Forms and Functions of Prosocial Behavior Moderate the Continuity of Aggression in Early Adolescence

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Abstract

Forms and Functions of Prosocial Behavior Moderate the Continuity of Aggression in Early Adolescence

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Typically, measures of aggression are negatively related to measures of prosocial behavior; however, under certain circumstances prosociality may actually promote aggression (Hawley, 2002). A subset of school-aged students may use both behaviors simultaneously to navigate and influence their peer system. Thus, it is imperative to investigate the extent to which their interaction may be associated with promoting or minimizing aggression over time. These associations were investigated in two short-term longitudinal studies of 5th and 6th grade students. Peer nomination procedures were used to assess different forms (e.g., ethic of care and justice) and functions (e.g., proactive, reactive help) of prosocial behavior on changes in physical and relation aggression across a school semester. The results of **Study 1** indicate that both types of aggression are stable. Whereas physical aggression declined over a 4-month period, relational aggression increased among girls as well as boys. In line with predictions, students who were initially high on care and justice increased in relational aggression, compared to those scoring low on measures of care and justice. On the other hand, high levels of care and justice were protective against physical aggression. The effects of care were replicated in **Study 2** providing compelling evidence that care orientation helps promote relational type of aggression in early adolescence. However, ethic of justice was found to have a buffering effect against relational aggression, contrary to what was observed in Study1. Further, driven by the need to better understand the motivational factors underling prosocial behaviors, proactive and reactive functions of helping were explored and their associations with aggression. Proactive help was unrelated to either type of aggression; on the other hand, reactive help at the beginning of a school semester had a buffering effect on physical aggression two months later. Together, this set of results highlights the importance of taking into account multiple aspects of prosociality to better understand their links with aggression. Understanding factors associated with elevated

aggression over time is integral in designing prevention and interventions programs aimed to reduce it

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Examining the Effects of Care and Justice on Changes in Physical and Relational Aggresion in Early Adolescence

Joanna Rosciszewska	Study conception, design, data organization, planned and executed analyses, writing, editing, proofing.
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The Effects of Care, Justice, Proactive and Reactive Help on Changes in Physical and Relational Aggression in Early Adolescence

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General Introduction

Traditionally, research on aggression and prosocial behavior (i.e., voluntary behavior aimed at benefiting others; Eisenberg, Fabes, & Spinrad, 2006) in early adolescence has been studied independently and the two constructs were viewed as opposite ends of one dimension (Hawley, 2002; 2003a). As such, and perhaps not surprisingly, numerous studies demonstrated inverse links between aggression and prosocial behavior. Similarly, while childhood and adolescent aggression is generally associated with negative developmental outcomes (e.g., bullying, peer rejection: Eisner & Malti, 2015), prosocial behavior is seen as a correlate of well-being and positive functioning with peers. From a traditional standpoint, such duality would imply that individuals displaying aggressive behaviors would generally not display prosocial behaviors, and vice versa. However, prosociality and antisocial behaviors can also interact and co-exist simultaneously in children's behavioral repertoires (e.g., Hawley, Little & Pasupathi, 2002) as they navigate the daily dynamics of their peer interactions. This assertion rests on the findings that aggressive children and adolescents who are *s*imultaneously prosocial are often viewed as socially competent and are central members of their peer groups (Hawley, 1999; 2002; Bukowski, 2003; Pellegrini, 2008). The use of prosocial behaviors (e.g., helping, cooperating) may mitigate the cost of aggression, thus conferring social advantage to those who can skilfully balance meeting one's own needs while simultaneously maintaining positive relationships with others.

The current dissertation was guided by the need to better understand the interrelations among risk (i.e., aggression) and protective (i.e., prosocial behavior) factors and how they may exacerbate or minimize aggressive conduct over time. Importantly, there is great variability in how children express these behaviors, which underscores the importance of adopting a multidimensional perspective in their assessment and in informing the design of prevention and intervention school programmes aimed at reducing aggression. Although the effects of aggression and aspects of prosocial behavior have already been studied (Hawley, 1999), more longitudinal research is needed, especially in early adolescence, which is thought of as a critical developmental period for the growth of aggression (Coté, Vaillancourt, Barker, Nagin, & Tremblay, 2007). Additionally, the current series of two studies that make up the dissertation addressed other important limitations in the current literature: that of the (a) tendency to only focus on children's negative characteristics, and (b) the use of broad-band measures of

aggression and prosociality that do not recognize the variability among the many manifestations of these behaviors. Therefore, the purpose of the present research studies was to explore how different forms and functions of prosocial behavior relate to changes in two types of aggression over time in a sample of middle school children.

Aggressive Behavior During Early Adolescence

The construct of aggression can be viewed as a category of behaviors that share the quality of intention to harm another person (Huesmann & Eron, 1992) via physical or psychological means (Frick & Nigg, 2012; Krahé, 2013). Whereas physical aggression is defined as the use, or the threat of use of physical force (e.g., hitting, kicking; Crick, Ostrov, & Wermer, 2006; Eisner & Malti, 2015), relational aggression is aimed at damaging social relationships via gossiping, spreading rumours, as well as social exclusion (Crick & Grotpeter, 1995; Dodge, Coie, & Lynam, 2006; Perry & Ostrov, 2018). Prior to 1995 when the term 'relational aggression' appeared in the scientific literature (Crick and Grotpeter, 1995), this type of behavior was labelled 'indirect aggression' (Feshbach, 1969; Lagerspetz, Björkqvist, Peltonen, 1988) or 'social aggression' (Cairns, Cairns, Neckerman, Ferguson & Gariepy, 1989). All three terms refer to the use of social exclusion and rejection to hurt a victim. Although minor differences exist, these concepts are very similar and researchers generally accept some blurring of the boundaries among the three terms (Archer & Coyne, 2005; Card et al, 2008).

Physical and relational forms of aggression tend to correlate positively with each other. Several studies conducted with children and adolescents have reported moderately strong correlations between the two constructs for both boys and girls (Crick, Casas, & Mosher, 1997; Vaillancourt, Brendgen, Boivin, & Tremblay, 2003; Coté, Vaillancourt, LeBlanc, Nagin, & Tremblay, 2006; Coté et al., 2007). Nonetheless, the two types of aggression are thought to represent distinct constructs and are related independently to various outcomes. Relative to each other, physical aggression is associated with more externalizing problems, while relational aggression is more strongly related to internalizing problems (Card, Stucky, Sawalani, & Little, 2008). These associations have been observed in studies using peer reports ($r = .72$; $r = .56$ for 4^{th} grade boys and girls, respectively) (Crick et al., 2006), as well as those using teacher ratings (Miller, Vaillancourt, & Boyle, 2009; Underwood, Beron, & Rosen 2009). It should be noted that as children move into early adolescence, they evidence an increase in their socio-cognitive abilities and physical aggression tends to be progressively replaced with more subtle forms of

relational aggression (Österman et al., 1998; Werner, Senich & Przepyszny, 2006; Murray-Close, Nelson, Ostrov, Casas, & Crick, 2016).

Bronfenbrenner's revised ecological model of human development, the Process-Person-Context-Time model (PPCT; Bronfenbrenner, 2005; Bronfenbrenner & Morris, 2006), emphasizes the role of proximal processes (e.g., ongoing interactions between an individual and their environment) that drive human development. From this perspective, aggression is a result of an integrated developmental process that is maintained through interplay of individual (e.g., gender, emotion regulation, etc.) and contextual (e.g., family, peers, school) factors. Early childhood aggression remains one of the strongest predictors of later aggression, including antisocial and criminal acts (Huesmann & Eron, 1992). Impulsivity, as well as anger reactivity and peer delinquency are positively related to different types of aggression and bullying behavior (Dodge et al. 1997; Ellis et al., 2013; Low & Espelage, 2014). Furthermore, trait anger and feelings of frustration have been linked to aggression in children and adolescents (Park et al., 2005; Ojanen et al., 2012). Exposure to adversity (e.g., poverty) and family factors such as disruption in forming a secure attachment with a primary caregiver, harsh and inconsistent parenting, and history of maltreatment have been implicated in the development of aggressive behavior (Dishion, et al 1996; Gershoff & Grogan-Kaylor, 2016).

In addition to proximal processes that take place within family dynamics, peer experiences provide a critical context for children's social-emotional development and psychological adjustment (Hawley, Little, & Pasupathi, 2002; Bukowski, Brendgan, &Vitaro, 2007), especially in early adolescence—a period where peers take more of a central role in children's lives (Rubin, Bukowski & Bowker, 2015). Indeed, peers are thought to provide a fundamental context for the emergence and control of aggression (Bukowski & Vitaro, 2018) This developmental period also coincides with the emerging importance of intimacy (e.g., sharing feelings and/or thoughts with another) (Bukowski & Kramer, 1988) and social standing (e.g., achieving popularity) (Cilessen & Mayeux, 2004) among peers. As peers spend more time together, they become increasingly salient role models for social behaviors, including aggression, which can be enacted at an individual, dyadic and/or group level (Rubin, Bukowski, & Parker, 2006). Because of children's increased desire for closeness and exclusivity, they may use more relational aggression, rather than physical, to manipulate their social relationships.

At the group level, one of the most robust predictors of aggression is associating with deviant peers (i.e., deviancy training; Dishion, McCord, & Poulin, 1999), which is influenced by mechanism of reinforcement and imitation (Laursen, 2014). Childhood and adolescent studies indicate that most friendships are formed based on similarity (Laursen, 2018; Rubin et al., 2018), which is also true in friendships of aggressive youth (Bukowski & Vitaro, 2018). As a result, they model and reinforce aggression in each other, leading to increased aggression over time. In one study of sixth and seventh graders (Low, Polanin, & Espelage, 2013), physical aggression among peer group members was associated with individual increases in relational aggression over a one-year period. Similarly, having friends that are relationally aggressive predicts children's own relational aggression over time (Werner & Crick, 2004). This process of peer influence has also been shown to promote peer rejection, which in turn can lead to further aggression (Prinstein & Giletta, 2016). However, this association is shown to be bidirectional where aggressive behaviors also precede peer rejection (Dodge, 1983; Poulin & Boivin 2000).

Another important process of the peer system associated with aggression concerns the emergence of status hierarchies (e.g., differences in social position of individual children)(Ahn & Rodkin, 2014). Aggression has been shown to be particularly adaptive at the beginning of group formation in which status and hierarchy networks are formed and negotiated (Pellegrini, 2008). The emergence of status hierarchy creates power imbalance; thus, more opportunities to act aggressively. This is in line with social dominance theory, which provides a framework for understanding aggression in the context of peer relations (Hawley, 1999; Blanchard & Blanchard, 2003) by focusing on the adaptiveness of certain behaviors that allow for control and acquisition of resources. As such, aggression can be viewed as means of achieving status (e.g., popularity) and dominance. For example, Garandeau, Ahn & Rodkin (2013) reported higher bullying behaviors in classrooms characterized by high hierarchy status. Similarly, Wolke et al., (2009) observed increased victimization in classrooms with stronger peer hierarchies. Finally, group expectations and norms (e.g., acceptability of a behavior) have also been found to predict aggression (Bukowski & Vitaro, 2015). Classrooms in which aggressive conduct is sanctioned and disapproved of may have less favourable norms for aggression than in those in which aggression is accepted and rewarded (Ahn & Rodkin, 2014).

Gender Differences and Trajectories of Aggression

Studies have consistently found physical forms of aggression to be higher among boys than among girls (Archer, 2004; Tremblay, Hartup, & Archer, 2005; Ostrov & Godleski, 2010; Lansford et al., 2012), which is rooted in socialization processes and relevant gender-role schemas. Findings relating to relational aggression are somewhat mixed, although an increasing number of studies suggest no consistent gender differences (Card et al., 2008; Lansford et al., 2012). On the whole, it appears that whereas boys utilize both types of aggression in their interactions with peers, girls employ predominantly (but not exclusively) its relational form. It is also important to note that it has been suggested that girls' motivation to engage in relational aggression may serve the same function as boys' motivation to engage in physical aggression (e.g., to achieve status among peers) (Crapanzano, Frick & Terranova, 2010). However, the underlying causes of relational aggression are thought to differ, depending on gender (Crapanzano et al., 2010). Further, it has been suggested that the acceptability of aggression among and boys and girls varies as a function of the type of aggression used. While physical aggression is more acceptable among boys than girls, relational aggression is more acceptable among girls than boys (Crick, 1997), underscoring the importance of sociocognitive biases underlying the selection of aggressive behavior.

For most youth, physical aggression decreases through middle childhood (Dodge et al., 2006), however, relational aggression becomes increasingly common as children approach adolescence (Murray-Close, Ostrov, & Crick, 2007; Vaillancourt et al., 2007; Spieker et al., 2012). In fact, Björkqvist and colleagues (1992a) proposed a theoretical model of the two types of aggression during childhood and adolescence. They proposed that as children's social-cognitive abilities and emotional intelligence improve, they may begin to replace physical forms of aggression with more covert and less socially sanctioned behaviors such as relational aggression (e.g., spreading rumors, gossiping, etc.)(Lagerspetz & Björkqvist, 1994; Murray-Close et al., 2016). Consistent with these notions, physical aggression is generally associated with indices of social incompetence (e.g., social-cognitive biases, peer rejection; Dodge, 1983; Underwood, 2003). In contrast, relational aggression is related to increased socio-cognitive skills, empathy, and social intelligence, among others (Sutton, Smith, & Swettenham, 1999), particularly among those who engage in relational aggression frequently (Kaukiainen et al., 1999; Andreou, 2006).

It should be noted that some use of aggression in childhood is normative, with of majority of children engaging in less aggression as they grow older (Coté et al. 2006; Vitaro & Brendgen, 2012). Nonetheless, a small proportion (5% to 10% in study samples) of children on a high stable trajectory of physical aggression will continue to display aggressive behavior during middle childhood and into adolescence (Nagin & Tremblay, 1999; Broidy et al. 2003; Coté et al., 2006; 2007; Underwood, Beron, & Rosen, 2009). Similarly, while some use of relational aggression is normative, a small group of children continue to show an elevated aggression profile (Vaillancourt et al., 2007); stable, elevated levels of either type of aggression is a risk factor for psychological maladjustment, especially among purely aggressive individuals (Hawley, 2003a).

Prosocial Behavior During Early Adolescence

Prosociality is typically defined as a set of voluntary behaviors with the intent to benefit another person (Eisenberg, Fabes & Spinrad, 2006; Eisenberg, Spinrad & Knafo-Noam, 2015). It is often classified into helping, sharing, and comforting behaviors. Being prosocial promotes acceptance by and affiliation with peers, and is a positive correlate of well-being and adaptive functioning (Tomasello, 2009). Recent meta-analytic findings point to negative associations between prosocial behaviors and both internalizing and eternalizing problems in adolescence (Memmott-Elison, Holmgren, Padilla-Walker, & Hawkins, 2020). In fact, prosocial behavior is often considered a protective factor against a number of negative outcomes, such as aggression (Carlo, Mestre, McGinley, Tur-Porcar, Samper & Opal, 2014), poor academic functioning (Allen, Phillliber, Herrling, & Kuperminc, 1997), depression and anxiety (Haroz, Murray, Bolton, Batencourt, & Bass, 2013), as well as substance abuse (Carlo, Crockett, Wilkinson, & Beal, 2011).

Generally speaking, prosocial behavior has been shown to increase across childhood to adolescence (see Eisenberg & Fabes, 1998 for meta analysis), although it depends on which type of behavior is enacted and how it is measured. For example, teacher-reported prosocial behaviors have been found to be relatively stable or to decline between ages 6 to 12 (Coté, Tremblay, Nagin, Zoccolillo, & Vitaro, 2002). On the other hand, Carlo, Crockett, Randall and Roesch (2007) observed that during the early to mid-adolescent years, self-reported prosocial behavior showed a modest decline, rebounding slightly in late adolescence. Others have observed non-linear changes over time in prosociality across both childhood, as well as adolescence (Jackson & Tisak, 2001; Eisenberg, Cumberland, Guthrie, Murphy, & Shepard,

2005). Thus, findings relating to developmental trajectories of prosocial behavior are mixed, reflecting a multifaceted (dynamic) interplay of contextual factors that help predict prosocial behavior (Eisenberg & Fabes, 1998; Nantel-Vivier et al., 2009).

Advances in socio-cognitive abilities (e.g., perspective taking) and development across age are thought to reflect children's increasing ability to respond with empathic distress to another's plight. Generally, empathy has been implicated in the development of prosocial behavior (Eisenberg et al., 2015) and is negatively associated with measures of aggression (Eisenberg, Eggum, & Di Giunta, 2010). As such, prosocial responding has been found to correlate positively with measures of moral reasoning (e.g., thinking about dilemmas of welfare and justice), including other-oriented beliefs and values (e.g., compassion, consideration of others) (Barry, Padilla-Walker, Madsen, & Nelson, 2008; Eisenberg et al., 2006; Carlo et al, 2011). Prosocial youth also view themselves as caring and morally astute (Carlo, 2006; Eisenberg et al., 2006). However, it is important to acknowledge that actions that may seem altruistic on the surface may also be enacted out of self-interest. There is evidence that when individuals feel empathically over-aroused, they may not be able to successfully modulate their own internal states, thus, impeding other-oriented processes (Eisenberg et al., 1994; Eisenberg, Wentzel, & Harris, 1998).

Although modest gender differences in prosocial behavior have been reported, favoring girls, (Eisenberg & Fabes 1998), the effects tend to vary as a function of informant and of type of behavior studied. For example, gender differences are more pronounced when using self-report measures than in observational studies and are larger among measures reflecting consideration and kindness than those measuring sharing and comforting behaviors. Gender differences are more obscured in studies using measures of instrumental help than other prosocial behaviors (Eisenberg, Spinrad & Knafo-Noam, 2015). Despite inconsistent findings, the general consensus in the literature is that girls appear to be slightly more prosocial than boys (Eisenberg et al., 2015).

Ethic of Care and Justice as Forms of Prosocial Behaviors

As stated earlier in the introduction, prosociality takes different forms, including helping, sharing, and comforting behaviors. However, some researchers (e.g., Walker, 2006) recognize the need to include other measures, such as the ethic of care (i.e. orientation towards maintaining relationships and responding to the needs of others) and ethic of justice (i.e., orientation towards

maintaining fairness through application of universal rules and norms) in the study of prosociality. This is predicated on the notion that both concepts hold central importance to human relationships and are fundamental aspects of human nature. (Held, 2006) Both the ethic of care and justice, which are thought to operate from an empathic response (Juujärvi, Myyry, & Pesso, 2010), play important roles in solving moral conflicts and are essential components of human behavior.

The original works of Gilligan (1982) and Kohlberg (1984) provide a backdrop for the debate regarding gender differences in the two moral orientations. Although originally regarded as gender-specific (i.e., care was considered higher among females while justice higher among males), in general, no consistent gender differences are thought to exist either in childhood or adulthood (Jaffe & Hyde, 2000; Juujärvi et al., 2010). While it is true that women use care orientation slightly more than men (see Jaffe & Hyde, 2000), both boys and girls are thought to use both orientations to some degree (Pratt, Diessner, Hunsberger, Pancer, Savoy, 1991; Skoe et al., 1999). In fact, it has been proposed that the most salient predictor of the type of orientation used is type of moral conflict and not gender (Juujärvi et al., 2010), although findings are mixed. For example, both girls and boys have been found to engage more in care-based reasoning when discussing relational real-life dilemmas (Jaffee & Hyde, 2000; Juujärvi, 2005), while using justice-related orientation when discussing non-relational dilemmas (Turiel, 1998). On the other hand, in a study of early adolescents, Skoe and Gooden (1993) observed that care-based real-life moral dilemma content was gender-differentiated, such that girls generated more personal real-life dilemmas (e.g., those involving relationship concerns between oneself and close others), while boys reported more impersonal ones, placing importance on sports, as well as on avoiding trouble.

Concern for the welfare of others and expectations of fairness and equality arise early in life and are fundamental in building foundations for secure relationships across the lifespan (Bowlby, 1969; Jensen, Vaish, & Schmidt, 2014). Both orientations become more sophisticated across childhood into adulthood (Skoe, 1998), progressing through different levels of moral maturity. For instance, Skoe and von der Lippe (2002) argued that care-based reasoning is gradually promoted through painful life events (e.g., interpersonal conflict, life-threatening illness), giving way to development and growth of the self as moral agent in the context of interpersonal relationships. Others (Cohn, 1991; Snarley, 1998) have linked care orientation, as

well as justice, to ego growth, with both boys and girls demonstrating increases in use of the two moral orientations as they advance in ego level. The highest level of ego development reflects moral maturity, integrating and balancing self-oriented capacity for autonomy with compassion, intimacy and responsibility towards others (Loevinger, 1979; Kohlberg, 1984; Skoe & von der Lippe, 2002; Skoe, 2008).

Given that empathic concern is closely aligned with the notion of altruism (Eisenberg et al., 2010), it is not surprising that care reasoning is generally inversely related to measures of aggression (Schultz, Izard & Bear, 2004), as well as related constructs (e.g., authoritarianism; Skoe, Pratt, Matthews & Curror, 1996). In contrast, it is positively related to affective empathy and perspective taking abilities (Gilligan & Wiggins; 1988; Skoe et al, 2002; Carlo et al., 2010), although it can also involve interpersonal conflict (Tronto, 1994). Interestingly, perspective taking, which is thought to relate to care and justice reasoning, can also facilitate harm towards others, as suggested by some authors (Feshbach, 1987; Sutton, Smith & Swettenham, 1999). For example, findings from the personality literature (Huseman, Haftield, & Miles, 1987; Schmitt, Neumann, & Montada, 1995) indicate that certain individuals may be more prone to perceive injustice and be motivated to redress it with various social behaviors, including prosocial and antisocial acts. However, not much is known about such associations with preadolescent samples.

Positive Associations between Aggression and Prosocial Behaviors

Despite numerous studies pointing to negative associations between aggression and prosociality (Card et al., 2008), a subset of school-age children may engage in both behaviors simultaneously, which has been associated with positive peer outcomes (e.g., high status, peer regard, closeness) (Hawley, 2007; Hartl, Laursen, Cantin, & Vitaro, 2019). In fact, research has shown that aggressive individuals can actually possess prosocial skills (Hawley, 2003a; 2003b, Hartl et al., 2019), and are often viewed as socially attractive (Bagwell et al., 2000; Hawley, 2003a). Others have found that aggressors can maintain and improve their social status (e.g., popularity) (Cillessen & Mayeux, 2004) and can enjoy reciprocal friendships (Cairns & Cairns, 1994). These associations have been observed with both types of aggression (i.e., physical and relational) (Hawley, 2003b). Preliminary evidence also suggests that relational aggression in preadolescence is positively related to both care and justice orientations over time (Rosciszewska & Bukowski, in preparation).

Evolutionary approaches to the study of aggression, such as Resource Control Theory (RCT; Hawley, 1999) provide a framework for understanding positive associations between measures of aggression and children's prosocial behaviors in terms of social dominance (e.g., relative success at competition for resources; Charlesworth, 1996; Hawley, 2003a, 2003b). Accordingly, school-aged children may be motivated to pursue social (e.g., attention from peers, social status, friendships) and material resources (e.g., coveted material objects, access to a favourable place in the school yard, etc.) (Hawley, 2007; Vermande et al., 2018), which can be enacted using different strategies of control. Broadly, these can be *coercive* (e.g., using instrumental aggression, threatening, demanding) and *prosocial* (e.g., using reciprocity, cooperation, helping behaviors), although the relative success at goal acquisition depends on the interaction between these behaviors.

Resource control posits that individuals vary in the degree to which they apply coercive and prosocial strategies of control. Five distinct profiles exist: (a) *coercive* controllers (i.e., they score high on aggression, low on prosocial measures), (b) *prosocial* controllers (i.e., they score high on prosocial behavior, low on aggression), (c) *bistrategic*, (i.e., they score high on both measures), (d) *typical* controllers (i.e., those who are average on both measures), and (e) *noncontrollers* (i.e., those who are low on both measures) (Hawley, 2003a; Hawley et al., 2007). Relative to others, bistrategic youth report the highest level of peer influence (Hawley & Little, 2002), and of status (e.g., popularity; Hartl, 2019) and they are often rated as most successful with resource acquisition (Hawley, 2003b; Hawley et al., 2007). Coercive and noncontrollers are at most risk for psychological maladjustment (Hawley 2014). It is argued that the success of bistrategic youth rests on the ability to successfully balance their own needs while at the same time maintaining social bonds and friendships (Wettstein et al., 2013). Cross-sectional studies indicate that about 15% of children in North American samples are bistrategic (Hawley, 2003b; Wurster & Xie, 2014).

Functions of Prosocial Behaviors and Associations with Aggression

Despite the work of Hawley and colleagues (1999; 2002; 2003a; Hawley et al., 2007; Hawley & Bower, 2018), less is known about functions or motivational factors driving positive associations between aggression and prosocial behaviors. For example, both conceptual and empirical work demonstrates that acting prosocially can be motivated for a variety of reasons, including self-serving reasons (Carlo & Randall, 2002; Boxer, Tisak, & Goldstein, 2004). This

tenet is in line with the notion that prosocial behavior can be driven by two distinct (although not mutually exclusive) motivational constructs - altruism and egoism (Batson & Powell, 1998), with the motivation to increase another's vs. one's own well-being (Batson, 2011). One may feel motivated to help another out of true concern, out of the need to reduce one's own distress and/or by the desire for social status (Findley-Van Nostrand & Ojanen, 2018). Importantly, positive behaviors enacted out of self-interest have shown positive associations with aggression (see below).

Some researchers studying late adolescence have classified helping behaviors into different functions, including altruistic (motivated out of concern for others), compliant (in response to a request), emotional (helping in emotionally-evocative contexts), and public (aimed at gaining the approval of others, in front of others) (Carlo & Randall, 2002). In their cross-sectional study, Carlo and Randall (2002) demonstrated that public helping was associated with hedonistic- and approval-motivated reasoning in hypothetical situations. In contrast, other types of prosocial behavior were associated with other-oriented reasoning, including increased social responsibility, increased perspective-taking abilities, as well as more sympathy and willingness to help across different contexts (Carlo & Randall, 2002). In a more recent study, Eberly-Lewis and Coetzee (2015) demonstrated positive associations between egoistic traits (e.g. psychopathic and narcissistic qualities) and public (e.g., opportunistic) prosocial behavior in a sample of high school students.

