SOCIAL BEHAVIOUR IN ADOLESCENCE

Social Behaviour in Adolescence:

Exploring the Relations between Aggression, Physical Activity and Gender

Julia Peters, B.A. Honours

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Abstract

The purpose of this study was to further explore the traditionally masculine pursuit of physical activity and sports participation in both male and female populations. Specifically, the present study analyzed the affects of sport and physical activity participation on the expression of different forms of aggression while exploring the possible moderating and/or mediating influence of traditional gender orientation. Results from this study have highlighted a number of remarkable findings. Consistent with previous research, males were found to be significantly more overtly aggressive than females. Inconsistent with previous research no significant differences were found between males and females on relational aggression. Though femininity/masculinity was related to overt aggression, no relation was found between gender orientation and relational aggression. Furthermore, gender orientation was not significantly associated with biological sex. Results from this study revealed that level of femininity did not mediate or moderate the relation between total number of physical activities and overt and relational aggression. Although this study had certain limitations, it is the first step towards a better understanding of the relation between physical activity participation, gender orientation and aggression. Implications of findings are discussed and directions for future research are suggested.

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Social Behaviour in Adolescence:

Exploring the Relation between Aggression, Physical Activity and Gender

Past research on childhood aggression has focused almost exclusively on children's physical or overt acts of aggressive behaviour, such as hitting, pushing or verbal threats of aggression. Findings from this work suggest that overt aggression is significantly more frequent in male populations (Crick, 1996). In the past ten years however, a relational form of aggression has been identified that harms others through manipulation or control of their relationships with others. Relational aggression is a covert form of aggression consisting of such behaviours as purposefully excluding a peer from social activities, threatening to withdraw ones friendship, and spreading rumours or gossip (Crick, 1995, 1997; Galen & Underwood, 1997). Recent findings indicate that girls engage in significantly more relational aggression than overt aggression and it appears that relational aggression uniquely contributes to concurrent and future psychosocial maladjustment for both sexes (Galen & Underwood, 1997; Crick, 1996; Crick & Grotpeter, 1995). Researchers suggest that girls rely on relationally aggressive strategies because the covert nature of the acts is more acceptable to a society that expects females to adhere to certain feminine standards such as physical passivity (Underwood, 2003).

One goal of the current study was to examine the relation between gender and aggression. The use of the terms "gender" and "sex" varies throughout the psychological literature. Often the terms "gender" and "sex" are used interchangeably to refer to the same construct (e.g., Leaper, 1991; Maccoby, 1990). For the purposes

of this paper, the term gender will refer to the social difference between men and women (masculinity and femininity), and the term sex will refer to the biological difference between men and women (males and females). That is, masculinity and femininity may vary within an individual regardless of a person's biological sex.

There are few places within Western society where girls can acceptably break away from the feminine standards set for them. Participation in sports and physical activity allows otherwise “good girls” the opportunity to embody power, access and agency, the “antithesis of the frail beauty of yesteryear” (Lamb, 2001, p. 126). The sporting arena provides a rare setting where our culture permits, encourages and even rewards the use of aggression for girls as well as boys. This gives rise to a unique population for investigation of relational aggression: female athletes. Unfortunately research on both aggression and sport has been limited by its almost exclusive examination of male populations as well as physical aggression, the form of aggressive behaviour most salient to this group. Only one study has examined the relationship between sports participation and relational aggression (Storch, Werner, & Storch, 2002) and to date no reported studies have compared athletes and non-athletes on levels of relational aggression.

This study intended to further explore the more traditionally masculine pursuit of physical activity and sports participation in both male and female populations. Specifically, the present study analyzed the affects of sports participation on the expression of different forms of aggression while exploring the possible moderating and/or mediating influence of traditional gender orientation. It was expected that gender and sports participation would collaborate to effect outcomes of aggression.

The next section will review the fundamental research relevant to the evolving concept of aggression. Within this discussion overt, social, and relational forms of aggression will be distinguished and the limited information available regarding the influence of sex and gender will be presented. Subsequently a review of sport and physical activity as it pertains to gender and aggression, as well as physical and mental well being of children will be examined.

Aggression

Theoretical Foundation of Aggression

The concept of aggression is not a new one. For centuries, philosophers, academics and laypeople alike have been intrigued and fascinated as to the origins of arguably the most powerful driving force of our social world. As with most aspects of human behaviour, the matter of nature versus nurture has been a continuing debate for aggression. Despite years of inquiry concerning the causes of aggression, a unanimously accepted explanation has yet to be established. Perhaps interplay of both nature and nurture theories would be most helpful to the overall understanding of aggression. Although there are numerous theories about the development and maintenance of aggression, for the purposes of this study, two theories relevant to aggression and sport are discussed: The Catharsis Theory and Social Learning Theory.

Catharsis Theory

Freudian theory suggests that the tendency to aggress is an innate, independent, instinctual disposition in humans and constitutes a powerful obstacle to culture (Freud,

1920). Though often discredited for lack of sound scientific evidence, Freud (1920) postulated that all humans possess an aggressive drive from birth, which, together with the sexual drive, contribute to personality development, and are expressed in one's behavior. Moreover, psychoanalytic thinkers refer to catharsis, a process where those aggressive impulses that are not channeled toward a specific person or group may be expressed indirectly through safe, socially acceptable activities. Founded on his observations of aggressive behaviour in animals, Lorenz (1967) supported Freud's theory of aggression as a basic instinct which builds up and must be channeled into less damaging forms through the process of catharsis. Lorenz (1967) suggested that aggression was innate, an inherited fighting instinct, as significant in humans as in other animals. He contended that the suppression of aggressive instincts, common among human societies, allows these instincts the chance to build up, occasionally to the point where they are released during instances of explosive violence.

Catharsis Theory and sports participation. Modern day research in the area of criminal rehabilitation is still reflective of cathartic approaches to aggression placing faith in physical activities as agents of social development. A number of rehabilitation programs have incorporated the role of sport as a vehicle for moral education and mental health (Sage, 1986; Bredemeier & Shields, 1987). Furthermore a cornerstone of the current British policy for sport has been derived from a belief in its therapeutic properties as an outlet for adolescent delinquency (Coalter, 1989). As well, the role of sport has been documented as being instrumental for its socially integrative function and its ability to provide palliative and, if possible, cures, for a wide range of social problems (Hargreaves, 1985; Department of Health, 1975; Coalter, 1989). In regards

to both the prevention and rehabilitation of delinquency, it is suggested that sports participants are more likely to express their internal and external energies in a conforming direction, increasing self-control and discipline (Coalter, 1989). Goldstone and Reeves (1995) suggest that sports participation provides a cathartic avenue by which to channel adolescent rebellion, frustrations, and angst, while providing an acceptable institutionalized means of displaying adolescent masculinity. Although the concept of catharsis has been revived in criminology literature, it concentrates almost exclusively on adolescent male offenders (Coalter, 1989; Goldstone & reeves, 1995). The present study aimed to extend this research to adolescent male and female non-offenders who are likewise in need of an acceptable way to express aggression.

Lorenz (1967) recommended organized sports as a safe means for people to release inner aggressive tendencies. Moreover, evolutionary psychologist Lionel Tiger (1969) actually goes as far as to contend that sport can decrease the likelihood of war. Archer (1988) understood aggressive behaviour from an evolutionary perspective, regarding aggressive acts as a set of evolved responses to certain recurring evolutionary problems, fending off danger, protecting offspring and actively competing for resources.

By doing so, Archer (1988) contends that human aggression can be understood at least partially in terms of evolved adaptations. This does not imply that such responses are a fixed part of human nature; instead, their occurrence is contingent on environmental circumstances associated with particular adaptive problems. From an instinct theory perspective, aggression is viewed as a natural reaction to life; therefore

research should extend its focus from eliminating aggression to finding appropriate channels for the release of these aggressive urges. Thus the present study explored sports participation as an acceptable outlet for the release of aggressive urges in adolescent girls and boys. Theories of Catharsis are rooted in an instinctual/biological approach, highlighting the significance of nature on human behaviour. However, the importance of nurture and environment with respect to the expression of aggressive behaviour is acknowledged in Social Learning theories of development.

Social Learning Theory

Social Learning Theory suggests that the environment plays an important role in the acquisition, expression and maintenance of aggressive behaviour, through the mechanisms of modeling and imitation (Rotter, 1982). Research by Bandura (1977) has indicated that aggression is a learned behavior. Bandura's examinations of children have illustrated that aggression can be learned when children observe others obtaining desirable rewards through the use of aggression. Further, children were more likely to be aggressive if past aggressive behaviour resulted in desirable rewards. From a social learning perspective, aggression is viewed as a set of learned behaviours; therefore research should focus on prevention as well as treatment and extinction of aggressive behaviours.

Social Learning Theory and sports participation. Historically and internationally, the role of sport has often been viewed as a vehicle for moral education (Armstrong & Welsman, 1997). It has been suggested that sport and physical activity provide an environment where children and adolescents may safely acquire, through modeling, imitation and trial and error, coping strategies that will aid

them in successful social development (Bredemeier & Shields, 1993). Many sports and physical activities provide a structure reflective of larger society. They advocate adherence to rules and regulations, define goals, test situations and authority figures, illustrate achievement through competition, and instill moral and ethical values (Sugden & Yiannakis, 1982). From a learning perspective, sport could be viewed as an appropriate mechanism by which young girls and boys could learn how to deal with their aggressive urges effectively and consequently apply this lesson to other life domains.

Both the Cathartic and Social Learning Theories offer insight into the social expression of aggression. When considering this debate, the complexity of aggression is apparent, as is the notion that no single perspective appears sufficient. Aggressive behaviour appears to be influenced by biology, the environment, evolution and perhaps many other factors as well. Therefore, from a holistic stance, the mental processes and aggressive behaviours of humans can be seen as the product of both nature and nurture. There are several theories of aggression that suggest that a theoretical link between sport and aggression may exist.

Advocates of a Cathartic perspective view sport as an acceptable mechanism by which individuals are able to release their inner aggressive energies in a suitable manor. Alternatively, or possibly concurrently the Social Learning approach suggests that sport and physical activity provide an environment that stimulates the development of appropriate coping strategies for aggression. Both the Cathartic and Social Learning Theories likely explain some of the relation between sports participation and aggression. The present study seeks to articulate the nature of the

relationship between these two variables. In order to understand the relationship between sports participation and aggression, we must first understand the nature of aggression and its forms. Just as there are multiple theories as to the origin of aggression, there are also multiple definitions. The following section aimed to clarify the concept of aggression for the purposes of this research.

Definitions of Aggression

Until recently, research has focused on the overt forms of aggression, such as hitting, pushing, yelling and name-calling. Due to the narrow focus of this perspective aggression was perceived as predominantly a male behaviour until recently. Though this area of research is important and has contributed to our overall understanding of social development, recent studies have demonstrated that it does not capture the full range of hurtful behaviours that children direct towards their peers. The past decade of social developmental research has unmasked an always present, but frequently ignored social phenomenon: social/relational aggression. Researchers (Crick & Grotpeter, 1995; Paquett & Underwood, 1997) have begun to reframe aggression to incorporate covert behaviours aimed at damaging peer relationships, thereby generating the basis for a much more diligent examination of the dynamics of friendships and social networks in young girls.

Past research has been inhibited by the inability to properly define aggression as a construct. Harre and Lamb (1993) noted that investigators have proposed more than 200 definitions of aggressive behaviour, but that the majority of these share two common elements: the behaviour is intended to harm, and the behaviour is perceived as hurtful by the victim. An abundance of subtypes of aggression have been proposed

in an effort to produce a more thorough and encompassing definition. However, the discrepancies, inconsistencies and overlap between these aggressive subtypes have often confused researchers rather than enlightened them. For the purposes of this study, two forms of aggression: Overt and social/relational will be discussed. Each subgroup will be discussed and defined as to avoid misunderstanding.

Overt Aggression

Until recently, the overwhelming majority of previous research has focused on overt behaviours that are directly observable and easy to identify (Crick & Grotpeter, 1995). Physical aggression harms others through damage to their physical well-being and includes behaviours such as hitting, kicking, and pushing (Crick et al., 1999; Crick & Grotpeter, 1995). Research on the prevalence of overt aggression has demonstrated that boys are significantly more aggressive than girls at every age, both within friendship pairs and in general (Coie & Dodge, 1998; Berkowitz, 1993; Block, 1983; Parke & Slaby, 1988), however aggressive behaviour problems have been increasing rapidly for both males and females since 1965 (US Department of Justice, 1990).

Past research has shown that the overtly aggressive child often has more emotional, academic and social problems than other children and is more often victimized (HRDC, 1999). Of further concern, is the finding that it is unlikely that the aggressive child will outgrow their problems. Rather, they may experience a range of additional adjustment problems in adolescence and adulthood, including school drop out, teenage parenthood, parenting difficulties, harsh punishment, and criminality (HRDC, 1999).

