

A Longitudinal Path Model of Children's Depression
and Externalising Problems as Outcomes of Behaviours, Peer
Rejection, and Peer-Related Attributions and Perceptions.

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Abstract

A model of social behaviours, peer rejection, social cognitions and psychosocial outcomes in children aged 9 to 12 was investigated. Two studies, including one pilot study (Study 1) and a longitudinal study with two waves and a 6-month lag between assessments (Study 2A and Study 2B), were conducted to examine the cross-sectional and longitudinal relationships pertaining to the antecedents and consequences of peer rejection as children approach adolescence. In Study 1, perceptions of relationships, peer-related attributions, and depressive symptoms were examined as consequences of peer rejection among 208 Grade 5 and 6 children aged 9 to 11 from one primary school. The findings from this study indicated that social cognitions play a partial mediating role linking peer rejection to depressive symptoms. The interaction between peer rejection and social cognitions did not contribute to the prediction of depressive symptoms, therefore a diathesis-stress model of depression was not supported. Study 2A and 2B were cross-sectional and longitudinal examinations of Study 1. A model of social behaviours, peer rejection, social cognitions and children's functioning was proposed and tested. In these studies, perceptions of relationships and perceived social acceptance were indicators of social cognitions. Participants were 334 Grade 5 to 7 children mostly aged 9 to 12, with 308 participants completing both assessments of the longitudinal study. Results of Study 2A provided further support for the mediating role of social cognitions between peer rejection and depressive symptoms. Positive associations between peer rejection, relational aggression and withdrawal, and a negative association between peer rejection and prosocial behaviour were also found. Significant associations of externalising behaviour with physical aggression and peer rejection were also found, suggesting separate pathways to depression and externalising behaviour via children's behaviours and peer rejection. In the longitudinal study, earlier relational aggression and withdrawal were associated with later peer rejection. No support for a longitudinal mediation effect for social cognitions in the peer rejection-depression relationship was observed, although a bidirectional association between social cognitions and depressive symptoms over

time was found. Gender differences and moderation were also tested, but few effects were found. It was concluded that children's cognitions regarding peer relationships and perceived social acceptance are important factors in understanding the pathways from peer difficulties to depression during late childhood. Furthermore, evidence was found for specific pathways linking children's social behaviours to depression and externalising behaviour. Implications for theory, research and practice are discussed, including the importance of considering the child's perceptions of their peer functioning as well as actual peer status, and the need for future research to examine social cognitive factors relevant to aggression as well as withdrawal. Possible directions for targeted interventions are also described.

Statement of Originality

This work has not previously been submitted for a degree or diploma in any university. To the best of my knowledge and belief, the thesis contains no material previously published or written by another person except where due reference is made in the thesis itself

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CHAPTER 1

The study of peer rejection in childhood has been of great interest in the developmental psychology literature, especially in the past 25 years. This interest is due to the significant impact of being excluded by peers to a child's social and emotional development. These research efforts have identified a wide range of negative consequences of peer rejection, including psychological difficulties, school problems, social interaction difficulties, and more serious conduct-related problems (Bierman, 2003). One major finding is the association between peer rejection and depression during childhood. Depression in childhood is considered to be especially debilitating due to the pervasive impact it has on a young person's development and functioning (Hammen & Rudolph, 2003). Researchers have also noted externalising problems as an additional consequence of peer rejection that persists into late childhood and early adolescence (Coie, Terry, Lenox, Lochman, & Hyman, 1995), highlighting the importance of continued research into the specific pathways that ensue from peer difficulties during childhood.

The fact that peer rejection has emerged as a broad indicator of psychopathology has prompted researchers to investigate both individual and environmental factors that increase the likelihood of a child being rejected by his/her peers, with the aim of circumventing these negative developmental trajectories. Regarding the individual factors that contribute to poor peer relationships during childhood, behavioural indicators such as aggression, withdrawal and a lack of prosocial behaviour have become points of interest in the last two decades. A number of studies have suggested that a combination of these factors increases a child's risk for peer rejection, and subsequently, the development of a range of internalising and externalising problems (Coie & Dodge, 1998; Crick & Grotpeter, 1995). Moreover, these behaviours provide a possible interceptive point for interventions aimed at preventing the pathway from peer rejection to later maladjustment.

Another area of focus within the peer rejection literature is the particular cognitive vulnerabilities associated with peer difficulties and negative outcomes

in childhood. Children who are rejected by their peers have been noted as more negative in their views of peer relationships and tend to blame peers for social failures (Crick & Ladd, 1993; Rudolph, Hammen, & Burge, 1995). These “social cognitions” have also been linked to increased depressive symptoms in some studies (Cole, Jacquez, & Maschman, 2001). However, few studies have tested the mediating role of social cognitions in the relationship between peer rejection and depression, highlighting this as an area in need of further investigation.

