

Running head: SPORT AND SOCIAL BEHAVIOUR

Come Out and Play: Shyness in Childhood and the Benefits of Sports Participation

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Abstract

Whereas sports participation has generally been associated with positive psychosocial outcomes, little research has been conducted on the interplay between child characteristics and sport participation. The purpose of the current study was to examine organized sports participation as a protective factor against the negative correlates of shyness, both concurrently and longitudinally. As a comparison group, children's aggressive behaviour was also examined. Participants were 355 children in grades 4 and 5; 201 (56%) were retained at Time 2. Children completed assessments at both Time 1 and Time 2 regarding their social behaviour (shyness, aggression), sports participation, social anxiety, self-esteem, coping strategies, loneliness, positive and negative affect, and well-being. Parents also completed a measure of their child's social skills. The results revealed that sports participation was related to greater social skills, self-esteem, and positive adjustment for all children. Children who participated in organized sports were also found to exhibit fewer externalizing problem behaviours. Shyness was associated with social skill deficiencies, internalizing problems, and the use of an anxious coping style. Aggression was found to be related to social skill deficits, more negative coping styles, as well as both internalizing and externalizing difficulties. Unique to the current study were the findings that organized sports participation was found to be particularly beneficial for children with peer relations difficulties. As compared to their "average" peers, shy and aggressive sports participants reported significantly higher general self-esteem than did non-sports participants. In addition, shy children who participated in sport over time reported a significant decrease in anxiety. Results are discussed in terms of the role of sports as a social context in which children have not only the opportunity to

engage in physical activity but also to enhance peer relations. Moreover, the unique contribution of sport to the psychological well-being of shy children was explored.

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Positive peer relations in childhood are consistently associated with positive social and psychological adjustment. Although the literature on children's peer relations is quite extensive, much of the research has considered the academic context. However, this focus on the classroom and school context "provides a narrow view of childhood social relations, and reflects neither the breadth nor the dynamic nature of children's peer interactions" (Hymel, Vaillencourt, McDougall, & Renshaw, 2002, p. 273). Other social milieus, such as the sport context, provide opportunities for peer interaction, and also provide an environment which fosters social support, security and self-esteem. Sport is clearly tied to developing peer relations, as children who have increased opportunities for social interaction are expected to be more socially skilled and have higher functioning.

Sports participation has been argued to have both a positive and negative impact on childhood outcomes. However, relatively little is known about the potentially unique influence of sports participation for different "types" of children (e.g., shy, aggressive children). It was the objective of this research to investigate the interplay between sport and social behaviour in the prediction of adjustment outcomes. In particular, sport as a protective factor for shy children was explored.

Despite the benefits that might incur from *exercise* (i.e., engaging in physical activity for the purpose of health benefits or weight management), the focus of the present research is on *sport* as a social experience for children. Sport differs from exercise in that sport participants not only incur physical benefits, but also partake in a social experience. That is, they are socially active and participate with a group of peers, making sport a social domain. Even so-called 'individual' sports generally consist of practice sessions that include a social environment. The label individual by and large

refers more so to the type of competition rather than the practice environment. In as much as the literature discusses both sport and exercise, the emphasis for the present study was on sport participation for two reasons: a) sport, as compared to exercise/fitness, is more common among children, and b) sport provides a social context in which social development is enhanced. Thus, sport can be conceived of as a social environment in which children interact with their peers and develop both physical and psychological skills that promote well-being.

The literature exploring the benefits of sports participation is first reviewed, followed by an examination of shyness and aggression. Finally, the relation between sport and shyness will be examined in consideration of the various theoretical and empirical links available in the literature.

Benefits of Sports Participation

As a leader in the study of child development, Piaget (1948) suggested that peer interaction and relationships were important in the 'normal' trajectory of child development. He argued that social life is necessary for proper mental and social functioning, in particular in developing cooperation and morality and therefore decreasing the child's egocentrism and increasing socialization. Piaget further stipulated that the most effective form of social learning occurs in group settings. Similarly, Mead (1932) postulated that the self and relations with others were greatly influenced by the social groups and/or activities the child engages in, whereby these social organizations define or determine the child's self- and other-understanding. Therefore, from a historical perspective peer relations, in particular group activities, have been argued to be critical in children's social development.

The emphasis on peer interaction for positive social development has not dwindled. Rubin, Bukowski and Parker (1998) suggested that social interaction, friendships, and group membership are quintessential areas of study with respect to social development. Positive experiences in each of these domains are related to positive outcomes. However, children who are lacking in social experience may be at risk for later social difficulties and psychological maladjustment.

Veroff (1969) was essentially the first to argue for the specific importance of *sport* as a domain for psychosocial development. His review of social evaluation and children's achievement motivation highlighted the role of athletics in meeting social standards and gaining social approval. Sage (1986) later suggested that sport may be a source of informal play, wherein children take on certain roles and social situations. It can also be an organized social milieu, transmitting hierarchical structure, rules and demands. Either of these situations provides social information and practice, and as such sport serves as a socializing agent.

Due to its social nature, sport would seem to be intrinsically tied to children's social and moral development. Positive characteristics such as leadership, cooperation, communication, organizational skills, and enhanced self-esteem have been theoretically linked to sports participation. Holland and Andre's (1987) review of the literature on extra-curricular activities suggested that sport involvement promotes personal-social characteristics (e.g., increased self-esteem, leadership, emotional stability), academic achievement and educational aspirations. A recent survey by the Canadian Centre for Ethics in Sport (2004) found that 92% of Canadians feel that sport has the potential for a positive impact on the moral and social development of youth. However, also cited are

the arguments that sport encourages aggression, takes time away from scholarly activities, and encourages ego-centred actions (Coakley, 1993; Martens, 1993).

Surprisingly, there is little conclusive evidence to support sport as either a positive or a negative influence, as most of the research is correlational in nature. It has been suggested that children may already possess certain attributes or characteristics which drive them to participate in sport, or which may influence their choice of activities (rather than sport itself fostering such characteristics; Page & Hammermeister, 1995). Therefore, sport may attract certain types of children (i.e., those that already possess certain attributes); sport may also provide an opportunity to demonstrate these attributes, perhaps more readily than other domains (Coakley, 1987). What is not in question, however, is the fact that sport provides a forum for socialization, be that positive or negative.

Sport and Peer Relations

Fostering and developing relationships with peers are quintessential reasons cited by children for participating in sports; however, the impact of sport peer relations on child adjustment is highly understudied (Ebbeck & Weiss, 1998; Smith, 2003; Weiss, 1993; Weiss & Bredemeier, 1983; Weiss & Duncan, 1992; Weiss & Glenn, 1992; Weiss & Smith, 1999; Weiss, Smith & Theeboom, 1996). In particular, Brustad (1996) called for long-term studies of the psychosocial impact of sport participation. Despite the fact that very little empirical research exists with respect to peers and sport, there is evidence to suggest that sport has a positive effect on children's social well-being, both with respect to peer relations (Smith, 1999) and psychological functioning (Gruber, 1986; Kirkcaldy, Shephard, & Siefen, 2002; Marsh, 1998; McHale, Vinden, Bush, Richer, Shaw, & Smith, 2005; Smith, 1986).

Weiss' (1991; Weiss & Glenn, 1992) extensive writings on peer relations and sport have emphasized the role of sport in children's physical, psychological, and social well-being. Weiss (1991) takes a psychological development perspective in her view on the role of sports participation in children's lives. Her experience as a researcher, consultant, sport coach and director has driven her multi-perspective approach to children's psychosocial development through sport. Moreover, she argues that attributes acquired through sports participation include psychological skills such as self-esteem, coping with anxiety, and moral development, and that the enhancement of physical skills attenuates these even further. She notes, however, that age, competence and developmental suitability must be taken into consideration so as to maximize the appropriateness and therefore outcomes related to sport experiences.

Sport has previously been suggested as a mechanism for improving children's peer relations, in particular for those who lack experience or social skills (Weiss et al., 1996). One example of a sport-based social relations intervention is the "Fair Play for Kids" program, designed for children in grades 4 to 6. The purpose of this intervention was to promote children's moral development. Weiss and colleagues found that after 7 months in the program, children's prosocial behaviour and moral judgement increased, regardless of whether they received the intervention in their physical education classes or in all of their regular classes.

Geibink and McKenzie (1985) created a similar moral-training program to test the notion that social competence could be encouraged in sport and then generalized to other settings. Rates of "sportsmanlike" behaviour were found to increase and "unsportsmanlike" behaviour to decrease following a point-system intervention (versus a

modelling or instructions/praise system). However, generalizability to a setting outside of sport was not demonstrated. Thus, social skill intervention in sport may be effective in improving social skills in the sport setting, but not necessarily in other aspects of life.

A positive link has thus been suggested between sports participation and children's social well-being, particularly with respect to moral development. To date, however, there is no empirical literature addressing children's social behaviour characteristics (e.g., shyness) and sport. Therefore, the relevant literature on peer relations (social status and friendships) and sport is reviewed to examine the impact of sport on social participation. In addition, the effect of sports participation on aggressive behaviour is discussed.

Social status. Peer acceptance is in large part a result of excelling in areas that are of importance to one's peer group(s). Sport is a key element in this regard. For instance, affiliation or membership on a school team elevates one's status. Conversely, poor motor ability is often associated with peer rejection (Evans & Roberts, 1987). For instance, consider a child who is picked last for a team in a game of baseball. Not only is the child stigmatized for poor physical abilities, but he/she may have fewer opportunities to play (which would hamper his/her prospects to build skills and friendships), and may experience lower peer status. The impact on psychological health is also at issue, as the child may feel decreased self-worth, decreased competence, loneliness, and so forth.

The literature generally supports the idea that sport involvement is associated with increased social status, particularly for boys (Buchanan, Blankenbaker, & Cotton, 1976; Chase & Dummer, 1992; Eder & Parker, 1987; Goldberg & Chandler, 1989; Melnick, Vanfossen, & Sabo, 1988; Thirer & Wright, 1985; Williams & White, 1983). Chase and

Dummer (1992) found that, in comparison to earlier research results, sport as a social status determinant for boys was on the rise. About 59% of boys (grades 4-6) chose sports as the primary determinant of popularity for males. For girls, however, sport ranked only third in importance; appearance and "making good grades" were rated the most important determinants of personal popularity. Kane (1988) provided additional support for the notion that athlete status is less endearing for girls, although in this study boys were more likely to want to date, and girls to be friends with, girls who participated in "gender-appropriate" sports. Similarly, social status has been found to be highest for boys if they participate in particular sports (Eder & Parker, 1987). Males and females were said to be exposed to different values through their participation in these activities, with boys emphasizing toughness, confidence and aggressive behaviour, and girls attractiveness (e.g., cheerleading). Eder and Parker's argument was that sport provided an opportunity for increased exposure or visibility amongst peers, leading to increased social status.

Weiss and Duncan (1992) investigated the link between children's perceptions of physical competence and peer acceptance in sport. They found that children's perceived, as well as actual, physical competence was related to their perceived peer relations and acceptance. Children felt more accepted and had higher ratings of their peer relations if they felt competent. These findings suggest that children use information from their physical activity experiences to determine their social approval, and also suggest that sport (as a context for peer interaction) could be used as a means to enhance children's perceptions of social relations.

Friendship. Friendship reflects the degree to which children have positive relations with some of their peers and serves as an indicator of social participation.

Friendship has been reported to be a positive indicator of social skills, social acceptance, and psychosocial adjustment (Newcomb & Bagwell, 1995; Hartup, 1996). Sport is a key method by which children become affiliated with their peers, and thus acts as a medium for friendship development. Friendship has been shown to be an independent construct from peer acceptance or social status, as discussed above (Weiss & Smith, 2002).

Indeed, children associate sport with friendship, and making and spending time with friends is one of children's primary goals of sports participation (Gould, Feltz, & Weiss, 1985; Horga & Stimac, 1999; Weiss & Smith, 2002).

Patrick, Ryan, Alfeld-Liro, Fredericks, Hruda, and Eccles (1999) reported that adolescent athletes associated their sports participation with increased opportunity to make friends, increased social skills, and opportunities for more intense friendships than would be possible in other domains. No gender differences were found for the social benefits tagged to sports participation. Similarly, Bigelow, Lewko, and Salhani (1989) found that children have positive views toward sport and friendship; they reported that sport was associated with positive aspects of friendship (including loyalty, helping, sharing, peer acceptance, and ego reinforcement). Sport was not thought to negatively impact friendships, for instance, if a friend did not participate in sport or was on the opposing team. However, a perception of poor skills was seen as less endearing and could negatively impact friendship. Research therefore generally supports the idea that sport participation has a positive impact on children's friendships.

Weiss and Smith (1999, 2002; Weiss et al., 1996) highlighted the importance of studying friendship in the context of sport specifically. Much the same as in mainstream peer relations literature, they argued that both gender and age play a role in children's

sport-related friendships. For instance, younger children emphasize similar activities, prosocial behaviour, and physical characteristics when describing their friends, whereas older children report esteem enhancement, intimacy and emotional support as critical elements of their friendships (Berndt & Perry, 1986). Weiss et al. (1996) interviewed children on their sport friendships, and found sport friendships to be similar to other friendships in terms of roles these comrades play in children's lives. For instance, companionship was cited by 95% of the children (ages 8 to 13) as an important dimension of their sport best friendships. Pleasant play/association (discussed by 89% of respondents), self-esteem enhancement (87%), help and guidance (79%), and prosocial behaviour (76%) were also important themes. Therefore, sport friendships are similar to other friendships.

Aggression. Aggressive behaviour has been extensively studied as a consequence of sport involvement, as it is commonly discussed as a negative outcome of participation. In particular, higher contact sports have generally been associated with increased aggression, both within sport and across settings (Bredemeier, 1988). Gender is particularly relevant; boys not only participate in a greater number of contact sports, but have also been shown to be more adversely effected by participation (Bredemeier, 1988). Sport participation has also been associated with increased legitimacy of aggressive acts. Children who participate in high contact sports (especially boys) accept more injurious acts and report being more physically aggressive than those who participate in low contact sports (Bredemeier, Weiss, Shields, & Cooper, 1987). Although only limited research has looked at the transfer of aggressive acts from sport to general life settings, there is at least some evidence to suggest that increased aggressive behaviour generalizes

to non-sport settings. Boys who participated in high contact sports (and girls in medium contact sports) reported more aggression in daily life contexts than did boys/girls with less experience (Bredemeier, Weiss, Shields, & Cooper, 1986). Thus, sport can be associated with increased engagement in aggressive behaviour.

However, more recent research suggests that aggressiveness is not necessarily related to sports involvement, even if that involvement is in contact team sports. McHale and colleagues (2005) found that middle-school aged children who had engaged in sport over the previous year were *not* more likely to be rated as aggressive by their physical education teachers. However, a sport-by-gender interaction revealed that sport-involved girls were more likely to be rated to be aggressive than were non-sport-involved girls, and sport-involved boys were rated to be less aggressive. Moreover, no differences were found between girls or boys who engaged in contact (versus non-contact) sports. Yet again, these results suggest that gender is an important consideration in the sport-aggression relation.

In a similar vein, aggression has been tied to moral reasoning, in particular the child's ability to differentiate between right and wrong. A series of investigations by Bredemeier and colleagues have brought this issue to light. Bredemeier (1995) found that children in grades 4 and 5 demonstrated no differences in moral reasoning between sport and life moral reasoning. However, children in grades 6 and 7 did show divergence, whereby sport moral reasoning was lower than in the life situations. Her argument was that perhaps children use more egocentric thinking in sport settings, which is then transferred to daily life. This research suggests that sports participation may be associated with lowered regard for others, which implies a negative outcome of participation.

Aggressive behaviour and sport have also been tied together in terms of the direct effect on peer relations. Johnstone, Frame and Bouman (1992) suggested that controversial-aggressive children (children who are both liked and disliked by peers) are perceived to be equally good at sports as are popular-nonaggressive children, whereas aggressive children who are rejected are perceived to be inferior at sports. Perhaps the connection is that children who are perceived to be good at sports are at least sometimes liked by their peers because their abilities are valued by others. Johnstone et al's findings could therefore reflect the fact that children value sport, and may overlook some aggressive behaviour displayed by sports participants. However, for those children who are not perceived to be good at sports, and who act in an aggressive manner, aggression is seen negatively and without due cause. Apparently, aggressive children are able to "get away with being aggressive if they are...a good athlete" (Johnstone et al., 1992, p. 77).

The role of sports participation and children's peer relations can therefore be argued to have both positive and perhaps negative ramifications in terms of social relations. Interactions with peers, however, are not the only effect that sport may have; internalizing outcomes such as higher self-esteem, decreased loneliness, and less negative affect are also implicated. Hence, the literature on sport and psychological well-being is subsequently reviewed.

Sport and Well-being

Numerous domains of psychological adjustment have been associated with sports participation. However, only limited empirical research is available to support such claims. Given that the current research was interested in loneliness, self-esteem, affect

and anxiety, each of these outcomes will be discussed in turn with respect to their experiential link to sports participation.

Loneliness. The literature on loneliness and sport is relatively limited; however, there is some evidence to suggest that sport involvement can be associated with decreased feelings of loneliness. Page, Frey, Talbert and Falk (1992) argued that loneliness reflects quality of social interaction, and found that children (ages 6 to 11) with lower scores on loneliness reported higher scores on measures of physical activity. They suggested that children who withdraw from their peer group are less likely to participate in social activities, including sport, and are thus less physically fit.

Weiss and Smith (2002) believe that peer interaction through sport plays a critical role in establishing the link between peer relations and positive outcomes. Linking these relations with loneliness, they suggest that “positive friendship experiences are believed to help an individual overcome difficulties stemming from poor acceptance by one’s peer group by providing validation of one’s self-worth and protecting one from loneliness” (pp. 146-147). Physical activity thus provides a forum for peer interaction, creating a vicious cycle including increased loneliness for children who do not participate.

As an example of children who often lack positive social interaction, Taub and Greer (2000) qualitatively assessed the sport experiences of children with physical disabilities. These children are typically characterized as lonely, rejected by their peers, and having fewer friends. Sport participation, however, was reported to increase their self-competence and provided an opportunity for social bonding and friendship. Sport was said to create a social identity for these children, such that they felt less ostracized and increasingly valued by their peers. These findings suggest that sport may be

applicable as an intervention strategy for other children who similarly feel socially excluded, lonely or who experience poor peer relations.

Self-esteem. Perhaps the greatest subset of literature on sport and psychosocial development is the research on sport and the self-system. Indeed, it is commonly assumed that sports participation causally influences self-esteem. Causation, however, is not determinable from the literature, although correlational research does support a positive relation. For instance, Smith (1986) found that grade 3 girls who participated in sport had higher self-esteem than did girls who did not participate. This difference was no longer significant at grade 6, however, the trend was the same. Smith suggested that perhaps individuals with lower self-esteem do not engage in sporting activities due to a fear of failure.

The work by Marsh and colleagues (Jackson & Marsh, 1986; Marsh, 1998; Marsh, Perry, Horsely, & Roche, 1995) has repeatedly shown that athletes have higher self-esteem than do non-athletes. These studies, however, have included adolescent and adult athletes only. For instance, Marsh et al. (1995) found that elite athletes had significantly higher physical ability self-esteem, social self-esteem (including same sex, opposite sex, and parent relations scales), and global self-esteem. Physical appearance self-esteem, emotional self-esteem, and the four academic self-esteem scales demonstrated no differences between athletes and non-athletes. Significant interactions with gender were also seen, whereby differences favouring athletes (versus non-athletes) were greater for females. For instance, physical self-esteem was higher for both male and female athletes (as compared to non-athletes); however, for females the difference between athletes and non-athletes was much greater. In addition, girls who participated in

athletics had significantly higher global self-esteem, whereas for boys there was no difference between athletes and non-athletes.

Similarly, in a study of physical self-esteem specifically, Marsh (1998) found significant gender and athletic status main effects and interactions. Athletes were generally found to have higher physical self-esteem scores than did non-athletes, and while this was found to be true for both genders, female athletes demonstrated greater variation between athletes and non-athletes than did males. These results suggest that participation in sport is related to higher self-esteem, although the difference may be especially pertinent for athletic girls.

In an effort to increase early adolescent girls' physical self-esteem, Marsh and Peart (1988) investigated the effect of an exercise program on various domains of self-esteem. Following a six-week aerobic intervention, it was found that physical fitness self-esteem, and to a lesser degree physical appearance self-esteem, increased (versus controls, who demonstrated no difference in self-esteem). Marsh (1993) also found that indices of physical fitness (e.g., cardiovascular fitness, flexibility, endurance) were related to fitness self-esteem. He argued that children's self-esteem is formed in part by comparing oneself to others (i.e., peers create a frame of reference in forming self-concept). These findings corroborate Gruber's (1986) earlier meta-analysis, which included 84 relevant studies. Gruber concluded that self-esteem was related to participation in physical activity (average effect size = .41). Physical activity programs which included an aerobic component were found to have a particularly strong impact (average effect size = .81), suggesting that children who participate in an aerobic activity have greater self-esteem.

Finally, Weiss, McAuley, Ebbeck, and Wiese's (1990) work points to a link between *social* self-worth and sports participation. They found that children who participated in sport and who had higher perceptions of social self-esteem (that is, felt competent in their peer relations in the physical domain) expected their current and future peer relations to be more successful than did children with low self-esteem. No age or gender differences were found, suggesting that boys and girls ages 8 to 13 experience similar effects of social competence in sport. Similarly, Ebbeck and Weiss (1998) argued that increased competence may lead to increased positive and decreased negative affect, thus increasing self-esteem. Moreover, Ebbeck (1994) suggested that although perceived skill level is rarely considered when psychosocial development is assessed, it is particularly important in terms of the social-psychological outcomes of sports participation. Weiss and colleagues' work thus highlights the association between feeling competent with one's peers, sports participation, and well-being.

Affect. Physical activity has also been linked to affect or mood, although the literature generally considers an adult population only and focuses on exercise rather than sport. Although the current study addressed sport, it was of interest to review the literature on exercise as a means of investigating the impact of activity on psychological well-being. Early work by Janoski and Holmes (1981) investigated whether changes in affect would result from changes in fitness. Fit adult women were found to be more emotionally stable, more self-assured, less depressed and less pretentious. Over time, participation in exercise was found to decrease inhibition and increase self-assuredness, independent of any actual changes in cardiovascular fitness. Similarly, Lobstein, Mosbacher, and Ismail (1983) found that physically active adult males were significantly

less depressed and less likely to be introverted than were sedentary males, and Young and Ismail (1976) found that fit individuals were more emotionally stable and secure than were low-fit individuals.

Reviews by Doan and Scherman (1987) and McDonald and Hodgdon (1991) suggest that individuals who participate in exercise generally see an improvement in self-esteem, mood, and anxiety. McDonald and Hodgdon (1991) found that studies employing Cattell's 16 PF indicated significant effect sizes for intelligence, insecurity, self-sufficiency and tension. However, intelligence and self-sufficiency were only related to exercise for males. Studies using the EPI demonstrated no effects of exercise on neuroticism or extraversion. However, on the MMPI (which was used with clinical patients only), exercise was related to lower scores on hypochondriosis, depression, hysteria, schizophrenia, and social introversion.

Anxiety. Looking at anxiety specifically, there is very little research addressing anxiety and sport participation. Again, the literature on exercise provides some insight; a negative relation exists between anxiety and physical activity participation (Goldwater & Collis, 1985; Hayden & Allen, 1984; Hughes, 1984; Kavussanu & McAuley, 1995; Long & van Stavel, 1995; Steptoe, Edwards, Moses, & Mathews, 1989; see Petruzello, Landers, Hatfield, Kubitz, & Salazar, 1991 for a review). Petruzello and colleagues' meta-analysis (1991) reported that exercise (particularly aerobic exercise that lasts for more than 9 weeks) is effective at decreasing adult anxiety.

Again looking at participation, Norton, Burns, Hope, and Bauer (2000) investigated the relation between social anxiety and sport anxiety, and whether or not individuals who were socially anxious were less likely to engage in sport. University

students reported that social anxiety was not significantly related to participation, per se. However, for females, social anxiety was positively associated with anxiety in the sport setting; no significant effects were found for males. These findings suggest a link between sport and social anxiety, but not participation. However, being the first study of its kind, much more research including a variety of age groups is necessary.

There is some support for the fact that adolescents report lower anxiety scores as a result of sports participation (Kirkcaldy et al., 2002). Kirkcaldy and colleagues found that German adolescents who frequently participated in endurance sports displayed significantly lower anxiety (measured by the Child Behaviour Checklist) than did adolescents who never participated or participated only seldomly. To date, however, there is no literature that addresses the impact of younger children's participation in sport on social anxiety.

Summary. Sport has beneficial effects on both social and psychological outcomes, including social status and friendships, loneliness, self-esteem, affect, and anxiety. Although they did not address sport directly, Long and van Stavel's (1995) meta-analysis demonstrated that exercise had a greater impact on stressed (versus unstressed) adults. Similarly, Landers and Petruzzello's (1994) meta-analysis of the effects of exercise on anxiety found that adults high in trait anxiety report greater decreases in anxiety following an exercise regime than did individual who were initially low in trait anxiety. This would suggest that greater gains would result for certain individuals over others, in particular in the realm of anxiety. Moreover, Sexton, Maere and Dahl (1989) demonstrated that physical activity was an effective strategy for decreasing the anxiety of neurotic individuals from an in-patient facility. Large gains were seen in terms of

decreased anxiety (both state and trait) for both depressed and anxious groups of patients. Of interest is that no differences were seen between joggers and walkers; that is, vigorous activity was not necessary to accrue the benefits of exercise. Although this study focused on clinically diagnosable patients, it is conceivable that individuals with less pronounced problems with anxiety, and perhaps children, could see such positive benefits of exercise. What remains to be studied, however, is whether or not this relation between anxiety and physical activity is true of adults only, or if anxious children can reap similar benefits from sports participation. In light of this, the following sections outline children's social behaviour and characteristics thereof, with particular reference to the social and psychological correlates of such behaviours.

Peer acceptance and rejection are strongly related to children's social behaviour, which can then be associated with internalizing and externalizing difficulties (see Rubin, Coplan, Chen, Buskirk, & Wojslawowcz, 2005 for a review). Many researchers broadly characterize childhood peer relations difficulties as arising from either shyness/withdrawal or aggression. These distinctions allow researchers to examine not only the typified behaviour, but also the etiology, correlates and outcomes associated with each. As the interest of the current research is particularly directed at shyness, the literature on shyness (and withdrawal) is most extensively reviewed herein. However, as a source of comparison, aggression is also briefly discussed. While aggression was not the primary interest of the current study, it provides a comparison as another 'group' of children with peer-relations difficulties. Although these difficulties have both similarities and differences as compared to shy children, by providing such a comparison, any

outcomes can be associated with shyness directly, rather than merely with difficulty with peers.

Aggression in middle childhood

Like their shy peers, children who are aggressive tend to have difficulty with peer relations. Aggressive children have also been shown to be at an increased risk for externalizing (versus internalizing) difficulties later in life (Coie & Dodge, 1998). Crick (1997) discusses three types of aggression: physical, which is aggression resulting in physical harm (e.g., pushing, hitting); verbal, wherein psychological abuse is the intent (e.g., insults); and relational, which involves aggression for the purpose of damaging relationships. In terms of the psychological adjustment outcomes associated with being an aggressor, Crick (1997) found that children who engage in overt-types of aggression report more externalizing problems. Given that the purpose of the current line of research was to address aggression only in as much as it compares to shyness, it was not of particular interest to examine different types of aggression. Therefore, aggression as discussed herein reflects only the physical subtype, and not verbal or relational aggression.

Etiology

Childhood aggressive behaviour is often linked to a “difficult” temperament, which is exemplified by impulsivity, undercontrol, and high activity levels (Bates, Bayles, Bennett, Ridge, & Brown, 1991). According to Sanson, Hemphill and Smart (2002), negative emotionality, reactivity (in particular, inflexibility), difficulties with attention regulation, and a “difficult” temperament profile are all related to externalizing problems throughout childhood. More specifically, dimensions of temperament such as

emotional regulation and reactivity have been linked to externalizing behaviour problems in middle childhood (Sanson et al., 2002). The work of the NICHD Early Child Care Research Network (Overton, 2004) suggests that whereas most children demonstrate a decline in aggression after age 24 months (the peak of aggressive tendencies), children who are very high in aggression are more likely to remain more aggressive relative to their peers at least to grade 3.

Turning to the role of parents, a lack of parental warmth and maladaptive disciplinary styles have been linked to aggressive behaviour later in childhood (Coie & Dodge, 1998; Overton, 2004). Aggressive children are more likely to have rejecting, hostile parents who use negative control. Lack of parental warmth and positive regard has also been related to aggressive tendencies. The argument here is that this style of parenting leads to frustration in the family and therefore aggression, which is modelled by the child or may lead the child to believe that that world is a negative place (Rubin & Burgess, 2001). To note, however, is that most of the literature on parenting and aggression has targeted physical aggression, not relational aggression (Russell, Hart, Robinson, & Olsen, 2003), thereby limiting the scope of such research.

Correlates and Outcomes

Externalizing, rather than internalizing, outcomes have been shown to be particularly relevant to aggressive behaviour (Coie & Dodge, 1998; Hymel, Rubin, Rowden, & LeMare, 1990; Rubin, Chen, McDougall, Bowker, & McKinnon, 1995). For instance, Rubin and colleagues (1995) reported that aggressive behaviour at 7 years of age was related to delinquency but not self-regard or loneliness at age 14. Aggressive behaviour has also been associated with negative popularity and teacher-rated acting out

(both of which represent externalizing difficulties) at both grades 2 and 5 (Hymel et al., 1990). Finally, aggression appears to be the most likely correlate of peer rejection and dislike in elementary aged children. To note is that not all aggressive children are rejected by their peers; however, the long term externalizing consequences seem to be most prevalent in children who are both aggressive and rejected (Coie & Dodge, 1998).

Children rated by their peers as disruptive-aggressive in middle childhood were also reported to have more externalizing difficulties (e.g., trouble with the law) in adolescence (Morison & Masten, 1991) and to be the least liked by their peers (Rubin, Chen, & Hymel 1993). In terms of problem solving, they are more likely to use physical aggression (e.g., bullying), to attribute peer behaviour to hostile intentions (Dodge, 1985) and are also more likely to solve social problems or dilemmas using aggressive, hostile, or abnormal strategies (Rubin & Rose-Krasnor, 1992). Thus, aggressive behaviour in childhood is a risk factor for later social and peer relations problems but perhaps is not a risk factor for impoverished psychological well-being.