Sex and gender influences on overt aggression. A study conducted by Block (1983) indicated that children view overt aggression as the typical “mean” behaviour that males direct towards their peers. Further, while both males and females view this type of aggression as mean and hurtful, they considered it normative behaviour for males. In 1986, Fagot, Leinbach, and Hagan investigated the ability of two and three year old females to label gender. They concluded that those girls who could consistently labeled traditional gender characteristics also engaged in less physical aggression than those who were less proficient at labeling. Underwood (2003) suggests that girls recognize that physical fighting violates the rules about what sort of person they are suppose to become and therefore it is logical to expect that when girls feel angry they might resort to less overt ways of hurting others; behaviours that are perhaps less likely to be punished, but highly effective in hurting what other girls most value. Moreover, when females do engage in physical aggression, their behaviour is seen as more deviant by their peers and teachers than is physical aggression in males (Serbin, et al., 1993).

Maccoby (1998) had posited that gender stereotypes could contribute to all kinds of behaviour with children regulating their own behaviour in terms of what is expected of their gender. Thus, if children believe that boys and girls are aggressive in different ways, they might sanction their own behaviour to bring it in line with the aggressive scripts appropriate for their gender. Crick and Grotpeter (1995) propose that children are socialized to value gender specific friendship characteristics. Subsequently, they suggest that children aggress in various forms depending on the ways to best damage the goals that are valued by their respective peer groups. This

suggestion is in line with Two Cultures theorists (Maccoby, 1998) who propose that males and females grow up in separate peer cultures, based on the behaviour that is sanctioned for each peer group.

Past research has consistently revealed that boys tend to harm others most frequently through physical and verbal aggression (Coie & Dodge, 1998; Berkowitz, 1993). Friendship relations of boys tend to emphasize solidarity, loyalty and mutual engagement in shared activities. In addition, boys tend to engage in more rough and tumble play, are more competitive with one another and are more likely to affiliate in larger social networks (Crick & Grotpeter, 1995). These behaviours are consistent with the types of goals, including instrumental and physical dominance, which past research has shown to be important to boys within the peer context (Block, 1983). These types of concerns are not as salient for most girls, as girls are more likely to focus on relational issues during social interaction.

Although the topic of aggression has received a lot of attention in the past, the emphasis of the majority of this research has focused on overtly aggressive boys. The findings from past research have led investigators to conclude that boys are simply more aggressive in every way than girls; however the last decade of research suggests that this conclusion is misleading. Instead, prominent researchers in the area now conclude that girls are aggressive also; they simply express aggression in a different way (Crick, Cass, & Mosher, 1997). Essentially this early and restricted approach to the study of aggression has resulted in the exclusion of girls and the aggressive behaviour salient to their gender from the research literature (Crick & Grotpeter, 1995). This new approach to studying non-overtly physical forms of aggression has

been forged by two researchers in the field: Nikki Crick and Marion Underwood.

They have each chosen different terms to describe this alternative form of aggression: relational and social.

Social/Relational Aggression

In the last ten years, researchers have begun to study girls and their use of social/relational aggression (Crick & Grotpeter, 1995; Lagerspetz, Bjorkqvist, & Peltonen, 1988). As early as 1989, Cairns, Cairns, Neckerman, Fergusson, and Garipey identified social aggression as “the manipulation of group acceptance through alienation, ostracism, or character defamation” (p. 323). However, it was not until recently that Galen and Underwood (1997) have expanded the definition stating, “Social aggression is directed toward damaging another’s self-esteem, social status, or both and may take such direct forms as verbal rejection, negative facial expressions or body movements, or more indirect forms such as slanderous rumours or social exclusion” (p.589). The term social aggression encompasses covert and overt forms of behaviour, as well as the inclusion of non-verbal forms of social exclusion such as gestures (Underwood, 2003).

Although often used interchangeably, social aggression and relational aggression are not the same construct. However, the constructs overlap substantially, such that social aggression is considered to be a broader construct of which relational aggression is a part. Crick and Grotpeter (1995) defined relational aggression as behaviours that harm others through hurtful manipulation of or damage (or threat of damage) to their peer relationships. Some examples might include: angrily retaliating against a child by excluding him or her from ones play group or purposefully

withdrawing friendship or acceptance in order to hurt or control a child (Delveaux, 1997). In addition, indirect forms of relational aggression can be advantageous to the perpetrator by concealing their identity, such that the victim and the rest of the peer group are unaware of who is causing the problems. Social aggression deviates from the concept of relational aggression because it does not specifically focus on damaging relationships but it is directed towards damaging another's self esteem and social standing.

Just as is seen in overtly aggressive boys, relationally aggressive girls experience an array of psychosocial and developmental problems associated with maladjustment. Werner and Crick (1999) have shown that relational aggression was associated with higher levels of peer rejection, depression, antisocial personality features, borderline personality features and with lower levels of pro-social behaviour for both male and female college students. Longitudinal data indicate that girls identified by their classmates as aggressive in childhood may experience a range of adjustment problems in adolescence and adulthood, including school drop out, teen pregnancy, parenting difficulties, and criminality (Huesmann et al., 1984; Serbin, Coopermar, Peters, Lejoux, Stack & Schwartzman, in press). Furthermore, research suggests that there is a high degree of overlap between aggression and victimization. The observational research of Craig and Pepler (1997) indicate that 68 percent of children observed as bullies on the playground, were observed as being victims as well.

Sex and gender influences on social/relational aggression. Research consistently shows that girls engage in significantly more relational aggression than

overt aggression (Cairns, et. al., 1989; Crick & Grotpeter, 1995; Lagersptz, Bjorkquist, & Peltonen, 1988). Although it was initially believed that relational aggression would characterize girl's conflicted social interactions more than boys, research findings have been unable to consistently identify girls as being more relationally aggressive. The results of two large studies, using both peer and teacher reports have shown that girls are significantly more relationally aggressive than boys (Crick, 1997; Crick & Grotpeter, 1995).

Alternatively, other researchers (Daniels, et al., 2000; Rys & Bear, 1997; Tomada & Schneider, 1997) did not find a sex difference when continuous relational aggression scores were examined. However, researchers have identified extreme relational aggressors as females, while extreme overt aggressors are identified as males (Crick, 1996; Crick & Grotpeter, 1995; Daniels, et al., 2000; Rys & Bear, 1997). Thus although boys and girls in some of the normative samples appear to use relational aggression more or less equally, when extremely relationally aggressive children are identified, the group is almost exclusively female.

As previously stated Crick and Grotpeter (1995) suggest that relationally aggressive children examine the goals of their respective peer group and once identified employ them as points of attack during aggressive acts. In line with Two Cultures Theory (Macoby, 1998), the friendship structures of young girls are often dissimilar to those of boys. Females display more cooperation and develop more intimate and exclusive social relationships within a smaller social circle (Block, 1983). Where boys tend to focus their aggressive strategies on physical and instrumental demands, girls typically endorse a social/relational form of aggression that is

specifically tailored to damage or destroy the social connections girls develop with their close peers (Crick, 1996).

Other researchers suggest that girls rely on relational and social aggressive strategies because they are more acceptable to a society that expects females to be physically passive. Underwood (2003) suggests that social aggression represents to some extent a response in opposition to the gender stereotype of girls being sweet and kind. She further suggests that the two sexes may not be fundamentally different when it comes to reacting to frustration and stress, however the social pressures on girls to be “feminine” causes them to deflect their anger and express it in indirect ways (Underwood, 2003). By engaging in covert types of behaviours, girls’ aggression is often undetected by onlookers, allowing conceivably misguided societal expectations to go unchallenged. Given this view, it is feasible that those girls who conform more readily to traditional feminine standards are more likely to engage in relational aggression than those girls who characterize themselves as less traditionally feminine. One of the goals of the present study was to investigate traditional gender role orientation as they pertain to the expression of aggression, which is necessary to gain a better understanding of the basis of aggressive behaviour.

A recent investigation by Zarbatany and colleagues (2000) examined the sex composition of children’s peer networks and preferences for activities characterized as agentic (e.g. team sports) and communal (e.g. various types of socializing). Results revealed that sixth grade girls described their friendships as more intimate than did the male counterparts. Moreover, engaging in communal activities was significantly associated with greater friendship intimacy suggesting that agentic activities such as

athletic participation would be more characteristic in friendship networks typical of boys (Zarbataby, 2000).

To date, no research has yet to be reported that examines the friendship structures of girls who frequently participate in agentic activity such as sport and physical activity. The present study identified females who were regularly physically active and examined their self-reported rate of overt and relational aggression. Furthermore, though recently there has been extensive research examining group differences between males and females, no studies that examine differences between groups on relationally and overt aggressive outcomes, as a function of gender orientation, have yet been published. The present study aimed to examine the role of sports participation in relation to gender orientation and relational and overt aggression in order to gain a better understanding into the dynamics of aggressive strategies.

Physical Activity and Sports Participation

Physical Activity and Sport in Canada

In the 1997 Physical Activity Monitor, Canadians indicated unequivocally that they held strong positive beliefs about the benefits of physical activity on the long term, health-related, quality of life (Craig, et al., 1999). Craig and associates (1999) advised that Canadians should increase physical activity because regular participation reduces the risk of premature death, a wide array of diseases, including heart disease, helps to maintain functional capacity and independent living with aging, helps to maintain healthy body weight, increases energy, reduces stress, promotes better self

esteem, contributes to community pride and spirit, increases community involvement and cultural harmony, increases volunteerism and promotes environmental awareness.

In the Canadian Fitness and Lifestyle Research Institute's annual review, physical inactivity was declared a serious public health risk in Canada (Craig, et al., 2001). The review claims that 3 out of 5 (57%) Canadian children and youth (age 5-17) are not active enough for optimal growth and development. Furthermore, the report reveals that activity levels decrease with age, going from 49 percent among grade school children aged 5-12 to 36 percent among teenagers aged 13-17 (Craig, et. al, 2001). Of primary concern to this study were the statistics that revealed that girls were significantly less active than boys, with only 38 percent of girls and 48 percent of boys being active enough for optimal growth. These sex differences appear throughout childhood and adolescence (Craig, et al., 2001).

Sex differences in sports are concerning because of the array of physiological benefits associated with increased sport participation. Though less research has been conducted, there is also evidence for the increased psychological benefit of sport and physical activity. Social psychological research has demonstrated that sports participation is associated with elevated mood (Jones & O'Benny, 2004), better cognitive functioning (Skrinar, 2003) and improved self-esteem (Fox, 1999) and reduction of anti-social behaviour. Little research has yet explored the association between sports participation and aggression, especially social/relational aggression. Theoretical evidence and related research suggests that an association between sports participation and aggression may exist.

Aggression and Sports Participation

Sports are one of the few places where Western culture permits aggression and in a number of circumstances, even rewards it. Over the past decade, aggression among athletes has received increasing attention from the media, school administrators and researchers (Humphrey & Kahn, 2000; Kerr, 1999; Rowe, 1998; Tenenbaum, Stewart, Singer & Duda, 1997). Unfortunately, large gaps have been left in the Sports Psychology literature. Though some attention has been directed towards the acts of athletes in their sporting domain, very little research has been conducted on athletes in other domains of life. To date there is no consensus regarding sports and its effects on aggressive behaviour. While some researchers view sports and physical activity as an acceptable, cathartic release of aggression (Freud, 1920; Lorenz, 1967; Goldstone & Reeves, 1995) others believe that sports and physical activity only encourage and exacerbate the use of aggression in society (Raglin, 1990; Giulianotti, 1995).

Some researchers have suggested that aggression in sport will lead to an acceptance of aggression outside of the realm of sports, leading to debate in regards to whether or not athletes are able to differentiate what is appropriate in a sporting arena versus what is appropriate in different life contexts (McMillan, 1992). This concept has been referred to as the “spillover effect”. According to cultural spillover theorists, violent behavior is indirectly legitimated by the implicit or explicit cultural approval of violence in the media, sports, and elsewhere (Vas, 1979; Bloom & Smith, 1996). The only published study pertaining to spillover effect and sport was conducted in 1996 by Bloom and Smith; a study of over 600 recreational and competitive hockey players. This study found weak support for a spillover of aggression from hockey into

other social domains in highly competitive players. Though empirically lacking, this theory suggests a negative impact of sports participation on aggression, in that as sports participation increases, so does aggression.

