized as the class-specific correlation between perceived popularity and aggression) significantly moderated friendship selection and socialization processes in first-year secondary school students ($M_{\text{age}} = 12.66$ years). Young adolescents tended to gain new friends with levels of aggression similar to their own (i.e., selection effect) and adopt friends' aggressive behaviour (i.e., socialization effect) over the course of the school year, only in classes where status norms were favourable, and not neutral or unfavourable. In contrast, maintenance and dissolution of friendships between similarly aggressive friends were not moderated by status norms in the classroom. The study by Laninga-Wijnen and colleagues (2017) is important in that it provides initial evidence that status norms regarding aggression may moderate friendship selection and socialization processes. The findings also offer several avenues for additional research. First, status norms in that study were operationalized as the correlation between general aggression and sociometric popularity (i.e., who is most popular, who is least popular). This conceptualization of social status is limited in that popularity is a

marker of visibility and centrality within the peer group, unlike social preference, which is a measure of acceptance. Second, the authors did not consider potential sex differences in normative beliefs about aggression, as a single norm was computed for all group members regardless of sex. There is evidence that gender non-normative aggressive behavior (e.g., physical aggression in girls) is associated with more negative social-psychological outcomes relative to gender normative aggressive behavior (e.g., physical aggression in boys) (Crick, 1997), thus highlighting the relevance of examining sex-specific norms. Lastly, by examining generalized aggression, the study by Laninga-Wijnen and colleagues (2017) confounded physical and relational aggression, such that effects specific to each form are not yet known. Examining sex-specific norms based on other markers of status such as social preference, while distinguishing between physical and relational aggression, may thus provide further insight into the impact of children's aggression on their friendship experiences.

1.5 Objectives of the doctoral thesis

The principal objective of the present doctoral thesis was to examine associations between children's physical and relational aggression and their friendship experiences, as well as the moderating role of status norms on these associations. To this end, two distinct studies were conducted. Data collection took place at two time points (T1 = fall; T2 = spring) of the same academic year in 4th, 5th and 6th grade classrooms. This timeline ensured continuity in the composition of the peer group and allowed for the examination of changes in individual behaviour and friendship experiences over time.

The first study (Correia et al., 2021) examined the longitudinal association between children's aggressive behaviour and their friendship experiences, and the moderating role of status norms in this context. Specifically, it examined the predictive association of children's peer-nominated physical and relational aggression at T1 on three friendship outcomes at T2: the number of friends both concurrently and longitudinally, the stability of friendships over time (i.e., the proportion of reciprocal friendships that remain intact from T1 to T2) and the physical and relational aggression of desired friends nominated only at T2 (i.e., selection effects). It was hypothesized that physical aggression would be associated with a smaller number of friends especially when status norms were unfavourable (i.e., when physical aggression is negatively associated with social preference), whereas relational aggression would be associated with a greater number of friends only when norms were favourable (i.e., when relational aggression is positively associated with social preference). Regarding stability of friendships over time, extending from previous studies (Ellis & Zarbatany, 2007), it was hypothesized that physical aggression would generally be associated with a lower proportion of maintained friendships, but especially so when norms were unfavourable. In contrast, relational aggression should be associated with a lower proportion of maintained friendships when norms were unfavourable and a greater proportion of maintained friendships when norms were favourable. In regard to the aggressive behaviour of desired friends, and in line with Laninga-Wijnen and colleagues (2017), it was expected that children's aggression would be more strongly associated with the aggression of their desired friends when norms were favourable. When norms were unfavourable, no or perhaps even a negative association was expected between children's own aggression at T1 and their desired friends' aggression at T2. Again, this tendency was hypothesized to be more pronounced for relational aggression. This expectation was based on the previously mentioned

findings that more developed verbal and social cognitive skills facilitate the use of relational aggression and the positive association between relational aggression and traits such as Machiavellianism (Kerig & Stellwagen, 2010). Relationally aggressive children may thus be more attuned to status norms and adapt more skillfully to the normative context than physically aggressive children.

The second study (Correia et al., 2019) examined the longitudinal association between reciprocal friends' aggressive behaviour and changes in children's own aggressive behaviour over time, and the moderating role of status norms in this context. Specifically, it examined the predictive association of reciprocal friend's peer-nominated physical and relational aggression at T1 and children's physical and relational aggression at T2 (i.e., socialization effects). In line with the results of Laninga-Wijnen and colleagues (2017), interactive effects were expected such that physical and relational aggression socialization among friends would be exacerbated when status norms were favourable (i.e., when the respective form of aggression was positively associated with social preference). In contrast, aggression socialization was expected to be attenuated when status norms were unfavourable (i.e., when the respective form of aggression was negatively associated with social preference). The moderating effect of status norms was expected to be especially strong for relational aggression given its positive association with social cognitive skills (Shahaeian et al., 2017).

A common objective of both studies was to examine whether the moderating effect of status norms in the above associations differed by sex. Given that physical aggression is less prevalent in girls (Card et al., 2008) sex differences were expected especially in the context of physical

aggression. In the first study, it was hypothesized that being both physically aggressive and female would be most strongly associated with a small number of friends and a lower proportion of maintained friendships when norms were unfavourable (i.e., when physical aggression was negatively associated with social preference). Regarding new friend selection, it was expected that being both physically aggressive and male would be most strongly associated with high physical aggression in desired friends when norms were favourable, due to children's overwhelming tendency to select friends of the same sex and the greater prevalence of physical aggression among boys. When norms were unfavourable, no association was expected between children's own level of aggression and their selected friends' physical aggression in either sex. In the second study, the moderating effect of norms in aggression socialization among friends was expected to be more pronounced among relationally aggressive girls.

In summary, the two studies examined associations between aggression and friendship from two independent yet complementary perspectives. The first study explored how aggression may impact children's friendship experiences over time and the second explored how children's friends may impact their aggressive behaviour over time. Together, these studies provide an extensive and nuanced examination of the moderating role of social norms and sex in these associations.

CHAPTER II

PHYSICAL AND RELATIONAL AGGRESSION AS PREDICTORS OF CHILDRENS' FRIENDSHIP EXPERIENCES: EXAMINING THE MODERATING ROLE OF PREFERENCE NORMS

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Abstract

Aggressive behavior is generally detrimental to children's friendships, both in terms of having friends and in terms of keeping friends. Despite this general tendency, many aggressive children have friends and some of these friendships are stable. We examined the moderating role of preference norms in the classroom and child's sex on the association between children's physical and relational aggression and their friendship experiences. A total of 1135 children ($M = 10.24$ years, $SD = 1.01$) in grades 4 to 6 completed a peer nomination inventory in the Fall (T1) and Spring (T2) of the same school year. Norms were operationalized as the class- and sex-specific correlation between physical or relational aggression and social preference. Norms moderated associations between each form of aggression and number of friends. At T1, physical and relational aggression were concurrently associated with having more friends when norms favored this behavior and with fewer friends when norms were unfavorable. The latter effect was especially pronounced in girls. Over time, youth lost friends when norms favored physical aggression and gained friends when norms favored relational aggression. T1 friends' physical and relational aggression were strong predictors of new friends' aggressive behavior, suggesting that friends provide a type of norm more significant to new friend selection than norms of the peer group and individual aggressive behavior. Overall, our results suggest that physical and relational aggression are not necessarily detrimental to children's friendship experiences and may even be beneficial in specific social contexts.

Key words: classroom norms, relational aggression, physical aggression, friendship, friend selection

Introduction

The friendship trajectories of aggressive youth have been characterized as a rollercoaster ride (Pronk & Zimmer-Gembeck, 2010). Although it may seem evident that aggressive behavior is detrimental to friendships, a review of literature (Deptula & Cohen, 2004) indicates that aggressive children have – on average – as many reciprocal friends and comparable friendship stability as non-aggressive children and they tend to select similarly aggressive friends. That said, researchers show that the social norms within the peer group (i.e., the classroom) with respect to aggression moderate the association between aggression and different aspects of friendship experiences (Laninga-Wijnen et al., 2017). However, because aggression can be expressed in different ways, it remains unknown whether the moderating role of norms applies equally across distinct but related forms of aggression. Finally, given fundamental sex differences in aggression (Card et al., 2008), the moderating role of norms in this context may also vary according to the child's sex. These issues were addressed in the present study.

Aggression and Friendship Experiences

Childhood friendships are voluntary relationships defined by equality, mutual liking and affection between two individuals (Bukowski et al., 1996). The number of friends, the maintenance of these friendships, and the friends' behavioral characteristics are each developmentally significant dimensions of friendship experiences (Hartup & Stevens, 1997). Friendships that are stable over time have a more notable impact on individuals' development (Poulin & Chan, 2010). Thus, studies of children's friendship relations must consider not only the number of children's friendships, but also their stability over time and the behavioral characteristics of the chosen friends.

Regarding the number of friends, some studies show that highly aggressive children do not differ from non-aggressive children and are equally nominated by peers as best friends (Cairns et al., 1988). In contrast, others suggest that non-aggressive children have more reciprocal friends than moderately or highly aggressive children (Hektner et al., 2000). Similarly, whereas some research findings suggest that aggressive children experience comparable friendship stability as their non-aggressive peers (Deputula & Cohen, 2004), other studies report that the reciprocal friendships of highly aggressive children may disintegrate more often (Hektner et al., 2000). More consistently, research shows that aggressive children tend to affiliate with peers similar to themselves in levels of aggression (Laninga-Wijnen et al., 2017; Werner & Crick, 2004). Aggressive children may select aggressive friends based on an attraction to shared attitudes and behavior. However, some scholars have suggested that opportunities for aggressive children to make friends may be limited and aggressive friends may be selected due to a lack of available alternatives (Hektner et al., 2000) and to avoid isolation (Dishion et al., 1991). In line with the latter notion, highly aggressive boys have been found to end up with aggressive friends although they do not initially prefer to befriend similarly aggressive peers (Sijtsema, Lindenberg et al., 2010). However, these general tendencies do not consider that children's dyadic friendships occur within a larger peer group and that the association between aggressive behavior and friendship experiences may be influenced by group-level social factors such as behavioral norms.

Norms and Friendship Experiences

Social norms have been operationalized in a few different ways in the literature (see Veenstra et al., 2018 for a review). In their focus theory of normative conduct, Cialdini et al. (Cialdini et al., 1991) describe different types of norms that influence human behavior and experiences. Descriptive norms refer to how most group members behave and are typically

operationalized as the prevalence of a behavior within the group. Injunctive norms refer to what is expected of group members, regardless of the true behavior prevalence. Henry et al. (2000) studied normative beliefs about aggression explicitly (i.e., using a self-report measure of children's beliefs about the appropriateness of physical and verbal aggression) and implicitly by the correlation between self-rated aggression scores and 3 classroom-level measures (i.e., peer-rated popularity, peer-rated rejection and observed teacher reprimand), i.e., what the authors refer to as *norm salience*. Norm salience captures the degree to which a behavioral norm is made salient to group members, e.g., by its association with sociometric indices of status within the group such as popularity or social preference (Veenstra et al., 2017). Furthermore, norms may be described as *favorable* when they encourage, promote or reinforce a given behavior (e.g., by a positive association with indices of social status) or *unfavorable* when they discourage that behavior (e.g., by a negative association with indices of social status). Popularity, reflected in the degree to which individuals are perceived to be popular and not unpopular by their social group, is a measure of visibility or social influence. Social preference, reflected in the degree to which individuals are liked and not disliked by their social group, is a measure of acceptance. Some researchers have suggested that norms are set by the behavior of high-status peers (Dijkstra et al., 2008) rather than the behavior of all peers equally. This perspective assumes that acceptance and status are important social goals within peer groups and that high-status peers have more power and influence than others. Thus, imitating the behavior of high-status peers may be perceived as an effective way of elevating one's own status. Over time, this creates a circular effect whereby those who emulate the behavior of high-status peers may gradually gain status, power and influence in turn. Children desire friends who are popular and well-liked (Thomas & Bowker, 2012), suggesting that popularity-based and preference-based norms are important to consider

when examining questions of friendship. Popularity-based aggression norms have been found to moderate associations between aggression and friendship experiences (Laninga-Wijnen et al., 2017), suggesting that aggressive children's friendships may be driven by a desire to achieve higher status. However, popularity and preference become increasingly distinct constructs during middle childhood (Peters et al., 2010). Examining the role of preference norms in associations between aggression and friendship may thus complement what is known about role of popularity norms in this context.

Only one study has investigated the moderating role of norm salience based on indices of social status in the association between aggression and friendship selection and maintenance (Laninga-Wijnen et al, 2017). A sample of 1st year secondary school students (mean age = 12.66 years, SD = 0.48) completed peer nominations of classmates at 3 time points in the same academic year. Norms were operationalized as the class-specific correlation between aggression and perceived popularity (i.e., "who is the most popular?" and "who is the least popular?"). Longitudinal social network analyses indicated that norms moderated associations between general aggression and friendship selection, but not friendship maintenance. Specifically, young adolescents selected friends based on similarity in aggression only when norms were favorable (i.e., when general aggression was positively associated with popularity). Thus, aggressive children seem to select similarly aggressive friends only in contexts in which aggressive behavior is associated with higher social status in the peer group. It remains unknown, however, whether these results apply equally to different forms of aggression. Examining norm salience based on other markers of status such as social preference, while distinguishing between physical and relational aggression, may provide further insight into the impact of children's aggression on their friendship experiences.

Distinctions Between Physical and Relational Aggression

Aggression can manifest and impact friendship experiences in different ways. One frequent distinction made in the literature is the one between physical and relational aggression. Whereas physical aggression involves overt and direct behavior that inflicts bodily harm such as hitting or fighting, relational aggression refers to actions that aim to harm others' social standing or reputation within a group and may involve covert or overt behavior like ridicule or social exclusion (Archer & Coyne, 2005; Benenson et al., 2011). Social aggression is similar to relational aggression and includes other harmful actions such as eye rolling or giving dirty looks (Coyne et al., 2006). Researchers have also used the term indirect aggression when assessing non-physical acts of aggression involving covert behavior used to harm others without being seen or in such a way as to avoid reprimand (Björkqvist et al., 1992; Vaillancourt et al., 2003). Some authors conclude that social, relational and indirect forms of aggression are essentially the same (Archer & Coyne, 2005). Although the term relational aggression is used throughout the present study, our review of the literature includes findings from studies examining each of these constructs given their high similarity. Relational aggression has been associated with a greater number of friends relative to physical aggression (Yamasaki & Nishisa, 2009). Physically aggressive children may be less desirable as friends because associating with them may involve risk of physical conflict and injury (Grotperter & Crick, 1996). Moreover, relationally aggressive youth are socially powerful and highly influential members of a peer group (Heilbron & Prinstein, 2008), potentially making a friendship with them more attractive to peers seeking to improve their own social standing. The moderating role of norms in the association between aggression and the number of friends children have may thus vary according to the form of aggression. Specifically, physical aggression may be associated with a smaller number of friends

especially when norms are unfavorable (i.e., when physical aggression is negatively correlated with social preference), whereas relational aggression may be associated with a greater number of friends only when norms are favorable (i.e., when relational aggression is positively correlated with social preference).

Regarding friendship stability, physical aggression has been associated with more volatile and short-lived friendships relative to relational aggression (Ellis & Zabatany, 2007), perhaps due to a relative deficit in certain social skills necessary for friendship maintenance, such as effective conflict resolution skills. In contrast, it has even been suggested that there may be no association between relational aggression and friendship stability (Banny et al., 2011). Relationally aggressive youth depend on friends' support and participation to effectively manipulate social situations and relationships (e.g., gossiping, social exclusion of others) (Ellis & Zabatany, 2007), a potential incentive to maintain the friendship over time. However, there is some – albeit indirect – evidence that being liked or perceived as popular by peers may moderate the association between relational aggression and friendship stability. Specifically, relational aggression has been associated with higher friendship conflict in children who are disliked by their peers, but not in children who are popular (Rose et al., 2004). Whether or not different forms of aggression are detrimental to friendship maintenance may thus vary based on the prevailing aggression norms. Specifically, physical aggression may be associated with friendship instability and this association may be especially pronounced when norms are unfavorable. In contrast, relational aggression may be associated with greater instability when norms are unfavorable and greater stability when norms are favorable.

Only one study has examined whether aggressive behavior predicts similar aggressive behavior in new friends later in time (Laninga-Wijnen et al., 2017). The results showed that

youth selected similarly aggressive friends only in classrooms where aggression was positively associated with popularity. However, that study made no distinction between physical and relational aggression. When norms are favorable, both physically and relationally aggressive children may actively seek out friends based on similarity in aggression. This association should be stronger in relationally aggressive children, as they have been found to be more motivated by social status goals (Li & Wright, 2013) and more socially intelligent (Andreou, 2006) than physically aggressive children. Relative to physically aggressive children, relationally aggressive children may more effectively evaluate social situations and seek friends that benefit them socially. However, when norms are unfavorable, physically and relationally aggressive children should not particularly seek out similarly aggressive friends, as there is a social cost to befriending aggressive peers in unfavorable contexts (i.e., rejection). In these conditions, aggressive children may befriend less aggressive peers to attenuate their social ostracization. Again, such a tendency should be more pronounced in relationally aggressive children.

Sex Differences

Sex differences are important to consider when examining aggression and friendship. Although both sexes may engage in physical and relational aggression, sex differences are highest for physical aggression (Archer, 2004), with physical aggression being more prevalent in boys (Archer, 2004; Card et al., 2008). Sex differences in regards to the prevalence of relational aggression are generally small and negligible (Card et al., 2008), but tend to favor girls in the period of late childhood and adolescence (Archer, 2004). In 6th grade, the proportion of mixed-sex friendship groups is about 10% (Molloy et al., 2014), suggesting that the majority of children's friendships are with peers of the same sex. Some studies reported no sex differences in the number of reciprocal friends that children have (e.g., Hartl et al., 2015), whereas others found

that girls have more reciprocal friends than boys (e.g., Lee, Howes, et al., 2007). Several studies also did not find sex differences in friendship stability among children (see Chan & Poulin, 2010 for a review). Those that did, however, found that girls' friendships tend to be less stable than boys' friendships. Girls may be especially sensitive to conflict within their friendships, making these more fragile than boys' friendships (Benenson & Christakos, 2003). Thus, the association between aggression and friendship experiences, as well as the potential moderating role of preference norms in these associations, may vary according to the child's sex. Physical aggression may be especially problematic for girls when norms are unfavorable given that it is less prevalent among girls and may ignite more conflict in girls' friendships relative to boys' friendships. In contrast, the use of relational aggression has been associated with high status especially among girls (Vaillancourt & Krems, 2018). Especially those relationally aggressive girls who possess other peer-valued characteristics, such as being physically attractive or funny, are perceived as more popular despite being disliked (Vaillancourt & Hymel, 2006). This suggests that use of relational aggression may indirectly facilitate friendship experiences for some girls, helping them to attract those who seek to affiliate with high-status peers. Furthermore, this positive association between relational aggression and status among girls also suggests that status-based norms regarding different forms of aggression may vary considerably between girls and boys, thus supporting the analysis of sex-specific aggression norms.

The Present Study

Our first objective of the present study was to examine the moderating effect of preference norms toward aggression on the association between children's physical or relational aggression at the beginning of the school year (T1) and three aspects of friendship experiences: a) the number of reciprocal friendships at the beginning and the end (T2) of the school year, b)

the proportion of friendships maintained from T1 to T2 and c) the aggressive behavior of desired friends at T2. In line with the results of Laninga-Wijnen et al. (2017), it was predicted that norms would moderate associations between aggression and friendship experiences. Extending from previous studies (Yamasaki & Nishisa, 2009), it was predicted that – when norms were unfavorable (i.e., when the behavior was negatively correlated with social preference) – higher levels of physical aggression would be associated with a smaller number of friends. When norms were favorable (i.e., when the behavior was positively correlated with social preference), higher levels of physical aggression would still be associated with a smaller number of friends, but this negative association was expected to be weaker relative to when norms are unfavorable. It was further predicted that – when norms are unfavorable – there would be no association between relational aggression and number of friends. However, when norms were favorable, higher levels of relational aggression would be associated with a greater number of friends. Regarding friendship maintenance (i.e., stability) over time, extending from previous studies (Ellis & Zarbatany, 2007; Rose et al., 2004) it was predicted that – when norms were unfavorable – higher levels of physical aggression would be associated with a lower proportion of maintained friendships. When norms were favorable, higher levels of physical aggression would still be associated with a lower proportion of maintained friendships, but this negative association was expected to be weaker relative to when norms were unfavorable. Similarly – when norms were unfavorable – higher levels of relational aggression would be associated with a lower proportion of maintained friendships. In contrast – when norms were favorable – higher levels of relational aggression would be associated with a higher proportion of maintained friendships. In regards to the aggressive behavior of desired friends, and in line with Laninga- Wijnen and colleagues (2017), it was predicted that – when norms were unfavorable – there would be no association or

perhaps even a negative association between children's own aggression at T1 and their desired friends' aggression at T2 (i.e., higher levels of children's own aggression would be associated with lower levels of new friends' aggression). In contrast – when norms were favorable – higher levels of children's aggression at T1 would be associated with higher levels of aggression in desired friends. Again, it was predicted that these associations would be especially pronounced for relational aggression.

Another goal of the study was to examine potential sex moderation effects. Given that physical aggression is less prevalent in girls (Card et al., 2008) and mixed-sex friendships are relatively rare in school-aged children (Molloy et al., 2014), sex differences were expected especially in the context of physical aggression. It was predicted that – when norms were unfavorable – being both physically aggressive and a girl would be most strongly associated with a small number of friends and a lower proportion of maintained friendships. Regarding new friend selection, it was expected that – when norms were favorable – being both physically aggressive and a boy would be most strongly associated with high physical aggression in desired friends, due to children's overwhelming tendency to select friends of the same sex and the greater prevalence of physical aggression among boys. When norms were unfavorable, children's own level of aggression was not expected to be positively associated with their selected friends' physical aggression in either sex.