Negative outcomes associated with aggressive behaviour may be related to an inability to perceive social rejection or difficulties. For instance, Hymel, Bowker and Woody (1993) found that aggressive children were significantly more likely to *overestimate* their own competencies in academic, athletic, appearance and social competence domains. However, aggressive children were viewed by their peers as less socially competent, uncooperative, poor leaders, and lacking in a sense of humour compared to average children. It can therefore be argued that children's social well-being is related to their social competence (see Rose-Krasnor, 1997).

Gender is an important correlate to consider in the work on children's peers relations and aggression. Boys are typically found to exhibit more physically aggressive behaviour than do girls (Ladd & Profilet, 1996; Coie & Dodge, 1998). In addition, some literature has shown that aggressive boys, but not girls, are particularly at risk of being rejected by their peers (Dodge, Coie, Pettit, & Price, 1990); however, other researchers have found that aggressive girls are more at risk of rejection (Bukowski, Gauze, Hoze, & Newcomb, 1993). Crick (1997) found that gender differences are related to the type of aggressive behaviour; relationally aggressive boys and overtly aggressive girls (non-normative behaviours) reported higher psychosocial maladjustment. She suggested that these differences resulted from peer, parental, and other "approval" of such aggressive behaviours or gender-normative behaviour.

Thus, the literature supports the notion that childhood aggression is related to difficulties with peer relations and may be associated with externalizing, rather than internalizing, difficulties. As the theoretical counterpart within the peer relation literature, shy children also experience certain social outcomes, both with respect to their peer relations and more so with internalizing difficulties. The following section discusses shyness, in particular with reference to its etiology and associated outcomes.

Shyness in middle childhood

The literature abounds with definitions of shyness, withdrawal, inhibition, and social anxiety. Many of these terms are used interchangeably; however, this is problematic in that it is difficult to study children's behaviour and/or characteristics without a set definition of the construct of interest. Shyness is often conceptualized as social anxiety accompanied by behavioural responses such as inhibition and withdrawal

in response to social and novel situations (Henderson & Zimbardo, 2001). As a component of shyness, social anxiety is defined by Schlenker and Leary (1982, in Henderson & Zimbardo, 2001, p. 46) as “a cognitive and affective experience that is triggered by the perception of possible evaluation by others”. Shyness therefore includes both an affective and a behavioural component.

Asendorf (1990) characterized shy children as being trapped in an approach-avoidance conflict; they are motivated to play with others (i.e., have a desire to approach) but are apprehensive or wary due to anxiety. Hence, many shy children may have limited social experience. It is this latter point that leads to the investigation of participation in sport (a venue for social interaction) as a protective factor for shy children.

For the current research, shyness is described with reference to Buss' (1986) two sub-categories of shyness: fearful shyness and self-conscious shyness. Buss argues that these two dimensions of shyness appear at different points during childhood and reflect different aspects of anxiety in social situations. Fearful shyness is social fear, that is, wariness or anxiety in the face of social interaction. This may be in response to social novelty or intrusion of “personal space”. Self-conscious shyness relates to extreme self-awareness as a social object, and may be the result of looming embarrassment. Buss argued that fearful shyness relates to a sympathetic response to a social situation. Self-conscious shyness, however, may be related to feeling that one lacks competence or lower self-esteem. According to Crozier and Burnham (1990), fearful shyness is reported to occur early in life and then decreases with age; self-conscious shyness, on the other hand, does not emerge until around age 7 or 8 and increases thereafter. It is therefore

essential that both types of shyness be assessed to reflect the child's overall feelings in social situations.

Crozier (1995) and Hymel, Woody, and Bowker (1993) argue that self-appraisal is an invaluable source of information regarding children's social behaviour in that it is the only direct way to tap into feelings and beliefs. Despite the obvious benefits of self-appraisal, shyness has typically been assessed by *outside* sources, that is, by peers, parents, and teachers. Common instruments include the Revised Class Play and other sociometric techniques whereby children nominate their peers based on their typical social behaviours and/or mannerisms (Chang et al., 2005; Chen, Rubin, & Sun, 1992; Hymel, Bowker & Woody, 1993). It is also common practice to ask adults (e.g., parents, teachers) to rate each child in terms of his/her shyness or withdrawal (Coplan, Gavinski-Molina, Lagacé-Séguin, & Wichmann, 2001; Rubin et al., 1993). What may be missed, however, is the child's own feelings or perceptions and perhaps the reasons for such withdrawal. Spooner, Evans, and Santos (2005) found that correlations between self- and teacher and parent-reports was surprisingly low, and that only 63% of children who self-identified as shy were rated as shy by their parents, suggesting that others (in particular adults) have difficulty identifying children's feelings of anxiety with their peers. Feeling shy due to anxiety in social situations is particularly relevant for the current study; it is expected that children who have increased social opportunities will feel more comfortable, and less anxious, in a group of peers.

There is also continued debate in the literature with regards to the conceptualization of shyness, either as a single dimension along which individuals differ (i.e., a continuum) or as a distinct category of behaviour. Whereas some researchers have

questioned the appropriateness of a categorical approach (which suggests that extremely shy children are quantitatively different in some way, e.g., Manke, Saudino, & Grant, 2001), others have created groups of children based on their degree of shyness (e.g., Page & Zarco, 2001; Prior, Smart, Sanson, & Oberklaid, 2000; Rubin, 1993; Rubin et al., 1993; Schmidt et al., 1997; Stevenson-Hinde & Glover, 1996). Arguably, shyness can be conceptualized as a dimension along which most children vary; that is, most children exhibit some degree of “shy” characteristics. In fact, Zimbardo (1977) reported that over 80 percent of the general population reported experiencing some shyness over the course of their lifetime. However, research suggests that *extreme* shyness is associated with an elevated heart rate and stress-related hormones (Kagan, Reznick & Snidman, 1987), and low self-esteem and depression (Schmidt & Fox, 1995).

Therefore, for the purpose of this study, it is of interest to examine the most extreme cases of shyness (more so than mild forms) which are more likely associated with later social anxiety, a less prevalent condition yet more damaging to the child’s psychosocial well-being. A fifteen percent cutoff (to create extreme groups) was selected based on Kagan’s (e.g., 1989) research suggesting that children who score within the top 15% of shyness measures are extremely shy, show higher degrees of stability of shyness over time, and are more at risk for later psychosocial maladjustment.

Etiology

Temperament. Shyness has often been linked to an *inhibited* temperament, which is indicated by the child’s response to novelty. Inhibited children tend to be watchful and are quiet and wary of others or situations. Behavioural inhibition has shown moderate stability from infancy to early childhood (Kagan et al., 1987) and mild stability from

early to middle childhood (Scarpa, Raine, Venebles, & Mednick, 1995). Results from previous research have shown that inhibited children often show very distinct physiological traits, including a low threshold for arousal (see Marshall & Stevenson-Hinde, 2001), higher levels of morning salivary cortisol (Kagan et al., 1987; Schmidt, Fox, Schulkin, & Gold, 1999), and heightened reactivity to stimuli (which is argued to be indicative of a lower threshold of excitability of the amygdala). The amygdala is implicated in that it is often associated with a fear response.

By measuring physiological correlates of inhibited temperament, investigators are better able to understand the reactions that children have to novel situations. In a longitudinal study, Kagan et al. (1987) followed inhibited and uninhibited children, finding that inhibited children had higher and more stable heart rates, increased muscle tension and pupillary dilation, and higher levels of norepinephrine. The most discriminating physiological indicator between inhibited and uninhibited groups, however, was an elevated level of morning salivary cortisol, which is indicative of an overactive hypothalamic-pituitary-adrenal axis. Kagan and colleagues relate most of these physiological indicators to a lower threshold for sympathetic nervous system activation, meaning that under mild forms of stress, the sympathetic system (in particular the activity of the hypothalamus and amygdala) is more likely to become active in an inhibited child.

Fox (Fox, Henderson, Rubin, Calkins, & Schmidt, 2001; Schmidt et al., 1999) has shown an interest in patterns of neuronal activity associated with shyness (or inhibition), specifically across the left and right hemisphere. Along with his colleagues (Fox et al., 2001), he found that inhibited children show asymmetrical right frontal EEG activity and

are more shy at age 4. The right frontal lobe is likely related to the individual's response to novelty, and has strong connections to the amygdala (Marshall & Stevenson-Hinde, 2001). Schmidt and colleagues (1999) also found that shyness at 7 years of age was associated with increased right frontal EEG activity. They suggested that this asymmetry in brain activity is a reflection of the child's inability to regulate negative emotion and a difference in excitability of the right forebrain (i.e., the amygdala).

In terms of temperament and later social outcomes, inhibited temperament has been associated with social withdrawal (or lack of peer interaction) for middle-school aged children (Eisenberg, Shephard, Fabes, Murphy & Guthrie, 1998). A "shy" temperament has also been found to be related to a greater incidence of anxiety disorders in adolescence (Prior et al., 2000). Kagan (2001) suggested that inhibited children have an increased incidence of later social anxiety and that reactivity in infancy is associated with increased inhibition at 4-5 years and increased anxiety at 7 years of age. In a related study, Schmidt et al. (1997) found that children with a high frequency of motor activity and negative affect (dimensions of temperament) at 4 months of age were rated as more shy at age 4. However, what is interesting is that temperament has been suggested to follow a "goodness of fit" theory; the child's temperament and environmental factors coincide to influence particular outcomes.

Parenting. Proponents of parenting theories of shyness have argued that shy behaviour is related to maternal over-control and over-solicitous behaviour. This type of behaviour limits the child's own learning experiences, which may prevent the development of self-efficacy. Rubin and Mills (1990) found that mothers of anxious-withdrawn children were more likely to use high-power directives and use over-involved,

over-controlling strategies (see Burgess, Rubin, Cheah, & Nelson, 2001 for a review). Mothers of withdrawn children have also been shown to be more over-controlling than mothers of aggressive or average children (Mills & Rubin, 1993) and shyness is negatively correlated with an authoritative parenting style (Coplan, Prakash, O'Neil, & Armer, 2004). Coplan and colleagues qualified this relation in that maternal over-protectiveness was particularly associated with shyness in boys but not in girls.

Hart and colleagues (1998) argued that parents play both a designer (i.e., initiate peer contact) and mediator (facilitate peer relations) role in their children's social lives. Their review suggests that parents direct children's social contact, which triggers or fosters certain behavioural styles. By supervising, advising, and creating social opportunities, parents not only provide experience, but also seem to stimulate children's own initiating of peer contact. Ladd and LeSieur (1995) suggested that parental behaviour differs based on the child's behaviour type, for example, parents of anxious children are more likely to initiate peer contact on the child's behalf. Therefore, child behaviour and parenting style influence one another in allowing and/or providing social opportunities and thus experience.

Also relevant to children's behavioural style is parenting beliefs, that is, the values and cognitions parents have about what is relevant or important for positive social outcomes. According to Hastings and Rubin (1999), mothers of withdrawn children react with more guilt, anger, disappointment and embarrassment about their child's behaviour, and blame such behaviour to a trait rather than situational factors. Differences in parenting beliefs were found across types of children; mothers of withdrawn children

were more likely to attribute withdrawal to a trait than were mothers of aggressive or average children.

Rubin (1993) suggested a model that integrates both parenting and temperament in explaining shyness. He postulated that early temperament characteristics, in addition to parental insensitivity or over-control, leads to decreased exploration and/or opportunities to interact with peers. These missed opportunities then lead to wariness or social insecurity, and to further negative self-appraisal and withdrawal. The obvious consequence is decreased acceptance and increased rejection by the peer group. Rubin's model demonstrates how the various possible determinants of shyness (temperament and parenting) work in concert to promote particular social development.

Correlates and Outcomes

Given that shyness is relatively stable over time (Coie & Dodge, 1983; Kagan et al., 1987; Marshall & Stevenson-Hinde, 2001), it is important to recognize the correlates of shy behaviour. Shy children show consistent patterns of peer relations difficulties and internalizing difficulties. To this end, outcomes in terms of peer interaction, anxiety, loneliness, and the self-system are addressed. Given the focus on middle childhood-aged children in the current study, the literature for this age group is reviewed most extensively.

Peer relations. Fewer opportunities for social experience is perhaps one of the primary reasons for concern regarding shyness. Children lacking in peer interaction (including social play) may be at risk for later social and cognitive deficits, including social competence (see Coplan, Rubin, & Findlay, in press; Rose-Krasnor, 1997). Conversely, Ladd and Price (1987) found that frequent peer contact and longer exposure

to peers was associated with positive social outcomes, notably with respect to anxiety and shyness. Findings from the Waterloo Longitudinal Project (Rubin, 1993) suggest that pre-school aged withdrawn children display less mature forms of play, receive fewer social initiatives from peers, produce fewer requests (especially towards more socially competent peers), are more likely to ask for adult intervention, and have fewer social-reasoning skills (e.g., Rubin & Rose-Krasnor, 1992). Similarly, Engfer (1993) argued that children described as shy by their teachers and parents were rated to be less socially competent in general.

Much less is known, however, regarding shyness in middle childhood. Asendorpf (1991) argued that from age 4 to 8 years, inhibition (which is linked to shyness) becomes increasingly associated with solitary-passive behaviour or playing alone. As well, Rubin (1985) found that socially isolated children were less likely to assume managerial or dominant roles than were their more sociable counterparts. Eisenberg and colleagues (1998) reported that shyness is negatively associated with social status and social interaction. From a long-term perspective, Morison and Masten (1992) argued that children recognized by their peers as sensitive-isolated were less socially competent or socially involved in adolescence.

Findings from the Waterloo Longitudinal Project (Rubin, 1993) also suggest that children who are socially withdrawn in middle childhood (age 7) are not unpopular, but are recognized by their peers as sensitive, shy, withdrawn, and are less likely to take a dominant role in peer relationships. Similarly, Fordham and Stevenson-Hinde (1999) found that shy children reported their best-friendships to be less positive than did non-shy children; they also found that perceived social acceptance was negatively related to

loneliness and social dissatisfaction. Thus, children who have difficulty with peer relations also show adjustment difficulties, particularly as they get older. Fordham and Stevenson-Hinde suggested that these results exemplify the fact that shyness is increasingly deviant and hence may lead to difficulties with peers.

Not all research, however, has identified difficulties with peers as a consequence of shy behaviour in middle childhood. For instance, Fordham and Stevenson-Hinde (1999) did not find an association between friendship quality and observed shyness. They suggested that at least one good friendship may act as a buffer against lowered self-worth and anxiety. However, they emphasize the fact that the internalizing problems associated with shyness are particularly relevant for future study.

Internalizing problems. In addition to the difficulties that shy children may have with their peers, shyness is associated with internalizing difficulties such as anxiety, loneliness, and lowered self-worth (see Eisenberg et al., 1998). Again, the Waterloo Longitudinal Project has shed some light on the long-term consequences of shyness (Rubin et al., 1995). Children's self-worth, loneliness, and social competence were measured from grade 2 to grade 9. Results indicated that children who were socially withdrawn were significantly more lonely in grade 9, felt insecure with their peer group and family, and felt worse about themselves. Social competence was positively associated with self-regard and negatively associated with loneliness and peer-group insecurity.

Older peers increasingly associate shyness with deviance (Younger & Piccinin, 1989), and by middle childhood shy children are expected to have more difficulty with their peers and hence may experience increased loneliness. Rubin et al. (1993) argued that feelings of loneliness were associated with the social rejection that begins to emerge

with shyness in middle to late childhood. Moreover, Cassidy and Asher (1992) found that children who were high in loneliness were more likely to be characterized by their peers (but not teachers) as more shy.

Hymel and colleagues' (1990) also demonstrated associations between shyness and internalizing (as well as externalizing) outcomes. Whereas children who displayed isolated behaviour in grade 2 did not report significant internalizing or externalizing difficulties, children in grade 5 who were isolated from their peers were rated by their teachers as more shy/anxious and self-reported greater loneliness, lower social competence and lower general self-worth. In terms of predicting internalizing behaviour in grade 5, peer-assessed isolation was predicted by popularity and teacher ratings of internalizing problems in grade 2. Teacher-rated shy-anxious behaviour in grade 5 was also predicted by internalizing problems in grade 2. Thus, teacher perceived shyness is a significant marker of later internalizing problems.

Given that the very definition of shyness includes a component of wariness, it is not surprising that shy children report higher levels of anxiety than their peers. According to Fordham and Stevenson-Hinde (1999), shyness is significantly related to adjustment indices for older, but not younger, children (age 10 versus age 9); shyness was found to be negatively related to global self-worth and positively related to trait anxiety. Fordham and Stevenson-Hinde suggested that in middle childhood, social acceptance is negatively related to loneliness, and global self-worth is positively related to feeling support from classmates and decreased anxiety.

From a self-presentation perspective, shy individuals may feel inadequate to meet the demands of the social situation and therefore feel anxious (Crozier & Alden, 2001).

Not surprisingly then, shy children have lower social self-perceptions. Crozier (1995) found that shyness was significantly negatively correlated with social competence and global self-worth. Similarly, Hymel, Woody and Bowker (1993) found that children (grades 4-6) who were identified as withdrawn by their peers had more negative overall self-esteem, lower athletic competence, and reported greater dissatisfaction within the peer group. Hymel, Bowker and Woody (1993) also found that withdrawn unpopular children in grades 4 and 5 reported the lowest self-concept in the athletic and peer-relations domains (as compared to aggressive, aggressive-withdrawn, and average children). These children were also perceived by their peers to be athletically incompetent and likely to be left out or rejected. Finally, Rubin et al. (1993) also found that withdrawn children had significantly lower physical self-competence. Their argument was that physical competence is an important factor in children's self-perceptions and, in turn, in their social relations. Taken together, the research therefore suggests that withdrawn children have lower self-perceptions, especially in the areas of peer relations and athletic competence.

Boivin and Hymel (1997) postulated a model to explain the social processes through which problematic social behaviour (including withdrawal) becomes linked with negative social self-perceptions. In a study of children from grades 3 to 5, they found that withdrawal was negatively correlated with social preference and perceived social acceptance, and positively correlated with victimization by peers and loneliness. Their findings suggest that the impact of withdrawal on perceptions of the social self is mediated by peer relations (e.g., the relation between withdrawal and loneliness was partially accounted for by victimization). This coincides with Gazelle and Ladd's (2003)

work which suggested that children who experience anxious solitude are more likely to be excluded by their peers. From a diathesis-stress perspective, they suggested that the co-occurrence of individual characteristics (anxious solitude) and adversity (peer exclusion) leads to an increased risk of internalizing difficulties.

Shyness and Coping

Despite the broad array of research on outcomes and correlates of shyness, there is little evidence as to how children *cope* with their social anxiety or shyness. Asendorpf (1991) found that shy children demonstrated increasing solitary-passive behaviour with age, suggesting that rather than becoming socially involved (as 'normal' children do), shy children retreat to solitary activity. Shy children may use fewer strategies for dealing with their peers, and thus are wary about initiating or maintaining peer relationships. In support, Rubin, Daniels-Beirness and Bream (1984) found that isolate play was negatively associated with social problem solving solutions and flexibility in kindergarten, and with the number of solutions and flexibility in grade 1. In addition, children who displayed isolate behaviour made fewer requests of their peers and were more likely to change the subject or follow the suggestion of their playmate when requests failed. Children who displayed non-social, isolate behaviour expressed a non-confrontational, low assertive style that is cognitively limited in terms of social problem solving.

Folkman & Lazarus (1988; Lazarus & Folkman, 1984) suggest that coping is an individual's way of responding to emotions associated with specific external and/or internal demands. Coping is defined as "constantly changing cognitive and behavioural efforts to manage specific external and/or internal demands that are appraised as taxing or

exceeding the resources of the person” (Lazarus & Folkman, 1984, p. 141). Their framework of coping strategies suggests that there are two focal domains of coping: problem-focused coping strategies, which reflect dealing with the stressor itself, and emotion-focused strategies, or regulation of emotions associated with the stressor. Examples of each type of coping include: defining and acting on the problem and weighting alternative actions (problem-focused coping), or minimizing, distancing, and avoidance (emotion-focused coping). Lazarus and Folkman (1984) suggest that personal variables, such as personal resources, social skills, and social support may influence the chosen coping strategy as per the situation. Problem-focused coping is generally thought to be associated with more positive functioning, whereas emotion-focused is more maladaptive (Causey & Debow, 1992). However, the most effective strategy *for the individual* may depend on the goodness of fit between the strategy and the individual him/herself (Forsythe & Compas, 1987).

In an effort to address shyness and emotional regulation (including coping strategies), Eisenberg et al. (1998) undertook a longitudinal investigation of teacher- and parent-rated shyness, emotionality, social behaviour, and coping. They suggested that parent ratings of shyness were indicative of social wariness in the face of unfamiliarity; by contrast, teacher ratings reflect shyness due to peers’ social evaluations. Eisenberg and colleagues argued that shyness is related to an inability to cope with, or regulate, one’s negative emotions. Teacher-rated shyness was found to be negatively related to support-seeking and instrumental coping, whereas parent-rated shyness was positively related to avoidant coping, coping by doing nothing, and negatively related to support seeking and

instrumental coping. Thus, shy children were thought to be deficient in active, assertive modes of coping, the argument being that these children are likely to avoid peer conflict.

Finally, Armer and Coplan (2004) described a link between parenting, coping strategies and shyness. They found that children who were high in shyness and who had over-protective parents were also high in poor (distancing) coping strategies. Armer and Coplan suggested that the overprotective approach inhibits the development of positive coping skills.

Gender and Shyness Outcomes

Turning to research investigating gender differences and shyness, significant gender effects revealed that shy boys experience more negative outcomes than do shy girls (Armer & Coplan, 2004; Caspi, Elder, & Bem, 1988; Coplan et al., 2004; Gazelle & Ladd, 2003; Morison & Masten, 1991; Rubin, Burgess, & Coplan, 2002; Stevenson-Hinde & Glover, 1996). For instance, Engfer (1993) found that boys who were reported to be shy at 33 months of age were more shy, less socially competent and had lower self-esteem at 6 years of age. In contrast, girls who were shy at a young age were seen positively at 6 years of age (e.g., socially competent, compliant, and less moody). As an aside, a negative correlation was also found between shyness and perceived athletic ability, pointing to the importance of motor ability even at this young age.

In terms of a negative impact on peer relations, Coplan and colleagues (2004) reported that shyness was positively related to peer exclusion for boys but not girls. Moreover, Morison and Masten (1991) found that boys high on the sensitivity-isolation scale of the Revised Class Play were less likely to become involved in sports and other social activities, yet were not more likely to show externalizing difficulties. For girls,

high scores on sensitive-isolated behaviour were associated with greater involvement in activities and fewer externalizing difficulties. Thus, the consequences of shy behaviour on peer relations differ between boys and girls.

Turning to the internalizing problems associated with shyness, Rubin et al. (1993) found a significant interaction of withdrawal with gender; withdrawn boys reported lower self-perceived social competence and greater loneliness in grade 5, with no differences for girls. Findings by Gazelle and Ladd (2003) suggest that excluded boys feel significantly more anxious solitude than do girls, and Morison and Masten's (1991) research revealed that shy boys, but not girls, feel lower self-worth in adolescence. Finally, Armer and Coplan (2004) proposed that for boys, shyness is positively related with social anxiety, but negatively related for girls. Therefore, shy boys seem to be more at risk than shy girls in terms of psychological well-being.

The heightened risk of negative outcomes for boys may be due to the negative connotation associated with shyness and males. In North American society, it is more accepted for girls to have traits such as being reserved and quiet, whereas for boys this is often thought to be "abnormal". Stevenson-Hinde and Glover (1996) suggested that shy girls are more accepted by their mother than are shy boys. Moreover, Radke-Yarrow, Richters, and Wilson (1988) found that parents of shy boys were less accepting of their (lack of) social behaviour than of shy girls; they were less pleased with shyness in boys, whereas for girls, shyness was associated with tenderness and affection. The authors argued that perhaps the behaviours associated with shyness are different for boys and girls, that is, shy boys exhibit more externalizing, and girls internalizing, behaviour which influences their response to shyness.

Links Between Sport and Shyness

Turning to the association between shyness and sports participation, very little research is available on the social outcomes of sport participation in terms of children's individual characteristics. It is expected that children will respond to the sports environment differently based on their social preferences and/or characteristics. Recently, Page and Zarco (2001) reported that shy adolescent boys and girls participated in fewer vigorous activities than did average or low-shy children. High and average shy children were particularly found to participate in fewer team sports. Page and Zarco argued that shy individuals may have less self-confidence, and 'shun' participating in sport out of fear; therefore, "further research is necessary to determine the extent to which difficulty in social interaction either inhibits or promotes physical activity behaviour and sports team participation" (Page & Zarco, 2001, p. 200).

In a similar study, McHale and colleagues (2005) found that middle-school aged children who participated in sports were reported by their physical activity teacher to be less shy/withdrawn (and to have higher social competence). These results were maintained even after controlling for teacher perceptions of athletic ability.

It is unclear, however, whether shy individuals participate less, or whether individuals who participate experience a decrease in shyness. In terms of exercise, Page and Hammermeister (1995) found that adults who participated in more frequent exercise also reported less shyness and loneliness. However, given that the study was correlational, it again could not be determined whether shy/lonely individuals were less likely to participate, or that participation led to decreased shyness. Similarly, in a study of adolescents in grades 9-12 (Page & Tucker, 1994), exercise frequency was modestly

negatively correlated with shyness, loneliness and hopelessness. Page and Tucker suggested that shy individuals may feel uncomfortable or inhibited in social groups, which may cause them to withdraw or feel discomfort. However, they also suggested that regular physical activity may reduce such psychological distress. Longitudinal research as well as research related to the social aspects of physical activity, including sport, is necessary to determine whether the latter may in fact occur.

A recent surge in interest on personality and exercise (as well as the link to motives to exercise) has shown that of the 5 commonly discussed personality types, extraversion and neuroticism are most related to adult exercise behaviour. Although there is no similar literature in the sport context, neuroticism tends to have a negative association and extroversion to have a positive relation with exercise adherence (Courneya & Hellsten, 1998; Yeung & Hemsley, 1997). Thus, individuals high in neuroticism are less likely to participate, and high in extroversion are more likely to participate in exercise. As for the individual's motives, high scores on neuroticism are associated with motives related to weight control and appearance, whereas high scores on extroversion are associated with exercising for enjoyment and health (Courneya & Hellsten, 1998; Davis, Fox, Brewer, & Ratusny, 1995). However, the relation between personality (or behaviour types) and physical activity in children has yet to be studied.

Given that shyness may indeed be influenced by sports participation, it is important to examine the possible theoretical links to explain this relation. It is expected that sport serves as a social experience which would provide children with additional resources and/or contacts. Rubin et al. (2002) suggested that interventions for shyness employ the social learning approach, that is, that children be provided with opportunities

for interaction with their peers, as is the case with sport. These experiences may assist children in improving their peer relations, or may serve as a protective factor for the internalizing outcomes associated with shyness. Evans (2001) postulated that strong social networks are an important strategy to ameliorate shy children's social situation, as these networks give the child opportunities for participation. She recommended that parents of shy children should enrol their children in early education programs (i.e., pre-school) to prepare them for the school experience. Considering that children's peer contact is positively associated with peer status and peer involvement in kindergarten (Ladd & Price, 1987), it is reasonable to suggest that any social environment would accomplish the purpose of providing an opportunity for peer interaction.

Theoretical Links Between Sport and Shyness

Theoretical approaches which best explain the relation between sport and psychosocial functioning are the self-determination theory and Bronfenbrenner's (1979) ecological systems theory. Self-determination theory can be applied directly to sport using Harter's competence motivation theory. Each of these theories will be discussed in terms of possible explanations of sports participation and associated outcomes.

Self-determination theory. The self-determination approach emphasizes environmental factors that may influence social development. From that perspective, Ryan and Deci (2000) argued that individuals have three basic needs that relate to growth and social development: competence, autonomy and relatedness. In addition, an important distinction is made between extrinsic and intrinsic motivation. The former includes motives that are driven by the outcome, and the latter includes internal, or goal driven motives. Increased autonomy and feelings of competence lead to continued

behaviour. Applied to sport, this theory suggests that individuals who feel competent, in control, and self-motivated will continue participation, and will reap the social rewards afforded by participation. Competence may include social or physical domains. In support of this theory, Ingledew, Markland and Sheppard (2004) found that individuals who participated in sport were more likely to be self-determined and were less neurotic. Their argument was that individuals satisfy their need to feel competent through exercise, and thus experience lowered neuroticism.

Harter's competence motivation theory. Support for physical activity as a means for both physiological and psychological health has driven a line of research on children's motives for participation. Harter's (1978, 1981) competence motivation theory proposes that children want to show competence in their social environment (and to be reinforced for such behaviour). Subsequently, competence leads to continued behaviour.

Support for this theory has revealed that competence-based motives are highly relevant to children. Klint and Weiss (1987) found that children participating in gymnastics ranked competence motives, such as learning new skills and getting in shape, much higher than social motives (being on a team, being popular). However, actual physical and social competence were important considerations. Children with higher physical competence rated skill development and team atmosphere as more important motives, yet children with higher social competence rated friends as more important. The authors argued that perceptions of competence are therefore significantly related to motives for participation, suggesting that individual differences may exist between subsets of children (who do/do not feel competent in various domains).

It has been suggested that the sense of mastery, control, and self-esteem acquired through sports participation is the driving factor for a decrease in anxiety (Hayden & Allen, 1984; Hughes, 1984; Kavussanu & McAuley, 1995; Weiss, 1995). Sport experiences may trigger more positive thoughts, or may increase the individual's sense of mastery which then acts to increase his/her self-worth. Veroff (1969) suggested that a sense of mastery or social competence develops from favourably comparing oneself to the peer group. In turn, social or self approval in meeting social standards leads to increased self-worth. Meanwhile, social reinforcement may also play a role.

Harter's theory can be applied to children's motivation to participate in sport, and specifically to the types of children's motivation. Children who are socially and physically competent (or at least perceive themselves to be) will participate, in this case, non-shy and aggressive children. However, it would be expected that shy children would be deterred by lack of confidence and/or anxiety in social settings. However, children who participate in sport are likely to incur positive benefits, including increased mastery and self-esteem, which will then lead to other psychological benefits.