The Australian Institute of Criminology has increased interest in the modes by which physical activity might reduce antisocial behaviour (Morris, Sallybanks, Willis, & Makkai, 2003). A study commissioned by the Australian Sports Commission to investigate whether sport and organized physical activity programs had a positive effect on youth antisocial behaviours, examined over 600 physical activity and sport programs. By way of case study and survey methods the researchers have identified two key features of increased physical activity levels: reduction of boredom in youth, and the reduction of unsupervised leisure time. This research suggested that sport and physical activity programs provide a useful vehicle through which personal and social development occurs and positively impacts antisocial behaviour. The commission concluded that physical activity and sport programs have positive effects on psychological well being by improving self esteem as well as increasing overall maturity levels of youth.

Research by Owens, Slee and Shute (2001) suggest that one reason girls engage in relational aggression may be to alleviate boredom and further suggests that one strategy for reducing overall levels of social aggression might be to encourage girls to participate in more structured activities. Underwood (2003) suggests that by increasing youth's time spent in structured voluntary activities such as sports or arts programs, they may reduce boredom, which would reduce girl's need to manipulate relationships for sheer entertainment. Furthermore, Cantor and Benny (1992)

interviewed 25 female government leaders to identify what qualities and/or strengths enabled them to get elected and persevere in high government/political positions. Repeatedly, women attributed their success to past athletic experiences, by suggesting that sports participation provided a training ground for effective participation on the “playing field of power” (P. 50).

The Australian Sports commission stated that physical activity and sport programs keep youth busy thereby preventing their participation in other activities that may promote antisocial behaviour. Furthermore, they suggested that sports have an incapacitative effect, in that exerting energy on organized physical activities provides adequate stimulation so that youth have less energy to expend on antisocial behaviours. In addition, the Australian Sports Commission prescribed sports as a means of connecting to resources and services that would otherwise be unavailable to them and suggested that those who excel at physical activities may gain opportunities for growth and development (Morris, et al., 2003). Though this study focused on the broader realm of antisocial behaviour (including substance abuse, homelessness, suicide, school drop out, truancy, unemployment and criminality) rather than specifically examining aggression alone, the recommendations and findings were applicable and could possibly be extended. These findings would be consistent with the catharsis hypothesis.

Many researchers contend that the physical exertion released in sport is not the foremost quality responsible for the extensive list of benefits physical activity is associated with. Rather it is the productive use of time that aids most significantly in successful adolescent development. To date, there has been relatively little

longitudinal, developmentally oriented research focused on either the benefits or costs of how adolescents spend their free time. However, Mahoney and Cairns (1997) and MacNeil (1995) found that extracurricular activities were related to lower chances of school drop out, particularly for high-risk youth. In addition, adolescents involved in a broad range of adult endorsed activities report lower rates of substance use and were found to boast reduced rates of criminality (Mahoney, 1997; Younis, Yates and Su, 1997).

Sports, relative to other school based activities such as student government, and academic clubs, have been linked to a lower likelihood of school dropout and higher rates of college attendance (Deeter, 1990; Elliot & Ross, 1974; Hanks & Eckland, 1978; Holland & Andre, 1987; Howell & Mackenzie, 1987; MacNeil, 1995). Several studies have indicated that athletes tend to be less delinquent than comparable non-athletes and that the negative relationship between participation in sport and deviancy is obtained regardless of sex and socioeconomic status (Buhrman, 1997; Buhrman & Bratton, 1978; Landers and Landers, 1977; Hastad, Segrave, Pangrazi, & Petersen, 1986). Furthermore, research revealed that the extent of participation had little or no effect on deviancy (Hastad et. al., 1986; Schafer, 1969; Segrave & Hastad, 1982).

Participation in extracurricular activities has also been linked to increases on indicators of positive development such as self-concept, higher school grade point average, school engagement, and educational aspirations (Lamborn, Brown, Mounts, & Steinberg, 1992; Newman, Weholage, & Lamborn, 1992; Winne & Walsh, 1980; Eccles & Barber, 1999). The reasons for why sport and physical activity are associated

with positive development are various, and there is a growing consensus that regular, moderate physical activity promotes successful psychological and physiological development, regardless of age, ethnicity or sex.

Sex and Gender Influences on Sports Participation

Some sports psychologists suggest that athletics contribute to the social construction of masculine and feminine behaviours (Yiannakis, 2001; Martin & O'Beney, 2004). Although female participation in sports is on the rise, some gender barriers still exist. Females traditionally participate in sports that are considered gender specific such as gymnastics, tennis figure skating and swimming. Crombie and Dejadins (1993) suggest that girls less frequently play organized sports and are much less likely to engage in direct competition when playing games than are boys.

Although many girls typically refrain from particular activities that are stereotypically male (competitive games, rough and tumble play), girls are more likely to engage in activities that are stereotypically masculine than boys are to engage in activities that are stereotypically feminine pursuits (Bussey & Bandura, 1992).

Researchers generally ascribe sports and physical activity to the masculine domain (Gibbons, & Lynn, 1997; Jaffee & Manzer, 1992; Koivula, 1999). Hargreaves (1986) notes that sports offer an ideal means for individuals to develop and exhibit traditional masculine properties, while rejecting traditionally ascribed feminine values. Sadker and Sadker (1994) reported that "one in every four elementary school boys regard athletics as the best part of being male" (P.85). Therefore, preference for sports participation and the expression of physicality is highly influenced by the social construction of femininity and masculinity. Sports and athletic events provide girls

with the otherwise unacceptable opportunity to display aggression (Lamb, 2001).

Despite the advances in women's athletics, most girls still have difficulty balancing the often opposing social standards for what is acceptable for sports (e.g., rough, powerful, physical, strength) and what is acceptable for girls (e.g., petite, fragile, quiet; Lamb, 2001).

In 1989, Weiss and Petlichkoff⁷ examined children's motivations for participation in organized sport. The most important motive given by both male and female participants was "having fun", followed by a number of other drives such as improving skills, being with friends, becoming physically fit, and experiencing challenges and success. These motivations can partially account for the dramatic increase in female sport participation. In a five-year longitudinal study conducted by Butcher and Hall (1983) girls in grades 6-10 were surveyed to determine the extent to which physical activity participation changed with age. Their findings suggested that as girls mature, they become less motivated by competition and more motivated by physical activity as a release of tension.

Sports skills begin on the playground. Research demonstrates that girls, who do not begin playing sports prior to the age of ten years old, are highly unlikely to engage in sport later in life, due to a lack of early skill development (Lamb, 2001). Through interviews and observations of over seven hundred children on the playground, Jaffe and Sickler (1997) revealed the reasons that girls opt away from athletic type games. In opposition to previous notions that girls prefer to keep away from these activities, results from this study suggested that girls participate less because boys exclude them and/or they do not feel they are good enough to play with

the boys. A survey of 875 third to fifth grade students revealed that girls assessed their general athletic ability more negatively than did males even when they are equally matched in ability. Further, the more girls viewed sport as appropriate for girls, the higher their estimates was of their own ability in sports (Eccles & Harold, 1991). Again, implications from this research suggested that both children's behaviour and mental processes are highly influenced by socially defined gender stereotypes.

Much of the past research on female sport focused on approaches that permit female athletes to combine athleticism and traditional femininity. Individual differences in masculinity and femininity vary depending on the social contexts (Pickard and Strough, 2003; Sansone & Berg, 1993; Riseman, 1987). The "apologetic defense", initially coined in 1970's sociological research, refers to a strategy where women compensate for the alleged masculinizing effect of participating in sport, by exaggerating their femininity (Del Rey, 1978; Fleshin, 1974; Tyler, 1973). Malcom (2003) examined the use of apologetic defense in preadolescent and adolescent girls' participating in a recreational softball league. Results from this study suggested that the overemphasis of traditionally feminine traits (hair bows, make-up, nail polish, etc.) was motivated by a desire to prove their feminine maturity.

A qualitative research study by Weinstein, Smith and Wiesenthal (1999) on the relationship between masculinity and hockey violence has suggested that players endorsing traditional masculine behaviour were more likely to engage in physical aggression than players who held weaker masculine beliefs. Data was collected from an array of Toronto hockey teams, differing in age and skill level. Moderate support

was found for the predicted relationship between higher masculinity and increased physical aggression, though no direction to that relation was determined.

Furthermore, increased levels of player aggression appeared to lead both coaches and fellow players to a greater perception of athletic competence, even more so than playing or skating skills (Weinstein, Smith, & Wiesenthal, 1999). The limited research on this topic suggests a relation between sports participation, traditional gender stereotypes and aggression, though the functions of these relations are unclear.

Gender Orientation

Not unlike many other areas in psychological research, the study of gender orientation has been flawed by lack of clear and consistent definitions. Before we can further a discussion on gender orientation we must first clearly distinguish between the term “sex” and “gender”; terms often used synonymously in social science research. According to the Gage Canadian Dictionary (1983), sex refers to “either one of two categories, male and female, into which human beings, animals and plants are divided according to their function in the reproductive process” (p1027). Therefore, for the purposes of this paper, sex referred to ones biologically ascribed role of being male or female.

Gender is a pattern of behaviours recognised as 'feminine' or 'masculine'. It is a socially constructed, learned behaviour (Department of Education and the Arts, 2002). Accordingly, gender differs between societies and across the social, ethnic and cultural groups within societies. Even for a single individual, gender behaviours change over time and within different social contexts (Department of Education and the Arts,

2002). For the purposes of this research gender was considered as a discrete construct. The term gender differs from *sex* because it refers specifically to the cultural definition of the roles and behavior appropriate to members of each sex rather than to those aspects of human behavior that are determined by biology. In other words, gender refers to culturally constructed distinctions between masculinity and femininity. Individuals are born female or male, however, they become feminine and masculine through complex developmental processes.

Over the years, several major theories have been proposed to explain gender development. In the following section, Biological Determinism, Social Learning Theory (Mischel, 1966) and Gender Schema Theory (Bem, 1981) are discussed.

Biological Determinism

This explanation of gender is based on the belief that all differences between men and women result from biology - the 'anatomy is destiny' argument. Biological determinism is often used to support generalisations about men and women, such as 'men are naturally more able in maths and technology' or 'women are naturally suited to domestic duties. Biological determinism asserts that certain behaviours are justified and unchangeable because 'boys will be boys' or 'girls will be girls' (Ehrlich, 2000). Some would argue that such a reductionist account of gender does not sufficiently take into account the great flexibility that humans have in choosing their behaviours, compared with other animals. According to Hayes (1994), "looking at human gender behaviour purely as a result of biological sex is not very likely to provide us with a full explanation." (p. 751).

Social Learning Theory of Gender Development

The main proponent of this approach was Walter Mischel (1966) who suggested that the learning of appropriate gender behaviour was a result of the encouragement and reward given by caregivers. Bandura's (1961) Social Learning Theory posits that humans learn gender from watching, imitating, identifying with and interacting with significant others in our environment. As such, observational learning informs children about what is appropriate behaviour for males and females in certain situations. According to Social Learning Theory, a child who is able to self-label is better able to determine which behaviours/attitudes are sex-appropriate. Furthermore, behaviours and attitudes, which others view as acceptable, are reinforced directly through success or praise and reinforced indirectly through the child identifying with the model and gaining a sense of pride at this. Additionally Behaviour and attitudes, which are deemed inappropriate, are unrewarded or punished in a similar manner.

Gender Schema Theory

Recently Gender Schema Theory, which reflects a combination of social learning and cognitive developmental theories (Bem, 1981; Martin & Halverson, 1981,1983; Ruble, 1987) has gained popularity. For Bem (1981), a gender schema is a person's general knowledge framework about gender, with which information is processed and organized based on gender-linked associations. Accordingly, children gradually form a gender schema as they learn their culture's network of associations with gender. The gender schema begins to develop as soon as the child notices the difference between male and female, knows their own sex, and can label the two groups with consistency.

Broad distinctions between what kinds of behaviour and activities go with each sex is acquired by observing other children and through the reinforcement they receive from their parents. Moreover, the gender schema becomes linked to self-concept so that children, as part of their motivation to become “good” girls and boys, engage in gender appropriate behaviour specified by the gender schema.

Stability of Gender

Boulden (1997) suggests that the construction of gender is not something that happens only once during childhood, but rather something that can continually be constructed and reconstructed as we grow, learn, experience and behave. Some researchers suggest that as children age and develop, they become more flexible in their gender stereotypes (Serbin, Powlishta & Gulko, 1993; Katz & Ksansnak, 1994). Serbin, Powlishta and Gulko (1993) defined flexibility as one’s resistance to stereotypes: that is, the extent to which one believes that culturally sex-stereotyped activity is equally appropriate for males and females.

