Homotypic and Heterotypic Peer Influence Effects for Aggression and Help, During Early Adolescence. The Role of Friends and Peers.

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ABSTRACT

Homotypic and Heterotypic Peer Influence Effects for Aggression and Prosociality, During Early Adolescence. The Role of Friends and Peers

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This dissertation reports the results from two studies conducted with a sample of 1595 fourth, fifth and sixth graders from nine schools in Bogotá, Colombia (M_{age}= 10.25 years), who completed peer nomination measures of social behaviours at two measurement points. The main objective was to examinee homotypic (i.e. the effect of early adolescents' behaviours on one dimension on the same dimension measured for their friend at a later time) and heterotypic peer effects (i.e. the effect of early adolescents' behaviours at an initial time on their friend's subsequent levels on another behaviour) among stable dyadic friendship relationships. Specifically, two types of aggressive behaviour (physical and relational) and one type of prosocial behaviour (help) were analyzed. Additionally, the moderating roles of gender, popularity and group norms were examined.

A structural equation modelling approach was used to achieve the objectives. Specifically, the Actor-Partner Interdependence Model (APIM) was used to estimate peer effects at the dyadic level, and Latent Profile Analyses were used to explore salience group norms at the classroom level context. Moreover, these peer effects were compared by gender, popularity and classroom salience norms (i.e. classroom-level association between popularity and the behaviours).

It was observed that the two types of aggressive behaviour, as well as help, increased as a function of the best friend's level of those behaviours. Moreover, it was demonstrated that peer heterotypic influence effects did not occur between help and physical aggression, while friends' levels of relational aggression predicted increases in pre-adolescents' levels of help. Structural multi-group comparisons revealed that the most popular pre-adolescents exerted a larger influence on their best friends' aggressive behaviour. In addition, girls seemed more prone to

friend's influence for aggression whereas boys were exclusively prone to increase their levels of help as a result of engaging in friendships with physically aggressive peers.

Regarding the moderator role of salience norms, the results revealed that homotypic peer influence effects of physical aggression and help were stronger in classrooms in which these behaviours were equally salient. Similarly, heterotypic peer effects among relational aggression and help occurred only in these types of classrooms.

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CONTRIBUTION OF AUTHORS

The following thesis is comprised of two studies:

Study 1 (Chapter 2):

Castellanos, M., Bukowski, W.M., Velásquez, A.M., Saldarriaga, L.M. (in preparation). Homotypic and heterotypic effects in models of peer influence among dyads of friends.

Study 2 (Chapter 5):

Castellanos, M., Bukowski, W.M., Velásquez, A.M., Saldarriaga, L.M. (in preparation). The moderating role of salience norms in homotypic and heterotypic peer effects for aggressive and prosocial behaviour.

I am responsible for the conceptualization of the research presented in this dissertation, including the two specific studies. The data used in both studies was collected entirely by Dr. Velásquez, Dr. Saldarriaga and Dr. Bukowski during 2010. They completed the statistical procedures to adjust the peer nominations scores by class size and also conducted the multiple imputation procedures for the missing data. With guidance from my supervisor, Dr. William Bukowski, I chose the research questions, hypothesis and analysis plan, and conducted all the statistical analyses, interpreted the results and wrote the present dissertation in all of its sections.

Table of Contents

List of Tables ix

List of Figures x

List of Abbreviations xi

Chapter 1: General Introduction 1

Chapter 2: Methods for the Two Studies 12

- Participants 12
- Procedure 12
- Measures 13

Chapter 3: Homotypic and Heterotypic Effects in Models of Peer Influence (Study 1) 15

- Introduction 16
- Method 23
- Results 26
- Discussion 30

Chapter 4: Transition Statement between Study 1 and Study 2 49

Chapter 5: The Moderating Role of Salience Norms in Homotypic and Heterotypic Peer Effects for Aggressive and Prosocial Behaviour (Study 2) 51

- Introduction 52
- Method 61
- Results 62
- Discussion 67

Chapter 6: General Discussion 81

References 90

Appendices 106

List of Tables

Table 1	Descriptive Statistics of the Study Variables.	39
Table 2	Bivariate Correlations between the Study Variables	40
Table 3	Goodness of Fit Indexes of the Structural Equation Model Analyses for Physical Aggression and Help.	41
Table 4	Goodness of Fit Indexes of the Structural Equation Model Analyses for Relational Aggression and Help.	42
Table 5	Gender Differences in Homotypic and Heterotypic Peer Effects.	43
Table 6	Descriptive Statistics of the Classroom Salience Norms.	73
Table 7	Latent Profile Analysis for Three Salience Norms. Goodness of Fit Indexes.	74
Table 8	Descriptive Statistics of the Classroom Profiles.	75
Table 9	Summary of Multi-group Comparisons of Models for Physical Aggression and Help.	76
Table 10	Peer Effects among Physical Aggression and Help and Classroom Profiles.	77
Table 11	Summary of Multi-group Comparisons of Models for Relational Aggression and Help.	78
Table 12	Peer Effects among Relational Aggression and Help and Classroom Profiles.	79

List of Figures

Figure 1	Steps of the Structural Equation Model Analysis.	44
Figure 2	Homotypic and Heterotypic Peer Effects for Physical Aggression and Help.	45
Figure 3	Homotypic and Heterotypic Peer Effects for Relational Aggression and Help.	46
Figure 4	Moderation of Popularity in Homotypic and Heterotypic Peer Effects between Physical Aggression and Help.	47
Figure 5	Moderation of Popularity in Homotypic and Heterotypic Peer Effects between Relational Aggression and Help.	48
Figure 6	Latent Profiles of Classrooms According to Three Types of Salience Norms.	80

List of Abbreviations

In the present manuscript the following abbreviations are used to represent gender neutral pronouns:

Hir: meaning his/her

Zir: meaning he/she

Chapter 1: General Introduction

While aggressive behaviour is defined as an intentional behaviour aimed to hurt others (Krahé, 2013); prosocial behaviour is intended to benefit others (Eisenberg, Spinrad, & Knafo-Noam, 2015). These apparently opposite behaviours interact together to shape and be shaped by complex social interactions, and as a consequence have been widely studied in the peer relationships literature. The general purpose of the present dissertation is to investigate help, physical and relational aggression in a sample of Colombian early adolescents (e.g. 4th 5th and 6th graders) from two peer relationship perspectives: the dyadic friendship and the group of classmates.

Although peers are important sources of socialization across the lifespan, early adolescence is predominantly relevant for the study of peer interactions. We were particularly interested in two processes of peer effects. The first one is selection, or the tendency to be attracted to and form friendships with peers who exhibit similar behaviours (Laursen, 2018; Rubin, Bukowski, & Bowker, 2015). The second one is socialization or influence, defined as changes in behaviour as a response to characteristics of the friends (Dishion, 2013; Kandel, 1978). Although processes of selection and influence have been documented in young children, adolescence is a critical period for the occurrence of these peer effects. Moreover, forming stable and reciprocal friendship relationships is a central developmental task throughout adolescence (Bagwell & Bukowski, 2018). Consequently, the first goal of this dissertation was to examine the occurrence of peer homotypic (i.e. the effect of early adolescents' behaviours on one dimension on the same dimension measured for their friend at a later time) and heterotypic peer effects (i.e. the effect of early adolescents' behaviours at an initial time on their friend's subsequent levels of another behaviour) among stable dyadic friendship relationships. Despite the recent advances in the study of heterotypic peer effects in some domains, there are no studies examining these processes for aggression and help simultaneously.

As it is the case in most of the vast repertory of human behaviour, gender differences exist concerning selection and influence peer effects. Therefore, the inclusion of gender comparisons in the present dissertation was based on three arguments. First, boys and girls differ in their levels of help, physical and relational aggression (Card, Stucky, Sawalani, & Little, 2008). Second, the experience of friendship takes different forms for girls compared to boys. For

instance, girls interact in dyads rather than larger groups more often than boys (Xie & Shi, 2009). Third, the extent to which early adolescents are susceptible to peer influence varies as a function of gender. For instance, the literature suggests that girls are more prone to peer influence than boys, especially for maladaptive outcomes (Haynie, Doogan, & Soller, 2014; Rose, Glick, Smith, Schwartz-Mette, & Borowski, 2017). Therefore, the second main goal of the present dissertation is to explore if homotypic and heterotypic peer effects for help, physical and relational aggression are moderated by gender.

Additional to the impact of gender in dyadic interactions, the peer group has strong influences over individuals during early adolescence. Particularly, classmates have a profound impact on early adolescents, by fostering, sanctioning and responding to several behaviours involved in their interactions. As a consequence, early adolescents concede pronounced importance to social status, or the extent to which group members are accepted, rejected or socially visible in virtue of their characteristics and their interactions with peers (Cillessen & Bukowski, 2018). Accordingly, excluding social status from the examination of dyadic peer influences, would lead to limited conclusions (Bukowski, Castellanos, Vitaro, & Brendgen, 2015). The most common feature of social status studied in models of peer influence is popularity, or an index of social visibility and centrality within a group (Bukowski, 2011).

With the purpose of providing new evidence to contribute to the current understanding of the role of popularity in peer effects, the research in this dissertation considered this social status characteristic in two different ways. In Study one we examined whether individual levels popularity of the members of the dyad moderated peer selection and influence effects. Therefore, the third goal of the present dissertation was to estimate the moderating role of individual's popularity in the occurrence of homotypic and heterotypic peer effects for help, physical and relational aggression at the dyadic level. In Study 2, we analyzed the moderating role of the salience of peer norms at the classroom-level on the occurrence of peer effects occurring at the dyadic level. Salience norms are defined as the classroom-level association between popularity and each of the three behaviours studied in the present work (Henry et al., 2000). Consequently, the fourth goal of this dissertation was to explore if salience norms moderated the occurrence of the peer effects under study. To our knowledge, there are no studies exploring how differences in popularity directly affect heterotypic peer processes among friends. In that sense, this is a pioneer study in this field.

In the subsequent sections, a brief introduction to the conceptualization, associated variables and consequences of two types of aggression and help is presented separately, framed in the context of peer interactions occurring during early adolescence. Later on, the association among these behaviours is described from three viewpoints: the individual, the dyad and the peer group. Finally, the specific goals and the methodological approach of the present dissertation are explained.

Aggressive Behaviour During Early Adolescence

Aggression can be defined in general as an intentional behaviour aimed to hurt others (Krahé, 2013). Aggressive behaviours can be classified into two subtypes, physical and relational, according to the form it takes. While the intention of physical aggression is to harm the victim's physical integrity by direct confrontations (e.g. kicking or pushing), relational aggression involves causing harm through non-physical acts aimed at affecting the social relationships and social status of the victim (e.g. gossiping or excluding) (Crick & Grotpeter, 1995; Dodge, Coie, & Lynam, 2006; Perry & Ostrov, 2018). An additional classification involves the function of the aggressive behavior. According to several observational and empirical studies, aggression can be proactive (i.e. oriented and planned) or reactive (i.e. in response to real or perceived provocations) (Card & Little, 2006). In the present dissertation, we were interested in physical and relational forms of proactive aggression.

The literature shows that biological (i.e. impulsivity), family-related (i.e. low parental involvement), school-related (i.e. poor school functioning) and neighbourhood characteristics (i.e. exposure to criminality) are all factors that play a role in explaining inter-individual differences in aggressive behaviour (Malti, Rubin, & Vaillancourt, 2018). Moreover, bidirectional associations exist among aggressive behaviours and socio-emotional and socio-cognitive skills. For instance, poor emotion regulation and hostile attribution bias (i.e. tendency to interpret other's intentions as hostile even in ambiguous situations) are positively associated with physical aggression (De Castro, Veerman, Koops, Bosch, & Monshouwer, 2002). Likewise, socio-emotional variables such as guilt (Jansma, Malti, Opdenakker, & van der Werf, 2018), and the emotional components of empathy are negatively associated with relational aggression (Batanova & Loukas, 2011). Nonetheless, early adolescents who are skilled in interpreting

other's emotions and mental states have more ability to damage the social relationships of others by relational aggression (Kaukiainen et al., 1999).

Concerning consequences, the literature suggests that aggressive behaviour is associated with externalizing (e.g. antisocial behaviour, substance abuse and delinquency) and internalizing problems (e.g. impulsivity), for both perpetrators and victims (Yen et al., 2010) as well as for children who are merely exposed to violent contexts (Janoz et al., 2008; Guerra, Rowell Huesmann, & Spindler, 2003). Likewise, both physical and relational aggression are associated with peer rejection (Lansford, Malone, Dodge, Pettit, & Bates, 2010; Werner & Crick, 1999). However, these behaviours can also lead to higher levels of social status if the peer group accepts and rewards aggression (Jackson, Cappella, & Neal, 2015).

Finally, peers can inflict, instigate and sanction aggressive behaviour (Vitaro, Boivin, & Poulin, 2018). While negative experiences with peers, such as rejection, can lead to aggressive responses, positive interactions, such as high-quality friendships, can lead to both protective and deviant outcomes (Bukowski et al., 2015). Within the context of friendship experiences, selection (i.e. forming friendships with peers who exhibit similar behaviours), as well as influence (i.e. changes in behaviour as a response to friend's characteristics) explain how aggression can be shaped by peer interactions (Dishion, 2013; Kandel, 1978; Laursen, 2018; Rubin et al., 2015). There is ample evidence for selection and influence effects for physical aggression across multiple samples and cultural contexts (Dishion & Tipsord, 2011; Sijtsema & Lindenberg, 2018). To our knowledge, a single study by Werner & Crick (2004) documented the existence of peer effects for relational aggression in a sample of elementary children. Other studies included the relational subtype as part of broader estimations of aggression. As a consequence, the conclusions regarding the differentiation of the subtypes of aggression in the occurrence of peer effects are limited.

Beyond close peer interactions such as dyads and cliques, friendships occur in larger social contexts. The group-level experiences also shape the development of aggressive behaviour; specifically, group norms, which are important socialization sources (Bukowski et al., 2015). An ample body of literature shows that in classrooms in which aggression has a strong association with social status (i.e. salience norms), individual increases and peer influences for aggressive behaviour are more likely to occur (Henry et al., 2000; Laninga-Wijnen et al., 2017).

Prosocial behaviour during early adolescence.

Broadly speaking, prosociality can be defined as a set of behaviours intended to benefit others (Eisenberg et al., 2015). It takes several forms, such as sharing, cooperating, helping, donating and comforting that vary as a function of several individual characteristics and social factors. Given the wide-ranging reasons that adolescents and children refer to when explaining why they act to benefit others, it is not surprising that researchers have developed a vast set of observational and experimental tasks to study the motivation behind this behaviour. An initial classification based on motivation was proposed by Eisenberg, VanSchyndel, and Spinrad (2016), who noted that prosocial behaviour can be spontaneous or responsive to specific requests, public or private, and planned or elicited by unforeseen situations. In the present dissertation we were interested in a particular form of spontaneous and socially visible (i.e. public) prosociality, namely, help.

The evidence suggests that, beyond biological and neurological features, help is positively associated with emotional and cognitive components. Specifically, the marked improvements in empathy, moral reasoning and perspective taking during early adolescence compared to childhood, are both precursors and consequences of help (Wentzel, 2014). Moreover, longitudinal studies have found that the association between understanding others' mental states (i.e. perspective taking) and help is mediated by empathic concern (Van der Graaff, Carlo, Crocetti, Koot, & Branje, 2018). Although the findings from longitudinal studies vary as a function of the reporter (e.g. self, parents, teachers, peers), target (e.g. family members or friends), and type of behaviour, a general consensus is that prosocial behaviour tends to follow a quadratic trend from early childhood to late adolescence. Specifically, it tends to decline in early adolescence and increase again in late adolescence (Eisenberg et al., 2015). Nonetheless, the strong orientation of early adolescents to construct and maintain positive peer interactions leads to increasing explicit and group-visible displays of help towards others (Eisenberg et al., 2016). Finally, due to the important role of mutual help for friendship quality (Bukowski, Hoza, & Boivin, 1994), it is not surprising that early adolescents are more likely to help friends than non-friends and parents (Padilla-Walker, Carlo, & Nielson, 2015; Van Rijsewijk, Dijkstra, Pattiselanno, Steglich, & Veenstra, 2016).

This prosocial orientation towards friends and group members is associated with distinct outcomes. Regarding consequences for individuals, helping is in general associated with positive

adjustment and well-being. Longitudinal studies suggest that adolescents who exhibited normative helping behaviour are less likely to display externalizing (e.g. delinquency) and internalizing problems (e.g. depression) (Nantel-Vivier, Pihl, Côté, & Tremblay, 2014; Padilla-Walker et al., 2015). With regards to social consequences, early adolescents who help are well-liked by peers (LaFontana & Cillessen, 2002), whereas the association between popularity and prosocial behaviour is positive but weak (Van den Berg, Lansu, & Cillessen, 2015). Indeed, some studies have documented a sub-group of individuals who exhibit prosocial and aggressive behaviours simultaneously, known as "bistrategic", who are well-liked and popular among peers (Hawley, 2003).

In addition to these social consequences, peers also foster the development of prosociality by modelling and reinforcement (Eisenberg et al., 2015), and more importantly by processes of peer influence. Most of the research on selection and influence is focused on maladaptive behaviours. Nonetheless, recent evidence has demonstrated that young adolescents tend to engage in friendship relationships with peers who exhibit similar levels of help (Logis, Rodkin, Gest, & Ahn, 2013; Logis et al., 2013; Berger, Gremmen, Palacios, & Franco, 2019) and become more similar to their friends in this behaviour (Dijkstra & Berger, 2018; Hsiao, Cheng, & Chiu, 2019; Logis et al., 2013).

With respect to the extended group context, results from previous studies suggest that peer settings characterized by strong positive associations between social status and prosociality have protective effects against maladaptive peer effects, such as deviant peer affiliation (Hofmann & Müller, 2018; Hoglund & Leadbeater, 2004; Schacter & Juvonen, 2018). Nonetheless, the way group salience norms moderate beneficial peer effects (i.e. how an early adolescent's level of help is explained by friendship selection and influence), remains unexplained. A remarkable exception is a study in which the authors reported that in classrooms in which helping is socially validated, early adolescents are more likely to engage in collaborative and prosocial interactions with peers (Laninga-Wijnen, Harakeh, Dijkstra, Veenstra, & Vollebergh, 2018).

Associations between aggressive and prosocial behaviour

Within the Individual.

Associations between prosocial behaviour and aggression are widely documented in

the young adolescence development literature. In general, help presents a strong negative association with physical aggression (Nantel-Vivier et al., 2014), and a negative but moderate association with relational aggression (Hawley, 2003). Moreover, a meta-analysis showed that once the association between physical aggression and helping was controlled, the association between relational aggression and help was positive (Card et al., 2008). Going beyond the aforementioned associations, a different literature has focused on how individuals cluster on longitudinal trajectories depending on their levels of help, aggression and the interaction among them. For instance, following a sample of Canadian elementary students, Kokko, Tremblay, Lacourse, Nagin, and Vitaro (2006) reported that most of the children who remained low in physical aggression from 6 to 12 years of age exhibited moderate levels of prosociality, whereas those who showed high and stable physical aggression trajectories remained low in prosociality across time. Regarding relational aggression and prosociality, the studies of longitudinal trajectories are rare. Conversely, studies with cross-sectional samples have identified a small proportion of children (around 15%) in North American samples who are "bistrategic", meaning that they score high on both prosocial and relational aggression scales (Hawley, 2003; Wurster & Xie, 2014). Nevertheless, the normative trajectory shows a negative and moderate association among these two behaviours (Card et al., 2008; Hawley, 2003).

Among Friendship Dyads.

As mentioned earlier, and after controlling for individual characteristics, help and aggression highly determine, and at the same time are shaped by, friendship interactions. On the one hand, these behaviours determine friendship formation and maintenance, since it has been demonstrated that early adolescents are more likely to become and remain friends with peers with similar levels of help (Berger et al., 2019; Logis et al., 2013), physical (see (Sijtsema & Lindenberg, 2018) and relational aggression (Werner & Crick, 2004). On the other hand, relationships shape the development of the behaviours in question, since there is evidence of peer influence on help (Hsiao et al., 2019; Logis et al., 2013) physical (Dishion & Tipsord, 2011) and relational aggression (Werner & Crick, 2004).

Despite the progress, the research on influence among friends is limited by an excessive focus on deviant and maladaptive outcomes. This attention is, perhaps, due to the negative consequences that deviant peers can have on future outcomes, and to the prevalence of these

behaviours across several cultural contexts. According to the International Civic and Citizenship Education Study (ICCS), on average 50% of students from twenty-four countries reported being victims of aggression perpetrated by classmates in 2016 (Schulz et al., 2018). As a consequence, the research focusing on the influence of peers in the development of positive behaviours such as helping is scarce and does not provide conclusive evidence yet. While some studies document influence effects for prosocial behaviours (Logis et al., 2013), others do not (Dijkstra & Berger, 2018; Molano, Jones, Brown, & Aber, 2013).

A second recurrent practice is the estimation of homotypic peer effects, or, the effect of a child's behaviour on one dimension on the friend's same dimension at a later time (e.g. how an early adolescent's physical aggression is predicted by the friend's physical aggression). In the present dissertation the concept of heterotypic effects is proposed. That is, the effect of early adolescents' behaviours at an initial time on their friend's subsequentlevels of another behaviour (also known as "cross-behaviour" or "indirect" peer effects). As argued before, the interrelatedness of help, physical and relational aggression at individual, dyadic and group-level experiences make it necessary to estimate homotypic and heterotypic peer effects simultaneously. Nevertheless, there are no published studies that fill this gap.

Within the Peer Context (Classroom Settings).

Bukowski et al. (2015) point to three group constructs that need to be addressed in the study of peer effects: structure, dominance and content. While structure refers to patterns of associations (e.g. how connected are the group members), dominance refers to heterogeneity and imbalances in power within the group structure (e.g. how popularity is divided among classmates) and content refers to the set of behaviours, values and norms that define the group (e.g. behaviours that are expected) (Bukowski et al., 2015). Recent advances in the methodologies for the estimation of peer effects allow researchers to include some of these group features in the study of peer effects. For instance, in classrooms in which popularity is unequally distributed among the group members, the most popular individuals are more likely to exert influence over others and make them agree or behave like them (Bukowski et al., 2015; Laursen, 2018).

Beyond the influence on individual behaviours, group social norms can impact also processes of peer selection and influence. A relatively recent analytical approach is the inclusion

of salience norms, or the class level associations between popularity and behaviours (Henry et al., 2000) as a moderator variable in the occurrence of peer effects. To our knowledge, only three studies have documented the influence of salience norms on peer effects. The evidence from these studies suggests that peer influence effects for broad measures of aggressive behaviour are more likely to occur in classrooms with high aggression salience norms (Correia, Brendgen & Vitaro, 2019; Laninga-Wijnen et al., 2017; Rambaran, Dijkstra, & Stark, 2013).

Despite these valuable efforts, the evidence about salience norms and peer effects has addressed only homotypic and maladaptive influence processes. Study 2 of the present dissertation was designed to contribute to the existing knowledge, by proposing two innovative points of view in the exploration of salience norms and peer effects. First, by using three separate salience norms simultaneously in the characterization of classroom settings (i.e. help, physical and relational aggression), and second, by exploring the moderating role of these group-level characteristics in the processes of heterotypic influences occurring at the dyadic-level.

Summary of Study Purposes and Methodological Approach

Based on the evidence presented before and the gaps identified in the literature, the present dissertation had four main goals. The first was to examine the occurrence of peer homotypic and heterotypic peer effects for help, physical and relational aggression among stable dyadic friendship relationships. The second goal was to explore if the aforementioned peer effects were moderated by gender. The third goal was to estimate the moderating role of individual levels of popularity in the occurrence of these peer effects at the dyadic level. Finally, the fourth goal was to explore the extent to which group-level salience norms moderated the occurrence of the peer effects under study.

After an extensive review of previous studies, it was observed that two main statistical approaches characterize the current literature on peer effects. Some authors use social network analysis techniques such as the stochastic actor-oriented model (SAOM) (Snijders, Van de Bunt, & Steglich, 2010), whereas others use the Actor-Partner Interdependence Model Analysis (APIM) (Kenny, Kashy, & Cook, 2006). While the first methodology accounts for structural network characteristics in peer exchanges (e.g. sharing friends on a network of three or more peers) (Veenstra, Dijkstra, Steglich, & Van Zalk, 2013), the second approach focuses on dyadic interactions (i.e. pairs of friends) (Laursen, Popp, Burk, Kerr, & Stattin, 2008). Each approach

has its own advantages and limitations, and serve different purposes. In the present study, given our specific focus on dyadic modes of reciprocal influence, the APIM was clearly the method of choice (e.g., Card, Selig, & Little, 2011). Consequently, the current dissertation relies on the APIM from the longitudinal structural modelling tradition to analyze 451 same-sex unique dyads of friends grouped into 63 classrooms from a Colombian sample of 4th 5th and 6th graders. Further details of the specific purposes and methodologies for each study are explained below.

Study 1: Homotypic and Heterotypic Effects in Models of Peer Influence (Chapter 3).

In the Study 1 our main purpose was to analyze homotypic and heterotypic peer effects among two types of aggression (i.e. physical and relational) and one type of prosocial behaviour (i.e. help). To attain this goal we opted for the application of the APIM structural equation modelling analyses. We set four specific objectives: (1) to explore the presence of homotypic peer effects for two types of aggression and help during early adolescence through mutual friendships and stable relationships (2) to assess heterotypic effects by estimating whether a peer's level of prosocial behaviour affects a friend's level of physical and relational aggression and whether a peer's level of physical and relational aggression affects the friend's level of prosocial behaviour, (3) explore if the levels of popularity of the members of the dyad moderate selection and influence heterotypic and homotypic peer effects, and (4) to examine if the aforementioned peer effects varied as a function of gender.

Study 2: The Moderating Role of Salience Norms in Homotypic and Heterotypic Peer Effects for Aggressive and Prosocial Behaviour (Chapter 5).

Recognizing that dyadic interactions take place within a broader context, the second study examined the moderating role that social salience norms from the part of classmates have in the occurrence of peer effects. Specifically, this study had three interrelated purposes: (1) To explore profiles of classrooms based on three types of salience norms: help and two types of aggression (i.e. physical and relational), 2) To examine if homotypic peer effects within dyads varied as a function of the different profiles of classrooms, and (3) To examine if heterotypic peer effects within dyads varied as a function of the different profiles of classrooms. Building on the results of the APIM structural equation modelling from the first study, two main statistical analyses were conducted in the second study. First, a Latent Profile Analysis (LPA) was used to

accomplish the first objective. Second, a structural multi-group comparison was used to attain the second and third objectives.