Ecological systems theory. Also related to the current line of research is Bronfenbrenner's (1979) ecological systems theory, which suggests that settings outside of the classroom provide supplemental opportunities for social interaction. Bronfenbrenner's early work outlines 4 layers, or dimensions, which interact to impact development: micro-, meso-, exo- and macrosystems. Each child has his/her own series of peer-involved settings in which they thrive, be they voluntary or arranged settings. Within each locale, there are different social roles, partners and activities which foster social development. These opportunities for practice in a social milieu allow for

improved social skills and friendship development, which then facilitate further social interaction.

According to the ecological systems theory (Bronfenbrenner, 1979), the micro-system consists of the child's innermost surroundings, that is, family, friends, classmates, etc. It may also include such personal dimensions as temperament as well as physical characteristics and capabilities. The meso-system reflects the connections between social groups of which the child is a member (e.g., schools, peer groups, organized activities). Contexts that the child belongs to but is not actively effected by compose the exo-system, and the macro-system is the cultural or social class constraints in which the child lives. It can therefore be said that the child exists not only within their personal sphere, but also within the broader context of society at large, and is thus a product of many elements of his/her environmental conditions. Child development is optimized when each level provide opportunities for growth.

Bronfenbrenner (1979, 2001) suggests that in order to understand development, both the environment and the individual must be considered. In the case of the current research, sport is the environmental agent and shyness the individual characteristic. Bronfenbrenner argues that the particular roles that an individual plays allow for increased participation in joint activities and social interaction. As an element of the mesosystem, sport may be one such role in that it is one of the social groups to which the child belongs. The usage of sport as an organized, and by and large positive, social outlet for children can therefore serve as a contributor to social development.

Rubin, Bream and Rose-Krasnor (1991) related both childhood withdrawal and aggression to Bronfenbrenner's theory. They suggested that ecological factors such as

negative environmental circumstances (e.g., financial resources, living conditions) and parental personal-social conditions (e.g., mental health status and marital status) impact children's social development. For instance, poor social conditions and lack of emotional support may be associated with insensitive, neglectful parenting, which, when combined with a temperament characterized by a low threshold for arousal, may lead to inhibited/anxious/withdrawn behaviour in childhood. Meanwhile, relations with peers and teachers may exacerbate these behaviours, drawing the child into even further withdrawal and anxiety and eventually leading to peer rejection and internalizing problems¹. Their theory demonstrates the role that various levels of the ecological systems model may have on the development of certain social (or antisocial) behaviours.

Empirical Links Between Sport and Shyness

Turning to the research considering sport and shyness, although there is no literature addressing the relation between anxiety and sport in middle childhood, research on sport as a protective factor for depression is promising. A recent study by Boone and Leadbeater (2004) suggested that adolescent functioning may be influenced by sports participation. Adolescent (grades 8 to 10) depression was found to be directly related to sports participation, and mediating pathways were found between social acceptance and athletic engagement to depressive symptoms. The argument was that athletic involvement serves as a protective factor for depressive symptoms. Boone and Leadbeater suggested that engaging in sports allowed the individual to interact more frequently with their peers in a non-threatening environment.

Other research has looked at the relation between sport anxiety and social anxiety, pointing to a link between anxiety in the two domains. Norton and colleagues (2000)

found that measures of general social anxiety were significantly related to anxiety in sport settings. University students were found to attribute the avoidance of certain activities to their social anxiety. In a sample of Hispanic fifth and sixth graders, Storch, Bartlas, Dent and Masia (2002) found that social anxiety was significantly related to sport anxiety, and that girls experienced greater sport anxiety than did boys. Anxiety in sport could be linked to decreased participation, which would result in fewer social opportunities. Storch and colleagues suggested that sport anxiety be further investigated as one manifestation of more general social anxiety, and that psychosocial interventions to address social anxiety should include sport as a domain of treatment.

Linking back to shyness and coping strategies, Prakash and Coplan (2003) investigated shyness, anxiety, self-esteem and competitive performance in figure skaters. Shyness was positively correlated with somatic (but not cognitive) anxiety in the sports setting. Significant interactions between coping style and shyness were found for both competitive outcome and athletic self-competence. Skaters who had negative (emotion-oriented) coping styles also reported lower self-competence and achieved lower placements whereas athletes who employed positive (task and avoidant) coping styles reported no significant relation between shyness and self-worth or competitive result. Prakash and Coplan suggested that shy athletes who have positive coping strategies are less likely to be hindered by their shyness.

Thus, shyness and social anxiety have been investigated in the realm of sport, although not often in consideration of middle childhood, nor with respect to the peer relations and internalizing outcomes associated with shyness. It is therefore the purpose

of the current research to investigate shyness as one of the behavioural “types” identified in childhood and the protective role that sport may play.

Purpose and Hypotheses

The goals of the current study were to, a) explore the sports participation of shy and aggressive children, and b) to examine the protective role of sports participation in the psychosocial outcomes of shy children. In terms of the rates of participation, given past research and the link between shyness and anxiety, it was expected that extremely shy children would participate at a lesser rate than would their non-shy peers (Page & Hammermeister, 1995; Page & Tucker, 1994). There is no literature to address aggression and sport *participation*; however, no differences were expected for aggressive children in terms of rates of participation (as compared to the comparison non-aggressive children).

In terms of outcome variables, a main effect of sports participation was expected, such that sports participation would be significantly associated with more positive peer relations (Chase & Dummer, 1992; Smith, 1999; Weiss et al., 1996), higher well being, less anxiety (Kirkcaldy et al., 2002) less loneliness (Page et al., 1992), higher self-esteem (Marsh, 1998; Marsh et al., 1995), as well as greater positive and less negative affect (Doan & Scherman, 1987; McDonald & Hodgdon, 1991). A main effect of child “behaviour group” was also expected, with shy children expected to experience more internalizing difficulties including lowered self-worth and greater social anxiety (Hymel, Bowker, & Woody, 1993; Hymel et al., 1990; Rubin et al., 1995).

Since the second purpose was to specifically address sports participation as a protective factor for shy children, the main effects of sport and behaviour mentioned above were expected to be qualified by a significant interaction between sport and

behaviour. That is, the positive effect of sports participation was expected to be particularly pronounced for extremely shy children. For instance, despite the fact that shy children tend to show lower self-esteem (Crozier, 1995), sports participation was expected to moderate this relation, such that extremely shy participants would not report lowered self-esteem. Sport is a particularly relevant strategy for addressing lowered self-esteem given that athletic and peer relations self-concepts were shown to be the two significant areas of lowered self-esteem for shy children (Hymel, Bowker, & Woody, 1993; Hymel, Woody, & Bowker, 1993).

Aggressive children have not been shown to necessarily report fewer social strategies, but rather their social encounters are marred by a problem in selecting appropriate strategies for dealing with social dilemmas (Rubin et al., 1991). Given the previous positive association between sport and aggression (Bredemeier et al., 1986, 1987), it was anticipated that aggressive children who participated in sports would show an increase in externalizing problem behaviours. However, as aggressive behaviour is not typically associated with internalizing difficulties (Coie & Dodge, 1998), aggressive children were not expected to show any differences in internalizing behaviours (as compared to their "normal" peers).

An important caveat must be noted. Since no previous research has investigated the impact of sport participation for shy children specifically, hypotheses can only be made with caution. It is possible that children's specific experiences in sport determine the outcome. Children who are subject to rejection in sport may become more (rather than less) withdrawn. If the child feels incompetent or unable to handle the situation, he/she

may feel threatened and withdraw further, regressing to a *more* socially anxious state. Therefore, both directions of effect were investigated.

To address these goals, a short-term longitudinal study was proposed. Children in grades 4 and 5 were followed over a 1-year period. Self- and parental-reports were collected, tracking the children's sports participation, social behaviour (shy and aggressive tendencies) and the anticipated correlates of anxiety, loneliness, self-worth, affect, general well-being and coping over a one-year period. Previous research has been marred by cross-sectional data collection (e.g., Bredemeier et al., 1986; Crocker, Eklund, & Kowalski, 2000; Ebbeck & Weiss, 1998; Offord, Lipman, & Duku, 1998), which limits the directionality of effect. This study, however, included both a cross-sectional and a longitudinal component to investigate the effects of sports participation. McHale et al. (2005) in fact suggested that future research include some type of pre-post data in order to adequately address the relations between sport and social outcomes.

According to Rubin and colleagues (1998), middle childhood is a period in which the proportion of time children spend with their peers is rapidly increasing and time closely supervised decreasing. Settings for peer interaction expand as children have increased opportunities for play outside of the home and in the company of their peers (e.g., sport). An increased desire for belongingness and social acceptance also become important in middle childhood (Parker & Gottman, 1989). Middle childhood is also a time when children's participation in sport is rapidly increasing. By the age of 7 or 8, many children have been enrolled in some type of sport activity, be that soccer, hockey, baseball, or some other activity (Katz Stryer, Tofler & Lapchick, 1998). Given the

increase in rate of participation, and the increase in social involvement during middle childhood, it was the period of interest for the current line of research.

Method

Participants

At Time 1 (November 2004 to March 2005), 355 children in grades 4 and 5 (males = 181, females = 174) were recruited from schools in the Upper Canada District School Board (UCDSB). Most schools in the study were located in rural areas of Eastern Ontario, although some were in small to medium-sized towns (population of 500 to 10,000). Children were a mean 10.1 years of age ($SD=0.6$ years) at Time 1, ranging from 8.92 to 11.83 years. At Time 2 (October to December 2005), 96 boys and 105 girls (total $n = 201$) remained in the study. This represented a retention rate of approximately 56% from Time 1 to Time 2.

Measures

Data were collected from two sources: parent and self-reports. Information on sports participation and perceived shyness and aggression were collected. Outcome measures were assessed in terms of the child's social skills and psychological well-being, including coping strategies, general well-being, self-concept, social anxiety, loneliness, and affect.

Demographics. Demographic information was collected from parents to assess background information and potential covariates (see Appendix A). In terms of parental characteristics of interest, information was collected to describe parental education. As it has been suggested that socioeconomic status (SES) may determine what activities children have the opportunity to participate in (Vandell & Posner, 1999), socioeconomic

status was inferred by creating a mean of parental education. In addition, child demographic characteristics, including age and gender, were collected from parents.

Peer relations. To assess children's functioning with their peers, parents were asked to complete the *Social Skills Rating Scale* (SSRS, Gresham & Elliot, 1990, see Appendix B)². The SSRS assesses a broad range of children's behaviours in three domains: Social Skills, Problem Behaviours, and Academic Competence (although the latter domain was not included in the current study). The Social Skill domain can be further subdivided to include the subscales of cooperation, assertion, responsibility and self-control. The Problem Behaviours subscale is intended to identify behaviours which may hamper the acquisition or performance of social skills, including externalizing and internalizing behaviours, and hyperactivity (only externalizing behaviours were included in the current study).

Parents were asked to rate children along a 3 point scale (0 = never, 1 = sometimes, 2 = always) indicating the extent to which the child exhibits certain behaviours. Raw scores were summed to create a total social skills score (0 to 60) and an externalizing problem behaviours score (0 to 12). Higher scores thus indicate greater skills and greater problem behaviours. Gresham and Elliot (1990) found the SSRS to have adequate internal consistency, (α s ranging from .65 to .87), good test-retest reliability, and good criterion validity. For example, conceptually consistent correlations were indicated between the SSRS and similar measures of social skills such as the well established *Child Behaviour Checklist* (Achenbach & Edelbrock, 1983). In the current study, internal consistency was found to be good (Social Skills: $\alpha = .87$ at both Time 1 and Time 2; Problem Behaviours, $\alpha = .91$ at both Time 1 and Time 2).

Shyness. Crozier's (1995) *Children's Shyness Questionnaire* (CSQ) was administered to the children to assess both cognitive and somatic effects of shyness in middle childhood (see Appendix C). The tool was derived from children's own conceptualizations of shyness, which were found to be highly similar to descriptions suggested by adolescents and adults. The CSQ consists of 27 items with 3 possible responses: "Yes", "No" and "Don't Know". As suggested by Crozier (1995) and as has been done in previous research (Spooner & Bzdyra, 2003), one item ("I enjoy singing aloud when others can hear me") was eliminated. Scores were summed to create a value for total shyness. Sample items include, "I find it hard to talk to someone I don't know", and "I feel nervous when I am with important people". Internal consistency was found to be adequate ($\alpha = .77$ at Time 1, $\alpha = .80$ at Time 2).

Aggression. Children's aggression was measured with a self-report scale based on the Conflict Tactics Scale (Strauss, 1979) and modified for the current research to reflect physically aggressive behaviour engaged in by the child over the last six months. The Conflict Tactics Scale has been shown to have adequate reliability (α 's ranging from .56 to .82) and shows construct validity with other similar scales of aggression. In the modified version used for the current study, children were asked to respond along a 5 point Likert scale (1 = never, 5 = always) with reference to 9 behaviours (see Appendix D). Previous research on childhood aggression has employed a similar scale (Craig, personal communication, August 31, 2004). Items were summed to create a mean score for aggressive behaviour (ranging from 9-45). Internal consistency in the current study was found to be good (Time 1: $\alpha = .83$, Time 2: $\alpha = .86$).

Sports participation. Information on children's sports participation was collected using a sports participation information sheet (see Appendix E). This tool has been used in previous research with adolescents (Bowker, Gadbois, & Cornock, 2003) and was modified to make the questions more applicable to the younger sample in the current study. At Time 1, children were asked to list all of the sports they had participated in, including information on the length of time they had participated (i.e., number of years), how often they participated (per week), and the level at which they participated (e.g., just for fun, at school, recreationally or competitively). At Time 2, children were only asked to indicate the sports that they had participated in *over the past year*, the purpose being to report any additional sports participation.

Coping strategies. The *Self Report Coping Scale* (SRCS, Causey & Dubow, 1992) was used to assess children's coping strategies (see Appendix F). A lead question, "When I have an argument with a friend, I usually...", was provided and children were asked to respond along a 5 point scale (1 = never, 5 = always) to 34 different response options. Five coping strategy dimensions were shown via factor analysis: seeking social support, self-reliance/problem solving, distancing, internalizing and externalizing coping (Causey & Dubow, 1992). However, for the current study it was of conceptual interest to investigate specific domains, i.e., the "positive" dimension of problem solving, as well as the two domains specifically related to shyness (internalizing) and aggression (externalizing). Items for each of the subscales were summed to form a total score for each dimension of coping. Internal consistency of the scale has been found to be moderate in previous research (Cronbach's alpha values from .68 to .84 for each of the

subscales, Causey & Dubow, 1992), and adequate in the current study (α 's ranging from .65 to .88 at Time 1, and from .64 to .87 at Time 2).

General well-being. As an assessment of general well-being, children were asked to complete a short tool designed by Allison and Furstenberg (1989, see Appendix G). This measure asked children to rate social dissatisfaction and distress, and items were summed to create an overall score of well-being. The measure was designed for their study purposes only and no psychometric properties were available. However, Wilson (2004) found the internal reliability to be acceptable ($\alpha = .74$), and in the current study reliability was adequate (Time 1: $\alpha = .76$; Time 2: $\alpha = .79$).

Self-system. Based on the Shavelson, Hubner and Stanton (1976) hierarchal model of the self-system, the *Self-Description Questionnaire* (SDQ) is one of the most commonly employed measures of the self (e.g., Hymel, Bowker & Woody, 1993; Marsh, 1984). Three versions are available for preadolescent (I), adolescent (II), and young adult/adult (III) samples; for the current study, the SDQ-I was employed. The SDQ-I is a 76 item measure, and children were asked to respond along a five-point scale (1 = false; 2 = mostly false; 3 = sometimes false, sometimes true; 4 = mostly true; and 5 = true). Items can be summed for each of eight subscales (physical ability, physical appearance, peer relationships, parent relationships, reading, math, general school, general self), generating eight self-esteem scores. In a seven subscale version of the measure (excluding general self-concept), coefficient alpha reliability was found to be high (mean $\alpha = .82$), and support for the seven factors is provided (Marsh, Barnes, Cairns & Tidman, 1984; Marsh, 1989). Only four of the eight subscales were currently collected, including those pertaining to physical ability ($\alpha = .83$ and $.84$ at Times 1 and 2 respectively), physical

appearance ($\alpha = .89$ and $\alpha = .91$), peer relationships ($\alpha = .86$ and $\alpha = .88$), and general self ($\alpha = .78$ and $\alpha = .84$, see Appendix H for a copy of the questionnaire).

Social anxiety. Children's social anxiety was measured using the *Social Anxiety Scale for Children Revised* (SASC-R, La Greca & Stone, 1993, see Appendix J).

Previous research in the sport domain has used the SASC-R to address both social and sport-specific anxiety (Storch et al., 2002). The measure consists of 22 items (18 content and 4 filler items) and reflects 3 subscales: fear of negative evaluation (FNE, 8 items, e.g., "I worry about what other kids think of me"); social avoidance and distress in new situations (SAD-New, 6 items, e.g., "I get nervous when I meet new kids"); and social avoidance and distress in general (SAD-General, 4 items, e.g., "I feel shy even with kids I know well"). Each item was rated in terms of how much the item is "true of you" on a 5-point Likert-type scale (1 = not at all, 5 = all the time). The three factor structure has been confirmed in both non-clinical (La Greca & Stone, 1993) and clinical samples (Ginsburg, Le Greca, & Silverman, 1998). La Greca and Stone (1993) also found acceptable internal consistency for each of the three subscales (FNE $\alpha = .86$, SAD-New $\alpha = .78$ and SAD-General $\alpha = .69$). High levels of social anxiety (as measured by the SASC-R) have shown a negative correlation with self-perceptions, peer interaction, and social skills (Ginsburg et al., 1998). In the current study, social anxiety was summed across the 3 subscales, and internal consistency was found to be good (Time1: $\alpha = .90$, Time 2: $\alpha = .91$).

Loneliness. Asher, Hymel and Renshaw's (1984) *Loneliness and Social Dissatisfaction* measure was employed to assess children's loneliness and social dissatisfaction (see Appendix K). Although this scale has been revised by Asher and Wheeler (1985) to be applied directly to the school setting, the original version was

expected to be more relevant in the current study given that social participation outside of school was particularly of interest. The measure consists of 24 items (which includes 8 filler items). Children responded on a five-point scale, indicating how much each statement was true of themselves. Following procedures outlined in Asher et al. (1984), the 16 items were summed to create a total loneliness and social dissatisfaction score ranging from 16 (low loneliness) to 80 (high loneliness). All 16 items have been found to load onto one principal factor (Asher et al., 1984; Asher & Wheeler, 1985). The scale has also been shown to have excellent internal consistency ($\alpha = .90$; Asher et al., 1984). In the current study, internal consistency was adequate ($\alpha = .74$ at Time 1, $\alpha = .73$ at Time 2).

Positive and negative affect. Children's affect was measured using the *Positive and Negative Affect Schedule for Children* (PANAS-C, see Appendix L). The PANAS-C, designed for use with pre-adolescent children, is the child version of the PANAS (Watson, Clark, & Tellegen, 1988), a common tool used to assess adult symptoms of poor adjustment such as anxiety and depression. Characteristics of positive affect (PA) include interest, engagement and energy, whereas negative affect (NA) reflects moods such as fear, sadness, anger and guilt (Laurent et al., 1999).

The PANAS-C consists of 30 items, half of which represent each of the two factors (positive and negative affect). Children were asked to retrospectively indicate the extent to which they felt certain feelings or emotions over a two week period on a scale of 1 to 5 (1 = very slightly, 5 = extremely). Items were summed across each subscale. Sample items include: "cheerful" and "proud" for positive affect; "sad" and "ashamed" illustrate negative affect. A two-factor model (reflecting components for positive and

negative affect) was supported by Wilson, Gullone, and Moss (1998). Both subscales have shown high internal consistency (negative affect, $\alpha = .92$, positive affect, $\alpha = .90$). In terms of convergent validity, the PANAS-C was found to be highly correlated with measures of depression and trait anxiety (Laurent et al., 1999), and with measures of neuroticism (negative affect) and extraversion (positive affect, Wilson et al., 1998). In the current study, internal consistency was found to be good at Time 1 (Positive Affect $\alpha = .83$, Negative Affect $\alpha = .88$) and at Time 2 (Positive Affect $\alpha = .83$, Negative Affect $\alpha = .90$).

Procedure

Upon obtaining approval from the Carleton University Psychology Department Ethics Review Board, as well as from the UCDSB Ethics Committee, individual school principals were contacted to request permission to enter the schools. Principals were informed of the purposes of the study as well as the time commitment of participation (group testing over a one year period). Contact information for individual teachers was provided by the principal, and each teacher was contacted by the researcher to determine an appropriate time to perform group testing. Parental consent was obtained via permission letters sent home through the child's classroom teacher. Each child was also given the opportunity to deny participation if they so desired. Parent-provided demographic information was collected at Time 1 only; however, parental consent was obtained at both Time 1 and Time 2, and parents were asked to complete the SSRS at both times as well. Self-reports were also gathered at both Time 1 and Time 2.

For those children with positive consent, group testing was employed. That is, all children at each particular school participated in a central location and time at the school.

Children were assured that their participation was voluntary and that they were free to withdraw at any time. Task instructions were read aloud by the researcher although children independently read and responded to the questionnaires unless assistance from the researcher was requested. At Time 2, similar procedures were employed.

Results

Preliminary analyses

Testing of assumptions. Prior to any descriptive or inferential statistical analyses, data were cleaned and checked for missing data and both univariate and multivariate outliers. Missing data were handled by imputing the mean value for that particular variable (the mean was calculated within each of the subscale scores). In terms of outliers, data were checked for univariate outliers on each of the independent and dependent variables by computing z scores for each of the variables. Z-scores larger than $|3|$ were considered to be outliers. However, since a reasonable number of outliers were observed (less than 2% of the sample, see Tabachnick & Fidell, 2001), it was not deemed necessary to adjust to 3 standard deviation units from the mean.

Multivariate outliers were assessed by observing Mahalanobi's distance for each case; values greater than the critical value were examined as potential multivariate outliers (Stevens, 2002). Again, only one case was found to have a value greater than the critical value of 17, and therefore was not adjusted. Cook's distance was also examined to determine if any multivariate outliers existed on the predictor variables and each of the dependent variables (thus indicating a change in the regression coefficient for that particular dependent variable if the case were omitted). Cook's values greater than the

critical value of 1 may be overly influential; however, no values were found to be greater than 1.

The use of the Repeated Measures MANOVA model implies that three assumptions be met. The first assumption requires a normal distribution (both univariate and multivariate) of the dependent variables. However, studies with large sample sizes (as in the current study) are typically robust, meaning that the obtained value of F is fairly accurate. The second assumption is that of homogeneity of variance; the variances and covariances of the dependent variable should be approximately the same across groups. That is, the variances are approximately equal for each group of behaviours (shy, aggressive, and comparison) and sports participant groups (non-participants, participants) and across time. Homogeneity of variance was tested using the Box M test; however, all Repeated Measures analyses met the criterion ($p > .001$, see Tabachnick & Fidell, 2001). Finally, the third assumption is in regards to independence of observations, which requires that each case be randomly selected from the population and considered only once (which was the case).

When performing ANCOVA, other assumptions must also be considered (see Stevens, 2002). ANCOVA requires that a linear relationship exist between the dependent variable(s) and the covariate, and that the covariate be measured without error. Thus, only those covariates that were significantly correlated with the dependent variables were included. Finally, ANCOVA requires homogeneity of the regression slopes (the covariate should have an equal effect on the dependent variable for each of the groups), which was confirmed by observing a lack of significant interaction between SES and Behaviour, SES and Sport, and SES and Gender.

Descriptive statistics. Children had previously participated in $M=2.45$ ($SD=2.87$, range = 0-15) sports at Time 1, and an additional $M=1.00$ ($SD=1.03$, range = 0-15) sports at Time 2³. Overall, boys ($M=3.97$, $SD=3.35$) had participated in significantly more sports than did girls ($M=3.08$, $SD=3.15$), $t(193)=1.51$, $p=.05$. The mean score for shyness at Time 1 was 17.38 ($SD=8.24$), and at Time 2 was 15.83 ($SD=8.28$). For aggression, the mean score at Time 1 was 13.12 ($SD=7.98$) and at Time 2 was 13.03 ($SD=5.27$).

Descriptive data for the dependent variables (well being, social anxiety, loneliness, self system, affect, social skills and coping strategies) are shown in Table 1, and correlations between all dependent variables at Time 1 are displayed in Table 2. As indicated, outcome variables were significantly associated with each other in a theoretically consistent manner.

Demographic variables. Correlations between each of the potential covariates (age and ses) and the dependent variables are presented in Table 3. SES was significantly correlated with many of the dependent variables. As such, it was included as a covariate in subsequent analyses. Surprisingly, SES was not significantly correlated with sport, nor was it correlated with aggression. However, shyness was negatively correlated with SES ($r=-.15$, $p<.01$).

To investigate Gender differences in shyness and aggression over time, a Repeated Measures MANOVA was conducted with shyness and aggression, using Time as the within subjects variable and Gender as the between subjects variable. Results indicated a significant main effect of Gender, $F(2, 197)=15.79$, $p<.001$, and of Time, $F(2, 197)=4.85$, $p<.01$. Follow-up univariate analysis revealed a significant effect of Gender

Table 1

Means and standard deviations of outcome variables at Time 1 and Time 2

	Time 1		Time 2	
	Mean	SD	Mean	SD
Externalizing Problem Behaviours	3.35	2.63	3.44	2.37
Social Skills				
Cooperation	12.40	3.43	12.95	3.29
Assertion	15.75	2.50	17.31	2.58
Responsibility	13.24	2.56	14.81	2.96
Self-Control	13.22	3.56	13.54	3.51
Coping				
Problem Solving	25.85	6.65	25.67	6.31
Internalizing	16.72	4.99	15.64	5.04
Externalizing	7.34	3.49	6.99	2.88
Self-esteem				
Physical Ability	36.40	6.77	36.95	6.15
Physical Appearance	31.14	7.95	33.25	7.28
Peer	32.33	7.73	34.16	6.59
General	40.80	6.28	41.90	5.94
Social Anxiety	46.19	15.86	41.84	14.33
Loneliness	32.01	10.95	29.92	9.44
Affect				
Positive	53.79	10.25	53.91	9.45

Negative	29.38	10.34	27.77	9.87
Well being	42.25	5.81	43.09	5.27

Table 2

Correlations between dependent variables at Time 1

	Externalizing	Cooperation	Assertion	Responsibility	Self-control	Problem Solving	Internalizing Coping	Externalizing Coping
Externalizing	-	-.33***	-.23***	-.18**	-.59***	-.06	.14*	.18**
Cooperation		-	.34***	.47***	.55***	.17**	-.13*	-.20***
Assertion			-	.44***	.33***	.10	-.03	-.02
Responsibility				-	.44***	.19***	.00	-.09
Self-control					-	.18**	-.13*	-.23***
Prob. Solving						-	.22***	-.24***
Int. Coping							-	.40***

Note: * $p < .05$, ** $p < .01$, *** $p < .001$.

Table 2 continued

Correlations between dependent variables at Time 1

	Physical Ability SE	Physical Appearance	Peer SE	General SE	Social Anxiety	Loneliness
Externalizing	-.03	-.08	-.15**	-.16**	.14**	.20***
Cooperation	-.01	.10	.10	.11*	-.04	-.16**
Assertion	-.19***	.11*	.23***	.15**	-.17**	-.23***
Responsibility	-.04	.04	.08	.07	.02	-.10
Self-control	-.02	-.04	.17**	.15**	-.13*	-.22***
Problem Solving	.14**	.20***	.19***	.38***	.15**	-.15**
Internalizing Coping	.00	.03	-.15**	-.04	.47***	.34***
Externalizing Coping	.03	-.04	-.07	-.15**	.09	.19***
Physical Ability SE	-	.41***	.53***	.51***	-.24***	-.39***
Physical Appearance SE			.56***	.61***	-.11*	-.36***
Peer SE			-	.59***	-.40***	-.69***
General SE				-	-.15**	-.49***
Social Anxiety					-	.52***

Note: * $p < .05$, ** $p < .01$, *** $p < .001$.

Table 2 continued

Correlations between dependent variables at Time 1

	Positive Affect	Negative Affect	Well-being
Externalizing	-.02	.18**	-.20***
Cooperation	.07	-.16**	.16**
Assertion	.17**	-.13*	.25***
Responsibility	.03	-.09	.09
Self-control	.07	-.21***	.19***
Problem Solving	.32***	-.09	.25***
Internalizing Coping	.02	.43***	-.18**
Externalizing Coping	-.05	.33***	-.19***
Physical Ability SE	.41***	-.21***	.30***
Physical Appearance SE	.37***	-.15**	.42***
Peer SE	.41***	-.36***	.48***
General SE	.51***	-.28***	.53***
Social Anxiety	-.13*	.45***	-.29***
Loneliness	-.47***	.53***	-.52***
Positive Affect	-	-.10	.48***
Negative Affect		-	-.38***

Note: * $p < .05$, ** $p < .01$, *** $p < .001$.

Table 3

Correlations between potential covariates (age, ses) with outcome variables at Time 1

	Age	SES
Externalizing Problem Behaviour	.11	-.36**
Social Skills		
Cooperation	-.13	.13
Assertion	-.05	.11
Responsibility	-.01	.09
Self-Control	-.11	.29**
Coping		
Problem Solving	-.09	.04
Internalizing	-.04	-.14*
Externalizing	.11	-.14*
Self-esteem		
Physical Ability	-.03	-.01
Physical Appearance	-.08	.05
Peer	-.09	.09
General	-.09	-.13
Social Anxiety		-.13
Loneliness	-.03	-.06
Affect		
Positive	.09	.11
Negative	.07	-.17*

Well being	-01	.09
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Note: $p < .05$, $**p < .001$.

for both shyness, $F(1, 198)=20.57, p<.001$, and aggression, $F(1, 198)=11.48, p<.001$. An examination of means indicated that boys reported being less shy and more aggressive than girls. Univariate analyses also revealed a significant effect of Time for shyness, $F(1, 198)9.71=, p<.01$, with shyness decreasing from Time 1 to Time 2.

Finally, shyness was relatively stable from Time 1 to Time 2 ($r=.677, p<.001$). In addition, aggression was also quite stable across time ($r=.596, p<.001$). Shyness and aggression were not significantly correlated at either Time 1 or Time 2 ($p>.05$).