The current program of research studies was designed to test a developmental model of peer rejection and maladjustment during the important transitional period between childhood and adolescence. The current research extended on the literature to date by considering a number of social behaviours associated with peer rejection, as well as a number of social cognitions that mediate the path to depressive symptoms. Externalising problems was also included as an additional outcome of peer rejection due to recent research suggesting the diversity in the types of psychopathology that result from peer difficulties. These aims were achieved by conducting one pilot study (Study 1) and a 2-wave longitudinal study with a 6-month time lag between assessments (Study 2A and 2B). Participants were children mostly aged between 9 and 12 years. The purpose of Study 1 was to test initial hypotheses regarding the mediational role of social cognitions in the relationship between peer rejection and depression, and also the possibility of a moderating effect of social cognitions, before initiating the larger 2-wave study. Study 2A extended on Study 1 by also assessing children's social behaviours when interacting with peers in order to examine a comprehensive model linking social behaviours, peer rejection, social cognitions and depressive symptoms. Four social behaviours were assessed, including physical aggression, relational aggression, withdrawal, and prosocial behaviour. In addition, Study 2A also included some of the social cognitions found to mediate the peer rejection-depression relationship in Study 1, and extended the measurement of social cognitions. Study 2B extended on Study 2A by examining the temporal ordering of the relationships found in Study 2A, and

also examined transactional processes among variables to test the possibility of bidirectional associations. Gender effects in some of the hypothesised associations were also tested, based on recent research suggesting the importance of investigating the possibility of gender differences in the factors that affect girls' and boys' peer relationships.

The following literature review will first discuss the theories guiding the current research. The current research largely draws on the developmental psychopathology perspective, in particular how individual patterns and environmental factors interact in the development of childhood disorders (Cicchetti & Toth, 1998). The current research studies were also based on theories emphasising the importance of self-concept for children's psychosocial functioning. Harter's theoretical work (Harter, 1983) on self-concept draws on classic theories within the symbolic interactionist perspective (Cooley, 1902; Mead, 1934) in explaining the importance of feeling accepted by same-age peers in shaping children's feelings of self-worth and competence. Furthermore, sociometer theory (Baumeister & Leary, 1995; Leary, Tambor, Terdal, & Downs, 1999) highlights the importance of belonging when attempting to understand negative functioning, such as low self-esteem and depression.

A review of the peer rejection literature to date will follow, highlighting depression as one major outcome of peer rejection. Externalising problems will also be considered as another important outcome of peer rejection worthy of continued investigation. Recent research suggesting an association between children's social cognitions (e.g., perceptions of their peer relationships and social acceptance), peer rejection and depression will also be presented. The social behaviours predictive of peer rejection in children will then be reviewed. Finally, gender differences in the associations among social behaviours, peer difficulties and psychosocial outcomes will be considered.

The Importance of Peer Relationships During Childhood

Classic social and developmental theorists (Piaget, 1932; Sullivan, 1953) have discussed the importance of the peer group environment as a setting whereby

children develop the necessary skills for interpersonal relationships, such as perspective-taking, mutual respect, co-operation and interpersonal sensitivity. Peer groups and friendships provide a context for social, emotional and cognitive development (Newcomb & Bagwell, 1996), as well as promoting feelings of trust, acceptance, and a sense of being understood (Erdley, Nangle, Newman, & Carpenter, 2001). Indeed, recent research has supported the notion that having close, high-quality friendships during preadolescence increases children's success in the broader peer context, both concurrently and over time (Berndt, 2004). Asher and Parker (1989) summarised seven important functions that friendships play during middle/late childhood and early adolescence, including 1) fostering the growth of social competence, 2) serving as sources of ego support and self-validation, 3) providing emotional security in novel or potentially threatening situations, 4) serving as sources of intimacy and affection, 5) providing guidance and assistance, 6) providing a sense of reliable alliance, and 7) providing companionship and stimulation.

Contemporary research has shown that, from middle childhood, young people increasingly turn to their peers rather than parents for support, intimacy, and companionship, and relationships with others about their same age ('peers') become increasingly important for their social development and functioning (Berndt, 1996, 2004; Hartup, 1989). The period of late childhood and beginning of adolescence (about age 8 to 12) is a time when peer relationships accelerate in importance and develop into sources of support (Bagwell, Schmidt, Newcomb, & Bukowski, 2001). In addition to providing sources of social development and support, peers also become sources of self-validation and comparison (Hartup, 1989; Hodges, Boivin, Vitaro, & Bukowski, 1999). Peer relationships become important in terms of children's psychological functioning, because of the potential for peers to shape self-conceptions and self-worth. In multiple studies, the peer environment has been shown to influence children's perceptions and feelings about the self, as well as having important implications for a child's

concurrent and future emotional health (Bagwell et al., 2001; Boivin, Hymel, & Bukowski, 1995; Coie et al., 1995; Hoza, Molina, Bukowski, & Sippola, 1995).