Chapter 2: Methods for the two studies

Participants

The sample consisted of primarily low and middle-class 1,595 fourth (n=483), fifth (n=548) and sixth (n=564) graders from nine schools in Bogotá, Colombia (M_{age}= 10.25 years; 53% male). It is important to note that, in the Colombian Educational system Elementary School runs from first to fifth grade, whereas sixth grade is the first year of Secondary School. A total of 63 classrooms took part in the study and their size ranged from 11 to 32 participants (*M* class size = 22, SD = 6.96, range: 12 - 47). The socioeconomic status (SES) of participants was assessed via parental reports of the Colombian official ranking, known as *estrato*. This index ranges from one (low) to six (high) and is based on a household stratification that represents the neighbourhoods affluence (DANE, n.d.). The distribution of estrato was representative of the Colombian population, with 39.69% in estratos 1 and 2 (low), 51.91% in estratos 3 and 4 (middle) and 8.4% in estratos 5 and 6 (high).

Since the unit of analysis was the dyad, the final sample included 451 unique pairs of same-sex reciprocal friends (M_{age}= 10.22 years; 51% male). The SES distribution of this sub-sample was similar to the distribution of the total sample (40.68% low, 51.21% middle, and 8.09% upper). According to a set of one-way between-subjects ANOVA analysis, no significant differences were observed between included and excluded participants in age [F(1, 1592) = 1.83, p = .18] and SES [F(1, 1592) = 1.12, p = .72]. However, children included in the final sample had higher levels of prosocial behaviour [F (1, 1592) = 27.05, p = < 00] and popularity [F (1, 1592) = 25.89, p = < 00] and lower levels of both physical [F (1, 1592) = 20.73, p = < 00] and relational aggression [F (1, 1592) = 17.29, p = < 00] than the excluded participants (See Appendix 1). Those differences in the social behaviours between friended and unfriended children are widely documented in the literature (Rubin et al., 2015).

Procedure

After administrative approval was received from the school principals, the students in the participating schools were informed of the objectives and procedures of the study and were given letters regarding information pertinent to the study as well as parental consent forms to be brought to their parents or legal guardians. Only the participants whose parents returned a signed

consent form were included in the study. On average the participation rate of the study was 79% per classroom. Data were collected at two times following the regular Colombian school year that runs from February to November (Ministerio de Educación Nacional de Colombia, 2018), at roughly eleven-week intervals between measurement times (Time 1 in March, Time 2 in May). The participants responded to the paper-pencil questionnaires in their classrooms, and at least two members of the research team accompanied the data collection in each room.

Measures

Peer Assessment.

Different social behaviours were measured by a within-classroom peer assessment procedure. Three items were used to measure physical aggression (i.e., "someone who hits or pushes other people", "someone who gets involved in physical fights" and "someone who pushes others around"), two for relational aggression (i.e. "someone who talks bad about others behind their backs to hurt them" and "someone who tries to keep others out of the group"), two for helping (i.e., "someone who helps others when they need it" and "someone who is willing to help others") and one for perceived popularity (e.g., "someone who is popular"). Each item was presented followed by the names of all the participating classmates, and students were instructed to nominate any number of peers who they considered matched the description presented for each item. For each item, the number of nominations received was adjusted for the group size of the classroom, following a regression-based procedure (see Velásquez, Bukowski, & Saldarriaga, 2013). All of the measures showed a strong level of reliability estimated by Cronbach's Alpha (help = .93, physical aggression = .87, relational aggression = .94).

Friendship Relationships.

Participants were asked to nominate their first, second and third same-sex and other-sex best friends, as well as "other classmates they considered as friends". However, for the purpose of this study, only the "best friends" same-sex nominations were used in order to find reciprocal friendship dyads.

Dyad Identification.

A dyad was considered as reciprocal when both of its members nominated each other as best friends. An index of reciprocity was calculated for each of the three same-sex nominations provided by each participant by averaging the order of the choice of the nominee and the

nominator. Using “3” to represent the choice of the first best friend, “2” for the second best friend and “1” for the third best friend choice, we calculated an index to estimate reciprocity by averaging the two values resulting from the order of the choice of each member of the dyad. For example, if participant A nominated B, C, and D as their first, second, and third best friends, each would receive a score of 3, 2, and 1, respectively. Those participants also provided three nominations in a certain order, for example, if B nominated A as hir third best friend, the reciprocity score of that dyad would be 2 (average of 3 and 1) and in the case of C if he nominated A as hir first best friend, the reciprocity score of this dyad would be 2.5 (average of 2 and 3). When a participant did not receive a nomination back, the reciprocity score was coded as nonexistent. After all the reciprocity scores were calculated for the three possible dyads of each participant, we identified the best possible dyad (the one with a higher reciprocity score). We were able to identify 451 unique dyads of same-sex reciprocal friendships. Although some participants were part of more than one reciprocated friendship, they were paired with the friend with the highest level of reciprocity and included only once in the analysis.

Classroom Salience Norms.

First, the most popular members of each group were identified as those who scored one standard deviation above their classroom mean of popularity. A total of 277 children fit this criterion (17.41% of the total sample), who on average represented 16% of the size of their classrooms. The scores of those 277 children were used to estimate the salience norms for each classroom, by averaging their levels of some behaviours. Therefore, each group had three scores, one for the salience of physical aggression, one for the salience of relational aggression and one for the salience of help.

Chapter 3: Homotypic and heterotypic effects in models of peer influence (Study 1)

Abstract

This study examined peer influence for prosociality and two types of aggression through stable friendship relationships in a sample of 902 pre-adolescents (M_{age}= 10.25). The main objective was to examinee homotypic (i.e. the effect of early adolescents' behaviours on one dimension on the same dimension measured for their friend at a later time) and heterotypic peer effects (i.e. the effect of early adolescents' behaviours at an initial time on their friend subsequent levels on another behaviour). Results showed that friends' level of physical and aggression predicted subsequent increases in the participants' physical and relational aggression levels respectively (homotypic effects). The analyses revealed also that friends positively influence the development of help. Specifically, friends' levels of help predicted increases in the participants' levels of help at a subsequent time. Moreover, after controlling for these homotypic effects, the friends' levels of help did not affect the levels of participants' aggression at a later time. Conversely, friends' levels of relational aggression explained subsequent increases in help. These findings demonstrate that prosociality can be transmitted among friends and highlights the importance of investigating the presence of heterotypic peer influence during early adolescence.

Introduction

Peer influence, or the changes on an individual's behaviour that result from associating with one or more peers, has focused almost exclusively on maladaptive and risky behaviours. Given the limited evidence regarding how positive behaviours can also change as a function of engaging in peer relationships and friendships, more studies focused on the "positive side" of peer influence processes are needed. The similarity among friends, cannot be attributed exclusively to a selection effect, or the tendency of children to be attracted to and form friendships with peers who exhibit similar behaviours (Laursen, 2018; Rubin, Bukowski, & Bowker, 2015). Studies of peer influence demonstrate also that a child's behaviour changes as a function of the characteristics of hir friend (Dishion, 2013; Laursen, 2018). This last effect of peer influence has been named socialization (Kandel, 1978) or influence. (Rubin et al., 2015)

Models used to assess peer influence are critically different from other models used to measure children's behaviour. These models typically consist of a two-wave longitudinal cross-lagged panel design in which the friendship dyad is the unit of analysis, rather than an individual. With this approach, at each of the two waves, there is a measure of the variable of interest for each of the two friends in the dyad. The degree of peer influence is the extent to which each friend's score at an initial time predicts the other friend's score at a subsequent time.

The current results from the literature on peer influence are robust. Many studies on deviant peer effects have been widely replicated and researchers have used sophisticated and powerful actor/partner designs to examine the degree of influence between friends (Bukowski et al., 2015; Dijkstra & Berger, 2018). While some studies use social network analysis techniques such as the stochastic actor-oriented model (SAOM) (Snijders et al., 2010), others use the actor-partner interdependence model analysis (APIM) (Kenny et al., 2006). While the first methodology accounts for structural network characteristics in peer exchanges (e.g. sharing friends on a network of three or more peers) (Veenstra et al., 2013), the last focuses on dyadic interactions (i.e. pairs of friends) (Laursen et al., 2008). To our knowledge, there are no studies that explicitly compare these analytic approaches by applying them to the same set of data. Each approach has its own advantages and limitations, and serve different purposes. In the present study, given our specific focus on dyadic modes of reciprocal influence, the APIM was clearly the method of choice (e.g., Card, Selig, & Little, 2011).

The APIM is used to analyze mutual influences in dyadic relationships, by estimating partner and actor effects (Kenny et al., 2006). Actor effects refer to the effect of a variable X on Y within a person, whereas partner effects refer to the effect of a person's score on X on another's person score on Y (Kenny et al., 2006). In other words, the APIM allows the estimation of influence among friendship dyads (partner effects) after controlling for within individual variables (actor effects) (Laursen, 2018; Nantel-Vivier et al., 2014).

Homotypic Peer Effects for Aggression and Prosociality

Despite the strengths of the existing analytical approaches, the literature about peer effects is limited by two prevalent practices. The first practice is the nearly universal concern with what we refer to as homotypic influence effects, or how children's behaviours on one dimension affects how their friend behaves on the same dimension at a later time. An example can be seen in (Henneberger, Coffman, & Gest, 2017) study of how a child's level of aggression at one time is an antecedent of the peer's level of aggression at a later time. This interest in homotypic effects is consistent with a primary explanation of peer influence, specifically the use of traditional social learning theories that emphasize the effects of imitation (Brechwald & Prinstein, 2011) or the peer contagion effect (Dishion & Tipsord, 2011). A second prevalent practice is an emphasis on negative behaviours and problematic outcomes, including externalizing behaviours. Selection and influence effects have been observed for (a) diverse forms of aggression (Sijtsema & Lindenberg, 2018), (b) risky behaviours, such as smoking and alcohol use in adolescents (Bot, Engels, Knibbe, & Meeus, 2007; Hall & Valente, 2007) and middle-school students (Jackson et al., 2016) (c) moral disengagement (Sijtsema, Rambaran, Caravita, & Gini, 2014) and (d) victimization (Cantin, Brendgen, Dussault & Vitaro, 2019) among other maladaptive outcomes. In summary, these two prevalent practices evidence that homotypic peer effects for deviant behaviours have received most of the researchers' attention. Nonetheless, it is important to acknowledge that an emerging trend has switched the attention to positive behaviours. For instance, there is documented evidence about positive peer influence on school performance, such as computer programming skills (DeLay et al., 2014), academic achievement (DeLay, Laursen, et al., 2016; Gremmen et al., 2019) Gremmen et al., 2018; (Laninga-Wijnen, Ryan, Harakeh, Shin, & Vollebergh, 2018) and reading skills (Kiuru et al., 2017).

Despite the well-documented role of peers in the reinforcement and modelling of actions intended to benefit others (Eisenberg et al., 2015), few studies have directly explored peer selection and influence effects for prosocial behaviour. In general, the literature shows that children tend to engage in friendship relationships with peers with similar levels of prosociality (Berger et al., 2019; Logis et al., 2013), and become more similar to their friends over time in these behaviours (Dijkstra & Berger, 2018; Hsiao et al., 2019; Logis et al., 2013). Those studies can be classified into two groups, depending on the manner prosocial behaviour is assessed. The first group of studies used cognitions and dispositions to act in benefits of others as the outcome measure. The findings show that friend's prosocial behaviour is positively associated with increases on individual's prosocial goal pursuit (e.g., "how often do you try to act prosocially?"), as well as dispositions to volunteer (Van Goethem, Van Hoof, van Aken, de Castro, & Raaijmakers, 2014). The second group of studies used behavioural outcomes, as opposed to cognitions or dispositions to act in benefit of others. These studies found for that increases in cooperation (Dijkstra & Berger, 2018; Logis et al., 2013) and help (Hsiao et al., 2019) were associated with high levels of the same behaviours from the part of friends, in samples of young adolescents.

In order to address the gaps that result from the two aforementioned prevalent practices in peer effects research, our first purpose was to examine selection and influence homotypic peer effects for two types of aggression (i.e., relational and physical) and for one type of prosocial behaviour (i.e., helping). Based on the existing evidence, we predicted that homotypic selection and influence effects would be observed for help as well as physical and relational aggression (Hypothesis 1).

Heterotypic Peer Effects

The second purpose of this work is to simultaneously assess peer influence on two distinct dimensions of behaviour: aggression and help. In contrast to the usual homotypic effects of models aimed to explore the extent to which a child's behaviour on one dimension affects how hir friend behaves on the same dimension at a later time, our study considers heterotypic effects. That is, the effect of one friend's behaviour at an initial time on hir friend's posterior levels of another behaviour (known also as "cross-behaviour" or "indirect" peer effects). The idea of cross-behavioural influences among friends is not entirely new. After reviewing 13 studies, Zajac

and Hartup (1997) concluded that collaboration among friends supports cognitive performance, especially at the dyadic level. However, to our knowledge, only two recent studies have explored selection and influence effects in distinct behaviours. Gremmen and collaborators (2018) reported that alcohol use and delinquency are associated with selecting friends with low academic achievement, whereas having friends who maintain high-grade point averages (GPA's) reduces the probability of engaging in future risky behaviours. In the same line, Giletta, Burk, Scholte, Engels, and Prinstein (2013) found that friend's depressive symptoms and impulsivity predicted increases in male adolescent's non-suicidal self-injury behaviours.

Heterotypic Peer Effects among Aggressive and Prosocial Behaviour.

Although promoting collaborative and peaceful interactions with peers is a well-established purpose of school interventions aimed to reduce risky behaviours, few studies have specifically addressed the mechanisms by which fostering positive interactions and friendships with peers decreases the risk of developing maladaptive outcomes. Nonetheless, the findings suggest that these interventions do change peer selection and influence dynamics. For instance, after the implementation of interventions aimed to promote healthy interactions with peers, decreases in the levels of deviant peer affiliation, as well as in the level of centrality of antisocial youth, were observed (DeLay, Ha, Van Ryzin, Winter, & Dishion, 2016) leading, as a consequence, to a lessening of the diffusion of disruptive behaviours (Osgood et al., 2013).

Although these studies made a notable contribution to our understanding of peer influence during early adolescence, the estimation of the directionality and the magnitude of these effects remains overlooked. Specifically, the existent literature is not entirely clear about whether engaging in positive interactions with peers reduces aggressive behaviour and whether affiliating with aggressive peers changes prosociality. In the present study, we assessed the effect of one friend's level of aggression (i.e. physical and relational) and prosocial behaviour at one time on the other friend's level of aggression and prosocial behaviour at a later time. In this model it was possible to assess homotypic influence effects (i.e., one friend's aggression on the other friend's aggression and one friend's level of help on the other friend's level of help) and heterotypic influence effects (i.e., the effect of one friend's level of help on the other friend's subsequent level of aggression and one friend's level of aggression on the other friend's subsequent level of help).

We propose to include help and two types of aggression due to the –mostly– negative association among these behaviours (Crick, 1996; Romano, Tremblay, Boulerice, & Swisher, 2005), particularly strong for help and physical aggression (Nantel-Vivier et al., 2014). Therefore, our second set of hypotheses concern heterotypic influences. We expected to observe that: a) pre-adolescent's levels of help would be negatively predicted by friend's physical aggression at a previous time (Hypothesis 2.1); b) pre-adolescent's levels of help would be negatively predicted by friend's relational aggression at a previous time (Hypothesis 2.2); c) pre-adolescent's levels of physical aggression would be negatively predicted by friend's help at a previous time (Hypothesis 2.3), and d) pre-adolescent's levels of relational aggression would be negatively predicted by friend's help at a previous time (Hypothesis 2.4). These predictions rely on the assumption that the typical negative association between aggression and prosocial behaviours would be manifested in a pattern of antagonistic influences. Indeed, prior studies have demonstrated that interacting with peers who exhibit high levels of prosociality is not only a protective factor for the development of risky behaviours later in life (Carlo et al., 2014; Padilla-Walker et al., 2015), but also mitigates the impact of deviant peer affiliation (Cattelino et al., 2014).

An alternative hypothesis can be developed based on prior evidence that suggests that relational aggression, or the intent to harm a person's relationships through nonphysical actions (Crick & Grotpeter, 1995), can be positively associated with being helpful (Hawley, 2003). Since both aggression and prosociality are strategies to obtain social status and control of resources (Hawley, 1999) children can exhibit these two behaviours simultaneously to obtain social benefits. It is also reasonable to consider the within-dyad reward dynamics that affect stability and change. Typically, the motivation for these changes is understood according to processes of reciprocity and exchange, in which a child becomes more similar to hir friend by complying to friend's perceived norms or expectations (Laursen, 2018). One can use these same concepts to understand the dynamics that may motivate a child to become more or less aggressive as a function of a friend's level of help. It can be argued that having a helpful friend can act as a form of reward that would promote the continuity of a child's current features rather than to motivate change. Accordingly, one can predict that having a helpful friend will lead to continuity in a child's level of aggression rather than to change. In contrast, when one friend in a dyad is aggressive the other friend may need to act in helpful ways to repair or compensate for moments

when the aggressive friend has caused harm. This dynamic would be manifested in a positive association between one friend's relational aggression and the other friend's subsequent level of help. Accordingly, our third hypothesis proposed that there wuld be a pattern of positive mutual influence between relational aggression and help. Specifically, we expected to observe that pre-adolescent's levels of relational aggression would be positively predicted by friend's help at a previous time (Hypothesis 3.1) and that pre-adolescent's levels of help would be positively predicted by friend's relational aggression at a previous time (Hypothesis 3.2).

Directionality of Peer Effects Based on Distinguishable Individual Characteristics.

To overcome the limitation of the unexplored directionality of heterotypic peer effects, our third objective is to assess if within-dyad differences in influence are associated with social status (e.g. popularity). There is evidence that suggests that the more popular an adolescent is within a dyad, the more likely zir is to have a higher level of influence than hir less popular friend. Furthermore, it has been demonstrated that during early adolescence, an individual's level of popularity influences how the individual acts in a dyad. Highly popular girls, for example, tend to be more involved and less submissive during dyadic interactions (Lansu & Cillessen, 2015). Despite this general assumption, few studies have assessed the extent to which the level of popularity moderates peer effects in a mutual relationship (Dijkstra & Berger, 2018; Logis et al., 2013). This question is essential since social status represents a relative position within the group, which might not be the same in the context of a dyadic experience. For example, A can be more popular than hir friend B, but less popular than hir friend C. As a result, mutual influences might behave differently in relationship A-B as compared to A-C. According to previous findings of the moderation of popularity in peer influences at dyadic levels, our fourth hypothesis was that in general, the most popular member of the dyad would exert a higher influence in hir partner. To test this hypothesis we used the APIM approach as it allows the estimation of influence effects (partner), by treating the dyad's members as distinguishable with respect to their relative differences in the level of popularity. Previous literature has demonstrated that when there are factors that make individuals within a dyad dissimilar to one another (e.g. mother-child relationships), the APIM is an effective strategy to obtain information about the relative influence that the actors exert on each other (Kenny et al., 2006).

Gender differences

It is well-known in the literature that boys and girl exhibit different patterns of behaviour regarding aggression and prosociality. While physical aggression is more prevalent for boys than for girls (Lansford et al., 2010), help seems to be more common among girls (Eisenberg et al., 2015). For relational aggression, there is a minimum, almost inexistent effect size difference between boys and girls (Card et al., 2008). Nonetheless, girls tend to engage more often in relational than in physical aggression, especially during late childhood (LaFontana & Cillessen, 2002). Therefore, marked gender differences emerge regarding interactions with friends. Specifically, girls engage in collaborative and prosocial interactions with friends (Rose & Smith, 2018) and interact in dyads rather than larger groups (Xie & Shi, 2009) more often than boys.

Accordingly, differences between boys and girls in peer influence effects are not surprising. Concerning maladaptive outcomes the evidence suggests that girls seem to be more prone than boys to change their behaviour accordingly of their friends' behaviours particularly for delinquency (Haynie et al., 2014; McMillan, Felmlee, & Osgood, 2018) and internalizing symptoms (Rose et al., 2017; Schwartz-Mette & Rose, 2012). Two reasons can explain these results. First, the literature suggests that the protective effect of friendship is stronger for boys (Bagwell & Bukowski, 2018) Second, certain features of friendship quality (i.e. co-rumination and intimacy) that can exacerbate internalizing problems, are more recurrent in girls' interactions (Rose & Smith, 2018; Wood, Bukowski, & Santo, 2017). In contrast, for the socialization of positive outcomes, such as help, the findings suggest that boys and girls benefited to the same extent from the interaction with prosocial friends (Dijkstra & Berger, 2018; Van Goethem et al., 2014; van Hoorn, van Dijk, Meuwese, Rieffe, & Crone, 2016).

Given these important findings, our fourth purpose is to examine if homotypic and heterotypic effects are moderated by gender. In line with the evidence, our fifth set of hypotheses for gender differences were: The homotypic peer influence effects for physical aggression would be stronger for girls (Hypothesis 5.1). The homotypic peer influence effects for relational aggression would be stronger for girls (Hypothesis 5.2). And, the homotypic peer influence effects for help would not vary as a function of gender (Hypothesis 5.3).

To our knowledge, this is the first study that specifically explores heterotypic peer effects between aggression and help. For this reason, we do not have a specific hypothesis regarding

potential gender differences in these types of processes of influence, given to the innovative nature of our research purposes.

The present study

The broad conceptual point of departure for the present study is that the current literature on peer influence is restricted by four critical limitations. First, there has been an over-emphasis on peer effects for negative behaviours. Second, the existing evidence on peer influence for prosociality is insufficient to make definitive conclusions. Third, although some intervention and prevention programs argue that affiliating with peers who demonstrate positive behaviours can reduce aggressiveness, few studies have explored these heterotypic peer effects. Fourth, few of those studies include popularity which is a significant feature of the social world of children (Henneberger et al., 2017; Logis et al., 2013; Muthén & Muthén, 2012). To address the current limitations, the objectives of the present study are to: (a) to explore the presence of peer effects for prosocial behaviour during early adolescence through mutual friendships and stable relationships (b) assess whether a peer's level of prosocial behaviour affects a friend's level of physical and relational aggression and whether a peer's level of physical and relational aggression affects the friend's level of prosocial behaviour, and (c) explore how popularity moderates heterotypic and homotypic peer effects.

Method

See Method for the two studies (Chapter 2).

Analytic Strategy

We used a hierarchically organized set of structural equation models to test our research hypotheses, analyzed in MPlus 7.0. (Muthén & Muthén, 2012). Analyses were conducted using the Maximum Likelihood Robust estimator (MLR), which is robust to non-normality, for the estimation of all the models. The analysis conducted was based on the actor-partner interdependence model analysis (APIM) (Kenny et al., 2006). This model is used to analyze mutual influences in dyadic relationships, by estimating partner and actor effects (Kenny et al., 2006). Actor effects refer to the effect of a variable X on Y within a person, whereas partner effects refer to the effect of a person's score on X on another's person score on Y (Kenny et al.,

2006). In other words, the APIM allows the estimation of influence among friendship dyads (partner effects) after controlling for within individual variables (actor effects) (Laursen, 2018). In AIPM is possible to examine distinguishable or undistinguishable dyads. A typical example of distinguishable dyads is the study of mother-child relationships, in which is possible to identify the variable that differentiate the members. As for indistinguishable dyads, it is not easy to identify a characteristic to differentiate the two members, making dyads completely interchangeable (Laursen et al., 2008). Indeed, Kenny (2015) explains that friends cannot be differentiated easily in AIPM models. In order to assure indistinguishability, the order of the peers in the dyad (i.e. who was labeled as "pre-adolescent" and who as "friend") was randomly assigned.

Each model had a two-wave longitudinal structure in which the same four variables were included at each of the two measurement times. Specifically, at each time, there were two measures for each of the two peers in the friendship dyad. For each participant, there was a measure of both types of aggression and a measure of help. In each model, equality constraints were used to fix the coefficients estimated for both members of the dyad to be equivalent to one another, because the order of the peers in the dyad was randomly assigned. For this reason, this model assumes an equal process of influence for the two peers.

Separate models were analyzed for physical and relational aggression. We followed the steps described below in each set of analysis. The first model included within time covariances and auto-regressive paths across time. This model included direct paths from the measures of help and aggression at time 1 to the same variables at time two, to test the stability of our measures (Figure 1, paths B and C) as well as the within-child association among these two behaviours across time (see Figure 1, paths D and E). We also estimated within-time covariances among the behaviours of the two members of the friendship dyad to test how similar they were at each time (Figure 1, paths F, G and H). By including these bivariate correlation coefficients in the model, it is possible to isolate the initial similarity among friends (i.e. selection effects), necessary before the estimation of influence effects (Laursen et al., 2008).

In the second model, we examined the homotypic influence effect of aggression by adding paths from the friend's initial level of aggression to the pre-adolescent's level of aggression at time two (Figure 1, path I). In the third model, we did the same to explore the presence of homotypic influence effects for help, by adding paths from the friends' level of help

at time one to the help of the other member of the dyad at time two (Figure 1, path J). In the next set of models, we included paths to test heterotypic influence effects. Model 4 tested if time two score on help was predicted by the friend's level of aggression at time one (see figure 1, path K). In the fifth model, we tested whether time two aggression was predicted by the friend's level of help at time one (Figure 1, path L). Two sets of analyses followed the five steps described before: (a) one for physical aggression and help, and (b) another for relational aggression and help.

Differences between the five models within each set of analysis were examined with several goodness of fit indexes, both relative and absolute. First, a Chi-Square difference test (Muthén & Muthén, 2012), corrected by the Satorra-Bentler Scaled Factor, necessary when the MLR estimator is used (Satorra & Bentler, 2010). Additional relative indexes such as the comparative fit index (CFI), the root mean square error approximation (RMSEA), the standardized root mean squared residual (SRMR) and the Tuker-Lewis Index (TLI) were used to compare among the models. Acceptable levels of fit indexes are between 0 and 0.08 for SRMR, lower than 0.08 for RMSEA and larger than .90 and .95 for the CFI and TLI respectively (Asparouhov & Muthén, 2018; Hu & Bentler, 1999). Finally, the coefficients estimated for each of the paths were assessed with a null hypothesis test of statistical significance.