Extreme groups. From a theoretical perspective, and given the repeated measures design of the study⁴, a categorical approach to the assessment of shyness and aggression was employed. Thus, groups of extremely shy and extremely aggressive children were created. However, given the gender differences found for both shyness and aggression, and following the procedures of Rubin et al. (1993) and Prakash and Coplan (in press), percentile scores were calculated within gender. An 85th percentile was selected to indicate the extreme groups of children (i.e., the top 15%, following Kagan, 1989). Children who reported shyness scores in the top 15% (within gender) and below the mean on aggression were classified as *shy* ($n=48$ at Time 1); children who scored in the top 15% (within gender) on aggression and below the mean for shyness were classified as *aggressive* ($n=42$). Finally, children who scored below the mean on both shyness and aggression comprised the *comparison* group ($n=110$).

Information collected from the sports participation questionnaire was used as both a continuous variable (for research question 1) and a categorical variable (research question 2). As a continuous variable, children were represented along a continuum in terms of the total number of sports they had participated in. Previous research supports

the use of number of years as a measure of continuous participation (Bowker et al., 2003; Bredemeier et al., 1986; Kleiber & Roberts, 1981). As a categorical variable, coding allowed for the creation of groups of a) non-participants (list no sports or only sports “just for fun”), b) children who had participated in some organized sport.

However, to create groups related to sports participation, it was originally of interest to examine between-group differences for participation in *individual* versus *team* sports. However, only 16 children reported having participated in individual sports only (without also having participated in a team sport), versus those that had participated in team sports only ($n=137$). Thus, participants were then divided into four groups based on their overall (team or individual) participation in sport: none ($n=44$), recreational ($n=96$), organized ($n=117$) and competitive ($n=96$) sport. Given the comparatively small number of children who reported having participated in no sports, none and recreational sports were subsequently combined, creating three groups: recreational ($n=140$), organized ($n=117$), and competitive ($n=96$)⁵. However, in subsequent analyses, few differences were found between children who participated in organized versus competitive sport. Thus, these two categories were combined.

The effect of the total number of sports was then explored. Group were first created based on recreational sports only ($n=140$), some organized sports (i.e., 1-3 sports, $n=115$) and many organized sports (more than 4 sports, $n=98$). However, again very few differences were found between the group who had participated in some organized sports versus those that had participated many sports. Therefore, it was concluded that the optimal analysis strategy would be to examine differences between children who had participated in organized sports ($n=213$) as compared to those who had not ($n=140$).

Child characteristics and sports participation. Correlations between participation in organized sports and shyness and aggression (partialling out SES) were calculated at Time 1. Shyness was significantly negatively associated with sports participation ($r=-.22$, $p<.001$). However, no significant relation was shown between aggression and total sports participation ($r=.02$, *ns*). No significant differences between the correlation for boys and girls were found; therefore, shyness and aggression scores were collapsed across gender.

Sports Participation, Shyness, Aggression and Outcomes at Time 1

Overview. The first set of analyses concerned Time 1 data only. The goal of these analyses was to explore the effects of sports participation over the child's lifetime (i.e., their total sports participation). Following this, a repeated measures design (with Time as the within subjects factor) was employed to investigate the longitudinal effects of sports participation over a one-year period (albeit with a smaller sample size).

All multivariate tests report Wilk's lambda values (as the assumption of equality of variances was met), and post hoc analyses employed Tukey's method. Finally, significance was accepted at the $p<.05$ level, although trends to the $p<.08$ level were also noted. According to Cohen (1977), effect sizes can be interpreted as small ($\eta=.20$), medium ($\eta=.50$) or large ($\eta=.80$). Some caution, however, has been noted with respect to effect size measurement; Olejnik and Algina (2000) suggested that effect sizes are influenced by reliability, population heterogeneity, and the range of treatment (e.g., in this case, range of sports participation). Thus, Olejnik and Algina question Cohen's arbitrary values associated with small, medium and large effects for being overly conservative (i.e., too high).

Outcomes related to sport, shyness and aggression were assessed with a series of Multivariate Analyses of Covariances. Five MANCOVAs and one ANCOVA were conducted to examine multivariate effects on outcomes (social skills, self-esteem, internalizing problems, positive adjustment, coping, and externalizing problems). Dependent variables were first grouped conceptually and their associations were checked empirically using factor analysis. That is, for each set of dependent variables, factor analysis was performed on each of the sets of dependent variables to ensure that variables were converging onto one factor (i.e., could conceptually “hang together” for multivariate analyses). All subscales loaded onto the principal factor above a .60 cutoff (range = .69-.86).

SES was included as a covariate for all analyses⁷. Main effects of Sports Participation (no organized sport, some organized sport), Behaviour Group (shy, aggressive, comparison) and Gender were examined, as well as the interaction effects. Although power is limited by the relatively small sample size (i.e., small extreme groups), three-way interactions were interpreted (with some caution), given that they were of particular theoretical interest in the current study. When main effects and interactions were found at the multivariate level, the highest order effect (i.e., the interaction) was interpreted at the univariate level. In order to interpret significant interactions, simple effects were examined by performing analyses for each group separately (collapsing across non-significant groups). If, however, significant main effects or interactions were not discovered at that level, Tukey’s post hoc testing was performed to examine differences in means.

Social skills. The social skills dependent variables of cooperation, assertion, responsibility and self-control were examined with a 3 Behaviour Group (shy, aggressive, comparison) x 2 Sport (none, some) x 2 Gender MANCOVA. Significant multivariate effects were found for Behaviour, $F(8, 356)=3.79, p<.001$, and Sport, $F(4, 178)=5.82, p<.001$. No significant multivariate effects were indicated for Gender, $F(4, 178)=1.31, ns$, or any interactions (Gender by Behaviour: $F(8, 356)<1, ns$; Gender by Sport: $F(4, 178)=1.34, ns$; Behaviour by Sport: $F(8, 356)=1.50, ns$; Gender by Behaviour by Sport: $F(8, 356)<1, ns$).

Follow up univariate analyses for Sport indicated a significant main effect for assertion, $F(1, 181)=12.18, p<.001, \eta=.06$, and for self-control, $F(1, 181)=7.38, p<.01, \eta=.04$, but not for cooperation, $F(1, 181)=1.42, ns$, or responsibility, $F(1, 181)<1, ns$. An examination of means indicated that children who had not participated in organized sports were reported to be less assertive ($M=14.81, SD=2.80$) and had less self-control ($M=12.43, SD=3.68$) than did children who had participated in sports ($M_{ass}=16.25, SD=2.22; M_{sc}=14.06, SD=3.61$).

In terms of the main effect of Behaviour group, follow up univariate tests revealed a significant effect for cooperation, $F(2, 181)=4.51, p<.03, \eta=.04$; assertion, $F(2, 181)=5.46, p<.05, \eta=.03$; and self-control, $F(2, 181)=5.58, p<.01, \eta=.06$, but not for responsibility, $F(2, 181)<1, ns$. As shown in Table 4, results from Tukey's post-hoc testing indicated that aggressive children were reported to display less cooperation and self-control than were comparison children (whereas shy children did not differ from either group). Shy children were reported to be significantly less assertive than were aggressive or comparison children (who did not differ).

Table 4

Mean social skills for shy, aggressive, and comparison children

	Shy	Aggressive	Comparison
	<i>M (SD)</i>	<i>M (SD)</i>	<i>M (SD)</i>
Cooperation	11.96 ^{ab} (3.87)	11.30 ^a (3.13)	13.27 ^b (3.21)
Assertion	14.39 ^a (2.96)	16.10 ^b (2.06)	15.95 ^b (2.47)
Responsibility	13.30 (2.52)	12.94 (2.85)	13.54 (2.58)
Self-control	12.63 ^{ab} (4.02)	11.78 ^a (3.12)	14.23 ^b (3.57)

Note: Differences in subscripts indicate a significant difference at $p < .05$ level.

Self-esteem. The dependent variables for self-esteem (physical ability, physical appearance, peer and general self-esteem) were examined with a 3 Behaviour (shy, aggressive, comparison) x 2 Sport (none, some) x 2 Gender MANCOVA. Significant multivariate effects were found for Sport, $F(4, 178)=7.30, p<.001$, Behaviour, $F(8, 356)=3.35, p<.001$, and Gender, $F(4, 178)=4.95, p<.001$. In addition, a significant multivariate interaction was seen between Behaviour and Sport, $F(8, 356)=2.01, p<.05$. However, no significant multivariate interactions were found between Gender and Behaviour, $F(8, 356)=1.43, ns$; Gender and Sport, $F(4, 178)=1.30, ns$; nor was there a three-way interaction for Gender by Sport by Behaviour, $F(8, 356)=1.46, ns$. At the univariate level, there was a significant effect of gender for physical appearance, $F(1,181)=10.21, p<.01, \eta=.05$, and general self-worth, $F(1,181)=9.76, p<.01, \eta=.05$, but not for physical ability, $F(1,181)<1, ns$, or peer self-esteem, $F(1,181)<1, ns$. An examination of means demonstrated that females had higher physical appearance self-esteem ($M=32.59, SD=7.41$) and general self-esteem ($M=41.71, SD=6.03$), than did males ($M_{pa}=29.51, SD=9.37; M_{gsw}=39.75, SD=7.65$).

To examine the highest order effect (i.e, the interaction between Behaviour and Sport), results were examined at the univariate level. Only general self-esteem demonstrated a significant interaction effect, $F(2,181)=2.96, p<.05, \eta=.03$. Interactions were not significant for physical ability, $F(1,181)<1, ns$; physical appearance, $F(2,181)<1, ns$; and peer self-esteem, $F(2,181)=1.16, ns$. To examine the interaction for general self-esteem further, analyses were performed for each Behaviour group (shy, aggressive, comparison) separately (collapsed across gender). For shy children, a univariate effect for sport was found for general self-esteem, $F(1, 43)=5.96, p<.02$,

$\eta=.12$. For aggressive children, a significant trend was also shown for Sport for general self-esteem, $F(2, 43)=3.57, p=.07, \eta=.09$. However, a significant effect of Sport for general self-esteem was not found for comparison children, $F(2, 43)=1.52, ns$. As shown in Figure 1, shy and aggressive children who had participated in sport had higher general self-esteem than children who had not participated in sport. For comparison children, the effect of sport on self-esteem was not significant.

Given the non-significant Behaviour by Sport interactions for physical ability, physical appearance, and peer self-esteem, main effects of Behaviour and Sport were examined. All three types of self-esteem displayed a significant effect of Behaviour (physical ability, $F(2,181)=4.90, p<.01, \eta=.05$; physical appearance, $F(2,181)=3.80, p<.05, \eta=.04$; and peer self-esteem, $F(2,181)=8.55, p<.001, \eta=.09$). As shown in Table 5, shy and aggressive children reported significantly lower physical ability, physical appearance, and peer self-esteem than did comparison children (with no differences between shy and aggressive children).

Turning to the main effect of Sport on self-esteem, again all three remaining types of self-esteem displayed significant effects. An examination of means revealed that children who participated in sport had higher physical ability self-esteem ($M=38.41, SD=5.33$), physical appearance self-esteem ($M=32.42, SD=8.52$), and peer self-esteem ($M=34.28, SD=7.14$) than did children who had not participated in organized sport ($M_{PAb}=32.99, SD=8.06; M_{App}=29.44, SD=8.34; M_{Peer}=30.06, SD=8.95$).

Internalizing problems. Anxiety, loneliness, and negative affect were examined with a 3 Behaviour (shy, aggressive, comparison) x 2 Sport (none, some) x 2 Gender MANCOVA. Significant multivariate effects were found for Behaviour, $F(6, 358)=16.30,$

Table 5

Mean self-esteem for shy, aggressive, and comparison children

	Shy	Aggressive	Comparison
	<i>M (SD)</i>	<i>M (SD)</i>	<i>M (SD)</i>
Physical ability	33.47 ^a (7.44)	35.34 ^{a†} (6.38)	37.30 ^b (7.14)
Physical appearance	28.35 ^a (8.28)	29.82 ^{a†} (9.85)	32.74 ^b (7.79)
Peer	28.33 ^a (8.09)	30.91 ^a (8.48)	34.69 ^b (7.47)

Note: Differences in subscripts indicate a significant difference at $p < .05$ level ($†p < .07$).

$p < .001$, and Gender, $F(3, 179) = 5.47, p < .001$. No significant main effects were shown for Sports Participation, $F(3, 179) = 1.41, ns$, nor were there any significant interactions (Gender by Behaviour: $F(6, 358) = 1.15, ns$; Gender by Sport: $F(3, 179) < 1, ns$; Behaviour by Sport: $F(6, 358) < 1, ns$; Gender by Behaviour by Sport: $F(6, 358) = 1.34, ns$).

Univariate analyses indicated significant effects of Behaviour for social anxiety $F(2, 181) = 45.20, p < .001, \eta = .33$; loneliness, $F(2, 181) = 20.42, p < .001, \eta = .18$; and negative affect, $F(2, 181) = 9.86, p < .001, \eta = .10$. As shown in Table 6, shy children were significantly more anxious and lonely than were aggressive children, who were in turn more anxious and lonely than comparison children. Finally, shy and aggressive children reported greater negative affect than did comparison children. There was also a significant effect of gender for anxiety, $F(1, 181) = 13.81, p < .001, \eta = .07$; but not for loneliness, $F(1, 181) < 1, ns$; or negative affect, $F(1, 181) < 1, ns$. An examination of means revealed that females ($M = 49.14, SD = 16.48$) reported greater anxiety than did males ($M = 42.04, SD = 17.06$).

Positive adjustment. The next MANCOVA was a 3 Behaviour (shy, aggressive, comparison) x 2 Sport (none, some) x 2 Gender analysis to examine positive psychological adjustment (i.e., positive affect and total well-being). A significant effect was found for Sport, $F(2, 180) = 6.71, p < .01$; and for Behaviour, $F(4, 360) = 7.65, p < .001$. A main effect was not found for Gender, $F(2, 180) < 1, ns$. In addition, a Gender by Behaviour interaction approached significance, $F(4, 360) = 2.29, p = .06$. No other interactions were shown (Gender by Sport: $F(2, 180) < 1, ns$; Sport by Behaviour: $F(4, 360) < 1, ns$; Gender by Sport by Behaviour: $F(4, 360) = 1.42, ns$).

Table 6

Mean (SD) internalizing problems for shy, aggressive, and comparison children

	Shy	Aggressive	Comparison
	<i>M (SD)</i>	<i>M (SD)</i>	<i>M (SD)</i>
Anxiety	62.67 ^a (14.16)	44.95 ^b (13.61)	38.63 ^c (14.19)
Loneliness	40.22 ^a (10.46)	34.57 ^b (11.15)	27.43 ^c (10.52)
Negative affect	33.54 ^a (10.22)	33.52 ^a (9.95)	26.08 ^b (10.34)

Note: Differences in subscripts indicate a significant difference at $p < .05$ level.

For the multivariate main effect of Sport, univariate analysis indicated a significant effect for both positive affect, $F(1, 181)=12.69, p<.001, \eta=.07$, and well being, $F(1, 181)=6.92, p<.01, \eta=.04$. Children who had not participated in organized sport experienced less positive affect ($M=50.73, SD=11.07$) and well being ($M=40.66, SD=6.53$) than did children who had participated in sport ($M_{posaff}=56.85, SD=9.21; M_{wb}=43.64, SD=5.39$).

To examine the Gender by Behaviour interaction, univariate results were examined. The interaction was found to be significant for well being, $F(2, 181)=4.18, p<.02, \eta=.04$, but not for positive affect, $F(2, 181)=1.79, ns$. Therefore, analyses were performed for well being for each Gender separately (collapsing across Sport). For boys, significant univariate effects were revealed for well-being, $F(2, 91)=14.47, p<.001, \eta=.24$. As shown in Table 7, shy and aggressive boys had significantly lower well being than comparison boys. Shy boys also had significantly lower well being than aggressive boys. Turning to the effect of Behaviour for girls, significant univariate results were displayed for well-being, $F(2, 95)=3.82, p<.03, \eta=.08$. Aggressive girls had significantly lower well-being than did comparison girls (with no differences for shy girls, see Table 7).

Since the Behaviour by Gender interaction was not significant for positive affect, the main effect of Behaviour was further examined. A significant main effect of Behaviour was found for positive affect, $F(2, 181)=7.76, p<.001, \eta=.08$. Follow-up Tukey's tests revealed that shy children had significantly lower positive affect ($M=48.91, SD=9.43$) than did aggressive ($M=53.55, SD=12.35$) or comparison ($M=56.56, SD=9.39$) children (with no differences between aggressive and comparison children).

Table 7

Mean (SD) well-being for shy, aggressive, and comparison boys and girls

	Shy	Aggressive	Comparison
	<i>M (SD)</i>	<i>M (SD)</i>	<i>M (SD)</i>
Boys	37.06 ^a (7.34)	41.11 ^b (7.04)	44.81 ^c (4.44)
Girls	41.67 ^{ab} (5.44)	39.62 ^a (6.14)	43.86 ^b (5.14)

Note: Differences in subscripts indicate a significant difference at $p < .05$ level.

Coping strategies. The coping strategies of problem solving, internalizing, and externalizing were examined with a 3 Behaviour (shy, aggressive, comparison) x 2 Sport (none, some) x 2 Gender MANCOVA. Significant multivariate main effects were found for Behaviour, $F(6, 356)=25.56, p<.001$, and for Gender, $F(3, 178)=8.79, p<.001$. However, no significant multivariate effects were found for Sports Participation, $F(3, 178)=1.80, ns$. Significant interactions were not found (Gender by Behaviour, $F(6, 356)=1.61, ns$; Sport by Behaviour, $F(6, 356)=1.81, ns$; Gender by Sport, $F(3, 178)=1.92, ns$; Gender by Behaviour by Sport, $F(6, 356)=1.79, ns$).

Univariate analyses indicated that for the multivariate main effect of Behaviour, significant differences occurred for problem solving, $F(2, 180)=6.99, p<.001, \eta=.07$; internalizing, $F(2, 180)=17.78, p<.001, \eta=.17$; and externalizing coping, $F(2, 180)=67.88, p<.001, \eta=.43$. As shown in Table 8, shy and aggressive children reporting using internalizing coping strategies more so than did comparison children. Aggressive children reported using significantly fewer problem solving and significantly more externalizing coping than did shy and comparison children.

At the univariate level, there was a significant effect of Gender on problem solving, $F(1, 180)=17.69, p<.001, \eta=.09$; internalizing, $F(1, 180)=7.00, p<.01, \eta=.04$; and externalizing coping, $F(1, 180)=6.19, p<.02, \eta=.03$. An examination of means revealed that females reported greater problem solving ($M=27.58, SD=5.93$), more internalizing ($M=17.26, SD=5.01$) and less externalizing coping ($M=6.91, SD=3.39$) than did males ($M_{ps}=23.96, SD=7.41; M_{int}=16.05, SD=5.11; M_{ext}=8.01, SD=4.18$).

Externalizing problem behaviours. The final analysis at Time 1 was a 3 Behaviour (shy, aggressive, comparison) x 2 Sport (none, some) x 2 Gender ANCOVA to examine

Table 8

Mean (SD) coping strategies for shy, aggressive, and comparison children

	Shy	Aggressive	Comparison
	<i>M (SD)</i>	<i>M (SD)</i>	<i>M (SD)</i>
Problem solving	26.21 ^a (6.86)	22.57 ^b (7.40)	26.90 ^a (6.41)
Internalizing	19.25 ^a (4.95)	18.56 ^a (4.88)	14.87 ^b (4.48)
Externalizing	7.08 ^a (2.80)	12.09 ^b (4.05)	5.83 ^a (2.45)

Note: Differences in subscripts indicate a significant difference at $p < .05$ level.

externalizing problem behaviours. A significant effect was found for Sport, $F(1, 181)=12.98, p<.001, \eta=.07$, and for Behaviour, $F(2, 181)=5.56, p<.01, \eta=.06$. A main effect was not found for Gender, $F(1, 181)=1.79, ns$, and no interactions were shown (Gender by Behaviour: $F(2, 181)=1.31, ns$; Gender by Sport: $F(1, 181)=3.03, ns$; Sport by Behaviour: $F(2, 181)<1, ns$; Gender by Sport by Behaviour: $F(2, 181)=1.65, ns$). A comparison of means indicated that children who had not participated in organized sport ($M=4.02, SD=2.68$) were reported to have significantly more externalizing problems than did sports participants ($M=2.62, SD=2.20$). With respect to Behaviour, Tukey's post hoc testing demonstrated that aggressive children displayed more externalizing behaviour ($M=4.29, SD=2.45$) than did comparison ($M=2.68, SD=2.47$) or shy ($M=3.65, SD=2.39$) children.

Longitudinal analyses

Overview. The next set of analyses sought to answer whether participation in sport over a one year period changes child outcomes. Outcomes related to Sport and Behaviour were assessed with a series of Repeated Measures Multivariate Analyses of Covariances. As previously, five MANCOVAs and one ANCOVA were conducted to examine multivariate effects on social skills, self-esteem, internalizing problems, positive adjustment, coping, and externalizing problems. Given that the interest of the analyses were only in the specific effects of Sport participation over Time, and due to the smaller sample size at Time 2, only main effects of Time and interactions that involved both Time and Sport Participation are reported⁶. To note is that Sports reflects only the organized sports that the child had participated in over the one year period (none: $n=52$;

some: $n=143$). In addition, due to attrition sample sizes at Time 2 were reduced (shy: $n=25$, aggressive: $n=24$, comparison: $n=69$).

While it was possible that children (or parents) who continued to participate at Time 2 were somehow different than those who only agreed to participate at Time 1, this was not found to be the case. No significant differences were found between children who participated/did not participate at Time 2 on measures of shyness, aggression, sport participation (at Time 1) or SES. Thus, attrition was not further considered in subsequent analyses. (See Table 9 for a comparison of values on both the independent and dependent variables at Time 1 for the children who did/did not participate at Time 2.)

Social Skills. To examine social skills (cooperation, assertion, responsibility, and self-control), a 3 Behaviour (shy, aggressive, comparison) x 2 Time x 2 Sport (none, some) x 2 Gender Repeated Measures MANCOVA was performed. A main effect of Time was not shown, $F(4, 97) < 1$, *ns*. However, a multivariate interaction was found between Time, Behaviour and Gender, $F(8, 194) = 2.76$, $p < .01^8$. No other interactions with Time were noted (Time by Behaviour: $F(8, 194) < 1$, *ns*; Time by Sport: $F(4, 97) = 1.84$, *ns*; Time by Gender: $F(4, 97) = 1.39$, *ns*; Time by Behaviour by Sport: $F(8, 194) < 1$, *ns*; Time by Sport by Gender: $F(4, 97) < 1$, *ns*; Time by Sport by Behaviour by Gender: $F(8, 194) = 1.57$, *ns*).

Self-esteem. The self-esteem dependent variables (physical ability, physical appearance, peer and general self-esteem) were examined with a 3 Behaviour (shy, aggressive, comparison) x 2 Time x 2 Sport (none, some) x 2 Gender Repeated Measures MANCOVA. A significant main effect of Time was not found, $F(4, 95) < 1$, *ns*, and significant multivariate interactions were not found for Time by Gender, $F(4, 95) < 1$, *ns*,

Table 9

Time 1 independent and dependent variable means for children who were retained and ceased participation at Time 2

	Ceased Participation		Retained		t
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	
Independent variables					
Gender	1.44	0.50	1.52	0.50	-1.39
SES	5.33	1.44	5.48	1.58	-0.87
Shyness	18.05	7.97	17.40	8.46	0.73
Aggression	13.26	5.24	13.01	4.78	0.47
Total number of sports	2.69	2.84	2.38	2.60	1.05
Dependent variables					
Externalizing problems	3.52	2.71	3.22	2.56	1.08
Cooperation	11.94	3.53	12.76	3.32	-2.25*
Assertion	15.33	2.71	16.08	2.28	-2.80**
Responsibility	13.13	2.52	13.33	2.60	-0.75
Self-control	12.86	3.70	13.49	3.44	-1.67
Problem solving coping	25.68	6.78	25.98	6.56	-0.43
Internalizing coping	17.00	5.32	16.50	4.72	0.93
Externalizing coping	7.63	3.68	7.11	3.33	1.39
Physical ability SE	36.54	6.86	36.29	6.71	0.34
Physical appearance SE	30.44	8.56	31.69	7.42	-1.47
Peer SE	32.19	7.57	32.43	7.87	-0.29

General SE	40.82	5.98	40.78	6.51	0.06
Social anxiety	48.50	15.84	44.40	16.67	2.42*
Loneliness	32.71	10.93	31.48	10.96	1.05
Negative affect	29.97	10.45	28.93	10.25	0.55
Positive affect	54.14	10.81	53.53	9.82	0.94
General well-being	41.97	5.44	42.46	6.09	-0.78

Note: * $p < .05$, ** $p < .01$.

Time by Behaviour, $F(8, 190) = 1.56$, *ns*, Time by Sport, $F(4, 95) < 1$, *ns*, Time by Behaviour by Sport, $F(8, 190) < 1$, *ns*, Time by Sport by Gender, $F(4, 95) < 1$, *ns*, and Time by Sport by Behaviour by Gender, $F(8, 190) = 1.41$, *ns*. However, the Time by Behaviour by Gender interaction approached significance, $F(8, 190) = 1.89$, $p = .06$.

Internalizing problems. To examine the internalizing outcomes of social anxiety, loneliness and negative affect, a 3 Behaviour (shy, aggressive, comparison) x 2 Time x 2 Sport (none, some) x 2 Gender Repeated Measures MANCOVA was conducted. A significant main effect of Time was not found, $F(3, 94) < 1$, *ns*; however, a significant multivariate interaction for Time by Behaviour by Sport, $F(6, 188) = 2.57$, $p = .02$, was revealed. No other significant interactions were found (Time by Behaviour: $F(6, 188) = 1.34$, *ns*; Time by Sport: $F(3, 94) < 1$, *ns*; Time by Gender: $F(3, 94) < 1$, *ns*; Time by Behaviour by Gender: $F(6, 188) < 1$, *ns*; Time by Sport by Gender: $F(3, 94) = 1.29$, *ns*; Time by Sport by Behaviour by Gender: $F(6, 188) = 1.84$, *ns*).

In order to interpret the multivariate interaction (Time by Behaviour by Sport), univariate results were examined. A three-way interaction was found for anxiety at the univariate level, $F(2, 96) = 6.27$, $p < .01$, $\eta = .12$; however, loneliness, $F(2, 96) = 1.83$, *ns*, and negative affect, $F(2, 96) = 1.56$, *ns*, were not found to be significant. Thus, analyses were conducted separately by Behaviour (collapsed across gender), looking at the effects on social anxiety only. Beginning with shy children, a trend was shown for the Time by Sport interaction, $F(1, 19) = 3.80$, $p < .07$, $\eta = .17$. For aggressive ($F(1, 19) < 1$, *ns*) and comparison ($F(1, 62) = 1.31$, *ns*) children, no significant univariate interactions for anxiety were shown. As shown in Figure 2 (see Table 10 for means), Tukey's post hoc testing revealed that shy children who participated in sport over a one year period demonstrated

Table 10

Mean social anxiety for shy, aggressive, and comparison children at Time 1 and Time 2 in consideration of sports participation

		Time 1	Time 2
		<i>M (SD)</i>	<i>M (SD)</i>
Shy	No Sport	60.71 (11.55)	59.75 (19.05)
	Sport	63.97 ^a (13.51)	47.78 ^b (19.30)
Aggressive	No Sport	46.50 (14.52)	45.07 (15.20)
	Sport	42.60 (14.21)	43.55 (14.06)
Comparison	No Sport	41.02 (15.88)	37.91 (13.33)
	Sport	36.63 (12.33)	35.73 (11.94)

Note: Differences in subscripts indicate a significant difference at $p < .07$ level.

a decrease in anxiety over time. Shy children displayed more anxiety than both aggressive or comparison children, except at Time 2 where shy children who participated in sport experienced less anxiety.

Positive adjustment. To examine the positive adjustment variables of positive affect and well-being, a 3 Behaviour (shy, aggressive, comparison) x 2 Time x 2 Sport (none, some) x 2 Gender Repeated Measures MANCOVA was performed. A significant multivariate effect was not found for Time, $F(2, 98) < 1$, *ns*; however, a significant interaction was revealed between Time and Sport, $F(2, 98) = 5.33$, $p < .01$. In addition, the Time by Gender interaction approached significance, $F(2, 98) = 2.64$, $p = .08$. No other interactions with Time were significant (Time by Behaviour: $F(4, 196) < 1$, *ns*; Time by Behaviour by Gender: $F(4, 196) = 1.81$, *ns*; Time by Sport by Gender: $F(2, 98) < 1$, *ns*; Time by Behaviour by Sport: $F(4, 196) = 1.86$, *ns*; Time by Sport by Behaviour by Gender: $F(4, 196) = 1.95$, *ns*).

At the univariate level, the Time by Sport interaction was found to be a trend for positive affect, $F(1, 99) = 2.87$, $p < .10$, $\eta = .03$, and for well-being, $F(1, 99) = 2.85$, $p < .10$, $\eta = .03$. To investigate the Time by Sport multivariate interaction further, analyses were performed for each Time separately (collapsed across gender and extreme group)⁹. At Time 1, significant univariate effects were found for Sport for positive affect, $F(1, 184) = 3.82$, $p = .05$, $\eta = .02$, and for well-being, $F(1, 184) = 4.37$, $p < .05$, $\eta = .02$. At Time 2, trends were seen for both positive affect, $F(1, 182) = 3.67$, $p = .07$, $\eta = .02$, and well-being, $F(1, 182) = 3.69$, $p = .06$, $\eta = .02$. As seen in Table 11, children who had participated in sport had higher positive affect and well-being at both Time 1 and Time 2.

Table 11

Positive adjustment at Time 1 and Time 2 for children who had/had not participated in sport

		No sport	Sport
		<i>M (SD)</i>	<i>M (SD)</i>
Time 1	Positive affect	50.97 ^a (11.19)	54.38 ^b (9.18)
	Well being	40.63 ^a (7.18)	42.88 ^b (5.66)
Time 2	Positive affect	51.42 ^a (10.97)	54.36 ^{b†} (8.92)
	Well being	41.66 ^a (5.75)	43.42 ^{b†} (4.92)

Note: Differences in subscripts indicate a significant difference at $p \leq .05$ ($^{\dagger}p \leq .07$) level.