In a study with early and middle adolescents, Carlo, Hausmann, Christiansen, and Randall (2003) observed positive relations between helping in evocative situations and internalized prosocial moral reasoning (e.g., caring and concern for others). Public helping was negatively related to altruism and positively to approval-oriented reasoning, replicating previous findings. Relatedly, Boxer and colleagues (2004) observed that proactive helping (e.g., in pursuit of an instrumental goal) among adolescents was positively related to aggression-supporting beliefs and with engagement in physical aggression, while compliant (reactive) helping was more strongly related to altruistic motivations (e.g., in the service of others). In another study with middle school students (Culotta & Goldstein, 2008), proactive helping was found to correlate positively with relational aggression, while Carlo et al., (2014) observed negative associations between compliant and antisocial behaviors in late adolescence. Clearly, these findings indicate that helping behaviors can be enacted for a variety of context-dependent

reasons, underscoring the importance of multidimensional approaches to the study of prosociality. Longitudinal studies are warranted to better understand these associates over time.

The Present Research Studies

The purpose of the present studies was to advance the literature concerning early adolescents' use of aggression and how it may intersect in positive ways with prosocial behaviors over time. The present research questions were guided by the notion that at times, the use of aggression among peers may be adaptive, especially if used concurrently with prosocial acts. Importantly, our predictions rested on the findings that sometimes, high levels of prosocial behavior may not be protective against aggression but rather may serve as a risk factor for continuity of aggression over time.

The overreaching goal of the current project was to assess how different forms and functions of prosocial behaviors are related to two types of aggression (e.g., physical and relational) over time. Guided by the need to go beyond traditional conceptualizations of aggression and prosociality, the current studies were designed to advance the field in several important ways. Firstly, distinguishing between physical versus relational types of aggression is paramount in understanding this very construct. In addition, examination of longitudinal trajectories of both types of aggression among preadolescents are lacking; yet studying factors that minimize or promote its continuity are central to the study of aggression. Because prosocial behavior is not a global construct, the current project also aimed to broaden our understanding of prosociality by including moral orientations of ethic of care and ethic of justice and their associations with aggression. Given that both orientations are thought to represent fundamental human traits, such as concern for the welfare of others and fairness, they may offer potential new perspectives on factors associated with the maintenance or desistance of aggression. Lastly, based on the notion that prosocial behaviors can be enacted not only out of concern for others but also out of self-serving reasons, we explored different functions of prosocial helping behaviors (e.g., proactive and reactive) and how they may promote aggressive behavior. Research in this area is limited; only a few studies have examined specific functions of prosocial behaviors and their associations with different types of aggression.

The purpose of Study 1 was to explore the associations between measures of care and justice on the stability of physical and relational forms of aggression. Study 2 was designed to

replicate (conceptually) the effects of Study 1, as well as adding an important extension by exploring functions that drive prosocial helping behaviors (e.g., proactive and reactive helping). Together, the findings help contribute to our understanding of factors that are associated with aggression in early adolescence. Ultimately, this research is intended not only to help identify youth at most risk for aggressive behavior but also to inform appropriate prevention and intervention programmes aimed at reducing aggression.

Summary of Method

In order to address the main research questions, a series of data collections took place during the year of 2006, and the 2013-2014, school years. The current measures were derived from a larger study on peer relations and well-being. A summary of the participants and data collection procedures are described below.

Participants

Study 1. Participants included a sample of 424 early adolescents (M_{age} = 10.87, *SD* = .73; 205 girls). These participants were in grades 5 and 6, and were recruited from three public mixed-sex schools in Montréal, Québec, Canada.

Study 2. Participants were 375 early adolescent students between 10 and 13 years old who were in grades 5 and 6 at the time of testing. They were drawn from four mixed-sex public schools in Montréal, Québec, Canada.

Ethics

Ethical approval for the present studies was obtained from the Office of Research Ethics, Concordia University, as well as the respective school boards. Before proceeding with the studies, participants in each study received an information letter (see Appendix A and B for Studies 1 and 2, respectively), and parental consent (see Appendices C and D for Studies 1 and 2, respectively). Participants' assent was also provided before proceeding with the study (see Appendices E and F for Studies 1 and 2, respectively).

Procedure

Relevant peer-nomination questionnaires were administered to students in classroom settings. In the first study, the participants completed peer-nominations questionnaires in paper form (see Appendix G). In the second study, the questionnaires were programmed and presented on electronic tablets and small laptops with use of INQUISIT Millisecond (Version 4; computer software, 2015).

Measures

Physical aggression. In Study 1, physical aggression was measured with two items (e.g., "Someone who hits, pushes or shoves people", "Someone who hurts others physically"). In Study 2, aggression was measured with three items (e.g., "Someone who hits other students in our grade and school", "Someone who gets involved in physical fights with other students in our grade and school", and "Someone who pushes others around").

Relational aggression. In Study 1, relational aggression was measured with two items, such as "Someone who talks badly behind their backs to hurt them" and "Someone who tries to keep others out of group when it is time to play". In Study 2, it was captured with three items (e.g., "Someone who tries to keep others out of the group", "Someone who talks badly behind their backs to hurt them", and "Someone who ignores or stops talking to someone when they are mad at them").

Ethic of care. In Study 1, care was comprised of two items (e.g., "Someone who helps other people with their problems" and "Someone who helps others when they need it"). In Study 2, ethic of care was measured with three items (e.g., "Someone who cares about others in our class and grade", "Someone who cares about how the other students in our class are doing", and "Someone who helps others in our class and grade when they need it even if it means they treat some people differently than others").

Ethic of justice. In Study 1, ethic of justice was measures with 2 items (e.g., "Someone who plays fairly", "Someone who makes sure everyone is treated equally"). In Study 2, ethic of justice was measured with 3 items (e.g., "Someone who makes sure that all people in our class and grade is treated equally", "Someone who makes sure that all people in our class and grade are treated the same", and "Someone who plays fairly").

Proactive help. This measure was used in Study 2 and was comprised of two items (e.g., "Someone who gives assistance even when no one asks him/her to do so", and "Someone who is willing to help someone even when the other person doesn't ask for it").

Reactive help. This measure was used in Study 2. It included the following three items (e.g., "Someone who helps others but only when the other person has asked for help", "Someone who gives assistance but only when he or she has been asked", and "Someone who helps others but only when he/she has been asked to help").

Examining the Effects of Care and Justice on Changes in Physical and Relational Aggresion in Early Adolescence

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Abstract

Although a negative correlation is typically expected between measures of aggression and prosocial behaviors, there is growing evidence that they may intersect in positive ways and that under certain circumstances, prosocial behaviors may actually promote aggression. The current study was conducted to better understand the interrelations among risk (physical, relational aggression) and protective factors (care and justice) and how they may affect the stability of aggression, especially in early adolescence. The sample consisted of 424 fifth-and sixth- graders (M = 10.87, SD = 0.73). Peer nomination procedures were used to assess measures of care and justice on the stability of physical and relational aggression across a 4-month period. Hierarchical Linear Modeling revealed that while both types of aggression were highly stable, their longitudinal stability varied as a function of type of aggression. Physical aggression declined over time, however relational aggression followed a rising trajectory. Physical aggression followed a gender-normative profile, favouring boys. Levels of relational aggression did not differ by gender across time. Moderation analyses revealed that only relational aggression at Time 2 increased among children rated high on care and justice at Time 1. Prosocial behavior did not moderate physical aggression over time. These results add to theoretical approaches that emphasize the functional role of aggression and prosociality, especially if used concurrently. The findings highlight the importance of studying multiple aspects of risk and protective behaviors to better understand the developmental trajectories and patterns of stability of aggression in youth.

Study 1: Examining the Effects of Care and Justice on Changes in Physical and Relational Aggresion in Early Adolescence

Typically, aggression among peers is seen as a maladaptive form of behavior negatively related to prosociality, predisposing youth to negative developmental outcomes, including sociometric peer rejection and victimization (Coie & Dodge, 1988; Newcomb, Bukowski, & Pattee, 1993; Underwood, 2003; Bukowski & Abecassis, 2007). However, more recent evidence suggests that aggression and prosocial behavior ("voluntary behavior intended to benefit others"; Eisenberg, Fabes, & Spinrad, 2006, p. 646.) may intersect in positive ways and that under certain circumstances, prosocial behaviors may actually promote aggressive behavior (Hawley, 2002; 2007). That is, some school-age children may engage in strategic use of prosocial behavior in order to mitigate the negative effects of their aggression. Aggressive children who are simultaneously prosocial have also been found to be socially successful and competent members of their peer group (Bukowski, 2003; Hawley, 2003; Pellegrini, 2008; Wettstein et al., 2013; Hawley & Bower, 2018), which highlights the importance of assessing multiple aspects of children's behaviors to better understand developmental risk factors for aggression.

Resource control theorists (Hawley, 2002, 2003a; Hawley, Little, & Pasupathi, 2002; Hawley, 2014) explain these positive associations within the context of social dominance (e.g., effective use of resource control strategies; Hawley, 1999). In her cross-sectional work, Hawley (2003a) showed that aggressive individuals who are simultaneously prosocial are most successful at obtaining social goals (compared to those who use aggressive or prosocial strategies only), and are often viewed as socially skilled (Hawley, 1999). The positive associations between aggression, prosocial behavior (Boxer, Tisak & Goldstein, 2004; Carlo et al., 2014) and positive peer regard have also been noted by others (Bukowski, 2003; Pellegrini, 2008). In other words, for at least a subgroup of children, acting aggressively can be seen as marker of social competence - as long as it occurs in the context of other positive characteristics.

Physical and Relational Aggression, Time Changes and Gender Differences

Whereas physical aggression is defined as a category of behavior aimed at harming others or threatening physical harm (e.g., hitting, kicking), relational aggression encompasses behaviors aimed at causing or threatening damage (or threat of damage) to relationships or feelings of acceptance, including spreading rumours, excluding peers from the social group, and withholding friendships (Dodge & Coie, 1987; Crick, & Grotpeter, 1995). Björkqvist and

colleagues (1992; 1994) proposed that relationally aggressive acts represent a more sophisticated way to deliver harm due to their covert, manipulative nature and may confer fewer negative consequences for the perpetrator. Whereas physical aggression has been found to relate negatively to social skills across studies (Björkqvist et al., 1992; Eisenberg et al., 1994; Andreou, 2006), relational aggression has been linked positively to prosocial behaviors (Card, Stucky, Sawalani & Little, 2008), as well as to measures of social competence (Andreou, 2006) and high status among peers (Cillessen & Mayeux, 2004; Neal, 2010). Both types of aggression, however, if used strategically with prosocial behavior, can serve as adaptive behaviors so long as they help access material and/or social resources in children's peer environment (Hawley, 1999; 2003a).

Studies have shown that both physical and relational forms of aggression are stable over time, with longitudinal studies demonstrating moderate to high stability coefficients for both types of aggression across several years (Cairns et al., 1989; van Beijsterveldt, Bartels, Hudziak, & Boomsa, 2003). In one study of third through sixth graders, relational aggression was found to be moderately stable over a 6-month period (Crick, 1996). Whereas physical aggression typically follows a declining trajectory (Brame, Nagin, & Tremblay, 2001), relational aggression increases over time, with girls more likely than boys to have increasing levels of relational aggression during middle childhood (Vaillancourt et al., 2007). It should be noted that as children move into early adolescent period, they demonstrate an increase in their socio-cognitive abilities and physical aggression tends to be progressively replaced with more subtle forms of relational aggression (Österman et al., 1998; Werner, Senich & Przepyszny, 2006; Murray-Close et al. 2016). Indeed, it has been shown that a significant number of children on a decreasing physical aggression trajectory from toddlerhood to middle childhood showed increases in relational aggression (Coté et al., 2006).

Gender differences in physical aggression, favoring boys, have long been established (Crick & Grotpeter, 1995; Tremblay, Hartup, & Archer, 2005). It is thought that the degree to which parents and other authority figures actively discourage aggressive behavior of boys versus girls, engenders a gender-normative aggression profile for boys (e.g., aggressing through overt means) and girls (e.g., aggressing through covert means; Underwood, 2003). Traditionally, girls have been thought to be more relationally aggressive than boys. However, recent meta-analytical studies challenged this prevailing belief and observed few gender differences in

relational aggression, which held across a variety of assessment measures (Card et al., 2008). Therefore, it appears that while physical manifestations of aggression are more gender-normative, such that boys are more physically aggressive than girls, relational aggression may be equitably used by both genders, pointing to similarities rather than differences in the overall pattern of relational aggression.

Aggression and Prosocial Behavior Within the Peer Context

Although there is generally an inverse association between measures of aggression and prosocial behaviors (Crick, 1996; McGinley & Carlo, 2006), some successful youth opt to engage in both (Dodge, 1983; Hawley, Little, & Card, 2007; Kokko, Tremblay, Lacourse, Nagin & Vitaro, 2006). According to Resource Control Theory (RCT: Hawley, 1999), the strategic use of both aggression *and* prosocial behavior (i.e., bistrategic strategy of control; Hawley, 1999) may reflect children's desire to establish social dominance and to achieve positions of visibility and control within the peer group (Hawley, 1999; Pellegrini & Long, 2002). Such a behavioral pattern allows for access and control of material resources, establishing hierarchy and control among peers, as well as social resources such as competing for friendships, winning attention/affiliation and establishing intimacy with others (Crick & Grotpeter, 1995; Crick et al., 1997; Hawley, 1999; Findley & Ojanen, 2013). Indeed, children using both strategies (as opposed to aggressive only or prosocial only strategies of control) have been found to enjoy positive outcomes, including attention from peers and having friends (Hawley, 2003b; Hawley et al., 2007). Further, they are viewed by peers, teachers (and view themselves) as socially skilled and morally astute. They are influential and central members of their peer group, are well-liked by peers (at the group level) while also being perceived as aggressive and hostile (Newcomb, Bukowski, & Pattee, 1993; Hawley, 2006; Hawley, Little & Card, 2008).

Relational aggression, in particular, is thought to be adaptive within the peer context because of its covert nature, allowing aggressors to skilfully express anger without the fear - or with reduced fear - of recrimination. Results from recent studies demonstrate that the use of relational aggression especially is associated with prominence and popularity within the social hierarchy (Xie, Farmer, & Cairns, 2003; Cillessen & Mayeux, 2004), although others have found positive associations between popularity and both physical and relational aggression in middle childhood (LaFontana & Cillessen, 2010). Children who engage in relationally aggressive acts have been found to have a high to moderate number of peer relationships in middle childhood

(Neal, 2009) with positive friendship qualities (Rose, Swenson, & Waller, 2004). Bistrategic behavioral styles have been observed in a wide number of samples, spanning from preschool (Hawley, 2003b) to adolescence (e.g., Hawley, 2003a; Hawley et al., 2007). Relational aggression, more than physical aggression, has been linked with greater resource control (Wettstein et al., 2013). Bistrategic children are equally male and female (Hawley, 2003a, 2003b) and both genders tend to utilize relational aggression equitably, while the use of physical aggression is consistently higher among boys than among girls (Tremblay, Hartup, & Archer, 2005; Hawley et al., 2008).

Despite the writing of Hawley and associates (Hawley, 1999, 2002, 2003a, 2003b; Hawley et al, 2007, 2008) who studied resource control in samples of toddlers, children and adolescents, and the work of Carlo and colleagues (Wyatt & Carlo, 2002; Carlo, Hausmann, Christiansen, & Randall, 2003), the simultaneous and longitudinal study of children's different types of aggression and prosociality has been lacking, especially during middle childhood/early adolescence - a critical period in which aggression becomes more frequent (Coté, Vaillancourt, Barker, Nagin, & Tremblay, 2007). Yet, scholars increasingly recognize the need to study both dimensions within the same individuals, in order to better understand the developmental links between aggressive and prosocial behaviors (Eisenberg & Fabes, 1998; Fabes, Carlo, Kupanoff, & Laible, 1999; Kokko et al., 2006).

Another limitation in the field of children's prosociality is the type of prosocial behaviors studied. Whereas most of the research has focused on helping and sharing behaviors (Eisenberg, 1982), and to a lesser extent cooperating and comforting (Hay, 1979; Zahn-Waxler & Radke-Yarrow, 1982), others highlight the need to include ethic of care (e.g., fulfillment of responsibility and concern for others; Gilligan & Attanucci, 1988) and ethic of justice (e.g., the logic of equality, reciprocity and fairness; Turiel, 1994) in the study of children's prosociality. Indeed, both of these moral dimensions have been previously conceptualized as a form of prosocial behavior (Walker, 2006). Whereas the ethic of care reflects a particularistic position, focusing on attentiveness, trust, and responsiveness to others' needs, the ethic of justice reflects fairness, individual rights, and abstract hierarchy of rules (Held, 2006). Much of the discussion regarding these two moral orientations has originated from the writings of Gilligan (1982), who concluded that females are more likely to use the care perspective, given their focus on maintaining relationships, whereas males have been thought to adopt predominantly the justice

perspective (Gilligan, 1982; Gilligan & Attanucci, 1988). However, empirical efforts have failed to validate Gilligan's (1982) assertion (see Jaffe & Hyde, 2000), indicating that the ethic of care and ethic of justice are not as strongly differentiated as previously thought.

In sum, the present research highlights the importance of studying longitudinally multiple aspects of both risk and prosocial behaviors to better understand developmental trajectories and patterns of stability of aggression in early adolescence. Additionally, the inclusion of care and justice offers a novel approach to the study of prosociality and may help shed light on the role that these moral orientations may play in promoting physical and relational forms of aggression. Ultimately, the study was designed to contribute to the growing interest among scholars in exploring the associations between positive aspects of human experience and aggression.

The Present Study

The present study used a two-wave longitudinal design to assess the moderating effects of care and justice on the stability of two types of aggression (i.e., physical, relational) across a 4-month period in children. The goal of the present study was to assess whether children's positive characteristics (i.e., peer-nominated care and justice) may help promote different types of aggressive behaviors. That is, we investigated whether changes in the ethic of care and the ethic of justice would lead to changes in physical and relational aggression over the course of a school semester. We were particularly interested in interactive effects; that is, the extent to which the observed changes would be higher or lower as a function of high/low peer-nominated care and justice.

Three hypotheses were posited. Firstly, it was hypothesized that (a) boys would engage in more physical aggression than girls but (b) no gender differences in relational aggression were expected - a prediction based on the work of Card et al. (2008) who helped challenge the notion that relational aggression is more typical of girls than boys (Hypothesis 1). Further, (a) both types of aggression were expected to be stable, and (b) while physical aggression was expected to follow a decreasing trajectory, relational aggression was expected to show an inverse link (i.e., increasing trajectory) (Hypothesis 2). Finally, ethic of care and ethic of justice would differentially moderate the stability of both types of aggression; that is, it was hypothesized that care at Time 1 and justice at Time 1 would lead to an increase in relational but a decrease or a stable trajectory of physical aggression over time, especially among children scoring on the high end of the two moral orientations (Hypothesis 3). Given the conflicting findings regarding

gender differences in ethic of care and ethic of justice and the lack of studies examining these orientations longitudinally in a sample of school-aged children, the examination of gender differences in this association was exploratory. The overall goals were to replicate and also to extend existing findings by incorporating moral orientations in the study of children's prosociality and aggression.

Method

Participants

The sample consisted of 424 early adolescent students (205 girls, 219 boys) (M_{age} = 10.87, SD = .73; age range 10 to 13) drawn from three public mixed- schools in Montréal, Québec, Canada. The children were in grades five (192) and six (232) at the time of testing. The data were collected in January (Time 1) and May (Time 2) from 19 classrooms at each time. Only participants whose parents returned a signed consent form were included in the study. The participating children represented 85% of the pool of potential participants.

Procedure

After obtaining the approval from the university's board of ethics, consent was obtained from the school board as well as the principals of the participating schools. Members of the research team were present during the testing period, which took approximately one hour per classroom. As part of a larger study on peer relations in which sociometric ratings and other variables (e.g., friendship characteristics) were also measured, participants were administered unlimited choice peer-nomination questionnaires in paper form using a classroom-based administration procedure. Each participant could nominate same- and other-sex classmates who best matched each item on the questionnaires. Only measures relevant to the current study are described in this report. Participants were informed that they could withdraw from the study at any point, without any negative consequences. There were no exclusion criteria in this sample, unless participants withdrew their consent. In that case, their information was removed from the database.

Measures

Peer Assessments. At each of the time points, children completed questionnaires relating to two aspects of their peers' social behavior, including aggression (physical, relational) and prosociality (care, justice). Physical aggression was measured with 2 items (i.e., "Someone who hits, pushes or shoves people", and "Someone who hurts others physically"). This measure

was found to have good reliability at both time points, as measured by Chronbach's alpha (.93 and .94 at Time 1 and Time 2, respectively). Relational aggression included 2 items (i.e., "Someone who talks badly about others behind their backs to hurt them, and "Someone who tries to keep others out of the group when it's time to play"). The reliability of this measure was .82 at Time 1 and .80 at Time 2. Care was comprised of 2 items (i.e., "Someone who helps other people with their problems", and "Someone who helps others when they need it") (Time 1 α = .89). Justice was also comprised of 2 items (i.e., "Someone who plays fairly", and "Someone who makes sure everyone is treated equally") (Time 1 α = .74). Number of same-sex nominations received by each child on a given item was added up to form a same-sex score for each of these. All scores were then adjusted for class size variability (see Velásquez, Bukowski, & Saldarriaga (2013) for a detailed description of the technique used).

Results

Data Screening

The first step of the analysis consisted of an inspection of all variables to ensure integrity of the data. For each of the measures at each of the two assessment times, outliers were detected and converted so that they did not exceed 3 standard deviations from the group mean, as recommended by Kline (2009). A small amount of missing data was detected (less than 3%), partially due to the absence of six participants at Time 2 who had been present at Time 1. Little's (1998) test of randomness of missing data indicated that the data were Missing Completely at Random (MCAR) and, as such, listwise deletion of those participants' scores was justified without biasing the results.

Preliminary Analyses

Correlations between study variables, as well as descriptive statistics for all measures of aggression and prosocial behaviors at the two time points are provided in Tables 1 and 2, respectively. Bivariate correlations by gender are summarized in Tables 3 (for boys) and 4 (for girls). Overall, physical aggression at Time 1 was positively correlated with physical aggression at Time 2 and negatively related to all measures of prosocial behavior at each time. Similarly, relational aggression at Time 1 was positively correlated relational aggression at Time 2 and negatively related to measures of care and justice at both times. Measures of physical and relational aggression were positively correlated with each other at both time points. Compared to girls, boys were rated as more physically aggressive at both time points but were as relationally

aggressive as girls. Correlational analyses revealed that both types of aggression were found to be highly stable, with physical aggression (r = .84) slightly more stable than relational aggression (r = .69). When analyzing stability as a function of gender, results revealed a decreasing trajectory of physical aggression for both boys and girls, while an increasing trajectory of relational aggression was shown from Time 1 to Time 2 for both genders. (see Figure 1).

Main Analyses

Analyses were conducted using hierarchical linear modeling (HLM; Raudenbush & Bryk, 2002) in which the Time1 and Time 2 observations were nested within individuals. The outcome variables at Level 1 were the measures of the two types of aggression at each of the two time points. Each person had a total of eight scores as the dependent measures at Level 1 (i.e., two items for each of the forms of aggression at each of the two time points). The Level 1 predictors were types of aggression, time and the interaction between type of aggression and time. The variables at Level 2 were gender, a measure of prosocial behavior, and the interaction between them. Separate analyses were conducted for care and justice as the Level 2 measures of prosocial behavior.

The first analysis began with the assessment of an unconditional model followed by an analysis of a series of models that assessed the effects of the Level 1 predictors on the outcome variables. These Level 1 models were followed by the analysis of Level 2 effects on the intercept and slopes observed in the Level 1 analyses. Because the Level 1 analyses would produce the same findings for the two sets of Level 2 analyses, these findings are presented first followed by the Level 2 findings observed when care was used as the measure of prosocial behavior, followed by Level 2 finding when justice was used as the measure of prosocial behavior. All Level 1 and Level 2 effects with care are summarized in Table 5 and effects with justice are summarized in Table 6.

The unconditional model and the level 1 effects. First, an unconditional model was run, which included only aggression as an outcome, to estimate the within-person and between-person variance needed to compute an intraclass correlation (ICC). This model produced at least three statistics of interest. They were the measure of tau (t) indicating the amount of within-person variance, sigma squared (s^2), indicating the amount of variance between-person variance, and the Chi-square value ($\chi 2$), for the null hypothesis test that the intercept was a fixed effect.

The observed values were 1.28 for t, 2.39 for s^2 and 0.35 for the ICC. Thus, the ICC value indicated that 35% of the total variance was between persons and 65% of the variance in aggression was within persons. The $\chi 2$ value for the test of whether the intercept was a fixed effect indicated that it could be treated as a random effect ($\chi 2_{(423)} = 4050.06$, $p < .05$), indicating variation across groups. The intercept was observed to be 1.27.

In the next model, the Level 1 predictors were added in the following order: type of aggression, time and time by type of aggression. The type of aggression measure was coded as -1 for relational and 1 for physical; time was coded as 0 for Time 1 and 1 for Time 2. Each of these predictors was observed to be statistically significant. The observed coefficients were -.05 ($t = -1.73$, $p < .05$), .10 ($t = 2.62$, $p < .05$), and -.19 ($t = -6.46$, $p < .05$) for the effects of type of aggression, time, and the time by type of aggression interaction, respectively. These values indicate that the scores for physical aggression were lower than the scores for relational aggression, that the scores decreased from Time 1 to Time 2 and that this change was weaker for the measure of relational aggression (that effects were stronger for relational aggression).