The moderating role of popularity

To test our fourth hypothesis, we identified the dyad member with the highest score on popularity, in order to detect possible directionality in the peer influences that were of interest. Once the most and least popular member within each dyad were identified, we removed the equality constraints added in our previous models and conducted the same set of structural equation models described before. In this case, we made the dyads distinguishable. In other words, the participants that form every pair of best friends can be categorized into specific roles, depending on their level of popularity (Laursen et al., 2008). The deletion of the equality constraints allows all of the paths estimated in the analysis to vary freely (i.e., independently from each other). At this stage, each path estimated different coefficients for each of the members of the dyad. Using this approach, we were able to determine whether the most popular member of the dyad exerts a higher influence on hir friend or not (Hypothesis 4).

Gender Differences

Following the same steps from the aforementioned models, we conducted an analysis of structural invariance in order to assess whether our findings differed by gender. This procedure starts with an unconstrained model that estimates results separately for the groups of boys and girls and serves as the comparison point of the subsequent analysis. Next, equality constraints were added in separate models for each of the paths included in the unconditional model. Any significant change in the model goodness of fit (i.e. improvement or worsen) suggests a difference between the groups.

Results

Descriptive Statistics

Table 1 displays information of the 902 participants, and their levels of physical aggression, relational aggression, help and popularity. Consistently with previous findings, the largest differences between girls and boys were observed for physical aggression and help. Specifically, boys scored greater in physical aggression, whereas girls scored higher in help. The bivariate correlations among the variables of the study are presented in Table 2. As can be seen, at both times the negative association between help and physical aggression was stronger (r_{time1} = -.42, r_{time2} = -.41) than the negative association between help and relational aggression (r_{time1} = -.28, r_{time2} = -.21). These results are consistent with the current literature.

Physical Aggression and Help

Table 3 shows the results of each of the steps of the SEM analyses. The first model tested (stability and auto-correlations) showed an acceptable goodness of fit (GoF). As expected, both physical aggression and prosocial behaviour showed high levels of stability across time (Standardized Coefficients = .84 and .79 respectively) and were negatively related to each other within participants (r = -.41). Also, we observed that both a student's level of help and physical aggression were positively associated with the initial level of the friend's same behaviours at time one (Physical Aggression r = .52, Help r = .46), confirming the previously documented presence of similarity among friends. Finally, we found that the level of helping of the pre-adolescent was negatively associated with the level of aggression of hir friend at Time 1 (r = -.41).

Model 2 tested the presence of homotypic influence effects for physical aggression (see Figure 1, path I). This model provided a better fit to the data than Model 1 as shown by a substantial improvement in GoF. As expected, we found that the friend's initial level of physical aggression positively predicted the pre-adolescent's physical aggression at time two. We found similar results for model 3, where we tested the presence of homotypic influence effects for helping (see Figure 1, path J). The addition of these paths demonstrated a better fit to the data due to an improvement of the GoF. The path from the friend's to the pre-adolescent's level of help was positive and statistically significant (standardized coefficient = .09). This result confirms the presence of influence effects on help.

After controlling for these homotypic effects, we tested two more models, in order to examine the presence of heterotypic influence effects in two directions: (a) from aggression to help (see Figure 1, path K) and (b) from help to aggression (see Figure 1, path L). We did not find evidence of heterotypic peer effects between these two behaviours, as the models' GoF did not improve with respect to model 3 (See Table 3). Figure 2 displays the final model.

Relational Aggression and Help

We replicated the models tested for physical aggression for relational aggression (See Table 4). As expected, both relational aggression and prosocial behaviour showed high levels of stability across time (Standardized Coefficients = .43 and .44 respectively) and were negatively related to each other within participants (r = -.21). Also, we observed that both a student's level of help and relational aggression were positively associated with the initial level of the friend's same behaviours at time one (Relational Aggression r = .52, Help r = .46), confirming that friends tend to be similar. Nevertheless, when heterotypic selection effects were tested (i.e. between-friends covariances between help and relational aggression), we did not find any significant associations. This finding suggests that although children affiliate with similar peers, the similarity in selection is not necessarily associated with dissimilarities in other behaviours. This initial model showed a moderate GoF as seen in Table 4. In the second model, we observed a significant improvement with respect to the previous model, confirming the presence of homotypic influence effects for relational aggression. As seen in Figure 3, friend's initial levels of relational aggression positively predicted the pre-adolescent's levels of relational aggression at Time 2. Regarding help, we corroborated the presence of influence effects for this behaviour,

due to the substantial improvement of GoF when Model 3 paths were added. Specifically, pre-adolescents' levels of help at time 2 were predicted by their friends' levels of help at time 1.

In model 4, we observed that the pre-adolescent's level of help at time two was positively predicted by hir friend's level of relational aggression at time one, demonstrating the presence of heterotypic influence effects between these two behaviours. This model showed a significant improvement in the GoF when compared to model 3. Finally, model 5 tested the heterotypic influence effect in the opposite direction (i.e. friend's help predicting relational aggression) did not improve the GoF of the previous model. Together, our results demonstrated that although relational aggression from the part of a friend increases help, that friend's levels of help do not influence the pre-adolescent's relational aggression. Table 4 shows the results of each of the steps of the SEM analyses conducted and the final model is displayed in Figure 3.

The Role of Popularity

Following the same steps from the previous models, we removed the equality constraints to test the moderating role of popularity on the peer effects found in prior models. By removing the equality constrains the dyads were forced to be distinguishable since the members of the pair differ in their levels of popularity. The final model for physical aggression and help showed an adequate GoF ($\chi 2$ (5) = 4.83, $p > .05$, CFI = 1.00, RMSEA = .00 [.00, .06] SRMR = .01), as well as the final model for relational aggression and help GoF ($\chi 2$ (7) = 4.73, $p > .05$, CFI = 1.00, RMSEA = .00 [.00, .04] SRMR = .01). The results demonstrated that the homotypic influence effect for physical aggression was statistically significant only for the path from the most to the less popular child, while the homotypic influence effect for help was bidirectional (see Figure 4). Similarly, the analyses for the model of relational aggression and help, revealed that the homotypic influence effect for this type of aggression was significant only for the path from the most to the less popular member of the dyad (Standardized Coefficient = .10, $p < .05$); whereas the effect for help was bidirectional (See Figure 5).

Regarding the heterotypic influence of friend's aggression on the pre-adolescent's subsequent levels of help, an association that was not observed before in the models with undistinguishable dyads emerged when the dyads were set to be distinguishable. Specifically, it was observed that the influence of a friend's level of physical aggression on helping was positive and only significant from the less to the more popular member of the dyad. In other words,

engaging in a friendship relationship with a physically aggressive friend who is less popular, increased the pre-adolescent's subsequent level of help. We observed similar results in the help and relational aggression model. The influence of the friend's initial level of relational aggression on the pre-adolescent's subsequent level of help was statistically significant only for the path from the less to the most popular member of the dyad. This means that the higher the level of relational aggression of the less popular pre-adolescent, the higher the subsequent level of help of hir more popular friend. Consistent with the distinguishable dyads analysis, we did not find any effect of friend's help over pre-adolescent's aggression, neither for physical nor for relational subtypes.

Gender Differences

We conducted an analysis of invariance for each of our models to examine differences between boys and girls. The dyads remained indistinguishable, and gender was used as the comparison variable. For physical aggression, the addition of equality constraints to some paths significantly worsened the model in which all the parameters were allowed to vary freely (unconditional). The unconditional model showed and adequate GoF $\chi 2$ (18) = 9.22, $p > .05$, CFI = .99, RMSEA = .00 [.00, .02], SRMR = .03). As shown in Table 5, aggression was more stable for boys, and help was more stable for girls. Also, we observed a statistically significant difference in the within-child covariance among help and physical aggression at time one, which suggests that although this association is negative for both groups the effect is stronger for boys (standardized coefficient = -.42 for boys and -.29 for girls). For selection homotypic effects, we observed that the level of physical aggression was more strongly associated among dyads of girls (standardized coefficient = .41) than among dyads of boys (standardized coefficient = .36).

In our fifth set of hypothesis, we stated that the homotypic peer influence effect on physical aggression would be stronger for girls (Hypothesis 5.1). Due to a significant decrease in the model GoF ($\chi^2\Delta$ (1) = 4.81, $p = .03$) when this path was constrained, the results confirmed our hypothesis. Specifically, the analysis revealed that the homotypic effect of physical aggression was statistically significant only among dyads of girls (Standardized coefficient for girls = .07, p =.048). Likewise, confirming our hypothesis 5.2 (the homotypic peer influence effect for relational aggression would be stronger for girls), when an equality constraint was added to this path, we observed a significant decrease in the constrained model GoF when

compared to the unconstrained model GoF ($\chi^2\Delta$ (1) = 5.15, p =.02). Specifically, the analysis revealed that this effect was present only in girls' dyads (Standardized coefficient = .11 for girls). Lastly, confirming our hypothesis 5.3 (the homotypic peer influence effect for help among friends would not vary as a function of gender), we did not find any significant changes in the models GoF with respect to the unconditional models, neither in the physical aggression and help ($\chi^2\Delta$ (1)= 1.37, p = .24), nor in the relational aggression and help ($\chi^2\Delta$ (1)= 0.05, p = .82) models.

We did not have a specific hypothesis for gender differences in heterotypic effects. Nevertheless, we observed a significant difference between boys and girls. When the path that represented the heterotypic effect of friend's physical aggression on subsequent levels of pre-adolescent's help was constrained, the model showed a significant decrease in the GoF compared to the unconditional model ($\chi^2\Delta$ (1) = 5.56, p = .02). According to the results, the friend's level of physical aggression at time 1 positively predicted the pre-adolescent's level of help at time 2, only in boys' dyads (standardized coefficient for boys = .90, p = .001) (See Table 5).

Discussion

The present study provides new evidence for a better understanding of peer selection and influence processes during adolescence for three main reasons. First, in addition to replicating previous findings of the influence of friends on aggressive behaviours, the evidence demonstrated that processes of mutual influence among dyads of same-sex friends. This last effect did not vary as a function of the gender or the levels of popularity of the study participants. Second, to our knowledge, no studies have simultaneously considered two different and opposite behaviours in peer influence: help and aggression. Third, the moderating role of popularity and gender was examined in both homotypic and heterotypic processes, yielding results that suggest that certain influence effects among friends vary as a function of certain individual characteristics.

Homotypic peer effects for aggression and prosociality

Our first hypothesis predicted the existence of homotypic effects in both aggressive and prosocial behaviour. In line with previous findings and supporting this hypothesis, the findings demonstrated that the friend's physical and relational aggressive behaviour at the beginning of the school year explained subsequent increases in the same behaviours in a sample of pre-

adolescents. Moreover, the contribution of the present study is new evidence about the existence of peer influence on the development of desirable behaviours. Although the peer contagion effect is often associated with risky behaviours (Dishion & Tipsord, 2011), the present study showed that it can take place also when friends foster the development of social skills in the benefit of healthy development.

Our study replicates previous findings of the "spread" of prosociality among friends during adolescence. Although this idea is not entirely new, our methodology overcomes two main limitations of the existing studies. First, the majority of the studies made use of self-report measures of cognitive attributes related to the disposition to act prosocially, which may not reflect adolescents' behaviour (Barry & Wentzel, 2006; Molano et al., 2013; Van Goethem et al., 2014). As such, peer nominations may serve as a more accurate measure. Second, there is a group of studies that go beyond self-report and make use of experimental laboratory tasks, in which subjects exhibit different types of behaviour (Choukas-Bradley, Giletta, Cohen, & Prinstein, 2015; Van Goethem et al., 2014). Although the controlled environment of the laboratory task constitutes a notable advantage with respect to the first set of studies, it is problematic to generalize the findings to real-life contexts, such as school settings.

The conclusions obtained from the studies that use peer nominations are mixed. Some have observed both selection and influence effects for prosociality in samples of pre-adolescents (Logis et al., 2013) and others have not (Dijkstra & Berger, 2018). The discrepancy in the existing evidence can be explained by the use of different types of assessment and varied methodologies. Those that use self-report for assessing prosociality consistently find influence of homotypic effects (Barry & Wentzel, 2006; van Hoorn et al., 2016), whereas those that use peer nominations and social network analysis do not (Dijkstra & Berger, 2018; Molano et al., 2013), except for some that include other variables such as popularity (Logis et al., 2013) and social norms (Laninga-Wijnen et al., 2017; Rambaran et al., 2013). In the present study, we observed both selection and influence effects.

Due to the role of friendship in facilitating processes of reinforcement and modelling that explain the "contagion" of risky behaviours (Dishion & Tipsord, 2011), it is plausible to expect that similar mechanisms explain peer influence on positive behaviours. This may be particularly valid if they are valued in a social context, or at least are perceived to be associated with high levels of status in the peer group (Brechwald & Prinstein, 2011). Further research is needed to

explore if these mechanisms also explain the peer effects observed in this study for prosocial behaviour. For instance, observational studies might provide useful information about the processes of interaction that explain the occurrence of those effects.

Our findings can also be explained by the cultural context of the sample used. Colombia is a collectivistic society in which helping others is valued and expected. Groups make injunctive norms of a particular behaviour and make it salient by attributing higher social status to those members who exhibit it (Henry et al., 2000). Previous studies suggest that homotypic peer effects are highly moderated by the social norms of the peer group. For instance, the contagion of aggression is more likely to occur when aggressive behaviours and popularity are strongly associated at the group level (Laninga-Wijnen et al., 2017; Rambaran et al., 2013). Further research is needed to explore whether class norms and dynamics also moderate the homotypic peer effects of prosocial behaviour observed in this study.

Heterotypic Effects

Our second set of hypotheses stated that the association between a friend's aggressive behaviour and the other friend's level of help at a later time would be negative and vice-versa. We did not find sufficient evidence to support this hypothesis. First, we did not observe any heterotypic effects between help and physical aggression. Second, aggressive behaviours (both physical and relational) were not predicted by the friend's initial level of help. Finally, contrary to hypothesis 2.3 we found that a friend's level of relational aggression predicted increases in the other friend's levels of help.

Instead, these results about heterotypic peer effects support our third hypothesis. This hypothesis was grounded in the idea that desirable social skills of an individual, such as being helpful, can promote stability rather than changes in hir friend's behaviours, while undesirable behaviours, such as aggression, can motivate changes in a friend's social skills in order to compensate the harm caused by the other friend. We found that after controlling for homotypic effects, associating with helpful friends did not affect the level of aggression in a subsequent time, neither physical nor relational. However, this conclusion is limited to the impact of relationships on changes within a short-time period. It would be important for future studies to explore if the results are different for longer periods of time (e.g. across the whole school year).

Indeed, increases in help at time 2 were significantly predicted by friend's levels of

relational aggression. Although we did not ask about the recipients of the help, previous evidence indicates that friends not only tend to help each other more often but they also they help and receive help from peers with whom they share similarities (Van Rijsewijk et al., 2016). It can be argued that having a relationally aggressive friend motivates increases in helping that friend for two reasons. First, if it is assumed that engaging in relational aggression represents a threat to social status, having a friend who helps others acts as an indirect way of assuring likeability and popularity in the group. Second, since relational aggression is aimed at harming social relationships, an adolescent who takes part in this type of aggression might find a helper who engages in the same behaviours in hir friend. Once more, friendship arises as a context that potentiates peer effects, in which increasing similarity allows the chance for differences without threatening the relationship (Laursen, 2018).

The Role of Popularity

When we considered differences in social status into our analysis, we found partial evidence to support our fourth hypothesis. This hypothesis stated that in general, the most popular member of the dyad would exert a greater influence in hir partner. This was the case for the two types of aggression since the results demonstrated that peer influence on these maladaptive outcomes presented a clear directionality. Specifically, the less popular member of each dyad increased their levels of aggression as a response to increases in their friend's aggressive behaviour, whereas the opposite was not observed. Although we expected to see a similar directionality effect for help, the results revealed that the members of the dyad influence each other's levels of help regardless of their social status. This counterintuitive finding can be explained by the fact that the association between prosocial behaviour and other attributes of social status are stronger than the association between prosociality and popularity. Specifically, previous research has demonstrated that help is positively associated with likeability and acceptance (McDonald & Asher, 2018; Sandstrom & Cillessen, 2006). Future studies must determine if these attributes moderate the occurrence of peer effects for help.

The fourth hypothesis also stated that among two friends within a dyad the most popular member would have a stronger heterotypic influence than hir friend. However, the findings did not support this prediction. Although the evidence from the first set of analyses did not reveal an association between friend's physical aggression and pre-adolescents' subsequent scores on help,

a statistically significant association emerged when popularity was included in the models. Specifically, help increased as a function of the level of physical aggression only for a path that estimated influence from the less to the most popular friend within a dyad.

Similar results were observed in regard to the effect of a friend's relational aggression on pre-adolescent's help. Confirming the results from the models in which dyads were indistinguishable, pre-adolescents increased their levels of help as a response of increases of friend's relationally aggressive behaviours, only when that friend was less popular. Taken together these results suggest that friend's aggression foster increases in pre-adolescents help only when there is a disparity of social status among the members of the dyad. Particularly, the most popular increased their levels of help as a response to increases in their less popular best friends' aggressive behaviour.

As previously discussed, a compensatory mechanism can explain the moderation of social status on peer heterotypic effects. An adolescent can engage in prosociality to repair the damage inflicted by a relationally and/or physically aggressive friend, only if the first one is more popular. Alternatively, it can be proposed that pre-adolescents seek help from popular friends to succeed in the purpose of hurting others. Indeed, previous literature shows that adolescents who are perceived to be more popular, are usually effective to attain social goals, sometimes by helping others and sometimes by aggressive and manipulative means (Mayeux, Houser, & Dyches, 2011). Based on this evidence, it is plausible to think that if a pre-adolescent has the intention to engage in relational aggression, hir will seek "the help" of a friend with higher social visibility to be able to harm and affect the social relationships of a potential victim.

We corroborated that the prosocial behaviour of a friend did not change the antisocial behaviour of an adolescent. Contrary to our expectations, this finding was not moderated by the social status of the members of the dyad, suggesting that aggressive behaviour does not seem to be sensitive to heterotypic influence peer effects for help.

Gender Differences

In general, our model was consistent across boys and girls. Nonetheless, we observed notable gender differences. The association between the adolescent and their friend's level of physical aggression was stronger for girls, evidencing a difference in the way adolescents select their friends based on this behaviour. Previous literature consistently reports that physical

aggression is less normative for girls (Ana M Velásquez et al., 2016). Probably, at low levels of physical aggression girls prefer to select similar peers as friends, in order to act accordingly with social expectations. Conversely, highly aggressive girls would be more likely to form a friendship with peers who exhibit similar levels of physical aggression as a result of similarities in their level of popularity (i.e. low social status due to their engagement in non-normative behaviours). Indeed, previous studies suggest that the formation of friendship networks during early adolescence can be explained by similarities in popularity (Logis et al., 2013). To test this hypothesis, larger samples are needed in order to simultaneously assess gender and popularity on peer effects.

Two main findings allow us to conclude that there are differences between boys and girls on influence effects. Consistently with our hypothesis, and replicating previous findings (Haynie et al., 2014; McMillan et al., 2018), the results suggest that girls are more prone to be influenced by their friend's physical and relational aggression. The higher stability of aggression across time observed in the group of boys can explain this result. Supposing that aggression fluctuates more in girls, one can conclude that they are more susceptible to change as a result of the influence of their friends. Indeed, higher friendship intimacy is associated with increases in girls' internalizing behaviours (Rose et al., 2017). For instance, when pre adolescents excessively discuss their problems with friends they are more likely to increase their depressive and anxiety symptoms (Rose, Carlson & Waller, 2007). Not surprisingly, these effects are stronger in girls' groups, given their tendency to engage in more disclosure and conversation with friends more often than boys (Rose & Smith, 2018). These features of female friendships can lead to deviant talk, an important mechanism that partially explains the contagion of aggression among peers (Dishion & Tipsord, 2011).

Regarding positive outcomes, the present findings demonstrate that there are no gender differences in the socialization of help among friends. The literature about the role of friends in the fostering of positive adjustment outcomes, as opposed to its protective role from maladaptive behaviours, seems not to vary as a function of gender. The consistency of peer effects for positive behaviours among boys and girls has been replicated for mathematical ability (DeLay, Laursen, et al., 2016), computer programming skills (DeLay et al., 2014) and reading skills (Kiuru et al., 2017). Indeed, the studies that have addressed specifically prosocial behaviour

report similar findings (Dijkstra & Berger, 2018; Van Goethem et al., 2014; van Hoorn et al., 2016).

For heterotypic effects, we observed that boys were exclusively prone to increase their levels of help as a result of engaging in friendships with physically aggressive peers (heterotypic influence effect). Why boys are more sensitive to heterotypic influences among physical aggression and help is a question that remains unanswered, due to the scare evidence on heterotypic peer effects.

Strengths and limitations

Despite the important contributions of the present study to the peer influence literature, it is not exempt from limitations. In the current study, we only examined one type of prosocial behaviour, namely help. Although we observed that help can be transmitted among friends, the specificity of our measure limits the generalizability of our conclusions for both homotypic and heterotypic effects for other types of prosocial behaviour (e.g. sharing, cooperating, etc.). Further research must explore if it is possible to replicate our findings considering other types of prosocial behaviours (e.g. cooperation, volunteering and sharing among others). Moreover, the explanations provided should be interpreted with caution, since "help" can represent several things in the context of a friendship relationship. As mentioned previously, an alternative explanation is that increasing help as a consequence of a friend's level of aggression is a consequence of helping hir to engage in more aggression. Similar mechanisms have been observed when children and early adolescents become friends with bullies, as they are more likely to assist the bully by cheering or holding the victim when the victim is harassed (Salmivalli, 2010). This alternative explanation for the heterotypic peer influence effect observed here is an avenue for future research.

The present study focused on same-sex interactions given that in late childhood and early adolescence, individuals tend to interact with same-sex friends more often than they do with other-sex peers (Fabes, Martin, & Hanish, 2003; Rubin et al., 2015). An interesting and less explored field is the interaction among other-sex dyads of friends and its effect in peer influences, particularly for the development of risky behaviours (Arndorfer & Stormshak, 2008; Mrug, Borch, & Cillessen, 2011). Further research should address the extent to which the findings of the present study are different for other-sex dyads. Lastly, our sample size was not large enough to test popularity and gender simultaneously in our models. Future studies must

address this issue as well as the fact that the hierarchically organized nature of the data (dyads nested in classrooms) was not included in the present analyses.

Future directions

Even though the APIM proved to be a satisfactory methodology to the study of heterotypic peer effects, methodological challenges need to be addressed in order to explore how these peer effects change across a larger period of time. Although the participants from our sample completed four measures across the school year, we analyzed only two times separated by ten weeks due to the exploratory purposes of the present study. That allowed us to find an acceptable number of stable dyads of friends to properly run our analyses. Studies including three or more time points should deal with the stability of friendships during this period of the life span. Previous studies suggest that only 8% of the friendships formed in first grade remain until the end of elementary school (6^{th} grade) (Dickson, Huey, Laursen, Kiuru, & Nurmi, 2018). Moreover, it is challenging to find stable mutual relationships during young adolescence due to the various changes that occur during this period, such as the transition from elementary to high school (Ng-Knight et al., 2018). Despite these challenging characteristics of friendship stability during early adolescence, an interesting venue for research is testing the present study's hypotheses in other developmental periods (such as high school), or in other contexts in which students are more likely to remain with the same classmates across all the school levels. Indeed, in high socio-economic status schools from Colombia, students tend to remain with the same group of classmates from elementary to the end of high-school, increasing the opportunity to maintain their friendships over longer periods of time. The sample size of the present study did not allowed us to test this idea. (i.e., 8.09% of dyads came from these types of schools)

We observed that aggressive behaviour was not influenced by the friend's level of help. Therefore, other variables commonly associated with aggressive behaviours need to be tested in order to obtain a better picture of how these peer influence mechanisms work. This includes emotional and cognitive characteristics in the models of heterotypic peer influences (e.g., empathy, perspective taking). The potential findings from such an approach would lead to comprehensive conclusions to inform the educational practices aimed to prevent and reduce risky behaviours as well as promote a healthy development, by enhancing the influence that peers have during early adolescence. For example, it would be interesting to study whether engaging in a

relationship with a highly empathic friend changes aggressive behaviour, due to the negative association between these two behaviours.

Finally, it is necessary to consider the moderating role of the extended group of peers on the peer effects mechanisms explored in the present study. To our knowledge, there are only two studies that have explored the moderating role of social norms in peer effects. These studies have consistently found that the influence or contagion effect of aggressive behaviour is more likely to occur in groups with high levels of salience norms of aggression (Laninga-Wijnen et al., 2017; Rambaran et al., 2013). Further research should consider how the group regulates homotypic and heterotypic peer effects.

Implications

Taken together, our results add important evidence not only for the research literature of peer effects but also to the educational interventions aimed to prevent and reduce risky behaviours. As the present study demonstrates, socializing with aggressive peers can foster increases in positive behaviours, which is likely due to compensatory mechanisms, whereas socializing with helpful friends does not seem to have an effect on aggressive behaviour. Interventions based on the assumption that promoting relationships among aggressive adolescents and peers with higher levels of desirable skills, need to consider the complex associations documented in this study. A more promising finding for the educational policy is that helping behaviours can be spread among friends, independently of their gender or popularity.

These results have important implications for public policy. Not surprisingly, the main area of interest in the intersection between policy and peer interactions research is the prevention of negative behaviours (Lansford, 2018). Nonetheless, more research to examine the role of peers in the promotion of healthy development is required, in order to inform policymakers, teachers and other members of the school community, on how to promote positive peer relationships. Although previous literature suggests the important role that peers play in learning social skills (Bukowski et al., 2015), this finding has rarely been tested directly using APIM's. An asset of the present study was the possibility of estimating directionality effects, in order to contribute to the current understanding about the complex world of interactions among peers and its consequences in developmental outcomes.

Table 1

Descriptive Statistics of the Study Variables.

	Skewness, Kurtosis z-score[1]	All (N = 902)		Boys (n = 460)	Girls (n = 442)	Gender Mean Difference Cohens' D
		Range	*M (SD)*	*M (SD)*	*M (SD)*	
Time 1						
Popularity	9.99, 0.13	0 - 23.08	4.82 (4.59)	4.32 (4.39)	5.34 (4.74)	0.22
Physical Aggression	18.77, 0.02	0 - 19.60	3.19 (3.72)	4.99 (4.28)	1.31 (1.50)	1.15
Relational Aggression	10.16, 0.06	0 - 15.74	3.07 (2.43)	3.08 (2.49)	3.05 (2.37)	0.01
Help	5.34, 0.68	0 - 22.08	6.1 (3.91)	5.05 (4.35)	7.20 (3.91)	0.57
Time 2						
Popularity	8.36, 0.39	0 - 23.26	5.15 (4.94)	4.49 (4.58)	5.83 (5.21)	0.40
Physical Aggression	21.02, 0.01	0 - 20.26	3.19 (3.80)	5.02 (4.35)	1.29 (1.61)	1.14
Relational Aggression	12.70, 0.04	0 - 16.29	3.18 (2.65)	3.12 (2.61)	3.24 (2.70)	0.05
Help	5.48, 0.56	0 - 22.62	6.30 (4.07)	5.07 (3.59)	7.58 (4.15)	0.65

Note. [1] z-scores for skewness and kurtosis were obtained by dividing the estimate by its standard error. Agg = Aggression.