Coping Strategies. To examine coping strategies (problem solving, internalizing, and externalizing), a 3 Behaviour group (shy, aggressive, comparison) x 2 Time x 2 Sport (none, some) x 2 Gender Repeated Measures MANCOVA was performed. A main effect of Time was not shown, $F(3, 98) < 1$, *ns*. However, a multivariate interaction was found between Time, Behaviour and Gender, $F(6, 196) = 2.25$, $p = .04$. No other interactions with Time were noted (Time by Behaviour: $F(6, 196) = 1.68$, *ns*; Time by Sport: $F(3, 98) < 1$, *ns*; Time by Gender: $F(3, 98) < 1$, *ns*; Time by Behaviour by Sport: $F(6, 196) < 1$, *ns*; Time by Sport by Gender: $F(3, 98) = 1.12$, *ns*; Time by Sport by Behaviour by Gender: $F(6, 196) < 1$, *ns*).

Externalizing Problems. The final analysis was a 3 Behaviour (shy, aggressive, comparison) x 2 Time x 2 Sport (none, some) x 2 Gender Repeated Measures ANCOVA to examine externalizing problems. No main effects of Time, $F(1, 98) < 1$, *ns*, or interactions with Time (Time by Behaviour: $F(2, 98) < 1$, *ns*; Time by Sport: $F(1, 98) < 1$, *ns*; Time by Gender: $F(1, 98) < 1$, *ns*; Time by Behaviour by Sport: $F(2, 98) < 1$, *ns*; Time by Sport by Gender: $F(1, 98) < 1$, *ns*; Time by Behaviour by Gender, $F(2, 98) < 1$, *ns*; Time by Sport by Behaviour by Gender: $F(2, 98) = 1.47$, *ns*) were revealed.

Discussion

It has long been suggested that sports participation is beneficial for children. Involvement with peers outside the school setting in a formal or organized environment is said to promote self-esteem, social interaction skills, and positive peer relations. However, only limited empirical research has supported these propositions. By the same token, theorists and researchers alike have long argued that peer interaction in general is particularly important for children's psychosocial functioning and that children's

individual behaviour in that peer context is highly important. The purpose of the current study was to, a) explore the sports participation of shy and aggressive children, and b) to examine the protective role of sports participation in the psychosocial outcomes of shy children. While the current study was correlational in nature, statements cannot be made regarding causality. However, relations between shyness and sport provide evidence for the potentially beneficial effect of sports participation for shy children.

Results indicated that shyness, but not aggression, was negatively associated with sport participation. In addition, sports participation was associated with positive psychosocial outcomes, including higher positive affect and well-being, and the social skills of assertion and self-control. On the other hand, extremely shy children were found to have internalizing problems (e.g., they were more anxious and lonely than their peers). Extremely aggressive children were reported by their parents to engage in more externalizing problem behaviours and self-reported greater internalizing difficulties (e.g., greater anxiety, loneliness, and negative affect). Most interestingly, shy and aggressive children who participated in sport were found to report higher self-esteem (unlike their non-sports participating peers). In addition, shy children who participated in sport over time demonstrated a decrease in social anxiety. These results, as well as the implications for both theory and practice, are discussed in turn.

Sports Participation

In general, children were found to have participated in a mean 2.45 organized sports prior to participating at Time 1. The results are encouraging in that 62% of children reported at Time 1 that they had participated in an *organized* sport. These findings are similar to those of McHale and colleagues (2005), whereby 77% of middle

school aged inner-city boys and 50% of girls self-reported participating in at least one organized team sport. In the current sample, only 44 children (12%) reported that they had never participated in any type of sport. However, while the results may suggest that most children are indeed participating in organized sport, limited statements can be made as to the relative amount of participation, and its relation to long-term physical health benefits (see Canada's Physical Fitness Guide for Youth (ages 10-14); Minister of Public Works, 2002). For instance, the current data do not capture the intensity of participation, nor does it speak to the impact that such participation has on physical health benefits (e.g., vigorous versus passive participation).

In accordance with Vilhjalmsson and Kristjansdottir (2003), boys were found to participate in organized sport at a greater rate than did girls. This was not surprising given the association between social status and sport for boys (see Buchanan et al., 1976; Chase & Dummer, 1992; Eder & Parker, 1987; Goldberg & Chandler, 1989; Melnick et al., 1988; Thirer & Wright, 1985; Williams & White, 1983). Boys place a great deal of importance on sports participation and use it as a means to integrate themselves in the peer community. For girls, however, sport does not appear to play such an important role, which may explain why they are less apt to participate.

Psychosocial outcomes. In terms of the effects of organized sports participation on psychosocial outcomes, children who participated in sport were found to be more assertive and exert more self-control than did children who did not participate in sport. Sports participants were also found to display fewer externalizing problem behaviours. It is possible that sport provides children with an opportunity to, a) gain experience in asserting themselves in the sports context (i.e., with peers), and b) learn appropriate

outlets of frustration. The sporting context is a social environment in which children learn skills above and beyond physical tasks. Certainly, children who participate in sport must at least engage in the activity along with their peers, which includes teamwork and perhaps leadership. Whereas it was somewhat surprising that sports participants did not demonstrate greater *cooperation* skills, perhaps sports provides more of a learning opportunity for engagement, that is, when to join in (assertion) and when to restrain (self-control). Children may also learn appropriate behaviours in contentious situations (e.g., decreasing externalizing problem behaviour). Working collaboratively with others (i.e., in a team setting) would provide children with opportunities to do so, perhaps even more so than in a school environment (which is the most common peer setting for children).

In terms of the self-system, children who had participated in sport were found to have higher physical ability self-esteem, physical appearance self-esteem, and peer self-esteem than did children who had not participated in organized sport. Again, this coincides with previous research linking sports participation with positive self-esteem (Bowker & Findlay, 2004; Gruber, 1986; Jackson & Marsh, 1986; Marsh, 1998; Marsh et al., 1995; Smith, 1986). The current findings support the relation between sport and self-esteem, again suggesting that one of the key psychosocial outcomes associated with sports participation is enhanced self-esteem. Children who participate in sport may be likely to feel more competent and more physically fit (and perhaps attractive), and thus report higher physical ability and physical appearance self-esteem. However, it is interesting that they also report higher peer self-esteem, suggesting that the peer component of sports participation appears to be particularly relevant to middle-childhood aged children.

Children who participated in sport were also found to report more positive affect and well-being than did non-participants (both concurrently and longitudinally). This is not surprising given the previous literature linking sport and well-being (Kirkcaldy et al., 2002; see reviews by Doan & Scherman, 1987; McDonald & Hodgdon, 1991). However, what is novel to the current study is the selected age-range of the sample; previous research on sport and well-being has focused on an adult population. It can be suggested that sport provides children with opportunities for mastery, which in turn leads to greater well-being. Certainly, success in sport could lead to feelings of accomplishment and pleasure, which translate into overall well-being. In fact, many of the items on the measure of positive affect reflect feelings that could be experienced directly in sport (e.g., excited, happy, energetic, active, daring). Sports participants may have particular experiences that relate to these emotions specifically, especially such feelings as 'active' and 'energetic'. Non-participants may not have an outlet for "daring" or "active" pursuits, thus limiting their total score for positive affect.

In terms of well-being, it could similarly be suggested that sports participants experience greater well-being (as well as greater self-esteem) due to mastery and accomplishments at physical tasks. Alternatively, children who participate in sport may have more peer contacts. Given the relative importance of peer relations in middle childhood (Rubin et al., 1998), it could be suggested that children who have a greater number of variety of peer experiences, for instance through sport, generally feel better (as would be suggested by the current findings).

The fact that participation over time was associated with well-being and positive affect at both Time 1 and Time 2 suggests that perhaps children who participate already

have higher positive affect and well-being prior to participation. However, the confound in this result is that children had already participated in sport for several years before participating in the study. Although the direction of the relation between sport and well-being was tested with this short-term longitudinal study, it would only be possible to truly investigate directionality by assessing children's well-being prior to any sports participation, detecting changes following participation.

The results for coping did not demonstrate any significant main effects of Sport. However, research by Frydenberg & Lewis (1993) suggested that adolescents often use sport as a *means* to cope with stress, with boys more likely to use this approach. Youth may use physical activity as an outlet, or as a method to deal with pent up frustration or anger in their everyday lives. Sport itself could therefore serve as a way for children to deal with stress, which frees mental energy and creates a more positive outlook on life. While the findings do not suggest that sport encourages or discourages certain types of coping, sport as a coping mechanism in and of itself may translate into more positive self-esteem, less anxiety, a greater general well being, etc.

Theoretical implications. Previous research has focused on the biological explanations for the exercise-well-being relation and three central theories have been suggested. The first relies on biological/physiological factors (see Hughes, 1984). For example, exercise, which triggers the same stress response as do anxiety-producing situations, is said to serve as a form of bio-feedback, whereby the individual learns to regulate his/her own arousal. This position assumes that the individual can recognize the similarity in response between exercise and anxiety. Repeated release of endogenous

morphine-like chemicals (including endorphins) can be associated with increased mood and emotional stability (Hollandsworth, 1979).

Second, it has been suggested that exercise participation decreases the cardiovascular response to stress. This decreased stress response could then be transferred to psychological stressors. Repeated pairing of somatic symptoms (e.g., sweating, fatigue, palpitation) without the cognitive component may decrease anxiety over time. Third, the thermogenic model suggests that an increase in body temperature, as experienced during exercise, creates a tranquilizing effect on the body. This does not, however, explain the long-term effects of exercise on anxiety. In addition, it is not the case that increased duration of exercise leads to a linear decrease in anxiety, as the thermogenic model would suggest (Petruzello et al., 1991).

However, the current research would suggest that for children, social effects, perhaps in concert with physiological effects, seem to play a significant role. Whereas the physiological benefits of exercise (such as increased cardiovascular functioning and stimulation of stress-reducing hormones) are experienced in sport, it is suggested that it is the *social* component of sports participation which leads to longer term psychological benefits (as seen in the current study). Children who participate in sport may have opportunities for peer interaction over and above those of their peers who do not participate in sport. It is these social interactions which provide opportunities for, a) increased peer relations, b) increased self-esteem, and c) improvements in well-being.

Value of sport participation. Turning to the practical applications of the findings, sport has previously been anecdotally touted as a venue in which parents hope children acquire transferable life skills such as increased self-esteem. Not surprisingly, the

findings of the current study support these claims. Sport is said to act as a vehicle for self-esteem development, social participation, and general well-being. The development of friendships, camaraderie, and peer relations through social interaction are also important factors that encourage parents to involve their children in sport, especially considering society's ever decreasing support of community involvement and neighbourly interaction as a means of children's play and social strata.

However, despite the endorsed benefits, the quality of the sport experience must be taken into consideration. For instance, in terms of competition and sportsmanship, children often learn to value winning rather than participating for participation's sake (i.e., outcome versus effort). Although Carpenter, Scanlan, Simons and Lobel (1993) found that children report that the process and not merely the end result is enjoyable, it is questionable whether or not children continue in sport if they consistently lose or are reprimanded for poor outcomes in competition. Unfortunately, it is often the case that coaches and parents emphasize outcome rather than enjoyment, which ultimately sacrifices the positive benefits tagged to sports participation. For instance, sportsmanship is not inherently taught by sport. Psychosocial development may be fostered by the goals of the adults in the situation (e.g., what the coach and/or parent expect of the players and thus what the child expects of him/herself). Also, if the coach or parent does not set an example of sportsperson-like behaviour, the child is likely to miss the lesson in other attempts. Thus, exactly what role models and experiences the child encounters can be highly influential in determining the lifelong value of participation.

In conclusion, sport was found to have a positive impact on children's psychosocial functioning. In particular, sports participation was found to be positively

associated with assertion, self-control, physical ability self-esteem, physical appearance self-esteem, peer self-esteem, positive affect, and well-being. These findings suggest that sports participation has a positive impact on children's psychosocial health, and as such should be encouraged for children in general. It can be suggested that the benefits are associated with the social nature of sports participation, sport being a positive socializing agent in children's lives.

Shyness

Given the positive impact of sport for all children, it was particularly of interest to investigate the value of sport for specific subgroups of children based on their social behaviour. One such behaviour "group" is extremely shy children, defined herein as a categorically distinct group who experience fear in the presence of others or who are socially self-conscious (see Buss, 1986). Indeed, the results provide continued support for the growing body of literature suggesting that shyness is associated with maladjustment in middle childhood. In addition, the findings suggest that sports participation may be particularly advantageous for shy children as a buffer for some of the negative correlates of shyness.

To begin with, the results revealed that children reported less shyness over time. Relating to Buss' definition of shyness (which includes both fearful shyness and self-conscious shyness), the findings may support Crozier and Burnham's (1990) notion that fearful shyness occurs early in life and then decreases with age. Perhaps the decrease in shyness shown in the current study reflects the fear component of shyness. Moreover, the gender differences shown were also in line with previous research (Crozier, 1995). In the

current study, middle-childhood aged girls were found to report greater shyness than did boys.

Psychosocial outcomes. Extremely shy children were found to be more anxious and more lonely than were aggressive or comparison children, and reported higher negative affect and less positive affect than did comparison children. These findings are in accordance with previous research suggesting that shy children are more likely to report greater internalizing problems such as loneliness and anxiety (Cassidy & Asher, 1992; Eisenberg et al., 1998; Hymel et al., 1990; Rubin, 1993). Given that definitions of shyness include a component of social anxiety (i.e., social anxiety accompanied by behavioural responses such as inhibition and withdrawal in response to social and novel situations, Henderson & Zimbardo, 2001), it is not surprising that extremely shy children reported greater social anxiety. In addition, children who withdraw from their peers may be less likely to have a social network, and thus feel greater loneliness and negative affect.

In addition, shy children were found to have lower physical appearance, physical ability, and peer self-esteem than did comparison children. Again, this supports past research linking shyness and lowered self-esteem (Coplan, Findlay, & Nelson, 2004; Hymel et al., 1990; Rubin et al., 1995), in particular with reference to physical ability (Hymel et al., 1993; Rubin et al., 1993). For instance, Hymel and colleagues reported that withdrawn children in grades 4 and 5 reported the lowest self-concept in the athletic and peer-relations domains. Thus, sport appears to be an important social domain for shy children, one in which either positive self-esteem can be fostered.

Similarly, significant findings were revealed for well being; however, gender differences were noted. Extremely shy boys, but not girls, were found to have lower well-being than did aggressive or comparison boys. Although boys were found to experience less shyness than did girls, and girls were more likely to experience social anxiety, the noted interaction for boys suggests that shyness appears to be particularly problematic for boys. These findings coincide with an expanse of literature suggesting that shy boys are particularly at risk for negative psychosocial outcomes (Armer & Coplan, 2004; Caspi et al., 1988; Coplan et al., 2004; Gazelle & Ladd, 2003; Morison & Masten, 1991; Rubin et al., 2002; Stevenson-Hinde & Glover, 1996).

The fact that boys appear to be more negatively impacted by their shyness is often attributed to the fact that shy behaviour is said to be “atypical” for males. Conversely, it is more socially acceptable for girls to be (or admit to be) shy. Even in today’s society, gender expectations provide certain roles for boys and girls, boys being encouraged to act out, talk in groups, and be active or prosocial. For girls, however, more reticent behaviour is expected, even rewarded. Thus, “normal” behaviour for girls is more likely to be characterized by a shy character than for boys.

Turning to behaviour and coping strategies, shy children were found to use more internalizing coping than did comparison children. These results correspond with those of Rubin and colleagues (1984) who found that isolate play was negatively associated with social problem solving solutions and flexibility in kindergarten, and with the number of solutions and flexibility in grade 1. In addition, Rubin and colleagues found that children who displayed isolate behaviour made fewer request of their peers and were more likely to change the subject or follow the suggestions of their playmate when requests failed.

Children who displayed non-social, isolate behaviour expressed a non-confrontational, low assertive style that is cognitively limited in terms of social problem solving.

Moreover, Eisenberg and colleagues (1998) argued that shyness is related to an inability to cope with, or regulate, one's negative emotions. In their study, teacher- and parent-rated shyness was found to be negatively related to support-seeking and instrumental coping. Thus, shy children were thought to be deficient in active, assertive modes of coping, the argument being that these children are likely to avoid peer conflict and cope by internalizing their stress or problems.

Finally, in the current study extremely shy children were found to be less assertive than their aggressive or comparison counterparts. This is not surprising given that shy children are by definition wary in social situations and are thus less likely to act in a sociable or outgoing way. Findings from the Waterloo Longitudinal Project (Rubin, 1993) also suggested that withdrawn children issue fewer requests and are less assertive than their playmates. Rubin and colleagues (1993) found that teachers rated shy children to be less assertive than either average or aggressive middle-childhood aged peers. Taken together, the current findings corroborate previous research suggesting that shy children may lack either the skills or the initiative to assert themselves in the peer context.

There is continued debate about whether shy children lack these social skills, or whether they experience performance anxiety, i.e., they are too anxious to exhibit such skills (see Rubin & Rose Krasnor, 1992). Certainly, the fact that shy children were found to be less assertive would lend credence to the performance (versus competence) argument; shy children are merely less likely to exhibit certain skills. Therefore, it could be suggested that the social deficits often associated with shyness (e.g., taking on fewer

leadership roles, see Rubin et al., 1993), are at least in part due to their lack of assertion in social situations.

Shyness and sport. As expected, shyness was negatively associated with life-long participation in sport (up to ages 8-10). However, no significant differences were shown across gender. Previous research has focused on the relation between sport and shyness (or social anxiety, see Norton et al., 2000) in an adolescent or adult population (Page & Hammermeister, 1995; Page & Tucker, 1994; Page & Zarco, 2001). However, the current results support the notion that shy *children* are less likely to engage in sport. The sport context requires that children not only interact with others, which may elicit feelings of anxiety, but also perform in front of an audience of some type. Sport participation cannot be segregated from social participation, which is the key trigger of social evaluative fears in shy children.

Two interesting interaction effects were found with respect to sports participation and shyness. To begin with, extremely shy children who participated in sport were found to have higher general self-esteem than did shy children who did not participate in sport. By contrast, this effect was not seen for comparison children; that is, whether the comparison child did or did not participate in sport did not appear to impact general self-esteem. This would suggest that by participating in sport, shy children in particular do not incur the negative effects on self-esteem typically seen for shy children (see Eisenberg et al., 1998; Hymel et al., 1990; Rubin et al., 1995). Perhaps this “increase” in self-esteem is a reflection of the importance of sports participation as a social status determinant for children. That is, shy children who participate in sport may feel valuable or competent in their social network, thus increasing their self-esteem.

Moreover, extremely shy children who participated in sport *over a one year period* demonstrated a significant decrease in social anxiety. That is, shy children had higher social anxiety than did their aggressive and comparison peers, but for those who participated in sport, their anxiety decreased over this one year period to the point where it did not differ from comparison children. This finding has significant implications for both theory and practice.

Children who participate in organized sport have greater opportunities for peer interaction, be that only for a couple of hours every week. However, in the sport context, children have specific experiences; they are given a role within the team or group, they must communicate with other members of the social group, they learn similar skills/tasks, and they work toward common goals. This experience could provide a social context for, a) practice interacting with their peers, and b) peer-mediated learning (of both physical and social skills). For shy children in particular, who may not actively engage with peers at school, peer *interaction* in sport is a necessity (in particular in team sports). Asendorf (1990) characterized shy children as being trapped in an approach-avoidance conflict; they are motivated to play with others (i.e., desire to approach) but are apprehensive or wary due to anxiety. Children who participate in sport may gain experience in approaching others (given that sport creates a peer context) and thus become less fearful of such approach.

It should be noted that in no way is it suggested that only team sports provide such social opportunities. Many, if not all, individual sports involve some type of group practice wherein children practice on the same field, ice surface, gymnasium, etc. The social context provided in practice, rather than the individualistic performance, is the

important factor providing shy children with social experiences. Whereas individual sports may not have the same goals (e.g., cooperation, teamwork, etc.), some of these elements are seen in every practice environment. For instance, children who participate in gymnastics may compete alone, but certainly partake in practices with a group of other children using the same equipment at the same time with the same coach(es). Although there may be competition between children at the same level, this can also be argued to be the case within a team sport where children are vying for similar spots or positions within the team.

It is also possible that shy children who participate in sport are merely exposed to an additional source of social anxiety to which they become conditioned (and perhaps extinguish the fear response). In their study of adult sports participation and social anxiety, Norton and colleagues (2000) found that individuals who experience a higher degree of social evaluative fear in general also experience such fear in sport situations. It is possible that children who experience both social and sport-related anxiety develop mechanisms to deal with this anxiety, which translates into decreased anxiety over time.

Sports participation may also provide the shy child with mastery experiences which contribute to self-esteem. While all children benefit from triumphs, for shy children this may be particularly important considering their high degree of anxiety in social situations. Comparison (or “normal”) children may not need as many experiences to feel good about themselves, whereas shy children are particularly fearful or self-conscious. Thus, they require repeated success, in this case in various domains, in order to buffer the typically negative effect of shyness on self-esteem.

The contrary, however, is also possible in that shy children who experience negative outcomes in sport (such as failure, rejection, or loss) may feel worse about themselves. However, given that a measure of competence or success in sport was not included in the current study, future research is necessary to determine the viability of mastery as an explanation for the positive relation between shyness and general self-esteem for sports participants.

Finally, it is possible that sports participation is particularly beneficial for shy children because it provides them with a shared experience with their peers. The primary concern for shy children is a lack of social involvement, or a lack of opportunity to interact with peers. However, organized sports participation provides children with a venue for social interaction. Bailey (2005, p. 76) argued that “sports participation provides a focus for social activity, an opportunity to make friends, develop networks and reduce social isolation”. Participation in a sport provides children with a common ground, a context which is shared with a select group of other children. Not only can this provide children with a sense of belonging (which may be particularly relevant for shy children), but it may also give them a subject matter to discuss with peers. For shy children, who want to approach but are anxious to do so, it may be beneficial to have a context for peer involvement, but also a content area which they can share and discuss with peers.

The longitudinal finding that sports participation leads to decreased anxiety for shy children is particularly critical to the argument that the social effects of sports participation are especially important. The fact that shy children, who reported the highest level of social anxiety, seemed to experience a significant reduction in anxiety (to the same level as their peers) suggests that continued sports participation is particularly

beneficial for shy children. As a group, shy individuals are at risk for lowered peer interaction, which can be combated by participating in a social activity (such as sport). Their particular situation is one in which social relations may be impaired; however, the fact that sport has an impact for shy children (over and above comparison children) suggests that this social element is a key factor in the sport – well-being relation.

It was somewhat surprising that an interaction between Sport and Shyness was not detected for assertiveness, given the negative association between shyness and assertion, and the positive association between sport and assertion. It is possible that the interaction might have been significant with a larger sample size (group sizes were limited by the creation of extreme groups). It is also possible that although there was a positive relation between sport and assertiveness, shy children did not particularly benefit from sport in this way (although children in general were reported to be more assertive if they were sport participants). Sport is therefore associated with increased assertiveness for all children, regardless of behaviour.

It can also be noted that although significant interactions were not found between Sport and Behaviour for other dependent variables, the overall positive effect of sport should be viewed as applicable to shy children in the same way as it is true for aggressive and comparison children. That is, there are a multitude of benefits associated with sports participation for which shy children can benefit. What the current study suggests, however, is that shy children may be at a particular advantage for some outcomes, and that all children are equally likely to incur other benefits.

Theoretical implications. Harter's (1978, 1981) competence motivation theory suggests that individuals who feel competent at a task will continue to engage in the

behaviour, whereas those who do not will cease to participate. More specifically, Harter suggests that perceptions of competence are related to specific motives for participation. In support, Klint and Weiss (1987) revealed that children high in physical competence participated in sport to develop physical skills, whereas children high in social competence were driven by social affiliative motives.

As shown in the current study, shy children (who reported greater social anxiety and lower general self-esteem) were less likely to participate in sport. These findings corroborate Harter's theory in that children with low perceptions of competence (perhaps both social and physical) were less likely to participate. What is unique to the current study is the emphasis on social competence (or lack thereof in the case of shy and aggressive children) versus physical competence. Since the social domain of sport cannot be segregated from the physical component, it can be argued that the role of social competence cannot be ignored in favour of physical competence only (as is sometimes done when employing Harter's theory of motivation). Thus, future research should consider social competence as a key factor in children's motivation to participate in sport, and perhaps a critical factor in Harter's theory.

Bronfenbrenner's ecological systems theory. It can also be suggested that sports participation is one of the many social networks to which children belong. In terms of Bronfenbrenner's (1979) ecological systems theory, sport fits into the model at the meso-system level, and reflects an avenue of social engagement which enhances children's school and family environments. Each child has his/her own series of peer-involved settings in which they thrive, be they voluntary or arranged settings. Children partake in a number of different social roles which foster social development, for example, friend,

student, sibling, etc. Opportunities for social practice within these roles allow for improved social skills and friendship development, which then facilitate further social interaction. As an element of the meso-system, sport participant may be one such role in that it is one of the social groups to which the child belongs.

More recently, Bronfenbrenner (2001) argued that human development occurs over repeated experiences in social contexts, and that characteristics of the individual must be taken into consideration. In addition, he argued that children must partake in increasingly *complex* activities in order to achieve developmental progress. Critical to his argument is the interconnectedness of the child and surrounding domains. Sport is one such domain, and as such is an interconnected part of the child's social life. Organized sports participation may serve to function as a complex social environment in which the child fulfils a role with peers, parents, etc.

It could be suggested, however, that children's various social roles are effective in an interactive function, that is, the more roles or contexts the child partakes in, the greater their social experience. While both quantity and quality could be considered, this may be particularly important for shy children in that a variety of social environments are necessary to build particularly low self-esteem and to ameliorate high social anxiety. Thus, the current study could be used to not only support Bronfenbrenner's model in terms of social development, but also suggests that the horizontal and vertical interconnections within the model be further investigated. Sport may serve as one of many domains in which the child has social experience; it could be suggested that exposing shy children to a variety of micro- or meso-system roles is critical for their positive social development.

Implications for intervention. Past literature suggested that shyness was not associated with any long-term or severe consequences, and as such interventions to improve shy children's social situation were not necessary. However, recent research, including the current study, has linked shyness with a multitude of negative consequences, including both internalizing and social difficulties. In addition, shyness may be a precursor to more serious clinical maladjustment, such as social anxiety disorder (Schneider, Coplan, & Debow, in press). According to Greco and Morris (2001, p. 312), "prevention refers to interventions that occur prior to the onset of a clinically diagnosable disorder". Prevention of more extreme, clinical levels of social anxiety is one of the primary goals of treatment for shyness.

Intervention programs for childhood shyness have focused on increasing the frequency and quality of children's interactions with their peers (Schneider et al., in press). Three approaches are currently suggested: exposure-based treatments, social skills training, and peer-mediated and/or pair pairing approaches (Greco & Morris, 2001; Schneider et al., in press). However, only limited research is available to support the efficacy of such programs with shy children specifically (as opposed to adults or children with externalizing problems such as conduct disorders). In fact, Greco and Morris suggested that there are no empirically validated or supported treatments for childhood shyness (as opposed to many other childhood impairments or disorders), meaning that no treatments are available which have met stringent APA criteria for efficacy and reliability. However, several empirically evaluated interventions have been employed, and will be reviewed herein.

Peer-mediated approaches emphasize the role of other children in promoting prosocial or interactive behaviour. Peer-involved approaches posit that turn taking, sharing and cooperation result from peer modelling and reinforcing of appropriate behaviour (Greco & Morris, 2001). However, only limited research is available on the efficacy of such programs, and the literature is quite limited in terms of small sample sizes and lack of follow-up or generalizability data. Fantuzzo, Stovall, Schachtel, Goins, & Hall (1987) investigated such an approach by teaching preschool confederates to encourage their withdrawn peers in a social setting. It was found that in both a treatment and natural classroom setting, the withdrawn children displayed increases in positive social behaviour (initiation and responses) after treatment. To note is that only four withdrawn children were included in the study, limiting the external validity of the results.

With yet another limited sample, Christopher, Hansen, and MacMillan (1991) investigated the effectiveness of a social-skills training program using peer mediators for three withdrawn children. Each withdrawn child was paired with a peer who was trained to interact with the target child, model appropriate behaviour, and give feedback to the target child. Positive interactions were found to increase both during the intervention phase and post-intervention in a maintenance task, and teacher-rated social behaviour was more favourable for 2 out of 3 children. The findings suggest that peers can play a significant role in effecting children's withdrawn behaviour, although the results are somewhat limited in that such small samples can only produce speculative, rather than conclusive, results.

Comparatively, exposure-based treatments focus on the anxiety experienced by the shy child in social situations. Negative emotional reactions can be reduced or extinguished via repeated exposure to the aversive situation (i.e., social situations). Although exposure-based therapy is relatively rare (Greco & Morris, 2001), Lowenstein (1983) found that children low in extroversion or reported timid by their teachers were found to have higher extroversion scores following a 6-month exposure-based treatment. In this case, exposure included forced participation in group activities, exposure to loud music (to reduce general levels of reactivity), and desensitization training.

Finally, social skills training is perhaps the most common approach utilized for enhancing social behaviour (Greco & Morris, 2001), and may be efficacious for shy children specifically. The child's ability to use specific skills when socially appropriate is coached via modelling and training in a controlled environment. There is some question, however, as to whether or not shy children lack important social skills, or rather fail to engage in social interaction (i.e., they are afraid to use their repertoire of skills).

Limitations have been suggested with respect to such intervention strategies. For instance, one of the primary issues with cognitive-based approaches is a lack of compliance, or difficulty maintaining the homework-portion of treatment. Without practice outside the treatment locale, it may be difficult to achieve any kind of transference to other social settings. For this reason, peer-based approaches may be more relevant, and more likely to generalize to other settings in which peers are present.

Greco and Morris (2001) suggest that the child's natural social environment (which includes both school and neighbourhood settings) and their social networks should be considered when designing intervention strategies for shy children. The current

study suggests that sport may be a potential intervention context, incorporating components of each of the above strategies. Children who participate in sport are provided not only with social skills practice, but also are repeatedly exposed to anxiety-producing environments (e.g., competition) and are in an environment with opportunities for peer-modelling and peer-pairing. While the sport context may not be a formal opportunity for social skill development, this lack of formality may in itself be a critical factor. Perhaps over time and with repeated social practice children become more competent and confident, in particular shy children who are high in anxiety and lower in self-esteem to begin with.