Level 2 effects: Care and gender. The next model assessed the effects of the Level 2 variables of care (measured at Time 1) and gender and the interaction between care and gender on the variability in the Level 1 effects of type of aggression, time and the interaction between time by type of aggression. Each of the three Level 2 measures was observed to be a significant predictor of variability in the intercept (coefficients -1.20 ($t = -5.44$, $p < .001$), -.071 ($t = -5.88$, $p < .001$), and .28 ($t = 4.23$, $p < .001$) for the effects of gender, care and the interaction between gender and care, respectively

The next analysis assessed whether gender, measure of care at Time 1 and the interaction between them were related to variance in the two types of aggression. Statistically significant effects were observed for the association between aggression slope and both gender (coefficient = -1.11, $t = -9.59$, $p < .05$), care (coefficient = -.33, $t = -5.95$, $p < .05$) and for the interaction between them (coefficient = .18, $t = 5.65$, $p < .05$). Tests of whether these effects were fixed showed that they varied significantly across the classes ($\chi 2_{(420)} = 616.52$, $p < .05$). These findings indicate that both boys and girls score equitably on measures of relational aggression (while controlling for the effects of justice) but that boys score much higher than girls on measures of physical aggression, revealing a gender normative pattern of physical aggression. The negative slope for children high on care was associated with lower aggression scores (both

relational and physical), compared to those rated as low on care who had higher scores on both types of aggression. Finally, significant interaction effects indicated that boys and girls high on care at Time 1 had higher scores on relational than on physical aggression. However, for boys, low care predicted higher physical than relational aggression scores while for girls, both high and low levels of care were associated with higher relational aggression scores (see Figure 2), revealing a gender-normative pattern for physical aggression at low levels of care.

In the next step, measures of gender, care at Time 1 and the interaction between them were entered to assess whether they were related to variance in the effect of time on aggression. Results showed that only care at Time 1 was a significant predictor (coefficient = .13, $t = 5.90$, $p < .05$) of aggression, such that children low on care decreased in aggression over time, while those high on care, increased in aggression scores over time. The slope between time and aggression was random ($\chi 2_{(422)} = 532.33$, $p < .05$).

The next model helped to clarify the findings by assessing the effects of the Level 2 variables of care, gender and the interaction between care and gender on the variability in the Level 1 effects of the interaction between time by type of aggression. The value of the intercept was -.18 and was statistically significant, *(*$p < .05$), The effect of gender was not significant; however, the effect of care at Time 1 and the interaction between gender and care were significantly related to variance in type of aggression by time interaction. The observed coefficients were -.28 ($t = -7.00$, $p < .05$) and .06 ($t = 3.30$, $p < .05$), respectively. As illustrated in Figure 3, children rated high on care increased in relational aggression over time but not in physical aggression. Children at low levels of care were most highly physically aggressive and they remained aggressive at Time 2 (highest stability), with only a slight decrease in aggression scores. Children also evidenced a relatively stable pattern in relational aggression at low levels of care.

The results of the final analysis revealed a significant Level 2 interaction between gender by care on type of aggression by time interaction at Level 1. The observed coefficients were 0.06 ($t = 3.30$, $p < .001$). The results are presented separately for girls and boys for clarity. As can be seen in Figure 4, girls evidenced the highest stability of relational aggression at low levels of care from Time 1 to Time 2; that is, they started high and remained high on aggression; however, their relational aggression increased over time as a function of high care. Girls demonstrated a decrease in physical aggression from Time 1 to Time 2 at low levels of care, and

a relatively stable trajectory of physical aggression at high levels of care. In other words, high care seems to promote an increase in relational but not in physical aggression. In terms of analyses with boys (see Figure 5), highest stability was observed among boys scoring low on care; that is, these children were highly aggressive at Time 1 and remained highly aggressive at Time 2. High care among boys was associated with a decrease in physical aggression over time, suggesting a protective function. On the other hand, as among girls, high care was associated with an increase in relational aggression over time, while low care was associated with a slight decrease in relational aggression over time. Finally, it should be noted, that tests assessing whether these effects were fixed showed that they did not vary significantly across the classrooms, ($\chi 2_{(421)} = 331.05$, p >.05).

Level 2 effects: Justice and gender. The next model assessed the effects of the Level 2 variables of justice at Time 1 and gender and the interaction between justice and gender on the variability in the Level 1 effects of type of aggression, time and the interaction between time by type of aggression. As with models with care, the effects on the intercept were modeled first. All three measures were significant predictors of variability in the intercept (coefficients -1.52 (t = -5.70, $p < .001$), -.92 (t = -6.82, $p < .001$), and .33 (t = 4.52, $p < .001$) for the effects of gender, justice and the interaction between gender and justice, respectively.

Next, Level 2 effects of gender, justice, and the interaction between them were modeled to explain variability in the two types of aggression. The intercept was significant (β = -.04, t = -1.78, $p < .05$). All three measures were observed to be significant with the following coefficients for gender (β = -1.44, t = -10.21, $p < .05$), justice (β = -.47, t = -7.90, $p < .05$) and for the interaction between them (β = .27, t = 7.50, $p < .05$). Overall, these findings replicate the results observed with care, such that boys and girls scored equally on the measures of relational aggression (while controlling for the effects of care; values for boys: 1.24, value for girls: 1.23). Significant interaction effects also emerged (see Figure 6 for the effects of Gender by Justice on Type of Aggression Interaction). Tests of whether these effects were fixed showed that they also varied significantly across the classrooms: ($\chi 2_{(420)} = 579.49$, p < .05).

Next, measures of gender, justice and Time 1 and the interaction between them were entered to assess whether they were related to variance in the effect of time on aggression. Only justice was a significant predictor of time effects on aggression (β = .15, t = 6.08, $p < .05$); the value of the intercept was 0.09 and it was significant (t = 2.61, $p < .05$). In the next step,

measures of gender, care at Time 1 and the interaction between them were entered to assess whether they were related to variance in the effect of time on aggression. Results showed that only justice at Time 1 was a significant predictor ($\beta = .15$, $t = 6.08$, $p < .05$) of aggression, such that children low on justice decreased in aggression over time, while those high on justice, increased in aggression scores over time. The slope between time and aggression was observed to be random ($\chi 2_{(422)} = 531.50$, $p < .05$), indicating differences between classrooms.

Lastly, Level 2 effects of gender, justice and the interaction between them were entered in order to explain variability in the type of aggression by time interaction at Level 1. No gender or gender by justice effects were observed. Justice was the only significant predictor of aggression ($\beta = -0.16$, $t = -7.74$, $p < .05$). As seen in Figure 7, high justice scores at Time 1 predicted increases in relational aggression (but not in physical aggression) from Time 1 to Time 2. However, gender did not moderate these associations as seen with the earlier analyses with care. A test of whether these effects were fixed showed that they did not vary significantly across the groups ($\chi 2_{(421)} = 355.16$, $p > .05$).

Discussion

The goal of the current study was to examine the associations between measures of care and justice on the stability of physical and relational forms of aggression over a 4-month period in a sample of early adolescent students. Of particular importance were questions regarding children's use of prosocial behaviors and their role in the promotion of antisocial behaviors (e.g., aggression), as insightful recent findings point to their concurrent associations, especially among central and well-adjusted members of the peer group (see Hawley, 2003a; Hawley, 2003b; 2006; Wargo, Aikins & Litwack, 2011). Resource control theorists (Hawley, 1999; 2003a; 2003b) emphasize the functional role of aggression, especially if used strategically with prosocial actions (Hawley, 1999; 2003a). Our predictions were supported, adding to the existing body of research demonstrating positive links between aggression and prosociality, and emphasizing the importance of examining concurrent associations between children's use of aggressive and prosocial behaviors when examining risk factors for the continuity of aggression.

Overall Differences in Physical and Relational Aggression

Overall, the present findings indicate that youth engage in both types of aggression in their interactions with peers, with relational aggression more prevalent than physical. This is not surprising, given the covert nature of relational aggression and socialization against physical

aggression. Furthermore, intraclass correlation analysis revealed that 65% of the variance in aggression was observed at the within-group level, while 35% was attributed to between-group factors. From the perspective of the social information-processing model of aggression (SIP; Crick & Dodge, 1994), internal factors such as hostile attribution bias and emotional reactivity are just some examples of individual factors that may help to explain aggressive conduct among youth (Endresen & Olweus, 2001; Card & Little, 2006). Group-level features such as peer delinquency, depressive symptoms, and within-group gender composition have been also shown to predict aggression, especially the relational type (Santo, Bass, Stella-Lopez, & Bukowski, 2017; Espelage, Merrin, Hong, & Resko, 2018). Such findings highlight the importance of assessing multiple aspects of children's behaviors in order to generate a more nuanced understanding of factors that may promote or minimize the stability of aggression.

As predicted, and in line with other studies (Crick, 1997; Tremblay et al., 2005; Lansford et al., 2012), boys engaged in more physical aggression than did girls. Socio-cognitive factors, as well as different gender-based socialization processes relating to physical aggression are thought to account for this difference (Bettencourt & Miller, 1996; Underwood, 2003; Crick et al., 2007), which begins to emerge during the preschool years (Loeber & Hay, 1997). It has been noted that nearly twice as many boys as girls demonstrate physical aggression during childhood and adolescence (Coté et al., 2006; Card et al., 2008). On the other hand, girls are generally unlikely to engage in physical aggression, although a small proportion of "purely" (i.e., monostrategic) aggressive children (boys and girls) remain on the life-course persistent pattern of aggressive behaviors (Moffitt, 1993; Broidy et al., 2003), predisposing them to a number of negative psychosocial and criminal outcomes (Huesmann et al., 2009).

As expected, no gender differences in relational aggression emerged. This stands in contrast to several early findings indicating higher use of relational aggression among girls than boys (Delveaux & Daniels, 2000; see Crick et al., 2007 for review; Velasquez, Santo, Saldarriaga Lopez, & Bukowski, 2010). Our observations are in line with and complement meta-analytic, as well as cross-cultural studies (Archer, 2004; Card et al., 2008; Lansford et al., 2012), which generally suggest the presence of trivial or no consistent gender differences in relational aggression. Further, the overlap between physical and relational aggression was greater among boys than girls. Thus, it appears that while girls resort predominantly to the use of relational

aggression, boys tend to utilize both types in their interactions with their peers, (Scheithauer & Petermann 2002; Card et al., 2008; Ostrov & Godleski, 2010).

Stability and Trajectories of Physical and Relational Aggression

Both types of aggression were found to be stable, which was in line with our predictions. Physical aggression in particular has been described as "remarkably stable", especially after the age of 8 where children become characteristically more or less aggressive over a variety of different situations (Olweus, 1979; Huesmann, Eron, Leftkowitz, & Walder, 1984, p.1128; Brame et al., 2001). Although research findings relating to the stability of relational aggression are more limited, our findings lend further support that relational aggression, too, is a stable individual characteristic, albeit slightly less so than physical aggression, which replicates previous findings (Cairns, Cairn, Neckermann, Ferguson & Gariépy, 1989; Crick, 1996; van Beijsterveldt, Bartels, Hudziak, & Boomsa, 2003; Cillessen & Mayeux, 2004).

While physical aggression followed a declining trajectory over a 4-month period, relational aggression increased, for both genders; this was in line with our hypotheses. This is not a surprising finding. For example, although physical aggression manifests early in life, increasing into early childhood, (Naerde et al., 2014), it tends to decline by middle childhood where it is no longer considered a developmentally normative behavior (Pellegrini & Long, 2002; Vaillancourt et al., 2007). On the other hand, relational aggression has been shown to increase form the end of early childhood through middle childhood and adolescence (Tremblay, 1999; Murray-Close et al., 2007) in tandem with children's increasing socio-cognitive skills (e.g., perspective-taking, emotion-regulation, etc.), which may help promote relationally aggressive conduct.

Time Effects and The Moderating Effect of Care and Justice on the Stability of Aggression

A key feature of the current study was the simultaneous focus on children's positive and negative behaviors and their associations with aggressive conduct. It was specifically hypothesized that youth high on measures of care and justice would demonstrate an increase in aggression over time, especially the relational type, compared to children scoring low on the two moral orientations. In contrast, high care was expected to be protective against physical aggression. Our predictions were supported. Children initially high in care and justice increased in relational aggression over time. In contrast, high care and justice were associated with a decrease in physical aggression for both genders, suggesting a buffering effect. Gender analyses

were exploratory and indicated that boys and girls increased in relational aggression as a function of high care, although boys were found to change at a faster rate than did girls. It should be noted that the strength of that difference was rather small; thus, the interpretation of these findings ought to be made with caution. High care was associated with a decrease in physical aggression among boys and with a stable physical aggression trajectory among girls. Gender did not moderate the effect of justice on relational aggression over time.

The notion that a subset of children, especially those rated high on positive behaviors, were also those rated as most highly aggressive is in line with functional and evolutionary theories of aggression (Charlesworth, 1996; Hawley, 1999). From the evolutionary perspective of RCT, the combination of aggression and prosocial behaviors can be used as one means of facilitating social dominance, which can be driven by physical and/or relational forms of aggression. Hawley's theory echoes motivational approaches to personality that emphasize the need for agency (power, status) and communion (affiliation, closeness, relationships) as fundamental human traits and behaviors driving human interactions (Bakan, 1966; Hicks, 1987; Emmons, 1997). For instance, whereas aggression is used to achieve status, concurrent use of prosocial behaviors may be used to form alliances and positive peer regard that helps mitigate the potentially harmful effect of aggression (Hawley et al., 2002; Hawley, 2003b;). Relatedly, youth high in aggression and affiliative behaviors have been shown to have both extrinsic and intrinsic friendship motivations (Hawley & Little, 2002).

In our sample, we cannot draw any conclusion as to who the targets of children's relational aggression may be, nor the underlying motivations for acting aggressively. What is known is that relational aggression functions to manipulate and/or damage interpersonal relationships and that early adolescence in particular is a time in which peer relation take on central role in children's lives (Bagwell & Bukowski, 2018). In fact, a number of theoretical perspectives indicate that a major developmental milestone of this period is to develop social competence with peers (Erikson, 1950; Sullivan, 2001). It would follow, then, that children would be motivated to act based on care- and fairness-based concerns (Selman, 1980) that are central features to all relationships, and by doing so, mitigating the harmful effects of their concurrent aggressive behaviors. Indeed, both orientations have been considered as altruistic in nature (Eisenberg, 1986; Hoffman, 1987).

One possible explanation for these findings may be that highly care- and justice-oriented children may feel compelled to use aggression as a way to establish/ maintain their social bonds with peers. Indeed, Bukowski (2003) has noted that aggression may be related to "positive forms of human experience" (p. 391), such as defending a loved one, friends and/or community. Batson and Shaw (empathy-altruism hypothesis; 1991) also posit that empathic experiences may lead to "immoral" choices. For example, care orientation has been linked to feelings of frustration, empathic anger (emotion underling aggressive conduct) (Averill, 1982), as well as remorse (Hoffman, 1987) in adult samples. Studies with children and adolescents also point to positive associations between anger and relational aggression (Marsee & Frick, 2007). Although there is limited evidence examining concurrent associations between measures of care and justice and relational aggression in children, what is known that at least a subgroup of youth may possess perspective taking abilities that allow for strategic use of aggression (Xie et al., 2005). Relational aggression has been shown to be particularly effective for resource control (Hawley et al., 2007; Wettstein et al., 2013).

Justice orientation is thought to operate from processes similar to those of care orientation (e.g., empathy, perspective taking skills), and has been positively linked to aggressive conduct in adults (Hoffman, 2000). Borrowing from personality literature, individuals vary in their justice sensitivity, which refer to how one perceives and responds to perceived injustice (Huseman, Haftield, & Miles, 1987; Schmitt, Neumann, & Montada, 1995). For example, a person high on justice sensitivity may perceive something as unjust and may feel motivated to restore or redress the perceived injustice. Although childhood and adolescent samples on the topic are lacking, it is possible that boys and girls high on justice use relational aggression 'to make things right'. In fact, highly justice-sensitive individuals have been shown to be more susceptible to intense cognitive but also emotional reactions aimed at recompensing behavior in response to injustice (Schmitt et al., 1995), although it depends on the viewpoint from which injustice is perceived (victim, observer, perpetrator) (Schmitt, Gollwitzer, Maes & Arbach, 2005)

Interestingly, no gender differences emerged in the association between justice and relational aggression. This contradicts earlier contentions that males were more justice-oriented (Kohlberg, 1976) than females. In fact, more recent meta analytical literature (Jaffe & Hyde, 2000) does not support gender differences in justice orientation, which is in line with our findings. Instead, it is thought that both genders utilize justice orientation equally, depending on

the content of the moral dilemma at hand (Skoe et al., 1999; Pratt, Skoe & Arnold, 2004). It should be noted that resource control theorists also fail to observe gender differences both in adolescent (Hawley, 2003a) and adult (Hawley et al., 2008) samples.

Small gender differences were observed in the association between high care at Time 1 and relational aggression at Time 2. Perhaps surprisingly, the effects were slightly stronger for boys than for girls. That is, although boys who were rated high on care started with lower levels of relational aggression at the beginning of the school year, they were as high on aggression as girls 4 months later. It is possible that different motivations for aggression among boys (e.g., dominance) and girls (e.g., affiliation) may account for this difference. For instance, dominance-driven social goals (Hawley, 1999; Pellegrini, 2008) help boys to establish social network positions (Pellegrini, 2002), which are especially relevant at the beginning of the school year. However, as they progress through the school year, their dominance status becomes more strongly related to affiliative behaviors (Strayer & Noel, 1986), which are used to maintain social relationships and/or position in the social hierarchy, etc. Future longitudinal investigations spanning the whole school year are needed to fully understand the role that moral orientations may play in status and hierarchy formation.

In contrast to boys, the use of relational aggression among highly caring girls may reflect affiliative motivations. This tenet is predicated on the notion that intimacy becomes increasingly more important during this developmental period (Bukowski & Kramer, 1986), which may be especially salient among girls given socialization towards relational issues. In fact, it has been shown that friendships of relationally aggressive youth are often characterized by high levels of intimacy, closeness and self-disclosure but are also high in conflict and betrayal (Grotpeter & Crick, 1996; Crick, Murray-Close, Marks & Mohajeri-Nelson, 2009). In one longitudinal study, Murray-Close and colleagues (2007) observed that intimate disclosure was associated with increases in relational aggression for girls but not for boys. Others (Eder, 1985) have noted that despite girls' emphasis on intimacy, they have been shown to lose their best friend in order to increase their status with other females. Yet, highly aggressive girls who are simultaneously prosocial are still able to create alliances and have positive friendships with long-term benefits (Hawley, 2007), suggesting that there may be something particularly advantageous about relational aggression in conferring social advantage with minimal redress.

It is also important to acknowledge that the current findings could reflect children's more

self-serving and draconian motivations, in line with a concept described by resource control theorists (Hawley, 2003a; Hawley et al., 2007; Hawley & Vaughn, 2003) as "well-adapted Machiavellian". Such youth use a combination of prosocial and aggressive strategies for self-enhancement and have been found to use both physical and relational aggression (Kerig & Stellwagen, 2010), for the attainment of interpersonal power, while at the same time demonstrating social skills and charm (Repacholi et al., 2003). Machiavellians have been described as possessing "sneaky power" driven by a "darkly charismatic edge" (McIlwain, 2003; p. 39). Nevertheless, they have also been described as warm and well-liked by their peers, as well as by their teachers (Hawley, 2003a, 2000b; 2007). Further work is needed to clarify the role that care and justice may play in Machiavellian children.

Strengths and Limitations

Several strengths in the present study are worth noting. Firstly, we addressed an important limitation of past research: that of focusing primarily on children's negative behaviors. Studying the co-occurrence of both coercive and affiliative behaviors helps broaden our understanding of factors associated with aggressive conduct among youth, which, in turn, helps inform appropriate prevention and intervention programmes. Another key feature of the current study was the inclusion of moral orientations of care and justice, which offers a novel approach to the study of prosociality, especially during early adolescence, an understudied developmental period. Our findings help bolster the argument that aggression and prosocial behaviors may not be at opposite ends of the same continuum, but rather may interact in ways that promote the use of aggression, especially its relational type.

Nonetheless, a few limitations should be addressed. Although we had access to a large community sample that allows for generalizability of the findings, only two assessment points were used. Future longitudinal investigations should aim to incorporate several waves of data collection over a longer time period, as inter-assessment interval is known to affect the stability of behavioral constructs. It is also possible that our findings were subject to shared-method variance (i.e., the use of one assessment method), although it has been argued that peer nomination procedures are the most valid assessment procedure during childhood and adolescence, and this is especially the case in the detection of relational aggression (Crick et al., 2007). Another potential limitation concerns how ethic of care was measured (e.g., *helping* others in need), which overlaps conceptually with *helpfulness*. Insofar as care-based and helping

behaviors share an intrinsic, intent to benefit others, they may represent an overlapping construct, although such behaviors have also been linked to antisocial behaviors (Rosciszewska & Bukowski, in preparation; Boxer & Tisak, 2004). There is strong support, however, that the two are considered distinct facets of prosocial behavior (Mussen & Eisenberg-Berg, 1997). Future investigations may benefit from assessing underlying motivations to better understand and tease apart the mechanisms driving prosocial action.

Future Directions

In addition to addressing the limitations and contributions of the study, the current findings offer potentially fruitful new research directions. Firstly, replication efforts are necessary in order to further our understanding of the role care and justice play in the maintenance of aggression. Additionally, it is important to identify the mechanisms that may help explain the functional role of aggression among highly aggressive and simultaneously prosocial youth. For instance, the inclusion of specific measures of empathy (i.e., empathic concern, personal distress) may help distinguish self- from other- oriented processes that may differentially affect the stability of aggression. Relatedly, future studies may benefit from assessing the motives behind children's prosocial behaviors, such as subtyping them into proactive and reactive functions. This research direction is particularly intriguing, as new evidence points to positive associations between aggression and proactive prosocial behavior, in particular (see Carlo et al, 2012). Finally, not all associations are linear. Thus, it is important to assess for curvilinear associations among aggressive and prosocial behaviors to better identify those at highest risk for aggression.

Practical Implications and Conclusion

The present findings highlight the potential importance of developing aggression-specific prevention and intervention programmes. Given the ubiquitous presence of relational aggression in boys and girls, the present findings highlight the need to focus on more subtle and covert manifestations of aggression when designing intervention programmes. Early detection, and interventions efforts that focus on interpersonal stress and related socio-cognitive factors may be particularly apt in curbing relational aggression. Indeed, according to the Centers for Disease Control and Prevention (CDC), social-cognitive approaches are considered "the best practice" for aggression prevention (Thornton, Craft, Dahlberg, Lunch, & Baer, 2000). Finally, given the prevalence of relational aggression among boys and girls, interventions efforts should focus on

issues relating to relational victimization, which has been associated with numerous maladaptive developmental outcomes (see Card et al., 2008 for a review).

Taken together, results from the present study add to our understanding of the links between prosocial behavior and different types of aggression (physical, relational) in early adolescence. Our findings underscore the importance of assessing multiple aspects of risk and prosocial behaviors to garner a more nuanced understanding of the developmental trajectories and stability of aggression in school-aged youth. Importantly, our findings also highlight the role of care and justice in promoting aggression, especially its relational form.

Table 1

Bivariate Correlations between Types of Aggression and Prosocial Behavior at the Two Time Points

Variable	1	2	3	4	5	6	7	8
1. T1 Physical aggression	1	.844**	.554**	.484**	-.361**	-.352**	-.405**	-.451**
2. T2 Physical aggression		1	.503**	.604**	-.398**	-.403**	-.424**	-.503**
3. T1 Relational aggression			1	.692**	-.226**	-.170**	-.355**	-.358**
4. T2 Relational aggression				1	-.310**	-.332**	-.461**	-.515**
5. T1 Care					1	.710**	.718**	.583**
6. T2 Care						1	.596**	.739**
7. T1 Justice							1	.723**
8. T2 Justice								1

**$p < 0.01$. T1 = Time 1; T2 = Time 2

Table 2

Descriptive Statistics for the Variables Included in the Models

Variable	Overall	Boys	Girls
	M (*SD*)	*M* (*SD*)	*M* (*SD*)
Time 1			
Physical aggression	1.17 (1.95)	1.77 (2.41)	.53 (.92)
Relational aggression	1.46 (1.54)	1.30 (1.50)	1.64 (1.55)
Care	3.24 (2.19)	2.48 (1.97)	4.05 (2.13)
Justice	3.71 (2.04)	3.46 (1.98)	3.97 (2.06)
Time 2			
Physical aggression	1.07 (1.98)	1.71 (2.38)	.40 (1.08)
Relational aggression	1.39 (1.63)	1.35 (1.72)	1.44 (1.54)
Care	2.56 (2.07)	1.82 (1.82)	3.34 (2.07)
Justice	3.72 (2.17)	3.32 (2.22)	4.14 (2.04)

N = 424

Table 3

Bivariate Correlations between Types of Aggression and Prosocial Behavior at the Two Time Points for Boys

Variable	1	2	3	4	5	6	7	8
1. T1 Physical aggression	1	835**	.793**	.584**	-.317**	-.316**	-.436**	-.445**
2. T2 Physical aggression		1	.732**	.739**	-.360**	-.388**	-.449**	-.524**
3. T1 Relational aggression			1	.730**	-.294**	-.2.17**	-.404**	-.384**
4. T2 Relational aggression				1	-.365**	-.351**	-.465**	-.501**
5. T1 Care					1	.697**	.755**	.645**
6. T2 Care						1	.694**	.788**
7. T1 Justice							1	.796**
8. T2 Justice								1

N = 219; T1 = Time 1; T2 = Time 2.
**$p < 0.01$.

Table 4

Bivariate Correlations between Types of Aggression and Prosocial Behavior at the Two Time Points for Girls

Variable	1	2	3	4	5	6	7	8
1. T1 Physical aggression	1	.781**	.404**	.464**	-.296**	-.268**	-.406**	-.464**
2. T2 Physical aggression		1	.357**	.526**	-.308**	-.279**	-.419**	-.434**
3. T1 Relational aggression			1	.656**	-.279**	-.238**	-.344**	-.394**
4. T2 Relational aggression				1	-.321**	-.390**	-.476**	-.568**
5. T1 Care					1	.640**	.701**	.475**
6. T2 Care						1	.509**	.686**
7. T1 Justice							1	.633**
8. T2 Justice								1

$N = 205$; T1 = Time 1; T2 = Time 2.
$^{**}p < 0.01$.