Table 2

Bivariate Correlations between the Study Variables.

	1	2	3	4
1. Popularity	.	-0.01	0.24*	0.54*
2. Physical aggression	-0.04	.	0.55*	-0.42*
3. Relational aggression	0.23*	0.54*	.	-0.28*
4. Help	0.52*	-0.41*	-0.21*	.

Note. Time 1 coefficients displayed above and Time 2 coefficients below the diagonal.

Table 3

Goodness of Fit Indexes of the Structural Equation Model Analyses for Physical Aggression and Help.

Index		Intra-individual within and between time associations and inter-individual selection effects[1]	Influence Effects			
			Homotypic		Heterotypic	
			Physical Aggression	Help	Physical Aggression on Help	Help on Physical Aggression
χ^2		40.67	32.78	9.85	6.33	4.43
df		13	12	11	10	9
p-value		< .001	< .001	0.54	0.78	0.88
SCF[2]		1.03	0.99	0.96	0.97	0.98
RMSEA		0.07	0.06	0	0	0
CI 95%		[.04 - .09]	[.03,.08]	[.00,.04]	[.00,.04]	[.00,.03]
CFI		0.98	0.99	1.01	1.00	1.00
TLI		0.98	0.98	1.00	1.04	1.06
SRMR		0.04	0.04	0.02	0.02	0.01
Comparison Satorra-Bentler Correction	CD		1.49	1.32	0.86	0.88
	χ^2	$\Delta\chi^2$	6.30	17.42	3.86	2.04
		df difference	1	1	1	1
		p-value	< .001	< .001	0.08	0.48
Statistically Significant Change			Yes	Yes	No	No

Note.[1] Selection Effects were estimated as the within-time covariances among the behaviours of the two members of a dyad. [2] SCF = Scaling correction factor.

Table 4

Goodness of Fit Indexes of the Structural Equation Model Analyses for Relational Aggression and Help.

Index	Intra-individual within and between time associations and inter-individual selection effects[1]	Influence Effects			
		Homotypic		Heterotypic	
		Relational Aggression	Help	Relational Aggression on Help	Help on Relational Aggression
χ^2	48.51	42.58	16.48	11.55	11.05
df	13	12	11	10	9
p-value	< .001	< .001	0.12	0.32	0.27
SCF[2]	1.05	1.04	1.01	1.01	1.03
RMSEA	0.08	0.07	0.03	0.01	0.02
CI 95%	[.06 - .10]	[.05-.10]	[.00 - .06]	[.00 - .06]	[.00 - .06]
CFI	0.98	0.98	0.99	0.99	0.99
TLI	0.96	0.96	0.99	0.99	0.99
SRMR	0.04	0.04	0.02	0.02	0.02
Comparison Satorra-Bentler Correction	CD	1.17	1.37	1.01	0.83
	$\Delta\chi^2$	5.69	20.17	4.93	0.34
	Df Diff	1	1	1	1
	p-value	0.017	0.000	0.026	0.559
Statistically Significant Change		Yes	Yes	Yes	No

Note.[1] Selection Effects were estimated as the within-time covariances among the behaviours of the two members of a dyad. [2] SCF = Scaling correction factor.

Table 5

Gender Differences in Homotypic and Heterotypic Peer Effects.

Effect	Boys	Girls
Physical aggression		
Within individual		
Stability of physical aggression	.82	.58
Stability of help	.75	.78
Covariance help and aggression at time one	-.42	-.29
Selection		
Physical aggression	.36	.41
Influence		
Homotypic physical aggression	.01	.07
Heterotypic physical on help	.09	-.04
$\chi 2$ (18) = 9.22, p > .05, CFI = .99, RMSEA = .00 [.00, .02], SRMR = .03).		
Relational aggression		
Influence		
Homotypic Relational aggression	.01	.112
$\chi 2$ (18) = 21.19 p > .05, CFI = .99, RMSEA = .03 [.00, .06], SRMR = .03).		

Note. The table shows the standardized coefficients observed in the unconstrained models.

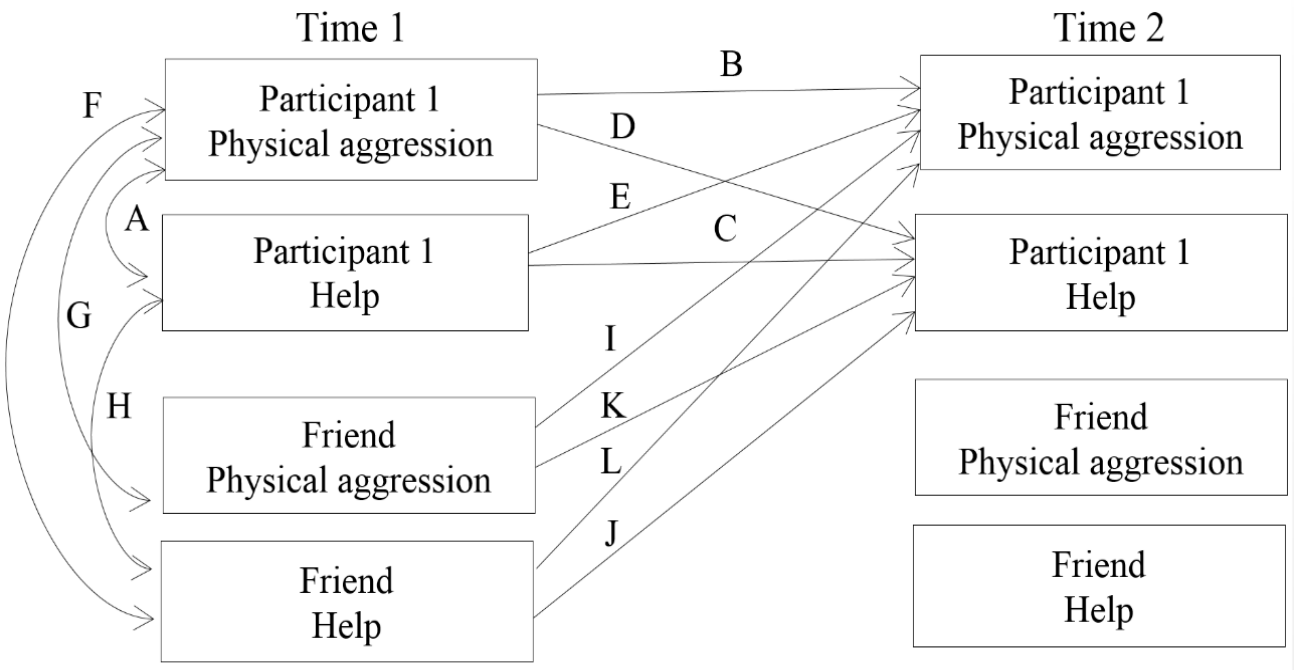

Figure 1. Steps of the Structural Equation Model Analysis.
Note. Each of the listed paths is accompanied by a reciprocal path constrained to equality.

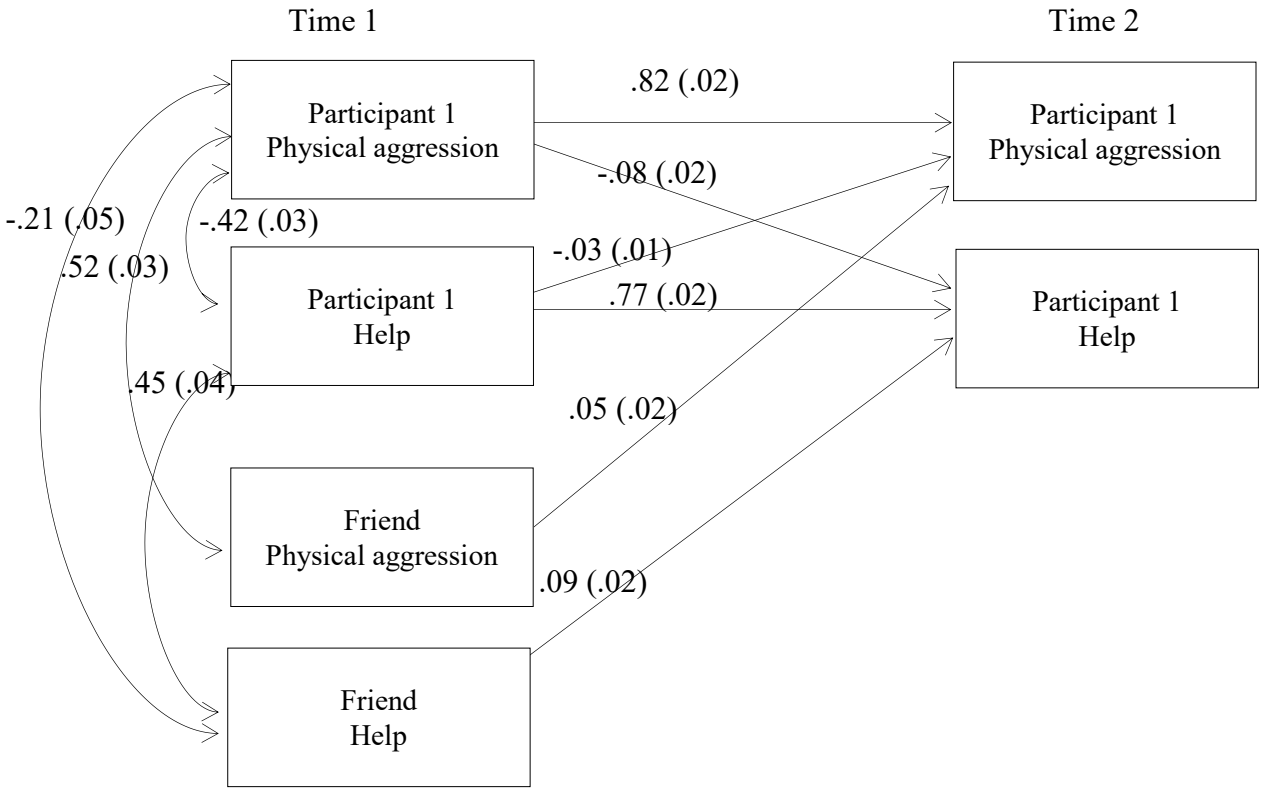

Figure 2. Homotypic and Heterotypic Peer Effects for Physical Aggression and Help. *Note.* Standardized coefficients are shown, and standard errors in parenthesis. Within-participant and between-participants initial covariances paths were included in the analysis but are not displayed in the graph. Due to the use of equality constraints, only one participant's coefficients are shown. Fit indexes for this model: (χ^2 (11) = 9.85, p = .54, CFI = 1.01, RMSEA = 0.00 [.00, .04], SRMR = .02, TLI = 1.00).

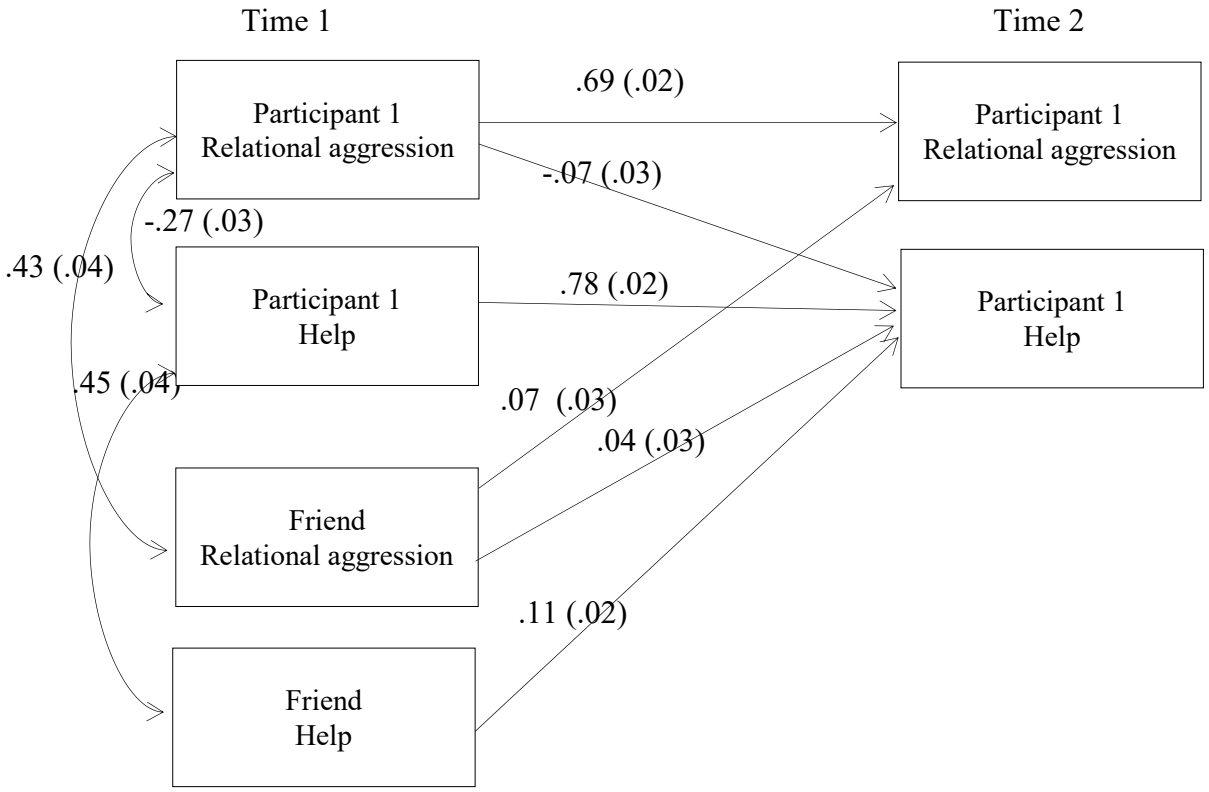

Figure 3. Homotypic and Heterotypic Peer Effects for Relational Aggression and Help. *Note.* Standardized coefficients are shown, and standard errors in parenthesis. Within-participant and between-participants initial covariances paths were included in the analysis but are not displayed in the graph. Due to the use of equality constraints, only one participant's coefficients are shown. Fit indexes for this model: (χ^2 (10) = 11.55, p = .32, CFI = 0.99, RMSEA = 0.01 [.00, .06], SRMR = .02, TLI = 0.99).

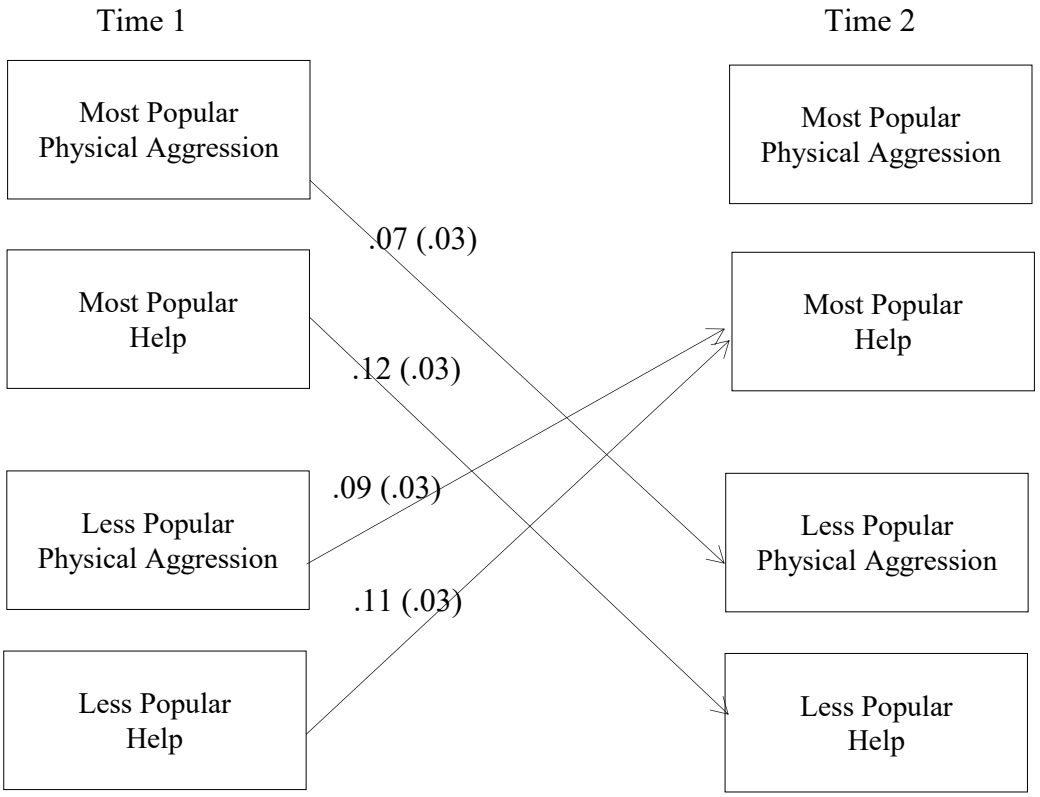

Figure 4. Moderation of Popularity in Homotypic and Heterotypic Peer Effects between Physical Aggression and Help.
Note. Standardized coefficients are shown. In parenthesis SE. Within-participant and between-participants initial covariances paths were included in the analysis but are not displayed in the graph. Fit indexes for the model: $\chi 2$ (5) = 4.83, $p > .05$, CFI = 1.00, RMSEA = .00 [.00, .06], SRMR = .01).

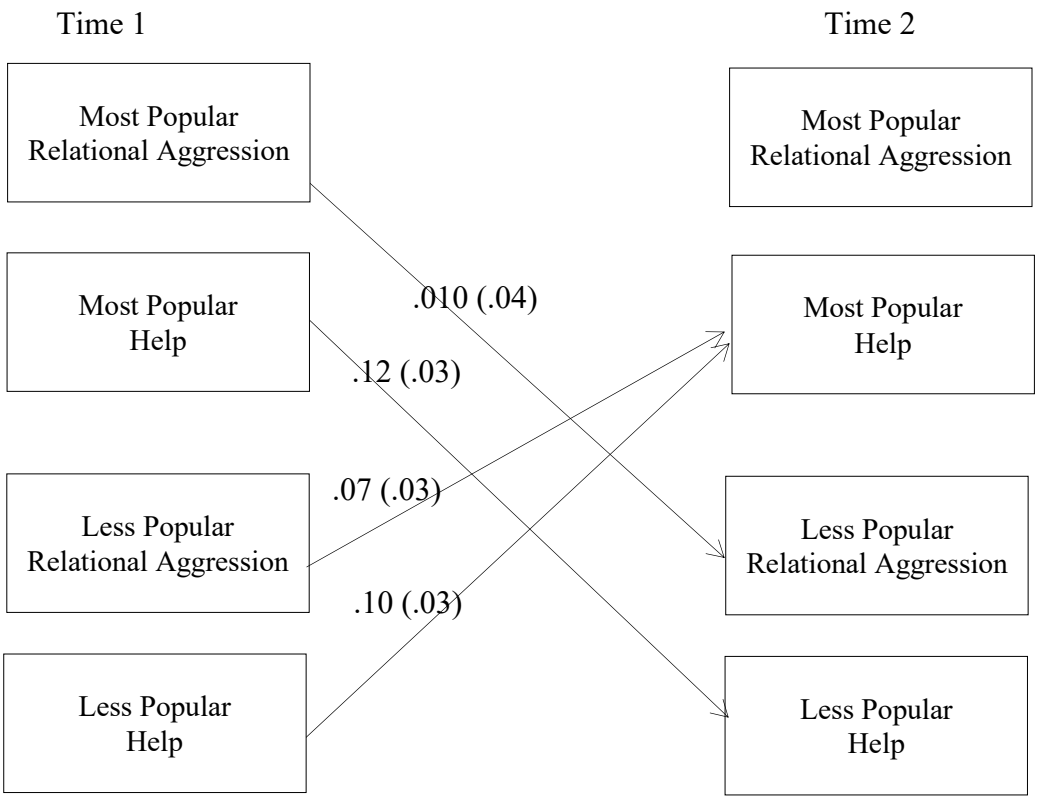

Figure 5. Moderation of Popularity in Homotypic and Heterotypic Peer Effects between Relational Aggression and Help.
Note. Standardized coefficients are shown. In parenthesis SE. Within-participant and between-participants initial covariances paths were included in the analysis but are not displayed in the graph. Fit indexes for the model: ($\chi 2$ (7) = 4.73, $p > 0.05$, CFI = 1.00, RMSEA = .00 [.00, .04], SRMR = .01).

Chapter 4: Transition Statement between Study 1 and Study 2

Results from Study 1 provided evidence for the influence of friends in the development of adaptive and maladaptive outcomes. Specifically, it was observed that two types of aggressive behaviour (i.e. physical and relational), as well as one type of prosocial behaviour (i.e. help), increased as a function of the best friend's level of those behaviours. Moreover, the evidence demonstrated that peer heterotypic influence effects did not occur among help and physical aggression, while the friend's level of relational aggression predicted increases in pre-adolescents' levels of help. By including moderator variables, the findings suggest that the influence of friends in the development of help did not vary as a function of gender or how popular the dyad members were. Conversely, it was observed that the most popular pre-adolescents exert a greater influence on their best friends' aggressive behaviour. Finally, girls seemed more prone to friend's influence for aggression whereas boys were exclusively prone to increase their levels of help as a result of engaging in friendships with physically aggressive peers.

Although these findings provided new evidence about peer influence during early adolescence by considering two different and opposite behaviours, the focus was on dyadic interactions. Nonetheless, ample evidence has demonstrated that both positive and maladaptive behaviours are highly influenced by the social norms of the extended group of pees, namely classmates. While the mere exposure to aggression from the part of peers, explains increases in individuals' likelihood of engaging in this behaviour, for prosociality social norms act as a protective factor that mitigates the association between negative peer experiences and emotional and behavioural problems.

Thus, a more complete picture of peer effects among friends should include classroom salience norms (i.e. classroom-level association between popularity and a behaviour) into the analyses. Surprisingly, few studies have explored the moderating role of salience norms in peer effects. Thus, Study 2 of the present dissertation was designed to contribute to this gap in the literature by postulating three main purposes. First, to explore profiles of classrooms based on three types of salience norms: help, physical and relational aggression. Second, to examine if the peer homotypic influence effects observed in Study 1 varied as a function of the classroom profiles. And third, to examine if the peer heterotypic influence previously explored in Study 1 varied as a function of the classroom profiles.

In general, we expected to observe that the peer effects observed in Study 1 would be consistent with the salience of those behaviours at the classroom level. For instance, one of the hypotheses of Study 2 posed that the homotypic peer influence effect for physical aggression would be stronger in classrooms in which this behaviour was more salient. We had similar expectations regarding homotypic effects for relational aggression as well as help. Regarding heterotypic peer effects, we had multiple hypotheses. On the one hand, we expected that the influence of friend's levels of help on pre-adolescent's physical and relational aggression would be stronger in classrooms with high levels of the salience of help. In other words, we expected to find a protective effect of contexts in which help was associated with social status. On the other hand, we had a different hypothesis regarding the effect of friend's aggression on the pre-adolescent's levels of help. For physical aggression, we hypothesized that the heterotypic effect of physical aggression on help would be stronger in classrooms with high salience norms of physical aggression. For relational aggression, we expected to find that the heterotypic effect of relational aggression on help would be stronger in classrooms with high salience norms of both types of behaviour. The last hypothesis was based on the findings from Study 1, specifically, the evidence that demonstrated that a friend's level of relational aggression predicted increases in pre-adolescents' levels of help.

Chapter 5: The Moderating Role of Salience Norms in Homotypic and Heterotypic Peer Effects for Aggressive and Prosocial Behaviour (Study 2)

Abstract

Current literature on processes of influence among friends has overlooked the moderating role of salience norms (classroom-level association between popularity and behaviour) in the occurrence of peer influence effects. The present study had three interrelated objectives: 1) To explore profiles of classrooms based on three types of salience norms: help, physical aggression, and relational aggression. 2) To examine whether the classroom profiles moderated peer influence effects for helping, physical aggression, and relational aggression, and 3) To examine if the classroom profiles moderated heterotypic peer effects (effect of a friend's behaviour X on a child's behaviour Y) among those three behaviours. The sample consisted of 451 same-sex unique dyads of friends grouped in 63 classrooms (M_{age}= 10.25 years). Two types of aggression and helping behaviours were assessed via peer nominations. Salience norms at the classroom-level were estimated by averaging the most popular members of each group' scores. A Latent Profile Analysis (LPA) revealed that there were three types of classrooms that varied as a function of the three salience norms: 1) moderate help and low physical and relational aggression (moderate-prosocial-profile), 2) high help and low physical and relational aggression (prosocial-profile), and 3) moderate levels of all the salience norms (mixed-profile). According to an SEM multi-group analysis, the results revealed that peer influence effects of physical aggression and help were stronger in classrooms in which aggressive and prosocial behaviour were equally salient (mixed-profile). Moreover, the friend's level of help did not influence subsequent levels of child's physical aggressive behaviour in any of the three types of classrooms, whereas in the mixed-profile groups the friend's level of help at Time 1 was associated with increases in the child's level of relational aggression at Time 2. Results are discussed in terms of the protective effect that classrooms with high salience norms of prosocial behaviour have in deviant peer effects, as well as the importance of considering the associations between status and behaviours at the group level when peer influence effects are analyzed.

Introduction

Beyond dyadic interactions with friends, children are also influenced by groups. Several studies have consistently reported that different features of the group, such as cohesion, structure and norms are important socialization sources (Bukowski et al., 2015). Moreover, additionally to the motivation to learn, from early years humans tend to conform to their in-group social norms in order to affiliate with its members, strength their identity (Tomasello, 2016) and learn how to interact with peers (Bukowski et al., 2015). Although the disapproval of nonconforming behaviours decreases with age (Roberts, Guo, Ho, & Gelman, 2018), still during adolescence children who deviate from the group tendencies are more likely to be rejected or disliked.