It is somewhat surprising that sport has not previously been suggested as an intervention strategy for social anxiety in children considering that social experience has been cited by parents (see Mills & Rubin, 1993) and researchers (Weiss, 1991) as an important strategy for teaching social skills. Sport is an ideal medium for social experience, given that it is time spent with peers, often in an organized, structured setting that allows for communication, friendship building, and competence enhancement. For example, sports participation may increase social interaction and provide opportunities to practice both physical and social skills, thus increasing feelings of social and physical competence in a social setting. In such a way, sport may decrease social anxiety.

The effects of sport participation on anxiety may vary based on the characteristics of the individual him/herself. The child's social behaviour may determine not only the types of programs they are enrolled in outside of school (Vandell & Posner, 1999), but may also influence the psychological correlates of participation. There is currently no literature directly assessing sport as an intervention for shy children (i.e., who experience

social anxiety), however, research on the exercise-anxiety relation with adults has shown to be somewhat successful in decreasing anxiety (Kirkcaldy et al., 2002; Petruzzello et al., 1991).

Whereas sport may serve as a potential intervention, a cautionary note must be made. Sports participation may not be a viable solution to address shyness in all children. As is the case with all correlational research, association does not equal causation. That is, it cannot be said that sports alone “caused” shy children to be less anxious. In addition, not all shy children experienced such benefits, in fact, some shy children may have experienced *greater* anxiety due to the social demands in a sports setting. Therefore, while the results suggest that sports are beneficial for shy children, in particular for their social anxiety and self-esteem, it is not one-size-fits-all prescription to address shyness in middle childhood.

In summary, the results confirm that self-reported shyness in middle childhood is associated with negative psychosocial outcomes. The current study, however, suggests that sports participation may be a viable protective factor and potentially an intervention strategy to ameliorate these negative outcomes. Certainly, the social nature of sports participation cannot be ignored, and as such may contribute not only to physical skill development (which may indirectly improve the child’s well-being) but also provides a venue for social practice and engagement which may have a direct impact on psychosocial adjustment.

Aggression

Although not the primary interest of the current research, the impact of sports participation on aggressive children was also considered. As the counterpart to shyness,

aggression is often discussed as yet another behavioural difficulty in middle childhood, and has been associated with externalizing (more so than internalizing) difficulties. However, the current study investigated the relation between aggression and sports participation as well as the interaction between children's sports participation, aggression, and psychosocial outcomes.

Given past research findings, it was not surprising that more boys were found to be aggressive (whereas more girls were reportedly shy). The measure of aggression tapped into physical aggression only, which has been found to be more prevalent in boys (whereas relational aggression is more common in girls; Crick, 1997). It should also be noted that the scores for aggression were low (i.e., negatively skewed). This finding coincides with previous literature which suggests that physical aggression among peers is indeed quite low by age 7 or 8. A recent report by the NICHD Early Child Care Research Network (2004) found that despite a peak in aggression around age 2, by third grade only 12% of children were reported by their mothers to show physically aggressive tendencies. It was argued that more sophisticated language and emotion skills allow children to solve their disputes in ways other than by using physical aggression.

Psychosocial outcomes. Not surprisingly, aggressive children were found to be less cooperative and have less self-control than did comparison children, and they were found to utilize fewer problem solving coping strategies and more externalizing strategies than shy or comparison children. They also reported more internalizing coping than did comparison children. In addition, aggressive children were reported by their parents to exhibit more externalizing problem behaviours than did shy or comparison children. These findings coincide with the work of Hymel and colleagues (1990) who suggested

that aggressive children display more “acting-out” behaviour than do their non-aggressive peers. Moreover, Rubin and Rose-Krasnor (1992) argued that aggressive children are more likely to solve social problems or dilemmas using aggressive, hostile, or abnormal strategies, seemingly due to a deficit in social information processing. Aggressive children appear to have lower social-cognitive functioning, in particular, they have a negative attribution bias (i.e., they make hostile attributions of peers’ behaviour) and are more likely to retaliate in a negative way (Dodge, 1985).

Typically, aggression is more strongly associated with externalizing rather than internalizing outcomes (Rubin et al., 1995; Rubin et al., 2005). For instance, Hymel and colleagues (1990) found that children who were rated as aggressive in grade 2 were found to exhibit greater peer-rated aggression and teacher-rated acting out in grade 5. In the current study, in addition to externalizing problem behaviours, aggressive children were found to report greater anxiety, loneliness, and negative affect than did comparison children (but less anxiety and loneliness than shy children). Aggressive children also reported lower physical ability, physical appearance, and peer self-esteem than did comparison children. These findings therefore suggest that there are both internalizing and externalizing ramifications of aggressive behaviour.

Moreover, a slight gender disparity was shown in terms of aggressive children’s well-being. Aggressive boys were found to experience less well-being than comparison children (but greater well-being than shy boys). However, aggressive girls were found to have lower well-being than comparison children with no difference for shy girls. What this suggests is that aggression may lead to lower well-being, but for boys it was less problematic. Perhaps this is due to the societal tolerance of aggression in boys, whereas

for girls, physical aggression (which was the only type of aggression measured in the current study) is less tolerated. It could be that boys who are physically aggressive do not feel as badly about their well-being because they do not view their aggressive behaviour as deviant (at least not as much so as shy boys perceive their shyness to be deviant), whereas for girls, aggression and shyness are equally deviant from their perceptions of normal.

Aggression and sport. Turning to the findings with respect to aggressive behaviour and sport, a significant relation was *not* found between aggression and sports participation, suggesting that aggressive boys and girls do not participate at a lesser (or greater) rate than do comparison children. From the opposite perspective, sports participants did not appear to be *more* aggressive. The fact that sports participation and aggression were not significantly correlated coincides with recent research by McHale and colleagues (2005). However, this is in contrast to earlier work by Bredemeier and associates (1986; 1987) suggesting that children who participate in sports are more likely to act in an aggressive manner (even outside the realm of sport) and to have lower moral reasoning.

One suggestion for the discrepancy with Bredemeier's findings is that there were some limitations with the measure of aggression in the current study (as discussed shortly). In addition, Bredemeier (1986) segregated high, medium, and low contact sports, with only high-contact and medium-contact sport being associated with aggressive tendencies for boys and girls respectively. Although not the interest of the current study, such a division of sport types was attempted and high contact sports (e.g., hockey, football, martial arts, and wrestling) were indeed found to be correlated with aggressive

behaviour ($r=.11, p<.05$), whereas medium contact (e.g., soccer, baseball, basketball, and ball-hockey) and low contact (e.g., track and field, snowboarding, gymnastics, and curling) sports were not. This would suggest that future research considering type of sport, rather than strictly participation, is necessary.

In terms of psychosocial functioning, the only significant interaction between aggression and sport occurred for self-esteem; aggressive children who participated in sport reported higher general self-esteem than did aggressive children who did not participate in sport. These findings coincide with those for shy children who participated in sport. What this suggests again is that for 'deviant' groups, sports participation seems to have a positive impact on self-esteem, perhaps because of the pervasiveness of sport as a positive social status determinant.

It should be reiterated that the positive benefits of sports participation may be true for aggressive children in the same way as they are for shy and comparison children. Lack of significant interactions only suggests that sport does not impact aggressive children differently (either positively or negatively) than other behaviour groups. However, aggressive children are still able to benefit from sports (e.g., increased positive affect and well being, increased assertiveness and self-control, and decreased externalizing behaviour).

Using the National Longitudinal Study for Children and Youth, Offord and colleagues (1998) also argued for the benefits of sports participation on psychosocial functioning. In fact, their argument was that sports would be particularly beneficial for disadvantaged or low-income children (as compared to *socially* disadvantaged individuals such as shy or aggressive children). In their sample of Canadian children (ages 9-11),

35% were reported by their parents to have participated in supervised sport “a few times a week”, and an additional 20% “about once a week”. However, their hypothesis was not supported. Although sports participation reduced the relative odds of childhood behavioural problems, and low income was related to lower rates of participation, sports participation and income did not demonstrate an interaction. That is, sports participation was not particularly beneficial for disadvantaged children.

Thus, the current findings suggest that aggressiveness in middle childhood can be associated with both externalizing and internalizing difficulties. Despite the fact that sport participation was not found to be significantly related to aggressive behaviour, it can be suggested that self-esteem is positively influenced for aggressive children who participated in sport. Again linking to the results for shyness, what this suggests is that sport may be particularly beneficial for “deviant” groups in terms of self-esteem. For children who have difficulties with their peers, sport may be a key means by which their self-esteem can be improved, be that either through social involvement or social practice.

Gender

Briefly, the results for gender suggest that females reported higher physical appearance self-esteem and general self-esteem than did males. These results were surprising in that they conflict with previous research by Bowker and colleagues (2003, Bowker & Findlay, 2004) who found that adolescent boys reported higher appearance self-esteem with no gender differences for global self-esteem. In addition, Marsh’s (1998) results demonstrated a gender by sport interaction, whereby female athletes were generally found to have higher physical self-esteem scores than did non-athletes (more so than male athletes). His results suggested that participation is especially pertinent for

athletic girls, which was not found to be the case in the current study. In fact, no interaction was found, and females in the current study reported higher physical appearance and general self-esteem overall.

The current results also suggested that females experience greater social anxiety than do males. Previous research employing the SASC-R has also found such gender differences (LaGreca, Kraslow Dandes, Wick, Shaw, & Stone, 1988; La Greca & Stone, 1993). La Greca and Stone (1993) found that children with higher levels of social anxiety (who are more likely to be girls) also perceived themselves to have lower social acceptance, suggesting that perhaps girls more so than boys are influenced by the opinions of their peers. This argument seems plausible in that girls appear to be overly influenced by their peers and seem to internalize worry about peer evaluation more so than do boys.

Finally, girls were found to use more problem solving and internalizing coping, and less externalizing coping than did males. The results suggest that boys are less likely to use such strategies as, "Try to think of different ways to solve it", and were more likely to, "Get mad and throw or hit something". Although the findings are similar to Causey and Debow (1992) who found that girls used more problem-focused coping and boys more externalizing coping (although in their study, no gender differences were shown for internalizing coping), there is also some literature (in adults) to suggest that females use more emotion-focused coping and males more problem-focused coping (Stone & Neale, 1984). With an adolescent sample, girls have also been found to be more likely than boys to use emotion-focused or support-seeking coping strategies (Piko, 2001; Renk & Creasey, 2003). However, both Piko and Renk and Creasey found no gender differences

for problem-focused strategies, suggesting that neither girls or boys were more apt to deal with stress using a problem-based approach. Moreover, Longo and Bowker (2005) found that when controlling for gender differences in both problem content and appraisal, the only gender differences in coping were found for Self-blame (but not problem-focused) strategies, with females engaging in more Self-blame coping. Self-blame can be argued to be an internalizing domain, and therefore the current findings coincide with Longo and Bowker's results. However, in future research it may be critical that the context of coping also be considered when examining gender differences in coping.

Limitations and directions for future research

The current findings have important implications in terms of the benefits of sports participation, in particular for shy children; however, certain limitations should be considered. With respect to research design, debatably the foremost limitation is the MANOVA approach to data analysis (versus a continuous, or regression, method). Arguably, shyness can be seen as a continuous dimension, that is, that all individuals display a *degree* of shyness, be that very little or to a great extent. Previous literature has debated this issue to no end, and researchers in the field have used both categorical (Hymel et al., 1993; Page & Zarco, 2001; Prior et al., 2000; Rubin, 1993) and continuous (Coplan et al., 2001; Rubin et al., 1995) approaches. However, for the current study the decision was made to use the categorical approach for a variety of reasons already described. It has previously been suggested that some degree of shyness is beneficial; mild forms of withdrawal or inhibition may keep individuals from exhibiting socially unacceptable behaviour, and/or may be interpreted as modesty or sensitivity (Cheek &

Kranoperova, 1999). Thus, it was of particular interest to investigate *extremely* shy children and to examine the impact of sport on their later psychosocial well-being.

Related to the issue of group formation is a concern regarding gender. Despite the fact that group membership took gender means into account (rather than creating a mean across all children), the data is somewhat hampered by an over-representation of shy girls and aggressive boys. Although this might be expected (see Crozier, 1995; Crick, 1997), it is possible that the manner in which the data was re-organized does not reflect truly “aggressive” and “shy” children. Future research might consider selecting children based on gender-appropriate behaviours, in particular for aggression (i.e., relational and physically aggressive children). This may be particularly important for girls as it has been shown that girls report more relationally aggressive acts and boys more physical aggression (Crick, 1997). Future research might also consider multi-source assessments of aggressive (or shy) behaviour.

Limitations were also noted with respect to the study participants. The children in the current study were predominantly selected from rural schools. These children may differ from children residing in urban centres in ways that could influence the particular results of the study (e.g., access to sports facilities). Future research should include a broader sample, including children from all population demographics (e.g., including both urban and rural schools). In addition, it should be noted that one of the schools in the study ranked 1st in the grade 3 and 6 provincial testing (EQAO). However, this school was not found to vary in terms of any demographic characteristics of interest (parental education) or any outcome variables, therefore no adjustments were made. Finally, a cautionary note should be made regarding attrition issues. While the children who

selectively chose to participate at Time 2 were not different on any of the independent variables (than the participants who were lost at Time 2), the children who ceased to participate were found to be less cooperative, less assertive, and more socially anxious at Time 1. Problematic is that some variability in this outcomes was lost at Time 2, which may have limited statistical power to detect differences across time.

In terms of limitations pertaining specifically to the measures, there were particular concerns regarding two questionnaires. The sports participation questionnaire was potentially confounded by a ceiling effect. At Time 1 children were asked to report the number of years they had participated in sport, with the options being less than 1 year, 1, 2 or 3 or more years. It is possible that children had participated for 4 or more years which would not be captured by the tool. However, it was assumed that since the participants were only 8 to 10 years of age, it was unlikely that they had participated in *organized* sport for more than 3 years (i.e., prior to age 5 or 6).

The measure of sports participation was also limited by the self-report nature of the tool. Children may have experienced difficulty recalling all of the sports they had participated in, or may have been influenced by the seasonal nature of participation (e.g., less likely to recall summer sports during the winter data collection period). However, other researchers have employed self-report measures, including 7-day recall of physical activity (e.g., Sallis, Prochaska, Taylor, Hill, & Geraci, 1999) and self-report questionnaires of activity (e.g., Crocker et al., 2000; Marsh & Kleitman, 2003; Smith, 1999). In addition, self-reports may be less accurate than observations or diary logs, and it could be suggested for future research that a diary or log of activities be employed to minimize an over- or under-representation of the children's actual sports participation.

Future research might also include a measure of energy expenditure during exercise, taking into account both frequency and intensity of activity. Measurement of sport and physical activity remains somewhat obscure as no definitive tool has been established in the field. "The development and validation of physical activity measures for children and adolescents continues to be a challenge" (Crocker et al., 2000, p. 392). Thus, while the current study is somewhat limited by the sports participation measure, the issue pervades this type of research, suggesting that future researchers not only select a measurement tool carefully, but also seek to establish or create a universal tool.

Moreover, the sport data was cumulative. For example, if the child reported that they participated in one sport 2 times per week and another 3 times per week, it was summed to 5 times per week. It is possible, and in fact quite probable, that the child did not play each sport *all year round* and therefore total sports participation was inflated. Finally, the definition of sport participation was based on organized sports participation, which limits interpretation of the results.

Some limitations were also noted with the aggression questionnaire. Although the measure was recommended by a leading researcher in the area of aggression in middle childhood (Craig, personal communication, August 31, 2004), the range of scores was quite minimal. In fact, the mean aggression score was very close to the lowest possible score, in particular for girls. Although it could be suggested that this was not a good measure of aggression, the questionnaire tapped into very hostile and violent acts, and it was therefore not surprising that children did not self-report having performed these acts. For instance, "choking, punching or beating during an argument" is quite uncommon, although reporting that this occurs "rarely" or "sometimes" is in and of itself problematic.

In future, another measure could be designed which represents more common, and perhaps less harsh violent behaviours.

As well, the length of the questionnaire and group nature of data collection may have posed some problems. For students who had difficulty reading (e.g., those who could not read at his/her grade level), a lengthy amount of time was taken to complete the questionnaires (up to 1 hour), whereas students who read more quickly could complete the questionnaires in as little as 20 minutes. Therefore, the last few measures may not have been completed with the same precision or commitment as the first. However, the children did not seem to be more distractible nor did they vocally express difficulties with the last questionnaires. In fact, only a few children did not complete the entire package. In addition, despite the fact that the children completed the questionnaires in a group setting, it was not felt that there was a confound of social desirability. The children did not seem influenced by their peers; there was relatively little discussion amongst the children, and if they desired to, they were allowed to skip questions or cover their work.

Finally, longitudinal data was collected over a one year period. It is possible that greater differences might have occurred over a lengthier period of time (for instance, from early to middle childhood, or middle childhood to adolescence). It would also be interesting to examine children who are just beginning to participate in sport to eliminate any effects of experience. The definitive future research venture would be to randomly assign young children to groups wherein some do and some do not participate in different types of sport. Over time, researchers could examine the many psychosocial outcomes included in the current study (e.g., shyness, aggression, self-esteem, loneliness, affect, coping strategies), as well as the impact of each sport specifically. However, given that

this approach is not ethically feasible, the alternate solution would be a quasi-experimental design which included young children engaging in sport for the first time, followed over several years to examine similar outcomes. While it again relies on a correlational approach, this design would minimize the impact of previous sports participation and would employ a prospective methodology.

Despite the fact that the current study included a broad range of independent and dependent variables, future research might consider including other variables of interest. For example, it could be argued that a measure of competence would allow researchers to determine the role of aptitude in children's sports experience. As sports participation shows a positive effect on self-esteem, it is possible that competence is a moderator in this relation. In addition, sports competence might be particularly important for shy children who are already lower in feelings of competence (Hymel et al., 1990).

Another possible venue for future study is the role of the parent in sports participation. Although parenting beliefs were not measured, it can be assumed that parents who enrol their children in sports believe that sport will play a positive role in children's lives. Parents with such *beliefs* toward sport may also engage in other health behaviours such as healthy nutritional habits and discouragement of health risks (e.g., smoking). It might also be of interest to look at parental *behaviours* to investigate how they relate to children's activities. Parents who participate in sport may be more likely to encourage their children to participate as well. It could also be that parents who encourage their children to participate in sport also encourage/foster the positive attributes associated with sport. This returns to the chicken-egg question of correlation; do children who participate in sport acquire certain skills, or do they come into sport

already possessing certain attributes. Without a randomized control trial, the answer is yet uncertain. However, since children begin sport at a young age (perhaps before such skills could be established), it is often assumed that they acquire these skills through sport participation.

Conclusions

The results from the current study provide evidence of the benefits of sports participation for children (including higher positive affect and well-being, social skills, etc.). In addition, extremely shy children were found to be at risk for internalizing difficulties; in particular they were more anxious and lonely than their peers, experienced more negative affect, were less assertive, and used more internalizing coping. In addition, aggressive children were shown to be at risk for internalizing and externalizing difficulties. These findings reaffirm the notion that middle childhood aged children who are deviant from the peer group seem to be vulnerable to other, potentially long-term, psychological and social health risk factors.

Unique to the current study is that sports participation was found to play a protective role against some of the negative outcomes associated with shyness (and aggression). In particular, it was revealed that shy and aggressive children who participated in sport reported greater general self-esteem than did non-participants. In addition, shy children who participated in sport were found to experience a decrease in social anxiety (not evidenced by their non-sports-participating shy peers). The results have both theoretical and practical implications in the fields of developmental psychology and physical education, as sports can be suggested not only as a protective factor, but an intervention strategy for shy children. In essence, one could suggest that for shy children,

the psychosocial benefits of sport are particularly evident, and as such shy children should be encouraged to come out and play.

References

- Achenbach, T., & Edelbrock, C. (1983). *Manual for the Child Behavior Checklist and Revised Child Behaviour Profile*. Burlington, VT: University of Vermont Department of Psychiatry.
- Allison, P. D., & Furstenberg, F. F. (1989). How marital dissolution affects children: Variations by age and sex. *Developmental Psychology, 25*, 540-549.
- Armer, M., & Coplan., R. J. (2004, July). *When helping others helps yourself: A longitudinal study of shyness, prosocial behaviors, and social anxiety from early to middle childhood*. Paper presented at the meeting of the International Society for the Study of Behavioral Development, Ghent, Belgium.
- Asendorpf, J. B. (1990). Beyond social withdrawal: shyness, unsociability and peer avoidance. *Human Development, 33*, 250-259.
- Asendorpf, J. B. (1991). Development of inhibited children's coping with unfamiliarity. *Child Development, 62*, 1460-1474.
- Asher, S. R., Hymel, S., & Renshaw, P. D. (1984). Loneliness in children. *Child Development, 55*, 1456-1464.
- Asher, S. R., & Wheeler, V. A. (1985). Children's loneliness: A comparison of rejected and neglected peer status. *Journal of Consulting and Clinical Psychology, 53*, 500-505.
- Bailey, R. (2005). Evaluating the relationship between physical education, sport and social inclusion. *Educational Review, 57*, 71-90.
- Bates, J. E., Bayles, K., Bennett, D. S., Ridge, B., & Brown, M. M. (1991). Origins of

- externalizing behaviour problems at eight years of age. In D. J. Pepler & K. H. Rubin (Eds.), *The Development and Treatment of Childhood Aggression* (pp. 93-120). Hillsdale, NJ: Lawrence Erlbaum Associates.
- Berndt, T. J., & Perry, T. B. (1986). Children's perceptions of friendships as supportive relationships. *Developmental Psychology*, 22, 640-648.
- Bigelow, B. J., Lewko, J. H., & Salhani, L. (1989). Sport-involved children's friendship expectations. *Journal of Sport and Exercise Psychology*, 11, 152-160.
- Boivin, M., & Hymel, S. (1997). Peer experiences and social self-perceptions: A sequential model. *Developmental Psychology*, 33, 135-145.
- Boone, E. M., & Leadbeater, B. J. (2006). Game on: Diminishing risks for depressive symptoms in early adolescence through positive involvement in team sport. *Journal of Research on Adolescence*, 16, 79-90.
- Bowker, A., Gadbois, S., & Cornock, B. (2003). Sports participation and self-esteem: Variations as a function of gender and gender role orientation. *Sex Roles*, 49, 47-58.
- Bowker, A., & Findlay, L. C. (2004, March). The links between physical activity and mental health during adolescence. Paper presented at the biennial meeting of the Society for Research on Adolescence (SRA), Baltimore, MD.
- Bredemeier, B. J. (1988). The moral of the youth sport story. In E. W. Brown & C. F. Branta (Eds.), *Competitive sports for children and youth: An overview of research and issues* (pp. 285-296). Champaign, IL: Human Kinetics.
- Bredemeier, B. J. (1995). Divergence in children's moral reasoning about issues in daily

- life and sport-specific contexts. *International Journal of Sport Psychology*, 26, 453-463.
- Bredemeier, B. J., Weiss, M. R., Shields, D. L., & Cooper, B. A. B. (1986). The relationship of sport involvement with children's moral reasoning and aggression tendencies. *Journal of Sport Psychology*, 84, 304-318.
- Bredemeier, B. J., Weiss, M. R., Shields, D. L., & Cooper, B. A. B. (1987). The relationship between children's legitimacy statements and their moral reasoning, aggression tendencies, and sport involvement. *Sociology of Sport Journal*, 4, 48-60.
- Bronfenbrenner, U. (1979). *The ecology of human development: Experiments by nature and design*. Cambridge, MA: Harvard University Press.
- Bronfenbrenner, U. (Ed.). (2001). *Making human beings human: Biological perspectives on human development*. Thousand Oaks, CA: Sage.
- Brustad, R. J. (1988). Affective outcomes in competitive youth sport: The influence of intrapersonal socialization factors. *Journal of Sport and Exercise Psychology*, 10, 307-321.
- Brustad, R. J. (1996). Parental and peer influences on children's psychological development through sport. In F. L. Smith & R. E. Smoll (Eds.), *Children and youth in sport: A biopsychosocial perspective* (pp. 112-124). Toronto, ON: Brown & Benchmark Publishers.
- Buchanan, H. T., Blankenbaker, J., & Cotton, D. (1976). Academic and athletic ability as popularity factors in elementary school children. *Research Quarterly*, 47, 320-325.

- Bukowski, W. M., Gauze, C., Hoza, B., & Newcomb, A. F. (1993). Differences and consistency between same-sex and other-sex peer relationships during early adolescence. *Developmental Psychology, 29*, 255-263.
- Burgess, K. B., Rubin, K. H., Cheah, C. S. L., & Nelson, L. J. (2001). Behavioural inhibition, social withdrawal and parenting. In W. R. Crozier & L. E. Alden (Eds.), *International handbook of social anxiety: Concepts, research and interventions relating to the self and shyness* (pp. 137-158). New York: John Wiley & Sons.
- Buss, A. H. (1986). *Social Behavior and Personality*. Hillsdale, NJ: Lawrence Erlbaum Associates.
- Canadian Centre for Ethics in Sport. (2004, January). *The sport we want*. Ottawa, ON: Author.
- Carpenter, P. J., Scanlan, T. K., Simons, J. P., & Lobel, M. (1993). A test of the Sport Commitment Model using structural equation modeling. *Journal of Sport and Exercise Psychology, 15*, 119-133.
- Caspi, A., Elder, G. H., & Bem, G. H. (1988). Moving away from the world: Life-course patterns of shy children. *Developmental Psychology, 24*, 824-831.
- Cassidy, J., & Asher, S. R. (1992). Loneliness and peer relations in young children. *Child Development, 63*, 350-365.
- Causey, D. L., & Dubow, E. F. (1992). Development of a self-report coping measure for elementary school children. *Journal of Clinical Child Psychology, 21*, 47-59.
- Chang, L., Lei, L., Li, K. K., Liu, H., Guo, B., Wang, Y., & Fung, K. Y. (2005). Peer

- acceptance and self-perceptions of verbal and behavioral aggression and social withdrawal. *International Journal of Behavioral Development*, 29, 48-57.
- Chase, M. A., & Dummer, G. M. (1992). The role of sports as a social status determinant for children. *Research Quarterly for Exercise and Sport*, 63, 418-424.
- Cheek, J. M., & Kranoperova, E. N. (1999). Varieties of shyness in adolescence and adulthood. In L. A. Schmidt & J. Schulkin (Eds.), *Extreme fear, shyness, and social phobia: Origins, biological mechanisms, and clinical outcomes*. New York: Oxford University Press.
- Chen, X., Rubin, K. H., & Sun, Y. (1992). Social reputation and peer relationships in Chinese and Canadian children: A cross-cultural study. *Child Development*, 63, 1336-1343.
- Coakley, J. (1987). Children and the sport socialization process. In D. Gould & M. R. Weiss (Eds.), *Advances in pediatric sport sciences: Vol 2* (pp. 43-60). Champaign, IL: Human Kinetics.
- Coakley, J. (1993). Social dimensions of intensive training and participation in youth sport. In B. R. Cahill & A. J. Pearl (Eds.), *Intensive Participation in Children's Sport* (pp. 77-94). Champaign, IL: Human Kinetics.
- Cohen, J. (1977). *Statistical power analysis for the behavioral sciences*. New York: Academic Press.
- Coie, J. D., & Dodge, K. A. (1983). Continuities and changes in children's social status: A five-year longitudinal study. *Merrill Palmer Quarterly*, 29, 261-282.
- Coie, J. D., & Dodge, K. A. (1998). Aggression and antisocial behaviour. In W. Damon

- (Series Ed.) & N. Eisenberg (Vol. Ed.), *Handbook of Child Psychology: Vol. 3. Social, Emotional and Personality Development* (5th ed., pp. 779-862). New York: John Wiley and Sons.
- Coplan, R.J., Findlay, L.C., & Nelson, L.J. (2004). Young children not feeling alright: Characteristics of preschoolers with lower perceived competence. *Journal of Abnormal Child Psychology*, *32*, 399-408.
- Coplan, R. J., Gavinski-Molina, M-H., Lagacé-Séguin, D. G., & Wichmann, C. (2001). When girls versus boys play alone: Nonsocial play and adjustment in kindergarten. *Developmental Psychology*, *37*, 464-474.
- Coplan, R. J., Prakash, K., O'Neil, K., & Armer, M. (2004). Do you "want" to play? Distinguishing between conflicted shyness and social disinterest in early childhood. *Developmental Psychology*, *40*, 244-258.
- Coplan, R.J., Rubin, K.H., Findlay, L.C. (in press). *Social and Nonsocial Play*. To appear in D.P. Fromberg & D. Bergen (Eds.), *Play from birth to twelve* (2nd edition). New York: Garland.
- Courneya, K. S., & Hellsten, L. A. M. (1998). Personality correlates of exercise behaviour, motives, barriers and preferences: An application of the five-factor model. *Personality and Individual Differences*, *24*, 625-633.
- Crick, N. (1997). Engagement in gender normative versus nonnormative forms of aggression: Links to psychological adjustment. *Developmental Psychology*, *33*, 610-617.
- Christopher, J. S., Hansen, D. J., & MacMillan, V. M. (1991). Effectiveness of a peer

- helper intervention to increase children's social interactions: Generalization, maintenance, and social validity. *Behavior Modification*, 15, 22-50.
- Crocker, P. R. E., Eklund, R. C., & Kowalski, K. C. (2000). Children's physical activity and physical self-perceptions. *Journal of Sports Sciences*, 18, 383-394.
- Crozier, W. R. (1995). Shyness and self-esteem in middle childhood. *British Journal of Educational Psychology*, 65, 85-95.
- Crozier, W. R., & Alden, L. E. (2001). The social nature of social anxiety. In W. R. Crozier & L. E. Alden (Eds.), *International handbook of social anxiety: Concepts, research and interventions relating to the self and shyness* (pp. 1-20). New York : John Wiley & Sons.
- Crozier, W. R., & Burnham, M. (1990). Age-related differences in children's understanding of shyness. *British Journal of Developmental Psychology*, 8, 179-185.
- Davis, C., Fox, J., Brewer, H., & Ratusny, D. (1995). Motivations to exercise as a function of personality characteristics, age and gender. *Personality and Individual Differences*, 19, 165-174.
- Doan, R. E., & Scherman, A. (1987). The therapeutic effect of physical fitness on measures of personality: A literature review. *Journal of Counselling and Development*, 66, 28-36.
- Dodge, K. A. (1985). Attributional bias in aggressive children. In P. A. Kendall (Ed.), *Advances in cognitive-behavioral research and therapy: Vol. 4* (pp. 73-110). San Diego, CA: Academic Press.
- Dodge, K. A., Coie, J. D., Pettit, G. S., & Price, J. M. (1990). Peer status and aggression

- in boys' groups: Developmental and contextual analysis. *Child Development*, *61*, 1289-1309.
- Ebbeck, V. (1994). Self-perception and motivational characteristics of tennis participants: The influence of age and skill. *Journal of Applied Sport Psychology*, *6*, 71-86.
- Ebbeck, V., & Weiss, M. R. (1998). Determinants of children's self-esteem: An examination of perceived competence and affect in sport. *Pediatric Exercise Science*, *10*, 285-298.
- Eder, D., & Parker, S. (1987). The cultural production and reproduction of gender: The effect of extracurricular activities on peer-group culture. *Sociology of Education*, *60*, 200-213.
- Eisenberg, N., Shepard, S. A., Fabes, R. A., Murphy, B. C., & Guthrie, I. K. (1998). Shyness and children's emotionality, regulation, and coping: Contemporaneous, longitudinal, and across-context relations. *Child Development*, *69*, 767-790.
- Engfer, A. (1993). Antecedents and consequences of shyness in boys and girls: A 6-year longitudinal study. In K. H. Rubin & J. B. Asendorpf (Eds.), *Social withdrawal, inhibition and shyness in childhood* (pp. 49-79). Hillsdale, NJ: Lawrence Erlbaum Associates.
- Evans, M. A. (2001). Shyness in the classroom and home. In W. R. Crozier & L. E. Alden (Eds.), *International handbook of social anxiety: Concepts, research and interventions relating to the self and shyness* (pp. 159-183). New York : John Wiley & Sons.
- Evans, J., & Roberts, G. C. (1987). Physical competence and the development of children's peer relations. *Quest*, *39*, 23-35.