Katz and Ksansnak (1994) proposed that there are two important components of gender stereotype flexibility: ones’ own degree of adherence to stereotypes, and tolerance of stereotype violations in others. These researchers found that both self-flexibility and tolerance of others’ violating stereotype increased with age, and that girls were higher than boys on both. Further research by Alferi, Ruble and Higgens (1996) examined the flexibility of gender stereotypes for children in grades 4 –11. Their results suggested that flexibility of gender stereotypes may be influenced in changes in social ecology, as flexibility increased for individuals who had just recently made the transition from middle school to high school. Past research on gender

stability suggests that gender orientation is a dynamic, in that it is altered by experience and context. In the present study sports participation may act as an experience, context or learning environment from which gender orientation is modified.

Past Gender Research

Although substantial research has examined the group differences between males and females on all forms of aggression, no research has been published to date distinguishing individuals on the basis of masculinity and femininity for social/relational aggression and furthermore, no research has been conducted with children or adolescence in regard to gender orientation and any form of aggression. Interestingly however, many researchers (Underwood, 2003, Crick, 1995) have used gender orientation and gender stereotyping as a fundamental explanation for sex differences, though no research has yet to be conducted to validate this claim.

Although there are no studies on gender orientation and aggression, there was research on various possibly related dimensions, such as social dominance, and intimate partner violence. Foels and Papas (2004) measured the relationship between sex and social dominance while controlling for the effects of gender socialization. These researchers hypothesized that the consistent sex differences found in previous research that suggest that males are significantly more socially dominant than females can be accounted for by the socialization of the masculine role to be dominant and the female role to be nurturing. Results from this study suggested that sex differences in social dominance were mediated by masculine and feminine socialization such that

when socialization was accounted for, no significant differences between males and females existed.

Parrot and Zeichner (2003) examined the influence of hyper-masculinity on physical aggression towards women. Men were assigned to either high or low hyper-masculine groups based on their responses on the Hyper-masculinity Inventory (Mosher & Sirkin, 1984). Sirkin (1984) conceptualized hyper-masculinity as a characteristic that predisposes men to engage in behaviours such as physical and sexual violence that serve to uphold the macho personality of men. Parrot and Zeichner's (2003) results indicated that high hyper-masculine males displayed higher levels of violence against women than their low hyper-masculine counterparts. These results suggested that gender orientation, specifically increased masculinity, might be a risk factor for perpetuating violence against women.

To date, there are no known studies that investigate gender orientation and aggression in child or adolescent populations and moreover there are no known studies that investigate a link between gender orientation and social/ relational aggression in any population. Despite these gaps in previous research, given past theoretical interpretations as well as recent investigation into related constructs, it is feasible and advisable that further research distinguishes between the biological role of sex, and the social role of gender. The present study examined individual levels of masculinity and femininity and its association between participation in physical activities and sport, as well as one's aggressive behaviour outside of athletics.

Present Study

The present study aimed to examine adolescent's sport participation as more than just a leisure pursuit, but rather an independent set of physiological, psychological and social processes that could influence and in varying degrees sustain adolescent's growth and development. Because sport contexts provide ample opportunity for a variety of interpersonal conflicts in the pursuit of gaining a competitive advantage over teammates and opponents, athletes become an interesting population to consider when studying both overt and relational forms of aggression. It is important to acknowledge the complexity of the relation between sports participation and aggression and note that the present study does not aim to understand this relation entirely. In examining the relation between sports and aggression we must also consider the effect of context and stressors on the expression of aggression. It is the goal of the present study to examine one small piece of a very dynamic relation between sports and aggression.

A number of past research and theoretical contributions have alluded to the possibility that girls and boys who regularly engage in sports would display less overt and relationally aggressive tendencies outside of sport, although studies in this area have yet to be reported. As previously discussed, a number of theorists and researchers take a cathartic approach to sport and physical activity (Freud, 1920; Coalter, 1989; Goldstone & Reeves, 1995). Advocates of this perspective view sport as a mechanism for which individuals are able to release their inner aggressive energies in an acceptable manner. Such theorists would argue that sports participation for girls might be a more socially condoned venue in which to express

aggression. As such, these girls would not need to revert to relational aggressive strategies in other venues of their life.

Other research has suggested that participation in sports and sport instills inherent morals and values such as discipline, respect for authority, achievement and self-esteem creating a character that is more able to cope with aggressive urges in an acceptable way (Bredemeier, & Shields, 1993). Additionally, participation in physical activity and sport may contribute to a lack of both time and energy that might otherwise be allotted for delinquency and aggression (Seagrave & Hastad, 1982; Buhrman, 1997). One may also predict a decrease of aggressive behaviour in physically active girls based on the revelation that sports provide girls the rare opportunity to engage in an acceptable expression of physical aggression, lending them to be less reliant on covert forms of relational aggression that are deemed socially acceptable for females. Thus it would be expected that physically active girls would display less relational aggression.

At present, only one pilot study has looked at relational aggression in athletes, focusing exclusively on an adult population, though this study investigated aggressive behaviour among athletes without utilizing a non-athletic comparison group (Storch, Werner, & Storch, 2001). The findings from Storch and colleagues (2001) are consistent with past literature (Crick, 1997; Crick & Grotpeter, 1997) in that relational aggression was positively correlated with peer rejection for men and women. Thus far, no research has examined relational aggression by comparing those high in sports participation with those lower in sports participation. This study attempts to fill many of the voids in the literature surrounding sports participation and aggression.

Aims

Past literature has shown that boys are consistently more physically aggressive than girls (Coie & Dodge, 1998). Societal expectations that guide young girls to behave and express themselves in delicate and passive ways have misled researchers into presuming that girls are not aggressive at all. Recent research however, has unmasked another form of aggression more salient to females. Social/relational aggression allows girls to maintain the external image of diplomacy and passivity while facilitating the attainment of aggressive goals such as power, control and domination (Underwood, 2003). It was the aim of this researcher to explore the influence of traditional gender role orientation as it pertained to the expression of aggression. It was expected that levels of femininity and masculinity would be closely related to levels of relational and overt aggression respectively.

Though a great deal of research has explored the characteristics and personality of aggressors and victims, little research has examined the environmental contexts which endorse and sustain different types of aggression; this research sought to investigate both, by examining the relation between sports participation and aggression. The variables of interest in the present study are forms of aggression and sports participation. The purpose of the present study was to expand the research spectrum by offering insight into the interrelationships between gender role orientation, aggression and sports participation.

Hypotheses

The present study developed two types of hypotheses. The first set of hypotheses examined direct relations. The three central variables of interest were

sports participation, traditional gender orientation and aggression. The second sets of hypotheses were in regard to the nature of the relations between the variables. Two conceptual models linking sports participation, traditional gender orientation and aggression were explored. The application of a mediated and moderated model were intended as tools to further investigate the relation between the independent variable (physical activity), the outcome variable (aggression) and a third variable (gender orientation).

Direct Relations Hypotheses

To begin, predictions about the influence of sex were investigated. In line with past research, females were hypothesized to score significantly lower on measures of overt aggression than males (Coie & Dodge, 1998). It was expected that females would score higher than males on measures of relational aggression (Crick, 1995). Further it was expected that males would score significantly higher on masculinity and lower on femininity than females. It was also hypothesized that males would participate in significantly more physical activities than females.

Subsequently, hypotheses were generated about the relations between physical activity participation, overt and relational aggression and gender orientation. Physical activity participation was expected to be negatively associated with relational and overt forms of aggression, as per Catharsis and Social Learning Theories. It was expected that femininity would be positively related to relational aggression and negatively associated with overt aggression. Femininity was expected to be negatively associated with physical activity participation. Figure 1 depicts the conceptual linear model for hypotheses for the direct relation hypotheses.

Figure 1

Conceptual model depicting direct relations of sex, physical activity, traditional gender orientation and aggression.

Third Variable Hypotheses

Central to the examination of the relation between physical activity participation and aggression was the notion that physical activity would not be the solitary influencing factor. Research that excludes or discounts the influence of third variables may overlook important findings that are not initially apparent. In the present study, it was hypothesized that levels of femininity and physical activity participation would collaborate to effect aggressive outcomes. As previously stated, it was predicted that a significant relation between physical activity participation and aggression would emerge. It was further hypothesized that gender would effect this relation, in that society, (as opposed to simply biology) would influence perceptions of what is acceptable according to traditional gender stereotypes, which in turn would influence aggressive behaviour. When gender orientation was factored into the predictions for this study, the original hypotheses had to be altered to account for changes in strength and direction caused by the influence of the third variable.

For the purposes of this research, the role of the third variable, gender was examined. Based on the associations between physical activity and aggression an appropriate model of analyses was chosen. If the relation between physical activity participation and aggression were small or weak, a moderated model would be most appropriate. If however, there were strong associations between physical activity participation and aggression, a possible mediating influence would be examined.

Although it is possible for gender to serve as an intermediate link in a causal chain leading physical activity participation to aggression (mediation), or as a variable that alters the strength of the association between physical activity participation and

aggression (moderation), the present study initially predicted the latter. The main goal of this study was to examine the relation between physical activity and aggression; hence a moderated approach initially appeared more suitable. As outlined by Baron and Kenny (1986) moderator research typically exhibits greater interest in the predictor; and furthermore, researchers often begin with a moderator approach and end up revealing a mediator process. The present study investigated whether gender orientation would serve as a moderator, as a mediator, or as both in the context of the relation between physical activity participation and aggression. Figure 2 depicts both of these possible relations.

Moderated model. A moderator variable is a variable that alters the direction or strength of the relation between a predictor and an outcome (Baron & Kenny, 1986). Specifically, a moderator effect is an interaction whereby the effect of one variable depends on the level of another. Questions involving moderators address “when” or “for whom” a variable most strongly predicts or causes an outcome variable (Holmbeck, 1997). Cohen, Cohen, West and Aiken (2003) described three patterns of interactions: enhancing interactions (in which both the predictor and the moderator affect the outcome variable in the same direction and together have a stronger additive effect), buffering interactions (in which the moderator variable weakens the effect of the predictor on the outcome), and antagonist interactions (in which the predictor and the moderator interactions have the same effect on the outcome, but the interaction is in the opposite direction).

If relations between the three variables were small or weaker than expected, than a moderated effect would be predicted. It was predicted that physical activity

Figure 2.

Conceptual models linking physical activity, gender orientation and aggression.

I. Moderated Model:

II. Mediated Model:

participation and gender orientation would have an enhancing interaction to effect levels of aggression. Therefore, among participants who were high feminine, it was expected that physical activity would be related to relational aggression. As well, among participants who were low feminine, it was expected that physical activity would be related to overt aggression. Therefore, it was predicted that the relation between physical activity participation and aggression would be explained by the interaction between gender orientation and physical activity participation. More specifically, the relation between physical activity participation and aggression will be influenced by one's level of femininity.

Mediated model. In general, a given variable is said to function as a mediator to the extent that it accounts for the relation between a predictor and the criterion variable. Specifically, a mediator is defined as a variable that explains the relation between an independent variable and an outcome variable (Baron & Kenny, 1986). Mediators establish questions such as “why” and “how” one variable predicts or causes an outcome variable. In other words, the impact that the independent variable has on the dependent variable is attributable (in part or completely) to the influence of the mediator. In contrast to establishing moderation, to demonstrate mediation, one must ascertain strong relations between 1) the predictor and the mediating variable, and 2) the mediating variable and the outcome variable.

In the present study, gender could be conceptualized as a possible mediating factor in the relation between physical activity participation and aggression. Though it was predicted that the third variable gender orientation, would likely take on a

moderating role, if strong relations between the three variables were found than a mediated approach would be further explored.

If the presence of necessary significant associations did reveal themselves, it was speculated that physical activity participation would predict gender orientation, which in turn would predict aggression. More specifically, participants high in physical activity participation would likely be less feminine, which in turn would be associated with more overt aggression. Likewise, participants who were low in physical activity participation would likely be high in feminine gender orientation, which would be associated with higher scores of relational aggression. Therefore, this model hypothesized that the relation between physical activity participation and aggression could be explained by gender orientation.

Methods

Participants

This research was conducted in three rural townships in the Ontario region. School principals were contacted to determine if they would be interested in participating in the study. All principals contacted ($N = 3$) agreed to participate in exchange for written summaries of school-specific results and presentations on bullying behaviour. One thousand parental consent forms were distributed to the schools, of which 300 were returned (a 30% consent/response rate). Of those students

who returned parental consent forms, 233 were present on the day of survey administration¹.

The sample consisted of 233 students in grades 9 to 11 (ages 14 to 17) from three schools in a rural school board. Participants were all from small, farming communities, which surround a large urban centre. Of this sample, 81 (34.8%) were male and 150 (64.4%) were female. Two participants (0.8%) failed to identify their gender. The majority of the participants (58.8%) were in the 9th grade, with 30.9% in the 10th grade, and 9.7% in the 11th grade. This variability in grade distribution was due to the fact that sampling of 11th grade students was only conducted in one of the schools surveyed.