Given the influence of social norms on the development of aggression and prosocial behaviour, it is of vital importance to study how those group characteristics moderate the occurrence of peer influence effects. The present study is aimed at exploring the extent to which homotypic (i.e. the effect of early adolescents' behaviours on one dimension on the same dimension measured for their friend at a later time) and heterotypic peer effects (i.e. the effect of early adolescents' behaviours at an initial time on their friend's subsequent levels of another behaviour) processes are impacted by how salient are aggression and help at the classroom-level.

Group Norms

Cialdini, Reno, and Kallgren (1990) classified social norms in two main categories: descriptive and injunctive. Descriptive social norms are defined as the most common behaviours on a group (Cialdini et al., 1990). In other words, what the members of a group do. Typically, descriptive norms are represented by a group-level score that is estimated by aggregating group members' individual scores. For instance, an average of the aggressive behaviours of a group of peers provides an estimate of the prevalence of that behaviour within the classroom setting. In contrast, injunctive norms are the perceived degree of approval or disapproval for behaviour from the part of the group (Jacobson, Mortensen, Jacobson, & Cialdini, 2015). In the words of Cialdini and collaborators, "injunctive norms specify " (1990, pp. 2015). Similar to descriptive norms, injunctive norms are estimated by averaging individuals' normative beliefs, or their perception about the extent to which a behaviour is approved in their in-group (Huesmann & Guerra, 1997).

Individuals' behaviours change as a function of the interaction between descriptive and

injunctive social norms. For instance, an ample body of research has shown that beneficial behaviours for the environment are strengthened by offering information that combines descriptive (i.e. inform behaviour) and injunctive (i.e. enjoin behaviour) norms (Goldstein, Griskevicius, & Cialdini, 2007; Schultz, Nolan, Cialdini, Goldstein, & Griskevicius, 2007).

Group Norms in the Development of Aggression and Prosociality.

A vast body of literature has focused on the role that descriptive and injunctive norms have in the development of social behaviours during childhood and adolescence. For both positive and maladaptive behaviours, such as aggression and prosociality, the consistent finding is that the members of a group change their behaviour in accordance with the norms of the social setting they belong to. Several explanations exist for this phenomenon. First, modelling and reinforcement of behaviours from the part of the peers foster individuals' development, for both prosocial (Eisenberg et al., 2015) and aggressive behaviours (Bandura, 1978). Second, the resource control theory proposes that both prosocial and aggressive behaviour are adaptive mechanisms to gain resource control and superior ability to attain goals (Hawley & Bower, 2018; Hawley, Shorey, & Alderman, 2009). The domain over resources occurs via social status attributes that become increasingly important for individuals during early adolescence. These features of social status are popularity (i.e. social reputation and visibility) and acceptance (i.e. how well-liked an individual is among hir peers) (Cillessen & Mayeux, 2004). As shown in several studies, acceptance and popularity exhibit unique and separate associations with behaviours at the end of elementary school (Cillessen & Rose, 2005). While acceptance is positively associated with prosociality, popularity is positively associated with aggression (Sandstrom & Cillessen, 2006). Moreover, the co-occurrence of prosocial and aggressive behaviour seems to lead to high levels of popularity, but not acceptance (Wurster & Xie, 2014).

The existing findings suggest that the influence of social norms on individuals' behaviours is different for maladaptive and adaptive outcomes. Whereas for aggression, the mere exposure to maladaptive peer behaviors explain increases in individuals' likelihood of engaging in the same behaviours, for positive outcomes (i.e. prosocial behaviour) social norms act as a protective factor that mitigates the association between negative peer experiences and emotional and behavioural problems. For instance, being exposed to peer contexts with high prevalence of risky behaviours such as aggression and delinquency is associated with greater individuals' likelihood of engaging

in those behaviours (Henry et al., 2000; Müller, Hofmann, Fleischli, & Studer, 2016; Thomas, Bierman, Powers, & Group, 2011). Moreover, several studies exist about the association between smoking (Zaleski & Aloise-Young, 2013), alcohol consumption (Pedersen et al., 2017), risky sexual behaviours (Van de Bongardt, Reitz, Sandfort, & Deković, 2015) and the perception of young-adolescents about what their friends and classmates perceive to be acceptable. Nevertheless, attending a school with prosocial peer norms weakens the negative association between victimization and anxiety (Schacter & Juvonen, 2018) Likewise, research about school-wide interventions to promote socio-emotional learning has demonstrated that promoting group norms that favour prosocial behaviour and enhance students' negative attitudes towards bullying reduces the occurrence of bullying episodes, and mitigates the risk of maladaptive outcomes (Herkama, Saarento, & Salmivalli, 2017; Saarento, Boulton, & Salmivalli, 2015). These effects seem to be stronger when the intervention strategies are targeted to influential members of the group (Paluck, Shepherd, & Aronow, 2016; Yeager, Dahl, & Dweck, 2018). For instance, when adolescents perceive that their peers are supportive of intergroup contact, they are more likely to increase the frequency and quality of interactions with outgroup members and to engage in outgroup prosocial behaviours (McKeown & Taylor, 2018; Tropp et al., 2016).

Norm Salience

Despite these valuable efforts to describe the peer context and its influence on individual developmental processes, injunctive and descriptive norms have important limitations to study social behaviours that are closely related to social status. First, the methodological frame of this approach the role of social sanctions and rewards in modelling behaviours is unrecognized. Specifically, popularity and acceptance are fundamental to understand what is valued or not in a peer group, particularly during childhood and early adolescence (Cillessen & Mayeux, 2004; Veenstra, Dijkstra, & Kreager, 2018). Beyond the prevalence of a behaviour or a normative belief in a group, peers define what is accepted or rejected by assigning different levels of status to the group members according to the behaviours they exhibit. Second, by averaging individuals' scores, the estimates are by definition affected by outliers. This implies that individuals with extreme scores can artificially inflate the score of the whole group, leading to biased estimations that either underestimate or overestimate the prevalence of behaviour within a group and thereby the social norms related to it.

An alternative to overcome these limitations is the estimation of salience norms. Norm salience is defined as "the extent to which each classroom made injunctive norms regarding aggression salient by virtue of higher peer rejection and lower peer popularity for aggressive children as well as the frequency of contingent teacher reprimand for aggressive behaviour" (Henry et al., 2000, p. 61). Instead of asking children, what they think is valid and expected in their group, salience norms aim to capture which behaviours have strong associations with popularity within the peer group (Veenstra et al., 2018). Consequently, the prevalent practice in the literature is to estimate the within-class correlation between behaviour and popularity. Three studies constitute remarkable exceptions to this common practice since aggression salience norms were estimated by assigning higher weights to the most popular members of a group. On one hand, Velásquez (2011) identified the most popular members in a classroom and averaged their individual aggression scores to calculate the group's salience norm. Similarly, Dijkstra, Lindenberg, and Veenstra (2008) averaged the bullying behaviours of the groups' most popular members and used that variable as the popularity norm. Finally, Jackson et al. (2015) multiplied each individual's aggression by hir centrality, an index of the relationships a child has within a social network (Neal, 2011), and averaged those weighted scores at the classroom level to calculate network-based norms for each group.

Consistently, studies have reported that salience norms of aggression are better estimators of group norms than the traditional descriptive and injunctive norms approach for three reasons (Dijkstra & Gest, 2015). First, salience norms are stronger predictors of individual behaviours and its association with social status later on (Dijkstra & Gest, 2015; Laninga-Wijnen et al., 2017; Rambaran et al., 2013). Second, these estimations are able to capture the changing nature of the peer ecologies (Laninga-Wijnen, Harakeh, et al., 2018). Finally, salience norms overcome the statistical limitations than the simple average presents (e.g. being affected by outliers and assigning the same weight to all of the individuals overlooking at social status attributes).

In the domain of behavioural problems, the existent findings demonstrate that during early adolescence, aggression changes accordingly to the salience norms of the classroom settings. Specifically, the conclusions suggest that in classrooms with high salience of aggression norms 1) aggressive individuals have higher social status (Jackson et al., 2015), 2) aggressive children are less likely to be victimized (Guimond, Brendgen, Vitaro, Dionne, & Boivin, 2015) even if they have a genetic disposition to be aggressive (Brendgen, Girard, Vitaro, Dionne, & Boivin, 2015),

and 3) the socialization or contagion effect of aggressive behaviour is more likely to occur (Laninga-Wijnen et al., 2017; Rambaran et al., 2013).

Although most of the studies about class norms and social behaviours study deviant and risky behaviours, recent developments have shown attention-grabbing results regarding prosocial behaviour. The findings suggest that in classes in which prosocial behaviour is associated with popularity: 1) students are more likely to increase their prosociality across time (Hoglund & Leadbeater, 2004; Laninga-Wijnen, Harakeh, et al., 2018) 2) peer acceptance is more strongly associated with prosocial behaviour (Dijkstra & Gest, 2015) 3) the risk of future behavioural problems is lower (Hofmann & Müller, 2018; Hoglund & Leadbeater, 2004; Schacter & Juvonen, 2018) and 4) the structure of popularity is less hierarchical and more equally distributed among all the individuals of a group (Laninga-Wijnen et al., 2019). Other adaptive skills have been proven to be influenced by salience norms (see (Dijkstra & Gest, 2015; Laninga-Wijnen, Ryan, et al., 2018; McCormick & Cappella, 2015).

Two analytic approaches dominate the inclusion of salience norms in models of individual trajectories of aggressive behaviour and peer influence effects. One group of studies establishes thresholds to categorize classrooms depending on the levels of salience norms of one behaviour (e.g., low, moderate and high). Afterwards, the statistical analysis initially conducted for all the sample is conducted separately for the different types of groups (Laninga-Wijnen et al., 2017; Rambaran et al., 2013). The second set of studies included the salience norms as continuous variables in multi-level models (Boor-Klip, Segers, Hendrickx, & Cillessen, 2017; Brendgen et al., 2015; Guimond et al., 2015; Henry et al., 2000). In both approaches, only one salience norm characterizes classroom settings. Only two studies have, to our knowledge, used classification methodologies to find profiles of classrooms based on the salience of multiple behaviours, by analyses such as k-means cluster (Dijkstra & Gest, 2015) and latent profile analysis (Laninga-Wijnen, Harakeh, et al., 2018). In terms of prosociality and aggression, the findings suggest that there are at three types of classrooms: 1) high prosocial and low aggressive salience norms, 2) low or moderate prosocial and high aggression salience norms, and 3) moderate levels of both prosocial and aggressive salience norms (Dijkstra & Gest, 2015).

Even less research exists for the Colombian context. Nevertheless, according to a report from Alcaldía Mayor de Bogotá, Secretaría de Educación (2018) during 2017 schools in Bogotá grouped into six categories in terms of the students' perceptions of risky behaviours (i.e.

descriptive norms). Regarding the presence of bullying and aggression, they found a group of schools with a minimum (14%), a group with low (25%) and a group with high levels of risk of these maladaptive behaviours (13%) (Alcaldía Mayor de Bogotá, Secretaría de Educación, 2018). The remaining groups were characterized by a high risk of other problems such as the presence of guns, drugs and violence in the neighbourhood (Alcaldía Mayor de Bogotá, Secretaría de Educación, 2018). Moreover, recent data suggest that in general, students in Bogotá report attitudes that favour both positive and undesirable behaviours to the same extent. According to a survey conducted with a representative sample composed of 31.988 students from 1.075 schools (Universidad de Los Andes & Secretaría de Educación Distrital, In Progress), more than half of students reported positive attitudes towards including and engaging in positive interactions with individuals from minority groups (e.g. homosexuals). However, a third part agreed with affirmations that justify the use of aggression (e.g. "It is ok to fight back if someone hits you before") or violations to the law ("It is ok to violate the law if there is an economic benefit") (Universidad de Los Andes & Secretaría de Educación Distrital, In Progress). In terms of prevalence, it was observed that most of the students report engaging in positive interactions with peers such as cooperation (90%) and helping (46%), but also, 28% reported being victims of relational aggression, and 80% report that most of the classmates respond with aggression to defend a victim of bullying. (Universidad de Los Andes & Secretaría de Educación Distrital, In Progress).

In order to contribute to a better characterization of the classroom context, the first objective of the present study was to explore whether there are any profiles of classrooms based on three types of salience norms: physical and relational aggression as well as prosocial behaviour. The differentiation between the physical and relational subtypes of aggression was designed to contribute to a better understanding of the peer context since most of the previous studies had used an aggregate measure that includes both of them into a single estimation.

Due to the sparse existing evidence, this classification analysis was of an exploratory nature. Nonetheless, we expected to replicate the existing findings. Our first hypothesis was is that at least two classroom profiles would be identified: one group with high help and low aggressive salience norms, and a group with low or moderate help and high aggression salience norms. Additionally, we expected to observe a type of classroom characterized by high levels of both relational aggression and help salience norms, since the combination of these two types of

behaviours can lead to popularity during adolescence (Hawley, 1999), while physical aggression seems to function separately.

Findings on the Domain of Peer Effects of Aggressive and Prosocial Behaviour.

To our knowledge, only three studies have documented the influence of salience norms on peer effects (Correia, Brendgen & Vitaro, 2019; Laninga-Wijnen et al., 2017; Rambaran, Dijkstra, & Stark, 2013). Peer effects can be classified into two types, selection effects or the tendency of children to be attracted to and form friendships with peers who exhibit similar behaviours, and influence effects or the tendency to change the behaviour as a function of a friend's influence (Dishion, 2013; Kandel, 1978). Both selection and influence processes can occur for a single behaviour (i.e. homotypic peer effects) and between different behaviours (i.e. heterotypic peer effects, which are also known as cross-behaviour and indirect peer effects). As described in detail in Study 1, peer effects are considered homotypic when a child's behaviour varies as a function of the same behaviour of hir friend. Peer effects are considered heterotypic when a child's behaviour varies as a function of another behaviour of hir friend.

Few studies have explored if homotypic peer effects are moderated by class salience norms. Consistently these studies have found that both selection and influence peer effects for aggressive behaviour are more likely to occur in groups with high levels of salience norms of aggression (Laninga-Wijnen et al., 2019; Laninga-Wijnen et al., 2017; Rambaran et al., 2013). That is, aggression is more likely to be transmitted among peers in contexts in which being aggressive is associated with being popular. While Laninga-Wijnen and colleagues' studies (2017; 2019) used peer nominations, Rambaran et.al. (2013) used a measure of attitudes towards aggression to estimate the salience norms. Regardless of the methodological differences between these two studies, they report similar findings. According to this evidence, the second objective of the present study was to examine if homotypic peer influence processes are moderated by class salience norms.

To achieve our second objective, we tested the following hypotheses. One hypothesis is that homotypic peer effects for physical aggression would be stronger in classrooms with higher than in classrooms with lower levels of physical aggression salience norms (Hypothesis 2.1). To our knowledge, only one study has explored peer effects specifically for relational aggression (Werner & Crick, 2004), as opposed to the prevalent practice of employing aggregate constructs

of several aggressive behaviour subtypes. Not surprisingly, there are no published studies about the role of salience norms on the occurrence of peer effects on this specific subtype of aggression. Nonetheless, studies interested in individuals demonstrate that relational aggression is more likely to increase as a function of a normative context in which this behaviour is salient (Jackson et al., 2015; Kuppens, Grietens, Onghena, Michiels, & Subramanian, 2008; Rohlf, Krahé, & Busching, 2016). Given this gap in the literature, the next hypothesis was that the homotypic peer influence effect for relational aggression would be stronger in classrooms with higher than in classrooms with lower levels of relational aggression salience norms (Hypothesis 2.2).

Although there are no studies that explore the moderating role of salience norms on peer effects for prosocial behaviour, we expected to observe that the influence of friends in help would be stronger for classrooms with high salience of help, than in classrooms with low levels of salience of this behaviour (Hypothesis 2.3). This hypothesis is built on existing studies that demonstrate that individuals' prosocial behaviour is more likely to increase in contexts with positive social norms that favour to act in benefit of others (Herkama et al., 2017; McKeown & Taylor, 2018; Saarento et al., 2015; Tropp et al., 2016). Therefore, we expected that a context that fosters prosociality would strenght mutual influences among friends on this behaviour.

The Present Study

Most of the literature on social norms has examined deviant behaviours. Therefore, several educational interventions to reduce aggression, delinquency and bullying aim to promote positive classroom settings. Specifically, the most successful interventions often target peers as important sources of socialization, due to their important role in the determination of the group's expectations. For example, Finland's KiVa antibullying program relies on enhancing bystanders' awareness and empathy, in order to reduce the social rewards gained by bullies (Kärnä et al., 2011). Similar premises based on group norms are used for other interventions (see (Chaux et al., 2017). Regardless of the positive effects evidenced by these interventions, evidence of decreases in aggressive behaviour as a result of the interaction with more prosocial peers in the friendship context is scarce. To our knowledge, this is the first study that explores the moderating role of group salience norms of aggression and prosociality on peer homotypic and heterotypic effects.

The evidence from Study 1 of the present dissertation showed that friend's levels of physical aggression did not predict a child's levels of subsequent help, although friend's level of relational aggression led to increases in help. In order to contribute to a better understanding of peer influences, the third objective of the present study was to explore the moderating role of salience norms of aggression and prosociality in heterotypic influence peer effects.

According to the existing evidence that suggests that the association between aggressive and prosocial behaviour varies as a function of the type of aggression, we formulated different hypotheses regarding the influence of physical and relational subtypes of aggression on help. For physical aggression, we hypothesized that the heterotypic effect of physical aggression on help would be stronger in classrooms with high salience norms of physical aggression (Hypothesis 3.1).

There is theoretical (Hawley, 2003) as well as empirical evidence that suggests that a combination of relational and prosociality behaviour can serve as a successful mechanism to gain social status (Peters, Cillessen, Riksen-Walraven, & Haselager, 2010). Consequently, we expected to find that heterotypic effects between relational aggression and help would be stronger in classrooms in which both behaviours are salient. Specifically, our hypothesis about the effect of friend's relational aggression on prosociality was that the heterotypic effect of relational aggression on help would be stronger in classrooms with high salience norms of both types of behaviour (Hypothesis 3.3).

The other direction we explored was the influence that the friend's levels of help can have on the development of the two types of aggression. Although the results from Study 1 were that, in general, friends' help does not have an impact on aggression, we hypothesized that this heterotypic effect would vary as a function of the social salience norms of the peer group. Based on the evidence from interventions that suggest that strategies to change normative beliefs and group's behaviour more than an individual's social skills are more effective to tackle maladaptive behaviours, our hypotheses were as follows. The heterotypic effect of help on physical aggression would be stronger in classrooms with high salience norms of help (Hypothesis 3.3), and the heterotypic effect of help on relational aggression would be stronger in classrooms with high salience norms of help (Hypothesis 3.4).

Method

(See Chapter 2: Method for the two studies)

Analytic Strategy

The present study builds on the findings from Study 1 of the present dissertation. The models conducted for Study 1 were analyzed in relation with three salience norms at the classroom level: physical aggression, relational aggression and help. The specific analysis conducted for this study is described below.

Latent profiles of classrooms defined based on the salience of aggressive and prosocial behaviour were identified using latent profile analyses (LPA) in Mplus 7.0. This approach provides a classification of cases, based on their similarity on certain indicators (dependent variables) (Muthén & Muthén, 2012). The analysis was conducted at the classroom level, and three variables were included: salience of physical aggression, salience of relational aggression and salience of prosocial behaviour. Five main criteria guided the assessment of the Goodness of Fit (GoF) of each of the models tested since there is not a single indicator for deciding about the number of latent profiles. First, the parametric bootstrapped likelihood ratio test (BLRT) that compares a model with one less latent profile (k vs k-1). Non-significant *p* values indicate that the k-1 profile model must be retained. Second, the Adjusted Bayesian Criterion Information (ABIC), which has been proved to be the best indicator of the number of classes in this type of analysis (Nylund, Asparouhov, & Muthén, 2007). Third, the Consistent Akaike Information Criterion (CAIC). Relative decreases in ABIC and CAIC when each solution is compared with a model with one less latent profile are considered appropriate. Fourth, entropy values, which estimate the accuracy of the classification of the cases. Values close to 1 indicate a greater classification accuracy (Morin & Litalien, 2019). Finally, a theoretical criterion was used in order to properly interpret the results, by comparing them with the findings from other samples.

Once different types of classrooms were identified by the LPA procedure, we conducted several multi-group comparisons to examinee if the initial models with peer effects varied as a function of the type of group under study. These structural invariance models were conducted using the Maximum Likelihood Robust estimator (MLR), which is robust to non-normality, for the estimation of all the invariance. This procedure started with an unconstrained model that estimates results separately for the profiles and serves as the comparison point of the subsequent

analysis. Next, equality constraints were added in separate models for each of the paths included in the unconditional model. Any significant change in the model goodness of fit (i.e. improvement or worsen) suggests a difference between the groups. The constrained models were examined with several goodness of fit indexes, both relative and absolute. First, a Chi-Square difference test (Muthén & Muthén, 2012), corrected by the Satorra-Bentler Scaled Factor, necessary when the MLR estimator is used (Satorra & Bentler, 2010). Additional relative indexes such as the comparative fit index (CFI), the root mean square error approximation (RMSEA), the standardized root mean squared residual (SRMR) and the Tuker-Lewis Index (TLI) were used to compare among the models. Acceptable levels of fit indexes are between 0 and 0.08 for SRMR, lower than 0.08 for RMSEA and larger than .90 and .95 for the CFI and TLI respectively (Asparouhov & Muthén, 2018), Hu & Bentler, 1999). Finally, the coefficients estimated for each of the paths were assessed with a null hypothesis test of statistical significance for the coefficients estimated in each path.

Results

The results from Study 1 showed the presence of homotypic peer influence effects for physical aggression, help and relational aggression (i.e. children's behaviour changed as a function of the same behaviour of hir friend). Moreover, after controlling for homotypic effects, we observed that the friend's level of help did not affect the level of participants' aggression at a later time. Finally, the analyses revealed that a friend's levels of relational aggression explained subsequent increases in help. In Study 2 these results were examined in relation to different types of classrooms based on salience norms.

Classroom Profiles

Our first objective was to explore if there were any profiles of classrooms based on the three salience norms of our interest. The norms showed moderate associations among them. As expected the salience norm of help was negatively associated with physical (r = -.49) and relational aggression (r = -.025), and the norms of these two types of aggression were positively associated (r = .48). In the whole sample salience of help was the norm with the highest prevalence (M = 8.96, SD = 2.88), followed by relational aggression (M = 4.11, SD = 2.10) and

physical aggression (M = 3.03, SD = 2.21). Table 6 displays other descriptive statistics of the classroom level measures.

We conducted a latent profile analysis (LPA) at the classroom level, in order to explore the classification of the groups according to their level of the three salience norms (physical aggression, relational aggression and prosociality). Our first hypothesis posed that the classrooms would group into three categories: a) high help/low aggression b) moderate help/high aggression and c) high help /high relational aggression. We found partial support for our hypothesis. The analyses revealed that the groups clustered in three categories: a) Moderate help and low aggression salience norms (n= 35, 56% of the groups) b) High help and low aggression salience norms (n = 21, 33 %), and c) Mixed, with moderate levels of all the salience norms (n = 7, 11%) (See Figure 6). Only one of the groups confirmed our expectations.

The results revealed that the three profiles solution fitted our data better than the two and four profiles solutions (see Table 7). First, the BLRT showed that the 3 profiles solution should be retained in comparison to the 2 profiles solution (p= < .001), whereas the four profiles should not be retained in comparison to the 3 profiles solution (p=.062). Second, larger decreases in ABIC and CAIC indexes were observed on the three profiles solution when compared to the two profiles solution (ABIC =2.09%, CAIC=27.15) than the decreases in the comparison between four profiles and the three profiles solutions (ABIC =2.00%, CAIC=21.88). Third, the highest value of entropy was observed in the three profiles solution (.95). Finally, our findings replicate results from studies with European samples, that have documented similar classification solutions (Laninga-Wijnen, Harakeh, et al., 2018; Rambaran et al., 2013). Table 7 summarizes the GoF indexes.

Descriptive Statistics of the Latent Profiles.

Table 8 shows descriptive statistics of the salience norms by profiles of classrooms. In order to achieve a more complete understanding of the profiles observed a multivariate analysis of variance (MANOVA) was conducted. The analysis revealed that the profiles did not differ in the proportion of girls (F (2, 60) = 1.13, p = .66, η_p^2 = .02), SES (F (2, 60) = 0.66, p = .51, η_p^2 = .04) and age (F (2, 60) = 0.49 p = .61, η_p^2 = .02). An additional multivariate analysis of variance demonstrated that while the groups did not differ in their prevalence of physical aggression (F (2, 60) = 2.64, p = .08, η_p^2 = .08) and relational aggression (F (2, 60) = 1.83, p = .17, η_p^2 = .06), for

help there is a significant main effect of group (F (2, 60) = 3.22, p = .51, η_p^2 = .04). According to a post-hoc pairwise comparison, the moderate prosocial group showed on average lower levels of this behaviour (M=5.46) than the highly prosocial group (M=6.53) (p=.042, d = 0.73). These results suggest that the profiles reflect normative (i.e. salience) rather than prevalence (i.e. descriptive norms) differences among the classrooms.

Peer Effects and Classroom Salience Norms

Once the class profiles were identified, we conducted a structural multi-group analysis in order to assess whether the peer effects observed for the whole sample differed as a function of the classroom profiles. The advantage of this approach over previous studies is that instead of conducting the analysis of the main models separately for each classroom profile, we included the three types of groups observed in one single model. Due to the non-normal distributions of some of the variables, we used the Maximum Likelihood Robust estimator (MLR), available in MPlus 7.0., for the estimation of all the models. The multi-group analysis in SEM starts with an unconstrained model that estimates the results separately for each of the three profiles and constitutes the comparison point of the subsequent analyses. Next, equality constraints were added to each path, to force them to estimate the same coefficient for the three profile groups. Finally, the Godness of Fit (GoF) of the constrained model was compared to the fit of the unconstrained model.

Any significant change in the model GoF when the parameters are constrained, suggests the existence of a difference between the groups. For instance, a model in which the homotypic peer effect for help is constrained across all the groups will produce the same unstandardized coefficient for all of them. If the GoF of that model is worst than the GoF of the unconstrained model, one can conclude that this path varies as a function of the type of classroom profile. In Mplus the comparisons among models are estimated by a Chi-Square difference test (Muthén & Muthén, 2012), corrected by the Satorra-Bentler Scaled Factor, necessary when the MLR estimator is used (Satorra & Bentler, 2010).

Physical Aggression and Help.