Method

Participants

The sample consisted of 1135 fourth to sixth graders (576 girls) from 23 public schools (67 classrooms) in low to average socio-economic status neighborhoods in a large Canadian city. Data were collected in the Fall (i.e., T1) and Spring (i.e., T2) of the same academic year. Active

parental consent and children's active verbal assent were obtained for all participants. Only classrooms where at least 75% of students received parental consent at both T1 and T2 participated (Cillessen & Marks, 2011). The classroom participation rate was 97% (67 out of 69 classrooms asked to participate). The average student participation rate within the classrooms was 98% (range = 91 to 100%). A subgroup of 64 participants did not nominate any friends at either time point but were included, as others may have nominated them as friends. Those who did not nominate friends did not differ significantly from those who did nominate friends on age, physical aggression, or relational aggression. Since data were obtained through peer nominations (see description of measures below), and participants could nominate participating classmates who were absent at T2, there were no missing data points. The number of participants per class ranged from 12 to 26 ($M = 18.13$, $SD = 2.78$).

Procedure

Data collection took place during school hours. A research assistant read the instructions aloud and clarification was provided if needed, ensuring that all participants understood what was asked of them. Participants were reminded that their responses would remain confidential. Instruments were approved by the University of Montreal's Institutional Review Board and the school board administrators.

Measures

Physical and relational aggression. Aggression was measured via peer-nominations, following the procedure used in other studies (e.g., Grotper & Crick, 1996). A list was given to each participant containing the names of all participants with active consent in the class. From this list, each participant was asked to nominate up to four peers of either sex who best fit a behavioral descriptor. Physical aggression was estimated using two items from the Pupil

Evaluation Inventory (Pekarik et al., 1976): “Those who start a physical fight over nothing” and “Those who say they can beat everybody up”. Scores on these items were correlated at T1 ($r = .86, p < .001$) and at T2 ($r = .88, p < .001$). Physical aggression scores were computed by averaging the number of received nominations for the two items and then z -standardizing within the classroom. Physical aggression scores at T1 were significantly correlated with physical aggression scores at T2 ($r = .86, p < .001$). Relational aggression at T1 and T2 was measured with two items from the Indirect Aggression Scale (Björkqvist et al., 1992), “Those who encourage others to be mean against those they don’t like”, “Those who say mean things behind others’ back”, and a third item from the Pupil Evaluation Inventory, “Those who make fun of others in a mean way” (Pekarik et al., 1976). Relational aggression scores were computed by counting the number of received nominations for these items and then z -standardizing within the classroom (Cronbach’s $\alpha = .86$ at T1 and $\alpha = .86$ at T2). Although only few items were used for each behavioral construct, even single-item peer nomination assessments tend to be highly reliable because the scoring is generated on the basis of multiple respondents (Hodges et al., 1997). Relational aggression scores at T1 were significantly correlated with relational aggression scores at T2 ($r = .79, p < .001$). Physical and relational aggression were correlated at T1 ($r = .81, p < .001$) and T2 ($r = .84, p < .001$). To account for this substantial overlap, one form was regressed on the other and residual variables were computed. Residual variables were used to compute the respective norms and utilized in all analyses to capture effects unique to either form, such that physical aggression refers to a residual variable where the overlap with relational aggression is controlled and vice versa. Prior studies have examined residuals in order to capture unique effects of highly correlated but distinct subtypes of aggression, such as physical and relational aggression (e.g., Burt et al., 2012; Correia et al., 2019).

Friendship nominations. Participants nominated up to four friends of either sex from a list of participating classmates at T1 and at T2. Friendship nominations were restricted to classmates because most grade-school children name classmates as best friends, even when they are free to nominate friends from other contexts (Parker & Asher, 1993). Following the friendship nomination procedure used in other studies (e.g., Hawley et al., 2007), a friendship was considered to be reciprocal when the nominated peer also rated the participant as one of their four best friends at that time point.

Number of friends was operationalized as the number of reciprocal friends at each time point, ranging from 0 to 4 ($M_{T1} = 1.00$, $SD = 1.03$; $M_{T2} = 1.05$, $SD = 1.06$).

Friendship maintenance (i.e., stability) was operationalized as the proportion of reciprocal friendships that remain intact from T1 to T2. Following Chan and Poulin (2007), this proportion was the number of reciprocal friendships that remained intact from T1 to T2, divided by the number of reciprocal friendships at T1, thus ranging from 0 (complete instability) to 1 (complete stability).

Desired friends were operationalized as those friends nominated at T2 that were not nominated at T1 (891 participants nominated at least one new friend at T2). Friendship reciprocity was not a feasible criterion for examining friendship selection, as less than 2% of this sample had a new reciprocal friend at T2. Examining unilateral nominations at T2 is considered to provide a sufficiently valid account of friendship selection, because they are based on the individual's desire to establish a friendship (Knecht et al., 2010).

Friends' aggression. For each participant, friends' residual physical and relational aggression was available based on the same peer-nominated items described above. Residual scores for each respective form of aggression were averaged across all of a participant's friends

to maximize variability (Andrews et al., 2017).

Social preference. Social preference was assessed by peer nominations at T1 and T2. A list of the names of all participants in the class was given to each participant. From this list, each participant was asked to nominate up to four peers of either sex that they *most* like to play or hang out with (positive nominations) and up to four children that they *least* liked to play or hang out with (negative nominations). A social preference score was calculated for each participant, following the procedure developed by Coie and colleagues (1982). The number of positive nominations received was calculated for each individual and *z*-standardized within the classroom to account for differences in class size, creating a Liked-Most score. A Liked-Least score was calculated for each individual by calculating the number of negative nominations received, which was also *z*-standardized within classroom. The Liked-Least score was subtracted from the Liked-Most score to obtain an individual Social Preference score, which was again *z*-standardized within the classroom. This score was thus a continuous measure of social preference, with high scores indicating acceptance and low scores indicating rejection among classmates.

Preference norms. As in other studies (Brendgen et al., 2015; Correia et al., 2019; Henry et al., 2000), norms were operationalized using the classroom-specific correlation between social preference and each behavioral variable (i.e., residual physical aggression and residual relational aggression) at T1 and T2. Norm values can theoretically range from -1 (indicating that the given behavior is entirely rejected or disliked), to +1 (indicating that the given behavior is entirely accepted or liked), with values approaching zero indicating a neutral norm (i.e., a behavior is neither particularly liked nor disliked). Sex-specific norms were calculated for each classroom in the Fall and Spring. Among boys, norms ranged from highly favorable to highly unfavorable for

residual physical aggression (T1 range = $-.97$ to $.57$, $M = -.21$, $SD = .33$; T2 range = $-.74$ to $.62$, $M = -.13$, $SD = .31$) and residual relational aggression (T1 range = $-.95$ to $.72$, $M = -.08$, $SD = .37$; T2 range = $-.87$ to $.74$, $M = -.08$, $SD = .32$). Among girls, norms also ranged from highly favorable to highly unfavorable for residual physical aggression (T1 range = $-.75$ to $.72$, $M = .17$, $SD = .34$; T2 range = $-.64$ to $.85$, $M = .10$, $SD = .33$) and residual relational aggression (T1 range = $-.71$ to $.63$, $M = -.21$, $SD = .34$; T2 range = $-.83$ to $.62$, $M = -.14$, $SD = .31$). Physical aggression norms were on average more unfavorable in boys at T1 ($t(1135) = 24.30$, $p < .001$) and at T2 ($t(1135) = 15.27$, $p < .001$), whereas relational aggression norms were on average more unfavorable in girls at T1 ($t(1135) = 7.48$, $p < .001$) and at T2 ($t(1135) = 3.64$, $p < .001$).

Analytic Rationale

Multilevel regressions using Generalized Linear Mixed Models were performed with SPSS version 21 software (IBM Corp. 2012). Multilevel regressions allow for analysis of both individual and group (i.e., classroom) level effects. Robust estimation methods were selected to generate unbiased standard error estimates and significance values (Maas & Hox, 2004) and to control for non-independence of the sample (Skrondal & Rabe-Hesketh, 2004). Eight sets of multilevel regressions were computed, i.e., one each for physical and relational aggression and predicting to each of the different friendship aspects.

In the first two sets of multilevel regressions, the dependent outcome variable was the number of reciprocal friends at T1. For each multilevel regression, analysis proceeded in three hierarchical model steps. In this case, Model 1 examined main effects of sex, grade, child's aggression at T1 (physical or relational), and the respective aggression norm at T1 (physical or relational). Model 2 examined three two-way interactions ('child's aggression at T1 x T1 aggression norm', 'child's aggression at T1 x sex', 'T1 aggression norm x sex'). Model 3

examined a triple interaction between sex, child's aggression at T1 and the respective T1 norm.

In the third and fourth sets of analyses, the outcome variable was the number of reciprocal friends at T2. Independent predictor variables were the same as in sets 1 and 2, in addition to the corresponding T2 aggression norm (physical or relational). The number of reciprocal friends at T1 was included as a control variable. Model steps were the same as above, but using the T2 aggression norm in the interaction terms.

In the fifth and sixth sets of analyses, the outcome variable was the proportion of reciprocal friendships maintained over time. Independent predictor variables were the same as in sets 1 and 2. The respective aggression norm at T2 was also included. Model steps were the same as above, but using the T2 aggression norm in the interaction terms.

In the seventh and eighth sets of analyses, the outcome variable was the level of physical or relational aggression of desired friends. Independent predictor variables included sex, grade, child's aggression (physical or relational) at T1, the respective norm at T1 and T2 and friends' aggression at T1. Model 1 examined main effects of each of the variables above. Model 2 examined three two-way interactions between each of the predictors with the exception of grade and the norm at T1 ('child's aggression at T1 x T2 aggression norm'; 'child's aggression at T1 x sex', 'sex x T2 aggression norm'). Model 3 examined the three-way interaction 'child's aggression at T1 x T2 aggression norm x sex'.

Because all outcomes were tested for both physical and relational aggression, a Bonferroni-corrected alpha value of $p < .05 / 2 = .025$ was used. Significant interactions were probed using simple slopes at high (i.e., +1 SD) and low (i.e., -1 SD) levels of the moderator(s) (i.e., norms and sex). All variables except sex were z-standardized prior to analyses to facilitate interpretation of the results. Additional analyses were conducted involving grade instead of sex

as a moderator, but no significant effects were found. These models are not presented for sake of parsimony.

Results

Preliminary Analyses

Bivariate correlations between individual-level raw (i.e., not residual) variables are presented in Table 2.1. For girls and boys, grade was positively correlated with the number of reciprocal friends at T1. In boys, but not in girls, grade was positively correlated with friends' relational aggression at T1 ($Z = 15.31, p < .001$). Both forms of aggression were highly positively correlated in both sexes, supporting the use of residual scores in the subsequent analyses, although this correlation was stronger in boys ($Z = 10.19, p < .001$). In girls, but not in boys, physical and relational aggression at T1 were correlated with new friends' physical and relational aggression respectively at T2. Number of friends at T1 and T2 were positively correlated in both sexes. Friends' physical and relational aggression were positively correlated and this correlation was stronger in boys ($Z = 8.83, p < .001$). Similarly, new friends' physical and relational aggression were positively correlated and this correlation was also stronger in boys ($Z = 6.57, p < .001$). Friends' physical aggression at T1 was positively correlated with new friends' physical aggression at T2 and this correlation was stronger in girls ($Z = 5.29, p < .001$). Similarly, friends' relational aggression at T1 was positively correlated with new friends' relational aggression at T2 and this correlation was stronger in girls ($Z = 2.70, p = .003$).

Number of Friends

Table 2.2 presents the multilevel regressions predicting the number of children's reciprocal friendships at T1. In the unconditional model, individual (within-group) differences accounted for 87.0% of the variance in the number of friendships at T1, whereas between-group

differences accounted for 13.0% (ICC = .13). Regarding physical aggression, model 1 showed that being in a higher grade was associated with having more friends at T1 ($b = .174$, $SE = .05$, $p < .001$). In model 2, a significant interaction emerged between aggression at T1 and norms ($b = .24$, $SE = .03$, $p < .001$). Physical aggression at T1 was negatively associated with the number of friends at T1 only when norms were unfavorable ($b = -.41$, $SE = .06$, $p < .001$). A second significant interaction emerged between aggression at T1 and sex ($b = .20$, $SE = .06$, $p = .002$). Specifically, physical aggression at T1 was associated with a lower number of reciprocal friends at T1 in girls only ($b = -.16$, $SE = .05$, $p = .002$), but not in boys ($b = .04$, $SE = .04$, $p = .304$). Model 3 showed a significant triple interaction between aggression, norm at T1 and sex ($b = -.17$, $SE = .06$, $p = .003$). When norms were favorable (i.e., when physical aggression was positively correlated with social preference), physical aggression was associated with having more friends at T1 in both girls ($b = .145$, $SE = .06$, $p = .015$) and boys ($b = .174$, $SE = .07$, $p = .008$). However, when norms were unfavorable (i.e., when physical aggression was negatively correlated with social preference), physical aggression was more strongly associated with having fewer friends at T1 in girls ($b = -.550$, $SE = .07$, $p < .001$) relative to boys ($b = -.170$, $SE = .05$, $p < .001$). Regarding relational aggression, model 1 showed that boys had fewer friends at T1 than girls ($b = -.203$, $SE = .08$, $p = .008$). Model 2 showed an interaction between relational aggression and the T1 norm ($b = .207$, $SE = .02$, $p < .001$). No significant three-way interaction was found in Model 3. Probing of the two-way interaction suggested that relational aggression was associated with having more of friends at T1 when norms were favorable ($b = .276$, $SE = .04$, $p < .001$), and fewer friends at T1 when norms were unfavorable ($b = -.151$, $SE = .05$, $p = .002$).

Table 2.3 presents the multilevel regressions predicting the number of children's reciprocal friends at T2. In the unconditional model, individual (within-group) differences accounted for 77.0% of the variance in the number of friends at T2, whereas between-group differences accounted for 23.0% (ICC = .23). Regarding physical aggression, Model 1 showed that having more friends at T1 was associated with having more friends at T2 ($b = .456$, $SE = .03$, $p < .001$). A more favorable physical aggression norm at T2 was associated with having fewer friends at T2 ($b = -.124$, $SE = .04$, $p = .004$). No significant effects emerged in models 2 and 3. Regarding relational aggression, a more favorable relational aggression norm at T2 was associated with a higher number of friends at T2 ($b = .103$, $SE = .04$, $p = .012$). No significant effects emerged in models 2 and 3.

Friendship Maintenance

Table 2.4 presents the multilevel regressions predicting the proportion of reciprocal friendships maintained over time. In the unconditional model, individual (within-group) differences accounted for 79.1% of the variance in the proportion of friendships maintained, whereas between-group differences accounted for 20.9% (ICC = .209). No significant main or interaction effects were observed for either form of aggression in Models 1, 2 or 3.

Aggression of New (Desired) Friends

Table 2.5 presents the multilevel regressions predicting the physical and relational aggression of new friends selected at time 2. The unconditional model predicting desired friends' physical aggression showed that individual (within-group) differences accounted for 88.9% of the variance in new friends' physical aggression, whereas between-group differences accounted for 11.0% (ICC = .110). In Model 1, a main effect of friends' physical aggression at T1 ($b = .822$, $SE = .04$, $p < .001$) suggested that children nominate desired friends similar to their former

or existing friends in regard to physical aggression. No further main or interaction effects emerged. Regarding relational aggression, the unconditional model predicting desired friends' relational aggression showed that individual (within-group) differences accounted for 93.0% of the variance in desired friends' relational aggression, whereas between-group differences accounted for 6.7% (ICC = .067). In Model 1, a main effect of friends' relational aggression at T1 ($b = .804$, $SE = .04$, $p < .001$) suggested that children nominated desired friends similar to their previously existing friends in regard to relational aggression. The interactions examined in Model 2 and the triple interaction examined in Model 3 were not statistically significant.

Discussion

Our first objective of the present study was to examine the moderating effect of preference norms on the association between children's physical and relational aggression at time 1 and (a) the number of reciprocal friends at times 1 and 2, (b) the proportion of friendships maintained from time 1 to time 2, and (c) the aggression of desired friends selected at time 2, while controlling for the overlap between the two forms of aggression. Our second objective was to examine whether the moderating effect of norms in the associations described above differ by sex.

The results showed that norms based on social preference and sex moderated the association between physical aggression and number of friends. In line with predictions, physical aggression was associated with having fewer friends when norms were unfavorable (i.e., when physical aggression was negatively correlated with social preference), especially among girls. Physically aggressive girls are a minority among aggressive children (Lee, Baillargeon, et al., 2007) and may thus have fewer opportunities to make friends than physically aggressive boys. When norms were favorable (i.e., when physical aggression was positively correlated with social

preference), physical aggression was associated concurrently with a higher number of reciprocal friends in both sexes. In favorable contexts, physical aggression may be associated with advantages such as the easy obtainment of preferred objects or preferential treatment. Moreover, peers may befriend physically aggressive children for protection, for fear of reprisal, or to enhance their own social status. Norms also moderated the concurrent association between relational aggression and number of friends, such that relational aggression was associated with having more friends when norms were favorable and fewer friends when norms were unfavorable. In favorable contexts, relationally aggressive children may be highly sought-after friends, as peers may affiliate with them to avoid potential victimization. In unfavorable contexts, relationally aggressive children are more disliked and may be less sought-after as friends. Rumor spreading and social exclusion, typically used to gain status and manipulate relationships, are ineffective when classmates do not endorse them. Together, these results concord with the notion that aggression can be an advantage or disadvantage in the social dynamics of a peer group (Farmer & Xie, 2007) and suggest that norms may govern, in part, whether aggressive children are an attractive friend option. Still, when examining the number of friends at time 2, norms did not moderate the effect of aggression. In line with the conclusions of Deptula and Cohen's (2004) review, participants had the same net number of friends at the end of the year regardless of their aggressive behavior at the start of the year. It remains unclear, however, whether this is due to stability of existing friendships or a complete set of new friends.

Regardless of a child's aggressive behavior at the start of the year, the negative main effect of physical aggression norms indicated that children have fewer friends when preference norms favor such behavior. This suggests that environments more accepting of physical aggression are less conducive to friendship formation. Inversely, *more* friendships were formed when the peer

group was accepting of such behavior. Although physical aggression is negatively correlated with the social skills aspect of social intelligence, relational aggression is positively correlated with social intelligence (Andreou, 2006). Thus, it is possible that children in classrooms favorable to relational aggression are also more likely to engage in behavior that supports friendship formation, such as prosocial behavior. Prosocial norms may be more important to friendship processes than aggression norms (Laninga-Wijnen, et al., 2020). Prosocial behavior such as doing a favor, or giving a compliment may be altruistic or proactive (e.g., done to gain something or reach a specific goal) (Boxer et al., 2004). Both proactive prosocial behavior and relational aggression are socially sophisticated strategies for manipulating others and attaining social goals (Boxer et al., 2004). More friendships may form in environments more accepting of relational aggression if these contexts also support proactive prosocial behavior. However, this explanation is speculative and further research is needed to explore why more friendships may form in contexts that favor relational aggression.

Neither form of aggression was associated with friendship stability. This finding is in line with previous studies showing that aggressive children's friendships are generally as stable as those of non-aggressive children (Deptula & Cohen, 2004). However, there was also no evidence that norms moderated the association between physical or relational aggression and friendship stability. Once friendship is established, other moderating factors central to the dyad may play a more important role in whether a friendship can stand the test of time. For instance, friendships have been found to be more stable when friends are similar to each other in regard to their level of aggression than when they are dissimilar (Ellis & Zabatany, 2007). It is also known that stable friendships are of higher quality than unstable friendships (Bukowski et al., 1994). Aggression may thus be associated with more friendship stability in friendships that possess

many positive aspects (i.e., companionship, intimacy) and with more instability in friendships characterized by many negative aspects (i.e., conflict). In addition, aggressive best-friend dyads have been found to share more targets for aggression than non-friends (Card & Hodges, 2006), suggesting that – at least among aggressive children – cohesion may be more important to friendship maintenance than norms. Lastly, regardless of norms, it is possible that children may generally be more willing to forgive the wrongdoings of high-status friends and less willing to forgive low-status friends. Thus, a friend’s social status may be more critical to friendship maintenance than his or her behavior.

Contrary to hypotheses, there was no association between physical or relational aggression and aggression in desired friends and no moderating effect of norms in this context. Instead, new friends’ aggression was most strongly predicted by the aggression of children’s existing friends at the start of the year rather than children’s own level of aggression. It has been suggested that selection effects based on similarity in aggression may be overestimated for various reasons, including failure to control for influence effects in the broader social network (Dijkstra et al., 2011). Indeed, there is evidence that selection effects disappear when controlling for structural network effects such as transitivity (i.e., the tendency to select the friends of friends) (Dijkstra et al., 2011). The tendency to select friends of friends may explain why new friends’ behavior would be strongly predicted by original friends’ behavior. The original friend group may thus offer a type of descriptive norm that is a more powerful predictor of new friends’ aggression than the individual’s level of aggression or the norms of the larger peer group. This may be especially pronounced in regard to aggression, as committing aggressive acts together against others has been related to a greater sense of cohesion among friends (Garandau & Cillessen, 2006). Further research utilizing social network analysis is needed to examine these

questions, while distinguishing between physical and relational aggression, to better comprehend friendship selection processes of aggressive youth.