- Fantuzzo, J. W., Stovall, A., Schachtel, D., Goins, C., & Hall, R. (1987). The effects of peer social initiations on the social behaviour of withdrawn maltreated preschool children. *Journal of Behavioral Therapy and Experimental Psychiatry*, 18, 357-363.
- Forsythe, C. J., & Compas, B. E. (1987). Interaction of cognitive appraisals of stressful events and coping: Testing the goodness of fit hypothesis. *Cognitive Therapy and Research*, 11, 473-485.
- Folkman, S., & Lazarus, R. S. (1988). The relationship between coping and emotion: Implications for theory and research. *Social Science and Medicine*, 26, 309-317.
- Fordham, K., & Stevenson-Hinde, J. (1999). Shyness, friendship quality, and adjustment during middle childhood. *Journal of Child Psychology and Psychiatry*, 40, 757-768.
- Fox, N. A., Henderson, H. A., Rubin, K. H., Calkins, S. D., & Schmidt, L. A. (2001). Continuity and discontinuity of behavioral inhibition and exuberance: Psychophysiological and behavioural influences across the first four years of life. *Child Development*, 72, 1-21.
- Frydenberg, E., & Lewis, R. (1993). Boys play sport and girls turn to others: Age, gender and ethnicity as determinants of coping. *Journal of Adolescence*, 16, 253-266.
- Gazelle, H., & Ladd, G. (2003). Anxious solitude and peer exclusion: A diathesis-stress model of internalizing trajectories in childhood. *Child Development*, 74, 257-278.
- Geibink, M. P., & McKenzie, T. L. (1985). Teaching sportsmanship in physical education and recreation: An analysis of interventions and generalization effects. *Journal of Teaching and Physical Education*, 4, 167-177.

- Ginsburg, G. A., La Greca, A. M., & Silverman, W. K. (1998). Social anxiety in children with anxiety disorders: Relations with social and emotional functioning. *Journal of Abnormal Child Psychology*, *26*, 175-185.
- Goldberg, A. D., & Chandler, T. J. L. (1989). The role of athletics: The social world of high school adolescents. *Youth and Society*, *21*, 238-250.
- Goldwater, B. C., & Collis, M. L. (1985). Psychologic effects of cardiovascular conditioning: A controlled experiment. *Psychosomatic Medicine*, *47*, 174-181.
- Gould, D., Feltz, D., & Weiss, M. R. (1985). Motives for participating in competitive youth swimming. *International Journal of Sport Psychology*, *16*, 126-140.
- Greco, L. A., & Morris, T. L. (2001). Treating childhood shyness and related behaviour: Empirically evaluated approaches to promote positive social interactions. *Clinical Child and Family Psychology Review*, *4*, 299-318.
- Gresham, F. M., & Elliot, S. N. (1990). *Social Skills Rating System Manual*. Circle Pines, MN: American Guidance Service.
- Gruber, J. J. (1986). Physical activity and self-esteem development in children: A meta-analysis. In G. A. Stull & H. M. Eckert (Eds.), *Effects of physical activity on children* (pp. 30-48). Champaign, IL: Human Kinetics.
- Hart, C. H., Yang, C., Nelson, D. A., Jin, S., Bazarskaya, N., Nelson, L., Wu, S., & Wu, P. (1998). Peer contact patterns, parenting practices, and preschoolers' social competence in China, Russia, and the United States. In P. T. Slee & K. Rigby (Eds.), *Children's Peer Relations* (pp. 3-30). London: Routledge.
- Harter, S. (1978). Effectance motivation reconsidered: Toward a developmental model. *Human Development*, *1*, 34-64.

- Harter, S. (1981). A new self-report scale of intrinsic versus extrinsic orientation in the classroom: Motivational and informational components. *Developmental Psychology, 17*, 300-312.
- Hartup, W. W. (1996). The company they keep: Friendships and their developmental significance. *Child Development, 67*, 1-13.
- Hastings, P., & Rubin, K. H. (1999). Predicting mothers' beliefs about preschool-aged children's social behaviour: Evidence for maternal attitudes moderating child effects. *Child Development, 70*, 722-742.
- Hayden, R. M., & Allen, G. J. (1984). Relationship between aerobic exercise, anxiety, and depression: Convergent validation by knowledgeable informants. *Journal of Sports Medicine, 24*, 69-74.
- Henderson, L., & Zimbardo, P. (2001). Shyness, social anxiety, and social phobia. In S. G. Hofmann & P. M. DiBartolo (Eds.), *From Social Anxiety to Social Phobia: Multiple Perspectives* (pp. 46-64). Needham Heights, MA: Allyn & Bacon.
- Holland, A., & Andre, T. (1987). Participation in extracurricular activities in secondary school: What is known, what needs to be known? *Review of Educational Research, 57*, 437-466.
- Hollandsworth, J. G. (1979). Some thoughts on distance running as training in biofeedback. *Journal of Sport Behavior, 2*, 71-82.
- Horga, S., & Stimac, D. (1999). Why do children exercise? Evaluation of the motivation inventory. *Kinesiology, 31*, 61-67.
- Hughes, J. R. (1984). Psychological effects of habitual aerobic exercise: A critical review. *Preventative Medicine, 13*, 66-78.

- Hymel, S., Bowker, A., & Woody, E. (1993). Aggressive versus withdrawn unpopular children: Variations in peer and self-perceptions in multiple domains. *Child Development, 64*, 879-896.
- Hymel, S., Rubin, K. H., Rowden, L., & LeMare, L. (1990). Children's peer relationships: Longitudinal prediction of internalizing and externalizing problems from middle to late childhood. *Child Development, 61*, 2004-2021.
- Hymel, S., Vaillencourt, T., McDougall, P., & Renshaw, P. D. (2002). Peer acceptance and rejection in childhood. In P. K. Smith & C. H. Hart (Eds.), *Blackwell Handbook of Childhood Social Development*. (pp. 265-284). Great Britain: Blackwell Publishers.
- Hymel, S., Woody, E., & Bowker, A. (1993). Social withdrawal in childhood: Considering the child's perspective. In K. H. Rubin & J. B. Asendorpf (Eds.), *Social withdrawal, inhibition, and shyness in childhood* (pp. 237-262). Hillsdale, NJ: Lawrence Erlbaum Associates, Inc.
- Ingledeu, D. K., Markland, D., & Sheppard, K. (2004). Personality and self-determination of exercise behaviour. *Personality and Individual Differences, 36*, 1921-1932.
- Jackson, S. A., & Marsh, H. W. (1986). Athletic or antisocial? The female sport experience. *Journal of Sport Psychology, 8*, 198-211.
- Janoski, M. L., & Holmes, D. S. (1981). Influence of initial aerobic fitness, aerobic training and changes in aerobic fitness on personality functioning. *Journal of Psychosomatic Research, 25*, 553-556.
- Johnstone, B., Frame, C. L., & Bouman, D. (1992). Physical attractiveness and athletic

and academic ability in controversial-aggressive and rejected-aggressive children.

Journal of Social and Clinical Psychology, 11, 71-79.

- Kagan, J. (1989). Temperamental contributions to social behaviour. *American Psychologist, 44*, 668-674.
- Kagan, J. (2001). Temperamental contributions to affective and behavioural profiles in childhood. In S. G. Hofmann & P. M. DiBartolo (Eds.), *From Social Anxiety to Social Phobia: Multiple Perspectives* (pp. 216-234). Needham Heights, MA: Allyn & Bacon.
- Kagan, J., Reznick, S., & Snidman, N. (1987). The physiology and psychology of behavioural inhibition in children. *Child Development, 58*, 1459-1473.
- Kane, M. J. (1988). The female athletic role as a status determinant within the social systems of high school adolescents. *Adolescence, 23*, 253-264.
- Katz Stryer, B., Tofler, I. R., & Lapchick, R. (1998). A developmental overview of child and youth sports in society. *Child and Adolescent Psychiatric Clinics of North America, 7*, 697-724.
- Kavussanu, M., & McAuley, E. (1995). Exercise and optimism: Are highly active individuals more optimistic? *Journal of Sport and Exercise Psychology, 17*, 246-258.
- Kirkcaldy, B. D., Shephard, R. J., & Siefen, R. G. (2002). The relationship between physical activity and self-image and problem behaviour among adolescents. *Social Psychiatry and Psychiatric Epidemiology, 37*, 544-550.
- Kleiber, D. A. & Roberts, G. C. (1981). The effects of sport experience in the

- development of social character: An exploratory investigation. *Journal of Sport Psychology*, 3, 114-122.
- Klint, K. A., & Wiess, M. R. (1987). Perceived competence and motives for participating in youth sports: A test of Harter's competence motivation theory. *Journal of Sport Psychology*, 9, 55-65.
- Ladd, G. W., & Le Sieur, K. D. (1995). Parents and children's peer relationships. In M. H. Bornstein (Ed), *Handbook of parenting: Vol. 4. Applied and practical parenting* (pp. 377-409). Hillsdale, NJ: Lawrence Erlbaum Associates, Inc.
- Ladd, G.W., & Price, J. M. (1987). Predicting children's social and school adjustment following the transition from preschool to kindergarten. *Child Development*, 58, 1168-1189.
- Ladd, G. W., & Profilet, S. M. (1996). The Child Behavior Scale: A teacher-report measure of young children's aggressive, withdrawn, and prosocial behaviours. *Developmental Psychology*, 32, 1008-1024.
- La Greca, A. M., Kraslow Dandes, S., Wick, P., Shaw, K., & Stone, W. L. (1988). Development of the Social Anxiety Scale for Children: Reliability and concurrent validity. *Journal of Clinical Child Psychology*, 17, 84-91.
- La Greca, A. M., & Stone, W. L. (1993). Social Anxiety Scale for Children – Revised: Factor structure and concurrent validity. *Journal of Clinical Child Psychology*, 22, 17-27.
- Landers, D. M., & Petruzzello, S. J. (1994). Physical activity, fitness and anxiety. In C. Bouchard, R. J. Shepard & T. Stephens (Eds.), *Physical activity, fitness and health*. (pp. 868-882). Champaign, IL: Human Kinetics Publishers.

- Laurent, J., Catanzaro, S. J., Joiner, T. E. Jr., Rudolph, K. D., Potter, K. I., Lambert, S., Osborne, L., & Cathright, T. (1999). A measure of positive and negative affect for children: Scale development and preliminary validation. *Psychological Assessment, 11*, 326-338.
- Lazarus, R. S., & Folkman, S. (1984). *Stress, Appraisal, and Coping*. New York: Springer Publishing Company.
- Lobstein, D. D., Mosbacher, B. J., & Ismail, A. H. (1983). Depression as a powerful discriminator between physically active and sedentary middle-aged men. *Journal of Psychosomatic Research, 27*, 69-76.
- Long, B. C., & van Stavel, R. (1995). Effects of exercise training on anxiety: A meta-analysis. *Journal of Applied Sport Psychology, 7*, 167-189.
- Longo, C., & Bowker, A. (2005). *Gender differences in stress and coping among adolescents*. Unpublished master's thesis, Carleton University, Ottawa, Ontario, Canada.
- Lowenstein, L. F. (1983). Treatment of extreme shyness: By implosive, counselling, and conditioning approaches. *Association of Educational Psychologists Journal, 6*(2), 64-69.
- Manke, B., Suadino, K. J., & Grant, J. D. (2001). Extreme analyses of observed temperament dimensions. In R. N. Emde & J. K. Hewitt (Eds.). *Infancy to early childhood: Genetic and environmental influences on developmental change* (pp. 52-72). New York: Oxford University Press.
- Marsh, H. W. (1984). *Self-Description Questionnaire (SDQ): An instrument for*

measuring multiple dimensions of preadolescent self-concept. Department of Education, University of Sydney, Australia.

Marsh, H. W. (1993). Physical fitness self-concept: Relations of physical fitness to field and technical indicators for boys and girls aged 9-15. *Journal of Sport and Exercise Psychology, 15*, 181-206.

Marsh, H. W. (1998). Age and gender effects in physical self-concepts for adolescent elite athletes and non-athletes: A multicohort-multioccasion design. *Journal of Sport and Exercise Psychology, 20*, 237-259.

Marsh, H. W., Barnes, J., Cairns, L., & Tidman, M. (1984). Self-Description Questionnaire: Age and sex effects in the structure and level of self-concept for preadolescent children. *Journal of Educational Psychology, 76*, 940-956.

Marsh, H. W., & Kleitman, S. (2003). School athletic participation: Mostly gain with little pain. *Journal of Sport and Exercise Psychology, 25*, 205-228.

Marsh, H. W., & Peart, N. D. (1988). Competitive and cooperative physical fitness training programs for girls: Effects of physical fitness and multidimensional self-concepts. *Journal of Sport and Exercise Psychology, 10*, 390-407.

Marsh, H. W., Perry, C., Horsely, C., & Roche, L. (1995). Multidimensional self-concepts of elite athletes: How do they differ from the general population? *Journal of Sport and Exercise Psychology, 17*, 70-83.

Marshall, P. J., & Stevenson-Hinde, J. (2001). Behavioural inhibition: Physiological correlates. In W. R. Crozier & L. E. Alden (Eds.), *International Handbook of Social Anxiety: Concepts, Research and Interventions Relating to the Self and Shyness* (pp. 53-76). New York: John Wiley & Sons.

- Martens, R. (1993). Psychological perspectives. In B. R. Cahill & A. J. Pearl (Eds.), *Intensive Participation in Children's Sport* (pp. 9-17). Champaign, IL: Human Kinetics.
- McDonald, D. G., & Hodgson, J. A. (1991). *The psychological effects of aerobic fitness training*. New York: Springer-Verlag.
- McHale, J. P., Vinden, P. G., Bush, L., Richer, D., Shaw, D., & Smith, B. (2005). Patterns of personal and social adjustment among sport-involved and non-involved middle-school children. *Sociology of Sport Journal*, 22, 119-136.
- Mead, G. H. (1932). *Mind, self and society*. Chicago, IL: University of Chicago Press.
- Melnick, M. J., Vanfossen, B. E., & Sabo, D. F. (1988). Developmental effects of athletic participation among high school girls. *Sociology of Sport Journal*, 5, 22-36.
- Mills, R. S. L., & Rubin, K. H. (1993). Socialization factors in the development of social withdrawal. In K. H. Rubin & J. B. Asendorpf (Eds.), *Social withdrawal, inhibition and shyness in childhood* (pp. 117-148). Hillsdale, NJ: Lawrence Erlbaum Associates.
- Minister of Public Works and Government Services Canada. (2002). *Canada's Physical Activity Guide for Youth*. (Cat. H39-611/2002-1E). Ottawa, Canada: Canadian Government Printing Office.
- Morison, P., & Masten, A. S. (1991). Peer reputation in middle childhood as a predictor of adaptation in adolescence: A seven-year follow-up. *Child Development*, 62, 991-1007.
- Newcomb, A. F., & Bagwell, C. L. (1995). Children's friendship relations: A meta-analytic review. *Psychological Bulletin*, 117, 306-347.

- NICHD Early Child Care Research Network (2004). Trajectories of physical aggression from toddlerhood to middle childhood: Predictors, correlates, and outcomes. *SRCD Monographs*, 69 (4, 278), 1-146.
- Norton, P. J., Burns, J. A., Hope, D. A., & Bauer, B. K. (2000). Generalization of social anxiety to athletic situations: Gender, sports involvement, and parental pressure. *Depression and Anxiety*, 12, 193-202.
- Offord, D. R., Lipman, E. L., & Duku, E. K. (1998). *Sports, the arts and community programs: Rates and correlates of participation*. (Applied Research Branch Strategic Policy W-98-18E). Hull, Quebec: Human Resources Development Canada.
- Olejnik, S., & Algina, J. (2002). Measures of effect size for comparative studies: Applications, interpretations, and limitations. *Contemporary Educational Psychology*, 25, 241-286.
- Overton, W. F. (Ed.). (2004). Monographs of the Society for Research in Child Development 69 (4, Serial No. 278).
- Page, R. M., Frey, J., Talbert, R., & Falk, C. (1992). Children's feelings of loneliness and social dissatisfaction: Relationship to measures of physical fitness and activity. *Journal of Teaching and Physical Education*, 11, 211-219.
- Page, R. M., & Hammermeister, J. (1995). Shyness and loneliness: Relationship to the exercise frequency of college students. *Psychological Reports*, 76, 395-398.
- Page, R. M., & Tucker, L. A. (1994). Psychosocial discomfort and exercise frequency: An epidemiological study of adolescents. *Adolescence*, 29, 183-191.
- Page, R. M., & Zarco, E. P. (2001). Shyness, physical activity and sports team

- participation among Phillipine high school students. *Child Study Journal*, 31, 193-203.
- Parker, J. G., & Gottman, J. M. (1989). Social and emotional development in a relational context. In T. J. Berndt & G. W. Ladd (Eds.), *Peer relationships in child development* (pp. 95-131). New York: John Wiley & Sons.
- Patrick, H., Ryan, A. M., Alfeld-Liro, C., Fredericks, J. A., Huda, L. Z., & Eccles, J. S. (1999). Adolescent's commitment to developing talent: The role of peers in continuing motivation for sports and the arts. *Journal of Youth and Adolescence*, 28, 741-763.
- Petruzzello, S. T., Landers, D. M., Hatfield, B.D., Kubitz, K. A., & Salazar, W. (1991). A meta-analysis on the anxiety-reducing effects of acute and chronic exercise: Outcomes and mechanisms. *Sports Medicine*, 11, 143-182.
- Piaget, J. (1948). *The moral judgement of the child*. Glencoe, IL: Free Press.
- Piko, B. (2001). Gender differences and similarities in adolescents' ways of coping. *Psychological Record*, 51, 223-237.
- Prakash, K., & Coplan, R. J. (2003). Shy skaters? Shyness, coping, and adjustment outcomes in female adolescent figure skaters. *Athletic Insight*, 5, 1-19.
- Prakash, K., & Coplan, R. J. (in press). Socio-emotional characteristics and school adjustment of socially-withdrawn children in India. *International Journal of Behavioral Development*.
- Prior, M., Smart, D., Sanson, A., & Oberklaid, F. (2000). Does shy-inhibited temperament in childhood lead to anxiety problems in adolescence? *Journal of the American Academy of Child and Adolescent Psychiatry*, 39, 461-468.

- Radke-Yarrow, M., Richters, J., & Wilson, W. E. (1988). Child development in a network of relationships. In R. A. Hinde & J. Stevenson-Hinde (Eds.), *Relationships within families: Mutual influence* (pp. 48-67). New York: Oxford Press.
- Renk, K., & Creasey, G. (2003). The relationship of gender, gender identity, and coping strategies in late adolescents. *Journal of Adolescence*, 26, 159-168.
- Rose-Krasnor, L. (1997). The nature of social competence: A theoretical review. *Social Development*, 6, 111-135.
- Rubin, K. H. (1985). Socially withdrawn children: An "at risk" population? In B. H. Schneider, K. H. Rubin & J. E. Ledingham (Eds.), *Children's peer relations: Issues in assessment and intervention* (pp. 125-139). New York: Springer Verlag.
- Rubin, K. H. (1993). The Waterloo Longitudinal Project: Correlates and consequences of social withdrawal from childhood to adolescence. In K. H. Rubin & J. B. Asendorpf (Eds.), *Social withdrawal, inhibition and shyness in childhood* (pp. 291-314). Hillsdale, NJ: Lawrence Erlbaum Associates.
- Rubin, K. H., Bream, L. A., & Rose-Krasnor, L. (1991). Social problem solving and aggression in childhood. In D. J. Pepler & K. H. Rubin (Eds.), *The Development and Treatment of Childhood Aggression* (pp. 219-248). Hillsdale, New Jersey: Lawrence Erlbaum Associates.
- Rubin, K. H., Bukowski, W., & Parker, J. G. (1998). Interactions, relationships, and groups. In W. Damon (Ed. in chief). & N. Eisenberg, (Vol. Ed.), *Handbook of Child Psychology: Vol 3. Social, Emotional and Personality Development* (5th ed., pp. 619-700). New York: John Wiley and Sons.

- Rubin, K. H., & Burgess, K. B. (2001). Parents of aggressive and withdrawn children. In M. Bornstein (Ed.), *Handbook of Parenting: Vol 1* (2nd ed., pp. 383-418). Mahwah, New Jersey: Lawrence Erlbaum Associates.
- Rubin, K. H., Burgess, K. B., & Coplan, R. J. (2002). Social withdrawal and shyness. In P. K. Smith & C. H. Hart. *Blackwell Handbook of Childhood Social Development* (pp. 329-352). Great Britain: Blackwell Publishers.
- Rubin, K. H., Chen, X., & Hymel, S. (1993). Socioemotional characteristics of withdrawn and aggressive children. *Merrill-Palmer Quarterly*, 39, 518-534.
- Rubin, K. H., Chen, X., McDougall, P., Bowker, A., & McKinnon, J. (1995). The Waterloo Longitudinal Project: Predicting internalizing and externalizing problems in adolescence. *Development and Psychopathology*, 7, 751-764.
- Rubin, K.H., Coplan, R.J., Chen, X., Buskirk, A., & Wojslawowicz, J. (2005). Peer relationships in childhood. In M. Bornstein & M. Lamb (Eds.), *Developmental psychology: An advanced textbook* (5th ed.). Hillsdale, N.J.: Erlbaum.
- Rubin, K. H., Daniels-Beirness, T., & Bream, L. (1984). Social isolation and social problem solving: A longitudinal study. *Journal of Consulting and Clinical Psychology*, 52, 17-25.
- Rubin, K. H., & Mills, R. S. L. (1990). Maternal beliefs about adaptive and maladaptive social behaviours in normal, aggressive, and withdrawn preschoolers. *Journal of Abnormal Child Psychology*, 18, 419-435.
- Rubin, K. H., & Rose-Krasnor, L. (1992). Interpersonal problem solving and social

- competence in children. In V. B. Van Hasselt & M. Hersen (Eds.), *Handbook of Social Development: A Lifespan Perspective* (pp. 283-323). New York: Plenum Press.
- Russell, A., Hart, C. H., Robinson, C. C., & Olsen, S. F. (2003). Children's sociable and aggressive behaviour with peers: A comparison of the US and Australia, and contributions of temperament and parenting styles. *International Journal of Behavioural Development, 27*, 74-86.
- Ryan, R. M., & Deci, E. L. (2000). Self-determination theory and the facilitation of intrinsic motivation, social development, and well-being. *American Psychologist, 55*, 68-78.
- Sage, G. H. (1986). The effect of physical activity on the social development of children. In G. Stull & H. M. Eckert (Eds.), *Effects of physical activity on children* (pp. 22-29). Champaign, IL: Human Kinetics.
- Sallis, J. F., Prochaska, J. J., Taylor, W. C., Hill, J. O., & Geraci, J. C. (1999). Correlates of physical activity in a national sample of girls and boys in grades 4 through 12. *Health Psychology, 18*, 410-415.
- Sanson, A., Hemphill, S. A., & Smart, D. (2002). Temperament and social development. In P. K. Smith & C. H. Hart. *Blackwell Handbook of Childhood Social Development* (pp. 97-116). Great Britain: Blackwell Publishers.
- Scarpa, A., Raine, A., Venables, P. H., & Mednick, S. A. (1995). The stability of inhibited/uninhibited temperament from ages 3 to 11 years in Mauritian children. *Journal of Abnormal Child Psychology, 23*, 607-618.
- Schmidt, L. A., & Fox, N. A. (1995). Individual differences in young adults' shyness and

- sociability: Personality and health correlates. *Personality and Individual Differences, 19*, 455-462.
- Schmidt, L. A., Fox, N. A., Rubin, K. H., Sternberg, E. M., Gold, P. W., Smith, C. C., & Schulkin, J. (1997). Behavioral and neuroendocrine responses in shy children. *Developmental Psychobiology, 30*, 127-140.
- Schmidt, L. A., Fox, N. A., Schulkin, J., & Gold, P. W. (1999). Behavioural and psychophysiological correlates of self-presentation in temperamentally shy children. *Developmental Psychobiology, 35*, 119-135.
- Schneider, B. H., Coplan, R. J., & Debow, A. J. (in press). Social withdrawal, shyness and inhibition: Clinical diagnosis, prevention and intervention. In A. LoCoco, K. H., Rubin, & C. Zappulla (Eds.), *L'isolamento, sociale durante l'infanzia (Social withdrawal in childhood)*. Milan, Italy: Unicopli.
- Sexton, H., Maere, A., & Dahl, N. H. (1989). Exercise intensity and reduction in neurotic symptoms. *Acta Psychiatrica Scandinavia, 80*, 231-235.
- Shavelson, R. J., Hubner, J. J., & Stanton, G. C. (1976). Self-concept: Validation of construct interpretations. *Review of Educational Research, 46*, 407-441.
- Smith, A. L. (1999). Perceptions of peer relationships and physical activity participation in early adolescence. *Journal of Sport and Exercise Psychology, 21*, 329-350.
- Smith, A. L. (2003). Peer relationship in physical activity contexts: A road less travelled in youth sport and exercise research. *Psychology of Sport and Exercise, 4*, 25-39.
- Smith, T. L. (1986). Self-concepts of youth sport participations and nonparticipants in grades 3 and 6. *Perceptual and Motor Skills, 62*, 863-866.
- Spooner, A. L., & Bzdyra, R. (2003, April). *Hidden shyness: How children's shyness*

may go unrecognized by others. Poster session presented at the biennial meeting of the Society for Research on Child Development, Tampa, Florida.

Spooner, A. L., Evans, M. A., & Santos, R. (2005). Hidden shyness: Discrepancies between self and others' perceptions of children's shyness. *Merrill Palmer Quarterly*, *51*, 437-466.

Steptoe, A., Edwards, S., Moses, J., & Mathews, A. (1989). The effect of exercise training on mood and perceived coping ability in anxious adults from the general population. *Journal of Psychosomatic Research*, *33*, 537-547.

Stevens, J. (2002). *Applied multivariate statistics for the social sciences* (4th ed.). Mahwah, NJ: Lawrence Erlbaum Associates.

Stevenson-Hinde, J., & Glover, A. (1996). Shy girls and boys: A closer look. *Journal of Child Psychology and Psychiatry*, *37*, 181-187.

Stone, A. A., & Neale, J. M. (1984). New measure of daily coping: Development and preliminary results. *Journal of Personality and Social Psychology*, *46*, 892-906.

Storch, E. A., Bartlas, M. E., Dent, H. C., & Masia, C. L. (2002). Generalization of social anxiety to sport: An investigation of elementary Hispanic children. *Child Study Journal*, *32*, 81-87.

Straus, M. A. (1979). Measuring intrafamily conflict and violence: The Conflict Tactics (CT) Scales. *Journal of Marriage and the Family*, *41*, 75-88.

Tabachnick, B. G., & Fidell, L. S. (2001). *Using multivariate statistics* (4th ed.). Boston: Allyn & Bacon.