The unconstrained model for physical aggression and help showed an adequate GoF (χ^2 (30) = 28.106, p >.05, CFI =, RMSEA = .00 [.0, .028], SRMR = .028). In subsequent models,

equality constraints were added in order to test for invariance (See Table 9). The results revealed that, when some of the effects are set to be equal across all the groups, the model's GoF significantly deteriorated, suggesting that there are statistically significant differences among the three profiles of classrooms. Specifically, the within-child stability of the two behaviours, the association between child's and hir friend's behaviours at time 1 and the homotypic peer influence effect for physical aggression differed among the three profiles of classrooms. After, we conducted pairs of comparisons to explore the differences. Specifically, we repeated the analysis three times: moderate prosocial vs prosocial profiles, moderate prosocial vs mixed profiles and prosocial vs mixed profile.

We observed that both physical aggression and help were more stable in prosocial-profile than in moderate prosocial-profile and mixed-profile classrooms. Furthermore, we included the covariances among the time 1 variables as a way of controlling for the initial associations between the child's and the friend's behaviours. When these correlation coefficients were tested for structural invariance, the results revealed that in the moderate prosocial -profile classrooms those associations were weaker than in the other two profiles (See Table 10). This result suggests that in the first group (moderate-profile) the members of the dyad are less similar at the initial time of the year.

Our hypothesis 2.1 posed that the homotypic peer effect on physical aggression would be stronger in classrooms in which this behaviour was more salient. Confirming our expectations, the results showed that this peer effect occurred only in the mixed-profile classrooms, where, physical aggression was more salient than it was in the other two types of classrooms. We had a similar hypothesis regarding the homotypic peer influence for help. We expected that this socialization effect would be stronger in classrooms with high salience of help (Hypothesis 2.3). We observed that contrary to our expectations, the effect was significant only in the mixed-profile groups when compared to the groups with the highest level of salience of help (See Table 10).

Regarding the heterotypic peer effects, our third set of hypotheses posed that there would be a consistency of the cross-behavioural peer effects with the salience norms within each classroom. Particularly, the hypothesis 3.1 was that physical aggression from the part of a friend would have a stronger impact on individual changes in help, in classrooms with high levels of salience of aggressive behaviour. In addition, the hypothesis 3.3 was that heterotypic peer effect

of help on physical aggression would be stronger in classrooms with high salience of prosociality. The evidence does not support our hypotheses. As found in study 1, we did not observe any heterotypic peer influence effects between physical aggression and help; neither had they varied as a function of the salience norms of the classroom. As shown in Table 11 the models with equality constraints to the paths of heterotypic effects did not improve or worsen the GoF when compared to the unconstrained model.

Relational Aggression and Help.

The unconstrained model of relational aggression and help showed an adequate GoF ($\chi 2$ (30) = 37,855, p >.05, CFI = .97, RMSEA = .00 [.0, .08], SRMR = .032.). When equality constraints were added in subsequent models the analysis, the GoF decreased suggesting the existence of differences among the groups. In the same way as the models of physical aggression, the results showed that both relational aggression and help were more stable in the prosocial-profile than in moderate-profile and mixed-profile classrooms. Moreover, the child's level of relational aggression at time two were negatively predicted by hir own level of help at time one, only in the moderate-profile group.

Regarding the initial similarities among the members of the dyad's behaviours at time one (i.e. selection effects), the analyses revealed that the association between the participant's and hir friend's level of help was stronger in the prosocial-profile group than in the other two. Other associations are displayed in Table 12. Our hypothesis 2.2 stated that the homotypic influence effect for relational aggression would be stronger in classrooms with a high salience of this type of aggression. Moreover, contrary to our expectations, this peer effect did not vary among the different types of classrooms. Corroborating the results of the models of physical aggression and contrary to our hypothesis 2.3 (i.e. influence effect of help would be stronger in classrooms with the highest levels of norm salience of help), the results revealed that the homotypic influence effect of help was statistically significant only in the mixed-profile group when compared to the prosocial-profile group.

We had two hypotheses about heterotypic effects between relational aggression and help. One proposed that in contexts with high salience norms of both behaviours, relational aggression from the part of a friend would have a stronger impact on children's subsequent levels of help (Hypothesis 3.2). To test this hypothesis, we added invariance constraints to the path that

represented the participant's level of help at time 2 regressed on hir friend's level of relational aggression at time 1. Since the GoF of this constrained model did not change when compared to the unconstrained model, our hypothesis was not confirmed. The last hypothesis (Hypothesis 3.4) posed that the heterotypic effect of friend's help on relational aggression would be stronger in classrooms in which help was highly salient. We added an invariance constraint to the path that represented the participant's level of relational aggression at time 2 regressed on hir friend's level of help at time 1. Due to a decrease in the GoF of this constrained model when compared to the unconstrained model, the analysis revealed that the groups differed in this path. Subsequent analyses revealed that the difference was between the prosocial-profile and the mixed-profile groups. Specifically, we observed that in the prosocial-profile group the effect of friend's help on relational aggression was not statistically significant (coefficient = -0.056, p= .19), whereas in the mixed-profile it was positive and statistically significant (coefficient =.14, p = .037). The results are displayed in Table 12.

Discussion

The first objective of the present study was to explore if classrooms varied in their levels of three separate salience norms, physical aggression, relational aggression and help. Our results contribute in at least three ways. First, we were able to characterize the groups by including three different types of salience norms, and provide support for previous findings as well as new evidence for a context that had not been studied before, a context outside the overrepresented Western, educated, and from industrialized, rich, and democratic countries (WEIRD) that characterize most of the psychological literature in general (Henrich, Heine, & Norenzayan, 2010). Second, our findings replicate previous conclusions about the use of salience norms in the analysis of peer interactions. By estimating salience norms we were able to measure group characteristics that are not captured by traditional group norms estimations (Dijkstra & Gest, 2015; Laninga-Wijnen et al., 2017; Rambaran et al., 2013). Specifically, it was observed that the group-profiles observed in the data did not vary in the prevalence of the three behaviours studied (descriptive norms). Finally, this study aimed to differentiate two separate forms of aggression that have been commonly studied under a single concept in the domain of peer effects. The results showed that salience norms operate differently for peer effects depending on the type of aggression studied. To our knowledge, the studies that assess how social norms affect the

development of relational aggression have focused exclusively on individual processes rather than peer influence effects.

We found that the classrooms grouped into three latent profiles that varied as a function of the associations between the behaviours and popularity. This finding partially supported our hypothesis. As expected, one group consisted of classrooms in which the most popular children exhibit high levels of help and low levels of aggressive behaviour (prosocial-profile group). Nonetheless, we expected to observe two more profiles: one cluster of groups with high salience of aggression and low levels of help, and another one with high levels of relational aggression and help salience norms. Conversely, we observed a different pattern. The smallest proportion of classrooms (.11) grouped into a profile in which both types of aggression, as well as help, had similar levels of salience. Although we expected to observe a cluster of classrooms with similar levels of relational aggression and help, in this group apparently opposite behaviours such as physical aggression and help were associated with popularity to the same degree. This result can be explained by the coexistence of favourable attitudes towards positive and negative interactions, that it has been documented for the social context this study was conducted in (Universidad de Los Andes & Secretaría de Educación Distrital, In Progress).

Unexpectedly, we found that the majority of classrooms (35%) grouped into a cluster in which popular children exhibit moderate levels of help, and lower levels of aggression. In this moderate prosocial profile, the initial associations between the two friends' behaviours were weaker for both help and physical aggression, and not statistically significant for relational aggression. A plausible explanation is that other attributes can explain the similarity among friends in these classrooms, and therefore the influence processes. For instance, according to results from some studies, similarities in popularity guide the process of friendship formation to a greater extent than other social behaviours (Logis et al., 2013).

Homotypic Influence Processes

In alignment with our expectations and previous studies, the homotypic influence of friends in physical aggression was stronger in classrooms in which physical aggression was associated with popularity, to a greater extent than it was in classrooms with lower levels of salience norms of this behaviour. This corroborates previous findings that demonstrate how the deviancy training effect among friends is fostered and reinforced by contextual features of the

classroom, in which dyadic influences take place (Laninga-Wijnen et al., 2017; Rambaran et al., 2013).

Nevertheless, the peer influence effects for relational aggression did not vary as a function of the salience norms of the classrooms. Instead, the positive influence of friends in the development of pre-adolescents' relational aggression documented in Study 1 was consistent across the three types of classrooms we found in this study. Even though there is no previous evidence about the impact of salience norms on processes of peer influence for relational aggression, studies focused on individuals rather than dyads can help us to understand the current results. Although these studies consistently demonstrate that individuals' relational aggression is more likely to increase in peer groups with high salience norms of this behaviour (Jackson et al., 2015; Kuppens et al., 2008; Rohlf et al., 2016), the evidence is mixed regarding the impact of these norms on the association between relational aggression and acceptance. Some studies suggest that if the peer group negatively sanctions relational aggression, children who engage in this behaviour are less liked to be accepted (Rohlf et al., 2016). Other studies have found that the extent to which relational aggression is associated with acceptance at the individual level does not vary as a function of the social norms of the class (Jackson et al., 2015; Kuppens et al., 2008; Rohlf et al., 2016). According to this evidence, acceptance, as opposed to popularity, might have a more important role in the moderation of peer effects for relational aggression.

A promising finding for school-based interventions to promote peaceful classroom environments is that in the prosocial-profile groups, the influence of friends in physical aggression was not statistically significant, suggesting that contextual features can be protective of the deviant contagion of this type of aggression. Corroborating previous findings, a context in which the popular children are more prosocial than aggressive, the contagion of aggression is less likely to happen (Hofmann & Müller, 2018; Hoglund & Leadbeater, 2004; Schacter & Juvonen, 2018). Therefore, in a context in which both aggression and help are socially valued, aggressive children have more opportunity to associate with other children, as opposed to contexts that reject aggression in which children who are aggressive have fewer opportunities to engage in friendship relationships.

By applying the same idea about the consistency of the group context and the dyadic effects, we expected to observe stronger peer influence effects for help in classrooms with high salience norms of this behaviour. However, this was not the case. According to our evidence, the

peer influence effect for help was statistically significant only in the mixed-profile classrooms. Two ideas can explain this counterintuitive result. First, according to some theories of peer influence, change results as a response to differences in power (Laursen, 2018). In contexts with power discrepancies, in which popular children exhibit similar levels of different behaviours this may promote disequilibrium. Therefore, dissimilarity among friends in a context in which three different behaviours compete for status is more likely to promote change than stability. Indeed, the stability of the three behaviours under study was higher in the prosocial-profile group than in the other two profiles, as well as the initial similarity in the friend's level of help in this cluster of classrooms.

Second, it is necessary to consider another important aspect of social status and prosociality: acceptance. When the association between acceptance (i.e. being well-liked by peers) and help was examined for each group, we observed that it was stronger in the mixed-profile groups than in the prosocial-profile groups. This suggests that, in groups in which prosocial children are well-liked, help is more likely to be transmitted among friends, as opposed to contexts in which help is associated with visibility only (i.e. popularity). Studying social norms from the perspective of acceptance can be important for the understanding of peer influence on the development of this adaptive behaviour. To our knowledge, there are no studies that consider the role of acceptance in the estimation of salience norms.

Together our results regarding homotypic effects suggest that the effect of salience norms in peer influence among friends takes different forms depending on whether the behaviour is adaptive or maladaptive. For instance, Laninga-Wijnen (2018) reported that the influence of friends in academic achievement did not vary as a function of salience norms of performance goals (i.e. demonstrate to be better than others: "I want to do better than my classmates"). However, it was stronger in contexts with high mastery goal popularity norms (achieve actual competence "I want to learn because it's important") (Laninga-Wijnen, Ryan, et al., 2018) Therefore, how norms motivate peer influence varies as a function of the type of behaviour (positive vs negative/risky). For positive behaviours at least, motivation seems not to come from others who are popular, while for deviant it clearly does.

Heterotypic Peer Influence

Corroborating the findings of Study 1, the analyses revealed that physical aggression did

not change in response to friends' helping behaviours at the dyadic interaction, not even in contexts in which helping is highly associated with social status.

Regarding relational aggression and help, we found that contrary to our expectations, friend's level of help lead to higher levels of relational aggression only in classrooms with high salience norms of both behaviours (mixed-profile). Although a context with high levels of salience of help does not seem to foster peer influence on help, it acts as a protective context against the effect of friend's help on subsequent relational aggression (because this effect is not statistically significant). In other words, social settings in which different behaviours struggle for status strengthen this adverse effect whereas in classrooms with high levels of help salience norms, the effect is not significant. In conclusion, a cultural setting that attributes equal or similar levels of importance to two behaviours is required for heterotypic effects among them to occur.

Limitations

It is well known that several individual characteristics moderate peer effects. Indeed, the findings from Study 1 showed that girls were more prone than boys to increase their levels of physical and relational aggression as a function of their friends' initial levels of these behaviours. On the other hand, we observed that boys were exclusively prone to increase levels of help as a result of engaging in friendships with physically aggressive peers. Therefore, one can argue that salience norms impact peer effects differently for boys and girls. A limitation regarding the statistical power of the study, did not allow us to include these covariance variables in our models. Analyzing in the same model gender and type of classrooms implies the comparison of six groups, and as a consequence larger samples of dyads.

We did control for the similarity of friends at the beginning of the year, however, the selection processes that arise as a result of interactions with peers have to be included explicitly in the models. An SNA approach would be required to not only control better for this but also to include the influence that comes as a result of interactions with other friends rather than the unique association between the dyads that we conformed here. Specifically, by using this approach, multiple variables can be included as covariances in the formation of friendship relationships.

Future studies

Although our hypothesis, in general, posed a coherence between the classroom social norms and the occurrence and direction of peer effects, the findings revealed that this moderator

role changes depending on the behaviour in question. Clearly, for physical aggression, the context fosters peer influence. In contrast, for relational aggression and help, context and peer dyadic effects seem to follow distinct pathways. As argued before, the estimation of salience norms based on acceptance rather than popularity could offer a more comprehensive view. Unfortunately, there are no published studies about salience norms based on acceptance. This constitutes an avenue for future research.

An additional avenue for further research is the fact that influence is more likely to come from a close group of reference than the extended group. Goldstein, Cialdini and Griskevicius (2008) proposed a third type of social norm named "provincial norms", defined as the norms of one's local setting or immediate surrounding. Applied to the context of peer interactions, it is plausible to consider that the norms of the group of close friends can be more encouraging than the norms of the whole group of classmates. Methodologies to include the estimation of the influence of those two levels of interactions on dyadic peer processes are needed. To our knowledge there are no published studies on this regard.

Finally, the changing nature of peer groups must be also considered in the analysis of peer effects and its associations with social norms. Indeed, there is evidence of how changes in social norms affect individual development (Laninga-Wijnen, Harakeh, et al., 2018). However, new studies should examine how the dynamic nature of those changes impact the homotypic and heterotypic influence effects studied in the present dissertation.

Table 6

Descriptive Statistics of the Classroom Salience Norms.

	Physical Aggression	Relational Aggression	Help
Min-Max	.15 - 9.97	1.04 - 9.83	4.14 - 14.74
M	3.03	4.11	8.96
SD	2.21	2.10	2.88
Skewness	1.19	0.73	0.28
Kurtosis	1.29	-0.17	-0.92
r with Help	-.49	-.25	N/A
r with Relational	.47	N/A	-.25

Note. $N = 63$ classrooms.

Table 7

Latent Profile Analysis for Three Salience Norms. Goodness of Fit Indexes.

Indexes	Number of Latent Profiles		
	2	3	4
Model Loglikelihood			
n free parameters	10	14	18
H_0 value	-409.85	-399.18	-392.80
H_0 Scaling Correction Factor for MLR	0.84	1.12	1.32
BLRT			
2 (Loglikelihood Difference)	-430.18	-409.85	-399.18
H_0 Loglikelihood Value	40.66	21.34	12.77
Approximate *p*-value	< .001	< .001	0.064
Successful Bootstrap Draws	10	49	93
Entropy	0.82	0.95	0.84
BIC	861.13	856.37	860.17
Sample Adjusted BIC	1316.57	1288.23	1262.43
% of BIC Reduction		2.15	2.00
CAIC	83.97	61.17	47.79
% of CAIC Reduction		27.15	21.88

Note. BLRT = Parametric Bootstrapped Likelihood Ratio Test. BIC = Bayesian information criterion. CAIC (Consistent Akaike Information Criterion)

Table 8

Descriptive Statistics of the Classroom Profiles.

	Moderate Prosocial	Prosocial	Mixed
Sociodemographic			
M Age	10.21	10.19	10.55
M Socio Economic Status (*Estrato*)	3.26	3.00	3.37
Proportion of girls	.46	.49	.52
Salience Norms			
M Physical Aggression	3.07	1.34	7.92
M Relational Aggression	4.32	2.88	6.73
M Help	7.65	12.09	6.14
Prevalence			
M Physical Aggression	3.61	3.12	4.04
M Relational Aggression	3.27	3.04	3.83
M Help	5.46[1]	6.52[1]	5.93
Acceptance			
r liking and physical aggression	-.20	-.29	-.64
r liking and relational aggression	-.13	-.16	-.89**
r liking and help	.35*	.42	.93**

Note. [1] statistically significant difference between the means (p=.042, d = 0.73)
* Correlation coefficient statistically significant at the Alpha .05 level. ** Correlation coefficient is statistically significant at the Alpha .01 level.

Table 9

Summary of Multi-group Comparisons of Models for Physical Aggression and Help.

Index	UM[1]	*Within Child Associations*						*Between Child Covariances at Time 1 (Selection Effects)*			*Between Child Effects (Socialization)*			
		Stability		PA on Help	Help on PA	Covariances PA and Help		PA	Help	PA and Help	Homotypic		Heterotypic	
		PA[1]	Help			Time 1	Time 2				PA	Help	PA on Help	Help on PA
χ^2	28.11	96.90	35.74	30.05	28.83	30.61	28.77	47.10	43.74	37.56	39.83	33.16	30.47	31.01
df	30.00	32.00	32.00	32.00	32.00	32.00	32.00	32.00	32.00	32.00	32.00	32.00	32.00	32.00
p-value	.56	.00	.30	.57	.63	.54	.63	.04	.08	.23	.16	.41	.54	.52
SCF[1]	0.99	0.93	1.02	0.99	0.98	0.97	0.98	1.02	0.98	0.97	0.98	1.01	0.98	0.97
RMSEA CI 95%	.00 [.00, .06]	.12 [.09,.01]	.03 [.00,.07]	.00 [.00,.06]	.00 [.00,.05]	.00 [.00,.06]	.00 [.00,.05]	.06 [.01,.09]	.05 [.00,.08]	.03 [.00,.07]	.04 [.00,.08]	.02 [.00,.06]	.00 [.00,.06]	.00 [.00,.06]
CFI	1.00	.97	1.00	1.00	1.00	1.00	1.00	.99	1.00	1.00	1.00	1.00	1.00	1.00
SRMR	0.03	0.06	0.03	0.03	0.03	0.04	0.03	0.08	0.07	0.06	0.03	0.03	0.03	0.03
Comparison χ^2 SB Correction	CD	0.05	1.40	0.93	0.86	0.69	0.82	1.44	0.88	0.67	0.81	1.21	0.86	0.70
	$\Delta\chi^2$	1180.6	6.06	1.95	0.56	2.77	0.42	13.98	17.36	12.89	13.87	4.52	2.43	3.30
	Df Diff	2	2	2	2	2	2	2	2	2	2	2	2	2
	p-value	.00	.05	.38	.76	.25	.81	.00	.00	.00	.00	.10	.30	.19
Statistically Significant Change		Yes	Yes	No	No	No	No	Yes	Yes	Yes	Yes	No	No	No

Note. [1]UM = Unconstrained Model, PA= Physical Aggression, SCF = Scaling correction factor.

Table 10

Peer Effects among Physical Aggression and Help and Classroom Profiles.

Peer Influence Effect	Moderate Prosociality (n_{dyads} = 248)		High Prosociality (n_{dyads} = 156)		Mixed (n_{dyads} = 47)	
	M (SEM)	*p*	M (SEM)	*p*	M (SEM)	*p*
Homotypic						
Physical aggression	.006 (.033) [b]	.860	.018 (.021)[a]	.389	.269 (.049) [a b]	.000
Help	.100 (.033)	.002	.060 (.037) [c]	.107	.213 (.062) [c]	.001
Heterotypic						
Physical Aggression to Help	.015 (.027)	.581	.051 (.029)	.077	.136 (.07)	.054
Help to Physical Aggression	-.055 (.026)	.032	-.01 (.021)	.653	.027 (.049)	.580

Note. Standardized regression coefficients. The superscripts represent statistically significant differences between the two coefficients. For instance, [a] represents a statistically significant difference between the coefficients of the mixed and the moderate prosociality groups, whereas [b] shows that there is a statistically significant difference between the mixed-profile and prosocial-profile groups' coefficients.

Table 11

Summary of Multi-group Comparisons of Models for Relational Aggression and Help.

Index	UM[1]	*Within Child Associations*						*Between Child Covariances at Time 1 (Selection Effects)*			*Between Child Effects (Socialization)*			
		Stability		RA on Help	Help on RA	Covariances RA and Help		RA	Help	RA and Help	Homotypic		Heterotypic	
		RA[1]	Help			Time 1	Time 2				RA	Help	RA on Help	Help on RA
χ^2	37.86	51.32	45.65	47.16	38.12	41.73	44.15	40.71	54.49	45.78	39.79	43.94	38.98	42.89
df	30.00	32.00	32.00	32.00	32.00	32.00	32.00	32.00	32.00	32.00	32.00	32.00	32.00	32.00
p-value	.15	.02	.06	.04	.21	.12	.07	.14	.01	.05	.16	.08	.18	.09
SCF[1]	0.96	0.97	0.98	0.97	0.96	0.96	0.94	0.99	0.96	0.95	0.97	0.97	0.96	0.95
RMSEA CI 95%	.04 [.00,.08]	.06 [.03,.09]	.05 [.00, .09]	.06 [.01, .09]	.04 [.00, .07]	.05 [.00, .08]	.00 [.00, .08]	.04 [.00, .08]	.07 [.00,.10]	.05 [.00, .09]	.04 [.00, .08]	.05 [.00, .08]	.04 [.00, .08]	.05 [.00, .08]
CFI	1.00	.99	.99	.99	1.00	1.00	.99	.00	.99	.99	1.00	.99	1.00	.99
SRMR	0.04	0.04	0.04	0.04	0.03	0.04	0.03	0.04	0.07	0.05	0.03	0.04	0.03	0.04
Comparison χ^2 SB Correction	CD	1.19	1.33	1.05	1.01	0.90	0.62	1.45	0.88	0.79	1.04	1.11	1.03	0.87
	$\Delta\chi^2$	11.48	6.42	8.76	0.36	3.96	8.25	2.75	17.84	9.04	1.97	5.63	1.21	5.29
	Df Diff	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
	p-value	.00	.04	.01	.83	.14	.02	.25	.00	.01	.37	.06	.55	.07
Statistically Significant Change		Yes	Yes	Yes	No	No	Yes	No	Yes	Yes	Yes	No	No	No

Note. [1]UM = Unconstrained Model, RA= Relational Aggression, SCF = Scaling correction factor.

Table 12

Peer Effects among Relational Aggression and Help and Classroom Profiles.

Peer Effect	Moderate Prosociality (n_{dyads} = 248)		High Prosociality (n_{dyads} = 156)		Mixed (n_{dyads} = 47)	
	M (S_m)	*p*	M (S_m)	*p*	M (S_m)	*p*
Homotypic						
Relational aggression	.035 (.038)	.357	.075 (.039)	.051	.130 (.072)	.073
Help	.107 (.031)	.001	.054 (.035)[a]	.119	.224 (.001)[a]	.001
Heterotypic						
Relational Aggression to Help	.041 (.025)	.109	.014 (.027)	.590	.105 (.069)	.128
Help to Relational Aggression	.006 (.035)	.000	-0.056 (.043)[b]	.120	.141 (.068)[b]	.001

Note. Standardized regression coefficients (Standard Error of the estimate). The superscripts represent statistically significant differences between the two coefficients. For instance, [a] represents a statistically significant difference between the coefficients of the mixed and high prosociality groups for the homotypic effect of help.

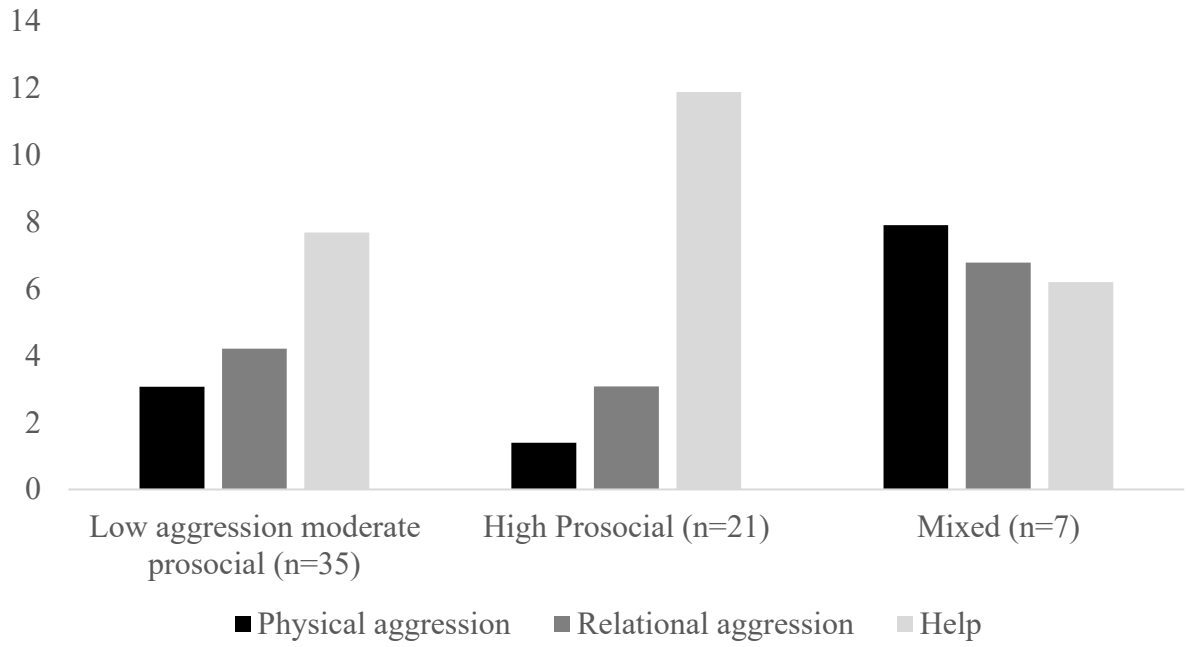

Figure 6. Latent Profiles of Classrooms According to Three Types of Salience Norms.
Note. The bars represent unstandardized latent means on scales that vary from 0 to 14.75.