Strengths, Limitations and Conclusions

This study has a number of strengths. The longitudinal design allowed for the examination of changes in children's friendships within the same school year. Analysis of residual relational and physical aggression values effectively controlled for the substantial overlap between the two forms. The use of peer nominations and aggregated aggression scores from multiple informants minimized individual rater bias. The study also has several limitations. The generalizability of results may be limited beyond the examined age-range. Restricting peer nominations to the classroom may have limited ecological validity (Gommans, & Cillessen, 2015). Given the sole use of peer nominations, associations may be partly related to shared source variance. The 6-month time frame may have been insufficient for new reciprocal friendships to be established. Data on friendship quality and friends' aggression toward one another may be important to include when examining friendships. Finally, and importantly, the fact of using only two or three items to measure physical and relational aggression, respectively, may have limited construct validity and thus possibly contributed to some of the unexpected findings discussed above. Although these items are highly similar to those used in other research (e.g., Andrews et al., 2017; Banny, et al., 2011; Dijkstra et al., 2011), the study should be replicated with more comprehensive measures of physical and relational aggression.

Despite these limitations, results of the present study offer new insights into the role of physical and relational aggression as well as of preference norms in children's friendship experiences. Favorable classroom norms appear initially to facilitate friendships for aggressive children despite also theoretically reinforcing aggression. Over time, however, contexts that

reinforce physical aggression are less conducive to friendship formation, whereas contexts that reinforce relational aggression do not appear to deter friendship formation. From a theoretical standpoint, these findings underline the importance of examining friendships in the larger peer context, as well as the pertinence of distinguishing between different forms of aggression. Given the important beneficial or protective role of friendships, interventions aimed at promoting friendship must consider how the peer context may impact opportunities for friendship formation and maintenance in different sub-groups of youth.

Table 2. 1

Bivariate Correlations Between Individual-Level Variables for Boys and Girls

Variable	1	2	3	4	5	6	7	8	9
1. Grade	–	.00	-.05	.13**	.08	.08	.11**	.01	.02
2. Child's PA T1	-.04	–	.86**	-.04	-.08	.16**	.19**	-.06	-.06
3. Child's RA T1	.02	.61**	–	-.01	-.06	.16**	.20**	-.08	-.07
4. N Friends T1	.17**	-.04	.03	–	.51**	.01	.06	-.06	-.01
5. N Friends T2	.08	.01	-.01	.47**	–	.03	.02	.01	-.01
6. T1 Friends' PA	.02	.22**	.15**	-.05	-.10*	–	.88**	.75**	.64**
7. T1 Friends' RA	-.05	.20**	.22**	.03	-.02	.69**	–	.67**	.76**
8. New Friends' PA	.08	.14**	.13**	-.02	-.06	.87**	.60**	–	.85**
9. New Friends' RA	.04	.15**	.18**	-.02	-.03	.62**	.83**	.69*	–

Note. $N = 891$. * $p < .05$ ** $p < .01$. Physical (PA) and relational (RA) aggression in this table refer to the “original” variables (i.e., not residuals). Results for boys are presented above the diagonal and results for girls in the lower diagonal.

Table 2. 2

Multilevel Regression Analyses Predicting the Number of Reciprocal Friends at T1

Model Parameter	Physical Aggression				Relational Aggression			
	Estimate (SE)	<i>p</i>	95% CI		Estimate (SE)	<i>p</i>	95% CI	
0	Log Likelihood = -1590.4 Variance Level 1 (SE) = .87 (.04)*** Variance Level 2 (SE) = .13 (.03)***							
1	Log Likelihood = -1582.4 $\chi^2(df) = 16.0(4)***$ Variance Level 1 .87 (.04) .000 [.794, .946] Variance Level 2 .09 (.03) .000 [.053, .156]				Log Likelihood = -1584.5 $\chi^2(df) = 11.8(4)*$ Variance Level 1 .87 (.04) .000 [.796, .948] Variance Level 2 .09 (.03) .000 [.054, .158]			
Sex (1 = male)	-.25 (.09)	.008	[-.428, -.065]		-.20 (.08)	.008	[-.354, -.052]	
Grade	.17 (.05)	.000	[.083, .265]		.15 (.05)	.003	[.049, .241]	
T1 Aggression	-.08 (.04)	.038	[-.159, -.005]		.07 (.04)	.091	[-.011, .145]	
T1 Norm	-.13 (.05)	.007	[-.215, -.035]		.10 (.04)	.016	[.019, .181]	
2	Log Likelihood = -1566.8 $\chi^2(df) = 31.2(3)***$ Variance Level 1 .84 (.04) .000 [.766, .913] Variance Level 2 .09 (.03) .000 [.052, .153]				Log Likelihood = -1561.4 $\chi^2(df) = 46.2(3)***$ Variance Level 1 .82 (.04) .000 [.754, .899] Variance Level 2 .10 (.03) .000 [.056, .160]			
T1 Aggression * T1 Norm	.24 (.03)	.000	[.175, .299]		.21 (.02)	.000	[.174, .266]	
T1 Aggression * Sex	.20 (.06)	.002	[.074, .325]		-.08 (.05)	.087	[-.181, .012]	
Sex * T1 Norm	-.15 (.10)	.118	[-.333, .038]		-.05 (.08)	.550	[-.213, .113]	
3	Log Likelihood = -1565.8 $\chi^2(df) = 2.0(1)$ Variance Level 1 .83 (.04) .000 [.763, .909] Variance Level 2 .09 (.02) .000 [.051, .152]				Log Likelihood = -1562.6 $\chi^2(df) = 2.3(1)$ Variance Level 1 .82 (.04) .000 [.755, .900] Variance Level 2 .09 (.03) .000 [.055, .157]			
T1 Aggression * T1 Norm * Sex	-.17 (.06)	.003	[-.283, -.058]		-.07 (.04)	.103	[-.155, .014]	

N = 1135. Log Likelihood (LL) is used to compare model fit, with higher values indicating better fit to the data. Physical and relational aggression refer to residual values (controlling for the other respective form of aggression). Aggression and norm values are z-standardized. *** $p < .001$, ** $p < .01$, * $p < .05$

Table 2. 3

Multilevel Regression Analyses Predicting the Number of Reciprocal Friends at T2

Model Parameter	Physical Aggression				Relational Aggression			
	Estimate (SE)	<i>p</i>	95% CI		Estimate (SE)	<i>p</i>	95% CI	
0	Log Likelihood = -1556.0 Variance Level 1 (SE) = .77 (.04)*** Variance Level 2 (SE) = .23 (.04)***							
1	Log Likelihood = -1417.7 $\chi^2(df) = 276.6(6)***$ Variance Level 1 .61 (.03) .000 [.556, .663] Variance Level 2 .16 (.03) .000 [.106, .225]				Log Likelihood = -1418.6 $\chi^2(df) = 274.9(6)***$ Variance Level 1 .61 (.03) .000 [.556, .663] Variance Level 2 .16 (.03) .000 [.108, .227]			
Sex (1 = male)	-.13 (.10)	.212	[-.334, .074]		-.13 (.09)	.132	[-.294, .038]	
Grade	.02 (.05)	.704	[-.074, .110]		-.01 (.05)	.839	[-.115, .093]	
N friends T1	.46 (.03)	.000	[.394, .517]		.46 (.03)	.000	[.395, .519]	
T1 Aggression	-.01 (.03)	.630	[-.070, .042]		-.01 (.03)	.660	[-.069, .044]	
T1 Norm	.02 (.05)	.728	[-.074, .106]		.02 (.05)	.735	[-.075, .106]	
T2 Norm	-.12 (.05)	.004	[-.208, -.040]		.10 (.04)	.012	[.023, .182]	
2	Log Likelihood = -1422.5 $\chi^2(df) = 9.6(3)$ Variance Level 1 .61 (.03) .000 [.555, .662] Variance Level 2 .16 (.03) .000 [.108, .228]				Log Likelihood = -1424.6 $\chi^2(df) = 11.39(3)$ Variance Level 1 .61 (.03) .000 [.556, .663] Variance Level 2 .16 (.03) .000 [.110, .231]			
T1 Aggression * T2 Norm	.02 (.03)	.463	[-.038, .084]		.02 (.03)	.504	[-.039, .079]	
T1 Aggression * Sex	-.06 (.08)	.445	[-.211, .093]		.02 (.06)	.759	[-.102, .140]	
Sex * T2 Norm	.00 (.09)	.982	[-.183, .187]		-.05 (.09)	.576	[-.216, .120]	
3	Log Likelihood = -1424.0 $\chi^2(df) = 3.1(1)$ Variance Level 1 .61 (.03) .000 [.555, .662] Variance Level 2 .16 (.03) .000 [.108, .229]				Log Likelihood = -1425.5 $\chi^2(df) = 2.5(1)$ Variance Level 1 .61 (.03) .000 [.556, .663] Variance Level 2 .16 (.03) .000 [.108, .228]			
T1 Aggression * T2 Norm * Sex	-.05 (.07)	.467	[-.189, .087]		.05 (.03)	.092	[-.009, .117]	

N = 1135. Log Likelihood (LL) is used to compare model fit, with higher values indicating better fit to the data. Physical and relational aggression refer to residual values (controlling for the other respective form of aggression). Aggression and norm values are z-standardized. *** $p < .001$, ** $p < .01$, * $p < .05$

Table 2. 4

Multilevel Regression Analyses Predicting Proportion of Reciprocal Friendships Maintained over Time

Model Parameter	Physical Aggression				Relational Aggression			
	Estimate (SE)	<i>p</i>	95% CI		Estimate (SE)	<i>p</i>	95% CI	
0	Log Likelihood = -938.2 Variance Level 1 (SE) = .79 (.05)*** Variance Level 2 (SE) = .21 (.05)***							
1	Log Likelihood = -945.3 $\chi^2(df) = 14.4(5)$ Variance Level 1 Variance Level 2				Log Likelihood = -944.3 $\chi^2(df) = 12.2(5)$ Variance Level 1 Variance Level 2			
Sex (1 = male)	.12 (.13)	.330	[-.126, .375]		.12 (.11)	.264	[-.094, .341]	
Grade	.06 (.06)	.340	[-.063, .183]		.05 (.07)	.444	[-.080, .181]	
T1 Aggression	.01 (.05)	.775	[-.081, .109]		-.07 (.05)	.113	[-.158, .017]	
T1 Norm	-.00 (.06)	.805	[-.110, .142]		.01 (.06)	.862	[-.108, .136]	
T2 Norm	-.06 (.06)	.322	[-.181, .059]		.02 (.06)	.730	[-.098, .139]	
2	Log Likelihood = -949.9 $\chi^2(df) = 9.2(3)$ Variance Level 1 Variance Level 2				Log Likelihood = -949.1 $\chi^2(df) = 9.7(3)$ Variance Level 1 Variance Level 2			
T1 Aggression * T2 Norm	-.02 (.05)	.702	[-.108, .073]		.01 (.05)	.894	[-.081, .093]	
T1 Aggression * Sex	-.08 (.11)	.497	[-.302, .147]		-.04 (.09)	.664	[-.218, .139]	
Sex * T2 Norm	.03 (.12)	.781	[-.204, .271]		-.09 (.11)	.497	[-.295, .143]	
3	Log Likelihood = -952.4 $\chi^2(df) = 4.9(1)$ Variance Level 1 Variance Level 2				Log Likelihood = -950.4 $\chi^2(df) = 2.5(1)$ Variance Level 1 Variance Level 2			
T1 Aggression * T2 Norm	.79 (.05)	.000	[.709, .901]		.78 (.05)	.000	[.707, .898]	
* Sex	.21 (.05)	.000	[.137, .351]		.20 (.05)	.000	[.140, .354]	
	-.05 (.09)	.601	[-.234, .135]		-.07 (.09)	.443	[-.233, .100]	

N = 675. Log Likelihood (LL) is used to compare model fit, with higher values indicating better fit to the data. Physical and relational aggression refer to residual values (controlling for the other respective form of aggression). Aggression and norm values are z-standardized. *** $p < .001$, ** $p < .01$, * $p < .05$

Table 2. 5

Multilevel Regression Analyses Predicting Aggression of New Friends

Model Parameter	Physical Aggression				Relational Aggression			
	Estimate (SE)	<i>p</i>	95% CI		Estimate (SE)	<i>p</i>	95% CI	
0	Log Likelihood = -1255.8				Log Likelihood = -1262.8			
	Variance Level 1	.89 (.05)	.000	[.804, .982]	Variance Level 1	.93 (.05)	.000	[.842, .999]
	Variance Level 2	.11 (.03)	.000	[.064, .193]	Variance Level 2	.07 (.03)	.009	[.032, .141]
1	Log Likelihood = -835.3 $\chi^2(df) = 841.3 (6)***$				Log Likelihood = -863.0 $\chi^2(df) = 799.6(6)***$			
	Variance Level 1	.35 (.02)	.000	[.320, .391]	Variance Level 1	.38 (.02)	.000	[.345, .422]
	Variance Level 2	.01 (.01)	.506	[.000, .092]	Variance Level 2	.01 (.01)	.367	[.001, .058]
Sex (1 = male)		-.06 (.05)	.265	[-.168, .046]		.03 (.05)	.583	[-.064, .114]
Grade		.00 (.03)	.975	[-.050, .052]		.00 (.03)	.920	[-.059, .053]
T1 Aggression		.02 (.03)	.630	[-.049, .081]		.00 (.03)	.967	[-.056, .059]
T1 Norm		-.04 (.03)	.108	[-.093, .009]		-.03 (.03)	.226	[-.080, .019]
T2 Norm		-.01 (.02)	.542	[-.055, .029]		.03 (.02)	.208	[-.015, .067]
T1 Friends' Aggression		.82 (.04)	.000	[.753, .895]		.80 (.04)	.000	[.725, .882]
2	Log Likelihood = -845.6 $\chi^2(df) = 20.8(6)$				Log Likelihood = -871.6 $\chi^2(df) = 17.06(6)$			
	Variance Level 1	.36 (.02)	.000	[.321, .392]	Variance Level 1	.38 (.02)	.000	[.343, .419]
	Variance Level 2	.00 (.01)	.710	[.000, .506]	Variance Level 2	.01 (.01)	.203	[.001, .060]
Aggression * T2 Norm		.05 (.05)	.329	[-.048, .145]		-.05 (.04)	.264	[-.126, .035]
Aggression * Sex		.11 (.12)	.349	[-.124, .351]		.04 (.07)	.543	[-.098, .186]
Sex * T2 Norm		-.05 (.05)	.315	[-.148, .048]		.01 (.04)	.817	[-.073, .092]
3	Log Likelihood = -847.0 $\chi^2(df) = 2.7(2)$				Log Likelihood = -874.4 $\chi^2(df) = 5.7(2)$			
	Variance Level 1	.35 (.02)	.000	[.319, .390]	Variance Level 1	.37 (.02)	.000	[.341, .416]
	Variance Level 2	.00 (.01)	.693	[.000, .382]	Variance Level 2	.01 (.01)	.352	[.001, .057]
Aggression * T2 Norm * Sex		-.12 (.11)	.260	[-.334, .090]		.10 (.08)	.203	[-.056, .264]

N = 891. Log Likelihood (LL) is used to compare model fit, with higher values indicating better fit to the data. Physical and relational aggression refer to residual values (controlling for the other respective form of aggression). Aggression and norm values are z-standardized. *** $p < .001$, ** $p < .01$, * $p < .05$

CHAPTER III

THE ROLE OF NORM SALIENCE IN AGGRESSION SOCIALIZATION AMONG FRIENDS: DISTINCTIONS BETWEEN PHYSICAL AND RELATIONAL AGGRESSION

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Abstract

Socialization among aggressive friends is believed to play a critical role in the development of aggressive behavior. This study examined the moderating effect of norm salience in the classroom on the association between reciprocal friends' and children's own physical, relational and general aggression. A total of 713 children ($M = 10.32$ years, $SD = 0.99$) in grades 4 to 6 completed a peer nomination inventory in the fall and spring of the same academic year. Norm salience was operationalized as the class- and sex-specific correlation between each form of aggression and social preference. Norm salience moderated relational aggression socialization among friends only for highly relationally aggressive girls. Specifically, socialization was exacerbated when norm salience was favorable and attenuated when norm salience was unfavorable, suggesting that highly relationally aggressive girls may possess skills allowing them to adapt to the social context in which they and their friends interact. In contrast, boys' general aggression socialization was exacerbated when norm salience was neutral or unfavorable, suggesting that boys who affiliate with aggressive friends may be more susceptible to aggressive friends' influence in general and especially in the context of potential peer rejection. No moderating effect of norm salience was found in regards to physical aggression socialization. Results suggest that interventions aimed at changing acceptability of aggression in the classroom may only be effective in specific subgroups of aggressive youth.

Key words: norm salience, relational aggression, physical aggression, aggression socialization, friends

Introduction

In addition to genetic influences, environmental experiences have been shown to play a significant role in the development of both physical aggression and relational aggression (Brendgen et al., 2005). Among potential sources of environmental influence, affiliation with aggressive friends plays a critical role (Sijtsema & Lindenberg, 2018). Through socialization processes, friends influence each other's attitudes and behaviors, becoming more similar over time (Brechwald & Prinstein, 2011). Since friendships exist in a larger social context, this study examined whether social norms in the classroom with respect to aggression moderate aggression socialization among friends.

Aggression manifests itself in different forms, with one important distinction being that between physical and relational aggression (Vaillancourt et al., 2003). It is common to find moderate to high correlations between these forms (Vaillancourt et al., 2003). Physical aggression is overt and direct; by the preschool years it is seen more often among boys than girls (Hay, et al., 2011). In contrast, both sexes engage in relational aggression (Card et al., 2008), which can be direct or indirect (Bjorklund & Hawley, 2014) and involves manipulation of an individual's social reputation (Archer & Coyne, 2005). Compared to physical aggression, relational aggression is a more complex social phenomenon, requiring the involvement of peers to be effective (Bjorklund & Hawley, 2014). The classroom is an ideal setting for the study of relational aggression, as it is for many children an opportunity outside of the family context to learn about expectations regarding social behavior (Bjorklund & Hawley, 2014).

Strong socialization effects have been found with regard to aggression in general (e.g., Laninga-Wijnen et al., 2017), with relatively weaker associations reported in studies that distinguish between different forms (e.g., Brendgen et al., 2008; Werner & Crick, 2004). When

controlling for the large overlap between physical and relational aggression, socialization effects have only been found in regard to the same form (Brendgen et al., 2008, Werner & Crick, 2004) and are more pronounced in relational aggression relative to physical aggression (Sijtsema, Ojanen, et al. 2010). Given this variability, it is important that investigations of friends' influence on aggression not only distinguish between these forms, but also consider other potential moderators in physical and relational aggression socialization. Because socialization among friends occurs within a peer context (Veenstra & Dijkstra, 2011), a potentially important moderator may be the social norms in the classroom.

Social Norms and Aggression

Norms are social rules that reflect a consensus on what is preferred or acceptable behavior for group members and shaping behavior at the individual level (Cialdini et al., 1991). Norm salience captures the degree to which a given behavior is associated with sociometric status indices such as likability or popularity (Brendgen et al., 2013; Brendgen, et al., 2015; Henry et al., 2000; Laninga-Wijnen et al., 2017; Veenstra et al., 2018). The person-group similarity model assumes that individuals tend to accept and like others who are similar to themselves and reject and dislike others who are dissimilar (Wright et al., 1986). It is theorized that norm compliance is motivated by a desire to respond aptly to social situations and to have meaningful social relationships (Cialdini, & Goldstein, 2004). Thus, norm salience may be particularly relevant to the understanding of children's aggression socialization, given their fundamental motivation to be accepted as part of a group (Baumeister & Leary, 1995).

Studies have tested the association between different markers of norms and different aggressive behaviors, particularly bullying. For instance, positive attitudes towards bullying at the classroom level have been associated with higher rates of bullying behavior (Scholte et al.,

2010), whereas norms reflecting anti-bullying attitudes predicted defending of bullying victims (Salmivalli & Voeten, 2004). In a key study of the role of classroom normative influences on aggression in first, second and fourth graders (Henry et al., 2000), norm salience was examined as predictor of change in aggressive behavior. Results showed that aggression diminished over time when norm salience was unfavorable (i.e., when aggression was positively correlated with peer-nominated rejection). These findings support the notion that norm salience may influence the development of aggressive behavior among children.

Norm Salience and Socialization of Aggression Among Friends

Norm salience may impact aggression socialization among friends in several ways. Social impact theory (Latané, 1981) would suggest that aggression socialization depends on the degree to which individuals experience pressure from the social environment. When their friends engage in behaviors tied to markers of high peer status (e.g., high social preference), children may imitate these behaviors to maximize their own social standing. In contrast, when their friends engage in behaviors tied to markers of rejection (i.e., low social preference), children may be less inclined to adopt their friends' behavior and more inclined to fit in with the larger peer group to avoid rejection.

Norm salience has been found to moderate socialization of adolescent risk attitudes (Rambaran et al., 2013) and academic achievement (Lanina-Wijnen et al., 2018). However, to our knowledge, only one study has examined norm salience in the peer group as a moderator of aggression socialization by friends (Lanina-Wijnen et al., 2017). Results showed that young adolescents adopted friends' aggressive behavior only in classes where norm salience (i.e., the class-specific correlation between aggression and perceived popularity) was favorable, not neutral or unfavorable. It is unknown, however, whether this moderating effect equally applies to

physical and relational aggression. Compared to physical aggression, relational aggression is a “social” phenomenon requiring several participants to be effective (Bjorklund & Hawley, 2014). Enticing peers to participate in rumor spreading or social exclusion requires insight into what is acceptable or not within the peer group. Relational aggression emerges when children learn to manipulate and hurt others in a way that avoids sanctions (Björkqvist et al., 1992). Indeed, relational—but not physical aggression—is positively associated with social intelligence and theory of mind (Kaukiainen et al., 1999; Renouf et al., 2010). These social skills may be associated with the ability to accurately perceive social norms, potentially making highly relationally aggressive children most sensitive to learn from their friends when relational aggression can be advantageous. Thus, the moderating role of norm salience may be more pronounced for relational than physical aggression.