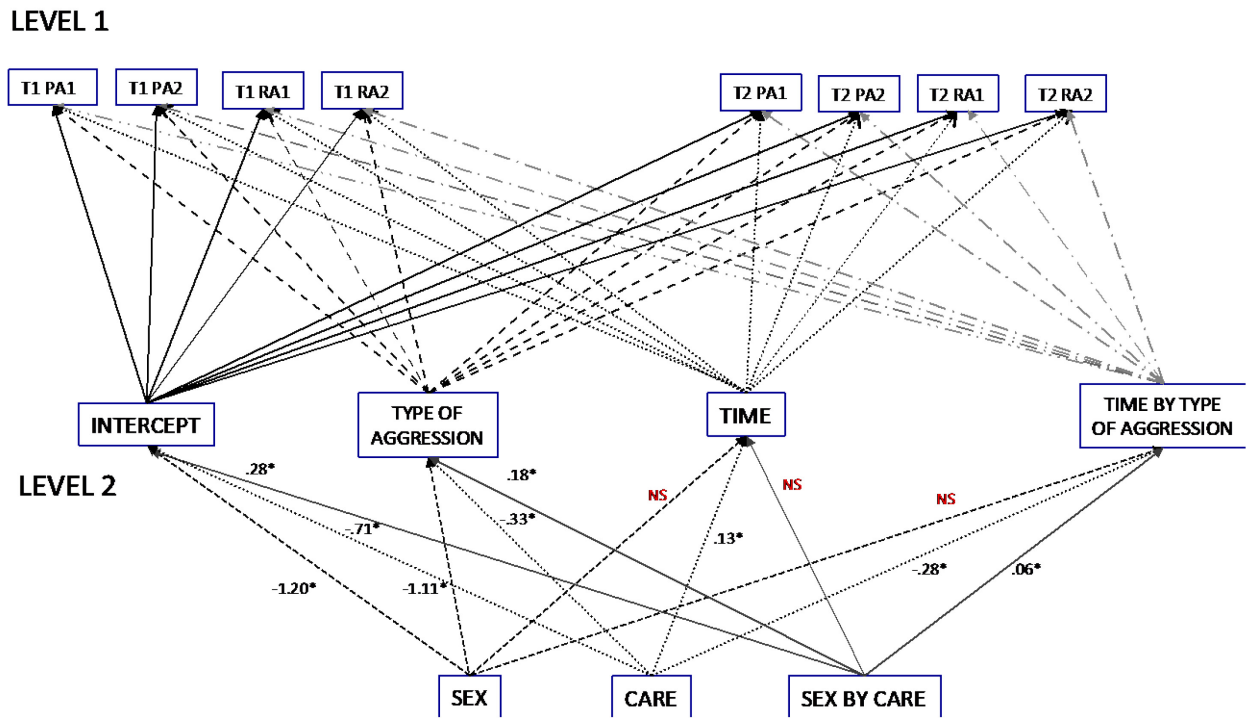

Figure X. Path showing the Moderating Effect of T1 Care on T2 Relational Aggression over Time.

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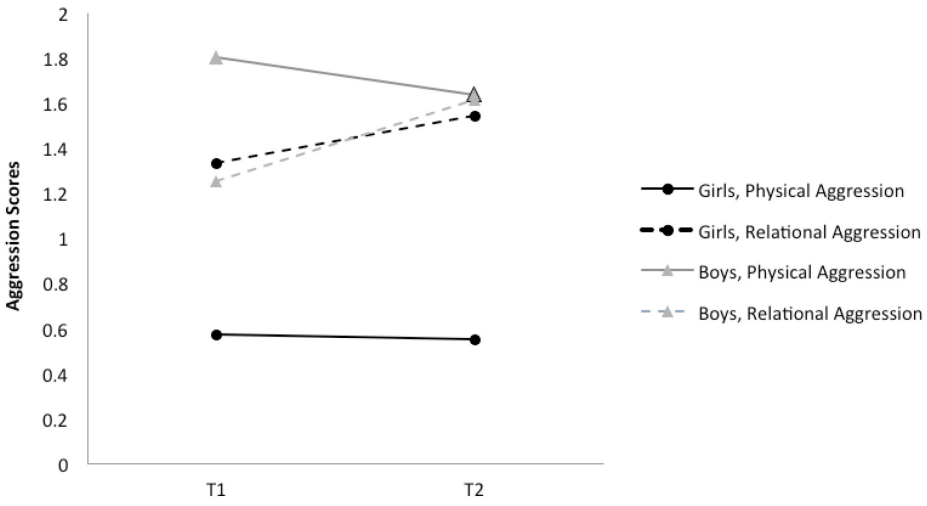

Figure 1. Changes in Two Types of Aggression from T1 to T2 for Boys and Girls.

Table 5

Final Estimation of Effects with Care at Time 1 Predicting Aggression at Time 2

Variable	Coefficient	Standard Error	t-ratio	df	P-value
Intercept	1.22	.05	21.06	420	.00
Gender	-1.20	.22	-5.44	420	.00
Care	-0.71	.12	-5.88	420	.00
Gender by Care	0.28	.06	4.23	420	.00
Type of Aggression					
Gender	-1.11	.11	-9.59	420	.00
Care	-0.33	.05	-5.95	420	.00
Gender by Care	0.18	.03	5.65	420	.00
Time					
Care	0.13	.02	5.92	422	.00
TypeTime					
Care	-0.28	.04	-7.00	421	.00
Gender by Care	0.06	.02	3.30	421	.00

Note. Rows in bold font correspond to level 2 variables.

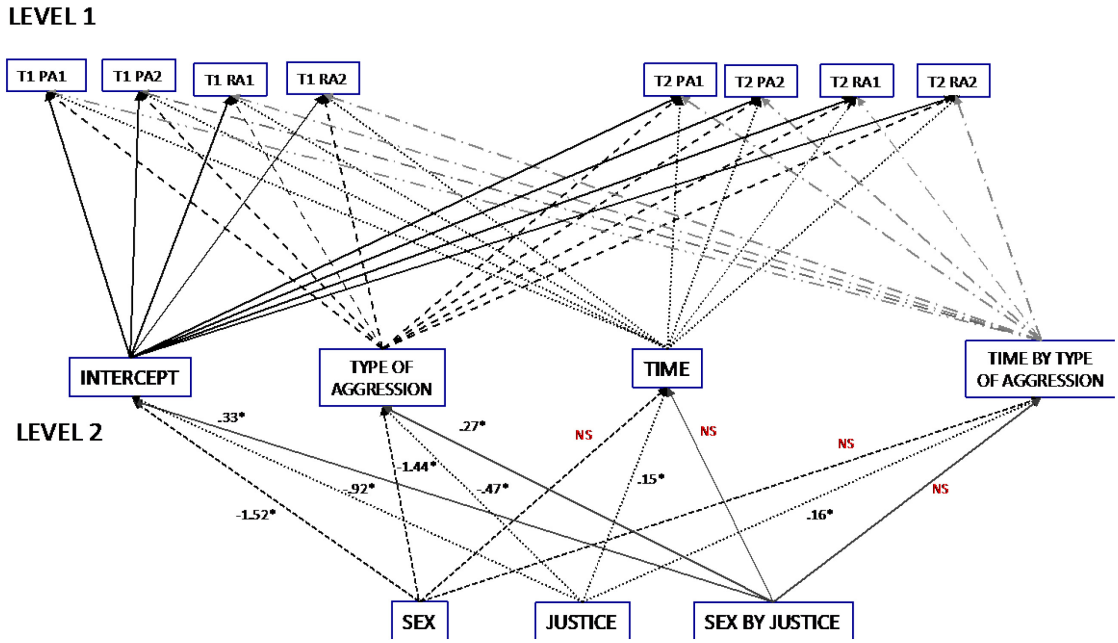

Figure X. Path Showing the Moderating Effect of T1 Justice on T2 Relational Aggression over Time.

Table 6

Final Estimation of Effects with Justice at Time 1 Predicting Aggression at Time 2

Variable	Coefficient	Standard Error	t-ratio	df	P-value
Intercept	1.22	.05	22.83	420	.00
Gender	-1.52	.26	-5.70	420	.00
Justice	-0.92	.13	-6.82	420	.00
Gender by Justice	0.33	.07	4.52	420	.00
Type of Aggression					
Gender	-1.44	.14	-10.21	420	.00
Justice	-0.47	.06	-7.90	420	.00
Gender by Justice	0.27	.03	7.50	420	.00
Time					
Justice	0.15	.02	6.84	422	.00
TypeTime					
Justice	-0.16	.02	-7.74	422	.00

Note. Rows in bold font correspond to level 2 variables.

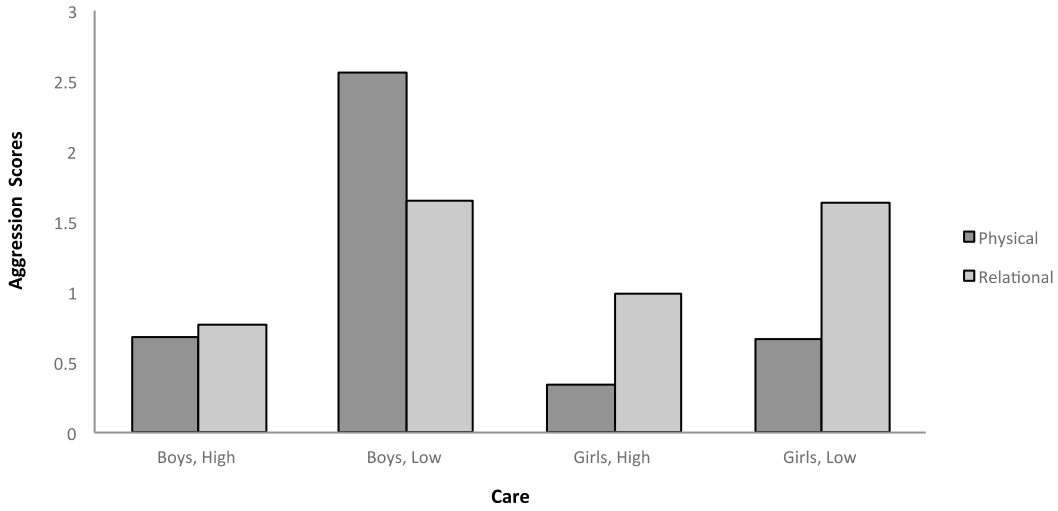

Figure 2. Gender by Care on Type of Aggression Interaction.

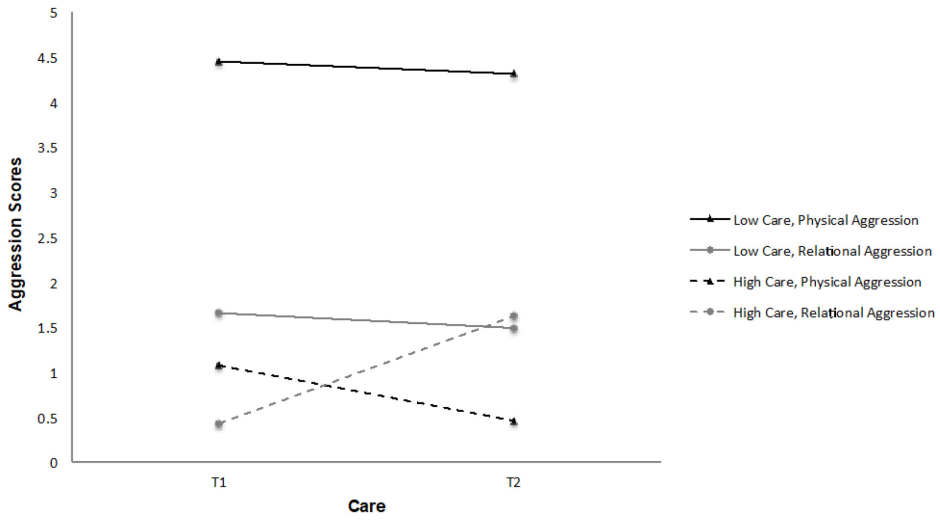

Figure 3. Change in Aggression Scores at Time 2 Predicted by Care at Time 1.

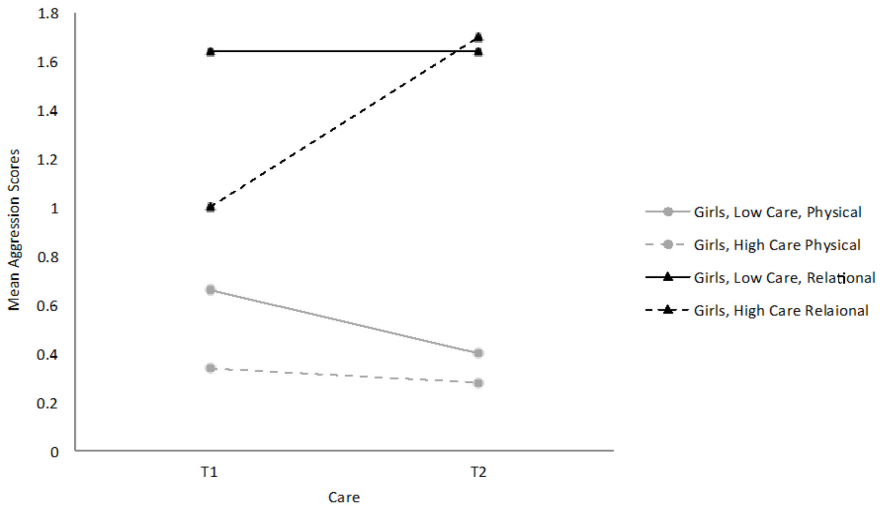

Figure 4. Gender by Care on Type by Time Interaction for Girls

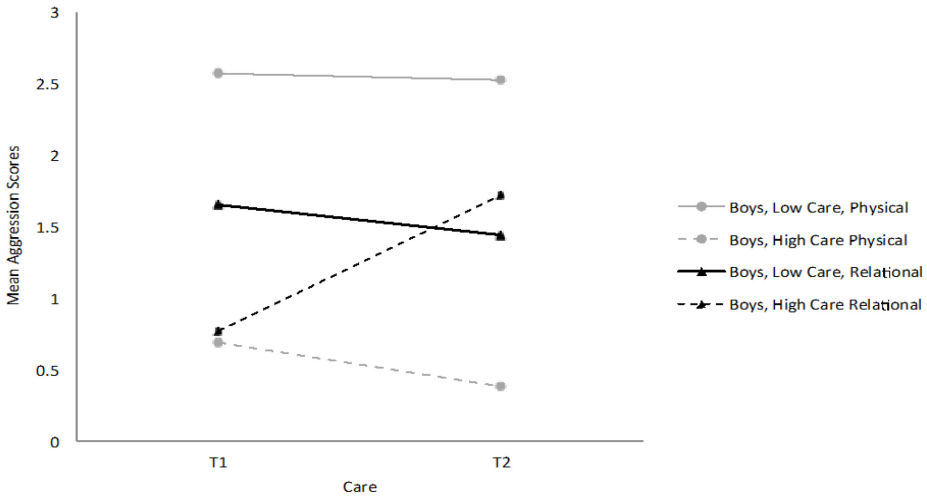

Figure 5. Gender by Care on Type by Time Interaction for Boys

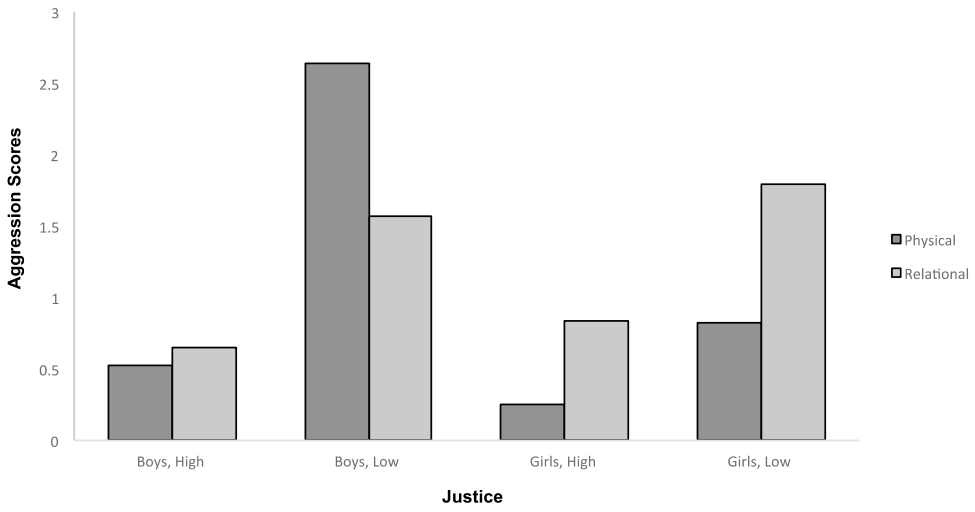

Figure 6. Gender by Justice on Type of Aggression Interaction.

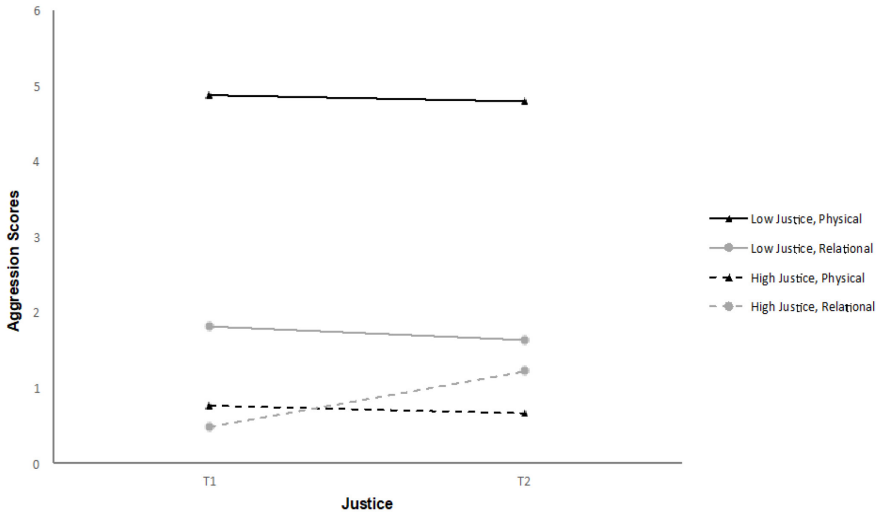

Figure 7. Change in Aggression Scores at Time 2 Predicted by Justice at Time 1.

Bridging Studies

The first study addressed the longitudinal associations between measures of care and justice on the stability of physical and relational forms of aggression. Theorists (e.g., Hawley, 1999; Hawley et al., 2002; Hawley & Bowker, 2018) argue that aggression and prosociality may intersect in positive ways and that, at times, positive aspects of social experiences may motivate aggressive behaviors, especially as peers enter early adolescence. The findings of Study 1 point to the importance of studying moral orientations in particular, in order to better understand how different forms of prosociality drive aggressive conduct. Overall, the findings revealed a protective function of high care and justice on physical but not on relational form of aggression.

Study 2 was designed to conceptually replicate the effects of care and justice on relational aggression with a different sample of school-age students. Additionally, an important extension was considered by exploring different functions of prosocial behaviors (e.g., proactive and reactive helping) that may help drive aggression. Indeed, much less is known about how motivational factors behind prosocial behaviors influence aggression. Although prosocial behaviors by definition imply other-oriented processes (e.g., motivated by concern for others), they may also be enacted out of instrumental reasons (e.g., self-interest) (Boxer et al., 2004), leading to increases in aggression over time. Thus, studying both forms *and* functions of prosociality is integral in understanding the developmental trajectories and patterns of stability of aggression in early adolescence.

Study 2: The Effects of Care, Justice, Proactive and Reactive Help on Changes in Physical and Relational Aggression in Early Adolescence

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Abstract

The basic premise of the current study was that children's prosocial and aggressive behaviors can co-exist and that different forms and functions of prosocial behaviors can differentially affect the stability of physical and relational aggression. These associations were investigated in a two-wave longitudinal study of 375 fifth-and sixth- grade students (N = 182 girls and 193 boys) aged 10 to 13 years (M = 10.87, SD = 0.73). Peer assessment procedures were used to assess measures of ethic of care, justice, proactive and reactive helping on changes in physical and relational aggression across a 2-month period. A set of hierarchical multiple regressions revealed that relational aggression was higher among children high on care and justice, compared to those scoring on the low end of these moral orientations. A high level of reactive help was protective against physical aggression, but was unrelated to its relational form. Children who did not engage in reactive help at the beginning of the semester were at highest risk for physical aggression two months later. Proactive help was unrelated to change in either type of aggression. These findings underscore the importance of studying multiple dimensions of children's prosocial behaviors to understand their links to aggression. Understanding factors that promote aggression is paramount in understanding aggressive behavior and designing intervention programmes aimed to reduce it.

The Effects of Care, Justice, Proactive and Reactive Help on Changes in Physical and Relational Aggression in Early Adolescence

Much of the literature points to inverse links between measures of aggression and children's prosocial behavior (i.e., voluntary behavior aimed at benefiting others; Eisenberg, Fabes, & Spinrad, 2006) (Crick, 1996; Persson, 2005; McGinley & Carlo, 2007). In general, research findings indicate that children and youth who engage in aggressive behavior tend not to engage in prosocial behavior, and vice versa. Relatedly, aggression has been considered an indicator of maladjustment (Dodge, 1983; Lochman & Dodge, 1998: Underwood, 2003) while prosocial behavior has been associated with positive developmental outcomes (Padilla-Walker & Carlo, 2007; Carlo et al., 2011). This monolithic view, however, has been challenged recently with researchers demonstrating positive links between measures of aggression and prosocial behavior. Indeed, aggressive children and adolescents who are simultaneously prosocial have been found to be socially competent, successful, and central members of their peer group (Bukowski, 2003; Hawley, 2003a; Pellegrini, 2008; Wettstein et al., 2013; Hawley & Bower, 2018), while at the same time being perceived as hostile and aggressive (Hawley, 2003a, 2006; Newcomb, Bukowski, & Pattee, 2003). Thus, the basic premise of the current study is that aggressive and prosocial behavior configurations are not merely opposite ends of a single dimension, but may intersect in positive ways and that under certain circumstances, prosocial behaviors may actually motivate and promote aggression (Hawley, 2002).

Physical versus Relational Aggression, Stability and Gender Differences

Researchers emphasize the importance of distinguishing between different types of aggression (e.g., physical, relational), especially in early adolescence, which is thought to be a critical developmental period for growth in aggression (Coté et al., 2007). While both types of aggression share intent to harm, they differ in the mechanisms in which harm is delivered. Physical aggression is expressed through overt means such as hitting, kicking, pushing or verbal assaults, while relational aggression includes nonphysical means, including rumour-spreading, excluding peers from the social group, and withholding friendships (Dodge & Coie, 1987; Crick, & Grotpeter, 1995; Crick, Ostrov, & Werner, 2006; Eisner & Malti, 2015).

Whereas physical aggression is more strongly related to indices of social incompetence, relational aggression is thought to be particularly adaptive within the peer context because of its covert nature and is more strongly associated with prosocial behaviors (Crick & Grotpeter, 1995;

Card et al., 2008). Although physical and relational aggression tend to correlate positively with each other (Crick, Casas, & Mosher, 1997; Vaillancourt, Brendgen, Boivin, & Tremblay, 2003; Coté et al., 2006, 2007), the two types are thought to represent distinct constructs and are related independently to children's social goals and various developmental outcomes (Crick, Ostrov, & Kawabata, 2007; Ostrov & Godleski, 2010).

Physical aggression is predictive of later aggression and is thought to be a stable individual characteristic, ranging from moderate to high stability (Olweus, 1997; Adams, Bukowski & Bagwell, 2005; Park et al, 2005). Although fewer studies have examined the stability of relational aggression, existing findings indicate that relational aggression tends to be moderately stable over a 6-month period among third- through sixth-graders (Crick, 1996). It has already been established that physical aggression is consistently more strongly related to boys than girls (Tremblay et al., 2005; Lansford et al., 2012). Although gender differences in relational aggression (favoring girls) have certainly been noted (Murray-Close et al., 2007; Spieker et al., 2012), on the whole, it appears that those differences are negligible with only small to medium effect sizes, which helps challenge a prevailing belief that girls are more relationally aggressive than boys. Indeed, the results of recent studies (Archer, 2004; Card, Stucky, Sawalani, & Little, 2008; Rosciszewska & Bukowski, in preparation) point to similarities rather than differences in the use of relational aggression between boys and girls.

Aggression and Prosocial Behavior in the Peer Context

As stated earlier, traditional approaches to the study of aggression focus on its negative developmental outcomes. Cross sectional and longitudinal investigations have shown repeatedly that early patterns of aggressive behavior are associated with various indices of social incompetence, including social skills deficit, social-cognitive biases, and sociometric peer rejection (Dodge, 1983; Lochman & Dodge, 1998; Underwood, 2003). More recent studies, however, emphasize the adaptive nature of aggression, which has been linked to high status among peers (Bukowski, 2003; Olthof, Goossens, Vermande, Aleva, van der Meulen, 2011; Hawley & Bower, 2018), as well as with perceptions of peer coolness (Pountain & Robins, 2000). Some aggressive children have been found to enjoy close friendships, as well as attention from peers (Hawley, 2003a; Hawley, Little & Card, 2007). These associations are particularly salient among children who display aggressive and prosocial behaviors *concurrently*. Indeed,

they are often found to be socially competent, conscientious, and socially skilled members of their peer groups (Hawley, 2003a; 2003b, 2006; Wargo Aikins & Litwack, 2011).