The participants were predominantly Caucasian (77.3%), with a small representation of African Canadian (2.6%), Asian (0.4%), Aboriginal (2.6%), Middle Eastern (0.4%), and other (5.2%) populations. The remainder of the participants (11.2%) failed to identify themselves as members of a particular ethnicity. This sample, although not demographically representative of larger urban populations, is typical of rural areas in Ontario

Materials

Aggression, gender and physical activity were measured using questionnaires. They were used as part of a larger scale battery of questionnaires used to assess the social networks of children and adolescents. The Peer Experiences Questionnaire (Prinstein, Boegers, & Vernberg, 2001), Gender Role Orientation Survey (Harter,

¹ A large number of students were not present on the day of survey administration due to scheduling conflicts with a citywide track and field meet.

As no information was collected on the 700 students who failed to return a parental consent form, no comparative information between participants and non-participants was available.

Baum, and Whitesell, 1999), Weekly Physical Activity Log, and the Physical Activity Questionnaire are described as follows:

Assessment of aggression. A revised version of the Peer Experiences Questionnaire (Vernberg, Jacobs, & Hershberger, 1999) was used in this study to assess adolescents' self-reported aggression and victimization (see Appendix A). Five items were revised, created, or added from prior instruments (Lopez, 1998) to reflect developmentally appropriate forms of relational aggression and victimization in adolescents. The final questionnaire included nine items, each presented in two versions. For the aggressor version of each item, adolescents were asked to indicate how often (1 = never, 2 = once or twice, 3 = a few times, 4 = about once a week, 5 = a few times a week) they engaged in each behaviour towards another peer (e.g., "I chased a person like I was really going to hurt him or her"). The victim version of the items asked how often, on the same scale, a particular behaviour had been directed towards them (e.g., "A person chased me like he or she was really trying to hurt me").

In the present study the subscales for relational aggression and overt aggression were used. The subscale relational aggression was made up of 5 unique questions such as: "How often have you tried to ruin another teen's reputation by spreading rumours about them?" and "How often have you not invited another teen to a party or social event even though you knew they wanted to go?" The subscale for overt aggression was made up of 4 questions such as: "How often have you chased another teen like you were going to hurt them?" and "How often have you threatened to beat up or hurt another teen?"

The initial version of the Peer Experiences Questionnaire has demonstrated good validity in related studies with children and adolescents. Significant correlations between self-reported victimization and parent-reported victimization (r s between .36 and .39, $p < .001$) have been observed in two separate samples (Champion, 1997; Vernberg, Fonagy, & Twemlow, 2000). Additionally, self-reported aggression and victimization on the Peer Experiences Questionnaire has been significantly correlated with peer reports of the same constructs (r s between .34 and .40, $p < .001$). Over a 6-month interval test-retest reliability has ranged between .48 and .52 (Prinstein, Boegers and Vernberg, 2001).

A principal components factor analysis using a varimax rotation has been conducted for the nine items of the Revised Peer Experiences Questionnaire. Separate factor analysis has been conducted for the victim and aggressor versions of this questionnaire yielding a two-factor solution, with expected loading onto factors of overt and relational forms of aggression or victimization and no significant cross-loadings (Prinstein, Boegers and Vernberg, 2001). Subscales have been computed as means of the items that loaded onto each factor, yielding four subscales: Overt Aggression (four items, $\alpha = .80$), Relational Aggression (five items, $\alpha = .77$), Overt Victimization (four items, $\alpha = .79$), and Relational Victimization (five items, $\alpha = .76$). Significant correlations have been revealed between overt and relational aggression ($r = .52$, $p < .001$) and between overt and relational victimization ($r = .51$, $p < .001$) (Prinstein, Boegers and Vernberg, 2001), replicating prior work (Crick & Grotpeter, 1996). As well, two additional subscales: Reputational Aggression/Victimizations (3 items, $\alpha = .76/.83$) and pro-social behaviour towards others/ Recipient of Pro-social

Behaviour (5 items, $\alpha = .79/.82$) were included in the Revised Peer Experiences Questionnaire (Prinstein, Boegers and Vernberg, 2001). In the current sample, Cronbach's alpha for the Peer Experiences Questionnaire was $\alpha = .895$.

Assessment of gender role orientation. Using a procedure outlined in a study by Harter, Baum, and Whitesell (1999), each participant received a gender role orientation score (see Appendix B). Using a self-report questionnaire format each participant was given a randomized list of 34 attributes (17 male attributes, 17 female attributes) and subsequently asked to pick as many words as needed (e.g., competitive, logical, considerate, rough) to describe themselves in general. Using this same list of attributes, the participants were then asked to describe themselves in six specific domains (e.g., with family, with friends, in romantic relationships, at school, in sports, in other leisure activities) by picking as many words as necessary from the attribute list given. The number of masculine and feminine attributes used for self-description was summed across all domains.

Each participant received two gender scores: a feminine score, indicating the proportion of feminine attributes selected and a masculine score, indicating the proportion of masculine attributes selected. Because proportion scores were used, scores for feminine gender orientation were exactly opposite to the scores for masculine gender orientation. Therefore, for the rest of this paper, gender scores will be characterized as femininity, understanding that masculinity can be investigated at the simultaneously. This procedure was similar in all respects to the procedure outlined by Harter et al. (1999) with the exception that the number of domains had been increased and no restriction was placed on the number of attributes each

participant selected. Though psychometric properties were absent for the Gender Role Orientation Questionnaire, it had been recently employed successfully (Harter & Whitesell, 1999; Bowker, Gadbois, & Cornock, 2003). Cronbach's alpha for the Traditional Gender Orientation Questionnaire was $\alpha = .876$.

Assessment of physical activity and sports participation. Participants were asked to fill out two short questionnaires regarding their involvement in physical activities. As there are no established measures of physical activity and sports participation, a physical activity questionnaire was devised through careful examination of the research questions and consultation with experts in the field of social psychological research of physical activity. In addition a pilot questionnaire was administered to 10 individuals to ensure easefulness, applicability and comprehensiveness of the questions posited.

The Physical Activity Questionnaire asked participants to list all structured physical activities they participated in on a regular basis, as well as specific characteristics regarding their involvement in each activity (e.g. duration, frequency, seasonal/year round, team/individual activity). Using a 5-point Likert scale type response, participants were asked to rate the level of competitiveness, intensity and physicality that they experienced for each activity they had listed (see Appendix C). This questionnaire provided a total number of physical activities score, which was calculated by adding up all the physical activities listed.

As a supplement to the Physical Activity Questionnaire, participants were asked to fill out a Weekly Physical Activity Log wherein they were asked to recount all of the physical activities they had participated in, within the last seven days. Using

the same 5-point Likert scale as the one completed in the Physical Activity Questionnaire, participants were asked about their levels of competitiveness, intensity and physicality (see Appendix D). The use of both the Physical Activity Questionnaire and the Weekly Physical Activity Log was intended to account for logistical problems. Due to time constraints, the participants in this study were only tested once; consequently the questionnaires become vulnerable to seasonal effects of participants physical activity regiments. Furthermore, self-report questionnaires regarding sports participation may facilitate a response style motivated by social desirability. By asking participants questions that were both general and specific in nature, a more accurate indication of sports participation levels would be obtained.²

Procedure

In order to participate, participants must have submitted a parental consent form as well as complete a participant consent form (see Appendices E and F). Parental consent forms were sent home with participants in April 2004. Administration of the questionnaires commenced in mid May 2004, with each participant completing the entire battery of questionnaires, including those measures described above, in a 1-hour session. Questionnaires were only administered once to each participant, with all students present on the day of testing given the opportunity to participate. Participants were informed that the surveys would be used to learn about their social networks and friendships, including topics such as bullying, relational aggression, and friendship quality. As all questions were in a multiple

² The Weekly Physical Activity Log was intended to be used as a verification of the Physical Activity Questionnaire, however, many participants failed to complete the log properly and subsequently, the log was dropped from the subsequent analyses.

choice self-report format, participants were advised that no correct answers existed, but that the researchers were simply looking for the answers which were most true for them. Prior to participant testing, complete confidentiality and anonymity was assured. In addition, a list of applicable resources, such as Kids Help Phone, was provided to the participants should they have required them.

Results

The main goal of this research was to investigate factors that influence adolescent aggression. Specifically, this study targeted sports participation and traditional gender orientation as potential critical factors in the prediction of overt and relational aggression in Ontario adolescents. Summary scores for all variables are displayed in Table 1.

Preliminary Analyses

A decision was made to use only total number of physical activities as the measure of sports participation. This decision was made because all sports participation variables were highly correlated with one another. Furthermore, every participant who filled out the Physical Activity Questionnaire would receive a score for total number of physical activities, whereas measures of physicality, intensity and competitiveness were only available for participants who participate in sports. Therefore subsequent analyses for sports participation will utilize the measure of total number of physical activities.³

³ Though only total numbers of physical activities were reported, all other levels of physical activity (competitiveness, intensity and physicality) were analyzed and no significant differences were found. As well, all sports participation variables were highly correlated with one another. The weakest correlation between physical activity variables was still stronger than .79.

Table 1*Summary Scores for all Variables*

	Mean (<i>SD</i>)	Range of Scores Achieved
Grade	9.56 (.80)	9-11
Relational Aggression	5.93 (2.12)	3-15
Overt Aggression	4.46 (2.09)	3-15
# of Physical Activities	2.23 (1.20)	0-8
Masculine Score	.495 (.17)	0-1
Feminine Score	.505 (.17)	0-1

A multiple analysis of variance (MANOVA) was conducted to investigate the possible influence of demographic variables on all other variables to determine if any demographic variables would need to be considered in subsequent analyses. A MANOVA evaluates whether the population means on a set of dependent variables vary across levels of factors. The MANOVA was conducted to determine if the dependent variables (overt aggression, relational aggression, total number of physical activities, femininity, and masculinity) varied as a function of the independent variables (school, grade, sex). No significant interaction effects were found; therefore main effects were examined. There were no significant main effects for grade or school, suggesting that there were no significant differences between schools or grades for the measures of gender orientation, sports participation or aggression. However, there was a significant main effect for sex on the group of dependent variables (Wilks' $\Lambda = .886$, $F(7,113) = 2.121$, $p = .001$)

A univariate analysis of variance (ANOVA) found that overt aggression differed significantly as a function of sex at the .006 level as adjusted by the Bonferroni adjustment ($F(1) = 7.318$, $p = .006$). Due to its extraneous effects on overt aggression, subsequent regression analyses have been altered to account for this finding by entering the variable 'sex' into the regression equation in the first step followed by all other variables on subsequent steps.

Direct Relations

The review of demographic variables confirmed the hypothesis that suggested that females would score significantly lower on measures of overt aggression than their male counterparts. A significant difference between groups was found; with

females reporting a lower mean score ($M= 3.93$, $SD= 1.56$) on overt aggression as compared to males ($M= 5.47$, $SD= 2.54$). In contrast, however, the hypothesis that females would score higher than the males on relational aggression was not supported. No significant differences between the groups emerged for this variable. As well, males and females did not differ significantly on total number of physical activities or on proportion scores of femininity or masculinity. Means and p values for males and females are displayed in Table 2.

In order to better investigate the hypotheses regarding possible sex differences, correlational analyses were run separately for males and females (see Tables 3 and 4). When correlations were run separately for males and females similar results were obtained. Significance was only reached for the correlation between overt aggression and relational aggression, and this result was consistent for males ($r= .491$, $p<.01$) and females ($r= .394$, $p<.01$). Though the distinct male and female correlation tables did not reveal any significant differences between the samples, a test to determine the difference between two independent correlations was conducted.