Operationalization of Norm Salience

Research suggests that clusters of children identified as high-status, highly liked or popular each occupy central positions in the peer group and have a great deal of social control (Lease et al., 2002). There is evidence that popularity-based norm salience (i.e., “who is most popular?” and “who is least popular?”) moderates general aggression socialization (Laninga-Wijnen et al., 2017). In line with a dual-component model of social competence, children’s social behavior may be driven by social demonstration goals such as achieving high social status, or by social development goals such as being liked, avoiding being disliked, and developing close friendships (Rodkin et al., 2013). Examining the moderating effect of norm salience based on social preference (i.e., based on liked and disliked peer nominations) on aggression socialization may thus further contribute to our understanding of potential social goals involved in the development of aggressive behavior.

In addition, it may be important to consider sex-specific norm salience within a class (i.e., a given behavior may be associated with higher social preference for boys than for girls in a class), rather than a single index of norm salience in the classroom at large. Not only do pre-adolescents tend to socialize more with same-sex groups (Bukowski et al., 1993), but a qualitative investigation of explanations for girls' relational aggression suggests that they may be particularly motivated to achieve a sense of belonging and develop relationships through manipulative and indirect means, as it minimizes the risks of being perceived as overtly aggressive (Owens et al., 2000). Moreover, affiliation with relationally aggressive friends has been found to predict increases in relational aggression over time for girls, but not for boys, whereas affiliation with physically aggressive friends predicts increases in physical aggression in both sexes (Werner & Crick, 2004). Sex differences may thus be most pronounced in regards to relational aggression socialization.

Other Potential Moderators of Aggression Socialization

In addition to sex-specific norm salience based on social preference, it may be important to consider other potential moderators of aggression socialization, such as age and children's initial levels of aggressive behavior. For instance, Henry and colleagues (2000) found a main effect of classroom norms regarding aggression on peer-nominated aggressive behavior in 12-year olds, but not in 9-year olds, suggesting that socialization effects may be most pronounced in older children, who may be more attuned to potential social rewards and sanctions tied to aggression. Results of a meta-analysis (Müller & Minger, 2013) also suggest that pre-existing behavior problems and positive attitudes towards antisocial and aggressive behaviors are associated with greater susceptibility to peer influence. Friends' aggression may thus predict increases in children's own aggression most strongly when norm salience is favorable *and* when

children already have aggressive tendencies.

The Present Study

The main objective of the present study was to examine whether norm salience moderates the longitudinal association between reciprocal friends' physical and relational aggression in the fall and children's physical and relational aggression in the following spring, while controlling for the overlap between the two forms of aggression and children's initial levels of aggression. We also examined the same question for general aggression (conceptualized as what is *common* between physical and relational aggression), in order to obtain a more complete understanding of aggression socialization. The present study focused on *reciprocal* friendships, as socialization effects are significantly more pronounced among reciprocal friends than among nominated friends (Brechwald & Prinstein, 2011). We hypothesized that higher levels of friends' aggression would predict increases in children's respective levels of aggression. Favorable norm salience should predict increases in children's aggression, whereas unfavorable norm salience should predict decreases in children's aggression. However, we also expected interactive effects, such that aggression socialization among friends should be exacerbated when classroom norm salience is favorable. When norm salience is unfavorable, socialization may be attenuated, as children attempt to fit in with the larger peer group. As previously mentioned, the moderating effect of norm salience was expected to be especially strong for relational aggression. An additional objective was to examine whether the putative moderating effect of norm salience varies across children's sex, age or their initial levels of aggression. We expected that the moderating effect of norm salience would be more pronounced in relationally aggressive girls, older children, and children with higher initial levels of aggression.

Method

Participants

Study participants were part of a sample of 1205 fourth to sixth graders (613 girls) from 23 public schools (67 classrooms) in low to average socio-economic status neighborhoods in a large Canadian city. School board records indicate that, for 54% of the student population from which the sample was obtained, both parents were born in Canada, whereas 27% of students had at least one immigrant parent and 19% of students were born outside of Canada. Students of immigrant descent originated mainly from the Caribbean (18.0%), North Africa (4.7%), Central America (4.4%), South America (3.3%), Middle East (2.9%), Southern Europe (2.8%) and Southeast Asia (2.2%). A third (33%) of students' mother tongue was neither French nor English (the two official languages in Canada) and 24% of students spoke neither French nor English at home. Data were collected in the fall (i.e., T1) and spring (i.e., T2) of the same academic year. Active parental consent and children's active verbal assent were obtained for all participants. Only classrooms where at least 75% of students received parental consent at both T1 and T2 were considered for participation (Cillessen & Marks, 2011). The classroom participation rate was 97% (67 out of 69 classrooms asked to participate). The average student participation rate within the remaining classrooms was 98% (range = 91 to 100%).

A group of 1023 individuals with valid friend nominations was retained (see friendship nomination procedure described below). The remaining 182 individuals were excluded because they did not nominate any friends or nominated friends for whom consent was not received. Of those with valid friend nominations, 713 (69.7%; 381 girls) had at least one reciprocal friend. Those with no reciprocal friend (310 individuals; 30.3%) were also excluded. Excluded participants were younger ($M = 10.18$, $SD = 1.07$) than those included ($M = 10.32$, $SD = .99$;

$t(712) = 2.28, p = .023$). Those with no reciprocal friend were also more physically aggressive than those included ($t(712) = 2.34, p = .020$). Since data were obtained through peer nominations (see description of measures below), and participants could still nominate participating classmates who were absent at T2, there were no missing data points. The number of participants per class ranged from 12 to 26 ($M = 18.13, SD = 2.78$).

Procedure

Data collection took place during regular school hours. A research assistant read the instructions aloud and clarification was provided if needed, ensuring that all participants understood what was asked of them. Participants were reminded that their responses would remain confidential. Instruments were approved by the University Ethics Committee and the school board administrators.

Measures

Physical and relational aggression. Children's physical and relational aggression at T1 and T2 were measured via peer-nominations, following the procedure used in other studies (e.g., Crick & Grotpeter, 1995). A list was given to each participant containing the names of all participants in the class. From this list, each participant was asked to nominate up to four classmates of either sex who best fit a behavioral descriptor. Physical aggression was estimated using two items from the Pupil Evaluation Inventory (Pekarik et al., 1976): "Those who start a physical fight over nothing" and "Those who say they can beat everybody up". Scores on these two items were highly correlated at T1 ($r = .86, p < .001$) and at T2 ($r = .88, p < .001$). Separately for T1 and T2, individual physical aggression scores were computed by averaging the number of received nominations for the two items and then z -standardizing within the classroom. Relational aggression at T1 and T2 was measured with two items from the Indirect Aggression

Scale (Björkqvist et al, 1992), “Those who encourage others to be mean against those they don’t like”, “Those who say mean things behind others’ back”, and a third item from the PEI, “Those who make fun of others in a mean way” (Pekarik et al., 1976). Separately for T1 and T2, individual relational aggression scores were computed by counting the number of received nominations for the three items and then *z*-standardizing within the classroom (Cronbach’s $\alpha = .86$ at T1 and $\alpha = .86$ at T2). Physical and relational aggression were highly positively correlated at T1 ($r = .81, p < .001$) and at T2 ($r = .84, p < .001$). To account for this substantial overlap, one form was regressed on the other and residual variables were computed. These residual variables were used in the computation of the respective norms and in the multilevel regression analyses (see description below) to capture effects unique to either form, such that physical aggression refers to a residual variable where the overlap with relational aggression is controlled and vice versa. Previous studies have also examined residuals in order to capture unique effects of highly correlated albeit distinct subtypes of aggression, such as physical and relational aggression (e.g., Burt et al., 2012) and reactive and proactive aggression (e.g., Cima, & Raine, 2009).

Common aggression. A general aggression variable was computed from the 5 peer-nominated items. Residual physical and residual relational aggression scores were then subtracted from the general aggression score to exclude variance specific to either form and include only what is *common* to both.

Friendship nominations. Participants were asked to nominate up to four friends of either sex from a list of all participants in their classroom at T1. Friendship nominations were restricted to peers within the same classroom because most grade-school children name classmates as best friends, even when they are free to nominate friends from other contexts outside the classroom (Parker & Asher, 1993). Following the friendship nomination procedure used in other studies

(e.g., Hawley et al., 2007), a friendship was considered to be reciprocal when the nominated peer had also rated the participant as one of his or her four best friends at the same time point.

Reciprocal friends' aggression. For each participant, friends' residual physical, relational and common aggression was available based on the same peer-nominated items described above. Residual scores for each respective form of aggression were averaged across all of a participant's reciprocal friends to maximize variability (Berndt & Keefe, 1995).

Social preference. Peer-perceived social preference was assessed by peer nominations at T1. A list of the names of all participants in the class was given to each participant. From this list, each participant was asked to nominate up to four children that they *most* like to play or hang out with (positive nominations) and up to four children that they *least* liked play or hang out with (negative nominations). Participants could nominate children of either sex. A social preference score was calculated for each participant (following the procedure developed by Coie et al., 1982). The number of positive peer nominations received was calculated for each individual and *z*-standardized within the classroom to account for differences in class size, creating a Liked-Most score. A Liked-Least score was calculated for each individual by calculating the number of negative nominations received, which was also *z*-standardized within classroom. The Liked-Least score was subtracted from the Liked-Most score to obtain a Social Preference score for each individual, which was again *z*-standardized within the classroom. This score was thus a continuous measure of peer-rated social preference, with high scores indicating acceptance and low scores indicating rejection among classmates.

Norm salience. As in other studies (Brendgen et al., 2013, 2015), norm salience was operationalized using the classroom-specific correlation between social preference and each behavioral variable (i.e., residual physical aggression, residual relational aggression and common

aggression) at T1. Norm salience values can theoretically range from -1 (indicating that the given behavior is entirely rejected or disliked), to +1 (indicating that the given behavior is entirely accepted or liked), with values approaching zero indicating a neutral norm (i.e., a behavior is neither particularly liked nor disliked). Sex-specific norm salience was calculated for each classroom in the fall. Classrooms had a minimum proportion of 36% same sex peers, with the proportion of same-sex peers distributed equally for boys and girls ($M_{\text{boys}} = 49\%$ same sex peers, $M_{\text{girls}} = 51\%$ same sex peers, with the exception of one classroom that only had of 5 boys, corresponding to 20% same-sex peers for the boys in that class). Among boys, norm salience ranged from highly favorable to highly unfavorable for residual physical aggression (range = -.65 to .70, $M = -.17$, $SD = .30$), residual relational aggression (range = -.91 to .78, $M = -.01$, $SD = .34$) and common aggression (range = -.96 to .53, $M = -.25$, $SD = .39$). Among girls, norm salience also ranged from highly favorable to highly unfavorable for residual physical aggression (range = -.76 to .71, $M = .13$, $SD = .34$), residual relational aggression (range = -.73 to .63, $M = -.16$, $SD = .35$) and common aggression (range = -.75 to .60, $M = -.18$, $SD = .34$). Physical and common aggression norm salience were more unfavorable in boys ($t(712) = -12.38$, $p < .001$ and $t(715) = -2.69$, $p = .007$). Relational aggression norm salience was more unfavorable in girls ($t(712) = 6.09$, $p < .001$).

Analytic Rationale

Multilevel regressions using Generalized Linear Mixed Models were performed with SPSS version 21 software (IBM Corp. 2012). Multilevel regressions allow for analysis of both child effects (i.e., age, individual aggression scores, friends' aggression) and group level effects (i.e., within-classroom sex group norm salience, sex group). In principal, our design suggested a four-level structure of the data (i.e., children nested in same-sex groups, same-sex groups nested

in classrooms, classrooms nested in schools). However, because the peer-nomination-based dependent aggression variables were z-standardized within classrooms to account for classroom differences in the number of nominating children, mean levels of aggression could not vary across classes or across schools. The multilevel models were thus estimated for two levels, i.e., the child (level 1) and his or her within-classroom sex group (level 2). Robust estimation methods were selected in order to generate unbiased standard error estimates and significance values (Maas & Hox, 2004) and to control for non-independence of the sample (Skrondal & Rabe-Hesketh, 2004).

To examine the additive and interactive associations of classroom norm salience and reciprocal friends' aggression with changes in children's aggression from fall to spring of one academic year, three series of models were conducted, separately for physical aggression, relational aggression, and common aggression at T2. This allowed us to examine whether associations varied according to the specific form of aggressive behavior. A result was considered to be statistically significant at an alpha level of $p = .05$ or smaller to ensure comparability of findings with those from previous studies. In model 1, main effects of sex, age, child's T1 aggression, friends' T1 aggression and the corresponding norm salience were tested. Model 2 introduced all possible 2-way interactions between the predictor variables and model 3 introduced five 3-way interactions. Model 4 introduced a 4-way interaction between sex, aggression at T1, friends' T1 aggression and norm salience. Interactions were decomposed using simple slopes at high (i.e., +1 SD) and low (i.e., -1 SD) levels of the moderator(s). All variables except child sex were z-standardized prior to analyses to facilitate interpretation of the results. Preliminary analyses were performed to investigate main or moderating effects of the within-class sex ratio and none were found. Parsimonious model results without that variable are

presented.

Results

Preliminary Analyses

Bivariate correlations between individual-level raw (i.e., not residual) variables are presented in Table 3.1. In boys, but not girls, age was positively correlated with both physical and relational aggression, as well as with friends' physical and relational aggression, at both time points. Physical aggression at T1 was highly positively correlated with physical aggression at T2, although this correlation was stronger in boys ($Z = 7.28, p < .001$). Similarly, relational aggression at T1 was highly positively correlated with relational aggression at T2, and this correlation was also stronger in boys ($Z = 5.13, p < .001$). Physical and relational aggression were highly positively correlated at both times, supporting the use of residual scores in the subsequent analyses. At both times, correlations between the two forms of aggression were stronger in boys ($Z_{T1} = 8.06, p < .001$; $Z_{T2} = 13.53, p < .001$). Physical and relational aggression were positively correlated with friends' physical and relational aggression at T1 and the strength of these correlations was not different between boys and girls ($Z_{PA} = 0.42, p = .674$; $Z_{RA} = 1.73, p = .084$).

Physical Aggression. Table 3.2 presents the multilevel regressions predicting children's physical aggression at T2. In the unconditional model, individual (within-group) differences accounted for 88.1% of the variance in T2 physical aggression, whereas between-group differences accounted for 11.7% ($ICC = .12$), indicating that variance in T2 physical aggression was mainly due to individual differences. In model 1, the child's sex was associated with T2 physical aggression ($b = .41, SE = .08, p < .001$), such that boys showed a greater increase in residual physical aggression over the school year than girls. Physical aggression was highly

stable over time, with child's T1 physical aggression being positively associated with T2 physical aggression ($b = .39$, $SE = .04$, $p < .001$). No other main effects emerged. Model 2 introduced all possible two-way interactions between the predictor variables. An interaction between sex and friends' T1 physical aggression ($b = .15$, $SE = .06$, $p = .014$) revealed socialization effects in boys specifically ($b = .08$, $SE = .04$, $p = .030$). A second interaction between age and child's T1 physical aggression ($b = .09$, $SE = .03$, $p = .004$) showed that older children (+1 SD) presented more stability in physical aggression over time ($b = .49$, $SE = .08$, $p < .001$) relative to younger children (-1 SD; $b = .30$, $SE = .07$, $p < .001$). A third interaction between friends' T1 physical aggression and child's T1 physical aggression ($b = -.11$, $SE = .04$, $p = .012$) indicated that physical aggression was more stable over time among children whose reciprocal friends showed low (-1 SD) physical aggression at T1 ($b = .49$, $SE = .08$, $p < .001$), relative to those whose friends showed high (+1 SD) physical aggression at T1 ($b = .29$, $SE = .09$, $p = .002$). The five triple interaction terms added in model 3, as well as the quadruple interaction term added in model 4, were not statistically significant. Thus, we found no evidence that norm salience moderates physical aggression socialization.

Relational Aggression. Table 3.3 presents the multilevel regressions predicting children's relational aggression at T2. In the unconditional model, individual (i.e., within-group) differences accounted for over 99.8% of the variance in T2 relational aggression, whereas between-group differences accounted for less than 0.1% ($ICC = .001$), indicating that virtually all of the variance in T2 relational aggression was due to individual differences. Added in model 1, child's relational aggression at T1 was a strong predictor of relational aggression at T2 ($b = .40$, $SE = .05$, $p < .001$), but no other main effects emerged. Model 2 introduced all possible double interactions. An interaction between sex and T1 relational aggression ($b = -.19$, $SE = .08$, $p =$

.016) revealed greater stability in relational aggression in girls ($b = .49$, $SE = .07$, $p < .001$) than in boys ($b = .30$, $SE = .05$, $p < .001$). A second interaction between sex and age ($b = .16$, $SE = .06$, $p = .010$) indicated that age predicted increased relational aggression in boys specifically ($b = .10$, $SE = .05$, $p = .020$). A third interaction between age and relational aggression at T1 ($b = .08$, $SE = .04$, $p = .029$) showed greater stability of relational aggression in older children (+1 SD; $b = .46$, $SE = .09$, $p < .001$) relative to younger children (-1 SD; $b = .14$, $SE = .08$, $p = .068$). An interaction between age and friends' T1 relational aggression also emerged ($b = -.06$, $SE = .03$, $p = .044$), but when decomposed at +/- 1 SDs of age, the effects of friends' T1 relational aggression were not statistically significant and therefore cannot be interpreted. Similarly, an interaction emerged between friends' T1 relational aggression and norm salience ($b = .09$, $SE = .03$, $p = .009$), but the effects of friends' T1 relational aggression were not statistically significant when examined at +/- 1 SDs of norm salience. Model 3 introduced five triple interactions, none of which were statistically significant. However, Model 4 showed a significant quadruple interaction between sex, relational aggression at T1, friends' T1 relational aggression and relational aggression norm salience ($b = -.17$, $SE = .07$, $p = .019$). Probing revealed that the triple interaction between relational aggression at T1, friends' T1 relational aggression and the relational aggression norm was statistically significant for girls ($b = .15$, $SE = .05$, $p = .003$), but not for boys ($b = -.02$, $SE = .05$, $p = .756$). The decomposition of this interaction is illustrated in Figure 3.1. Norm salience emerged as a significant moderator of relational aggression socialization among highly relationally aggressive (+1 SD) girls only, relative to girls presenting average or low (-1 SD) levels of relational aggression at T1. When norm salience was favorable (+1 SD), friends' relational aggression at T1 was associated with increased relational aggression among highly relationally aggressive girls ($b = .21$, $SE = .09$, $p = .021$). In contrast, when norm

saliency was unfavorable (-1 SD), reciprocal friend's relational aggression at T1 was associated with decreased relational aggression in this subgroup ($b = -.29$, $SE = .12$, $p = .019$).

Common aggression. Whereas the previous analyses were based on residual scores that controlled for the overlap between physical and relational aggression, the analyses presented in Table 3.4 examined the pattern of results for aggressive behavior *common* to both forms of aggression. In the unconditional model, individual (i.e., within-group) differences accounted for 86.35% of the variance in T2 common aggression, whereas between-group differences accounted for 14.16% ($ICC = .14$), indicating that variance in T2 common aggression was mainly due to individual differences. Added in model 1, common aggression at T1 emerged as a strong predictor of common aggression at T2 ($b = .75$, $SE = .04$, $p < .001$). Sex was significantly associated with T2 physical aggression ($b = .16$, $SE = .06$, $p = .004$), such that boys showed a greater increase in common aggression over the school year than girls. Reciprocal friends' common aggression was also positively associated with T2 common aggression ($b = .06$, $SE = .02$, $p = .006$). No other main effects emerged. Model 2 introduced all possible two-way interactions. A significant interaction between reciprocal friends' T1 common aggression and norm saliency ($b = -.05$, $SE = .02$, $p = .036$) revealed a socialization effect specifically when norm saliency was unfavorable (-1 SD; $b = .17$, $SE = .06$, $p = .006$) and neutral ($b = .07$, $SE = .03$, $p = .042$), but not when norm saliency was favorable (+1 SD; $b = -.03$, $SE = .05$, $p = .609$). Model 3 showed a significant triple interaction between sex, friends' T1 common aggression and norm saliency ($b = -.12$, $SE = .06$, $p = .039$), indicating that the moderating effect of norm saliency in common aggression socialization was present only in boys ($b = -.10$, $SE = .03$, $p < .001$). The quadruple interaction in model 4 was not statistically significant.

Discussion

The first objective of the present study was to examine the longitudinal association between reciprocal friends' physical and relational aggression at time 1 and children's physical and relational aggression at time 2, and the moderating effect of time 1 norm salience in this context, while controlling for children's time 1 levels of aggression. To capture effects unique to either form of aggressive behavior, one type of aggression was regressed on the other to compute new residual physical aggression and relational aggression variables that were used in all analyses. The second objective was to examine whether these putative moderating effects of norm salience are similar across sex or age and whether they vary according to children's time 1 levels of each form of aggression. These associations were also examined in regard to "common" aggression, which includes what is common between physical and relational forms of aggression.

The results showed that norm salience moderated relational aggression socialization among friends, albeit only among highly relationally aggressive girls. In line with hypotheses, friends' relational aggression predicted increases in these girls' own relational aggression when norm salience was favorable. In contrast, when norm salience was unfavorable, friends' relational aggression predicted decreases in these girls' own relational aggression. A review of studies examining sex differences in peer relationship processes describes the predominance of connection-oriented goals in girls, such as forming and maintaining friendships and social approval (Rose & Rudolph, 2006). Research also suggests that girls are more likely than boys to worry about peer perception and loss of friendships (Rose & Rudolph, 2006). When norm salience favors relational aggression, highly relationally aggressive girls may not need to worry about negative peer perception and thus use relational aggression even more to achieve their connection goals (i.e., maintain existing or form new friendships and gain social approval

through social manipulation). In contrast, relational aggression socialization may be attenuated in highly relationally aggressive girls when norm salience is unfavorable, because this type of behavior would impede connection goals in this context.