Resource Control Theory (RCT; Hawley, 1999) helps explain these positive associations in the context of social dominance (e.g., effective use of resource control strategies to access social and material resources) (e.g., Hawley, 1999; 2002, 2003a, 2003c; Hawley, Little, & Pasupathi, 2002; Hawley, 2014) by emphasizing the functional role of both aggression and prosociality as socially effective competitive strategies that often drive the intra- and inter-group social dynamics. It posits that simultaneous use of coercive and prosocial behaviors helps children gain social power (e.g., attention, deference from and affiliation with peers, new alliance formations, access to material goods) (Hawley, 2003b, 2007; Farrell & Dane, 2019). Social competence is thought to underlie the social advantage among aggressive and prosocial children, as they counterbalance their own needs while at the same time maintaining social bonds and friendships (Wettstein et al., 2013). Such youth are often described as those with highest level of influence (Hawley et al., 2002; Hawley, 2003a) and intimacy in their friendships (Hawley et al., 2007).

It should be noted that children's behaviors may exist at various points along the aggression/prosociality continuum, and that the effectiveness of aggression may be dependent of the level of concurrent prosociality. For example, "purely" aggressive children (those high on aggression and low on prosocial behavior strategies) are often disliked, while non-controllers (low on both strategies) are least socially successful (Ciarrochi, Baljinder, Hawley, & Devine, 2019). Hawley (1999) notes that the most socially competent children use a combination of high aggression and high prosociality, while others content that moderate level of aggression combine with high level of prosociality are most effective in pursuit of social goals (Bukowski, 2003; Prinstein & Cillessen, 2003). Such findings suggest a curvilinear pattern in the associating between aggression and prosocial behavior, underscoring the importance of nonlinear models in identifying children at most risk for negative developmental outcomes (e.g., aggression, victimization, rejection).

Types of Prosocial Behaviors Studied

While prosocial behaviors have been mostly studied in terms of helping and sharing, and to a lesser extent cooperating and comforting behaviors (Hay, 1979; Eisenberg, 1982; Zahn-Waxler & Radke-Yarrow, 1982; Dirks, Dunfield, & Recchia, 2018), others highlight the need to

include the ethic of care (e.g., responsiveness and concern for others; Gilligan & Attanucci, 1988) and ethic of justice (e.g., logic of equality, reciprocity and fairness; Turiel, 1994) in the study of children's prosociality. Indeed, both of these moral orientations have been previously conceptualized as facets of prosocial behavior (Walker, 2006) and play a vital role in children's functioning and social dynamics. Justice has long been recognized as a fundamental virtue in human social life, while Aristotle (341—270) proclaimed care orientation to reflect "highest achievement of human nature" (Hutchison et al., 2016, pp. 2052).

Ethic of care reflects a particularistic position, emphasizing the values of trust, attentiveness, and responding to others' needs (Held, 2006), and is promoted by empathic concern for others' plight (Gilligan & Wiggins, 1988; Karniol, Grosz & Schorr, 2003). Further, it emphasizes interdependence in relationships, and responsibility for others that is mutually beneficial. As such, care reasoning requires some level of partiality (e.g., bias in favor of one person over another) and has been positively linked to sympathy (i.e., feelings of sorrow or concern for others; Carlo et al., 2010), as well as empathic concern (i.e., emotional response of compassion when witnessing someone in need; Stocks et al., 2011), although it can also involve conflict (Tronto, 1994) and expression of anger (Geen, 1998). Preliminary evidence also points to positive links between measures of care and relational aggression among a sample of pre-adolescents (Rosciszewska & Bukowski, in preparation).

Unlike ethic of care, ethic of justice focuses on questions of fairness, equality and abstract hierarchy of rules (Held, 2006). In reflects notion of universal principles rather than impartial reasoning and as such, focuses on equality among individuals (Kohlberg, 1984; Karniol, Grosz & Schorr, 2002). Ethic of justice has been found to correlate positively with perspective taking abilities, as well as with dispositional empathy (Juujärvi, Myyry, & Pesso, 2010), but negatively with measures of sympathy in adult samples (Skoe et al., 2002). Recent studies in child and adolescent samples reveal positive association between measures of justice-sensitivity (e.g., personality trait reflecting individual differences in perceiving and responding to injustice; Huesmann, Hatfield, & Miles, 1987) and both prosocial and antisocial behaviors, including physical and relational aggression (Bondü & Elsner, 2015; Bondü and Krahé, 2015). Positive longitudinal association between measures of justice orientation and relational aggression have also been noted (Rosciszewska & Bukowski, in preparation) underscoring the

importance of simultaneous examination of children's antisocial and prosocial behaviors to better understand the maintenance of aggressive conduct.

Much of the discussion regarding the two moral orientations originate from the writings of Gilligan (1982), who concluded that care-based reasoning is more characteristic of women, due to their emphasis on responsivity and prevention of hurt in relationships. On the other hand, she regarded ethic of justice to reflect the moral voice of men. The empirical evidence, however, provides mixed support for Gilligan's (1982) assertions (Skoe, Pratt, Matthews & Curror, 1996). Overall, it appears that the two moral orientations are related to gender but are not gender-specific (Gilligan & Attanuci, 1998). While women have been found to use care orientation slightly more than men (see Jaffe & Hyde, 2000), both genders are thought to use both orientations to some extent (Pratt, Diessner, Hunsberger, Pancer, Savoy, 1991; Turiel, 1998; Skoe et al., 1999), depending on contextual factors, as well as the content of moral dilemma (Jaffee & Hyde, 2000).

Functions of Prosocial Behavior and their Associations with Aggression

By definition, prosocial behavior reflects an other-oriented process, emphasizing acts motivated by concern for others that help promote acceptance and affiliation with peers. Still, research examining children (Hawley, 2002) and adolescents (Boxer et al., 2004) demonstrates that they may use prosocial behavior in the context of instrumental and self-oriented goals, under certain circumstances. In fact, researchers are increasingly recognizing the need to go beyond traditional global definitions of prosocial behavior by exploring its motivational subtypes, as some may operate from motivations similar to those underlying aggression (e.g., self-interest; Carlo & Randall, 2002; Boxer et al., 2004). Of importance are questions regarding children's use of prosocial actions and how they may (or may not) motivate aggressive behavior. For instance, although helping behaviors are often negatively linked with aggressive conduct (Crick & Dodge, 1994; Eisenberg & Fabes, 1998), prosocial helping behavior can also be used for self-serving reasons (Carlo et al., 2003).

In their seminal work, Carlo and Randall (2002) identified six context-dependent types of prosocial helping behaviors among late adolescents, helping shed light on the functional nature of prosocial responding. Their measures included self-reported public prosocial behavior (in front of others), anonymous (without others' knowledge), dire (in crisis situation), emotional (in emotionally-laden situations), compliant (when requested), and altruistic (without anticipation of

reward). The findings revealed that adolescents who engaged in public helping were more self-interested, less concerned with meeting others' needs, and more focused on gaining others' approval, relative to other types. Importantly, these findings are consistent with previous evidence that youth concerned with others' approval are more likely to act aggressively towards others. Moreover, Carlo, Koller and Eisenberg (1998) suggest that interest in gaining others' approval is a positive correlate of juvenile delinquency.

In a related line of research, Boxer et al. (2004) distinguished between altruistic (enacted without expectation of personal gain), proactive (i.e., in pursuit of instrumental goals) and reactive (i.e., positive affective response enacted in the context of emotional provocation) prosocial helping subtypes and their links to physical aggression in adolescence. Self-reported proactive prosocial behavior was significantly positively correlated with aggression (but no distinction was made between physical versus relational aggression), especially among boys. Other types correlated negatively with aggressive behavior, suggesting that specific types of prosocial action may operate from motivations similar to those of aggressive conduct - one that may reflect a more manipulative, self-serving type of prosocial responding (Boxer et al. 2004). Some suggest that proactive prosocial behavior seems similar to relational aggression, reflecting a more sophisticated and manipulative behavioral style driven by self-interested pursuit of a goal (Björkqvist, 1994; Crick, 1995). This pattern of finding demonstrates that engaging in prosocial behavior, if used strategically, may serve functions of self-enhancement that may promote aggressive conduct.

Extending the research by Carlo and his colleagues (Carlo and Randal, 2002; Carlo et al., 2003; Carlo et al., 2010, 2012), Culotta and Goldstein (2008) observed positive associations via self-report between proactive prosocial behavior, relational aggression, jealousy and anxiety in a sample of middle school students. In contrast, Carlo and his colleagues (2014) observed negative associations between compliant (i.e., reactive) prosocial behavior and antisocial tendencies among adolescents. Positive associations have also been observed between proactive prosocial behaviors and narcissistic tendencies in a sample of adolescents (Eberly-Lewis & Coetzee, 2015).

Taken together, these findings suggest that youth engage in a variety of prosocial behaviors for a variety of reasons, at times enhancing the use of antisocial tendencies. Thus, exploring the functions of prosocial behaviors is imperative in identifying behavioral repertoires

of youth at most risk for aggressive conduct. Importantly, studies examining these associations in early adolescence are lacking, which highlights the importance of assessing these constructs in this understudied context. Longitudinal associations are especially important to explore in order to better understand factors associated with maintenance and/or desistance from problematic behaviors. Thus, the purpose f the present study was to explore longitudinal associations between different forms (i.e., care, justice) and functions (i.e., proactive, reactive helping) of prosocial behaviors on changes in physical and relational aggression over time in early adolescence.

The Present Study

The current study used a two-wave longitudinal design to assess the moderating effects of care, justice, as well as proactive and reactive help subtypes on changes in physical and relational types of aggression in children over a 2-month period, and whether the observed effects corresponded to a linear or curvilinear trend. The study builds on the literature linking aggression with children's positive characteristics, and the notion that prosocial behavior may not always be protective against hostile acts but may, in fact, help promote them, at least among a subset of children. The inclusion of ethic of care and justice provides a new perspective on how prosociality may help promote aggression, especially during early adolescence. Although physical aggression trajectories have already been explored in childhood and adolescence, more research is needed assessing the stability of relational aggression, especially as it interacts with prosocial behavior during this critical developmental period. Specifically, we were interested in exploring changes in different types of aggression over time, and whether those changes were affected by a child's level of concomitant prosociality. Also, assessing the motivations behind prosocial acts is especially important in understanding the very meaning of such behaviors and the role they may play in the maintenance of aggression school-age children.

It was hypothesized that children high on measures of care and justice at Time 1 would show higher scores on aggression at Time 2, compared to children who scored low on the two moral orientations (Hypothesis 1). No moderation was expected in terms of physical aggression. Secondly, we hypothesized that children high on proactive help at Time 1 would show higher scores in aggression at Time 2, compared to those scoring low on proactive help (Hypothesis 2), while children high on reactive help at Time 1 would show lower aggression scores over time, relative to those scoring low on reactive help (Hypothesis 3). These effects were expected to be

stronger for relational aggression than for physical aggression. On the basis of limited research in this area among middle school children, the lack of longitudinal studies, as well as methodological differences that result in inconsistent findings, no a priori hypotheses were made regarding gender differences. Given the aforementioned gaps in the literature, and the paucity of findings with the current measures, the assessment of curvilinear trends in the current study was also exploratory.

Method

Participants

Participants were drawn from four mixed-sex public schools in the greater region of Montréal, Québec, Canada. The sample consisted of 375 early adolescent students (182 girls). The children were in Grades 5 (170) and 6 (205) at the time of the assessment, with ages ranging from 10 to 13 years. The data were collected in September/October) and in November/December (Time 2) from 11 classrooms at each time. Given that the participating students were minors at the time of testing, an information letter and parental consent form were provided to the parents who were asked to return the signed form to the class teacher. In addition, child assent was required to move forward with the testing if parental consent was given. Only participants whose parents returned a signed consent form were included in the study. The participating children represented 82% of the pool of potential participants. The students were given a small reward (e.g., highlighters) for returning the consent form regardless of whether their parents gave permission for them to be in the study. Any child who completed all phases of the study was given a T-shirt with the laboratory's logo and the name of the university.

Procedure

After obtaining the approval from the university's ethics board, consent was required from the school board, as well as the principals of the participating schools. Members of the research team were present during the testing period. As part of a larger study on peer relations and well-being, participants were administered unlimited choice peer-nomination questionnaires using group administration procedure, which they completed on electronic devices with Inquisit 4.0 (computer software; 2015) provided by the researchers (e.g., electronic tablets, small laptops). Each participant could nominate same- and other- sex classmates who best matched each item on the questionnaires. Only measures relevant to the current study are described in

this study. Participating students were informed that they could withdraw from the study at any point without negative consequences. There were no exclusion criteria in this sample, unless participants withdrew their consent. In that case, their information was removed from the database. Missing data were dealt with via multiple imputation performed with Mplus (Ver. 6; Muthén & Muthén, 2010).

Measures

Peer assessments. At each of the time points, children completed questionnaires relating to different types of aggression (i.e., physical, relational), prosocial behavior (e.g., care, justice), as well as functions of prosocial helping (i.e., reactive, proactive). Three items were used to measure physical aggression (i.e., "Someone who hits other students in our grade and school", "Someone who gets involved in physical fights with other students in our grade & school", and "Someone who pushes others around"). The reliability of this measure, as indexed by Cronbach's alpha, was .80 and .85, at Time 1 and Time 2, respectively. Relational aggression was measured with 3 items (i.e., "Someone who tries to keep others out of the group", "Someone who talks badly about others behind their backs to hurt them", and "Someone who ignores or stops talking to someone when they are mad at them"). This measure had a Cronbach's alpha of .70 and .63, at Time 1 and Time 2, respectively. Ethic of Care was measured with 3 items (i.e., "Someone who cares about others in our class and grade", "Someone who cares about how the other students in our class are doing", and "Someone who helps others in our class and grade when they need it even if it means that they treat some people differently than others"). The reliability of this measure was .71 at Time 1 and .69 at Time 2. Ethic of Justice was measured with three items (i.e., "Someone who makes sure that all people in our class and grade are treated the same", "Someone who tries to make sure that everyone in our class and grade is treated equally", and **"**Someone who plays fairly"). This measure had a Cronbach's alpha of .76 and .73 at Time 1 and Time 2, respectively. Three items measured reactive help (i.e., "Someone who helps others but only when the other person has asked for help", "Someone who gives assistance but only when he or she has been asked", and "Someone who helps others but only when he/she has been asked to help"). The reliability of this measure was .64 at Time 1 and .76 at Time 2. Two items measured proactive help (i.e., "Someone who gives assistance even when no one asks him/her to do so", and "Someone who is willing to help someone even when the other person doesn't ask for it"). The internal consistency reliability of this measure was .73 at Time 1 and

.73 at Time 2. Number of same-sex nominations received by each child on a given item was added up to for a same-sex score for each of these. All scores were then adjusted for class size variability (see Velásquez, Bukowski, & Saldarriaga (2013) for a detailed description of the technique used).

Results

Preliminary analyses

For each of the measures at each of the two assessment times, outliers were detected and converted so that they did not exceed 3 standard deviations from the group mean, as recommended by Kline (2009). A small amount of missing data was detected due to participants being absent at one of the assessment times. Missing data did not exceed 6.1% at any of the assessment times. Little's (1998) test of randomness of missing data resulted in a nonsignificant chi square value, indicating that data were missing at random. Thus, data imputation was justified. The goal of the imputation was to create as complete a data set as possible. Multiple imputation was conducted with Mplus, version 6.0 (Muthén & Muthén, 2010) in order to estimate new values for missing data. This procedure created 100 new data files, which were then aggregated to produce a final data set including the imputed scores.

Descriptive Information

Means, standard deviations, and reliability estimates between all measures of aggression and prosocial behaviors at two time points, as well as intercorrelations among main study variables are provided in Tables 1 and 2, respectively. Physical aggression at Time 1 was positively related to physical aggression at Time 2 and negatively related to all measures of prosocial behavior at each time. Relational aggression at Time 1 was positively related to relational aggression at Time 2 and negatively related to measures of care and justice at both times. On the other hand, it was unrelated to either proactive or reactive help at Time 1 and at Time 2. Measures of physical and relational aggression were positively correlated with each other at Time 1 and Time 2.

Plan of Analysis

The data were analyzed using hierarchical multiple regression analysis with Time 2 aggression scores as the outcome. The goal of these analyses was to estimate linear and curvilinear effects of different types of prosocial behavior (e.g., care, justice, proactive help, reactive help) on changes in two types of aggression over time (physical, relational). We also

modeled linear and curvilinear stability estimates longitudinally for two types of aggression. A total of four hierarchical multiple regressions was performed; these analyses were divided into two parts. The first set utilized physical aggression at Time 2 as the outcome variable and tested the moderating effects of Time 1 care and Time 1 justice, followed by an analysis testing the effects of Time 1 proactive and Time 1 reactive help. A significant change in R^2 would indicate the presence of a moderational effect. The second set of analyses followed the same procedure but with relational aggression at Time 2 as the outcome.

Analyses with Physical Aggression as the Outcome

Exploration of linear and curvilinear associations of Time 1 care and Time 1 justice on measures of physical aggression at Time 2. The degree to which our predictors and the interactions among them were associated with the measure of physical aggression over time was examined using two, nine-step hierarchical regressions. The goal of these analyses was to estimate the degree to which measures of care and justice at Time 1 lead to changes in aggression at Time 2. Gender was entered in the first step was a statistically significant predictor of aggression $F(1, 373) = 47.701$, $p < .000$, accounting for 11.3% of the variance. Adding Time 1 physical aggression scores at step 2 to estimate a linear association produced a significant effect $F(2, 372) = 251.25$, $p < .000$, with Time 1 physical aggression explaining additional 46.1% of the variance in DV. The curvilinear effect of Time 1 aggression (e.g., aggression squared) was significant in the third step $F(3, 371) = 174.77$, $p < .000$, accounting for an additional 1.1% of the variance. At this step, both the linear ($\beta = .47$, $p = .00$) and curvilinear effect ($\beta = .12$, $p = .00$) of Time 1 aggression, as well as gender ($\beta = -.10$, $p = .04$) predicted Time 2 physical aggression. On average, boys scored higher on the measure of physical aggression than girls, and physical aggression followed a stable trajectory from Time 1 to Time 2. The association between Time 1 aggression and Time 2 aggression scores was linear and positive; however, a small curvilinear effect was also observed; physical aggression increased at a faster rate among children who were highest on aggression at Time 1 (see Figure 1).

At step four, the linear effects of Time 1 Care and T1 Justice were entered, followed by their curvilinear function at step 5. Interactions between measures of Time 1 Care by Time 1 Aggression and Time 1 Justice by Time 1 Aggression were entered at step 6. Curvilinear interaction effects of these measures were entered at step 7. At step 8, interaction effects between gender by Time 1 Justice and gender by Time 1 Care, while their curvilinear functions

were entered in the step 9. Although models 4 through 9 all resulted in significant overall equations ($p < .05$), they did not significantly account for any additional variance in the DV ($\Delta F < .1\%$) (see Table 3). Thus, no moderation effects were evident in the context of physical aggression.

Exploration of linear and curvilinear associations of Time 1 proactive help and Time 1 reactive help on measures of physical aggression over time. In this set of analyses, we employed the same hierarchical regression strategy as outlined above but with Time 1 measures of proactive and reactive help predicting changes in physical aggression at Time 2. The first three steps produced the same findings as described in the previous section (see above). At step four, the linear effects of Time 1 reactive help and Time 1 proactive help were entered, with the model explaining additional 0.8% of the variation in the DV $F(5, 369) = 107.77 p < .000$. The inclusion of the curvilinear function of Time 1 proactive help and Time 1 reactive help at step 5 produced a significant model $F(7, 367) = 77.06$, $p < .000$, however, it did not add significantly to the prediction of physical aggression at Time 2. Interactions between measures of Time 1 reactive and proactive help and physical aggression were entered at step 6 but did not add significantly to the prediction of the outcome ($\Delta F(2, 365) = 1.22$, $p = .29$). When curvilinear interaction effects of these measures were entered at step 7, a significant effect was evident ($\Delta F(2, 363) = 3.90$, $p = .02$), accounting for additional 0.8% of the variance in Time 2 physical aggression scores. In this step, Time 1 physical aggression ($\beta = .80$, $p = .00$) and an interaction between Time 1 physical aggression by reactive help ($\beta = -.19$, $p = .05$) significantly predicted the outcome.

Coefficients observed at step 7 of the analyses were used to create predicted aggression scores for four hypothetical children: (a) a child high in aggression (i.e., the aggression score is 1 SD above the mean) and low in reactive help, (b) a child low in aggression (i.e., the aggression score is 1 SD below the mean) and low in reactive help, (c) a child high in aggression and high in reactive help, and (d) a child low in aggression and high in reactive help. The observed scores for these four cases were 1.09, .15, .50 and .08, respectively. These results are illustrated in Figure 2. This pattern of results indicates that as highly reactively helpful children at the beginning of the school year move from low to high scores on physical aggression, their Time 2 physical aggression scores are less positive than among those rated as low on reactive help, supporting

our hypothesis. In other words, children who show minimal levels of reactive help towards their peers are at most risk for physical aggression two months later.

At step 8, interaction effects between gender and helpfulness were entered, while their curvilinear functions were entered in the step 9. Although these two models all resulted in significant overall equations ($p < .05$), they did not significantly account for any additional variance in the DV (see Table 4 for model summary).

Analyses with Relational Aggression as the Outcome

Exploration of linear and curvilinear associations of Time 1 care and Time 1 justice on measures of relational aggression over time. The following set of analyses utilized the same strategy as described above but with relational aggression at Time 2 as the dependent variable. The goal of the first set of analyses was to estimate whether measures of care and justice at Time 1 lead to changes in relational aggression at Time 2.

Gender was entered in the fist step and was not a significant predictor the outcome $F(1, 373) = .00$, $p = .99$. At step 2, Time 1 relational aggression scores were added to estimate a linear effect, which produced a significant effect $F(2, 372) = 176.42$, $p < .000$, explaining 48.7% of the variance. Curvilinear effect of Time 1 relational aggression (i.e., relational aggression squared) was added in the third step and did not significantly predict the outcome ($\Delta F(1, 371) = .358$). When Time 1 care and Time 1 justice were entered in the fourth step, a significant effect was present $F(5, 369) = 75.56$, $p < .000$, accounting for an additional 1.9% of the variance in the outcome ($\Delta F(2, 369) = 6.95$, $p = .00$). The inclusion of the curvilinear function of Time 1 care and Time 1 justice at step 5 produced a significant model $F(7, 367) = 54.93$, $p < .000$, however, it did not add significantly to the prediction of Time 2 relational aggression ($\Delta F(2, 367) = 2.17$, $p = .115$).

The inclusion of the interactions between measures of Time 1 care by Time 1 relational aggression and Time 1 justice by Time 1 relational aggression in the sixth step produced a significant model $F(9, 365) = 43.11$, $p < .000$, but did not account for statistically significant variation in the DV ($\Delta F(2, 365) = 1.36$, $p = .25$). When curvilinear interaction effects of these measures were entered at step 7, a significant effect was also not evident ($\Delta F(4, 361) = .97$, $p = .42$). Adding interactions between child's gender and Time 1 care and Time 1 justice at step 8 produced a significant model $F(15, 359) = 26.74$, $p < .000$, marginally predicting the outcome ($\Delta F(2, 359) = 2.74$, $p = .06$), helping to explain an additional 0.7% of the variance in DV. In this

step, the only significant predictors of Time 2 relational aggression were Time 1 relational aggression scores (β = .48, p = .03), as well as interactions between gender by Time 1 care (β = .18, p = .03), and gender by Time 1 Justice (β = -.16, p = .02). The curvilinear functions of those interactions were entered at the last step, and although it produced a significant regression equation $F(17, 357) = 23.60$, $p < .000$, it failed to explain any additional statistically significant variation in the DV ($\Delta F(2, 357) = .54$, $p = .57$) (see Table 5).

Coefficients observed in the step 8 of the analyses were used to create predicted aggression scores for the following hypothetical children: (a) a boy low on care (i.e., the care score is -1 SD below the mean), (b) a boy high on care (i.e., the care score is 1 SD above the mean), (c) a girl low on care, and (d) a girl high on care. The observed scores for these cases were .88, 1.02, 1.05 and 1.57, respectively. As seen in Figure 3, as boys and girls move from low to high scores on care at Time 1, girls' Time 2 relational aggression scores become more positive, thus, supporting our prediction. The effects were found to be stronger for girls than boys. The moderation effect is particularly evident at high level of care, with girls scoring higher than boys on relational aggression. At low level of care, boys and girls did not differ much in the use of relational aggression.

As illustrated in Figure 4, inverse effects emerged with justice by gender interaction. Those coefficients were used to create predicted scores for four hypothetical children: (a) a boy low on justice, (b) a boy high on justice, (c) a girl low on justice, and (d) a girl high on justice. The observed scores for these four cases were .79, .56, .79 and .16, respectively. As can be seen, as boys' and girls' scores on justice become higher, their Time 2 relational aggression scores decrease, which did not support out predictions. These effects were stronger for girls than for boys.

Exploration of linear and curvilinear associations of Time 1 proactive help and Time 1 reactive help on measures of relational aggression at Time 2. In this set of analyses, we employed the same hierarchical regression strategy as outlined above but with Time 1 measures of proactive and reactive help predicting changes in relational aggression at Time 2. The first three steps produced the same findings as described in previous section (inclusion of gender, Time 1 relational aggression, Time 1 relational aggression squared; see above). At step 4, the linear effects of Time 1 reactive help and Time 1 proactive help were entered, with the model explaining additional 1.3% of the variation in the DV $F(5, 369) = 73.99$, $p < .000$.

Curvilinear functions of Time 1 proactive help (e.g., proactive help squared) and Time 1 reactive help were entered at step 5, resulting in a significant model $F(7, 367) = 54.91$, $p < .000$, which explained an additional 1.1% variance in the outcome variable. At this step, relational aggression at Time 1 continued to be a significant predictor of relational aggression at Time 2 ($\beta = .58$, $p = .00$); a significant effect of linear ($\beta = -.24$, $p = .00$) and curvilinear reactive help ($\beta = .06$, $p = .00$) was also observed. Whereas a largely linear effect of reactive help on relational aggression was observed, children at the lowest end of reactive help (e.g., - 1 SD below the mean) displayed the highest relational aggression scores (see Figure 5). Steps 6 to 9 followed the same strategy but with measures of proactive and reactive help as moderators. Although those models resulted in significant overall equations ($p < .05$), they did not significantly account for any additional variance in the DV ($\Delta F < .1\%$) (see Table 6). Proactive help was unrelated to either type of aggression.