In order to test the difference between two independent correlations, r -values must be transformed to account for differences in sampling distribution (Fisher, 1921). Once the r -values were transformed, a z obtained value was computed and its associated probability was found. If the obtained z value was in excess of the critical value ± 1.96 than it would be likely that the two r 's are significantly different from one another. As opposed to the original predictions, results from these analyses did not reveal any significant differences between correlations of males and females between overt aggression, relational aggression, gender orientation and total

Table 2*Summary Scores of all Variables by Sex*

	<i>F</i>	<i>p</i> -value	<u>Females (n=148)</u>		<u>Males (n=76)</u>	
			Mean (<i>SD</i>)	Range	Mean (<i>SD</i>)	Range
Overt Aggression	2.78	.00*	3.93 (1.58)	3-11	5.47 (2.59)	3-15
Relational Aggression	1.15	.52	6.07 (2.49)	3-15	5.87 (1.9)	3-12
# of Physical Activities	1.50	.98	2.23 (1.36)	0-8	2.24 (1.49)	1-8
Masculine Score	1.35	.16	.47 (0.17)	0-1	.54 (0.16)	0-1
Feminine Score	1.35	.17	.52 (0.17)	0-1	.45 (0.16)	0-1

p < .01*

Table 3

Pearson Correlation Matrix for Males

Variable	1	2	3	4	5
1. Overt Aggression	-	.491**	.039	-.115	.115
2. Relational Aggression	-	-	-.074	-.021	.021
3. # of Physical Activities	-	-	-	.137	-.137
4. Masculinity Score	-	-	-	-	-1.0
5. Femininity Score	-	-	-	-	-

** $p < .01$

Table 4*Pearson Correlation Matrix for Females*

Variable	1	2	3	4	5
1. Overt Aggression	-	.394**	.171	.146	-.146
2. Relational Aggression	-	-	-.066	.164	-.164
3. # of Physical Activities	-	-	-	.122	-.122
4. Masculinity Score	-	-	-	-	-1.00
5. Femininity Score	-	-	-	-	-

** $p < .01$

Table 5*Pearson Correlation Matrix for Entire Sample*

Variable	1	2	3	4	5
1. Overt Aggression	-	.429**	.116	.199**	-.199*
2. Relational Aggression	-	-	-.057	.111	-.111
3. # of Physical Activities	-	-	-	.127	-.127
4. Masculinity Score	-	-	-	-	-1.0
5. Femininity Score	-	-	-	-	-

** $p < .01$

number of physical activities.

Subsequent hypotheses regarding the linear association between total number of physical activities, gender orientation, overt and relational aggression were examined with a correlation matrix for the entire sample of males and females combined (see Table 5). In opposition to initial predictions, total number of physical activities was not significantly associated with relational aggression ($r = .116$, ns) or overt aggression ($r = -.057$, ns). Moreover, total number of physical activities was not significantly correlated with masculinity ($r = .127$, ns) or femininity ($r = -.111$, ns). Contrary to the hypothesis that femininity would be positively related to relational aggression, no significant correlation was obtained ($r = -.111$, ns). However, as predicted overt aggression was significantly and positively correlated with masculinity ($r = .199$, $p < .01$) and significantly and negatively correlated with femininity ($r = -.199$, $p < .01$).

A subsequent analysis was conducted to compare participants who did not report being involved in any sports to the rest of the sample who had reportedly participated in at least one sport. On the dependant variables overt aggression, relational aggression and femininity. A MANOVA found no significant differences for the 59 participants who reported no sports versus the 172 participants who reported being involved in at least one sport (Wilks' $\Lambda = .990$, $F(2, 125) = .274$, $p = .361$).

Third Variable Analyses

In the present study, femininity and masculinity were calculated as proportion scores. As can be seen in Table 5, scores for femininity and masculinity were exactly opposites of one another; therefore manipulation of both variables would be

repetitious. Subsequent analyses of traditional gender orientation utilized scores of femininity only.

Moderated relations. A moderator variable “is an independent variable that affects the strength and/or the direction of the association between another independent variable and an outcome variable” (Bennett, 2000, pg 416). Because there was little association found between the predictor (total number of physical activities) and the outcomes (overt and relational aggression) investigating a moderated relation was advisable, as potentially the predictor (total number of physical activities) was only effective for some people (higher feminine vs. lower feminine).

Using this approach, a series of regression equations were computed. All variables were first standardized (as Z scores) to cater to differences in standard deviations. Main effect variables (total number of physical activities and femininity) were entered in the first step and then, relevant interactions created by multiplicative product (total number of physical activities x femininity) were entered in the second step. The significance in R^2 change was assessed to determine if the interaction added to the predictability of the overall equation.

Two separate equations were performed for overt and relational aggression. As noted, a previously performed MANOVA suggested that the variable “sex” was a significant influencing factor for overt aggression. Given this finding, for all equations involving overt aggression, sex was entered first on Step 1, followed by the rest of the relevant variables (sports participation and gender orientation) on Step 2, and then the interaction terms on Step 3. Regression analyses failed to identify either

of the interaction terms as significant predictors of overt or relational aggression. Results for overt aggression are displayed in Table 6 and results for relational aggression are displayed in Table 7. As no significant interactions were found when gender orientation was analyzed as a moderator and because the variables sex and gender orientation were not related, a decision to run an analysis using sex as a moderator was made. Analyses using sex as a moderated variable (rather than gender orientation) generated no significant interaction terms. Tables 8 and 9 report results for overt and relational aggression respectively.

Mediated relations. In order to investigate a mediated model, specific requirements related to the linear model had to be fulfilled (Baron & Kenny, 1986). Specifically, the mediated model requires significant direct relations between 1) mediator (femininity) and the independent variable (total number of physical activities), 2) the independent variable (total number of physical activities) and the outcome variable (overt and/or relational aggression), and 3) the outcome variable (overt and/or relational aggression) and the mediator (femininity). However, these relations were not found in the present data (see Figure 3). Total number of physical activities was not associated with overt or relational aggression in the present data. Although femininity level was associated with overt aggression, not all of the conditions were satisfied to investigate a mediated relation. Therefore statistical analysis of a mediated model would be erroneous.

Table 6*Hierarchical Regression Analyses that predicts Overt Aggression*

Step	Variable	Cumul. R^2	R^2 Change	β
1	Sex	.127	.127	-.356
2	Total # PA	.149	.022	.031
	Fem.			-.143
3	Total # PA x Fem	.151	.002	-.047

Note. Total # PA= Total number of physical activities; Fem= femininity; Total # PA x Fem = total number of physical activities by Femininity.

* $p < .05$. ** $p < .01$

Table 7*Hierarchical Regression Analyses That Predicts Relational Aggression*

Step	Variable	Cumul. R^2	R^2 Change	β
1	Total # PA	.29	.29	-.141
	Fem.			-.115
2	Total # PA x Fem	.29	.00	.018

Note. Total # PA= Total number of physical activities; Fem= femininity; Total # PA x Fem = total number of physical activities by Femininity.

* $p < .05$. ** $p < .01$

Table 8

Hierarchical Regression Analyses That Predicts Overt Aggression

Step	Variable	Cumul. R^2	R^2 Change	β
1	Total # PA	.157	.157	-.381
	Sex			.112
2	Total # PA x Sex	.160	.003	.055

Note. Total # PA= Total number of physical activities; Total # PA x Sex = total number of physical activities by Sex.

* $p < .05$. ** $p < .01$

Table 9*Hierarchical Regression Analyses That Predicts Relational Aggression*

Step	Variable	Cumul. R^2	R^2 Change	β
1	Total # PA	.005	.005	-.025
	Sex			-.069
2	Total # PA x Sex	.005	.00	.006

Note. Total # PA= Total number of physical activities; Total # PA x Sex = total number of physical activities by Sex.

* $p < .05$. ** $p < .01$

Figure 3.

Correlations demonstrating the erroneous nature of testing a mediator model that assessed the mediating influence of femininity on the relationship between total number of physical activities and overt aggression.

Discussion

The main purpose of this study was to investigate relations between aggression, gender orientation and sports participation in a sample of Ontario adolescents. The ensuing results provide insight into a largely unexplored area pertaining to the social psychology of youth. Analysis of this data set provided some surprising results. Of particular interest was the homogenous nature of this sample. Few differences on measures for sex, gender orientation and total number of physical activities were obtained. Participants from this study presented similar results in terms of total sports participation ($M=2.23$, $SD=1.20$), and relational Aggression ($M=5.93$, $SD=2.12$) regardless of biological sex. Furthermore, gender orientation scores for masculinity and femininity were on average ($M=.495$ and $.55$ respectively) very similar for both males and females and provided little variation ($SD=.17$). Main effect results will be discussed first, followed by third variable result discussion.

Direct Relations

It was hypothesized that males would score higher than females on overt aggression and females would score higher than males on relational aggression. Although males and females were similar on most variables, there was some disparity on prevalence of overt aggression, with males scoring significantly higher. This finding is in line with previous research that has suggested that males are more overtly aggressive than females (Coie & Dodge, 1998; Berkowitz, 1993; Block, 1983; Parke & Slaby, 1988). Possibly, males and females differed on this variable due to biological factors. For example, research has demonstrated consistently higher levels of testosterone in males, a

hormone linked in the literature to overt forms of aggression (Olweus, et al, 1988). Furthermore, research has also demonstrated that females are better able to verbally express emotions and feelings due to higher functioning of the left hemisphere as compared to males (Lynam, Moffitt, & Stouthamer-Loeber, 1993), which may contribute to different aggressive outcomes.

It is also possible however, that elevated levels of overt aggression in this male sample are explained by influences of societal expectations on behaviour. As suggested in past research by Underwood (2003), females exhibit less overt aggression because overtly aggressive behaviour directly opposes social schemas that depict females as sweet and kind (i.e. traditionally feminine). Therefore, females would actually use more overt aggression if it were deemed more socially acceptable.

Another plausible explanation for this result is based on friendship structures of male and female peer groups. Crick and Grotpeter (1995) suggest that children aggress in various forms depending on ways to best damage goals that are valued by their respective peer group. Whereas females tend to value co-operation and intimacy in small groups, male friendship structures tend to emphasize solidarity and loyalty in larger social networks (Crick & Grotpeter, 1995). Given these differences, it would be more effective for boys to employ overtly aggressive behaviour strategies and might be the reason that this study found higher levels of overt aggression in males.

At the same time, this explanation suggests that females should employ more relationally aggressive strategies than males, which was not evident in this study. Although it was hypothesized that females would score higher on relational aggression, the findings did not reveal this. The discrepancy corroborates previous

research that suggests that relational aggression is distinctly different from overt aggression (Pepler & Craig, 2002; Rys & Bear, 1997), rather than simply a female version of aggression (Crick & Grotpeter, 1995). As such, one interpretation for this finding is that there are no differences between males and females on levels of relational aggression. Past research in this area has seen conflicting results with some researchers suggesting that females are more relationally aggressive (Crick & Grotpeter, 1995), some researchers suggesting that males and females are equal on measures of relational aggression (Daniels, et. Al., 2000; Rys & Bear, 1997), and yet other researchers have found that boys are more relationally aggressive than girls (Tomada & Schneider, 1997; McEvoy, et al, 2003).

Results from this study suggest that males and females do not differ in terms of relational aggression, which has implications for future research and practice. Recent education programs and disciplinary actions for relational aggression have been targeted towards an audience of females. The results from this study suggest that males could benefit as much as females from programs aimed at reducing relational aggression. Programs aimed at a male audience should be inclusive of both overt and relational aggression. As well, research should employ longitudinal designs, as it is possible that males use relational aggression as a stepping-stone towards overt aggression. This idea is further substantiated by the larger correlations found between overt and relational aggression in this study for boys compared to girls, as well as in previous research by Crick (1995) and Underwood (2003). Programming that targets relational aggression in both males and females may positively impact levels of overt aggression as well.

Another possible explanation for the finding that males and females scored similarly on levels of relational aggression could be because of the type of measures used in this study. Some research has suggested that self-report measures do not create the same male/female split on levels of relational aggression that observation or peer nomination (McEvoy, et al., 2003; Odgers & Moretti, 2002). Again, based on the premise that females have a desire to maintain an image of being sweet and kind, the likelihood of acknowledging themselves as aggressive or “mean” is reduced. Consequently, perhaps this result was more a function of social desirability rather than factual information. Although it was believed that sex differences would emerge, participants from this study presented similar results in terms of total number of physical activities, and relational aggression regardless of biological sex.

Despite previous research that has shown females to be substantially less physically active than males (Craig et al, 2001), the present study found no significant differences. This finding may suggest that widespread campaigns targeted at increasing female participation in sports may be working. However, in order to draw a conclusion such as that, there should be a standard for which to compare this group’s total number of physical activities on, a statistic that was not located. Given that the average number of physical activities participated in per year was only 2, it is doubtful that this difference represents a substantial increase in sports participation level using this measure.

Future research needs to investigate not only the quantity of physical activities, but also the qualities they are associated with. For example, the type of physical activity participants engaged in was not identified for the participants in this study. It

is possible that a male/female split might have been more apparent if type of physical activity was accounted for, as females may be more likely to participate in individual, low impact activities such as dancing or walking.

An interesting finding from this study was the similarity of males and females on gender orientation. Scores of masculinity and femininity were on average (.495 and .505 respectively) very similar for both males and females and provided little variation (.17). This result may be reflective of the samples age and subsequent developmental stage. The present data consisted of a set of individuals who rated their gender androgynously; and hence there were few extreme cases of high or low femininity from which we could extract information regarding the relation between femininity and relational aggression.