Contrary to the findings observed for relational aggression, no evidence of norm salience moderation was found for physical aggression socialization. As has been suggested in regard to other antisocial behaviors such as delinquency (Veenstra et al., 2013), norm salience within other social contexts such as sports teams or broader cultural groups may have a greater influence on physical aggression socialization than norm salience in the classroom, as we measured it. The findings also showed that physical aggression was most stable over time among children who, at the start of the school year, had friends *low* on physical aggression. Thus, when children and their friends already showed little physical aggression at the beginning of the school year, little change in their behavior will occur. Physically aggressive youths, however, may have difficulty maintaining friendships with peers who are low on aggression. These children's physically aggressive behavior may persist as they find themselves without non-aggressive friends and become more socially isolated. As a result, they may affiliate with other aggressive youths by default (Sijtsema, Lindenberg, et al., 2010), which may make them even more prone to act aggressively towards others. Our findings suggest that this socialization of physical aggression among friends is especially pronounced in boys. Studies of gender differences in peer influence suggest that boys and girls are most susceptible to peer influence in regards to the behaviors they encounter most frequently within their respective peer groups (Müller & Minger, 2013). Thus, boys may be more susceptible to aggressive friends' influence in general and especially in the context of potential rejection by the larger peer group. This potential explanation is also in line with our finding showing socialization effects of common aggression among boys when norm

salience was neutral or unfavorable. In contrast to relational aggression, common aggression socialization may be more predominantly influenced or motivated by social demonstration goals or status goals (i.e., a desire to demonstrate one's power and superiority in a social group) over social development or connection goals such as being liked and developing relationships. Boys have been found to endorse more status-oriented goals such as dominance in the peer group than girls, who endorse more development or connection goals (Rose & Rudolph, 2006). Further research distinguishing both the forms and the functions of aggression is needed to shed light on the processes underlying these interactive associations.

Strengths and Limitations and Conclusions

This study has a number of strengths. The longitudinal design allowed for the examination of changes in children's aggressive behaviors within the same school year, while controlling for initial levels of aggression. This study is also the first to examine relational and physical aggression specifically by controlling for the substantial overlap between the two, in addition to examining that which is common to both forms. The use of peer nominations throughout is an important strength, because aggregated scores from multiple informants minimize individual rater bias.

Our study also has several limitations. The generalizability of results may be limited beyond the examined age-range. The high stability of aggressive behaviors over the 6-month time frame of the present study left little residual variance to be explained by other variables. Limiting peer nominations may have limited ecological validity (Gommans, & Cillessen, 2015). Moreover, including only children with at least one reciprocal friend resulted in the exclusion of 30% of the sample. Future studies may use longitudinal social network analysis, which allows for the examination of both directed and reciprocated relations (Veenstra et al., 2013).

Importantly, although we controlled for children's initial levels of aggression, we could not control for preexisting behavioral similarities that may have motivated friendship formation (i.e., selection effects), because we examined average aggression across a child's reciprocal friends rather than focusing on a single friendship. Lastly, given the z-standardized peer nominations within classrooms to account for differences in classroom size, there was no variation across classrooms. We thus could not assess change in aggression or potential socialization effects of others in the classroom (e.g., non-friends, popular peers).

Despite these limitations, results of the present study offer new insights into the role of norm salience especially for the socialization of relational aggression among friends. Specifically, favorable norm salience facilitated relational aggression socialization within friendships in girls with an increased tendency for relational aggression in the present study. Relational aggression socialization was attenuated among highly relationally aggressive girls when the peer group clearly disapproved of such behavior. These results may have some theoretical and practical implications. Relational aggression is a social behaviour quite unlike physical aggression and future research should carefully differentiate between these two forms. Norm salience also emerged as a moderating factor in common aggression socialization, such that socialization was exacerbated in contexts in which this behavior was strongly associated with being disliked. Thus, future studies may also seek to distinguish between reactive and proactive aggression, as more reactive forms of aggression may be exacerbated when norm salience is unfavorable. In addition, while the sex distribution in the majority of the classrooms in the present study was approximately equal and unrelated to any of the study variables, future studies may examine whether a smaller or larger proportion of same-sex peers in the classroom influence opportunities for friendship formation and aggression socialization, as well as norms.

Future studies may also examine acceptance-based versus rejection-based norm salience to investigate whether these two components of social preference play a distinct moderating role in aggression socialization. In conclusion, our results suggest that interventions aimed at challenging acceptability of aggression at the classroom level may only be effective in specific subgroups of aggressive youth, namely relationally aggressive girls.

Table 3. 1

Bivariate Correlations Between Individual-Level Variables for Boys and Girls

Variable	1	2	3	4	5	6	7
1. Age	–	.19**	.20**	.15**	.20**	.14**	.12**
2. Child's PA T1	-.01	–	.85**	.86**	.81**	.24**	.26**
3. Child's PA T2	.04	.61**	–	.80**	.91**	.29**	.29**
4. Child's RA T1	.06	.60**	.46**	–	.82**	.22**	.27**
5. Child's RA T2	.01	.45**	.47**	.63**	–	.31**	.32**
6. Friends' PA T1	-.01	.21**	.18**	.16**	.16**	–	.75**
7. Friends' RA T1	-.01	.16**	.17**	.20**	.17**	.57**	–

Note. $N = 716$. ** $p < .01$. Physical and relational aggression in this table refer to the “original” variables (i.e., not residuals). Results for boys are presented above the diagonal and results for girls in the lower diagonal.

Table 3. 2

Multilevel Regression Analyses Predicting the Child's T2 Physical Aggression

Model	Parameter	Log Likelihood	$\chi^2(df)$	Variance Level 1 (SE)	Variance Level 2 (SE)	Estimate (SE)	<i>p</i>	95% CI Lower, Upper
0		-1004.7		.88 (.05)***	.12(.04)**			
1		-888.7	231.9(5)***	.73 (.04)***	.00 (.02)			
	Sex (1 = boys)					.44 (.07)	.000	[.291, .579]
	Age					.04 (.03)	.196	[-.019, .094]
	Child's T1 PA					.39 (.04)	.000	[.302, .471]
	Friends' T1 PA					.03 (.03)	.352	[-.029, .081]
	PA norm					.00 (.03)	.992	[-.068, .069]
2		-877.0	23.4(10)**	.72 (.04)***	.00 (.02)			
	Sex * Age					-.13 (.08)	.115	[-.282, .031]
	Sex * Child's T1 PA					.02 (.08)	.807	[-.143, .184]
	Sex * Friends' T1 PA					.15 (.06)	.014	[.030, .271]
	Sex * PA norm					.03 (.08)	.692	[-.129, .194]
	Age * Child's T1 PA					.09 (.03)	.004	[.030, .159]
	Age * Friends' T1 PA					-.02 (.03)	.463	[-.081, .037]
	Age * PA norm					-.01 (.03)	.838	[-.071, .057]
	Child's T1 PA * Friends' T1 PA					-.11 (.04)	.012	[-.189, -.023]
	Child's T1 PA * PA norm					-.03 (.05)	.523	[-.126, .064]
	Friends' T1 PA * PA norm					-.04 (.03)	.289	[-.102, .031]
3		-875.7	2.6 (5)	.72 (.04)***	.00 (.00)			
	Sex * PA norm * Friends' T1 PA					-.10 (.06)	.115	[-.214, .023]
	Age * PA norm * Friends' T1 PA					-.03 (.04)	.389	[-.105, .041]
	Child's T1 PA * PA norm * Friends' T1 PA					.05 (.05)	.278	[-.042, .147]
	Sex * Child's T1 PA * Friends' T1 PA					.06 (.11)	.559	[-.148, .273]
	Sex * Child's T1 PA * PA norm					-.02 (.11)	.827	[-.234, .187]
4		-875.6	0.1 (1)	.72 (.04)***	.00 (.00)			
	Sex * Child's T1 PA * PA norm * Friends' T1 PA					-.04 (.09)	.666	[-.222, .142]

Note. Log Likelihood and can be used to compare model fit, with higher values indicating "better" fit to the data. SE = Standard Error. PA = residual physical aggression (controlling for relational aggression). *** $p < .001$, ** $p < .01$, * $p < .05$

Table 3. 3

Multilevel Regression Analyses Predicting the Child's T2 Relational Aggression

Model	Parameter	Log Likelihood	χ^2 (df)	Variance Level 1 (SE)	Variance Level 2 (SE)	Estimate (SE)	<i>p</i>	95% CI Lower, Upper
0		-1001.3		.98 (.06)***	.00 (.02)			
1		-931.9	138.9 (5)***	.81 (.05)***	.00 (.02)			
	Sex (1 = boys)					-.12 (.07)	.080	[-.255, .015]
	Age					.02 (.03)	.621	[-.043, .083]
	Child's T1 RA					.40 (.05)	.000	[.312, .487]
	Friends' T1 RA					.04 (.04)	.298	[-.033, .108]
	RA norm					-.02 (.03)	.488	[-.091, .043]
2		-919.1	25.6 (10)**	.79 (.05)***	.00 (.02)			
	Sex * Age					.16 (.06)	.010	[.038, .281]
	Sex * Child's T1 RA					-.19 (.08)	.016	[-.350, -.036]
	Sex * Friends' T1 RA					.05 (.07)	.438	[-.079, .183]
	Sex * RA norm					.00 (.07)	.989	[-.131, .133]
	Age * Child's T1 RA					.08 (.04)	.029	[.008, .149]
	Age * Friends' T1 RA					-.06 (.03)	.044	[-.118, -.002]
	Age * RA norm					-.02 (.04)	.562	[-.090, .049]
	Child's T1 RA * Friends' T1 RA					.02 (.03)	.457	[-.040, .088]
	Child's T1 RA * RA norm					-.01 (.05)	.916	[-.099, .089]
	Friends' T1 RA * RA norm					.09 (.03)	.009	[.021, .151]
3		-916.0	6.1 (5)	.79 (.07)***	.00 (.02)			
	Sex * RA norm * Friends' T1 RA					-.05 (.07)	.468	[-.176, .081]
	Age * RA norm * Friends' T1 RA					.05 (.04)	.231	[-.033, .134]
	Child's T1 RA * RA norm * Friends' T1 RA					.06 (.04)	.124	[-.017, .143]
	Sex * Child's T1 RA * Friends' T1 RA					.03 (.07)	.678	[-.100, .154]
	Sex * Child's T1 RA * RA norm					-.07 (.09)	.400	[-.244, .097]
4		-913.9	4.2 (1)*	.79 (.05)***	.00 (.02)			
	Sex * Child's T1 RA * RA norm * Friends' T1 RA					-.17 (.07)	.019	[-.311, .028]

Note. -2 Log Likelihood and can be used to compare model fit, with smaller values indicating "better" fit to the data. SE = Standard Error. RA = residual relational aggression (controlling for physical aggression). *** $p < .001$, ** $p < .01$, * $p < .05$

Table 3. 4

Multilevel Regression Analyses Predicting the Child's T2 Common Aggression

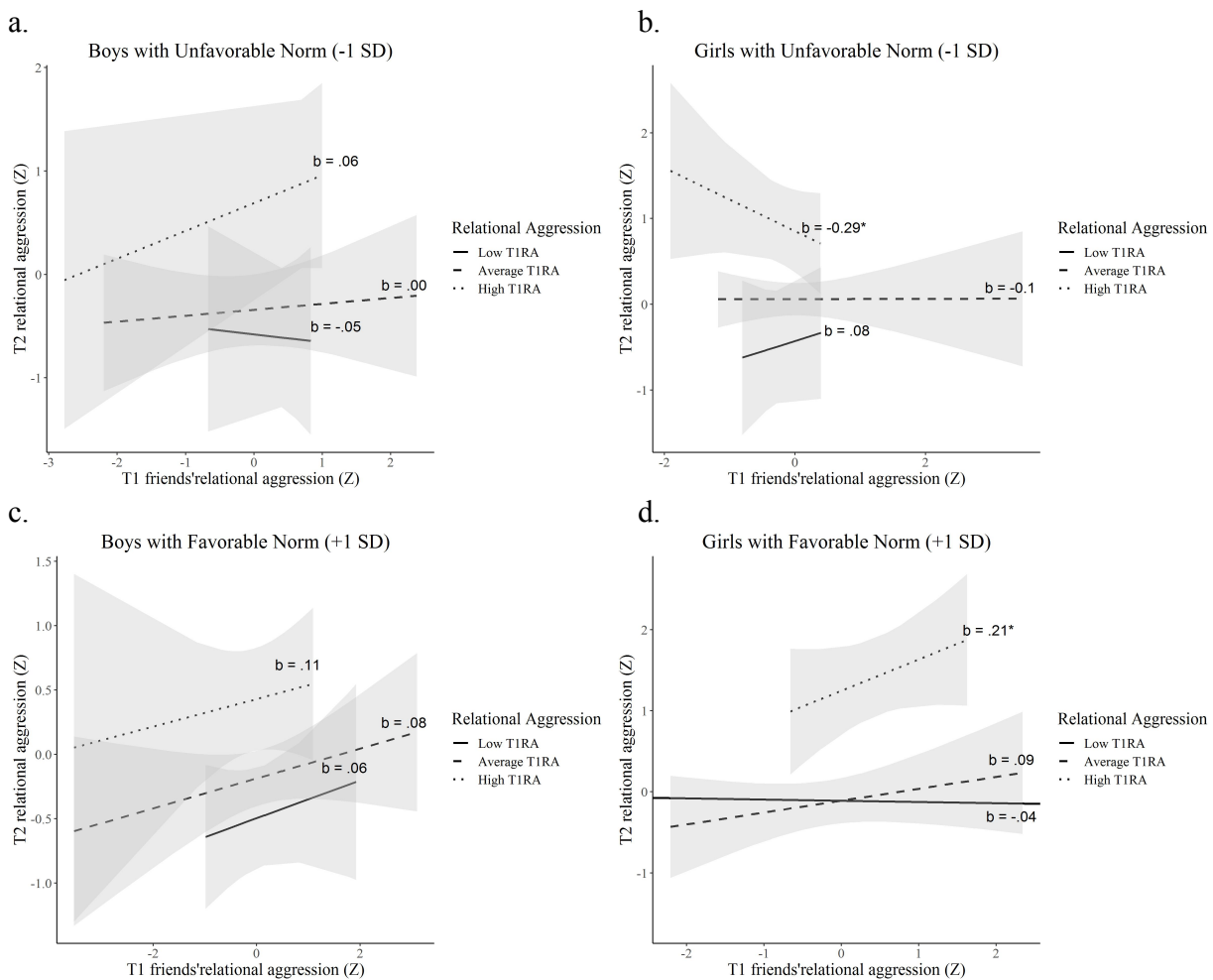
Model	Parameter	Log Likelihood	$\chi^2(df)$	Variance Level 1 (SE)	Variance Level 2 (SE)	Estimate (SE)	<i>p</i>	95% CI Lower, Upper
0		-1012.2		.86 (.05)***	.14 (.04)**			
1		-640.97	742.5 (5)***	.34 (.02)***	.03 (.01)*			
	Sex (1 = boys)					.16 (.06)	.004	[-.051, .271]
	Age					.02 (.02)	.299	[-.020, .065]
	Child's T1 CA					.75 (.04)	.000	[.683, .824]
	Friends' T1 CA					.06 (.02)	.006	[.018, .106]
	CA norm					-.05 (.03)	.085	[-.113, .007]
2		-625.7	30.5 (10)***	.33 (.02)***	.02 (.01)*			
	Sex * Age					.07 (.06)	.195	[-.038, .185]
	Sex * Child's T1 CA					.15 (.08)	.079	[-.017, .307]
	Sex * Friends' T1 CA					.02 (.05)	.633	[-.069, .113]
	Sex * CA norm					-.01 (.07)	.905	[-.144, .127]
	Age * Child's T1 CA					-.03 (.03)	.312	[-.081, .026]
	Age * Friends' T1 CA					.03 (.03)	.334	[-.028, .080]
	Age * CA norm					-.01 (.02)	.700	[-.051, .034]
	Child's T1 CA * Friends' T1 CA					.05 (.04)	.310	[-.042, .133]
	Child's T1 CA * CA norm					-.04 (.04)	.285	[-.114, .034]
	Friends' T1 CA * CA norm					-.05 (.02)	.036	[-.096, -.003]
3		-614.8	21.8 (5)***	.32 (.02)***	.02 (.01)*			
	Sex * CA norm * Friends' T1 CA					-.12 (.06)	.039	[-.224, -.006]
	Age * CA norm * Friends' T1 CA					.00 (.03)	.896	[-.049, .056]
	Child's T1 CA * CA norm * Friends' T1 CA					-.04 (.05)	.439	[-.129, .056]
	Sex * Child's T1 CA * Friends' T1 CA					-.01 (.09)	.955	[-.180, .170]
	Sex * Child's T1 CA * CA norm					-.18 (.11)	.101	[-.388, .034]
4		-613.8	2.1 (1)	.32 (.02)***	.02 (.01)*			
	Sex * Child's T1 CA * CA norm * Friends' T1 CA					-.12 (.13)	.377	[-.373, .141]

Note. -2 Log Likelihood and can be used to compare model fit, with smaller values indicating "better" fit to the data. SE = Standard Error. CA = common aggression. *** $p < .001$, ** $p < .01$, * $p < .05$

Figure 3. 1

Range of observed data values separately for boys and girls when norms are unfavorable and favorable.

Axes show the range of observed data values separately for boys (a, c) and girls (b, d) when norms are unfavorable (a, b) and favorable (c, d). Regression lines include 95% confidence intervals (grey-shaded areas). In Figure 1.b, the dotted slope illustrates that in girls showing high (+1 SD) levels of relational aggression at T1, friends' relational aggression at T1 is *negatively* associated with relational aggression at T2 when norm salience is unfavorable (-1 SD). In Figure 1.d. the dotted slope illustrated that in girls showing high (+1 SD) levels of relational aggression at T1, friends' relational aggression at T1 is *positively* associated with relational aggression at T2 when norm salience is favorable (+1 SD). These same associations were not statistically significant neither among boys nor among girls with average or low (-1 SD) levels of relational aggression at T1.



CHAPTER IV

GENERAL DISCUSSION

The child-by-environment paradigm is based on the assumption that multiple personal, interpersonal and environmental factors combine and interact in ways that significantly impact individuals' psychosocial adjustment (Ladd, 2003). As such, positive peer environments and relationships may mitigate the risk of maladjustment associated with aggressive behaviour, whereas negative peer environments and relationships may amplify risk. In line with the child-by-environment perspective, the present thesis makes notable contributions to our understanding of the moderating role of status norms in associations between childhood aggression and friendship adjustment.

Traditional developmental perspectives view childhood aggression as a problem to fix. This is no surprise given the immense personal and societal costs associated with aggressive behaviour over the lifespan. A 40-year longitudinal study examining the consequences of childhood aggressiveness showed that individuals following a high aggressiveness trajectory from age 8 to age 48 reported the poorest outcomes across several domains of life (Huesmann et al., 2009). Specifically, life-course-persistent high aggressiveness individuals experienced more criminal offenses, arrests, traffic violations, domestic violence, divorce, problematic alcohol consumption, depression, and less educational attainment and occupational prestige relative to childhood-limited, adolescent-limited and life-course-persistent low aggressiveness individuals. Victims of aggressive behaviour also experience a number of significant negative consequences. Results of a systematic review and meta-analysis of 165 studies (Moore et al., 2017) indicate that peer victimization in childhood is associated with several adverse mental health outcomes including

increased risk of suicidal ideation, self-harm, depression and anxiety, with substance use problems such as increased risk of illicit drug use, and with adverse health outcomes such as somatic problems, obesity and risky sexual activity. The potential resource costs of high aggressiveness are equally concerning. In fact, a study of the economic implications of aggressive behaviour disorders in youth, such as conduct disorder and oppositional defiant disorder, indicates that public expenditures in mental health, education and legal services exceed \$70 000 USD, equal today to over \$87 000 CAD, per individual over a 7-year period (Foster et al., 2005). Though it may be impossible to accurately measure the true personal and societal costs of childhood aggression problems, from a public health perspective, these may be reduced if resources are reallocated to prevention (Foster et al., 2005).

Prevention and intervention programs for childhood aggression are largely based on a systems approach, targeting group processes that support aggressive behaviour and promoting conflict resolution and social skills. A recent meta-analysis of 100 independent studies conducted worldwide found that school-based intervention programs were effective in reducing rates of bullying by up to 20% and rates of victimization by up to 16% (Gaffney et al., 2019). The authors conclude that the most effective and comprehensive programs involve interventions at the school, classroom, peer and individual level. Among the most effective programs for students in grades 4 to 6, the KiVa anti-bullying program aims to reduce the social rewards for bullies by changing the social norms of the group (Kärnä et al., 2013). In theory, if peers no longer reward aggression with high status, aggressive children should be motivated to change their behaviour in order to avoid negative consequences such as peer rejection and loss of friends. The findings of the present thesis contribute to our understanding of how physical and relational aggression may

be associated with friendship experiences and how status norms in the peer group regarding the two forms of aggression may moderate these associations.

The objective of this concluding chapter is to first to summarize and discuss the results of the two studies presented in the thesis. Then, strengths, limitations and avenues for future research will be addressed. Lastly, clinical implications of the thesis will be discussed.

4.1 Summary and discussion of results

The results of the thesis will be presented in two parts. First, the results for physical and relational aggression will be compared and contrasted. Second, the moderating role of norms in associations between aggression and friendship experiences will be discussed.