Discussion

In the present study we sought to extend research on the relations between different forms and functions of prosocial behavior and aggression in a sample of early adolescents. Importantly, the present study highlights the role that ethic of care and ethic of justice may play in promoting and minimizing aggression, particularly its relational kind. Our predictions derived from the theoretical background on social dominance (Hawley, 1999), as well as recent work emphasizing the motivational aspect of children's prosocial behaviors in the prediction of aggression (Carlo & Randall, 2002; Boxer et al., 2004; Findley-Van Nostrand & Ojanen, 2018). In order to increase specificity of our predictions, gender differences, as well as linear and curvilinear associations were also tested in an exploratory fashion. Globally, the observed pattern of findings partially supported our hypotheses. All interaction effects corresponded to a linear trend.

The central premise of the current study was that aggression and prosocial behavior may intersect in positive ways and that under certain circumstances, may play a role in promoting aggressive behaviors. It was specifically hypothesized that children who are more caring and justice-oriented at the beginning of the school year would show higher aggression scores two months later, compared to those scoring low on the two measures, and that the observed effects would be stronger for relational than physical aggression. The current findings provide partial support for this prediction. As expected, high care was associated with higher relational

aggression scores compared to those low on care, which replicates previous findings (Rosciszewska & Bukowski, in preparation). This effect was observed to be stronger for girls, especially at high levels of care. At low levels of care no gender differences emerged. Although it was expected that being high on justice at Time 1 would also be associated with elevated levels of relational aggression at Time 2, we observed that this aspect of moral orientation had a protective effect, with effects stronger for girls.

The finding that highly prosocial children are also those with the highest relational aggression scores, relative to those scoring low on this orientation, is consistent with functional and social dominance theories of aggression (Charlesworth, 1996; RCT, Hawley, 1999) For instance, Hawley (1999) stipulates that those who use aggression in combination with prosocial behavior may be doing so to gain dominance and/or access to social resources, which in turn affords positive peer outcomes (e.g., popularity, intimacy, friendships)(Cairns & Cairns, 1994; Hawley, 1999; 2003b; Bukowski, 2003). In line with other theoretical perspectives emphasizing motivational explanations for human behavior (e.g., agency and communion; Bakan, 1996; status and relationship; Hicks, 1997), social dominance can be achieved via coercive (i.e., aggressive) and affiliative (i.e., care-based) behaviors. In that sense, such behavioral configurations may allow youth to skilfully balance "getting along" while "getting ahead" (Hawley, 2008) as they pursue social and/or material resources.

In light of the aforementioned theoretical models, it is possible that a subset of aggressive girls in our sample used relational aggression to influence and/or manipulate their social relationships, while mitigating their damage with care-based behaviors. Banny and colleagues (2011) argued that relational aggression in particular is effective in establishing feelings of intimacy (e.g., closeness and self-disclosure), and showed that high level of relational aggression between friends was associated with increase in both positive and negative friendship qualities over time. In one longitudinal study, increases in intimate disclosure by a friend were positively linked to increases in relational aggression, but only for girls (Murray-Close et al., 2007). Other researchers (Warner & Crick, 2004) argue that relational aggression is particularly effective in establishing closeness among friends who engage in it against a 'common enemy'.

Boys' motivation for engaging in relational aggression may reflect group processes, such as social hierarchy formation, and may reflect power or status goals (Pellegrini, 2008), which is in line with previous findings on social dominance (Hawley, 2003a; 2006; Pellegrini, 2008). To

that end, relational aggression (e.g., excluding a peer from a group or sport activity) may serve as mechanism by which boys acquire instrumental goals (e.g., peer regard, popularity), while also showing care-based behaviors (e.g., being attuned to the needs of others) to mitigate the cost of their aggression. This interpretation is consistent with studies indicating that both genders engage in relational aggression but that it may serve different functions depending on the context and who the target of their aggression is (e.g. a close friend versus a peer in the class) (Card et al., 2008). Socio-cognitive biases relating to the acceptability of relational aggression may explain why the observed associated was weaker among boys than girls (Crick, 1997).

In contrast to what was expected, high level of justice had a buffering effect against relational aggression. This effect was found to be stronger for girls than for boys. This contradicts an earlier finding in which early adolescent boys and girls were found to increase in relational aggression as a function of high level of justice orientation (Rosciszewska & Bukowski, in preparation). To speculate, it is possible that different motivations drive the direction of the effects (e.g., self- versus other- oriented). On the one hand, justice-orientation may align with resource control theories (RCT; Hawley, 1999), insofar as it is used for instrumental gains (concurrently with aggression). On the other hand, it may reflect altruistic motivations, as suggested be others (Hoffman, 1987), and may thus, minimize the use of aggressive behaviors. Given the lack of studies examining justice-oriented concerns and aggression among early adolescents, it would be important to examine specific contexts in which justice orientations takes center stage, as evidence from adult samples indicates differential links with aggression depending on the viewpoint from which injustice is perceived (e.g., from the perspective of passive observer, active perpetrator or victim) (Schmitt, Gollwitzer, Maes, & Arbach, 2005).

Taken together, this set of findings indicate that both boys and girls utilize care- and justice-based behaviors, which stands in contrast to the original writings of Kohlberg (1976) and Gilligan (1982). Indeed, the current findings indicate that while females have been found to use care orientation slightly more than men (Jaffe & Hyde, 2000), both genders are thought to use both orientations to some degree (Pratt, Diessner, Hunsberger, Pancer, Savoy, 1991; Turiel, 1998; Skoe et al., 1999), depending on contextual factors, as well as the content of the moral dilemma (Jaffee & Hyde, 2000). In fact, it has been proposed that the most salient predictor of the type of orientation used is type of moral conflict and not gender (Juujärvi et al., 2010),

although findings are mixed. For example, both genders have been found to engage more in care-based reasoning when discussing relational real-life dilemmas (Jaffee & Hyde, 2000; Juujärvi, 2005), while using justice-related orientation when discussing non-relational dilemmas (Turiel, 1998). On the other hand, in a study of Canadian early adolescents, Skoe and Gooden (1993) observed that care-based real-life moral dilemma content was gender-differentiated, such that girls generated more personal real-life dilemmas (e.g., those involving relationships concerns between oneself and close others), while boys reported more impersonal ones, placing importance on sports, as well as on avoiding trouble.

Our second set of hypotheses derives from recent conceptual and empirical work that emphasizes the importance of distinguishing underlying motivations behind helping behaviors (Boxer et al., 2004; Carlo & Randall, 2002; Findley-Van Nostrand & Ojanen, 2018) to better understand their relation to aggression. Drawing from social exchange and functional motives theory of helping (Penner, Midili & Kegelmayer, 1997), helping behaviors can be proactive (initiated to satisfy own needs) or reactive (occurring in response to the needs of others). It was specifically hypothesized that children high on proactive help at Time 1 would show higher scores in aggression at Time 2, compared to those scoring low on proactive help. This hypothesis was not supported; proactive help was unrelated to either type of aggression, which contradicts previous findings (Boxer et al., 2004; Culotta & Goldstein, 2008). It is possible that methodological differences (self vs. peer reports, early vs. later adolescence) may account for the divergent findings. It is also possible that a true relation between proactive helping and aggression during middle childhood is weak and that our findings simply reflect this notion.

Our final hypothesis that children high on reactive help at Time 1 would score lower on aggression at Time 2, relative to those scoring low on reactive help, was partially supported. Evidence of a buffering effect was found but only for physical aggression; it was unrelated to its relational form. What the results imply is that reactive help is protective against physical aggression but only among children (boys and girls) who are highly reactively helpful, while low levels of help are more strongly associated with aggression. Concern for others (e.g., sympathy, perspective taking) is thought to underlie the motivation to react (e.g., help) to another's need (Eisenberg et al., 2010). Insofar as our measure reflects true other-oriented orientation, the protective role of reactive help on aggression aligns with results from studies that observe inverse links between altruistic helping and antisocial behaviors (Carlo et al., 2003), although the

majority of findings do not make distinctions between physical and relational forms of aggression. Importantly, these effects help highlight the need to be particularly cognizant of children who do not engage in helping behaviors with their peers when designing prevention and intervention programmes, as they are at highest risk for physical aggression and developmental maladjustment.

Limitations, Strengths and Implications

Alongside a number of contributions, there were a few limitations of the present findings that are important to address. Firstly, because we focused on middle school children, the findings may not generalize to other age groups. Secondly, the temporal gap between assessment points may not have been sufficient to fully capture the interplay between children positive and negative behaviors. Future study designs would benefit from incorporating several assessment points across the school year for a more nuanced and complete understanding of the factors associated with changes in aggression over time. It is also possible that our measures may not have adequately captured the self- versus other-oriented dimension underlying the use of helping behaviors. Thus, additional measures should be considered (e.g., those assessing empathy dimensions) to increase the validity of our findings. Nevertheless, the current findings help broaden our conceptualization of prosocial behavior by not only including moral orientations of care and justice but also by subtyping prosocial helping behaviors into their functions. To the authors' knowledge, this is the first longitudinal investigation assessing multiple risk and protective factors in a sample of middle school children.

Our findings have implications for interventions. Clearly, intervention efforts should continue to target youth who are "purely" aggressive (e.g., those high on aggression but low on prosocial behaviors), given their poor developmental outcomes. However, the results of our study also imply that there may be something particularly advantageous in using relational aggression, especially among children who are simultaneously prosocial who may use it to inflict harm in more underhanded ways. Recognizing that relational aggression is a powerful tool used to disrupt peer functioning, prevention and intervention efforts should not preclude prosocial youth from assessment and treatment programmes.

Future Directions and Conclusions

Results from the present study highlight the importance of adopting a multidimensional approach to the study of children's aggression and offer potential for new directions. In

particular, these findings call for further examination of the mechanisms underlying the observed associations. For example, how might the effects of friendships (e.g., peer difficulties, friendship quality, level of intimacy and security, etc.) moderate or mediate the associations between aggression and prosocial behavior over time? Alternatively, it may be important to consider peer group effects, such as status and how it may help drive aggression among prosocial peer group members. It has already been established that aggression appears to promote one's status in the peer group (Hawley et al., 2002; Lease, Kennedy & Axelrod, 2002). For example, perceived popularity is considered an indicator of social dominance, in that it provides access to desired resources (Hartl, Laursen, Cantin & Vitaro et al., 2019), and is related to both negative and positive and negative outcomes in early adolescence (Cilessen, 2011). In recent work, bistrategic popularity (i.e., where aggressive *and* prosocial strategies are employed to gain influence, centrality), was associated with high level of peer acceptance and low levels of peer rejection. Exploring the role of moral orientations on popularity status could help identify youth at most risk for aggressive behavior, especially in form of relational aggression.

Furthermore, results from a large number of studies point to the importance that emotions play in the development and maintenance of aggressive behavior. Specifically, emotion regulation deficits and related processes (e.g., negative emotionality, poor regulation of negative affect) have been implicated in the development and maintenance of both physical and relational forms of aggression (Shields & Cicchetti, 1998). In child and adolescent samples, relational aggression has been found to correlate with measures of neuroticism and negative affect (Tackett, Kushner, Herzhoff, Smack, & Reardon, 2014), difficulties with tolerating frustration and anger (Little, Jones, Henrich, & Hawley, 2003), as well as stress (Gower et al., 2014). Low levels of emotional arousal, such as fearlessness, have also been linked to aggression in youth with callous unemotional traits (Pardini, 2006), and Machiavellian qualities (e.g., charm, charisma, social manipulation) have been observed in youth high on prosocial and aggressive behaviors (Hawley, 2006). Thus, future investigations might benefit from including additional measures of social-emotional functioning in the study of moral orientations on aggression. Doing so could potentially help distinguish other- vs. self- oriented motivations underlying aggressive behavior.

Future research studies may also want to focus on the role of specific moral emotions (i.e., responses based on harm, care, and justice norms) underlying care- and justice- based

behaviors driving relational aggression. Research has shown that feelings of sympathy (i.e., feelings of care or concern for another in need), and guilt deter aggressive conduct, while findings relating to measures of empathy (i.e., perspective taking) have found negative and positive associations with aggression (Bloom, 2016). Thus, another important question for future research is which moral emotions may drive aggressive behavior, especially among children who score on the high end of aggressive and affiliative (e.g., care, justice) measures. Assessing moral emotions driving proactive helping behaviors may allow for a more nuanced measurement of self- versus other-oriented motivations behind their behaviors and for helping identify children at highest risk for aggression.

Overall, the results of the study add to our understanding of the links between different forms and functions of prosocial behavior and different types of aggression in middle school children. Importantly, our findings highlight the importance of concurrent examinations of children's aggressive and affiliative behaviors from a multidimensional perspective, in order to better understand how their interplay may affect trajectories of aggression.

Table 1

Means and Standard Deviations for Measures of Aggression and Prosocial Behavior at Two Time Points

Variable	Overall	Boys	Girls
	M (*SD*)	*M* (*SD*)	*M* (*SD*)
Time 1			
Physical aggression	.43 (0.69)*	.68 (0.83)	.16 (0.34)
Relational aggression	.72 (0.80)	.75 (0.81)	.69 (0.79)
Care	1.49 (1.04)	1.21 (0.97)	1.78 (1.83)
Justice	1.75 (1.18)	1.49 (1.09)	2.03 (1.21)
Proactive Help	1.53 (1.19)	1.33 (1.09)	1.74 (1.09)
Reactive Help	1.60 (0.98)	1.53 (0.94)	1.67 (1.03)
Time 2			
Physical aggression	.38 (0.69)*	.60 (0.84)	.13 (0.35)
Relational aggression	.76 (0.78)	.76 (0.75)	.76 (0.80)
Care	1.17 (0.88)	.94 (0.83)	1.42 (0.87)
Justice	1.52 (0.86)	1.55 (0.90)	1.50 (0.81)
Proactive Help	1.08 (0.97)	.93 (0.99)	1.23 (0.93)
Reactive Help	1.81 (1.12)	1.49 (0.94)	2.16 (1.20)

Note. Mean scores are based on aggregate scores across variables.
*$p < .05$.

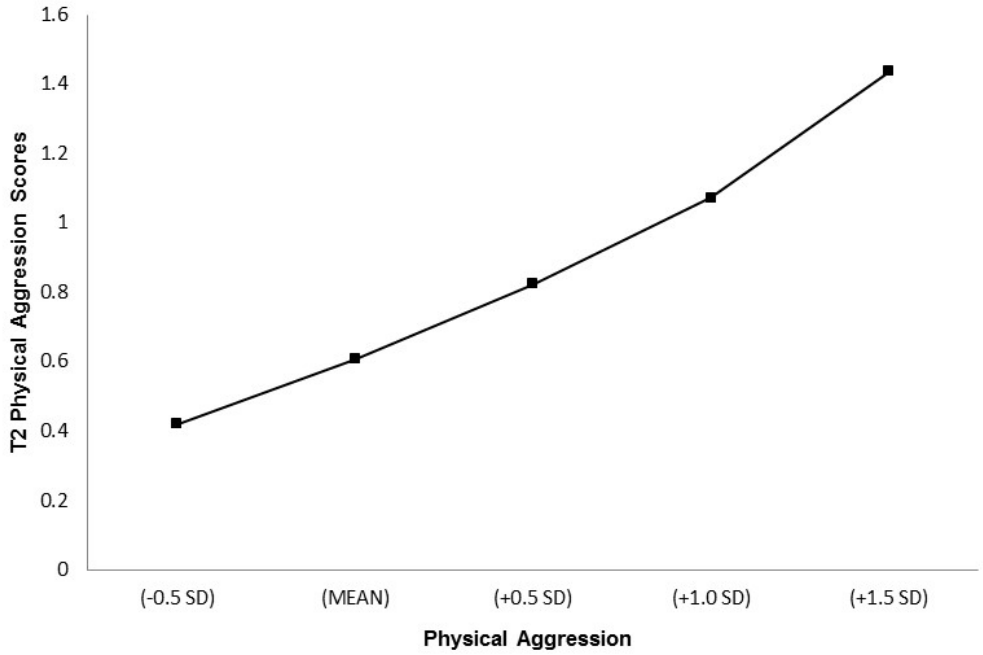

Figure 1. Curvilinear Effect of Physical Aggression at Time 1 Predicting Physical Aggression at Time 2.

Table 3

Summary of Hierarchical Regression Analyses Predicting Time 2 Physical Aggression from Gender, Time 1 Care, Time 1 Justice and Interactions (Linear and Curvilinear)

Model	*R*	R^2	*Adj.*R^2	*SE*	ΔR^2	ΔF
1	.337	.113	.111	.65	.113	47.70*
2	.758	.575	.572	.45	.461	403.35*
3	.765	.586	.582	.45	.011	9.85*
4	.769	.591	.586	.44	.006	2.59
5	.771	.595	.587	.44	.003	1.46
6	.773	.597	.587	.44	.003	1.14
7	.774	.599	.584	.44	.002	.373
8	.774	.599	.582	.45	.000	.191
9	.774	.599	.580	.45	.000	.093

Note. ΔR^2 = Change in R^2; ΔF = Change in F statistic.
*$p < .05$.

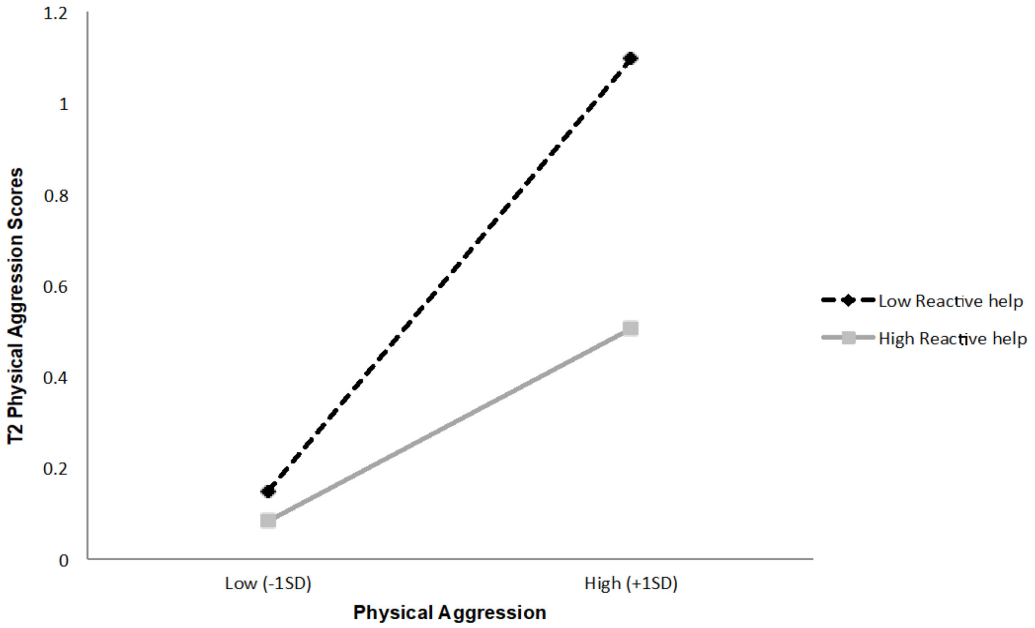

Figure 2. Time 2 Physical Aggression as a Function of Time 1 Physical Aggression by Reactive Help Interaction.

Table 4

Summary of Hierarchical Regression Analyses Predicting Time 2 Physical Aggression from Gender, Time 1 Proactive Help, Time 1 Reactive Help and Interactions (Linear and Curvilinear)

Model	*R*	R^2	*Adj.*R^2	*SE*	ΔR^2	ΔF
1	.337	.113	.111	.65	.113	47.70*
2	.758	.575	.572	.45	.461	403.35*
3	.765	.586	.582	.45	.011	9.85*
4	.770	.594	.588	.44	.008	3.59
5	.771	.595	.587	.44	.002	.71
6	.773	.598	.588	.44	.003	1.22
7	.779	.606	.594	.44	.008	3.90*
8	.779	.606	.592	.44	.000	.04
9	.782	.612	.596	.44	.006	2.55

Note. ΔR^2 = Change in R^2; ΔF = Change in F statistic.
*$p < .05$.

Table 5

Summary of Hierarchical Regression Analyses Predicting Time 2 Relational Aggression from Gender, Time 1 Care, Time 1 Justice and Interactions (Linear and Curvilinear)

Model	*R*	R^2	*Adj.*R^2	*SE*	ΔR^2	ΔF
1	.001	.000	-.003	.78	.000	.00
2	.698	.487	.484	.56	.487	352.83*
3	.698	.487	.483	.56	.000	.358
4	.711	.506	.499	.55	.019	6.95*
5	.715	.512	.502	.55	.006	2.17
6	.718	.515	.503	.55	.004	1.36
7	.721	.520	.503	.55	.005	.972
8	.726	.528	.508	.54	.007	2.74
9	.727	.529	.507	.54	.001	.549

Note. ΔR^2 = Change in R^2; ΔF = Change in F statistic.
*$p < .05$.

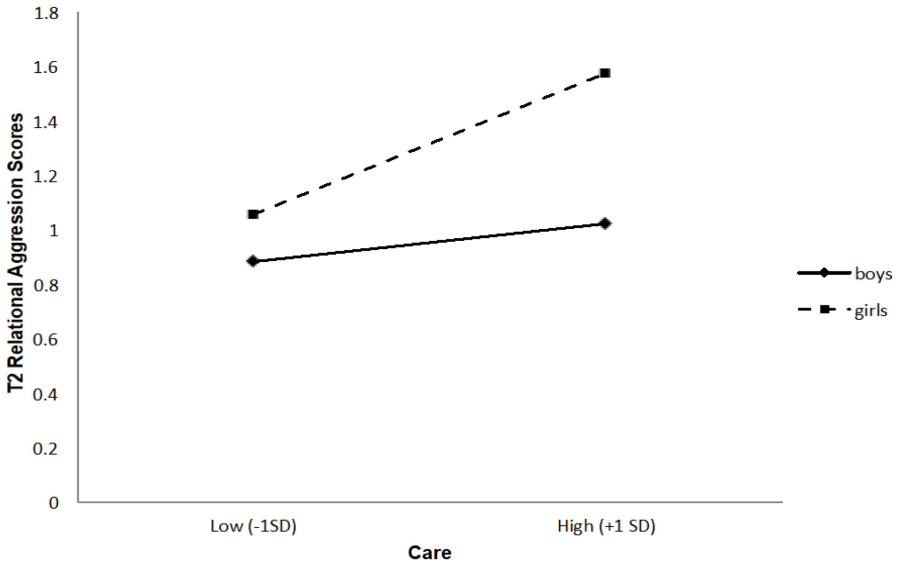

Figure 3. Time 2 Relational Aggression as a Function of Time 1 Gender by Care Interaction

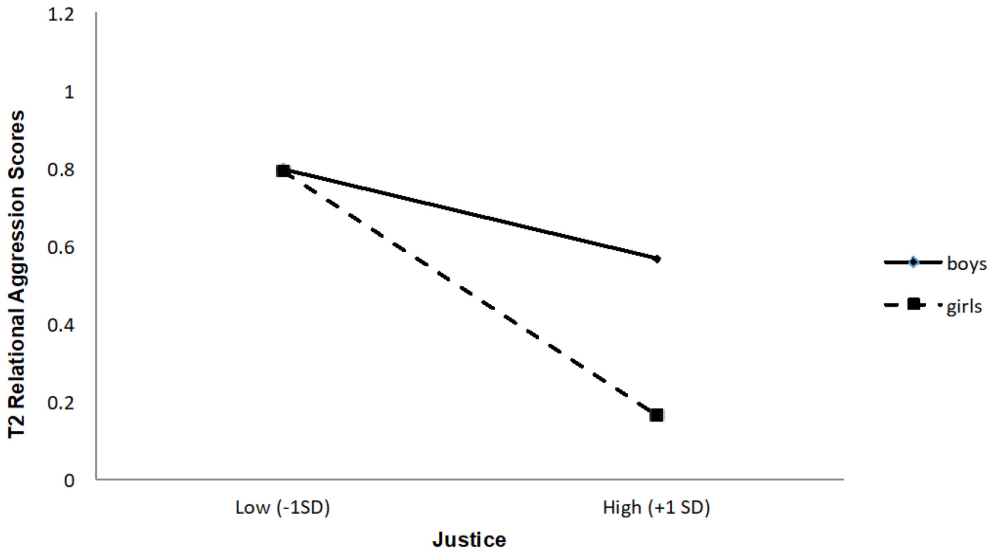

Figure 4. Time 2 Relational Aggression as a Function of Time 1 Gender by Justice Interaction

Table 6

Summary of Hierarchical Regression Analyses Predicting Time 2 Relational Aggression from Gender, Time 1 Proactive Help, Time 1 Reactive Help and Interactions (Linear & Curvilinear)

Model	*R*	R^2	*Adj.*R^2	*SE*	ΔR^2	ΔF
1	.001	.000	-.003	.78	.000	.00
2	.698	.487	.484	.56	.487	352.83*
3	.698	.487	.483	.56	.000	.358
4	.708	.501	.494	.55	.013	4.94*
5	.715	.512	.502	.55	.011	4.10*
6	.718	.516	.504	.55	.004	1.64
7	.719	.517	.502	.55	.001	.300
8	.722	.521	.504	.55	.004	1.60
9	.723	.522	.502	.55	.001	.501

Note. ΔR^2 = Change in R^2; ΔF = Change in F statistic.
*$p < .05$.