Taub, D. E., & Greer, K. R. (2000). Physical activity as a normalizing experience for

- school-age children with physical disabilities: Implication for legitimization of social identity and enhancement of school ties. *Journal of Sport and Social Issues*, 24, 395-414.
- Thirer, J., & Wright, S. D. (1985). Sport and social status for adolescent males and females. *Sociology of Sport Journal*, 2, 164-171.
- Vandell, D. L., & Posner, J. K. (1999). Conceptualization and measurement of children's after-school environments. In S. L. Friedman & T. D. Wachs (Eds.), *Measuring environments across the life-span: Emerging methods and concepts* (pp. 167-196). Washington, DC: APA.
- Veroff, J. (1969). Social comparison and the development of achievement motivation. In C. P. Smith (Ed.), *Achievement-related motives in children* (pp. 46-101). New York: Russell Sage Foundation.
- Vilhjalmsson, R., & Kristjansdottir, G. (2003). Gender differences in physical activity in older children and adolescents: The central role of organized sport. *Social Science and Medicine*, 56, 363-374.
- Watson, D., Clark, L. A., & Tellegen, A. (1988). Development and validation of brief measures of Positive and Negative Affect: The PANAS scales. *Journal of Personality and Social Psychology*, 54, 1063-1070.
- Weiss, M. R. (1991). Psychological skill development in children and adolescents. *The Sport Psychologist*, 5, 335-354.
- Weiss, M. R. (1993). Psychological effects on intensive sport participation on children

- and youth: self-esteem and motivation. In B. R. Cahill & A. J. Pearl (Eds.), *Intensive Participation in Children's Sport* (pp. 39-69). Champaign, IL: Human Kinetics.
- Weiss, M. R. (1995). Children in sport: An educational model. In S. M. Murphy (Ed.), *Sport psychology interventions* (pp. 39-69). Champaign, IL: Human Kinetics.
- Weiss, M. R., & Bredemeier, B. J. (1983). Developmental sport psychology: A theoretical perspective for studying children in sport. *Journal of Sport Psychology, 5*, 216-230.
- Weiss, M. R., & Duncan, S. C. (1992). The relationship between physical competence and peer acceptance in the context of children's sports participation. *Journal of Sport and Exercise Psychology, 14*, 177-191.
- Weiss, M. R., & Glenn, S. D. (1992). Psychological development and female's sport participation: An interactional perspective. *Quest, 44*, 138-157.
- Weiss, M. R., & Horn, T. S. (1990). The relation between children's accuracy estimates of their physical competence and achievement-related characteristics. *Research Quarterly for Exercise and Sport, 61*, 250-258.
- Weiss, M. R., McAuley, E., Ebbeck, V., & Wiese, D. M. (1990). Self-esteem and causal attributions for children's physical and social competence in sport. *Journal of Sport and Exercise Psychology, 12*, 21-36.
- Weiss, M. R., & Smith, A. L. (1999). Quality of youth sport friendships: Measurement development and validation. *Journal of Sport and Exercise Psychology, 21*, 145-166.
- Weiss, M. R., & Smith, A. L. (2002). Friendship quality in youth sport: Relationship to

- age, gender and motivation variables. *Journal of Sport and Exercise Psychology*, 24, 420-437.
- Weiss, M. R., Smith, A. L., & Theeboom, M. (1996). "That's what friends are for": Children and teenager's perceptions of peer relations in the sport domain. *Journal of Sport and Exercise Psychology*, 18, 347-379.
- Williams, J. M., & White, K. A. (1983). Adolescent status systems for males and females at three age levels. *Adolescence*, 70, 381-389.
- Wilson, J. (2004). Exploring conceptual and empirical links between adult personality, parenting styles and child well-being. Unpublished masters thesis, Carleton University, Ottawa, Ontario, Canada.
- Wilson, K., Gullone, E., & Moss, S. (1998). The youth version of the Positive and Negative Affect Schedule: A psychometric validation. *Behavior Change*, 15, 187-193.
- Yeung, R. R., & Hemsley, D. R. (1997). Personality, exercise and psychological well-being: Static relationships in the community. *Personality and Individual Differences*, 22, 47-53.
- Young, R. J., & Ismail, A. H. (1976). Personality differences of adult men before and after a physical fitness program. *Research Quarterly*, 47, 513-519.
- Younger, A. J., & Piccinin, A. M. (1989). Children's recall of aggressive and withdrawn behaviours: Recognition memory and likeability judgements. *Child Development*, 60, 580-590.
- Zimbardo, P. G. (1977). *Shyness: What it is, what to do about it*. Don Mills, ON: Addison-Wesley Publishing Company.

Footnotes

¹A similar series of ecological variables are also hypothesized for aggressive children.

²A teacher and child version of the SSRS is also available but was not employed in the current study.

³At Time 1, total number of sports represents the combined number of sports the child indicated that he/she had participated in throughout their lifetime. At Time 2, children were asked to report on the sports he/she had participated in over the past year.

⁴In order to maximize the over-time approach, and given the numerous dependent variables, regression analyses were deemed to be inappropriate.

⁵Despite the small sample size, analyses were conducted for the main effect of Sport only to compare non-participants and recreational sport groups (without including Behaviour or the Sport by Behaviour interaction). Significant differences were found for Sport, with children who had participated in no sports having lower physical ability, peer, and general self-esteem than the recreational participants. However, since the purpose of the study was to examine the interaction between Sport and Behaviour, the non-participant and recreational groups were combined in subsequent analyses. None the less, it should be noted that some benefits of sport may exist for recreational participation only in terms of self-esteem.

⁶Although it may also be of interest to reported adjusted means (i.e., considering SES), only descriptive means are provided herein to facilitate presentation. Adjusted means in the current findings differed only slightly from descriptive means.

⁷According to Stevens (2002), power of .80 can be achieved with 2 repeated measures and average correlation between the two of .50, when $n=298$ for small ($=.14$) effect sizes and $n=52$ for medium ($=.35$) effect sizes. Thus, in the current study, where correlations between Time 1 and Time 2 varied between $r=.45$ and $r=.69$ and effect sizes were between small and medium, an average sample size of 110 is deemed adequate.

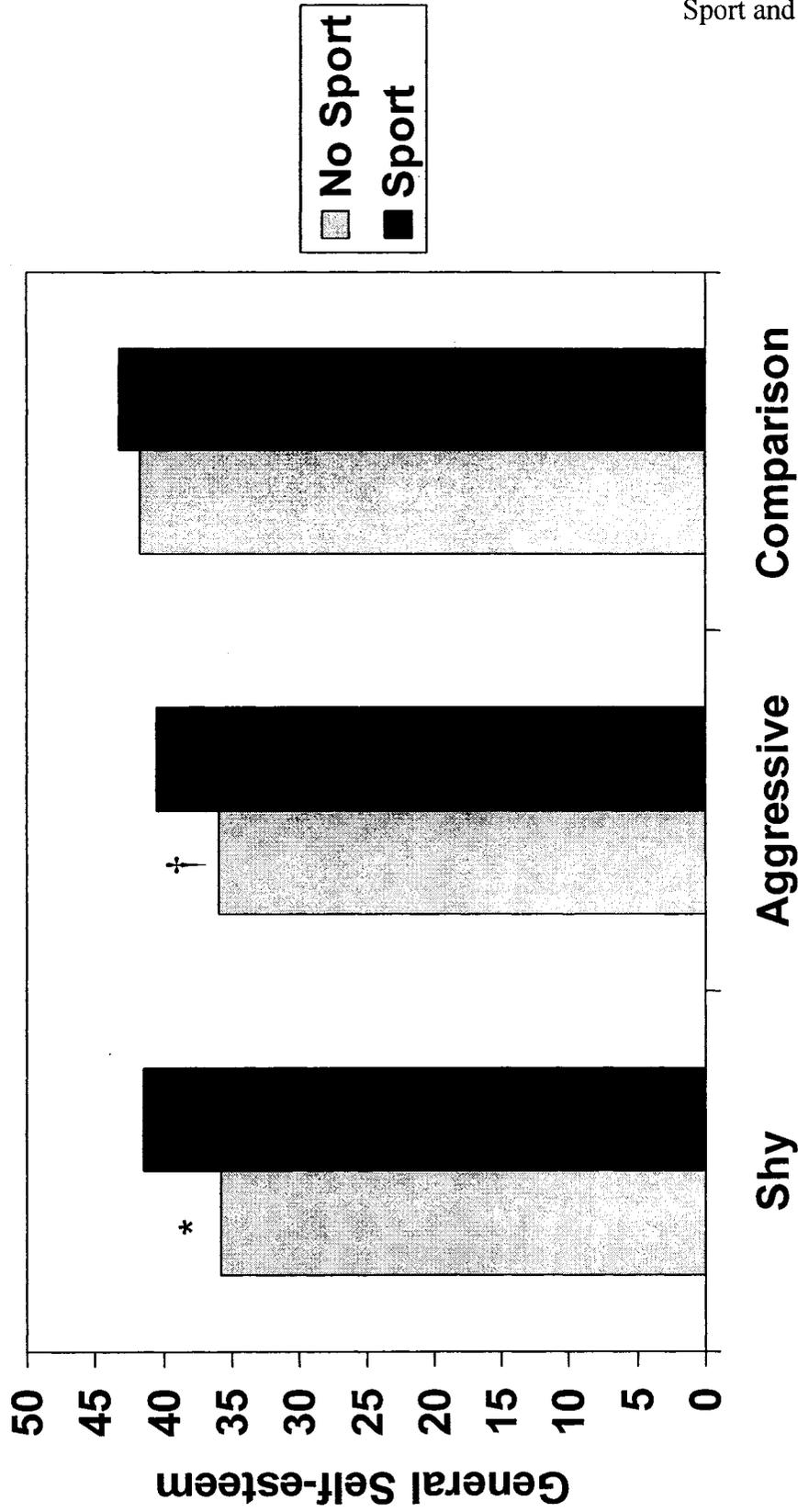
⁸Again, only interactions that include Time and Sports Participation are reported in detail.

⁹Analyses were also performed for each Sport group separately; however, non-significant results were obtained. It was thus deemed necessary to examine each Time separately in order to interpret the significant interaction.

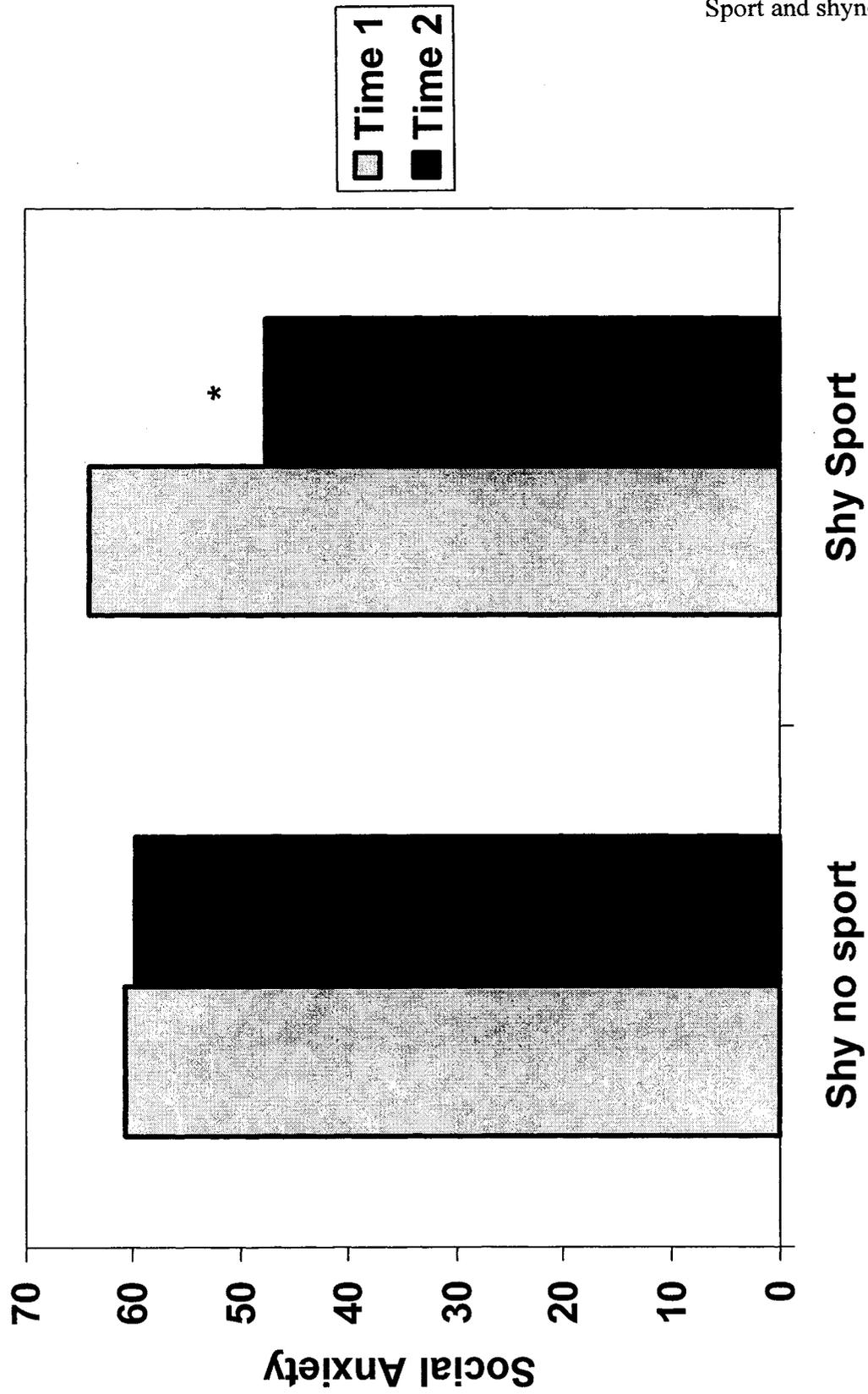
Figure Captions

Figure 1. General self-esteem for shy, aggressive and comparison sport and non-sport participants.

Figure 2. Shy, aggressive and comparison sport and non-sport participants' social anxiety over time.



* p<.05, † p<.07



* $p < .07$

Appendix A. Demographic Sheet

DEMOGRAPHIC INFORMATION

Child's Name _____

Birthdate _____ Child's Age _____ Boy ___ Girl ___
 month day year

Mother's age _____

Mother's formal education completed (check one):
 elementary school _____
 high school diploma or equivalent _____
 community college or equivalent _____
 university degree _____
 graduate school degree _____

Father's age _____

Father's formal education completed (check one):
 elementary school _____
 high school diploma or equivalent _____
 community college or equivalent _____
 university degree _____
 graduate school degree _____

Appendix B. Social Skills Rating Scale

Directions: This questionnaire is designed to measure **how often** your child exhibits certain social skills. Ratings of problem behaviours are also requested.

Read each item (1 – 55) and think about your child's behaviour during the past month or two. Decide **how often** your child does the behaviour described.

If your child **never** does this behaviour, circle the **0**.

If your child **sometimes** does this behaviour, circle the **1**.

If your child **very often** does this behaviour, circle the **2**.

Here are two examples:

	How often?		
	Never	Sometimes	Very often
Shows a sense of humour.	0	1	2
Answers the phone appropriately.	0	1	2

This parent thought that they child very often showed a sense of humour and that the child never answered the phone appropriately.

There are no right or wrong answers. You may take as much time as you like.

Please do not skip any items.

	How Often?		
	Never	Some- times	Very often
1. Uses free time at home in an acceptable way.	0	1	2
2. Keeps room clean and neat without being reminded.	0	1	2
3. Speaks in an appropriate tone of voice at home.	0	1	2
4. Joins group activities without being told to.	0	1	2
5. Introduces herself or himself to new people without being told to.	0	1	2

6. Responds appropriately when hit or pushed by other children.	0	1	2
7. Asks sales clerks for information or assistance.	0	1	2
8. Attends to speakers at meetings such as in church or youth groups.	0	1	2
9. Politely refuses unreasonable requests from others.	0	1	2
10. Invites others to your home.	0	1	2
11. Congratulates family members on accomplishments.	0	1	2
12. Makes friends easily.	0	1	2
13. Shows interest in a variety of things.	0	1	2
14. Avoids situations that are likely to result in trouble.	0	1	2
15. Puts away toys or other household property.	0	1	2
16. Volunteers to help family members with tasks.	0	1	2
17. Receives criticism well.	0	1	2
18. Answers the phone appropriately.	0	1	2
19. Helps you with household tasks without being asked.	0	1	2
20. Appropriately questions household rules that may be unfair.	0	1	2
21. Attempts household tasks before asking for your help.	0	1	2
22. Controls temper when arguing with other children.	0	1	2
23. Is liked by others.	0	1	2
24. Starts conversations rather than waiting for others to talk first.	0	1	2
25. Ends disagreements with you calmly.	0	1	2
26. Controls temper in conflict situations with you.	0	1	2
27. Gives compliments to friends or other children in the family.	0	1	2
28. Completes household tasks within a reasonable time.	0	1	2

29. Asks permission before using another family member's property.	0	1	2
30. Is self-confident in social situations such as parties or group outings.	0	1	2
31. Requests permission to leave the house.	0	1	2
32. Responds appropriately to teasing from friends or relatives of their own age.	0	1	2
33. Uses time appropriately while waiting for your help with homework or some other task.	0	1	2
34. Accepts friends' ideas for playing.	0	1	2
35. Easily changes from one activity to another.	0	1	2
36. Cooperates with family members without being asked to do so.	0	1	2
37. Acknowledges compliments or praise from friends.	0	1	2
38. Reports accidents to appropriate persons.	0	1	2
39. Fights with others.	0	1	2
40. Acts sad or depressed.	0	1	2
41. Appears lonely.	0	1	2
42. Has low self-esteem	0	1	2
43. Threatens or bullies others.	0	1	2
44. Disturbs ongoing activities.	0	1	2
45. Shows anxiety about being with a group of children.	0	1	2
46. Argues with others.	0	1	2
47. Fidgets or moves excessively.	0	1	2
48. Disobeys rules or requests.	0	1	2
49. Talks back to adults when corrected.	0	1	2
50. Acts impulsively.	0	1	2
51. Doesn't listen to what others say.	0	1	2
52. Is easily embarrassed.	0	1	2
53. Is easily distracted.	0	1	2

54. Gets angry easily.	0	1	2
55. Has temper tantrums.	0	1	2

Appendix C. Children's Shyness Questionnaire

I find it hard to talk to someone I don't know.	YES	NO	Don't Know
I am easily embarrassed	YES	NO	Don't Know
I am usually quiet when I am with others.	YES	NO	Don't Know
Do you blush when people sing "Happy Birthday" to you?	YES	NO	Don't Know
I feel nervous when I am with important people.	YES	NO	Don't Know
I feel shy when I have to read aloud in front of the class.	YES	NO	Don't Know
I feel nervous about joining a new class.	YES	NO	Don't Know
I go red when someone teases me.	YES	NO	Don't Know
Do you say a lot when you meet someone for the first time?	YES	NO	Don't Know
I am usually shy in a group of people.	YES	NO	Don't Know
I feel shy when I am the centre of attention.	YES	NO	Don't Know
Do you blush a lot?	YES	NO	Don't Know
I feel shy when the teacher speaks to me.	YES	NO	Don't Know
If the teacher asked for someone to act in a play would you put your hand up?	YES	NO	Don't Know
It is easy for me to make friends.	YES	NO	Don't Know
I would be embarrassed if the teacher put me in the front row on stage.	YES	NO	Don't Know
When grown-ups ask you about yourself do you often	YES	NO	Don't Know

not know what to say?

I go red when the teacher praises my work.	YES	NO	Don't Know
I feel shy why I have to go into a room full of people.	YES	NO	Don't Know
Are you embarrassed when your friends look at photos of you when you were little?	YES	NO	Don't Know
Would you be too shy to ask someone to sponsor you for a good cause?	YES	NO	Don't Know
I enjoy having my photograph taken.	YES	NO	Don't Know
I usually talk to only on or two close friends.	YES	NO	Don't Know
I am usually shy when I meet girls (boys).	YES	NO	Don't Know
I go red when I have to speak to a girl (boy) of my age.	YES	NO	Don't Know
I find it hard to talk to someone I don't know.	YES	NO	Don't Know

Appendix D. Child Rating Scale of Aggression

The following is a list of behaviours that sometime happen between people your age. For each behaviour, circle the number that best describes how often these things were DONE BY YOU during the last six months.

	Never	Rarely	Sometimes	Often	Always
Pushing, grabbing or shoving during an argument	1	2	3	4	5
Spitting during an argument	1	2	3	4	5
Pulling hair or scratching during an argument	1	2	3	4	5
Slapping, kicking or biting during an argument	1	2	3	4	5
Physically twisting an arm during an argument	1	2	3	4	5
Throwing, smashing hitting or kicking an object during an argument	1	2	3	4	5
Slamming or holding a wall during an argument	1	2	3	4	5
Hitting or trying to hit with an object during an argument	1	2	3	4	5
Chocking, punching or beating during an argument	1	2	3	4	5

Appendix E. Sport Participation Questionnaire

Activity Questionnaire

List all the sports that you participate in **regularly** and tell us about each sport (circle the correct answer).

- Level: Just for fun = with friends at recess or after school;
- School team = on a school team competing against other schools
- Community recreational = recreational league of sports club (e.g., Peewee hockey, swim club)
- Competitive league = you had to try out to get on the team or compete at this level

EXAMPLE: If you have played soccer for 2 seasons on a recreational team (2 days per week), you would write:

SPORT	HOW LONG	HOW OFTEN	LEVEL
SOCCER	Less than 1 year	1 time per week	Just for fun
	1 year	2 times per week	School team
	2 years	3 times per week	Community Recreation
	3 or more years	4 or more times per week	Competitive League

SPORT	HOW LONG	HOW OFTEN	LEVEL
1.	Less than 1 year	1 time per week	Just for fun
	1 year	2 times per week	School team
	2 years	3 times per week	Community Recreation
	3 or more years	4 or more times per week	Competitive League
2.	Less than 1 year	1 time per week	Just for fun
	1 year	2 times per week	School team
	2 years	3 times per week	Community Recreation
	3 or more years	4 or more times per week	Competitive League

		week	
3.	Less than 1 year	1 time per week	Just for fun
	1 year	2 times per week	School team
	2 years	3 times per week	Community Recreation
	3 or more years	4 or more times per week	Competitive League
4.	Less than 1 year	1 time per week	Just for fun
	1 year	2 times per week	School team
	2 years	3 times per week	Community Recreation
	3 or more years	4 or more times per week	Competitive League
5.	Less than 1 year	1 time per week	Just for fun
	1 year	2 times per week	School team
	2 years	3 times per week	Community Recreation
	3 or more years	4 or more times per week	Competitive League

Appendix F. Coping Strategies

“When I have an argument with a friend, I usually...”

	Never	Rarely	Somet imes	Usual ly	Alway s
Tell a friend or family member what happened.	1	2	3	4	5
Try to think of different ways to solve it.	1	2	3	4	5
Make believe nothing happened.	1	2	3	4	5
Take it out on others because I feel sad or angry.	1	2	3	4	5
Talk to somebody about how it made me feel.	1	2	3	4	5
Change something so things will work out.	1	2	3	4	5
Go off by myself.	1	2	3	4	5
Become so upset that I can't talk to anyone.	1	2	3	4	5
Get help from a friend.	1	2	3	4	5
Decide on one way to deal with the problem and do it.	1	2	3	4	5
Forget the whole thing.	1	2	3	4	5
Worry too much about it.	1	2	3	4	5
Ask a friend for advice.	1	2	3	4	5
Do something to make up for it.	1	2	3	4	5
Tell myself it doesn't matter.	1	2	3	4	5

Cry about it.	1	2	3	4	5
Ask a family member for advice.	1	2	3	4	5
Know there are things that I can do to make it better.	1	2	3	4	5
Just feel sorry for myself.	1	2	3	4	5
Refuse to think about it.	1	2	3	4	5
Yell to let off steam.	1	2	3	4	5
Ask someone who has had this problem what he or she would do.	1	2	3	4	5
Go over in my mind what to do or say.	1	2	3	4	5
Do something to take my mind off it.	1	2	3	4	5
Worry that others will think badly of me.	1	2	3	4	5
Curse out loud.	1	2	3	4	5
Try to understand why this happened to me.	1	2	3	4	5
Say I don't care.	1	2	3	4	5
Ignore it when people say something about it.	1	2	3	4	5
Get mad and throw or hit something.	1	2	3	4	5
Get help from a family member.	1	2	3	4	5
Get mad at myself for doing something that I shouldn't have done.	1	2	3	4	5
Try extra hard to keep this from happening	1	2	3	4	5

again.

Tell a friend or family member what 1 2 3 4 5

happened.

Appendix G. Measure of General Well-being

Please answer these questions accurately and honestly. Choose only one response for each statement from the following five responses:

	Not at all	A little	Somewh at	Moderat ely	Very much
How satisfied are you with:					
Your friends?	1	2	3	4	5
Your family?	1	2	3	4	5
Yourself?	1	2	3	4	5
Being a boy (or girl)?	1	2	3	4	5
Being a Canadian?	1	2	3	4	5
How much you feel the following is true:	Not at all	Hardly ever	Sometim es	Most of the time	All of the time
I am lucky	1	2	3	4	5
I often wish I were someone else	1	2	3	4	5
I'm easy to like	1	2	3	4	5
I can do many things well	1	2	3	4	5
I like being the way I am	1	2	3	4	5

Appendix I. Self Description Questionnaire

SELF-DESCRIPTION QUESTIONNAIRE

	FALSE	MOSTLY FALSE	SOME- TIMES FALSE, SOME- TIMES TRUE	MOSTLY TRUE	TRUE
I am good looking	1	2	3	4	5
I can run fast	1	2	3	4	5
I have lots of friends	1	2	3	4	5
I like the way I look	1	2	3	4	5
I like to run and play hard	1	2	3	4	5
I make friends easily	1	2	3	4	5
I have a pleasant looking face	1	2	3	4	5
I hate sports and games	1	2	3	4	5
Most kids have more friends than I do	1	2	3	4	5
I am a nice looking person	1	2	3	4	5
I enjoy sports and games	1	2	3	4	5
I get along with other kids easily	1	2	3	4	5
I do lots of important things	1	2	3	4	5
I am ugly	1	2	3	4	5
I have good muscles	1	2	3	4	5
I am easy to like	1	2	3	4	5
Overall I am no-good	1	2	3	4	5
Other kids think I am good looking	1	2	3	4	5
I am good at sports	1	2	3	4	5

Other kids want me to be their friend	1	2	3	4	5
In general I like being the way I am	1	2	3	4	5
I have a good looking body	1	2	3	4	5
I can run a long way without stopping	1	2	3	4	5
I have more friends than most other kids	1	2	3	4	5
Overall if have a lot to be proud of	1	2	3	4	5
I'm better looking than most of my friends	1	2	3	4	5
I am a good athlete	1	2	3	4	5
I am popular with kids of my own age	1	2	3	4	5
I can't do anything right	1	2	3	4	5
I have nice features like nose and eyes and hair	1	2	3	4	5
I'm good at throwing a ball	1	2	3	4	5
I can do things as well as most other people	1	2	3	4	5
Most other kids like me	1	2	3	4	5
Other people think I am a good person	1	2	3	4	5
A lot of things about me are good	1	2	3	4	5
I'm as good as most other people	1	2	3	4	5
When I do something, I do it well	1	2	3	4	5

Appendix J. Social Anxiety Scale for Children Revised

Feelings Questionnaire

Use these numbers to show HOW MUCH YOU FEEL something is true for you:

	Not at all	Hardly ever	Some- times	Most of the time	All of the time
I worry about doing something new in front of other kids	1	2	3	4	5
I like to play with other kids	1	2	3	4	5
I worry about being teased	1	2	3	4	5
I feel shy around kids I don't know	1	2	3	4	5
I only talk to kids I know really well	1	2	3	4	5
I feel that other kids talk about me behind my back	1	2	3	4	5
I like to read	1	2	3	4	5
I worry about what other kids think of me	1	2	3	4	5
I'm afraid that others will not like me	1	2	3	4	5
I get nervous when I talk to kids I don't know well	1	2	3	4	5
I like to play sports	1	2	3	4	5
I worry about what others say about me	1	2	3	4	5
I get nervous when I meet new kids	1	2	3	4	5
I worry that other kids don't like me	1	2	3	4	5
I'm quiet when I'm with a group of kids	1	2	3	4	5
I like to do things by myself	1	2	3	4	5
I feel that other kids make fun of me	1	2	3	4	5
If I get into an argument with another kid, I worry that he or she will not like me	1	2	3	4	5
I'm afraid to invite other kids to do things with me because they might say no	1	2	3	4	5
I feel nervous when I'm around certain kids	1	2	3	4	5

I feel shy even with kids I know well	1	2	3	4	5
It's hard for me to ask other kids to do things with me	1	2	3	4	5

Appendix K. Loneliness and Social Dissatisfaction Scale

	Not True at All	Hardly ever True	Someti mes True	True Most of the Time	Always True
It's easy for me to make new friends at school.	1	2	3	4	5
I like to read.	1	2	3	4	5
I have nobody to talk to.*	1	2	3	4	5
I'm good at working with other children.	1	2	3	4	5
I watch T.V. a lot.	1	2	3	4	5
It's hard for me to make friends.*	1	2	3	4	5
I like school.	1	2	3	4	5
I have lots of friends.	1	2	3	4	5
I feel alone.*	1	2	3	4	5
I can find a friend when I need one.	1	2	3	4	5
I play sports a lot.	1	2	3	4	5
It's hard to get other kids to like me.*	1	2	3	4	5
I like science.	1	2	3	4	5
I don't have anyone to play with.*	1	2	3	4	5
I like music.	1	2	3	4	5
I get along with other kids.	1	2	3	4	5
I feel left out of things.*	1	2	3	4	5

There's nobody I can go to when I need help.*	1	2	3	4	5
I like to paint and draw.	1	2	3	4	5
I don't get along with other children.*	1	2	3	4	5
I'm lonely.*	1	2	3	4	5
I am well-liked by the kids in my class.	1	2	3	4	5
I like playing board games a lot.	1	2	3	4	5
I don't have any friends.*	1	2	3	4	5

* Indicates that item is reverse scored.

Appendix L. Feelings and Emotions (PANAS-C)

Feelings and Emotions (PANAS-C)

This scale consists of a number of words that describes different feelings and emotions. Read each item and then circle the appropriate answer next to that word. Indicate the extent you have felt this way during the past few weeks.

Feeling or emotion	Very slightly or not at all	A little	Moderately	Quite a bit	Extremely
Interested	1	2	3	4	5
Sad	1	2	3	4	5
Frightened	1	2	3	4	5
Alert	1	2	3	4	5
Excited	1	2	3	4	5
Ashamed	1	2	3	4	5
Upset	1	2	3	4	5
Happy	1	2	3	4	5
Strong	1	2	3	4	5
Nervous	1	2	3	4	5
Guilty	1	2	3	4	5
Energetic	1	2	3	4	5
Scared	1	2	3	4	5
Calm	1	2	3	4	5
Miserable	1	2	3	4	5
Jittery	1	2	3	4	5
Cheerful	1	2	3	4	5
Active	1	2	3	4	5
Proud	1	2	3	4	5
Afraid	1	2	3	4	5
Joyful	1	2	3	4	5
Lonely	1	2	3	4	5

Mad	1	2	3	4	5
Fearless	1	2	3	4	5
Disgusted	1	2	3	4	5
Delighted	1	2	3	4	5
Blue	1	2	3	4	5
Daring	1	2	3	4	5
Gloomy	1	2	3	4	5
Lively	1	2	3	4	5