4.1.1 Distinctions between physical and relational aggression

The choice to examine residual aggression variables throughout the present thesis was motivated by the general consensus among aggression researchers that aggression presents itself in different forms, mainly physical and relational, which are both overlapping and distinct (Bjorklund & Hawley, 2014; Vaillancourt et al., 2003; Vitaro et al., 2006). The results of the first study in the thesis suggest that physical and relational aggression are not necessarily detrimental to children's friendship experiences and both forms may even be beneficial in specific social contexts. For instance, both physical and relational aggression were associated with having more friends when status norms were favorable (i.e., when aggression was positively associated with social preference) and fewer friends when status norms were unfavorable (i.e., when aggression was

negatively associated with social preference). This suggests that higher status may facilitate friendship formation for aggressive children, regardless of the form of aggression. We found no evidence to suggest that either form of aggression provides a significant advantage or disadvantage when it comes to losing, gaining or maintaining friendships over time and neither form emerged as a significant predictor of new friend's aggression. This is contrary to our hypothesis that relational aggression would be associated with more positive friendship adjustment relative to physical aggression. Our results do align with the findings of a literature review (Deptula & Cohen, 2004), which concludes that the friendships of aggressive children are comparable to those of non-aggressive children.

There were, however, notable distinctions in the main effect of aggression norms on changes in the number of friends over time. When physical aggression norms were favorable, children lost friends over time, and when relational aggression norms were favorable, children gained friends over time. This suggests that the level of acceptability of each specific form of aggression in the peer group is more predictive of friendship gains and losses than the individual's level of physical or relational aggression. Peer environments that reinforce physical aggression in particular may be more hostile, threatening and generally less conducive to friendship formation. While environments that are more accepting of relational aggression may be similarly hostile and threatening, they may support friendship formation in unanticipated ways. First, the concept of social network centrality suggests that in order to move up the social hierarchy, moderately central children will seek out friends who have the highest number of connections (e.g., friendships) with other peers in the group, and are most likely to benefit from relational aggression as a means of increasing their own centrality (Neal et al., 2007). Moderately central

children may use relational aggression tactics such as social exclusion to move away from less central peers and gain a greater number of connections and friends by association with highly connected and central peers. Second, when relational aggression norms are favorable and the risk of being relationally victimized is greater, children may be especially motivated to make more friends and create friendship alliances as a means of protection against relational victimization. However, these potential explanations are speculative and further research is needed to understand why children may gain friends in contexts favorable to relational aggression, regardless of their own level of relational aggression.

Some notable distinctions between physical and relational aggression and sex differences were found in the second study, which looked at aggression socialization between reciprocal friends. Evidence of physical aggression socialization was seen in boys only, such that boys with physically aggressive friends became more physically aggressive over time. Evidence of relational aggression socialization was seen in girls only, specifically highly relationally aggressive girls. Norms moderated this association, such that socialization was exacerbated when status norms were favorable and attenuated when status norms were unfavorable. In other words, highly relationally aggressive girls with relationally aggressive friends became even more relationally aggressive over time when relational aggression was positively associated with status, and less relationally aggressive over time when relational aggression was negatively associated with status. Youth's self-perception of status has been identified as a moderator of the association between peer status and aggression, such that levels of relational aggression are highest among high-status girls who are aware of their high status (Mayeux & Cillessen, 2008). Aggressive youth who are aware of their high status understand the protection it offers and thus

engage in aggressive behaviour knowing they are unlikely to face significant negative social consequences and as a way to intimidate others who challenge their high-status position (Mayeux & Cillessen, 2008). A study of physiological correlates of relational aggression also found that blunted physiological reactivity to relational stress (e.g., social exclusion) is positively associated with relational aggression in girls (Murray-Close et al., 2014). It is suggested that this blunted physiological reactivity may prevent some relationally aggressive girls from experiencing a normal level of negative affect in relational conflict situations (Murray-Close et al., 2014), possibly making them more callous in their interactions with others. Taken together, these factors would suggest that highly relationally aggressive girls are rather insensitive to how their behaviour may harm their victims and their friends. Nonetheless, our findings suggest that highly relationally aggressive girls are attuned to status norms and that, if the risk of peer rejection is high, this may be distressing enough to inhibit their aggressive behaviour.

The most notable distinctions between physical and relation aggression emerged when examining interactions with sex. It has been suggested that the developmental shift away from primarily physical aggression toward primarily relational aggression in middle childhood may be stronger in girls (Ingram 2014; Vaillancourt et al., 2007). Social forms of play and complex social interactions also emerge earlier in girls than in boys (Barbu et al., 2011). Developmental trajectories of physical and relational aggression show that girls are two times more likely than boys to follow a trajectory of decreasing physical aggression between the ages of 2 and 8 and increasing relational aggression between the ages of 4 and 8 (Côté et al., 2007). The authors suggest that girls and boys become increasingly different in their levels of physical and relational aggression throughout the course of middle childhood, due in part to gender-based socialization

from peers, parents and educators, but also due to boys' increasingly greater physical size and strength relative to girls. Each of the above factors may help girls to become aware early on of what form of aggressive behaviour is more adaptive and acceptable, shifting them towards primarily relational aggression sooner and to a greater degree than boys.

Finally, the fact that some statistically significant effects for residual physical and residual relational aggression emerged from the two studies in spite of the large intercorrelation between both forms suggests that – beyond the putative effects of aggression as a general construct – leaning more towards one form or the other can be both socially advantageous and disadvantageous depending on the peer context.

4.1.2 The role of norms in aggressive children's friendship experiences

Our choice to examine status norms based on social preference makes novel contributions to our understanding of norms and how they may moderate associations between aggression and children's friendship experiences. From an important study by Laninga-Wijnen and colleagues (2017), we know that popularity-based status norms regarding general aggression moderate selection and socialization processes in young adolescents. As mentioned previously, the results of the first study in the thesis indicate that status norms moderate the association between aggression and the number of reciprocal friendships children are involved in. Aggression was associated with having more friends when norms were favorable (i.e., when aggression was positively associated with social preference) and fewer friends when norms were unfavorable (i.e., when aggression was negatively associated with social preference). Like Laninga-Wijnen and colleagues (2017), we found no moderating effect of norms on friendship stability. This

suggests that whether or not an aggressive child is perceived as popular or well liked by their peers may not have a significant impact on whether that child can maintain their friendships over time. Several other factors central to the dyad, such as behavioural similarity and friendship quality, may be more important to friendship stability than group-level factors such as norms. We also found no evidence that status norms moderate children's tendency to select new friends whose aggressive behaviour is similar to their own. In contrast, Laninga-Wijnen and colleagues (2017) found that young adolescents with similar levels of aggression only tended to select one another as friends when classroom norms were favorable, that is when aggression was positively associated with popularity. This suggests that, when they are perceived as popular, aggressive adolescents may be more attracted to one another as friends than they otherwise would be. Those friendships may be more utilitarian than genuinely based on mutual liking and affection. It may be the case that status moderates friendship selection in early adolescence but not in middle childhood. Our findings indicate that children rather select new friends whose level of aggression is similar to that of their existing friends, regardless of their own level of aggressive behavior. This suggests that the friend group may provide a type of norm that is more salient to children than the norms of the larger peer group. Social identity development theory suggests that being part of a group is an integral part of children's self-concept (Nesdale & Lawson, 2011). According to the theory, children in the in-group preference phase will be concerned about maintaining their place in their group, take on the attitudes and behaviours consistent with the injunctive norms of their group, and be motivated to enhance their group's status in relation to other groups. In line with social identity development theory, our finding suggests that in middle childhood, children will seek out new friends whose behaviour resembles that of their existing friends and this in-group preference may account, in part, for similarity-based selection effects.

The results of the second study of the thesis show that norms moderate general aggression socialization among boys and relational aggression socialization among highly relationally aggressive girls. More specifically, we found that boys are susceptible to aggressive friends' influence in general and especially when norms are unfavorable (i.e., when general aggression is negatively associated with social preference) and the potential for peer rejection is high. However, relationally aggressive girls seem to be less susceptible to aggressive friends' influence when norms are unfavorable and more susceptible when norms are favorable (i.e., when relational aggression is positively associated with social preference). Our findings for relationally aggressive girls are consistent with previous research indicating that aggression socialization occurs in classrooms with moderate or high popularity norms (i.e., when aggression is positively associated with popularity) (Lanina-Wijnen et al., 2017). However, our finding that boys are especially susceptible to general aggression socialization when norms are unfavorable is in direct contrast with the results of the study by Lanina-Wijnen and colleagues (2017). The different patterns of results we find for the moderating effect of status norms in general aggression socialization in boys and in relational aggression socialization in girls suggest that children's conceptualization of status may vary by sex. For instance, boys describe being popular as being cool, athletic, funny and defiant, whereas girls describe being popular as being attractive, mean, snobby and sociable (Closson, 2009), suggesting that relational aggression or being mean may be characteristic of high status girls. This different conceptualization of status among boys and girls suggests that status-based norms may also vary greatly by sex, thus supporting our examination of sex-specific norms. Furthermore, an examination of the aggression-status link among children aged 10 to 14 indicates that both physical and relational

aggression negatively predict social preference and positively predict perceived popularity and that the magnitude of these associations change significantly from ages 10 to 14 (Cillessen & Mayeux, 2004). More specifically, the negative predictive effect of relational aggression on social preference increased in magnitude with age, whereas the positive effect of relational aggression on perceived popularity decreased with age. In comparison, the negative effect of physical aggression on social preference and the positive effect of physical aggression on perceived popularity decreased in magnitude with age. The age difference between our sample ($M_{age} = 10.32$ years) and the young adolescent sample examined by Laninga-Wijnen and colleagues (2017; $M_{age} = 12.66$ years) and potential differences in the aggression-status link at these different ages may also explain, to some degree, the different results between our studies. It is likely, therefore, that the moderating effect of status-based norms on aggression socialization varies not only by sex, by the form of aggression examined and the measure of status considered, but also by developmental stage.

In sum, the role of status norms in aggressive children's friendship experiences is not so straightforward. Our findings suggest that the normative context makes it easier or more difficult for aggressive children to make friends, but does not change whether or not aggressive children maintain their friends over time. Our findings also suggest that the normative context may exacerbate or attenuate aggression socialization only among specific subtypes of aggressive youth. Most importantly, our findings highlight the relevance of examining sex-specific norms and consider different conceptualizations of status.

4.2 Strengths, limitations and avenues for future research

The present thesis has a number of strengths. For instance, the collection of peer nominations at two time points within the same school year made it possible to examine predictive associations between the variables of interest. Analysis of residual relational and physical aggression values effectively controlled for the substantial overlap between physical and relational aggression. The use of peer nominations also minimized individual rater bias.

The present thesis also presents certain limitations. First, the concept of status varies across research disciplines. Lease and colleagues (2002) propose a multidimensional and interdisciplinary model of social status in middle childhood, integrating dimensions of likability, perceived popularity and social dominance, each emphasized, respectively, in developmental psychology, sociology and ethology. They found that fourth, fifth and sixth grade students clustered into seven subtypes of status (i.e., high status, perceived popular/ dominant, well-liked/ dominant, average, low-dominant/ unpopular, disliked and low status). Three subtypes emerged as socially central: high-status, perceived popular/ dominant and well-liked/ dominant. High status individuals, those that scored high on likability, perceived popularity and social dominance, were most central and reported as the most cool, influential and admired members of the peer group. Perceived popular/ dominant individuals, those that scored high on perceived popularity and social dominance but average on likability, scored high on indices of aggression, suggesting that they may use primarily aggressive strategies to dominate and influence others. In contrast, well-liked/ dominant individuals, those that scored high on likability and social dominance but average on perceived popularity, were reported as prosocial, fun to be with and generally likeable, suggesting that these children dominate and influence others primarily through

prosocial means. The authors conclude that integrating multiple perspectives may help achieve a better understanding of social status in peer groups. This suggests that the choice to base status norms on a single dimension of status – whether likability/ social preference or perceived popularity – is inherently limited, given that status is a dynamic and multidimensional construct. Second, the 6-month time frame may have been limiting in both studies. In the first study, this time frame may have been insufficient for new reciprocal friendships to be established in some cases. In the second study, the high stability of aggressive behaviours over this time frame left little residual variance to be explained by other study variables. Finally, having only two items to measure physical aggression and only three items to measure relational aggression may have limited construct validity and possibly contributed to some of the unexpected findings in both studies.

Despite these limitations, we believe the findings of this thesis nevertheless inspire several avenues for future research. For instance, teachers are uniquely positioned to support students' social adjustment. Greater attunement between 4th and 5th grade teachers and their students is associated with diminished social status for aggressive children (Ahn & Rodkin, 2014). It would be interesting for future studies to consider how teacher attunement to student social dynamics may influence the norms of the group as well as students' behaviour and social adjustment. Also, social identity theory suggests that group norms will have a greater impact on the attitudes and behaviour of members who identify strongly to the group (White et al., 2009). Thus, future research may consider the degree to which children feel connected and identify with their classroom-limited peer group, which may impact their willingness to conform to the norms of that group. Future studies may also examine potential underlying mechanisms through which

norms affect aggressive behaviour and friendship adjustment. While it is presumed in the present thesis that norm conformity is driven by children's desire and motivation to be liked and avoid rejection in the peer setting, children's social goals were not measured here and should be considered in future studies. Finally, the distinctions between physical and relational aggression highlighted in the present thesis suggest that primarily relationally aggressive children may be more aware or attentive to status norms relative to primarily physically aggressive children. Future studies may consider whether children who do conform to the norm of their peer group regarding aggression may be more perceptive or socially attuned than those who do not, and whether those who fail to conform may do so intentionally or perhaps due to misinterpretation or lack awareness of the normative context.

4.3 Conclusions and clinical implications

The results of the present thesis project make novel contributions to our understanding of associations between children's physical and relation aggression and their friendship experiences, as well as the moderating role of status norms on these associations.

From this body of work emerge a few key conclusions with potential clinical implications.

At the group level, intervention programs aiming to change children's attitudes towards aggression (i.e., injunctive norms) in the classroom may only be effective in specific subgroups of aggressive youth. Such programs must consider that status norms vary across different developmental stages, classrooms, forms of aggression and by sex. Highly relationally aggressive girls may stand to benefit most from targeted interventions aiming to change social norms regarding relational aggression specifically. In addition, status norms regarding physical

and relational aggression provide some indication of how conducive the social context is to positive friendship adjustment over time for all group members, regardless of individual aggressive behavior. As such, all school-aged children, including most aggressive children, stand to benefit from universal programs aiming to promote a positive school climate and friendships among peers by changing children's attitudes towards aggression, which may potentially then change status norms regarding aggression behaviour over time. Among the most effective and comprehensive prevention and intervention programs, the KiVa antibullying program (Kärnä et al., 2013) has been adapted to different developmental stages (i.e., grades 1-3, 4-6, and 7-9) and includes interventions aiming to change social norms at the school-, classroom- and individual level.

At the individual level, clinicians treating school-aged children presenting with aggressive behaviour disorders such as conduct disorder or oppositional defiant disorder would be wise to investigate the peer context in which their patient is developing. It is essential that clinicians not only inquire about the patient's aggressive behaviour, its frequency, form and intensity, but also its function, motivations and potential positive and negative social consequences in the peer context. Clinicians may question the individual's beliefs and attitudes regarding different forms of aggression and different conceptualisations of status, as well as their perceptions of the norms of their peers and friends. When status norms in the school context appear to reinforce aggression, clinicians may help patients identify with and invest in other peer contexts, such as sports teams or community groups, whose norms may favor other, more prosocial behaviours and also offer the child opportunities to make other friendship connections. Finally, clinicians, teachers and parents alike may make children aware of the fact that all members of the peer

group, including bystanders, contribute to the norms of the peer group, and that by the behaviours they reward and the friends they choose, they can ultimately help change the norms of their peer group.

In conclusion, the contributions of the present thesis can be summarized into two main points of interest. First, having examined residual physical and relational aggression and having obtained a number of significant results suggests that these two forms of aggression stand out from aggression as a general construct. Certain similarities between the two forms emerged in Study 1. Most notably, both forms of aggression can be similarly advantageous or disadvantageous depending on the social context. From both studies, we see that distinctions between physical and relational aggression emerge when examining their respective status norms and sex differences. For instance, in Study 1, status norms specific to each form of aggression predict whether or not the peer context is conducive to friendship formation, regardless of the individual's aggression. Additionally, in Study 2, a socialization effect for physical aggression is found only in boys whereas a socialization effect for relational aggression is found only in a subgroup of girls. Second, the decision to examine status norms based on social preference is a notable contribution to the research literature on status norms regarding aggression. From both studies, we gather that the moderating role of status norms on associations between aggression and friendship experiences is not straightforward. The results of Study 1 demonstrate that the normative context can facilitate or inhibit friendship formation for aggressive children, but is unrelated to friendship stability over time. Furthermore, from the results of Study 2, we see that the normative context can exacerbate or attenuate aggression socialization, although only among certain subgroups of children. Most importantly, the findings from both studies highlight the

relevance of examining sex-specific status norms and of considering social preference as an indicator of social status Finally, differences between the results of these two studies and those of previous studies may be explained, to some extent, by different conceptualizations of status as well as differences in the aggression-status link across different developmental stages.

APPENDIX A
INFORMATION AND CONSENT FORMS

**FORMULAIRE DE CONSENTEMENT
RECHERCHE SUR L'ADAPTATION PSYCHOSOCIALE À L'ENFANCE ET LES RELATIONS D'AMITIÉ**

Chers parents,

Nous poursuivons pour la 2^e année un projet de recherche sur l'adaptation psychosociale et sur les relations d'amitié chez les jeunes de 4^e, 5^e et 6^e années. Ce projet est dirigé par trois chercheurs du Centre de recherche Fernand-Seguin (Lyse Turgeon, André Marchand et Frank Vitaro). Il a été approuvé par le directeur général adjoint de la Commission scolaire de la Pointe-de-l'Île, par le Conseil d'établissement et par la direction de l'école que votre enfant fréquente.

Ce projet comporte 2 objectifs distincts :

- 1) Mieux décrire l'état de la situation en ce qui a trait au bien-être psychologique des enfants de 9 à 12 ans dans une perspective développementale et mieux comprendre le rôle des relations d'amitié sur le plan de la santé psychologique des enfants de cet âge.
- 2) Vérifier l'efficacité des ateliers de gestion de l'anxiété que nous avons mis sur pied à l'intention des familles et examiner comment les enfants de 9 à 12 ans s'adaptent à certains événements de vie et parviennent à faire face aux difficultés qu'ils rencontrent.

Voici les 2 étapes du projet :

Le fait de participer à l'étape 1 ne vous engage pas nécessairement à participer à l'étape 2.

1) LES QUESTIONNAIRES EN CLASSE

Nous allons dans les classes pour administrer une série de questionnaires aux enfants durant 2 périodes consécutives cet automne et 2 autres périodes au printemps, selon un horaire convenu avec les enseignantes. Ces questionnaires portent sur les relations sociales, les habitudes de vie, l'estime de soi, les réactions anxieuses, etc. Les données recueillies sont strictement confidentielles et servent uniquement aux fins du présent projet. Un des questionnaires nous permet d'avoir un aperçu des enfants qui présentent un niveau d'anxiété un peu plus élevé que chez les autres enfants.

2) L'APPEL DES PARENTS

a) Nous appellerons seulement les parents des enfants pré-sélectionnés (environ 20%) pour leur expliquer la suite du projet et voir si c'est possible de les rencontrer à domicile afin de vérifier plus en profondeur s'ils sont éligibles pour participer à la suite du projet.

b) Nous offrirons à un certain nombre de familles des ateliers gratuits axés sur l'apprentissage de nouvelles façons de gérer le stress. Cette intervention d'une durée de 10 semaines débutera en janvier 2000. Elle aura lieu en dehors des périodes de classe, au Centre Fernand-Seguin. Les ressources étant limitées, les ateliers ne peuvent être offerts à toutes les familles. Les familles qui participeront aux ateliers seront choisies par tirage au sort. Les autres familles participeront à des rencontres d'évaluation.

N.B. Nous aurions besoin de votre permission pour obtenir le code permanent de votre enfant auprès de la direction de l'école. Si c'est possible, nous souhaiterions faire un suivi jusqu'à la fin du primaire à raison de 2 périodes au printemps à chaque année.

ÉCOLE FRANÇOIS LA BERNARDE

S.V.P. VEUILLEZ COMPLÉTER ET REMETTRE CE FORMULAIRE À VOTRE ENFANT QUE
VOTRE RÉPONSE SOIT OUI OU NON (en lettres moulées s.v.p.)

Nom de l'élève : _____ Classe : _____

Nom du parent: _____

Signature _____

Date : 4 SEPT. 99

NOUS VOUS DEMANDONS S.V.P. DE RÉPONDRE AUX 3 QUESTIONS SUIVANTES :

1) Les questionnaires en classe

J'accepte OU Je refuse
que mon enfant complète des questionnaires en classe.

2) L'appel des parents

J'accepte OU Je refuse
que vous m'appeliez pour me parler de la suite du projet s'il y a lieu. Nous appellerons environ 20% des parents. Vous serez tout à fait libre de participer.

Voici mon numéro de téléphone : _____

3) Le code permanent

J'accepte OU Je refuse
que vous demandiez le code permanent de mon enfant à la direction de l'école.

APPENDIX B
ETHICS CERTIFICATE



No. de certificat : 2022-4605
Date : 2022-02-04

CERTIFICAT D'APPROBATION ÉTHIQUE

Le Comité d'éthique de la recherche pour les projets étudiants impliquant des êtres humains (CERPE FSH) a examiné le projet de recherche suivant et le juge conforme aux pratiques habituelles ainsi qu'aux normes établies par la *Politique No 54 sur l'éthique de la recherche avec des êtres humains* (avril 2020) de l'UQAM.