Chapter 6: General Discussion

The present contributes to the field in at least three ways. First, it adds evidence from a context that has been overlooked in the literature of peer influence effects, given the dominant practice of studying western, educated, and industrialized, rich, and democratic countries (WEIRD) (Henrich et al., 2010). Second, the analyses demonstrated that the APIM is adequate to estimate models that include two behaviours simultaneously, as well as to test multiple directionalities (i.e. actor aggression on partner help, and vice versa). Finally, the findings contributed to a more detailed understanding of how homotypic and heterotypic peer influences occur by examining the moderating role of three variables: gender, popularity and classroom salience norms. In the following sections, the main results from the two studies are discussed from a general perspective.

Homotypic Influence: Both Adaptive and Maladaptive Behaviours can be Transmitted Among Friends

The first goal of this dissertation was to examine the occurrence of homotypic and heterotypic effects among dyadic stable friendship relationships. According to the evidence, help, as well as two types of aggression (i.e. physical and relational), changed accordingly to the behaviours from the part of a friend. In addition to replicating previous findings, the results provide evidence of friend's influence for positive behaviours to a field that has focused almost exclusively on negative outcomes. It was observed that pre-adolescent's increased their levels of help as a response to the interaction with a friend with high levels of help, regardless of their gender or levels of popularity. The analyses from Study 1 showed that these two potential moderator variables did not influence the contagion of this type of prosocial behaviour. This evidence is consistent with previous findings in the domain of positive peer influence experiences and confirms our hypothesis regarding gender differences (See hypothesis 5.3). Specifically, studies in domains such as academic achievement (DeLay, Laursen, et al., 2016) and reading skills (Kiuru et al., 2017) documented that the positive influence of friends does not vary between boys and girls. Conversely, the evidence from the comparisons that included the popularity levels of the dyad members did not supported our prediction. Our hypothesis 4 posed that the member with the highest levels of popularity would have a stronger impact on hir less popular friend. This counterintuitive finding can be explained by the fact that the association

between prosocial behaviour and other attributes of social status is stronger than the association between prosociality and popularity. Specifically, previous research has demonstrated that help is positively associated with likeability and acceptance (McDonald & Asher, 2018; Sandstrom & Cillessen, 2006). Future studies must determine if these attributes moderate the occurrence of peer effects for help.

Regarding the contagion of aggression, the analyses showed that once intraindividual variables were controlled, as expected peers influenced physical and relational aggression. Specifically, we were able to replicate previous findings that documented that pre-adolescents are more likely to increase their levels of physical aggression as a response of increases in this behaviour from the part of a friend (Dishion, 2013; Sijtsema & Lindenberg, 2018). Although there is ample evidence of the differential nature, consequences and associated variables of the different subtypes of aggression (Crick & Grotpeter, 1995; Dodge et al., 2006; Perry & Ostrov, 2018), surprisingly the current literature about peer influences is limited by two prevalent practices. One is the use of broad measures of aggression estimated by items that inquiry about different forms of this behaviour. Another one is the focus on physical and overt forms of aggression. Therefore, in the present dissertation, both subtypes of aggression were included in separate models in order to provide a more comprehensive view of how friend influence each other in homotypic and heterotypic directions. Both similarities and differences in these two deviant effects emerged from the analyses conducted.

The analyses of Study 1 revealed similarities in the socialization of these two behaviours among friends. Specifically, peer influences for both subtypes of aggression were stronger in the group of girls, confirming our hypothesis (See hypotheses 5.1 and 5.2) and replicating similar findings (Haynie et al., 2014; McMillan et al., 2018). Differences in the stability of aggressive behaviour can explain this result. It was observed that both types of aggression fluctuated more in girls (i.e. both forms of aggression were more stable for boys). For this reason, girls might be more susceptible to change as a result of the influence of their friends. Additionally, mechanisms that facilitate the contagion of aggression, such as deviant talk (Dishion & Tipsord, 2011), are more common among girls than boys (Rose & Smith, 2018). Therefore characteristics such as disclosure and intimacy, that occur more often in female friendships, can ease the transmission of negative behaviours.

Similarly, popular pre-adolescents were more likely to influence their less popular

friends, confirming our hypotheses on this regard. The less popular member of each dyad increased their levels of aggression as a response to increases in their friend's aggressive behaviour, whereas the opposite was not observed. This finding has two main assets. On one hand, replicates previous evidence of the higher levels of influence that popular individuals have on the group of peers (Lansu & Cillessen, 2015). On the other hand, it adds evidence of the moderating role of this social status characteristic into a more intimate and direct interaction, such as dyadic friendship.

Concerning differences, the findings from the two studies of the present dissertation suggest that peer effects for relational and physical forms of aggression occurred differently when the bidirectional associations with help were included in the models (i.e. heterotypic effects). Those results are explained below.

Heterotypic Influence: Friend's Aggression can Influence Pre-adolescent's Levels of Help and Vice Versa, Only Under Certain Conditions.

As mentioned in the introduction, few studies have estimated how one behaviour changes as a function of changes in another behaviour from a friend. To fill this gap in the literature, we estimated heterotypic peer effects to see if the friend's initial levels of help had an influence on subsequent changes in aggressive behaviour and vice versa. Based on the documented negative associations between help and aggression (Crick, 1996; Romano et al., 2005), our expectations posed that socializing with prosocial peers would decrease aggression while socializing with aggressive peers would decrease help. Therefore, the hypotheses postured supported an antagonistic patter on influence among help and aggression. Nonetheless, the findings did not support these hypotheses.

For the direction aggressive behaviour regressed on peer's help, we expected to observe a "protective effect". Specifically, we hypothesized that friend's levels of help would mitigate the pre-adolescent's levels of aggressive behaviour (see Hypotheses 2.3 and 2.4). Our hypotheses were grounded on the antagonistic associations between these two behaviours. According to the results of Study 1, the negative associations between aggression and help were evidenced in selection effects or the initial similarities among the members of the dyads. Specifically, we replicated findings of the similarity of friends in their initial levels of physical aggression (Dishion & Tipsord, 2011) and prosocial behaviour (Berger et al., 2019). Moreover, it was

observed that at time 1 friends' help and pre-adolescent's aggression showed a negative association, demonstrating that dyad members are more similar than different.

Nonetheless, in terms of influence across time, the findings demonstrated that friend's help did not predict any of the two subtypes of aggression. Also, this result did not vary as a function gender, popularity or classroom salience norms. In other words, associating with friends who engage in prosocial behaviours makes pre-adolescents more likely to engage in prosociality, but do not to influence their levels of aggression directly.

Regarding the other direction (i.e. how friend's aggression influence the pre-adolescent's levels of help), we hypothesized that in general, engaging in friendship with aggressive peers would decrease pre-adolescents' levels of help (Hypotheses 3.3 and 3.4). Nevertheless, our results varied as a function of the subtype of aggression included in the models.

For the physical subtype, the analyses revealed that there was no association between friend's levels of aggression and the participants' subsequent levels of help. However, when popularity was included as a differential characteristic of the dyad members, this peer effect proved to be statistically significant. Specifically, the results from the models in which dyad members were distinguishable in their levels of popularity, showed that help increased as a function of friend's levels of aggression only for a path that estimated influence from the less to the most popular friend within the dyad. A compensatory mechanism can explain this contra-intuitive result. According to Laursen (2018), change as a response of interactions with friends emerges as a manner to reduce dissimilarities. In this regard, one could argue that a pre-adolescent can engage in helping to repair the damage inflicted by a physically aggressive friend, only if the zir is more popular. Alternatively, one could argue that pre-adolescents seek help from popular friends to success in the purpose of hurting others. To confirm this explanation, items focused on more specific types of help among friends must be included in future measures. In the present dissertation, we had questions about helping in general. For this reason, our conclusions must be interpreted with caution.

In regards to the relational subtype, the results showed that this form of aggression from the part of a friend fostered increases in subsequent participant's levels of help. This evidence supported our alternative hypotheses regarding positive associations between friend's relational aggression and help (Hypotheses 3.2 and 3.3). Similarly, to physical aggression, the effect was significant only for the path that represented influence from the less to the most popular member

of the dyad. In addition to the aforementioned explanation about possible compensatory mechanisms, one can argue that friend increase their levels of help as a response to the levels of relational aggression for two reasons. First, engaging in relational aggression represents a threat to social status (Werner & Crick, 2004) therefore having a more popular friend who helps others acts as an indirect way of assuring likeability and popularity in the group. Second, since relational aggression is aimed at harming social relationships, an adolescent who takes part in this type of aggression might find a helper who engages in the same behaviours in hir friend. Indeed, the studies about the participant roles in bullying have identified a group of assistants or children who help bullies to attack the victim or reward their behaviour by animating or cheering them (Salmivalli, Lagerspetz, Björkqvist, Österman, & Kaukiainen, 1996).

The role of the extended peer group: dissimilarity rather than stability motivates change

The fourth goal of this dissertation was to explore if salience norms moderated the occurrence of the peer effects under study. To accomplish this goal, two purposes were established in the second study: 1) to explore if there were any profiles of classrooms based on three types of salience norms: physical and relational aggression and help, 2) to examine if homotypic and heterotypic peer influence processes were moderated by class salience norms. In the succeeding sections, the results are explained in detail.

Classroom profiles.

In our sample, we observed that classrooms grouped into three profiles that varied as a function of how salient help, physical and relational aggression were within each group. As expected, one group was characterized by high levels of help and low aggression salience norms, a group that has been observed in previous studies with European samples (Dijkstra & Gest, 2015; Laninga-Wijnen, Harakeh, et al., 2018). Moreover, the latent profile analysis revealed the existence of two additional profiles, a finding that partially supported our hypothesis (See hypothesis 1). Based on previous findings we expected to find a group with moderate levels of help and high levels of aggression salience norms. However, in one of the latent profiles (that included the majority of groups in our sample), popular classmates exhibited moderate levels of help and low levels of aggression (i.e. moderate help profile). In this group, the initial similarities between friends were weak, indicating that friendship selection processes might be explained by other attributes not explored in this study. In addition, the acceptance of group members seems

not to be guided by how aggressive or prosocial they are, due to the presence of weak correlations between these behaviours and how liked pre-adolescents are (See Table 8).

Finally, we expected to observe a latent profiles conformed by groups with similar salience norms of relational aggression and help, based on existing evidence that suggests that during adolescence a small portion of individuals engage in these two behaviours simultaneously to achieve to popularity (Hawley, 1999). We observed that in ten percent of the classrooms popular individuals exhibited help, physical and relational aggression to a similar degree. We attribute this finding to the coexistence of positive attitudes towards aggressive and prosocial behaviour previously documented in samples of Colombian pre-adolescents (Universidad de Los Andes & Secretaría de Educación Distrital, In Progress).

These findings constitute a major contribution to the scare literature on salience norms in contexts characterized by high levels of violence. By the time this data was collected (2011), an armed conflict of almost 50 years was still going on. Although we did not investigate this directly, previous evidence has demonstrated that chronic exposure to violence and presence of armed groups in Colombian municipalities, was associated with negative outcomes like school drop-out (Rodriguez & Sanchez, 2012) and bullying (Chaux, Molano, & Podlesky, 2009). An interesting avenue for future studies is to explore if the salience norms for aggressive and prosocial behaviours observed in the present dissertation varied, after the peace agreement between the Colombian government and the guerrilla group Fuerzas Armadas Revolucionarias de Colombia (FARC) was signed in 2016.

Peer effects were moderated by the occurrence of highly aggressive and prosocial behaviour salience norms simultaneously.

We expected to observe coherence between the salience of the behaviours at the classroom level and the processes of peer influence observed in Study 1. For instance, we hypothesized that the peer influence effect for help would be stronger in classrooms with high salience norms of this behaviour. Nonetheless, our findings demonstrated that the peer influence effects of physical aggression and help among friends were statistically significant only in the mixed-profile group; whereas the effect for relational aggression did not vary as a function of the classroom salience norms.

Understanding why only one homotypic influence effect was consistent with the salience norms of the extended group of peers requires the consideration of other social status attributes.

When the classroom level associations between acceptance (i.e. being liked) and the behaviours under examination were estimated, it was observed that although the three behaviours were highly salient in mixed-profile groups, only relational aggression and help showed significant correlations with acceptance. The association between liking and relational aggression was negative, whereas the correlation between liking and help was positive. In other words, in the mixed-profile groups, peers liked peers who engaged in prosociality and disliked peers who engage in relational aggression.

This might explain why the homotypic effect of help was significant only in the mixed-profile classrooms. In groups in which prosocial children are well liked, help was more likely to be transmitted among friends, as opposed to contexts in which help was associated only to popularity (i.e. prosocial-profile groups). Therefore, one can conclude that examining salience norms based on acceptance, would lead to a better understanding of the moderating role of the extended group of peers in the dyadic processes of peer influence. To our knowledge, there are no published studies that use class-level associations between acceptance and these behaviours, as estimators of salience norms.

Regarding heterotypic effects, the findings from study 2 corroborated that our data did not provide evidence for these effects for the case of help and physical aggression. However, the friend's level of help led to higher levels of relational aggression only in classrooms with high salience norms of both behaviours (mixed-profile). Although we expected to observe that high salience of help would lead to a stronger influence of friend's help on pre-adolescents' relational aggression, the findings suggest that this effect was significant only in those groups in which popular children exhibited the two behaviours to the same degree. Therefore, cultural settings that attribute equal or similar levels of importance to two behaviours is essential for heterotypic effects to occur.

In summary two main conclusions can be derived from the results of Study 2. First, if popular individuals from a group exhibit different behaviours peer influence effects are more likely to occur. Second, a context with high levels of salience of help does not seem to foster the socialization of help. Nevertheless, it acts as a protective context against deviant peer effects, since the contagion of physical aggression was not significant in this group neither it was the influence of friend's help on pre-adolescents' relational aggression.

Limitations and Future Studies

Despite the important contributions of the present study to the peer influence literature, it is not exempt from limitations. First, a broad measure of help was used, unrecognizing the various forms that prosocial behaviour can take. Future studies must include measures that capture the multiple forms of prosociality as well as the diversity of motivations behind them. On this regard, studies focused on individuals have documented that the strength of the associations between aggression and prosociality, varies depending on the aforementioned features. For instance, the correlation between proactive forms of aggression (i.e. goal-oriented as opposed to reactive) and prosociality is moderate and positive if help is aimed to obtain a personal benefit, but negative if help is exhibited only as a result of specific requests (Boxer, Tisak, & Goldstein, 2004). Moreover, Padilla-Walker and collaborators (2015) found that the association between prosocial and physical aggression was positive if the targets of help were friends, but not significant if the targets were family members. Replicating the present studies including multiple types of prosociality will lead to a better understanding of the heterotypic peer effects explored in the present dissertation.

Second, the APIM approach was fruitful for the estimation of peer effects within the same and among different behaviours. As described before, the majority of existent models of peer influence consider only one behaviour. In this dissertation, we were able to include two behaviours, control by their homotypic influence and then estimate if aggression from a friend affected a pre-adolescent's level of help or not (and vice versa). Nonetheless, our sample size did not allow us to estimate multiple moderator variables at the same time. Specifically, it was not possible to include comparisons by gender, popularity and salience norms simultaneously. Two alternatives can help to overcome this limitation. One is to use larger samples. Another is to estimate peer effects by the use of social network analysis techniques such as the stochastic actor-oriented model (SAOM). Although this approach was not suitable for purposes of the present study, it permits the inclusion of multiple moderator variables simultaneously even in samples similar to ours in size. Moreover, the simultaneous use of APIM and SAOM with the same data would provide a more complete picture of homotypic and heterotypic peer influences.

Finally, the changing nature of peer groups also needs to be considered in the analysis of peer effects and its associations with social norms. Indeed, there is evidence of how changes in social norms affect individual development (Laninga-Wijnen, Harakeh, et al., 2018). Therefore,

new studies should examine how the dynamic nature of those changes impact the homotypic and heterotypic influence effects studied in the present dissertation.

Practical Implications

Taken together, our results add important evidence to the research literature of peer effects, and also contributes evidence to inform the educational interventions aimed to prevent and reduce risky outcomes. According to a meta-analysis that included 249 school-based programs, the mean effect-sizes in the reduction in aggressive and disruptive behaviour ranged between .21 and .29 (Wilson & Lipsey, 2007). Additionally, to the implementation of curriculums, parent-targeted strategies and teacher training, a common assumption of these programs is that promoting relationships among aggressive adolescents and peers with high levels of desirable skills might lead to positive effects in the reduction of maladaptive behaviours. Nonetheless, the specific mechanisms that operate behind peer influence have been rarely included in the evaluation of the impact of those interventions.

The findings from this dissertation demonstrated the existence of a peer "contagion" effect of help, which did not vary as a function of gender or popularity (Study 1). This result adds evidence to the emergent literature about the direct influence of friends on the development of positive outcomes, such as academic competence (DeLay, Ha, et al., 2016; Rambaran et al., 2017). Moreover, Study 2 demonstrated that contexts in which popular students display high levels of help and low levels of aggression can mitigate deviant peer effects, such as the influence of friends in physical and relational aggression.

Despite these promising findings, consistently the analyses revealed that socializing with aggressive peers fostered increases in positive behaviours, which is likely due to compensatory mechanisms, whereas socializing with prosocial friends did not have an effect on aggressive behaviour. Nonetheless, these adverse peer effects varied as a function of gender and popularity. Therefore, programs must include universal (i.e. directed to all the children within a group) as well as focalized (i.e. directed to specific children who are presumed to have a strong influence on their peers) strategies. Indeed, recent evidence suggests that combining group-wide strategies and strategies directed to specific influential members of a group with high social visibility, strengthen the positive impact of these interventions (Herkama et al., 2017; Paluck et al., 2016; Yeager et al., 2018).

References

Alcaldia Mayor de Bogotá, Secretaría de Educación (2018) Aproximaciones ecológicas al clima escolar en Bogotá: perfiles de riesgo, asociaciones con desempeño escolar y entornos escolares. Available on https://compartirpalabramaestra.org/publicaciones-e-investigaciones/otras-investigaciones/aproximaciones-ecologicas-al-clima-escolar-en-bogota-perfiles-de-riesgo-asociaciones-con-desempeno

Arndorfer, C. L., & Stormshak, E. A. (2008). Same-sex versus other-sex best friendship in early adolescence: Longitudinal predictors of antisocial behavior throughout adolescence. *Journal of Youth and Adolescence, 37*(9), 1059. doi: 10.1007/s10964-008-9311-x

Asparouhov, T., & Muthén, B.O. (2018). SRMR in Mplus. Retrieved July 12, 2019 from https://www.semanticscholar.org/paper/SRMR-in-Mplus-Asparouhov-Muth%C3%A9n/7d1ade06295314ea4fce371d62577c9057096280

Bagwell, C. L., & Bukowski, W. M. (2018). Friendship in childhood and adolescence: Features, effects, and processes. In *Handbook of peer interactions, relationships, and groups, 2nd ed.* (pp. 371-390). New York, NY, US: The Guilford Press.

Bandura, A. (1978). Social learning theory of aggression. *Journal of communication, 28*(3), 12-29. http://dx.doi.org/10.1111/j.1460-2466.1978.tb01621.x

Barry, C. M., & Wentzel, K. R. (2006). Friend influence on prosocial behavior: The role of motivational factors and friendship characteristics. *Developmental psychology, 42*(1), 153. http://dx.doi.org/10.1037/0012-1649.42.1.153

Batanova, M. D., & Loukas, A. (2011). Social Anxiety and Aggression in Early Adolescents: Examining the Moderating Roles of Empathic Concern and Perspective Taking. *Journal of Youth and Adolescence, 40*(11), 1534-1543. https://doi.org/10.1007/s10964-011-9634-x.

Berger, C., Gremmen, M. C., Palacios, D., & Franco, E. (2019). "Would You Be My Friend?": Friendship Selection and Contagion Processes of Early Adolescents Who Experience Victimization. *The Journal of Early Adolescence*, 0272431618824753.

Boor-Klip, H. J., Segers, E., Hendrickx, M. M. H. G., & Cillessen, A. H. N. (2017). The Moderating Role of Classroom Descriptive Norms in the Association of Student Behavior With Social Preference and Popularity. *The Journal of Early Adolescence,*

37(3), 387-413. Retrieved from https://journals.sagepub.com/doi/abs/10.1177/0272431615609158. doi:10.1177/0272431615609158

Bot, S. M., Engels, R. C., Knibbe, R. A., & Meeus, W. H. (2007). Sociometric status and social drinking: Observations of modelling and persuasion in young adult peer groups. *Journal of abnormal child psychology, 35*(6), 929-941. DOI: 10.1007/s10802-007-9144-1

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.e

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. doi: 10.1111/j.1532-7795.2010.00721.x

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. http://dx.doi.org/10.1007/s10802-013-9807-z

Bukowski, W. M. (2011). Popularity as a social concept. In A. H. N. Cillessen, D. Schwartz, & L. Mayeux (Eds.), *Popularity in the peer system* (pp. 3-24). New York, NY, US: The Guilford Press.

Bukowski, W. M., Castellanos, M., Vitaro, F., & Brendgen, M. (2015). Socialization and experiences with peers. In J. E. Grusec & P. D. Hastings (Eds.), *Handbook of socialization: Theory and research* (pp. 228-250). New York, NY, US: Guilford Press.

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

Cantin, S., Brendgen, M.R., Dussault, F. & Vitaro, F. (2019) Transactional links between adolescents' and friends' victimization during the first two years of secondary school" The mediating role of likeability and Friendship Involvement. *Social Development.* Advance online publication. http://dx.doi.org/10.1111/sode.12355

Card, N. A., & Little, T. D. (2006). Proactive and reactive aggression in childhood and adolescence: A meta-analysis of differential relations with psychosocial adjustment. *International Journal of Behavioral Development, 30*(5), 466-480. DOI: 10.1177/0165025406071904

Card, N. A., Selig, J. P., & Little, T. (2011). *Modeling dyadic and interdependent data in the developmental and behavioral sciences*: Routledge.

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. doi: 10.1111/j.1467-8624.2008.01184.x.

Carlo, G., Mestre, M. V., McGinley, M. M., Tur-Porcar, A., Samper, P., & Opal, D. (2014). The protective role of prosocial behaviors on antisocial behaviors: The mediating effects of deviant peer affiliation. *Journal of Adolescence, 37*(4), 359-366. http://dx.doi.org/10.1016/j.adolescence.2014.02.009

Cattelino, E., Glowacz, F., Born, M., Testa, S., Bina, M., & Calandri, E. (2014). Adolescent risk behaviours and protective factors against peer influence. *Journal of Adolescence, 37*(8), 1353-1362. http://dx.doi.org/10.1016/j.adolescence.2014.09.013

Chaux, E., Barrera, M., Molano, A., Velásquez, A. M., Castellanos, M., Chaparro, M. P., & Bustamante, A. (2017). Classrooms in peace within violent contexts: Field evaluation of Aulas en Paz in Colombia. *Prevention Science, 18*(7), 828-838.

Chaux, E., Molano, A., & Podlesky, P. (2009). Socio-economic, socio-political and socio-emotional variables explaining school bullying: a country-wide multilevel analysis. *Aggressive Behavior: Official Journal of the International Society for Research on Aggression, 35*(6), 520-529.

Choukas-Bradley, S., Giletta, M., Cohen, G. L., & Prinstein, M. J. (2015). Peer influence, peer status, and prosocial behavior: An experimental investigation of peer socialization of adolescents' intentions to volunteer. *Journal of Youth and Adolescence, 44*(12), 2197-2210.

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.

Cillessen, A. H., & Mayeux, L. (2004). From censure to reinforcement: Developmental changes in the association between aggression and social status. *Child development, 75*(1), 147-163.

Cillessen, A. H., & Rose, A. J. (2005). Understanding popularity in the peer system. *Current Directions in Psychological Science, 14*(2), 102-105.

Cillessen, A. H. N., & Bukowski, W. M. (2018). Sociometric perspectives. In *Handbook of peer interactions, relationships, and groups, 2nd ed.* (pp. 64-83). New York, NY, US: The Guilford Press.

Crick, N. R. (1996). The role of overt aggression, relational aggression, and prosocial behavior in the prediction of children's future social adjustment. *Child development, 67*(5), 2317-2327.

Crick, N. R., & Grotpeter, J. K. (1995). Relational aggression, gender, and social-psychological adjustment. *Child development, 66*(3), 710-722.

Correia, S., Brendgen, M. & Vitaro, F. (2019) The role of norm salience in aggression socialization among friends: Distinctions between physical and relational aggression. *International Journal of Behavioral Development,* 1-11. https://doi.org/10.1177/0165025419854133

De Castro, B. O., Veerman, J. W., Koops, W., Bosch, J. D., & Monshouwer, H. J. (2002). Hostile attribution of intent and aggressive behavior: A meta-analysis. *Child development, 73*(3), 916-934.

DeLay, D., Ha, T., Van Ryzin, M., Winter, C., & Dishion, T. J. (2016). Changing friend selection in middle school: A social network analysis of a randomized intervention study designed to prevent adolescent problem behavior. *Prevention Science, 17*(3), 285-294.

DeLay, D., Hartl, A. C., Laursen, B., Denner, J., Werner, L., Campe, S., & Ortiz, E. (2014). Learning from friends: Measuring influence in a dyadic computer instructional setting. *International Journal of Research & Method in Education, 37*(2), 190-205.

DeLay, D., Laursen, B., Kiuru, N., Poikkeus, A.-M., Aunola, K., & Nurmi, J.-E. (2016). Friend influence and susceptibility to influence: Changes in mathematical reasoning as a function of relative peer acceptance and interest in mathematics. *Merrill-Palmer Quarterly (1982-), 62*(3), 306-333.

Dickson, D. J., Huey, M., Laursen, B., Kiuru, N., & Nurmi, J.-E. (2018). Parent contributions to friendship stability during the primary school years. *Journal of Family Psychology, 32*(2), 217.

Dijkstra, J. K., & Berger, C. (2018). Friendship Selection and Influence Processes for Physical Aggression and Prosociality: Differences between Single-Sex and Mixed-Sex Contexts. *Sex roles, 78*(9-10), 625-636.

Dijkstra, J. K., & Gest, S. D. (2015). Peer norm salience for academic achievement, prosocial behavior, and bullying: Implications for adolescent school experiences. *The Journal of Early Adolescence, 35*(1), 79-96.