This sample consisted of a group of individuals who ranged in age from 14 to 17 years; therefore gender identities may not have been firmly established yet, resulting in a more androgynous rating, moreover if gender was clearly established, adolescents may be more reluctant to admit that they are an extreme case due to societal pressures and stigma associated with exhibiting cross-sex gender stereotyped characteristics. Furthermore, previous research on gender development has suggested that as children develop they become more flexible and tolerant of gender stereotype violations, so perhaps a younger sample may produce very different results, which might be more in line with the present study's hypotheses. Future research should examine both preadolescent and adolescent samples.

The androgynous nature of this population had implications for the subsequent analyses, as lack of sample diversity made finding significant results difficult. The

androgynous nature of this sample was very similar to results achieved in other research utilizing the same measure (Longo, 2005; Bowker, 2003). Therefore, this result may be reflective of a poor measure of gender orientation rather than the actual sample. Future studies employing a different measure of gender orientation should be conducted in order to determine its accuracy.

Though it was expected that total number of physical activities would be negatively associated with both overt and relational aggression, no significant relationships were found. This result suggests that number of different physical activities that one participates in is not related to one's level of aggression, such results fail to substantiate either the Spillover (Bloom & Smith, 1996) or Catharsis (Freud, 1920; Goldstone & Reeves, 1995) Theories. One explanation for this is the potential presence of two conflicting theories working against each other in the same sample. It is conceivable that individuals react to sports participation in different ways. Perhaps some adolescents react in a way that is aligned with Catharsis Theory (Freud, 1920; Goldstone & Reeves, 1995), in that sports participation acts as a positive outlet. In opposition, perhaps other individuals react negatively in ways that Spillover theorists (Bloom & Smith, 1996) would predict; with sports participants generalizing what is appropriate in sport to other unacceptable venues such as the playground.

It was hypothesized that femininity would be positively associated with relational aggression and negatively associated with overt aggression. As predicted, results indicated a significant negative relation between femininity and overt aggression, suggesting that as levels of femininity decrease (or as levels of masculinity increase), levels of overt aggression increase. This finding has implications for future

practice and research. Future research should examine the potential to incorporate gender education into programs aimed at reducing overt aggression. Perhaps, programs that endorse traditional feminine characteristics will be more successful in decreasing levels of overt aggression for boys and girls. This idea receives further support, as the prediction that femininity would be positively related to relational aggression was not substantiated. Therefore, these results suggest that programs aimed at increasing levels of femininity to decrease overt aggression would not adversely affect levels of relational aggression.

However, as previously stated, the reason that femininity was not associated with relational aggression may be a consequence of the particular measures used in this study. Based on sample age and necessary data collection format, the particular aggression measure utilized in this study was most appropriate, however, one drawback was the exclusion of social/relational items such as negative facial expressions and body movements that may be essential to understanding and recognizing the way in which highly feminine individuals aggress in covert ways (Underwood, 2003). This may be an important implication to consider when interpreting all results with regard to relational aggression.

It was also predicted that femininity would be negatively correlated with total number of physical activities, though this hypothesis was not confirmed. In the current data there was no significant relation between these two variables, suggesting that level of femininity was not predictive of total number of physical activities for participants in this study. Although not statistically significant, results indicated a possible trend for femininity being negatively associated with total number of physical

activities, or otherwise stated, masculinity was more positively related to increased numbers of sports. Perhaps if the sample size was larger, the now approaching levels of significance could be attained and a relation could be interpreted.

However, these results suggest that femininity is not related to total number of physical activities. It is possible that feminine individuals participate in sports because they are more concerned with their appearance than those who are more masculine. Therefore, future research should examine the motivations involved in athletic participation in high school students as well as the qualities that individuals associate with participation in various different activities. It could be suggested that masculine individuals are drawn to actual sports, while feminine individuals are more active in physical activities that are traditionally viewed as feminine.

Third Variable Hypotheses

In addition to exploring the direct relations between sex, gender orientation, total number of physical activities and aggression, another purpose of the present research was to examine the relation between sports participation and aggression and the possible moderating role of gender orientation. Such information could be beneficial in our attempt to understand literature that commonly reports sex differences for sports participation and aggressive behaviour in adolescents.

Moderated relations. The goal of these analyses was to further explore whether the relation between sports participation and aggression was different based on one's level of femininity. It was predicted that sports participation and gender orientation would interact to affect levels of aggression. Specifically, participants who scored high feminine and low sports participation would also score high on relational

aggression. As well, the interaction between low feminine and high sports participation would be related to increased overt aggression. Analyses that examined the possible moderating effects of femininity were conducted; though no significant interactions emerged suggesting that femininity did not have a moderating effect on the relation between sports participation and overt aggression.

Bennett (2000), reports that an interaction term may be difficult to detect statistically if the sample does not have a full range of values for the independent variable and the moderator variable. Thus the homogeneous nature of the sample may have weakened my ability to detect a moderator effect. I suspect that a larger, more diverse sample would likely produce significant interaction terms.

The lack of significant interactions stimulates multiple possible interpretations. First, the relation between these variables may not be as complicated as presently conceived. These results suggest that varying degrees of femininity does not affect the relations between sports participation and aggression. As such, other possible moderating variables may exist in the relation between sports participation and aggression. Further research needs to be conducted that investigates both the existence and nature of the relation between sports participation and aggression. Given the current findings, it is speculated however that the role of gender orientation in this context of sports participation and aggression should be redefined, in that it should be differentiated from biological sex. An investigation of a possible mediating effect, though exploratory, would further our understanding of this relation.

Mediated relations. Although a mediated model was not initially hypothesized, additional analyses were investigated to further explore the nature of the relationships

between sports participation, gender orientation, and aggression. It was speculated that participants high in sports participation would likely be less feminine, which in turn would be associated more overt aggression. However, this analysis could not be conducted because not all of the requirements were met. As this data did not suggest a relation between total number of physical activities and aggression, there was no relation to mediate; hence a mediated analysis would be erroneous.

Caveats and Future Directions.

Although these findings are a stepping-stone to a better understanding of the association between sports participation, gender orientation and aggression, several limitations need to be discussed. To begin, issues related to sample size and diversity should to be addressed. Sample size was significantly decreased at one particular school due to a citywide track and field competition; a scheduling conflict overlooked by school administration. However, due to strict time constraints and scheduling conflicts, data collection could not be delayed. This limited our research as conclusions have now been based upon a smaller, possibly biased sample. Furthermore, the absence of a large proportion of athletes raises significant concerns regarding the generalizability of this present sample, though analysis that made comparisons between schools did not reveal any significant differences in mean levels of sports participation.

This study was also limited in its exclusive use of a rural sample of adolescents. Individuals in rural communities may possess certain characteristics, such as lower socio-economic status or limited access to sports participation resources, which might have limited their sports participation and may restrict its generalizability

to other populations. Future research should examine other demographic variables such as socio-economic status and resource accessibility. As well, future research should look at sports participation, gender orientation and aggression in an urban sample or compare these findings to urban and rural samples to determine if current findings present an under-representation of actual sports participation. Additionally, the sample of individuals utilized in the current study were self/parent-selected and not everyone who was invited to participate took part in the testing. As well, this sample did not provide an even male/female split, which is hazardous when making comparisons between the groups. Future studies should aim at sampling a more generalizable group, which would make results more transferable to the general population.

Further, investigation into various forms of sports participation is necessary. The present study examined only a few facets of how sports participation could be quantified; there are numerous other variables that could be examined as well. For example, the type of activity (i.e. ballet vs. judo) may provoke different expressions of behaviour; as well, activities that are built on teamwork frameworks (e.g. football) rather than boasting individual strategies (e.g. gymnastics) may foster different skills and behaviours. Those activities that are conducted within larger social networks, such as team-oriented activities, might have greater implications for peer interactions, as previous research has found that the intimate friendship structure of girls is more conducive to social relational aggression than the larger friendship groups of boys (Crick, 1995). As well, the motivations behind youth activity participation as well as overall skill levels and success need to be examined.

As previously mentioned, another possible drawback of this research was the utilization of a relational aggression scale that excluded important social aggressive variables such as negative gestures and facial expressions (Underwood, 2003). Future research should investigate the broader realm of social aggression as well. Differences in results would suggest that non-verbal measures of social aggression are particularly important when investigating gender-stereotyped behaviour. As well, results from this study may have been influenced by the measure of aggression's self-report format, which may be subject to social bias (McEvoy, et al., 2003; Odgers & Moretti, 2002). Future studies that utilize multi-method, and multi-scale evaluations, including peer and teacher report as well as self-report would be beneficial.

Additionally, this study generated multiple questions in regard to gender orientation. Past research utilizing this same measure of gender orientation found similar androgynous results (Bowker, 2002; Longo, 2005). Further investigation into the effectiveness of this as a measure should be conducted. Future research should explore samples with greater diversity, as participants with extreme scores will make research more clear. Future research would benefit from targeting specific groups of participants, such as high feminine and low feminine as opposed to those who are generally balanced. As well, it would be interesting if future research examined the influence of opposite sex gender stereotyped individuals, such as males who are extreme feminine or females who are extreme masculine.

Results from this study have highlighted a number of remarkable findings. Consistent with previous research, males were found to be significantly more overtly aggressive than females. Previous conflicting research that have found females to be

more relationally aggressive than males (Crick, 1995) as well as research that has found males to be more relationally aggressive than females (Tomada & Schneider, 1997), was not replicated. This study found no sex differences for relational aggression. As well, no relation was found between number of physical activities and aggression. There are two possible interpretations that can be drawn from that finding. Perhaps there really is no relationship between sports participation and aggression. Or a more likely scenario suggests that a relation between these variables does exist, however, larger more diverse samples that include athletes from a multitude of sporting contexts is necessary to detect the predicted results. Another important finding was the lack of association found between sex and gender orientations in this sample. Future research that explores the ways in which adolescent gender orientation is conceived would provide valuable information about human development.

As no relation was found, positive or negative, between total number of physical activities and aggression, this research makes can not provide support for either the Catharsis or the Spillover Theories. It is speculated that perhaps both of these theories are working and active, in different subgroups of people. Future research should investigate the different characteristics that might contribute to how they react to their own sport participation.

Previous researchers have theorized that lack of spare time or boredom is the real reason that sports would effectively reduce antisocial behaviour and aggression may still hold (Morris, Sallybanks, Willis, & Makkai, 2003; Owens, Slee and Shute, 2001). This study only looked at sports participation, though a number of other recreational activities could have been explored, including participation in the arts,

spiritual/religious activities, scholastic pursuits, employment, or other leisure activities such as reading. Future studies should investigate these possibilities as well.

The relatively unexplored nature of this research area contributed to many of the limitations experienced in the present study. In addition, the nature of the research contributed to an influx of questions and inquiries about various facets of sports participation, gender and aggression research. Although this study had certain limitations, it is the first step towards a better understanding of the relation between sports participation, gender orientation and aggression. Additional research needs to be conducted in order to address the limitations and questions put forth by this study.

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Appendix A: Peer Experiences Questionnaire

These questions ask about some things that often happen between teens. Please rate how often you have done these things to others and how often these things have happened to you in the past year.

How often have you done this to another person?

1. I left another teen out of an activity or conversation that they really wanted to be in.
 - a. Never
 - b. Once or twice
 - c. A few times
 - d. About once a week
 - e. A few times a week
2. I chased a teen like I was really trying to hurt him or her.
 - a. Never
 - b. Once or twice
 - c. A few times
 - d. About once a week
 - e. A few times a week
3. I helped another teen when they were having a problem.
 - a. Never
 - b. Once or twice
 - c. A few times
 - d. About once a week
 - e. A few times a week
4. I would not sit near another teen that wanted to sit with me at lunch or in class.
 - a. Never
 - b. Once or twice
 - c. A few times
 - d. About once a week
 - e. A few times a week
5. I tried to damage another teen's social reputation by spreading rumours about them.
 - a. Never
 - b. Once or twice
 - c. A few times
 - d. About once a week
 - e. A few times a week

6. I was nice and friendly to a teen when they needed help.
 - a. Never
 - b. Once or twice
 - c. A few times
 - d. About once a week
 - e. A few times a week
7. I did not invite another teen to a party or other social event even though I knew that the teen wanted to go.
 - a. Never
 - b. Once or twice
 - c. A few times
 - d. About once a week
 - e. A few times a week
8. I left another teen out of what I was doing?
 - a. Never
 - b. Once or twice
 - c. A few times
 - d. About once a week
 - e. A few times a week
9. I told another teen I would not be friends with them anymore to get back at them.
 - a. Never
 - b. Once or twice
 - c. A few times
 - d. About once a week
 - e. A few times a week
10. I stuck up for a teen who was being picked on or excluded.
 - a. Never
 - b. Once or twice
 - c. A few times
 - d. About once a week
 - e. A few times a week
11. I gossiped about another teen so others would not like him/her.
 - a. Never
 - b. Once or twice
 - c. A few times
 - d. About once a week
 - e. A few times a week

12. I threatened to hurt or beat up another teen.
 - a. Never
 - b. Once or twice
 - c. A few times
 - d. About once a week
 - e. A few times a week
13. I gave another teen the silent treatment (did not talk to them on purpose).
 - a. Never
 - b. Once or twice
 - c. A few times
 - d. About once a week
 - e. A few times a week
14. I said mean things about a teen so that other people would think s/he was a loser.
 - a. Never
 - b. Once or twice
 - c. A few times
 - d. About once a week
 - e. A few times a week
15. I helped a teen join into a group or conversation.
 - a. Never
 - b. Once or twice
 - c. A few times
 - d. About once a week
 - e. A few times a week
16. I hit, kicked, or pushed another teen in a mean way.
 - a. Never
 - b. Once or twice
 - c. A few times
 - d. About once a week
 - e. A few times a week
17. I teased another teen in a mean way, by saying rude things or calling him or her bad names.
 - a. Never
 - b. Once or twice
 - c. A few times
 - d. About once a week
 - e. A few times a week

18. I spent time with a teen when they had no one else to hang out with.
- a. Never
 - b. Once or twice
 - c. A few times
 - d. About once a week
 - e. A few times a week

How often has this happened to you?