Titre du projet : Amitié et agressivité physique et relationnelle à l'enfance: un examen du rôle modérateur des normes sociales entre pairs

Nom de l'étudiant : Stéphanie Correia

Programme d'études : Doctorat en psychologie

Direction(s) de recherche : Mara Rosemarie Brendgen

Modalités d'application

Toute modification au protocole de recherche en cours de même que tout événement ou renseignement pouvant affecter l'intégrité de la recherche doivent être communiqués rapidement au comité.

La suspension ou la cessation du protocole, temporaire ou définitive, doit être communiquée au comité dans les meilleurs délais.

Le présent certificat est valide pour une durée d'un an à partir de la date d'émission. Au terme de ce délai, un rapport d'avancement de projet doit être soumis au comité, en guise de rapport final si le projet est réalisé en moins d'un an, et en guise de rapport annuel pour le projet se poursuivant sur plus d'une année au plus tard un mois avant la date d'échéance (**2023-02-04**) de votre certificat. Dans ce dernier cas, le rapport annuel permettra au comité de se prononcer sur le renouvellement du certificat d'approbation éthique.

A handwritten signature in black ink, appearing to read 'Sylvie Lévesque'.

Sylvie Lévesque
Professeure, Département de sexologie
Présidente du CERPE FSH

APPENDIX C

MEASUREMENT INSTRUMENTS

PEI

LES PERCEPTIONS DES ENFANTS DE LA CLASSE

DIRECTIVES

Indique le numéro des quatre enfants de la classe qui correspondent le mieux à chaque description. Le numéro des enfants de la classe se trouve sur la feuille avec les noms.

LES AUTRES

1. Ceux ou celles qui sont plus grands-es que les autres.				
2. Ceux ou celles qui sont trop gênés-es pour se faire des amis-es facilement.				
3. Ceux ou celles qui encouragent les autres enfants à s'en prendre à quelqu'un qu'ils-elles n'aiment pas (par des paroles ou des gestes).				
4. Ceux ou celles qui se sentent trop facilement blessés-es et qui sont faciles à faire pleurer.				
5. Ceux ou celles qui commencent une bataille à propos de rien.				
6. Ceux ou celles que tout le monde aime.				
7. Ceux ou celles qui disent des choses méchantes dans le dos des autres.				
8. Ceux ou celles qui rient des autres (les ridiculisent).				
9. Ceux ou celles qui ont très peu d'amis-es.				
10. Ceux ou celles qui dérangent les gens qui essaient de travailler.				

LES AUTRES

11. Ceux ou celles qui ne portent pas attention au professeur ou qui ne l'écoutent pas.				
12. Ceux ou celles qui sont malheureux-euses ou tristes.				
13. Ceux ou celles avec qui tu aimes <u>le plus</u> jouer ou faire une activité agréable.				
14. Ceux ou celles qui souvent ne veulent pas jouer.				
15. Ceux ou celles qui disent qu'ils-elles peuvent battre tout le monde.				
16. Ceux ou celles que l'on ne remarque pas beaucoup ou qui sont seuls-es dans leur coin.				
17. Ceux ou celles qui exagèrent et qui racontent des histoires.				
18. Ceux ou celles dont tout le monde se moque.				
19. Ceux ou celles qui se plaignent toujours et qui ne sont jamais contents-es ou qui sont chialeux-euses.				
20. Ceux ou celles qui semblent toujours bien comprendre ce qui se passe.				
21. Ceux ou celles avec qui tu aimes <u>le moins</u> jouer ou faire une activité agréable.				
22. Ceux ou celles qui agissent comme des bébés.				
23. Ceux ou celles qui trichent.				
24. Ceux ou celles qui disent des mensonges.				
25. Ceux ou celles qui sont tes meilleurs-es amis-es.				

LES AUTRES

26. Ceux ou celles qui se font bousculer ou frapper par les autres.				
27. Ceux ou celles qui n'étudient pas beaucoup.				
28. Ceux ou celles qui se font le plus disputer (chicaner) par le professeur.				
29. Ceux ou celles qui se font le plus exploiter et dominer par les autres.				
30. Ceux ou celles qui n'aiment pas parler en public devant la classe.				

Note: Physical aggression scores were derived from items 5 and 15. Relational aggression scores were derived from items 3, 7 and 8. Social preference scores were derived from items 13 and 21.

REFERENCES

- Ahn, H. J., & Rodkin, P. C. (2014). Classroom-level predictors of the social status of aggression: Friendship centralization, friendship density, teacher–student attunement, and gender. *Journal of Educational Psychology, 106*(4), 1144-1155. <https://doi.org/10.1037/a0036091>
- Allen, J. J., & Anderson, C. A. (2017). Aggression and violence: Definitions and distinctions. In P. Sturney (Ed.), *The Wiley Handbook of Violence and Aggression* (pp. 1-14). Wiley-Blackwell.
- Andreou, E. (2006). Social preference, perceived popularity and social intelligence: Relations to overt and relational aggression. *School Psychology International, 27*(3), 339-351. <https://doi.org/10.1177%2F0143034306067286>
- Andrews, N. C. Z. , Hanish, L. D., DeLay, D., Martin, C. L., & Updegraff, K. A. (2017). Relations between close friendships and adolescent aggression: Structural and behavioral friendship features. *Social Development, 27*(2), 293-307. <https://doi.org/10.1111/sode.12277>
- Archer, J. (2004). Sex differences in aggression in real-world settings: A meta-analytic review. *Review of General Psychology, 8*(4), 291-322. <https://doi.org/10.1037/1089-2680.8.4.291>
- Archer, J., & Coyne, S. M. (2005). An integrated review of indirect, relational, and social aggression. *Personality and Social Psychology review, 9*(3), 212-230. https://doi.org/10.1207/s15327957pspr0903_2
- Bagwell, C. L., & Bukowski, W. M. (2018). *Friendship in childhood and adolescence: Features, effects, and processes*. In W. M. Bukowski, B. Laursen, & K. H. Rubin (Eds.), *Handbook of peer interactions, relationships, and groups* (p. 371–390). The Guilford Press.

- Banny, A. M., Heilbron, N., Ames, A., & Prinstein, M. J. (2011). Relational benefits of relational aggression: Adaptive and maladaptive associations with adolescent friendship quality. *Developmental Psychology*, 47(4), 1153-1166.
<https://doi.apa.org/doi/10.1037/a0022546>
- Barbu, S., Cabanes, G., & Le Maner-Idrissi, G. (2011). Boys and girls on the playground: sex differences in social development are not stable across early childhood. *Plos one*, 6(1), e16407. <https://doi.org/10.1371/journal.pone.0016407>
- Baumeister, R. F., & Leary, M. R. (1995). The need to belong: Desire for interpersonal attachments as a fundamental human motivation. *Psychological Bulletin*, 117(3), 497-529.
- Benenson, J. F., & Christakos, A. (2003). The greater fragility of females' versus males' closest same-sex friendships. *Child Development*, 74(4), 1123-1129. <https://doi.org/10.1111/1467-8624.00596>
- Benenson, J. F., Markovits, H., Thompson, M. E., & Wrangham, R. W. (2011). Under threat of social exclusion, females exclude more than males. *Psychological Science*, 22(4), 538-544.
<https://doi.org/10.1177/0956797611402511>
- Berndt, T. J., & Keefe, K. (1995). Friends' influence on adolescents' adjustment to school. *Child Development*, 66(5), 1312-1329. <https://doi.org/10.1111/j.1467-8624.1995.tb00937.x>
- Bjorklund, D. F., & Hawley, P. H. (2014). Aggression grows up: Looking through an evolutionary developmental lens to understand the causes and consequences of human aggression. In T. K. Shackelford & R. D. Hansen (Eds.), *The Evolution of Violence* (pp. 159-186). Springer New York.
- Björkqvist, K., Lagerspetz, K. M., & Kaukiainen, A. (1992). Do girls manipulate and boys fight? Developmental trends in regard to direct and indirect aggression. *Aggressive Behavior*,

18(2), 117-127. [https://doi.org/10.1002/1098-2337\(1992\)18:2<117::AID-AB2480180205>3.0.CO;2-3](https://doi.org/10.1002/1098-2337(1992)18:2<117::AID-AB2480180205>3.0.CO;2-3)

- Bowker, J. C. W., Rubin, K. H., Burgess, K. B., Booth-LaForce, C., & Rose-Krasnor, L. (2006). Behavioral characteristics associated with stable and fluid best friendship patterns in middle childhood. *Merrill-Palmer Quarterly* 52(4), 671-693.
<https://www.jstor.org/stable/23096029>
- Boxer, P., Tisak, M. S., & Goldstein, S. E. (2004). Is it bad to be good? An exploration of aggressive and prosocial behavior subtypes in adolescence. *Journal of Youth and Adolescence*, 33(2), 91-100. <https://doi.org/10.1023/B:JOYO.0000013421.02015.ef>
- Brechwald, W. A., & Prinstein, M. J. (2011). Beyond homophily: A decade of advances in understanding peer influence processes. *Journal of Research on Adolescence*, 21(1), 166-179. <https://doi.org/10.1111/j.1532-7795.2010.00721.x>
- Brendgen, M., Boivin, M., Vitaro, F., Bukowski, W. M., Dionne, G., Tremblay, R. E., & Pérusse, D. (2008). Linkages between children's and their friends' social and physical aggression: evidence for a gene–environment interaction?. *Child Development*, 79(1), 13-29. <https://doi.org/10.1111/j.1467-8624.2007.01108.x>
- Brendgen, M., Dionne, G., Girard, A., Boivin, M., Vitaro, F., & Pérusse, D. (2005). Examining genetic and environmental effects on social aggression: A study of 6-year-old twins. *Child Development*, 76(4), 930-946. <https://doi.org/10.1111/j.1467-8624.2005.00887.x>
- Brendgen, M., Girard, A., Vitaro, F., Dionne, G., & Boivin, M. (2013). Do peer group norms moderate the expression of genetic risk for aggression?. *Journal of Criminal Justice*, 41(5), 324-330. <https://doi.org/10.1016/j.jcrimjus.2013.06.004>

- Brendgen, M., Girard, A., Vitaro, F., Dionne, G., & Boivin, M. (2015). Gene-environment correlation linking aggression and peer victimization: do classroom behavioral norms matter?. *Journal of Abnormal Child Psychology*, *43*(1), 19-31.
<https://doi.org/10.1007/s10802-013-9807-z>
- Bukowski, W. M., Gauze, C., Hoza, B., & Newcomb, A. F. (1993). Differences and consistency between same-sex and other-sex peer relationships during early adolescence. *Developmental Psychology*, *29*(2), 255-263. <https://doi.org/10.1037/0012-1649.29.2.255>
- Bukowski, W. M., Hoza, B., & Boivin, M. (1994). Measuring friendship quality during pre- and early adolescence: The development and psychometric properties of the friendship qualities scale. *Journal of Social and Personal Relationships*, *11*(3), 471-484.
<https://doi.org/10.1177/0265407594113011>
- Bukowski, W. M., Newcomb, A. F., & Hartup, W. W. (1996). Friendship and its significance in childhood and adolescence. In W. M. Bukowski, A. F. Newcomb, & W. W. Hartup (Eds.), *The company they keep: Friendship in childhood and adolescence* (pp. 1-15). New York, NY: Cambridge University Press.
- Burt, S. A., Donnellan, M. B., & Tackett, J. L. (2012). Should social aggression be considered “antisocial”? *Journal of Psychopathology and Behavioral Assessment*, *34*(2), 153-163.
<https://doi.org/10.1007/s10862-011-9267-0>
- Byrne, D. (1997). An overview (and underview) of research and theory within the attraction paradigm. *Journal of Social and Personal Relationships*, *14*(3), 417-431.
<https://doi.org/10.1177/0265407597143008>

- Cairns, R. B., Cairns, B. D., Neckerman, H. J., Gest, S. D., & Garipey, J. L. (1988). Social networks and aggressive behavior: Peer support or peer rejection?. *Developmental Psychology*, 24(6), 815-823. <https://doi.org/10.1037/0012-1649.24.6.815>
- Card, N. A., & Hodges, E. V. (2006). Shared targets for aggression by early adolescent friends. *Developmental Psychology*, 42(6), 1327-1338. <https://doi.org/10.1037/0012-1649.42.6.1327>
- Card, N. A., Stucky, B. D., Sawalani, G. M., & Little, T. D. (2008). Direct and indirect aggression during childhood and adolescence: A meta-analytic review of gender differences, intercorrelations, and relations to maladjustment. *Child Development*, 79(5), 1185-1229. <https://doi.org/10.1111/j.1467-8624.2008.01184.x>
- Carr, A. (2011). Social and emotional development in middle childhood. In D. Skuse, H. Bruce, L. Dowdney, & D. Mrasek Eds.), *Child Psychology and Psychiatry* (pp. 56-61). Oxford, United Kingdom: Wiley-Blackwell.
- Chan, A., & Poulin, F. (2007). Monthly changes in the composition of friendship networks in early adolescence. *Merrill-Palmer Quarterly*, 53(4), 578-602. <https://doi.org/10.1353/mpq.2008.0000>
- Cialdini, R. B., & Goldstein, N. J. (2004). Social influence: Compliance and conformity. *Annual Review of Psychology*, 55, 591-621. <https://doi.org/10.1146/annurev.psych.55.090902.142015>
- Cialdini, R. B., Kallgren, C. A., & Reno, R. R. (1991). A focus theory of normative conduct: A theoretical refinement and re-evaluation of the role of norms in human behavior. *Advances in Experimental Social Psychology*, 24, 201-234. [https://doi.org/10.1016/S0065-2601\(08\)60330-5](https://doi.org/10.1016/S0065-2601(08)60330-5)

- Cialdini, R. B., Reno, R. R., & Kallgren, C. A. (1990). A focus theory of normative conduct: Recycling the concept of norms to reduce littering in public places. *Journal of Personality and Social Psychology*, *58*(6), 1015–1026. <https://doi.org/10.1037/0022-3514.58.6.1015>
- Cillessen, A. H. N., & Marks, P. E. L. (2011). Conceptualizing and measuring popularity. In A. H. N. Cillessen, D. Schwartz, & L. Mayeux (Eds.), *Popularity in the peer system* (p. 25–56). New York, NY: The Guilford Press.
- Cima, M., & Raine, A. (2009). Distinct characteristics of psychopathy relate to different subtypes of aggression. *Personality and Individual Differences*, *47*(8), 835-840. <https://doi.org/10.1016/j.paid.2009.06.031>
- Cleverley, K., Szatmari, P., Vaillancourt, T., Boyle, M., & Lipman, E. (2012). Developmental trajectories of physical and indirect aggression from late childhood to adolescence: sex differences and outcomes in emerging adulthood. *Journal of the American Academy of Child & Adolescent Psychiatry*, *51*(10), 1037-1051. <https://doi.org/10.1016/j.jaac.2012.07.010>
- Closson, L. M. (2009). Status and gender differences in early adolescents' descriptions of popularity. *Social Development*, *18*(2), 412-426. <https://doi.org/10.1111/j.1467-9507.2008.00459.x>
- Coie, J. D., Dodge, K. A., & Coppotelli, H. (1982). Dimensions and types of social status: A cross-age perspective. *Developmental Psychology*, *18*(4), 557-570. <https://doi.org/10.1037/0012-1649.18.4.557>
- Correia, S., Brendgen, M., Turgeon, L., & Vitaro, F. (2021). Physical and relational aggression as predictors of children's friendship experiences: Examining the moderating role of preference norms. *Aggressive Behavior*, *47*(4), 453-463. <https://doi.org/10.1002/ab.21963>

- Correia, S., Brendgen, M., & Vitaro, F. (2022). The role of norm salience in aggression socialization among friends: Distinctions between physical and relational aggression. *International Journal of Behavioral Development, 46*(5), 390-400. <https://doi.org/10.1177/0165025419854133>
- Côté, S. M., Vaillancourt, T., Barker, E. D., Nagin, D., & Tremblay, R. E. (2007). The joint development of physical and indirect aggression: Predictors of continuity and change during childhood. *Development and Psychopathology, 19*(1), 37-55. <https://doi.org/10.1017/S0954579407070034>
- Côté, S., Vaillancourt, T., LeBlanc, J. C., Nagin, D. S., & Tremblay, R. E. (2006). The development of physical aggression from toddlerhood to pre-adolescence: A nation wide longitudinal study of Canadian children. *Journal of Abnormal Child Psychology, 34*(1), 68-82. <https://doi.org/10.1007/s10802-005-9001-z>
- Coyne, S. M., Archer, J., & Eslea, M. (2006). “We're not friends anymore! Unless...”: The frequency and harmfulness of indirect, relational, and social aggression. *Aggressive Behavior, 32*(4), 294-307. <https://doi.org/10.1002/ab.20126>
- Crick, N. R. (1997). Engagement in gender normative versus nonnormative forms of aggression: Links to social-psychological adjustment. *Developmental Psychology, 33*(4), 610-617. <https://doi.org/10.1037/0012-1649.33.4.610>
- Crick, N. R., & Grotpeter, J. K. (1995). Relational aggression, gender, and social-psychological adjustment. *Child Development, 66*(3), 710-722. <https://doi.org/10.1111/j.1467-8624.1995.tb00900.x>
- Crick, N. R., Grotpeter, J. K., & Bigbee, M. A. (2002). Relationally and physically aggressive children's intent attributions and feelings of distress for relational and instrumental peer

provocations. *Child Development*, 73, 1134-1142. <https://doi.org/10.1111/1467-8624.00462>

Crick, N. R., Murray-Close, D., Marks, P., & Mohajeri-Nelson, N. (2009). Aggression and peer relationships in school-aged children: Relational and physical aggression in group and dyadic contexts. In K. Rubin, W. Bukowski, & Laursen, B, Eds. *Handbook of Peer Interactions, Relationships and Groups, First Edition*. Guildford Press: New York.

Crick, N. R., & Rose, A. J. (2000). Toward a gender-balanced approach to the study of social-emotional development: A look at relational aggression. In P. H. Miller & E. Kofsky Scholnick (Eds.), *Toward a feminist developmental psychology* (pp. 153–168). Taylor & Frances/Routledge.

Deptula, D. P., & Cohen, R. (2004). Aggressive, rejected, and delinquent children and adolescents: A comparison of their friendships. *Aggression and Violent Behavior*, 9(1), 75-104. [https://doi.org/10.1016/S1359-1789\(02\)00117-9](https://doi.org/10.1016/S1359-1789(02)00117-9)

Dijkstra, J. K., Berger, C., & Lindenberg, S. (2011). Do physical and relational aggression explain adolescents' friendship selection? The competing roles of network characteristics, gender, and social status. *Aggressive Behavior*, 37(5), 417-429.

<https://doi.org/10.1002/ab.20402>

Dionne, G., Tremblay, R., Boivin, M., Laplante, D., & Perusse, D. (2003). Physical aggression and expressive vocabulary in 19-month-old twins. *Developmental Psychology*, 39(2), 261-273. [https://doi.org/10.1016/S1359-1789\(02\)00117-9](https://doi.org/10.1016/S1359-1789(02)00117-9)

Dishion, T. J., Patterson, G. R., Stoolmiller, M., & Skinner, M. L. (1991). Family, school, and behavioral antecedents to early adolescent involvement with antisocial peers.