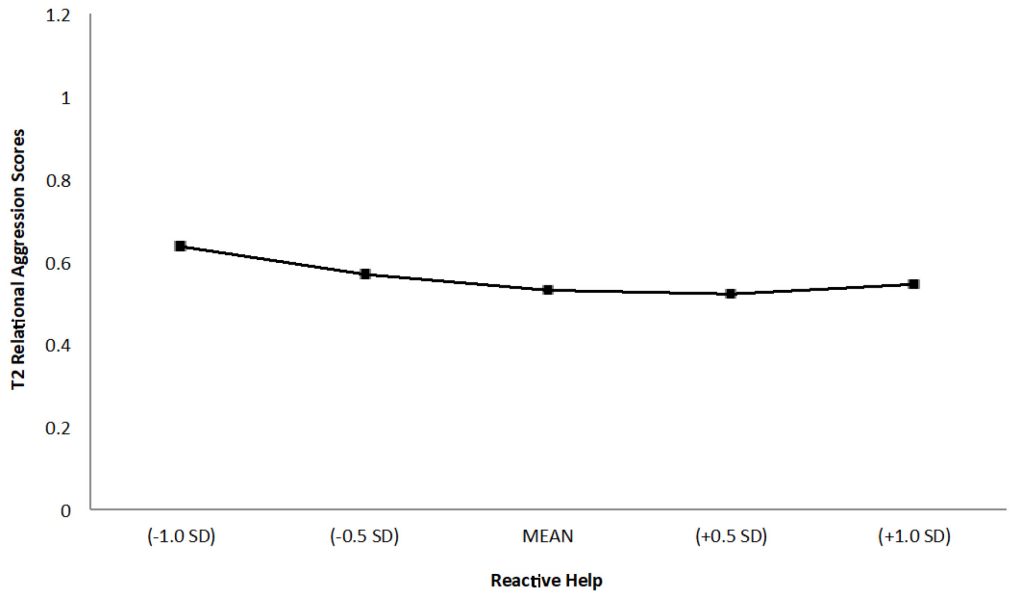

Figure 5. Curvilinear Effect of Reactive Help at Time 1 Predicting Relational Aggression at Time 2

General Discussion

The purpose of the present dissertation was to examine longitudinal associations between early adolescents' aggressive and prosocial behaviors, and the extent to which prosociality may predict physical and relational aggression over time. The importance of this work lies in the centrality that both classes of behaviors are ubiquitous in children and adolescent daily peer interactions, and that, at times, aggression may be motivated by positive human sentiments, such as out of concern and welfare for others. The point of departure for the present two studies was the notion that negative and positive social behaviors do not always reflect opposites of one dimension. Rather, some youth use both aggressive and affiliative behaviors to influence their peer dynamics, and some highly aggressive youth who are simultaneously prosocial enjoy friendships, and high status among peers.

The present project contributes to the field in two main ways. Firstly, the use of a multidimensional approach that recognizes the variability in the forms and functions of prosocial behaviors helps capture a more nuanced understanding of prosocial factors that are uniquely associated with aggression. Secondly, the use of longitudinal designs that take into consideration different types of aggression, as well as sophisticated statistical techniques, allow for the detection of important changes associated with aggression over time.

Overall, the current findings from the two studies demonstrate that the use of aggression and prosocial behaviors is ubiquitous as early adolescents navigate the dynamics of their close relationships and peer networks. Importantly, these findings illustrate that aggression, especially the relational type, can also intersect in positive ways with moral orientations of care and justice. In fact, in line with previous research on social dominance (e.g., Wettstein et al., 2013), high levels of prosocial behaviour (e.g., care) were predictive of relational aggression over time. Findings relating to ethic of justice demonstrated mixed results, although some positive associations were also observed, especially among those scoring high on this dimension. Further, the results demonstrated the interactive role of students' motivations driving prosocial helping and relational aggression. Specifically, high levels of reactive helping had a buffering effect against physical aggression over time but was unrelated to relational aggression. All of the main findings corresponded to a linear trend, indicating a more direct link between aggression and prosociality in early adolescence.

The Effect of Care on Aggression

The results presented provide compelling evidence that ethic of care plays an important role in the promotion of aggression for boys, as well as for girls. As predicted, high levels of care orientation were predictive of relational aggression over time, compared to students scoring low on this measure. This finding was consistent across the two studies. Furthermore, high level of care was protective against physical aggression, as observed in Study 1. The current findings align with evolutionary theories of aggression (Charlesworth, 1996; Hawley, 1999). Accordingly, early adolescents who use relational aggression in combination with prosocial behaviors may be may be doing so as a way of facilitating access to limited social and material resources, or to gain social prominence (e.g., popularity; Cairns & Cairns, 1994; Hawley, 1999; Bukowski, 2003). From a motivational perspective, this behavioral combination echoes the need for agency (e.g., status, power) and communion (e.g., closeness, affiliation, relationships), which are thought of as fundamental human traits driving human interactions (Bakan, 1966; Emmons, 1997).

Another way of interpreting these results is that highly prosocial students use aggression to influence and/or manipulate their relationships with peers. Presumably, their high level of care helps mitigate the harmful effect of their concurrent aggression. To that end, relational aggression seems particularly useful, given its emphasis on relational harm, as well as its more covert nature, which confers fewer negative consequences for the perpetrator (Björkqvist, 1992). According to Banny and colleagues (2011), relational aggression in adolescence (grades 6 to 8) is particularly effective in establishing feelings of closeness and intimacy and may be more favourable than engagement in physical aggression, which is more strongly related to long-term maladaptive outcomes (Girard et al, 2018). Relatedly, Murray-Close and colleagues (2007) studied 4th grade students and observed that increases in intimate disclosure by a friend were associated with elevated relational aggression, suggesting that there is be something particularly advantageous about using relational aggression to influence the dynamics of peer relationships.

Although ethic of care implies other-oriented processes (e.g., empathic concern towards another in need), it is still difficult to delineate the underlying motivations that drive highly prosocial students to be relationally aggressive. On the one hand, it is possible that those adolescents' behaviors were motivated by other-oriented, empathic concerns (Batson & Shaw, 1999). Research indicates that aggression can be motivated by positive human sentiments such

as defending friends or a community (e.g., empathy-altruism hypothesis; Batson & Shaw, 1991) (Decety & Cowell, 2014). Alternatively, the present pattern of findings may point to a particular behavioral profile associated with Machiavellian traits (e.g., combination of prosocial and coercive behavioral strategies for the purpose of attaining social power) (Berger, Batanova, & Cance, 2015). As such, they may reflect a more self-oriented, egotistical style, generally associated with more sophisticated uses of interpersonal aggression, and other personality variables such as shallow empathy, superficial charm and emotional detachment (McHoskey, 1998). Although these are speculations, these findings reinforce the view that adolescent aggression is a multidimensional construct best understood not in isolation but in combination with other behaviors, even if seemingly incompatible ones.

Assessing gender differences in the association of care on aggression was exploratory, revealing a somewhat inconsistent pattern. Although the direction of the effects remained the same, in Study 1, the effects were stronger for boys than for girls, while the opposite was found in Study 2. Research supports the assertion that boys and girls may have different motivations and social goals (e.g., dominance vs. intimacy; Crick & Grotpeter, 1995) for using relational aggression, which may help explain the observed inconsistencies. The context and the target of relational aggression (e.g., close friend vs. peer in the classroom) are also thought to affect the reason why youth engage in aggressive conduct (Hawley, 1999; Pellegrini, 2008). Furthermore, methodological differences (e.g., how items were measured between the two studies, differences between the temporal gap between assessments) could have played a role in the observed inconsistent gender patterns. Nevertheless, these findings help bolster the argument that care orientation is not as gender differentiated as once thought (Gilligan, 1982; Kohlberg, 1984). Instead, it appears that both boys and girls use care-based behaviors to some extent, which confirms meta-analytic findings (see Jaffe & Hyde, 2000).

The Effect of Justice on Aggression

Results concerning the effect of ethic of justice on aggression were mixed. Nonetheless, they offer an intriguing starting point and the potential for further explorations. In Study 1, high levels of justice were predictive of relational aggression over the course of the school semester, compared to students scoring low on justice. Indeed, the findings suggest that justice seems to promote the use of relational aggression, but only among students scoring on the high end of that dimension (there were no gender differences). This is in line with studies on social dominance

that show positive links between aggression and prosocial behaviors. (Hawley, 2003a, 2003b; Hawley et al., 2007; Hartl et al., 2019). The results of Study 2 did not replicate our original findings. In fact, a high level of justice had a buffering effect against relational aggression, which is consistent with the literature that emphasizes the protective effect of prosocial behaviors on aggression (Eisenberg et al., 2006; Carlo et al., 2011). These protective effects were stronger for girls than for boys, which are likely driven by different contextual and/or socio-cognitive factors (e.g., acceptability/cost of relational aggression in girls vs. boys, context in which behaviors are enacted, etc.).

It is possible that methodological differences (e.g., length of time between assessments) account for the aforementioned disparate findings. On the other hand, borrowing from the personality literature, researchers have identified a construct of *justice sensitivity* (e.g., the extent to which individuals respond to perceived injustice and unfairness; Huseman & al., 1987; Schmitt, 1996) that may help explain positive (and negative) associations with aggressive behaviors. Available findings from adult, as well as a few existing child and adolescent studies indicate that individuals vary in how they perceive and react to injustice (Bondü & Elsner, 2015). Persons who are high on justice sensitivity demonstrate a ruminative thinking style, as well as more intense moral emotions (e.g., anger, anxiety, guilt; Bondü & Esser, 2005; Bondü & Esser, 2015) to perceived injustice. Thus, they may be motivated to restore injustice with whatever behaviors they may deep appropriate, including aggression, although it depends on the perspective from which the injustice is perceived.

Although speculative, it is possible that students in the current sample (boys and girls) who scored high on measures of justice and relational aggression align in some way with dispositional justice-oriented concerns, making them at risk for aggressive behaviors (their own prosocial behaviors notwithstanding). For example, observer-sensitive individuals (e.g., those who frequently perceive unfair treatment of others) may be motivated to restore justice by engaging in aggression toward the perpetrator of injustice (e.g., punishment, defending justice norms; Gerlach, Allemand, Agroskin & Denissen, 2012). In other words, those who are high in justice-related moral concerns may display lower tolerance for 'unjust' behaviors and may be motivated to restore justice (via aggression), or recompense the victim, even if it means violating one's own justice norms (Lotz et al., 2011; Strauß, et al., 2020). Highly victim-justice sensitive individuals (e.g., those who are susceptible to feeling treated unjustly by others) tend to respond

with anger and need for retaliation in response to perceived unjust behavior and show consistent positive associations with physical and relational forms of aggression (Gollwitzer et al., 2005; Bondü & Elsner, 2015; Strauß, et al., 2020).

In contrast, sensitivity to perceive injustice from the perspective of a perpetrator (e.g., those who fear causing injustice to others) has been shown to be protective against aggression and antisocial behaviors in cross-sectional research (Bondü, 2018; Bondü & Krahé, 2015; Bondü & Richter, 2016). This perspective suggests that some individuals will have heightened perceptions of treating others unfairly (regardless of whether they did or not) and may respond with feelings of guilt and the need to compensate the victim of unfairness (Baumert et al., 2014; Bondü & Krahé, 2015). In other words, the more a person perceives that he/she had treated another person unfairly, the less aggression they will use. In one study with middle adolescents (M = 13.4; Bondü & Krahé, 2015) higher perpetrator sensitivity was associated with lower physical and relational aggression scores. In contrast, victim sensitivity predicted higher physical and relational aggression. Ultimately, it is difficult to fully understand how ethic of justice co-varies with the construct of justice sensitivity as empirical studies are lacking. However, intriguing neuroscience research shows positive neural associations between justice sensitivity and moral judgment, decision making, as well as mentalizing ability (Yoder & Decety, 2014), suggesting a potential link between the two constructs.

The Effect of Proactive and Reactive Helping on Aggression

In addition to exploring different forms of prosociality, it is equally important to assess motivations underlying prosocial behaviors, as not all of such behaviors are enacted out of altruistic motives. Studies measuring underlying motivations driving prosocial helping behaviors (e.g., helping to satisfy one's own needs vs. in response to the needs of others) point to positive associations with aggression (Boxer et al., 2004; Findley-Van Nostrand & Ojanen, 2018). As such, the current research also sought to examine the extent to which proactive and reactive helping were associated with physical and relational aggression over time. Our hypotheses were partially substantiated.

In our first inquiry, we expected that high level of proactive help at the beginning of the school semester would be associated with higher aggression scores two months later, compared to students initially low on prosocial help. This hypothesis was not supported. In fact, proactive help was unrelated to either type of aggression. This was surprising, as gestures of unsolicited

help (i.e., proactive), are considered to reflect the need for power (McClelland, 1975) and have been shown to be predictive of aggression, as well as aggression-supporting beliefs in early to late adolescence samples (Boxer et al., 2004; Culotta & Goldstein, 2008). It is possible that methodological differences (e.g., self-vs. peer-reports, items used to measure constructs of interest, etc.) and study design characteristics (e.g., cross-sectional vs. longitudinal) account for the inconsistent findings. More longitudinal investigations are needed to better understand the role of proactive help on aggression.

In contrast, reactive help was hypothesized to be protective against aggression. It was specifically stipulated that high levels of reactive help at the beginning of the school year would show lower aggression scores over time, compared to children scoring low on reactive help. The effects were expected to be stronger for relational aggression. This hypothesis was partially supported in that a moderation effect was evident but only for physical aggression. This pattern of findings is consistent with studies by Carlo and colleagues (2002; 2003; 2014), as well as Boxer and Tisak (2003) who observed a general inverse pattern between compliant (i.e., reactive) prosocial behavior and antisocial and aggressive acts. Carlo and colleagues (2003) noted that individuals who engage primarily in reactive forms of helping may demonstrate more reverence for authority, are more likely to conform to social norms and therefore, may be less likely to engage in aggressive conduct. Conceptually, reactive helping is thought to align with the notion of altruism and has been positively related to empathic concern, perspective taking, internalized moral reasoning, and increased social responsibility (Carlo & Randall, 2002). However, others suggest that reactive helping may not necessarily arise from selfless motives but rather from the demands of the context and the social situation (Eisenberg & Miller, 1987).

Students scoring on the low end of reactive helping appear to be at most risk for physical aggression, which is consistent with what is generally found in the literature on physical aggression and maladjustment (Tremblay, 1999; Kokko & Pulkkinen, 2000; Broidy et al. 2003). This behavioral profile (e.g., low on prosocial tendencies, high on aggression) is particularly problematic, given the cost associated with physical aggression (for the perpetrator and/or the victim). Typically, aggressive children (in the absence of prosocial behaviors) are at greatest risk for adjustment difficulties, including isolation, peer rejection and victimization (Newcomb et al. 1993; Crick, 1996; Card et al., 2008) and tend to report feelings of loneliness and low resource control (Hawley, 2007). Importantly, they are also at risk for developmental maladjustment

(e.g., conduct problems, adult antisocial acts, etc.; Tremblay et al., 2003). For example, in their 35-year prospective study, Rosciszewska and Bukowski (2011) found boys who were initially low on altruism and high on physical aggression were at greatest risk for committing adult property and violent crimes, compared to those who were rated as highly aggressive but also as likeable.

What this set of results implies is the importance of creating appropriate school intervention programmes to reduce physical aggression, especially among 'purely' aggressive children. However, more investigations are needed to fully understand the role of proactive prosocial behaviors on aggression, given conflicting findings. More studies would also benefit from assessing motivational factors behind helping behaviors in order to better understand their associations with aggression.

Practical Implications and Limitations

Taken together, the results of the current studies indicate that simultaneous assessment of prosocial and aggressive behaviors is necessary in order to more fully understand the risk and protective factors that are associated with the maintenance of aggression in early adolescence. Firstly, the results from the current studies emphasize the importance of creating assessment protocols that focus on different manifestations of aggression and prosociality in order to identify students most at risk for problematic behaviors. Secondly, the current findings underscore the importance of creating aggression-specific prevention and intervention school-based programmes. In particular, the current findings have important implications for reducing relationally aggressive behavior, given its ubiquitous presence in both boys and girls.

Supported by existing evidence of developmental maladjustment (Tremblay, 1999; Broidy et al., 2003; Hawley, 2007) intervention efforts should continue targeting disengaged/withdrawn students (e.g., low on prosocial and low on aggressive behaviors) and those who are "purely" physically aggressive, given their poor concurrent and developmental outcomes (Girard, Tremblay, Nagin, & Côté, 2018). In fact, the majority of intervention efforts in schools have focused on skills deficit/social marginalization frameworks that target youth considered to be low on social competence (Farmer & Xie, 2007). As a result, social skills training interventions have been considered the primary intervention for physically aggressive students (Thornton, Craft, Dahlberg, Lunch, & Baer, 2000). Cognitive-behavioral interventions in particular (i.e., those including emotion awareness, anger management, social problem

solving, etc.) have been shown to be effective in reducing aggression among children and youth with severe aggressive and disruptive behaviors (Lochman, Powell, Boxmeyer, & Jimenez-Camargo, 2011), although on the whole, such interventions are only moderately effective (Maag, 2006).

The current findings also point to the importance of taking into account relational aggression when designing intervention programmes. Prevention and intervention efforts that focus on interpersonal stress, emotion regulation and related socio-cognitive (e.g., empathy, normative beliefs regarding the acceptability of relational aggression, etc.) have been shown to curb relational aggression (Nixon & Werner, 2010; Gerdes, Segal, Jackson, & Mullins, 2011). However, social-emotional intervention efforts may not always be appropriate, especially among socially competent peers. For example, it is already known that students who engage in aggression to obtain power and status generally don't benefit fro empathy training and related programmes (Viding, McCrory, Blakemore, & Frederickson, 2011). Instead, such a tactics may inadvertedly reinforce the power and influence that aggression can generate.

The need for effective treatment is also highlighted by the fact that relational aggression can affect the broader school climate. For instance, research has shown that students feel less safe in schools with high levels of relational aggression (Goldstein, Young, & Boyd, 2008), which underscores the importance of preventing this unwanted behavior. For this reason, more and more attention is paid to designing additional programmes aimed at improving the school climate, with focus on social dynamics that take place within classroom, as well as the broader school structure (e.g., norms, peer dynamics and networks, affiliations, status, etc.) (Farmer, Xie, et al., 2007). Evidence suggests that exploring broader social-contextual factors holds promise in efforts to reduce relational aggression among school-age youth (see Leff et al., 2010 for review).

Although the current findings add important insights into how prosocial behaviors affect trajectories of aggression, they ought to be interpreted in the context of a few limitations. Firstly, because our sample focused on early adolescence, the results may not generalize to other age groups. Secondly, longitudinal trajectories were assessed at only two time points (e.g., with three- and two-month inter-assessment intervals in Study 1, and Study 2, respectively). Future longitudinal studies should aim to incorporate multiple waves of data collection for a more complete understanding of how prosocial behaviors promote aggression, or serve a protective function against it. It is also possible that the current results were subject to shared-method bias,

possibly skewing the results. Nevertheless, peer nomination procedures have been shown to be the most valid measurements of relational aggression during adolescence (Crick et al., 2007).

Perhaps the biggest challenge in the current study was the absence of more direct measures of intentionality or motivational factors that could help explain why prosocial students also engage in aggression. Whether the observed effects truly reflect other-oriented motivations, as is implied in the care measures, or self-serving ones (e.g., prosocial helping) cannot be guaranteed, as results from numerous studies point to the idea that seemingly 'altruistic' acts can sometimes be enacted from egotistical concerns. Additional measures ought to be considered when assessing intentionality, such as those assessing different facets of empathy, given its differential associations with aggression (Eisenberg et al., 2010). Alternatively, items that assess intentionality more directly (e.g., I offer assistance to get what I want, or when I'm asked to help, I don't hesitate) may be useful in delineating self-vs. other -oriented motivations.

Future directions

Despite the noted limitations, the results of the current project help shed light on important avenues for future research. Firstly, as with any research endeavour, replication studies are necessary to more fully understand the contribution of variables under study, especially given the inconsistencies relating to the effect of justice on aggression. Secondly, it is integral that researchers continue investigating prosocial and aggressive behaviors concurrently within the same samples to gain more adequate understanding of social development. In the words of Fabes and colleagues (1999), "To examine one set of behaviors without examining the other set presents a skewed and limited description of the complexity of adolescents" (p.13).

Because the choice and meaning of behaviors in interpersonal relations is context-dependent, future investigations may want to explore contextual factors (e.g., features of friendships, perspective from which behaviors are enacted, etc.) that drive aggression among highly prosocial children. Similarly, given the observed protective effect of reactive help on physical aggression, more studies examining individual and contextual factors in these associations are needed to maximize its protective function, especially in prevention and intervention programmes. More longitudinal designs are also needed to understand how the interplay of prosocial and aggressive behaviors affects trajectories of aggression over time.

As stated earlier, prosocial behavior can be enacted in response to others' plights, through empathic concern (Batson & Shaw, 1991), or may reflect the need for self-enhancement (Carlo et

al., 2003). Thus, tapping into underlying mechanisms that infer intentionality will help in identify students at most risk for problematic behavior. To that end, scholars emphasize the role that empathy plays in prosocial behaviors and in aggression (Batson, 1998; Hoffman, 2000). In fact, there is a substantial adolescent literature that points to significant associations between empathy and aggression (Hoffman, 2000; Carlo, 2006), reflecting both positive and negative associations (Lovett & Sheffield, 2007; Eisenberg et al., 2010). The inclusion of specific components of empathy (e.g., perspective taking, sympathy) can also help inform the levels of social competence among aggressive students. The extent to which empathy explains positive associations with aggression, especially among students high on care and justice, should therefore be taken into consideration.

Another line of inquiry concerns the role of affective states (e.g., guilt, shame, anger; see Eisenberg for review, 2001) that may, at times, drive aggressive conduct. The capacity to manage affective experiences (i.e., emotion regulation) has been theorized as a risk factor for aggression across development (Moore, Hubbard, & Bookhout, 2018) and prosocial behaviors in general tend to be enacted in emotionally evocative contexts (Carlo et al., 1991; Carlo et al., 2003). In addition, one must not understate the importance of emotional dependency in ethic of care (i.e., caring implies emotional investment). Therefore, future studies should include affective measures to better understand the interplay between prosocial and aggressive behaviors, especially how they are related to moral orientations, as well as to proactive and reactive helping. For example, feelings of guilt have been found to deter engagement in aggression and may, instead, instigate helping behaviors, which may indicate other-oriented motivations (Decety & Cowell, 2014). Similarly, feelings of anger and frustration among highly prosocial children may incite aggressive behavior. Although it is challenging to disentangle self- from other-motivations, the present findings nonetheless offer the potential for new avenues for exploration.

Future research would also benefit from taking into account personality factors that may help promote the use of aggression. There is evidence that bistrategic behavioral profiles are related to a concept described by resource control theorists (Hawley, 2003a; Hawley et al., 2007) as “well-adapted Machiavellian”. Such individuals use prosocial and aggressive strategies to access social resources (Hawley, 2007), reflecting a self-serving behavioral profile motivated by social power. Importantly, adolescents high in Machiavellian can have warm and reciprocal friendships (Hawley, 2007), despite positive associations with physical and relational aggression

(Hawley et al., 2007; Kerig & Stellwagen, 2010), and behavioral descriptions such as "skilled manipulators of other minds" (Sutton & Keogh, 2001, p. 446), "Dr. Jekyll and Mr. Hyde" (Veenstra, 2006) or "scoundrel on the schoolyard" (Kerig & Sink, 2010). In fact, Hawley (2003a) argues that Machiavellians are particularly apt at "getting along" while "getting ahead", which may makes them skilled at using prosociality instrumentally.

Because bistrategic behavioral style has been found to correlate positively with measures of Machiavellianism, narcissism, and psychopathy personality traits (e.g., The Dark Triad) in adult samples (Paulhus & Williams, 2002), exploring precursors to developmental maladjustment is crucial in thwarting potentially problematic behaviors. The importance of work in this area is guided by the findings that Machiavellianism has been observed in early to late adolescent samples (e.g., 5^{th}-10^{th} grades; Hawley, 2003c), which suggests a developmental link. Further longitudinal research is needed to clarify the role that care and justice may play in Machiavellian children.

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Appendix A

Information Letter

January 16th, 2006

Dear Parent(s),

I am a professor at Concordia University, where I teach and do research on children and adolescents. One of the topics I study is how children's friendships, skills, and behaviors help them cope with daily hassles and stress in their lives. This topic is of interest to many parents, teachers, and health professionals. The purpose of this letter is to tell you about a study my students and I are conducting with fifth- and sixth-graders at your child's school. This study will help us learn more about children and their development.

As part of the study, I will meet with the participating children in their school, and ask them to complete a set of questionnaires about themselves and their friends on two occasions, once in late January/early February, and again in late May. In these questions, the children will be asked to tell us (a) who they typically associate with in school, (b) whether or not the other participating children in the class have particular characteristics, (c) how much they engage in behaviors like helping or leading a group, (d) how well they perform in school and (e) how they feel about themselves. We will also ask the school to provide us with the children's report card grades for the current academic year. All the questionnaires will be completed at the child's desk in school and none of the other children will know how any other child has answered the questions. We ask the children to maintain the privacy of their answers and we make certain that their answers are kept confidential. A copy of this questionnaire is available at the school principal's office.

As a token of thanks, all participating children will receive a reward of $10.00 from the research team. In addition, we will be providing lectures to the students about mental health, and about ways to cope with the stressors they encounter in their daily lives.

We would also like you to complete a questionnaire for us. In it you will find some questions about your family's financial resources, your family environment, your child's behaviour and whether you take part in any "games" of chance such as buying lottery tickets. It should not take you more than 15 minutes to complete this questionnaire and we assure you that all your answers will remain completely confidential. We will send the questionnaire home with your son or daughter and you will return it to us via standard mail in a stamped and addressed envelope that we will provide. *As a token of our appreciation, all families who participate in this part of the project will receive $20.00.* Although we hope that as many families as possible will participate in this part of the project, children may still participate in the classroom part of the project even if their parents choose not to complete the family questionnaire. A copy of the questionnaire for families can be consulted at the school principal's office as well.

People who do research with children or adults are required to describe the risks and benefits related to participating in their studies. We assure you that this study poses no risks, other than the risks children encounter in their day-to-day lives. It is not a treatment study, and it is not intended to provide direct benefits to the students who participate, though most children enjoy participating in such studies.

The information collected in this study will be completely confidential, and participation is entirely voluntary. Even if you give your child permission to participate, he/she is not required to take part; furthermore, you may change your mind at any time even if you already gave your permission.