Dijkstra, J. K., Lindenberg, S., & Veenstra, R. (2008). Beyond the class norm: Bullying behavior of popular adolescents and its relation to peer acceptance and rejection. *Journal of abnormal child psychology, 36*(8), 1289.

Dishion, T. J. (2013). Stochastic agent-based modeling of influence and selection in adolescence: Current status and future directions in understanding the dynamics of peer contagion. *Journal of Research on Adolescence, 23*(3), 596-603.

Dishion, T. J., & Tipsord, J. M. (2011). Peer contagion in child and adolescent social and emotional development. *Annual review of psychology, 62*, 189-214.

Dodge, K., Coie, J., & Lynam, D. (2006). Aggression andantisocial behavior in youth. Damon W, Lerner RM, Eisenberg N, eds. Handbook of child psychology: social, emotional, and personality development. In: New York, Wiley.

Eisenberg, N., Spinrad, T. L., & Knafo-Noam, A. (2015). Prosocial development. *Handbook of child psychology and developmental science*, 1-47.

Eisenberg, N., VanSchyndel, S. K., & Spinrad, T. L. (2016). Prosocial motivation: Inferences from an opaque body of work. *Child development, 87*(6), 1668-1678.

Fabes, R. A., Martin, C. L., & Hanish, L. D. (2003). Young children's play qualities in same-, other-, and mixed-sex peer groups. *Child development, 74*(3), 921-932.

Giletta, M., Burk, W. J., Scholte, R. H., Engels, R. C., & Prinstein, M. J. (2013). Direct and indirect peer socialization of adolescent nonsuicidal self-injury. *Journal of Research on Adolescence, 23*(3), 450-463.

Goldstein, N. J., Griskevicius, V., & Cialdini, R. B. (2007). Invoking social norms: A social psychology perspective on improving hotels' linen-reuse programs. *Cornell Hotel and Restaurant Administration Quarterly, 48*(2), 145-150.

Gremmen, M. C., Berger, C., Ryan, A. M., Steglich, C. E., Veenstra, R., & Dijkstra, J. K. (2019). Adolescents' Friendships, Academic Achievement, and Risk Behaviors: Same-Behavior and Cross-Behavior Selection and Influence Processes. *Child development, 90*(2), e192-e211.

Guerra, N. G., Rowell Huesmann, L., & Spindler, A. (2003). Community violence exposure, social cognition, and aggression among urban elementary school children. *Child development, 74*(5), 1561-1576.

Guimond, F.-A., Brendgen, M., Vitaro, F., Dionne, G., & Boivin, M. (2015). Peer victimization and anxiety in genetically vulnerable youth: The protective roles of teachers' self-efficacy and anti-bullying classroom rules. *Journal of abnormal child psychology, 43*(6), 1095-1106.

Hall, J. A., & Valente, T. W. (2007). Adolescent smoking networks: The effects of influence and selection on future smoking. *Addictive behaviors, 32*(12), 3054-3059.

Hawley, P. H. (1999). The ontogenesis of social dominance: A strategy-based evolutionary perspective. *Developmental review, 19*(1), 97-132.

Hawley, P. H. (2003). Strategies of control, aggression, and morality in preschoolers: An evolutionary perspective. *Journal of experimental child psychology, 85*(3), 213-235.

Hawley, P. H., & Bower, A. R. (2018). Evolution and peer relations: Considering the functional roles of aggression and prosociality. In *Handbook of peer interactions, relationships, and groups, 2nd ed.* (pp. 106-122). New York, NY, US: The Guilford Press.

Hawley, P. H., Shorey, H. S., & Alderman, P. M. (2009). Attachment correlates of resource-control strategies: Possible origins of social dominance and interpersonal power differentials. *Journal of social and Personal Relationships, 26*(8), 1097-1118.

Haynie, D. L., Doogan, N. J., & Soller, B. (2014). Gender, friendship networks, and delinquency: A dynamic network approach. *Criminology, 52*(4), 688-722.

Henneberger, A. K., Coffman, D. L., & Gest, S. D. (2017). The effect of having aggressive friends on aggressive behavior in childhood: using propensity scores to strengthen causal inference. *Social Development, 26*(2), 295-309.

Henrich, J., Heine, S. J., & Norenzayan, A. (2010). The Weirdest People in the World? Behavioral and Brain Sciences.

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.

Herkama, S., Saarento, S., & Salmivalli, C. (2017). The KiVa Antibullying Program: Lessons Learned and Future Directions. *The Wiley Handbook of Violence and Aggression*, 1-12.

Hofmann, V., & Müller, C. M. (2018). Avoiding antisocial behavior among adolescents: The positive influence of classmates' prosocial behavior. *Journal of Adolescence, 68*, 136-145.

Hoglund, W. L., & Leadbeater, B. J. (2004). The effects of family, school, and classroom ecologies on changes in children's social competence and emotional and behavioral problems in first grade. *Developmental psychology, 40*(4), 533.

Hsiao, Y., Cheng, C.-L., & Chiu, Y.-W. (2019). Gender network dynamics in prosocial and aggressive behavior of early adolescents. *Social Networks, 58*, 12-23.

Hu, L. & Bentler, P.M. (1999) Cutoff criteria for fit indexes in covariance structure analysis: Conventional criteria versus new alternatives. *Structural Equation Modeling: A Multidisciplinary Journal, 6(1)*, 1-55. DOI: 10.1080/10705519909540118

Huesmann, L. R., & Guerra, N. G. (1997). Children's normative beliefs about aggression and aggressive behavior. *Journal of personality and social psychology, 72*(2), 408.

Indlekofer, N., & Brandes, U. (2013). Relative importance of effects in stochastic actor-oriented models. *Network Science, 1*(3), 278-304.

Jackson, D. R., Cappella, E., & Neal, J. W. (2015). Aggression norms in the classroom social network: Contexts of aggressive behavior and social preference in middle childhood. *American journal of community psychology, 56*(3-4), 293-306.

Jackson, K. M., Merrill, J. E., Barnett, N. P., Colby, S. M., Abar, C. C., Rogers, M. L., & Hayes, K. L. (2016). Contextual influences on early drinking: Characteristics of drinking and nondrinking days. *Psychology of Addictive Behaviors, 30*(5), 566.

Jacobson, R. P., Mortensen, C. R., Jacobson, K. J., & Cialdini, R. B. (2015). Self-control moderates the effectiveness of influence attempts highlighting injunctive social norms. *Social Psychological and Personality Science, 6*(6), 718-726.

Janosz, M., Archambault, I., Pagani, L. S., Pascal, S., Morin, A. J. S., & Bowen, F. (2008). Are there detrimental effects of witnessing school violence in early adolescence? *Journal of Adolescent Health, 43(6),* 600-608. http://dx.doi.org/10.1016/j.jadohealth.2008.04.011

Jansma, D., Malti, T., Opdenakker, M.-C., & van der Werf, G. (2018). Assessment of anticipated emotions in moral transgressions. *European Journal of Psychological Assessment, 34*(2), 111-126. doi:10.1027/1015-5759/a000467

Kandel, D. B. (1978). Homophily, selection, and socialization in adolescent friendships. *American journal of Sociology, 84*(2), 427-436.

Kärnä, A., Voeten, M., Little, T. D., Poskiparta, E., Alanen, E., & Salmivalli, C. (2011). Going to scale: A nonrandomized nationwide trial of the KiVa antibullying program for grades 1–9. *Journal of Consulting and Clinical Psychology, 79*(6), 796.

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: Official Journal of the International Society for Research on Aggression, 25*(2), 81-89.

Kenny, D.A. (2015) *Dyadic Analysis.* Retrieved on July 27, 2019 from: http://www.davidakenny.net/dyad.htm#Top3

Kenny, D., Kashy, D., & Cook, W. (2006). Methodology in the social sciences (David A. Kenny, Series Editor). In: Dyadic data analysis. New York, NY, US: Guilford Press.

Kiuru, N., DeLay, D., Laursen, B., Burk, W. J., Lerkkanen, M.-K., Poikkeus, A.-M., & Nurmi, J.-E. (2017). Peer selection and influence on children's reading skills in early primary grades: a social network approach. *Reading and Writing, 30*(7), 1473-1500.

Kokko, K., Tremblay, R. E., Lacourse, E., Nagin, D. S., & Vitaro, F. (2006). Trajectories of prosocial behavior and physical aggression in middle childhood: Links to adolescent school dropout and physical violence. *Journal of Research on Adolescence, 16*(3), 403-428.

Krahé, B. (2013). *The social psychology of aggression*: Psychology Press.

Kuppens, S., Grietens, H., Onghena, P., Michiels, D., & Subramanian, S. (2008). Individual and classroom variables associated with relational aggression in elementary-school aged children: A multilevel analysis. *Journal of school psychology, 46*(6), 639-660.

LaFontana, K. M., & Cillessen, A. H. (2002). Children's perceptions of popular and unpopular peers: A multimethod assessment. *Developmental psychology, 38*(5), 635.

Laninga-Wijnen, L., Harakeh, Z., Dijkstra, J. K., Veenstra, R., & Vollebergh, W. (2018). Aggressive and prosocial peer norms: Change, stability, and associations with adolescent aggressive and prosocial behavior development. *The Journal of Early Adolescence, 38*(2), 178-203.

Laninga-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.

Laninga-Wijnen, L., Harakeh, Z., Garandeau, C. F., Dijkstra, J. K., Veenstra, R., & Vollebergh, W. A. (2019). Classroom popularity hierarchy predicts prosocial and aggressive popularity norms across the school year. *Child development*.

Laninga-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.

Lansford, J. E. (2018) Public Policy and Peer Relationships. In W. Bukowski, Laursen, Brett, Rubin, K. (Ed.), *Handbook of Peer Interactions Relationships and Groups* (Second ed.): Guilford Press

Lansford, J. E., Malone, P. S., Dodge, K. A., Pettit, G. S., & Bates, J. E. (2010). Developmental cascades of peer rejection, social information processing biases, and aggression during middle childhood. *Development and psychopathology, 22*(3), 593-602.

Lansu, T. A., & Cillessen, A. H. (2015). Associations of group level popularity with observed behavior and influence in a dyadic context. *Journal of experimental child psychology, 140*, 92-104.

Laursen, B. (2018). Peer Influence. In W. Bukowski, Laursen, Brett, Rubin, K. (Ed.), *Handbook of Peer Interactions Relationships and Groups* (Second ed.): Guilford Press.

Laursen, B., Popp, D., Burk, W. J., Kerr, M., & Stattin, H. (2008). Incorporating interdependence into developmental research: Examples from the study of homophily and homogeneity. In *Modeling dyadic and interdependent data in the developmental and behavioral sciences.* (pp. 11-37). New York, NY, US: Routledge/Taylor & Francis Group.

Logis, H. A., Rodkin, P. C., Gest, S. D., & Ahn, H. J. (2013). Popularity as an organizing factor of preadolescent friendship networks: Beyond prosocial and aggressive behavior. *Journal of Research on Adolescence, 23*(3), 413-423.

Malti, T., Rubin, K. H., & Vaillancourt, T. (2018). *Handbook of child and adolescent aggression*. New York, NY: The Guilford Press.

Mayeux, L., Houser, J. J., & Dyches, K. D. (2011). Social acceptance and popularity: Two distinct forms of peer status.

McCormick, M. P., & Cappella, E. (2015). Conceptualizing academic norms in middle school: A social network perspective. *The Journal of Early Adolescence, 35*(4), 441-466.

McDonald, K. L., & Asher, S. R. (2018). Peer acceptance, peer rejection, and popularity: Social-cognitive and behavioral perspectives. In *Handbook of peer interactions, relationships, and groups, 2nd ed.* (pp. 429-446). New York, NY, US: The Guilford Press.

McKeown, S., & Taylor, L. K. (2018). Perceived peer and school norm effects on youth antisocial and prosocial behaviours through intergroup contact in Northern Ireland. *British Journal of Social Psychology, 57*(3), 652-665.

McMillan, C., Felmlee, D., & Osgood, D. W. (2018). Peer influence, friend selection, and gender: How network processes shape adolescent smoking, drinking, and delinquency. *Social Networks, 55*, 86-96.

Molano, A., Jones, S. M., Brown, J. L., & Aber, J. L. (2013). Selection and socialization of aggressive and prosocial behavior: The moderating role of social-cognitive processes. *Journal of Research on Adolescence, 23*(3), 424-436.

Morin, A., & Litalien, D. (2019, April 26). Mixture Modeling for Lifespan Developmental Research. *Oxford Research Encyclopedia of Psychology.* Retrieved 12 Jul. 2019, from https://oxfordre.com/psychology/view/10.1093/acrefore/9780190236557.001.0001/acrefore-9780190236557-e-364.

Mrug, S., Borch, C., & Cillessen, A. H. (2011). Other-sex friendships in late adolescence: Risky associations for substance use and sexual debut? *Journal of Youth and Adolescence, 40*(7), 875-888.

Müller, C. M., Hofmann, V., Fleischli, J., & Studer, F. (2016). Effects of classroom composition on the development of antisocial behavior in lower secondary school. *Journal of Research on Adolescence, 26*(2), 345-359.

Muthén, L., & Muthén, B. (2012). Mplus user's guide (1998–2012). *Los Angeles, CA: Muthén & Muthén, 6*.

Nantel-Vivier, A., Pihl, R. O., Côté, S., & Tremblay, R. E. (2014). Developmental association of prosocial behaviour with aggression, anxiety and depression from infancy to preadolescence. *Journal of Child Psychology and Psychiatry, 55*(10), 1135-1144.

Neal, Z. (2011). Differentiating centrality and power in the world city network. *Urban Studies, 48*(13), 2733-2748.

Ng-Knight, T., Shelton, K.H., Riglin, L., Frederickson, N., McManus, I.C. & Frances, R. (2018) 'Best Friends Forever"? Friendship stability across school transtisions and associations with mental health and educational attainment. *British Journal of Educational Psychology,* 1-15. DOI:10.1111/bjep.12246

Nylund, K. L., Asparouhov, T., & Muthén, B. O. (2007). Deciding on the number of classes in latent class analysis and growth mixture modeling: A Monte Carlo simulation study. *Structural equation modeling: A multidisciplinary Journal, 14*(4), 535-569.

Osgood, D. W., Feinberg, M. E., Gest, S. D., Moody, J., Ragan, D. T., Spoth, R., . . . Redmond, C. (2013). Effects of PROSPER on the influence potential of prosocial versus antisocial youth in adolescent friendship networks. *Journal of Adolescent Health, 53*(2), 174-179.

Padilla-Walker, L. M., Carlo, G., & Nielson, M. G. (2015). Does helping keep teens protected? Longitudinal bidirectional relations between prosocial behavior and problem behavior. *Child development, 86*(6), 1759-1772.

Paluck, E. L., Shepherd, H., & Aronow, P. M. (2016). Changing climates of conflict: A social network experiment in 56 schools. *Proceedings of the National Academy of Sciences, 113*(3), 566-571.

Pedersen, E. R., Osilla, K. C., Miles, J. N., Tucker, J. S., Ewing, B. A., Shih, R. A., & D'Amico, E. J. (2017). The role of perceived injunctive alcohol norms in adolescent drinking behavior. *Addictive behaviors, 67*, 1-7.

Perry, K. J., & Ostrov, J. M. (2018). Testing a higher order model of internalizing and externalizing behavior: The role of aggression subtypes. *Child Psychiatry & Human Development, 49*(1), 20-32.

Peters, E., Cillessen, A. H. N., Riksen-Walraven, J. M., & Haselager, G. J. T. (2010). Best friends' preference and popularity: Associations with aggression and prosocial behavior. *International Journal of Behavioral Development, 34*(5), 398-405. doi:10.1177/0165025409343709

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.

Rambaran, J. A., Hopmeyer, A., Schwartz, D., Steglich, C., Badaly, D., & Veenstra, R. (2017). Academic functioning and peer influences: A short-term longitudinal study of network–behavior dynamics in middle adolescence. *Child development, 88*(2), 523-543.

Roberts, S. O., Guo, C., Ho, A. K., & Gelman, S. A. (2018). Children's descriptive-to-prescriptive tendency replicates (and varies) cross-culturally: Evidence from China. *Journal of experimental child psychology, 165*, 148-160.

Rodriguez, C., & Sanchez, F. (2012). Armed conflict exposure, human capital investments, and child labor: evidence from Colombia. *Defence and peace economics, 23*(2), 161-184.

Rohlf, H., Krahé, B., & Busching, R. (2016). The socializing effect of classroom aggression on the development of aggression and social rejection: A two-wave multilevel analysis. *Journal of school psychology, 58*, 57-72.

Romano, E., Tremblay, R. E., Boulerice, B., & Swisher, R. (2005). Multilevel correlates of childhood physical aggression and prosocial behavior. *Journal of abnormal child psychology, 33*(5), 565-578.

Rose, A. J., Glick, G. C., Smith, R. L., Schwartz-Mette, R. A., & Borowski, S. K. (2017). Co-rumination exacerbates stress generation among adolescents with depressive symptoms. *Journal of abnormal child psychology, 45*(5), 985-995.

Rose, A.J., Carlson, W. & Waller, E.M. (2007) Prospective Associations of Co-Rumination with friendship and exmotional adjustment: considering the socioemotional trade-offs of co-rumination. *Developmental Psychology, 43, 4,* 1019-1031. doi: 10.1037/0012-1649.43.4.1019

Rose, A. J., & Smith, R. L. (2018). Gender and peer relationships. In *Handbook of peer interactions, relationships, and groups, 2nd ed.* (pp. 571-589). New York, NY, US: The Guilford Press.

Rubin, K. H., Bukowski, W. M., & Bowker, J. C. (2015). Children in peer groups. *Handbook of child psychology and developmental science*, 1-48.

Saarento, S., Boulton, A. J., & Salmivalli, C. (2015). Reducing bullying and victimization: Student-and classroom-level mechanisms of change. *Journal of abnormal child psychology, 43*(1), 61-76.

Salmivalli, C. (2010). Bullying and the peer group: A review. *Aggression and violent behavior, 15*(2), 112-120.

Salmivalli, C., Lagerspetz, K., Björkqvist, K., Österman, K., & Kaukiainen, A. (1996). Bullying as a group process: Participant roles and their relations to social status within the group. *Aggressive Behavior: Official Journal of the International Society for Research on Aggression, 22*(1), 1-15.

Sandstrom, M. J., & Cillessen, A. H. (2006). Likeable versus popular: Distinct implications for adolescent adjustment. *International Journal of Behavioral Development, 30*(4), 305-314.

Satorra, A., & Bentler, P. M. (2010). Ensuring positiveness of the scaled difference chi-square test statistic. *Psychometrika, 75*(2), 243-248.

Schacter, H. L., & Juvonen, J. (2018). You've got a friend (ly school): Can school prosocial norms and friends similarly protect victims from distress? *Social Development, 27*(3), 636-651.

Schultz, P. W., Nolan, J. M., Cialdini, R. B., Goldstein, N. J., & Griskevicius, V. (2007). The constructive, destructive, and reconstructive power of social norms. *Psychological science, 18*(5), 429-434.

Schulz, W., Ainley, J., Fraillon, J., Losito, B., Agrusti, G., & Friedman, T. (2018). *Becoming citizens in a changing world: IEA International Civic and Citizenship Education Study 2016 international report*: Springer.

Schwartz-Mette, R. A., & Rose, A. J. (2012). Co-rumination mediates contagion of internalizing symptoms within youths' friendships. *Developmental psychology, 48*(5), 1355.

Sijtsema, J. J., & Lindenberg, S. M. (2018). Peer influence in the development of adolescent antisocial behavior: Advances from dynamic social network studies. *Developmental review*.

Sijtsema, J. J., Rambaran, J. A., Caravita, S., & Gini, G. (2014). Friendship selection and influence in bullying and defending: Effects of moral disengagement. *Developmental psychology, 50*(8), 2093.

Snijders, T. A., Van de Bunt, G. G., & Steglich, C. E. (2010). Introduction to stochastic actor-based models for network dynamics. *Social Networks, 32*(1), 44-60.

Thomas, D. E., Bierman, K. L., Powers, C., & Group, C. P. P. R. (2011). The influence of classroom aggression and classroom climate on aggressive–disruptive behavior. *Child development, 82*(3), 751-757.

Tomasello, M. (2016). Cultural learning redux. *Child development, 87*(3), 643-653.

Tropp, L. R., O'Brien, T. C., González Gutierrez, R., Valdenegro, D., Migacheva, K., de Tezanos-Pinto, P., . . . Cayul, O. (2016). How school norms, peer norms, and discrimination predict interethnic experiences among ethnic minority and majority youth. *Child development, 87*(5), 1436-1451.

Van de Bongardt, D., Reitz, E., Sandfort, T., & Deković, M. (2015). A meta-analysis of the relations between three types of peer norms and adolescent sexual behavior. *Personality and Social Psychology Review, 19*(3), 203-234.

Van den Berg, Y. H., Lansu, T. A., & Cillessen, A. H. (2015). Measuring social status and social behavior with peer and teacher nomination methods. *Social Development, 24*(4), 815-832.

Van der Graaff, J., Carlo, G., Crocetti, E., Koot, H. M., & Branje, S. (2018). Prosocial behavior in adolescence: gender differences in development and links with empathy. *Journal of Youth and Adolescence, 47*(5), 1086-1099.

Van Goethem, A. A., Van Hoof, A., van Aken, M. A., de Castro, B. O., & Raaijmakers, Q. A. (2014). Socialising adolescent volunteering: How important are parents and friends? Age dependent effects of parents and friends on adolescents' volunteering behaviours. *Journal of Applied Developmental Psychology, 35*(2), 94-101.

van Hoorn, J., van Dijk, E., Meuwese, R., Rieffe, C., & Crone, E. A. (2016). Peer influence on prosocial behavior in adolescence. *Journal of Research on Adolescence, 26*(1), 90-100.

Van Rijsewijk, L., Dijkstra, J. K., Pattiselanno, K., Steglich, C., & Veenstra, R. (2016). Who helps whom? Investigating the development of adolescent prosocial relationships. *Developmental psychology, 52*(6), 894.

Veenstra, R., Dijkstra, J. K., & Kreager, D. A. (2018). Pathways, networks, and norms: A sociological perspective on peer research. In *Handbook of peer interactions, relationships, and groups, 2nd ed.* (pp. 45-63). New York, NY, US: The Guilford Press.

Veenstra, R., Dijkstra, J. K., Steglich, C., & Van Zalk, M. H. (2013). Network–behavior dynamics. *Journal of Research on Adolescence, 23*(3), 399-412.

Velásquez, A. M., Bukowski, W. M., & Saldarriaga, L. M. (2013). Adjusting for group size effects in peer nomination data. *Social Development, 22*(4), 845-863.

Velásquez, A. M., Drury, K.-M., Saldarriaga, L. M., Santo, J. B., Stella-Lopez, L., & Bukowski, W. M. (2016). Peer Rejection as a Social Regulation Mechanism of Group Norms: The Case of Aggression Across Sex. *Journal of Latino/Latin American Studies, 8*(2), 47-58.

Vitaro, F., Boivin, M., & Poulin, F. (2018). The interface of aggression and peer relations in childhood and adolescence. In *Handbook of Peer Interactions, Relationships, and Groups* (pp. 284).

Wentzel, K. R. (2014). Prosocial behavior and peer relations in adolescence. *Prosocial development: A multidimensional approach*, 178-200.

Werner, N. E., & Crick, N. R. (1999). Relational aggression and social-psychological adjustment in a college sample. *Journal of abnormal psychology, 108*(4), 615.

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.

Wood, M. A., Bukowski, W. M., & Santo, J. B. (2017). Friendship security, but not friendship intimacy, moderates the stability of anxiety during preadolescence. *Journal of Clinical Child & Adolescent Psychology, 46*(6), 798-809.

Wurster, T., & Xie, H. (2014). Aggressive and prosocial behaviors: The social success of bistrategic preadolescents. *International Journal of Behavioral Development, 38*(4), 367-377.

Xie, H., & Shi, B. (2009). Gender similarities and differences in preadolescent peer groups: Group structure and ethnic diversity. *Merrill-Palmer Quarterly, 55*(2), 157-183.

Yeager, D. S., Dahl, R. E., & Dweck, C. S. (2018). Why interventions to influence adolescent behavior often fail but could succeed. *Perspectives on Psychological Science, 13*(1), 101-122.

Yen, C.-F., Ko, C.-H., Yen, J.-Y., Tang, T.-C., Chang, Y.-P., & Cheng, C.-P. (2010). Internalizing and externalizing problems in adolescent aggression perpetrators, victims, and perpetrator-victims. *Comprehensive psychiatry, 51*(1), 42-48.

Zaleski, A. C., & Aloise-Young, P. A. (2013). Using peer injunctive norms to predict early adolescent cigarette smoking intentions. *Journal of applied social psychology, 43*, E124-E131.

Appendix 1

Informed Consent

PROYECTO CULTURE, SOCIAL RELATIONS AND ACADEMIC COMPETENCIES

2008

(GRADOS 4º, 5º y 6º)

PERMISO PARA PARTICIPACIÓN

Por favor lea y firme el siguiente texto:

Comprendo que se está solicitando mi autorización para que mi hijo(a) participe en la investigación del Dr. W. M. Bukowski. Comprendo que el propósito de este estudio es examinar la manera cómo las relaciones de amistad, las habilidades y los comportamientos de los niños les ayudan a manejar los retos de la vida diaria. Comprendo que si mi hijo(a) participa se le pedirá que conteste un cuestionario en cuatro ocasiones durante el año escolar. Se me ha informado que el cuestionario es sobre las relaciones sociales de los niños y sobre el clima de su salón de clase. Comprendo que mi hijo(a) no está obligado a participar en el estudio, e incluso, que si empieza a llenar el cuestionario y no quiere continuar, puede parar en cualquier momento. También comprendo que todas las respuestas serán confidenciales y no serán mostradas a ninguna persona. Solamente el Dr. W. M. Bukowski y sus asistentes conocerán la información de los cuestionarios. Por favor marque alguna de las dos siguientes respuestas y pida a su hijo(a) que lleve esta carta mañana al colegio y la entregue a su profesor.

____ Mi hijo(a) **tiene permiso** para participar en la investigación del Dr. Bukowski
(Si usted marcó esta opción, le agradecemos que escriba a continuación el estrato del barrio en el que vive su familia:____)

____ Mi hijo(a) **no tiene permiso** para participar en la investigación del Dr. Bukowski

Nombre del estudiante: _____ Sexo: Hombre ____ Mujer____

Nombre del colegio: _____ Curso: _____

Nombre del(los) padre(s):_____ Teléfono:_____

Firma: _____ Fecha:_____