Developmental Psychology, 27(1), 172-180. <https://doi.org/10.1037/0012-1649.27.1.172>

- Ellis, W. E., & Zarbatany, L. (2007). Explaining friendship formation and friendship stability: The role of children's and friends' aggression and victimization. *Merrill-Palmer Quarterly*, 53(1), 79-104. <https://doi.org/10.1353/mpq.2007.0001>
- Ettekal, I., & Ladd, G. W. (2015). Costs and benefits of children's physical and relational aggression trajectories on peer rejection, acceptance, and friendships: Variations by aggression subtypes, gender, and age. *Developmental Psychology*, 51(12), 1756-1770. <https://doi.org/10.1037/dev0000057>
- Farmer, T. W., & Xie, H. (2007). Aggression and school social dynamics: The good, the bad, and the ordinary. *Journal of School Psychology*, 45(5), 461-478. <https://doi.org/10.1016/j.jsp.2007.06.008>
- Farmer, T. W., Farmer, E. M., Estell, D. B., & Hutchins, B. C. (2007). The developmental dynamics of aggression and the prevention of school violence. *Journal of Emotional and Behavioral Disorders*, 15(4), 197-208. <https://doi.org/10.1177/10634266070150040201>
- Foster, E. M., Jones, D. E., & Conduct Problems Prevention Research Group. (2005). The high costs of aggression: Public expenditures resulting from conduct disorder. *American Journal of Public Health*, 95(10), 1767-1772. <https://doi.org/10.2105/AJPH.2004.061424>
- Gaffney, H., Farrington, D. P., & Ttofi, M. M. (2019). Examining the effectiveness of school-bullying intervention programs globally: A meta-analysis. *International Journal of Bullying Prevention*, 1(1), 14-31. <https://doi.org/10.1007/s42380-019-0007-4>
- Garandau, C. F., & Cillessen, A. H. (2006). From indirect aggression to invisible aggression: A conceptual view on bullying and peer group manipulation. *Aggression and violent behavior*, 11(6), 612-625. <https://doi.org/10.1016/j.avb.2005.08.005>

- Gerber, J., & Wheeler, L. (2009). On being rejected: A meta-analysis of experimental research on rejection. *Perspectives on Psychological Science*, 4(5), 468-488.
<https://doi.org/10.1111/j.1745-6924.2009.01158.x>
- Gifford-Smith, M. E., & Brownell, C. A. (2003). Childhood peer relationships: Social acceptance, friendships, and peer networks. *Journal of School Psychology*, 41(4), 235-284.
[https://doi.org/10.1016/S0022-4405\(03\)00048-7](https://doi.org/10.1016/S0022-4405(03)00048-7)
- Giles, J. W., & Heyman, G. D. (2005). Young children's beliefs about the relationship between gender and aggressive behavior. *Child Development*, 76(1), 107-121.
<https://doi.org/10.1111/j.1467-8624.2005.00833.x>
- Gommans, R., & Cillessen, A. H. (2015). Nominating under constraints: A systematic comparison of unlimited and limited peer nomination methodologies in elementary school. *International Journal of Behavioral Development*, 39(1), 77-86.
<https://doi.org/10.1177/0165025414551761>
- Grotzinger, J. K., & Crick, N. R. (1996). Relational aggression, overt aggression, and friendship. *Child Development*, 67(5), 2328-2338. <https://doi.org/10.2307/1131626>
- Hartup, W. W. (1984). The peer context in middle childhood. In W. A. Collins (Ed.), *Development in Middle Childhood: The Years From Six to Twelve* (pp. 240-282). National Academy Press.
- Hartup, W. W., & Stevens, N. (1997). Friendships and adaptation in the life course. *Psychological Bulletin*, 121(3), 355-370. <https://doi.org/10.1037/0033-2909.121.3.355>
- Hawley, P. H. (1999). The ontogenesis of social dominance: A strategy-based evolutionary perspective. *Developmental Review*, 19(1), 97-132. <https://doi.org/10.1006/drev.1998.0470>

- Hawley, P. H., & Bowker, A. R. (2018). Evolution and peer relations: Considering the functional roles of aggression and prosociality. In W. M. Bukowski, B. Laursen, & K. H. Rubin (Eds.), *Handbook of peer interactions, relationships, and groups* (p. 106–122). The Guilford Press.
- Hawley, P. H., Little, T. D., & Card, N. A. (2007). The allure of a mean friend: Relationship quality and processes of aggressive adolescents with prosocial skills. *International Journal of Behavioral Development, 31*(2), 170-180. <https://doi.org/10.1177/0165025407074630>
- Hay, D. F., Nash, A., Caplan, M., Swartzentruber, J., Ishikawa, F., & Vespo, J. E. (2011). The emergence of gender differences in physical aggression in the context of conflict between young peers. *British Journal of Developmental Psychology, 29*(2), 158-175. <https://doi.org/10.1111/j.2044-835X.2011.02028.x>
- Heilbron, N., & Prinstein, M. J. (2008). A review and reconceptualization of social aggression: Adaptive and maladaptive correlates. *Clinical Child and Family Psychology Review, 11*(4), 176-217. <https://doi.org/10.1007/s10567-008-0037-9>
- Hektner, J. M., August, G. J., & Realmuto, G. M. (2000). Patterns and temporal changes in peer affiliation among aggressive and nonaggressive children participating in a summer school program. *Journal of Clinical Child Psychology, 29*(4), 603-614. https://doi.org/10.1207/S15374424JCCP2904_12
- Henry, D., Guerra, N., Huesmann, R., Tolan, P., VanAcker, R., & Eron, L. (2000). Normative influences on aggression in urban elementary school classrooms. *American Journal of Community Psychology, 28*(1), 59-81. <https://doi.org/10.1023/A:1005142429725>

- Hodges, E. V., Malone, M. J., & Perry, D. G. (1997). Individual risk and social risk as interacting determinants of victimization in the peer group. *Developmental Psychology*, 33(6), 1032-1039. <https://doi.org/10.1037/0012-1649.33.6.1032>
- Huesmann, L. R., Dubow, E. F., & Boxer, P. (2009). Continuity of aggression from childhood to early adulthood as a predictor of life outcomes: Implications for the adolescent-limited and life-course-persistent models. *Aggressive Behavior*, 35(2), 136-149. <https://doi.org/10.1002/ab.20300>
- Ingram, G. P. (2014). From hitting to tattling to gossip: An evolutionary rationale for the development of indirect aggression. *Evolutionary Psychology*, 12(2), 343-363. <https://doi.org/10.1177/147470491401200205>
- Jambon, M., Madigan, S., Plamondon, A., & Jenkins, J. (2019). Developmental trajectories of physical aggression and prosocial behavior in early childhood: Family antecedents and psychological correlates. *Developmental Psychology*, 55(6), 1211-1225. <https://doi.org/10.1037/dev0000714>
- Kallgren, C. A., Reno, R. R., & Cialdini, R. B. (2000). A focus theory of normative conduct: When norms do and do not affect behavior. *Personality and Social Psychology Bulletin*, 26(8), 1002-1012. <https://doi.org/10.1177/01461672002610009>
- Kärnä, A., Voeten, M., Little, T. D., Alanen, E., Poskiparta, E., & Salmivalli, C. (2013). Effectiveness of the KiVa anti-bullying program: grades 1–3 and 7–9. *Journal of Educational Psychology*, 105(2), 535–551. <https://doi.org/10.1037/a0030417>.
- Kaukiainen, A., Björkqvist, K., Lagerspetz, K., Österman, K., Salmivalli, C., Rothberg, S., & Ahlbom, A. (1999). The relationships between social intelligence, empathy, and three types of aggression. *Aggressive Behavior*, 25(2), 81-89.

[https://doi.org/10.1002/\(SICI\)1098-2337\(1999\)25:2<81::AID-AB1>3.0.CO;2-M](https://doi.org/10.1002/(SICI)1098-2337(1999)25:2<81::AID-AB1>3.0.CO;2-M)

Kawabata, Y., Alink, L. R., Tseng, W. L., Van Ijzendoorn, M. H., & Crick, N. R. (2011).

Maternal and paternal parenting styles associated with relational aggression in children and adolescents: A conceptual analysis and meta-analytic review. *Developmental Review*, 31(4), 240-278. <https://doi.org/10.1016/j.dr.2011.08.001>

Kerig, P. K., & Stellwagen, K. K. (2010). Roles of callous-unemotional traits, narcissism, and Machiavellianism in childhood aggression. *Journal of Psychopathology and Behavioral Assessment*, 32(3), 343-352. <https://doi.org/10.1007/s10862-009-9168-7>

Knecht, A., Snijders, T. A., Baerveldt, C., Steglich, C. E., & Raub, W. (2010). Friendship and delinquency: Selection and influence processes in early adolescence. *Social Development*, 19(3), 494-514. <https://doi.org/10.1111/j.1467-9507.2009.00564.x>

Ladd, G. W. (1999). Peer relationships and social competence during early and middle childhood. *Annual Review of Psychology*, 50(1), 333-359. <https://doi.org/10.1146/annurev.psych.50.1.333>

Ladd, G. W. (2003). Probing the Adaptive Significance of Children's Behavior and Relationships in the School Context: A Child by Environment Perspective. In R. V. Kail (Ed.), *Advances in child development and behavior*, Vol. 31 (p. 43–104). Academic Press.

Laniga - Wijnen, L., Harakeh, Z., Steglich, C., Dijkstra, J. K., Veenstra, R., & Vollebergh, W. (2017). The norms of popular peers moderate friendship dynamics of adolescent aggression. *Child Development*, 88(4), 1265-1283. <https://doi.org/10.1111/cdev.12650>

Laniga-Wijnen, L., Ryan, A. M., Harakeh, Z., Shin, H., & Vollebergh, W. A. (2018). The moderating role of popular peers' achievement goals in 5th-and 6th-graders' achievement-related friendships: A social network analysis. *Journal of Educational Psychology*, 110(2),

289-307. <https://doi.org/10.1037/edu0000210>

Laninga-Wijnen, L., Steglich, C., Harakeh, Z., Vollebergh, W., Veenstra, R., & Dijkstra, J. K. (2020). The role of prosocial and aggressive popularity norm combinations in prosocial and aggressive friendship processes. *Journal of Youth and Adolescence*, *49*(3), 645-663.

<https://doi.org/10.1007/s10964-019-01088-x>

Latané, B. (1981). The psychology of social impact. *American Psychologist*, *36*(4), 343-356.

<https://doi.org/10.1037/0003-066X.36.4.343>

Laursen, B. (2018). Peer influence. In W. M. Bukowski, B. Laursen, & K. H. Rubin (eds.)

Handbook of peer interactions, relationships, and groups (pp. 45-63). New York, NY: Guilford.

Lease, A. M., Musgrove, K. T., & Axelrod, J. L. (2002). Dimensions of social status in preadolescent peer groups: Likability, perceived popularity, and social dominance. *Social Development*, *11*(4), 508-533. <https://doi.org/10.1111/1467-9507.00213>

Lee, K. H., Baillargeon, R. H., Vermunt, J. K., Wu, H. X., & Tremblay, R. E. (2007). Age differences in the prevalence of physical aggression among 5–11-year-old Canadian boys and girls. *Aggressive Behavior*, *33*(1), 26-37. <https://doi.org/10.1002/ab.20164>

Lee, L., Howes, C., & Chamberlain, B. (2007). Ethnic heterogeneity of social networks and crossethnic friendships of elementary school boys and girls. *Merrill–Palmer Quarterly*, *53*(3), 325–346. <https://doi.org/10.1353/mpq.2007.0016>

Li, Y., & Wright, M. F. (2014). Adolescents' social status goals: Relationships to social status insecurity, aggression, and prosocial behavior. *Journal of Youth and Adolescence*, *43*(1), 146-160. <https://doi.org/10.1007/s10964-013-9939-z>

- Li, Y., and Wright, M. F. (2013). Adolescents' social status goals: relationship to social status insecurity and behaviors. *Journal of Youth and Adolescence*, 42(1), 662–674.
<https://doi.org/10.1007/s10964-013-9939-z>
- Maas, C. J., & Hox, J. J. (2004). Robustness issues in multilevel regression analysis. *Statistica Neerlandica*, 58(2), 127-137. <https://doi.org/10.1046/j.0039-0402.2003.00252.x>
- Mayeux, L., & Cillessen, A. H. (2008). It's not just being popular, it's knowing it, too: The role of self-perceptions of status in the associations between peer status and aggression. *Social Development*, 17(4), 871-888. <https://doi.org/10.1111/j.1467-9507.2008.00474.x>
- McDonald, K. L., Wang, J., Menzer, M. M., Rubin, K. H., & Booth-LaForce, C. (2011). Prosocial behavior moderates the effects of aggression on young adolescents' friendships. *International Journal of Developmental Science*, 5, 127-137. doi: 10.3233/DEV-2011-10066
- Molloy, L. E., Gest, S. D., Feinberg, M. E., & Osgood, D. W. (2014). Emergence of mixed-sex friendship groups during adolescence: Developmental associations with substance use and delinquency. *Developmental Psychology*, 50(11), 2449-2461.
<https://doi.org/10.1037/a0037856>
- Moore, S. E., Norman, R. E., Suetani, S., Thomas, H. J., Sly, P. D., & Scott, J. G. (2017). Consequences of bullying victimization in childhood and adolescence: A systematic review and meta-analysis. *World Journal of Psychiatry*, 7(1), 60-76.
<https://www.wjgnet.com/2220-3206/full/v7/i1/60.htm>
- Müller, C., & Minger, M. (2013). Which children and adolescents are most susceptible to peer influence? A systematic review regarding antisocial behavior. *Empirische Sonderpädagogik*, 2, 107-129.

- Murray-Close, D., Crick, N. R., Tseng, W. L., Lafko, N., Burrows, C., Pitula, C., & Ralston, P. (2014). Physiological stress reactivity and physical and relational aggression: The moderating roles of victimization, type of stressor, and child gender. *Development and Psychopathology*, 26(3), 589-603. <https://doi.org/10.1017/S095457941400025X>
- Neal, J. W. (2007). Why social networks matter: A structural approach to the study of relational aggression in middle childhood and adolescence. *Child & Youth Care Forum*, 36(5), 195-211. <https://doi.org/10.1007/s10566-007-9042-2>
- Nesdale, D., & Lawson, M. J. (2011). Social groups and children's intergroup attitudes: Can school norms moderate the effects of social group norms?. *Child Development*, 82(5), 1594-1606. <https://doi.org/10.1111/j.1467-8624.2011.01637.x>
- Owens, L., Shute, R., & Slee, P. (2000). "I'm in and you're out..." Explanations for teenage girls' indirect aggression. *Psychology, Evolution and Gender*, 2(1), 19-46. <https://doi.org/10.1080/14616660050082906>
- Parker, J. G., & Asher, S. R. (1993). Friendship and friendship quality in middle childhood: Links with peer group acceptance and feelings of loneliness and social dissatisfaction. *Developmental Psychology*, 29(4), 611-621. <https://doi.org/10.1037/0012-1649.29.4.611>
- Parker, J. G., & Seal, J. (1996). Forming, losing, renewing, and replacing friendships: Applying temporal parameters to the assessment of children's friendship experiences. *Child Development*, 67(5), 2248-2268. <https://doi.org/10.1111/j.1467-8624.1996.tb01855.x>
- Pekarik, E. G., Prinz, R. J., Liebert, D. E., Weintraub, S., & Neale, J. M. (1976). The pupil evaluation inventory. *Journal of Abnormal Child Psychology*, 4(1), 83-97. <https://doi.org/10.1007/BF00917607>

- Peters, E., Cillessen, A. H., Riksen-Walraven, J. M., & Haselager, G. J. (2010). Best friends' preference and popularity: Associations with aggression and prosocial behavior. *International Journal of Behavioral Development, 34*(5), 398-405.
<https://doi.org/10.1177/0165025409343709>
- Poulin, F., & Chan, A. (2010). Friendship stability and change in childhood and adolescence. *Developmental Review, 30*(3), 257-272. <https://doi.org/10.1016/j.dr.2009.01.001>
- Pronk, R. E., & Zimmer-Gembeck, M. J. (2010). It's "mean," but what does it mean to adolescents? Relational aggression described by victims, aggressors, and their peers. *Journal of Adolescent Research, 25*(2), 175-204.
<https://doi.org/10.1177/0743558409350504>
- Rambaran, A. J., Dijkstra, J. K., & Stark, T. H. (2013). Status-based influence processes: The role of norm salience in contagion of adolescent risk attitudes. *Journal of Research on Adolescence, 23*(3), 574-585. <https://doi.org/10.1111/jora.12032>
- Renouf, A., Brendgen, M., Parent, S., Vitaro, F., Zelazo, P., Boivin, M., ... Seguin, J. R. (2010). Relations between theory of mind and indirect and physical aggression in kindergarten: Evidence of the moderating role of prosocial behaviors. *Social Development, 19*(3), 535-555. <https://doi.org/10.1111/j.1467-9507.2009.00552.x>
- Rodkin, P. C., Ryan, A. M., Jamison, R., & Wilson, T. (2013). Social goals, social behavior, and social status in middle childhood. *Developmental Psychology, 49*(6), 1139-1150.
<https://doi.org/10.1037/a0029389>
- Rose, A. J., & Rudolph, K. D. (2006). A review of sex differences in peer relationship processes: potential trade-offs for the emotional and behavioral development of girls and boys. *Psychological Bulletin, 132*(1), 98-131. <https://doi.org/10.1037/0033-2909.132.1.98>

- Rose, A. J., Swenson, L. P., & Carlson, W. (2004). Friendships of aggressive youth: Considering the influences of being disliked and of being perceived as popular. *Journal of Experimental Child Psychology*, 88(1), 25-45. <https://doi.org/10.1016/j.jecp.2004.02.005>
- Salmivalli, C., & Voeten, M. (2004). Connections between attitudes, group norms, and behaviour in bullying situations. *International Journal of Behavioral Development*, 28(3), 246-258. doi: 10.1080/01650250344000488
- Salmivalli, C., Kaukiainen, A., & Lagerspetz, K. (2000). Aggression and sociometric status among peers: Do gender and type of aggression matter?. *Scandinavian Journal of Psychology*, 41(1), 17-24. <https://doi.org/10.1111/1467-9450.00166>
- Scholte, R., Sentse, M., & Granic, I. (2010). Do actions speak louder than words? Classroom attitudes and behavior in relation to bullying in early adolescence. *Journal of Clinical Child & Adolescent Psychology*, 39(6), 789-799. <https://doi.org/10.1080/15374416.2010.517161>
- Shahaeian, A., Razmjooe, M., Wang, C., Elliott, S. N., & Hughes, C. (2017). Understanding relational aggression during early childhood: An examination of the association with language and other social and cognitive skills. *Early Childhood Research Quarterly*, 40, 204-214. <https://doi.org/10.1016/j.ecresq.2017.04.002>
- Sijtsema, J. J., & Lindenberg, S. M. (2018). Peer influence in the development of adolescent antisocial behavior: Advances from dynamic social network studies. *Developmental Review*, 50, 140-154. <https://doi.org/10.1016/j.dr.2018.08.002>
- Sijtsema, J. J., Lindenberg, S. M., & Veenstra, R. (2010). Do they get what they want or are they stuck with what they can get? Testing homophily against default selection for friendships

- of highly aggressive boys. The TRAILS study. *Journal of Abnormal Child Psychology*, 38(6), 803-813. <https://doi.org/10.1007/s10802-010-9402-5>
- Sijtsema, J. J., Ojanen, T., Veenstra, R., Lindenberg, S., Hawley, P. H., & Little, T. D. (2010). Forms and functions of aggression in adolescent friendship selection and influence: A longitudinal social network analysis. *Social Development*, 19(3), 515-534. <https://doi.org/10.1111/j.1467-9507.2009.00566.x>
- Skrondal, A., & Rabe-Hesketh, S. (2004). *Generalized latent variable modeling: Multilevel, longitudinal, and structural equation models*. New York, NY: Chapman and Hall/CRC.
- Smith, J. D., Schneider, B. H., Smith, P. K., & Ananiadou, K. (2004). The effectiveness of whole-school antibullying programs: A synthesis of evaluation research. *School Psychology Review*, 33(4), 547-560. <https://doi.org/10.1080/02796015.2004.12086267>
- Thomas, K. K., & Bowker, J. C. (2013). An investigation of desired friendships during early adolescence. *Journal of Early Adolescence*, 33(6), 867-890. <https://doi.org/10.1177/0272431612469725>
- Tremblay, R. E., Nagin, D. S., Seguin, J. R., Zoccolillo, M., Zelazo, P. D., Boivin, M., Pérusse, D., & Japel, C. (2004). Physical aggression during early childhood: Trajectories and predictors. *Pediatrics*, 114(1), e43-e50. <https://doi.org/10.1542/peds.114.1.e43>
- Vaillancourt, T., & Hymel, S. (2006). Aggression and social status: The moderating roles of sex and peer-valued characteristics. *Aggressive Behavior*, 32(4), 396-408. <https://doi.org/10.1002/ab.20138>
- Vaillancourt, T., & Krems, J. A. (2018). An evolutionary psychological perspective of indirect aggression in girls and women. In S. M. Coyne, & J. M. Ostrov (Eds.). *The development of relational aggression* (pp. 111-126). New York, NY: Oxford University Press.

- Vaillancourt, T., Brendgen, M., Boivin, M., & Tremblay, R. E. (2003). A longitudinal confirmatory factor analysis of indirect and physical aggression: Evidence of two factors over time?. *Child Development*, 74(6), 1628-1638. <https://doi.org/10.1046/j.1467-8624.2003.00628.x>
- Vaillancourt, T., Miller, J. L., Fagbemi, J., Côté, S., & Tremblay, R. E. (2007). Trajectories and predictors of indirect aggression: Results from a nationally representative longitudinal study of Canadian children aged 2–10. *Aggressive Behavior*, 33(4), 314-326. <https://doi.org/10.1002/ab.20202>
- Veenstra, R., & Dijkstra, J. K. (2011). Transformations in adolescent peer networks. In B. Laursen & W. A. Collins (Eds.), *Relationship pathways: From adolescence to young adulthood* (pp. 135-154). Los Angeles, CA: Sage.
- Veenstra, R., Dijkstra, J. K., & Kreager, D. A. (2018). Pathways, networks, and norms. A sociological perspective on peer research. In W. M. Bukowski, B. Laursen, & K. H. Rubin (eds.) *Handbook of peer interactions, relationships, and groups* (pp. 45-63). New York, NY: Guilford.
- Veenstra, R., Dijkstra, J. K., Steglich, C., & Van Zalk, M. H. W. (2013). Network-behavior dynamics. *Journal of Research on Adolescence*, 23(3), 399-412. <https://doi.org/10.1111/jora.12070>
- Vitaro, F., Boivin, M., & Poulin, F. (2018). The interface of aggression and peer relations in childhood and adolescence. In W. M. Bukowski, B. Laursen, & K. H. Rubin (Eds.), *Handbook of peer interactions, relationships, and groups* (p. 284 - 301). The Guilford Press.

- Vitaro, F., Brendgen, M., & Barker, E. D. (2006). Subtypes of aggressive behaviors: A developmental perspective. *International Journal of Behavioral Development, 30*(1), 12-19. <https://doi.org/10.1177/0165025406059968>
- Werner, N. E., & Crick, N. R. (2004). Maladaptive peer relationships and the development of relational and physical aggression during middle childhood. *Social Development, 13*(4), 495-514. <https://doi.org/10.1111/j.1467-9507.2004.00280.x>
- White, K. M., Smith, J. R., Terry, D. J., Greenslade, J. H., & McKimmie, B. M. (2009). Social influence in the theory of planned behaviour: The role of descriptive, injunctive, and in-group norms. *British Journal of Social Psychology, 48*(1), 135-158. <https://doi.org/10.1348/014466608X295207>
- Wright, J. C., Giammarino, M., & Parad, H. W. (1986). Social status in small groups: Individual-group similarity and the social "misfit". *Journal of Personality and Social Psychology, 50*(3), 523-536. <https://doi.org/10.1037/0022-3514.50.3.523>
- Wright, M. F., Wachs, S., & Huang, Z. (2021). Adolescents' popularity-motivated aggression and prosocial behaviors: The roles of callous-unemotional traits and social status insecurity. *Frontiers in Psychology, 12*, 1-8. <https://doi.org/10.3389/fpsyg.2021.606865>
- Yamasaki, K., & Nishida, N. (2009). The relationship between three types of aggression and peer relations in elementary school children. *International Journal of Psychology, 44*(3), 179-186. <https://doi.org/10.1080/00207590701656770>