This study has been approved by both the School Board and the Concordia University Human Research Ethics Committee. If at any time you have questions or concerns regarding your rights or your child's rights as research participants, please feel free to contact Adela Reid, Office of Research (Secretary to the Concordia University Human Research Ethics Committee) at (514) 848-2424 Ext. 4887.

If you have any other questions about the study, please call me at 848-2424 Ext. 2184 or send me a letter at: Department of Psychology, Concordia University, 7141 Sherbrooke Ouest, Montreal, QC, H4B 1R6. You can also email me at bukowsk@vax2.concordia.ca.

Please fill out the attached form and have your child return it to his/her teacher tomorrow.

As an incentive for the children to return the permission slip, any child who returns a slip, regardless of whether his/her parent has given permission for participating, will get a "twoonie" ($2.00).

Thank you for your help. We very much appreciate it.

Sincerely,

William M. Bukowski
Professor

Appendix B

Parental Consent Form

HEART, SOUL, MIND and BODY PROJECT

(GRADES 5 & 6)

WINTER 2006

PERMISSION SLIP

Please read and sign the following:

I understand that I am being asked if my daughter/son can take part in a research study conducted by Dr. W. M. Bukowski. I know that the purpose of the study is to examine how children's friendships, skills, and behaviors help them cope with daily hassles and stress in their lives. I know that if my daughter/son participates she/he will be asked to answer some questionnaires at his/her desk in the classroom. I have been told that the questionnaires are about the social relations of young people and how they think and feel about themselves and their friends. I know that my daughter/son does not have to participate in the study, and that even if she/he starts to take part in it, she/he can quit at any time. I also know that all answers will remain confidential and will NOT be shown to anyone. Only Dr. Bukowski and his assistants will know what is in the questionnaires.

Please check one of the following and ask your daughter/son to bring this permission slip into the homeroom class tomorrow.

____ My son/daughter <u>has permission</u> to take part in Dr. Bukowski's study

____ My son/daughter <u>DOES NOT have permission</u> to take part in Dr. Bukowski's study.

Parent's Name: _____ PHONE: (_____)_____

Signature: _____ DATE: _____

Child's Name: _____ CHILD'S SEX: Male Female

Appendix C

Child Consent Form

Draft

Concordia UNIVERSITY

VGTC Study / Concordia 2006

Name: _____

☐ Boy
☐ Girl

Age: ☐☐ Grade: ☐

How many years have you been at this school? ☐

(**For example:** Write "1" if this is your first year here.)

What is your postal code? ☐☐☐ ☐☐☐

Please read and sign the following if you wish to participate in the study:

"I understand that I have been asked to be in a research study that Dr. W. M. Bukowski is doing about how young people feel about themselves and how they get along with others.

I know that I will be asked to answer some questionnaires in class. I know that I do not have to participate in the study, and that even if I start to take part in it, I can stop participating at any time. I also know that all answers will be kept confidential and will NOT be shown to anyone. Only Dr. Bukowski and his assistants will know my answers."

(SIGN) _____ Date: ☐☐ - 0 4 - 0 6
(day - month - year)

Please fill in the boxes completely: ■

and not like this ☒ ☑ ☐2

If you make a mistake, cross out the incorrect box and fill in the correct one:

■1 ☐2 ☐3 ☒4 ☐5

Appendix D

Peer Rated Form

Draft

What are they like?

Class ID

Instructions: Below there are several different characteristics. Each one describes a different way that a person could be or could act. After each characteristic there are the names of the students in your class. Fill in the box beside the name of any person who fits the characteristic.

01. Someone who is smart and does well in school	02. Someone who plays fairly	03. Someone who talks bad about others behind their backs to hurt them	04. Someone who hits, pushes or shoves people
☐ Kayser Soze	☐ Kayser Soze	☐ Kayser Soze	☐ Kayser Soze
☐ Michaela Joy Santo	☐ Michaela Joy Santo	☐ Michaela Joy Santo	☐ Michaela Joy Santo
☐ Jane Austen	☐ Jane Austen	☐ Jane Austen	☐ Jane Austen
☐ Al Franken	☐ Al Franken	☐ Al Franken	☐ Al Franken
☐ Brenda Milner	☐ Brenda Milner	☐ Brenda Milner	☐ Brenda Milner
☐ Cara Michelle Santo	☐ Cara Michelle Santo	☐ Cara Michelle Santo	☐ Cara Michelle Santo
☐ Juliet Capulet	☐ Juliet Capulet	☐ Juliet Capulet	☐ Juliet Capulet
☐ Anna Freud	☐ Anna Freud	☐ Anna Freud	☐ Anna Freud
☐ Lev Vygotsky	☐ Lev Vygotsky	☐ Lev Vygotsky	☐ Lev Vygotsky
☐ Jonathan Bruce Santo	☐ Jonathan Bruce Santo	☐ Jonathan Bruce Santo	☐ Jonathan Bruce Santo
☐ Felicia Meyer	☐ Felicia Meyer	☐ Felicia Meyer	☐ Felicia Meyer
☐ Jimmy Hoffa	☐ Jimmy Hoffa	☐ Jimmy Hoffa	☐ Jimmy Hoffa
☐ Clark Kent	☐ Clark Kent	☐ Clark Kent	☐ Clark Kent
☐ Jodie Foster	☐ Jodie Foster	☐ Jodie Foster	☐ Jodie Foster
☐ Harry Stack Sullivan	☐ Harry Stack Sullivan	☐ Harry Stack Sullivan	☐ Harry Stack Sullivan
☐ Holly Recchia	☐ Holly Recchia	☐ Holly Recchia	☐ Holly Recchia
☐ Clive Staples Lewis	☐ Clive Staples Lewis	☐ Clive Staples Lewis	☐ Clive Staples Lewis
☐ Anne Rice	☐ Anne Rice	☐ Anne Rice	☐ Anne Rice
☐ Luke Skywalker	☐ Luke Skywalker	☐ Luke Skywalker	☐ Luke Skywalker
☐ Emma Bovary	☐ Emma Bovary	☐ Emma Bovary	☐ Emma Bovary
☐ Harry Leroy	☐ Harry Leroy	☐ Harry Leroy	☐ Harry Leroy
☐ William Bukowski	☐ William Bukowski	☐ William Bukowski	☐ William Bukowski
☐ Gordon Rosenoff	☐ Gordon Rosenoff	☐ Gordon Rosenoff	☐ Gordon Rosenoff
☐ Darth Vader	☐ Darth Vader	☐ Darth Vader	☐ Darth Vader
☐ Virginia Wolf	☐ Virginia Wolf	☐ Virginia Wolf	☐ Virginia Wolf
☐ Marcus Aurelius	☐ Marcus Aurelius	☐ Marcus Aurelius	☐ Marcus Aurelius
☐ Margaret Atwood	☐ Margaret Atwood	☐ Margaret Atwood	☐ Margaret Atwood
☐ Anna Karenina	☐ Anna Karenina	☐ Anna Karenina	☐ Anna Karenina
☐ Nina Howe	☐ Nina Howe	☐ Nina Howe	☐ Nina Howe
☐ Jean Piaget	☐ Jean Piaget	☐ Jean Piaget	☐ Jean Piaget

Draft

What are they like?

Class ID

Fill in the box beside the name of any person who fits the characteristic.

13. Someone who is by themselves because they prefer to be	14. Someone who has trouble making friends	15. Someone who is stuck up and thinks he/she is better than others	16. Someone who is sad
Kayser Soze ☐	Kayser Soze ☐	Kayser Soze ☐	Kayser Soze ☐
Michaela Joy Santo ☐	Michaela Joy Santo ☐	Michaela Joy Santo ☐	Michaela Joy Santo ☐
Jane Austen ☐	Jane Austen ☐	Jane Austen ☐	Jane Austen ☐
Al Franken ☐	Al Franken ☐	Al Franken ☐	Al Franken ☐
Brenda Milner ☐	Brenda Milner ☐	Brenda Milner ☐	Brenda Milner ☐
Cara Michelle Santo ☐	Cara Michelle Santo ☐	Cara Michelle Santo ☐	Cara Michelle Santo ☐
Juliet Capulet ☐	Juliet Capulet ☐	Juliet Capulet ☐	Juliet Capulet ☐
Anna Freud ☐	Anna Freud ☐	Anna Freud ☐	Anna Freud ☐
Lev Vygotsky ☐	Lev Vygotsky ☐	Lev Vygotsky ☐	Lev Vygotsky ☐
Jonathan Bruce Santo ☐	Jonathan Bruce Santo ☐	Jonathan Bruce Santo ☐	Jonathan Bruce Santo ☐
Felicia Meyer ☐	Felicia Meyer ☐	Felicia Meyer ☐	Felicia Meyer ☐
Jimmy Hoffa ☐	Jimmy Hoffa ☐	Jimmy Hoffa ☐	Jimmy Hoffa ☐
Clark Kent ☐	Clark Kent ☐	Clark Kent ☐	Clark Kent ☐
Jodie Foster ☐	Jodie Foster ☐	Jodie Foster ☐	Jodie Foster ☐
Harry Stack Sullivan ☐	Harry Stack Sullivan ☐	Harry Stack Sullivan ☐	Harry Stack Sullivan ☐
Holly Recchia ☐	Holly Recchia ☐	Holly Recchia ☐	Holly Recchia ☐
Clive Staples Lewis ☐	Clive Staples Lewis ☐	Clive Staples Lewis ☐	Clive Staples Lewis ☐
Anne Rice ☐	Anne Rice ☐	Anne Rice ☐	Anne Rice ☐
Luke Skywalker ☐	Luke Skywalker ☐	Luke Skywalker ☐	Luke Skywalker ☐
Emma Bovary ☐	Emma Bovary ☐	Emma Bovary ☐	Emma Bovary ☐
Harry Leroy ☐	Harry Leroy ☐	Harry Leroy ☐	Harry Leroy ☐
William Bukowski ☐	William Bukowski ☐	William Bukowski ☐	William Bukowski ☐
Gordon Rosenoff ☐	Gordon Rosenoff ☐	Gordon Rosenoff ☐	Gordon Rosenoff ☐
Darth Vader ☐	Darth Vader ☐	Darth Vader ☐	Darth Vader ☐
Virginia Wolf ☐	Virginia Wolf ☐	Virginia Wolf ☐	Virginia Wolf ☐
Marcus Aurelius ☐	Marcus Aurelius ☐	Marcus Aurelius ☐	Marcus Aurelius ☐
Margaret Atwood ☐	Margaret Atwood ☐	Margaret Atwood ☐	Margaret Atwood ☐
Anna Karenina ☐	Anna Karenina ☐	Anna Karenina ☐	Anna Karenina ☐
Nina Howe ☐	Nina Howe ☐	Nina Howe ☐	Nina Howe ☐
Jean Piaget ☐	Jean Piaget ☐	Jean Piaget ☐	Jean Piaget ☐

Draft

What are they like?

Class ID

Fill in the box beside the name of any person who fits the characteristic.

17. Someone who prefers being by themselves	18. Someone who helps other people with their problems	19. Someone who is popular	20. Someone who thinks they're better than they really are
Kayser Soze ☐	Kayser Soze ☐	Kayser Soze ☐	Kayser Soze ☐
Michaela Joy Santo ☐	Michaela Joy Santo ☐	Michaela Joy Santo ☐	Michaela Joy Santo ☐
Jane Austen ☐	Jane Austen ☐	Jane Austen ☐	Jane Austen ☐
Al Franken ☐	Al Franken ☐	Al Franken ☐	Al Franken ☐
Brenda Milner ☐	Brenda Milner ☐	Brenda Milner ☐	Brenda Milner ☐
Cara Michelle Santo ☐	Cara Michelle Santo ☐	Cara Michelle Santo ☐	Cara Michelle Santo ☐
Juliet Capulet ☐	Juliet Capulet ☐	Juliet Capulet ☐	Juliet Capulet ☐
Anna Freud ☐	Anna Freud ☐	Anna Freud ☐	Anna Freud ☐
Lev Vygotsky ☐	Lev Vygotsky ☐	Lev Vygotsky ☐	Lev Vygotsky ☐
Jonathan Bruce Santo ☐	Jonathan Bruce Santo ☐	Jonathan Bruce Santo ☐	Jonathan Bruce Santo ☐
Felicia Meyer ☐	Felicia Meyer ☐	Felicia Meyer ☐	Felicia Meyer ☐
Jimmy Hoffa ☐	Jimmy Hoffa ☐	Jimmy Hoffa ☐	Jimmy Hoffa ☐
Clark Kent ☐	Clark Kent ☐	Clark Kent ☐	Clark Kent ☐
Jodie Foster ☐	Jodie Foster ☐	Jodie Foster ☐	Jodie Foster ☐
Harry Stack Sullivan ☐	Harry Stack Sullivan ☐	Harry Stack Sullivan ☐	Harry Stack Sullivan ☐
Holly Recchia ☐	Holly Recchia ☐	Holly Recchia ☐	Holly Recchia ☐
Clive Staples Lewis ☐	Clive Staples Lewis ☐	Clive Staples Lewis ☐	Clive Staples Lewis ☐
Anne Rice ☐	Anne Rice ☐	Anne Rice ☐	Anne Rice ☐
Luke Skywalker ☐	Luke Skywalker ☐	Luke Skywalker ☐	Luke Skywalker ☐
Emma Bovary ☐	Emma Bovary ☐	Emma Bovary ☐	Emma Bovary ☐
Harry Leroy ☐	Harry Leroy ☐	Harry Leroy ☐	Harry Leroy ☐
William Bukowski ☐	William Bukowski ☐	William Bukowski ☐	William Bukowski ☐
Gordon Rosenoff ☐	Gordon Rosenoff ☐	Gordon Rosenoff ☐	Gordon Rosenoff ☐
Darth Vader ☐	Darth Vader ☐	Darth Vader ☐	Darth Vader ☐
Virginia Wolf ☐	Virginia Wolf ☐	Virginia Wolf ☐	Virginia Wolf ☐
Marcus Aurelius ☐	Marcus Aurelius ☐	Marcus Aurelius ☐	Marcus Aurelius ☐
Margaret Atwood ☐	Margaret Atwood ☐	Margaret Atwood ☐	Margaret Atwood ☐
Anna Karenina ☐	Anna Karenina ☐	Anna Karenina ☐	Anna Karenina ☐
Nina Howe ☐	Nina Howe ☐	Nina Howe ☐	Nina Howe ☐
Jean Piaget ☐	Jean Piaget ☐	Jean Piaget ☐	Jean Piaget ☐

Draft

What are they like?

Class ID

Fill in the box beside the name of any person who fits the characteristic.

21. Someone who is nervous or tense	22. Others do mean things to him/her	23. Someone who gets stressed a lot	24. Someone who is left out by the other kids at school
Kayser Soze ☐	Kayser Soze ☐	Kayser Soze ☐	Kayser Soze ☐
Michaela Joy Santo ☐	Michaela Joy Santo ☐	Michaela Joy Santo ☐	Michaela Joy Santo ☐
Jane Austen ☐	Jane Austen ☐	Jane Austen ☐	Jane Austen ☐
Al Franken ☐	Al Franken ☐	Al Franken ☐	Al Franken ☐
Brenda Milner ☐	Brenda Milner ☐	Brenda Milner ☐	Brenda Milner ☐
Cara Michelle Santo ☐	Cara Michelle Santo ☐	Cara Michelle Santo ☐	Cara Michelle Santo ☐
Juliet Capulet ☐	Juliet Capulet ☐	Juliet Capulet ☐	Juliet Capulet ☐
Anna Freud ☐	Anna Freud ☐	Anna Freud ☐	Anna Freud ☐
Lev Vygotsky ☐	Lev Vygotsky ☐	Lev Vygotsky ☐	Lev Vygotsky ☐
Jonathan Bruce Santo ☐	Jonathan Bruce Santo ☐	Jonathan Bruce Santo ☐	Jonathan Bruce Santo ☐
Felicia Meyer ☐	Felicia Meyer ☐	Felicia Meyer ☐	Felicia Meyer ☐
Jimmy Hoffa ☐	Jimmy Hoffa ☐	Jimmy Hoffa ☐	Jimmy Hoffa ☐
Clark Kent ☐	Clark Kent ☐	Clark Kent ☐	Clark Kent ☐
Jodie Foster ☐	Jodie Foster ☐	Jodie Foster ☐	Jodie Foster ☐
Harry Stack Sullivan ☐	Harry Stack Sullivan ☐	Harry Stack Sullivan ☐	Harry Stack Sullivan ☐
Holly Recchia ☐	Holly Recchia ☐	Holly Recchia ☐	Holly Recchia ☐
Clive Staples Lewis ☐	Clive Staples Lewis ☐	Clive Staples Lewis ☐	Clive Staples Lewis ☐
Anne Rice ☐	Anne Rice ☐	Anne Rice ☐	Anne Rice ☐
Luke Skywalker ☐	Luke Skywalker ☐	Luke Skywalker ☐	Luke Skywalker ☐
Emma Bovary ☐	Emma Bovary ☐	Emma Bovary ☐	Emma Bovary ☐
Harry Leroy ☐	Harry Leroy ☐	Harry Leroy ☐	Harry Leroy ☐
William Bukowski ☐	William Bukowski ☐	William Bukowski ☐	William Bukowski ☐
Gordon Rosenoff ☐	Gordon Rosenoff ☐	Gordon Rosenoff ☐	Gordon Rosenoff ☐
Darth Vader ☐	Darth Vader ☐	Darth Vader ☐	Darth Vader ☐
Virginia Wolf ☐	Virginia Wolf ☐	Virginia Wolf ☐	Virginia Wolf ☐
Marcus Aurelius ☐	Marcus Aurelius ☐	Marcus Aurelius ☐	Marcus Aurelius ☐
Margaret Atwood ☐	Margaret Atwood ☐	Margaret Atwood ☐	Margaret Atwood ☐
Anna Karenina ☐	Anna Karenina ☐	Anna Karenina ☐	Anna Karenina ☐
Nina Howe ☐	Nina Howe ☐	Nina Howe ☐	Nina Howe ☐
Jean Piaget ☐	Jean Piaget ☐	Jean Piaget ☐	Jean Piaget ☐

Draft

What are they like?

Class ID

Fill in the box beside the name of any person who fits the characteristic.

25. Someone who helps others when they need it	26. Someone who tries to keep others out of the group when it's time to play	27. Someone who always knows the right answer
Kayser Soze ☐	Kayser Soze ☐	Kayser Soze ☐
Michaela Joy Santo ☐	Michaela Joy Santo ☐	Michaela Joy Santo ☐
Jane Austen ☐	Jane Austen ☐	Jane Austen ☐
Al Franken ☐	Al Franken ☐	Al Franken ☐
Brenda Milner ☐	Brenda Milner ☐	Brenda Milner ☐
Cara Michelle Santo ☐	Cara Michelle Santo ☐	Cara Michelle Santo ☐
Juliet Capulet ☐	Juliet Capulet ☐	Juliet Capulet ☐
Anna Freud ☐	Anna Freud ☐	Anna Freud ☐
Lev Vygotsky ☐	Lev Vygotsky ☐	Lev Vygotsky ☐
Jonathan Bruce Santo ☐	Jonathan Bruce Santo ☐	Jonathan Bruce Santo ☐
Felicia Meyer ☐	Felicia Meyer ☐	Felicia Meyer ☐
Jimmy Hoffa ☐	Jimmy Hoffa ☐	Jimmy Hoffa ☐
Clark Kent ☐	Clark Kent ☐	Clark Kent ☐
Jodie Foster ☐	Jodie Foster ☐	Jodie Foster ☐
Harry Stack Sullivan ☐	Harry Stack Sullivan ☐	Harry Stack Sullivan ☐
Holly Recchia ☐	Holly Recchia ☐	Holly Recchia ☐
Clive Staples Lewis ☐	Clive Staples Lewis ☐	Clive Staples Lewis ☐
Anne Rice ☐	Anne Rice ☐	Anne Rice ☐
Luke Skywalker ☐	Luke Skywalker ☐	Luke Skywalker ☐
Emma Bovary ☐	Emma Bovary ☐	Emma Bovary ☐
Harry Leroy ☐	Harry Leroy ☐	Harry Leroy ☐
William Bukowski ☐	William Bukowski ☐	William Bukowski ☐
Gordon Rosenoff ☐	Gordon Rosenoff ☐	Gordon Rosenoff ☐
Darth Vader ☐	Darth Vader ☐	Darth Vader ☐
Virginia Wolf ☐	Virginia Wolf ☐	Virginia Wolf ☐
Marcus Aurelius ☐	Marcus Aurelius ☐	Marcus Aurelius ☐
Margaret Atwood ☐	Margaret Atwood ☐	Margaret Atwood ☐
Anna Karenina ☐	Anna Karenina ☐	Anna Karenina ☐
Nina Howe ☐	Nina Howe ☐	Nina Howe ☐
Jean Piaget ☐	Jean Piaget ☐	Jean Piaget ☐

Appendix E

Information Letter

September 15, 2013

Dear Parent(s),

I am a professor at Concordia University, where I teach and do research on children and adolescents. One of the topics I study is how children's experiences with their parents, friends, and teachers affect their well-being. This topic is of interest to many parents, teachers, and health professionals. The purpose of this letter is to tell you about a study my students and I are conducting with fifth- and sixth-graders at St. Mary's School. This study will help us learn more about children, their health, and their development.

As part of the study, I will meet with the participating children in their classrooms six times over the school year, from October to December. These meetings will last about 20 minutes. We will meet the children in their school and I will ask them to fill out some questionnaires.

In these questionnaires, we will be asking children to identify:

- Who they typically associate with in school;
- The characteristics of other children in their class;
- Behaviours perfomed by other children in the class (e.g. helping, participating in certain types of activities, etc.);
- How they perceive themselves;
- How they perform in school and in their social relations.

All the questionnaires will be completed at the child's desk in school and none of the other children will know how any other child has answered the questions. The teachers will also complete a questionnaire about each child's competencies and their functioning in school.

We will also ask the participating children's parent(s) to complete a questionnaire for us. It will ask questions about family functioning, parental education and employment, and family income. *As an expression of our gratitude we will give two tickets to a local movie theater to parents who return the parent questionnaire to us.* Parents who choose not to fill out the parent questionnaires can still allow their children to take part in the study.

As a token of thanks, all participating children will receive a gift of school supplies and a t-shirt from the research team at the conclusion of the final data collection. In addition, we will be providing lectures to the students about mental health, and about ways to cope with the stressors they encounter in their daily lives.

We ask the children to maintain the privacy of their answers and we make certain that their answers are kept confidential.

People who do research with children or adults are required to describe the risks and benefits related to participating in their studies. We assure you that this study poses no risks, other than what children encounter in their day-to-day lives. It is not a treatment study, and it is not intended to provide direct benefits to the students who participate, though most children enjoy participating in such studies.

The information collected in this study will be completely confidential, and participation is entirely voluntary. Your child is not required to participate in this study. Furthermore, you may change your mind at any time even if you already gave your permission. Again, even if your child takes part in the study you are free to decide whether or not you wish to complete the parent questionnaire.

This study has been approved by both the School Board and the Concordia University Human Research Ethics Committee. If at any time you have questions or concerns regarding your rights or your child's rights as research participants, please feel free to contact the Research Ethics and Compliance Advisor of Concordia University, at ethics@alcor.concordia.ca.

If you have any other questions about the study, please call me at 514-848-2424 Ext. 2184 or send me a letter at: Department of Psychology, Concordia University, 7141 Sherbrooke Ouest, Montreal, QC, H4B 1R6. You can also email me at william.bukowski@concordia.ca.

Please fill out the attached form and have your child return it to his/her teacher tomorrow.

As an incentive for the children to return the permission slip, any child who returns a slip, regardless of whether his/her parent has given permission for participating, will get a Concordia University pen from the research team.

Thank you for your help. We very much appreciate it.

Sincerely,

William M. Bukowski
Professor

Appendix F

Parental Consent form

ONE WORLD WHOLE CHILD PROJECT

St. Mary's School
GRADES 5 and 6

PERMISSION SLIP

Please read and sign the following:

I know that my daughter/son has been asked to be in a study conducted by Dr. W. M. Bukowski.

I know that the study is about children's experiences with their parents, friends, and teachers and their adjustment. I know that if my daughter/son participates she/he will be asked to answer some questionnaires at his/her desk in the classroom. I have been told that the questionnaires are about how young people think and feel about themselves and their friends. I know that the children will complete the questionnaires six times across the school year. I know also that all participating children will receive a gift of school supplies and a t-shirt from the research team at the conclusion of the final data collection.

I know that my daughter/son does not have to be in the study. I know also that even if she/he starts to be in it but changes her/his mind she/he can quit at any time. I also know that all answers are confidential and will NOT be shown to anyone. Only Dr. Bukowski and his assistants will know what is in the questionnaires.

Please check one of the following and ask your daughter/son to bring this permission slip into the homeroom class tomorrow.

____ My son/daughter has permission to take part in Dr. Bukowski's study

____ My son/daughter DOES NOT have permission to take part in Dr. Bukowski's study.

Parent's Name: _____

Signature: _____ DATE: _____

Child's Name: _____ CHILD'S SEX: □ Male □ Female

Appendix G

Child Consent Form

ONE WORLD WHOLE CHILD STUDY

PRIMARY FIVE & SIX

CHILD PERMISSION SLIP

I understand that I have been asked to take part in a study about children's behaviours and well-being. I have been told by Dr William M. Bukowski that the purpose of the study is to collect information about how children's skills and behaviours are related to their healthy well-being and adjustment.

I have been told that I will be asked to complete some questionnaires that are about how young people think and feel about themselves and their friends and family. I know that I will complete the questionnaires five times across the school year. Two of these times will last about an hour. The other three times will take 30 minutes. I know also that all participating children will receive a gift of school supplies and a t-shirt from the research team at the conclusion of the final data collection.

Dr Bukowski has informed me that (a) my participation is voluntary; (b) I do not have to answer the questionnaires if I do not want to, and (c) I can end my participation at any time. I have also been told that my answers will be confidential.

I am willing to take part in this project.

MY NAME:_____

MY SIGNATURE_____

TODAY'S DATE_____