1. Some teens left me out of a conversation that I really wanted to be included in.
- a. Never
 - b. Once or twice
 - c. A few times
 - d. About once a week
 - e. A few times a week
2. A teen chased me like he or her was going to hurt me.
- a. Never
 - b. Once or twice
 - c. A few times
 - d. About once a week
 - e. A few times a week
3. Another teen helped me when I had a problem.
- a. Never
 - b. Once or twice
 - c. A few times
 - d. About once a week
 - e. A few times a week
4. A teen I wanted to be with a lunch or class would not sit near me.
- a. Never
 - b. Once or twice
 - c. A few times
 - d. About once a week
 - e. A few times a week

5. A teen tried to damage my social reputation by spreading rumours about me.
 - a. Never
 - b. Once or twice
 - c. A few times
 - d. About once a week
 - e. A few times a week
6. Another teen was nice and friendly when I needed help.
 - a. Never
 - b. Once or twice
 - c. A few times
 - d. About once a week
 - e. A few times a week
7. A teen did not invite me to a party or social event even though they knew I had wanted to go.
 - a. Never
 - b. Once or twice
 - c. A few times
 - d. About once a week
 - e. A few times a week
8. A teen left me out of what they were doing.
 - a. Never
 - b. Once or twice
 - c. A few times
 - d. About once a week
 - e. A few times a week
9. To get back at me, another teen told me that they would not be friends with me anymore.
 - a. Never
 - b. Once or twice
 - c. A few times
 - d. About once a week
 - e. A few times a week
10. Another teen stuck up for me when I was being picked on or excluded.
 - a. Never
 - b. Once or twice
 - c. A few times
 - d. About once a week
 - e. A few times a week

11. Another teen gossiped about me so that others would not like me.
 - a. Never
 - b. Once or twice
 - c. A few times
 - d. About once a week
 - e. A few times a week
12. A teen threatened to hurt or beat me up.
 - a. Never
 - b. Once or twice
 - c. A few times
 - d. About once a week
 - e. A few times a week
13. A teen gave me the silent treatment (did not talk to me on purpose).
 - a. Never
 - b. Once or twice
 - c. A few times
 - d. About once a week
 - e. A few times a week
14. Another teen said mean things about me so that other people would think I was a loser.
 - a. Never
 - b. Once or twice
 - c. A few times
 - d. About once a week
 - e. A few times a week
15. A teen helped me join into a conversation or group.
 - a. Never
 - b. Once or twice
 - c. A few times
 - d. About once a week
 - e. A few times a week
16. A teen hit, kicked, or pushed me in a mean way.
 - a. Never
 - b. Once or twice
 - c. A few times
 - d. About once a week
 - e. A few times a week

17. A teen teased me in a mean way, by saying rude things or calling me bad names.
 - a. Never
 - b. Once or twice
 - c. A few times
 - d. About once a week
 - e. A few times a week
18. A teen spent time with me when I had no one else to hang out with.
 - a. Never
 - b. Once or twice
 - c. A few times
 - d. About once a week
 - e. A few times a week

Appendix B: Gender Orientation Questionnaire

Self- Descriptions Task

In this study, we are interested in how you describe yourself generally as well as in 6 specific domains of your life, using the list of attributes given on the next page. Your task is to describe yourself in general (“How I am in general”) as well as within 6 domains (family, friends, romantic relationships, leisure activities, sports, and school), using as many attributes as you feel is necessary. Keep in mind that you may use the same trait in more than one group. For example, you may find that you want to use the word “leader” in several groups.

Once you have completed your “self” descriptions for each of the domains listed on the next page, please rank them in order of importance. In your life, which component of your self or “who you are” is most important, then second in importance, etc. Beside each domain self, on the line marked “rank”, indicate the order of importance of your selves.

Remember:

1. You are describing yourself in this task, not people in general.
2. Use as many traits as you like and reuse any traits when necessary.
3. Different people will finish at different times so take as much time as you need to even if others finish before you.
4. Remember, after you have listed all the relevant traits in each domain, to rank your selves in order of importance.

5.

Co-operative
Independent
Follower
Competitive
Shy
Logical
Modest
Individualistic
Dependant
Confident
Risk-taking
Understanding
Fearful
Considerate
Dominant
Sentimental
Affectionate
Aggressive
Leader
Athletic
Gentle
Energetic
Needs approval
Soft Spoken
Rough
Unemotional
Kind
Arrogant
Forgiving
Nurturing
Ambitious
Cry Easily
Outspoken
Decisive

Self Description Task

<p align="center">“How I am in general”</p>
<p align="center">“How I am with my family”</p> <p>Rank _____</p>
<p align="center">“How I am with my friends”</p> <p>Rank _____</p>
<p align="center">“How I am in Romantic Relationships”</p> <p>Rank _____</p>
<p align="center">“How I am when playing sports”</p> <p>Rank _____</p>

“How I am when I am doing other leisure activities”

Rank _____

“How I am at school”

Rank _____

Appendix C: Physical Activity Questionnaire

Physical Activity Questionnaire

Youth often get the opportunity to participate in a variety of physical activities. List all of the **structured physical activities** that you participate in throughout the year in the chart below. Indicate the levels of competitiveness, intensity, and physicality for each activity by using the rating scales on the next page as guides. If you do not participate in any physical activities, leave it blank and

Physical Activity	How many times per week?	How many min. per week?	Season or year round?	Team or individual	Level of competitiveness *	Level of intensity **	Level of physicality ***
<i>e.g. soccer</i>	2	90 min.	<u>Seasonal</u>	Team	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5
					1 2 3 4 5	1 2 3 4 5	1 2 3 4 5
					1 2 3 4 5	1 2 3 4 5	1 2 3 4 5
					1 2 3 4 5	1 2 3 4 5	1 2 3 4 5
					1 2 3 4 5	1 2 3 4 5	1 2 3 4 5
					1 2 3 4 5	1 2 3 4 5	1 2 3 4 5
					1 2 3 4 5	1 2 3 4 5	1 2 3 4 5
					1 2 3 4 5	1 2 3 4 5	1 2 3 4 5
					1 2 3 4 5	1 2 3 4 5	1 2 3 4 5
					1 2 3 4 5	1 2 3 4 5	1 2 3 4 5
					1 2 3 4 5	1 2 3 4 5	1 2 3 4 5
					1 2 3 4 5	1 2 3 4 5	1 2 3 4 5
					1 2 3 4 5	1 2 3 4 5	1 2 3 4 5
					1 2 3 4 5	1 2 3 4 5	1 2 3 4 5

Level of Competitiveness: How competitive is the activity you are participating in?

1 Just for fun (don't keep score)	2	3 Recreation/community league (keep score)	4	5 Competitive Team (play to win)
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**** Level of Intensity:** How intense is your body working during the physical activity?

1 Light: minimal effort (e.g. walking, bowling, golf)	2	3 Moderate: not exhausting (e.g. baseball, volleyball, skiing)	4	5 High: exhausting (e.g. hockey, soccer, football, basketball)
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*****Level of Physicality:** How physical is the activity you participate in?

1 None: no physical contact with others (e.g. badminton, track)	2	3 Moderate: some physical contact (e.g. baseball, soccer)	4	5 High: A lot of physical contact (e.g. football, rugby, hockey)
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Considering a 7-day period (a week) during your leisure time, how often do you engage in any regular activity enough to work up a sweat (heart beats rapidly)?

Appendix D: Weekly Physical Activity Log

Weekly Physical Activity Log

Using this chart, recount each physical activity you participated in, within the **last 7 days** (a week). Fill in the blanks under each day so that you know which day of the week you are reporting on, starting with yesterday and working back 7 days. Indicate levels of competitiveness, intensity and physicality for each activity by using the **rating scales below** as guides. Leave the days in which you did not participate in physical activity blank. Remember that physical activity does not necessarily have to be a sport. It could be walking the dog, labour intensive work, vacuuming, or shoveling snow, etc.

Day	Activity	Duration (minutes)	Level of competitiveness *	Level of Intensity **	Level of Physicality ***
Day 1 (Yesterday)	<i>E.g. jogging</i>	<i>15 min</i>	<i>1</i>	<i>2</i>	<i>1</i>
Day 2					
Day 3					
Day 4					
Day 5					

Day 6					
Day 7					

***Level of Competitiveness:** How competitive is the activity you are participating in?

1 Just for fun	2	3 Recreation/community league	4	5 Competitive league (play to win)
--------------------------	----------	--	----------	---

**** Level of Intensity:** How intense is your body working during the physical activity?

1 Light: minimal effort (e.g. bowling, golf, walking, horseback riding etc.)	2	3 Moderate: not exhausting (e.g. baseball, volleyball, skiing, etc.)	4	5 High: exhausting (e.g. hockey, soccer, running, football, basketball, etc.)
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*****Level of Physicality:** How physical is the activity you participate in?

1 None: no physical contact with others (e.g. volleyball, track and field, etc.)	2	3 Moderate: some Physical with others (e.g. baseball basketball, soccer, etc.)	4	5 High: A lot of physical contact with others (e.g football, boxing, rugby, hockey, etc.)
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Would you consider this 7-day period to be typical of your average routine? Yes / No

Appendix E: Parental Permission Form

Dear Parents:

We are graduate students from Carleton University, and we are conducting a study that looks at the network structures of children. The choices, interactions and exchanges that children make in social situations have long-term implications for all aspects of his/her life. I hope that this project will lead to a better understanding of how children and youth deal with conflict, friendship and leadership opportunities. We would like to include your child in this study.

For a one hour session in April, we will ask participants to fill out a questionnaire booklet inquiring about their social world (examining specifically the areas of pro-social and aggressive behaviour, school safety, bullying and friendship). Your child's responses will not be identified by name and we will not use information from school records.

This study has been officially approved by your child's school Principal, the Upper Canada School Board, as well as Carleton University's Ethics committee. When the study is complete a report on the findings will be available to interested parents in the school library.

Please complete the form at the bottom of this letter and return it to your child's teacher by March 31, 2004.

We sincerely appreciate your co-operation. If you would like to receive more information about the study, please contact us through the school Principal.

Thank you.
Julia Peters and Yvonne Stys
Department of Psychology
Carleton University

School Name _____

Child's Name _____

Check Here

_____ I give permission for my child to participate in the Carleton University study conducted by Julia Peters and Yvonne Stys.

_____ I do **NOT** give permission for my child to participate in Carleton University's study conducted by Julia Peters and Yvonne Stys.

Signature of parent/guardian _____ Date _____

Please return to your child's class teacher by April 30, 2004

Appendix F Participant Consent Form

Name _____
Birth date _____

Student Permission Form

In order to participate in any research study, the researchers first have to have your permission to allow them to include you in their research. In order to get this permission, just read the following statements below. If you agree with the statements and want to participate, simply fill out the information above and sign and date below. If you have any questions about the study or research at Carleton in general, some phone numbers are provided for you at the bottom of the sheet. Thanks!

Please read and sign the following statement if you wish to be in our study:

I understand that I have been asked to be in a research study that graduate students from Carleton University are doing about the social relationships of children and youth.

I know that if I agree to be in the study I will be asked to fill in some questionnaires about myself, and my daily social experiences.

I know that I do not have to be in the study and that even if I start to take part in it, I can quit any time.

I know that I can ask any questions about the study before I participate.

I also know that my answers will be kept secret and will not be shown to anyone, not even my teachers or my parents. Only the research team from Carleton University will know what I say on the questionnaire.

Signature: _____
Date: _____