Research findings have been particularly striking in studies of problems with peer relationships and mental health. Many children have negative experiences with peers, and, for those children with significant problems in peer relationships, mental health may suffer in the short or long-term (Parker, Rubin, Price, & DeRosier, 1995). For example, peer rejection is believed to interfere with the achievement of normal developmental tasks that are acquired in the context of peer relationships, including the formation of a positive view of the self and the development of emotion regulation (Rudolph et al., 2000). These experiences have also been shown to place them at greater risk for social and emotional maladjustment during childhood and later in life (Parker & Asher, 1987; Parker et al.). These difficulties can be a result of direct victimization by peers, such as bullying (Boivin et al., 1995; Crick & Bigbee, 1998), but may also be due to a more general dislike by peers, such as peer rejection, that involves a feeling of lack of belonging and inclusion or a lack of positive relational experiences that may assist with healthy adaptation (Bagwell et al., 2001). Indeed, poor peer relationships in youth have been noted as the best predictor of adult psychological disorder (Sroufe & Rutter, 1984).

Theoretical Background

In the present study, theories including the developmental psychopathology perspective, self-concept theory and sociometer theory have provided a framework in the following areas: a) the selection of the age group for study, b) the focus on individual behaviours of children that lead to stressful experiences such as peer rejection, c) the importance of social cognitions because of increasing cognitive sophistication in late childhood and at the transition to adolescence, d) the focus on depression and externalising behaviour as important psychosocial outcomes related to peer problems at this time of life, and e) consideration of gender differences in the pathways to maladjustment. These theories will now be discussed.

The developmental psychopathology perspective. The developmental psychopathology perspective provides one important framework for the current research. The factors contributing to a child becoming rejected by his/her peers and ultimately leading to depression can be understood from this perspective. This framework provides explanations regarding the “origins and course of individual patterns of behavioral maladaptation” across the lifespan (Sroufe & Rutter, 1984, p.18). Three important assumptions of the developmental psychopathology perspective in informing the current research are: 1) the interaction of the individual behaviours and characteristics with environmental experiences, 2) the importance of both normal and abnormal development in informing the study of risk and psychopathology, and 3) when certain normative cognitive, social and biological changes become most important to future functioning (Cicchetti & Toth, 1995).

First, the developmental psychopathology perspective emphasises the interplay between people and their environment, whereby individuals shape and select their experiences, rather than serve as passive recipients of environmental forces (Rutter et al., 1997). Therefore, an understanding of the interaction between behaviour and environment over time allows research to predict those factors, and combinations of factors, present in early adaptation that place an individual at risk for later disorder (Rutter & Sroufe, 2000). For example, previous research has found that children who exhibited signs of early maladjustment such as antisocial behaviour were also more likely to experience school failure and poor peer relations, and more likely to report psychological disorder in adulthood (Bagwell et al., 2001; Parker & Asher, 1987). Related to this tenet is the supposition that multiple factors can lead to the same outcome (equifinality) and the same factor may result in numerous outcomes (multifinality), depending on the individual and the social context (Cicchetti & Toth, 1995). With regard to the current research, this approach suggests the importance of considering multiple risk factors in the development of depression in children, as well as multiple outcomes of peer rejection.

Second, consideration of both normal and abnormal functioning across the lifespan allows researchers to better understand the nature of pathology, which has been defined as any deviation from normal functioning (Cicchetti & Cohen, 1995). A thorough understanding of the diversity in normal development will allow researchers and clinicians to determine when deviations from normal development occur, and to identify the pathways to adaptation and maladaptation in at-risk individuals. Therefore, the current research included a normative sample of preadolescents to examine deviations from age-appropriate social behaviour and normative levels of depressive symptoms and externalising behaviour.

Third, the developmental psychopathology perspective also assumes that occurrences and insults to the individual have varying effects on development depending on the timing of the event. Individuals are faced with developmental challenges throughout the lifespan, and failure to develop competence in certain stage-salient areas is likely to result in later incompetence (Cicchetti & Cohen, 1995). The authors noted that prior adaptation strongly influences subsequent adaptation, whereby the longer an individual continues along a maladaptive pathway, the more challenging it becomes to return to normal patterns of development. This suggests the importance of early detection of risk factors in children heading towards psychopathology. By examining psychological functioning in middle and late childhood from a developmental psychopathology perspective, research can shed light on normative and non-normative development within the stage-salient issues of this time period (Cicchetti & Cohen, 1995). In the current studies, the stage-salient developmental tasks particular to middle childhood include social understanding, gender constancy, same-gender friendships, competency and school adjustment (Sroufe & Rutter, 1984).

The development and importance of self-concept. In the current studies, theories of the development of children's self-conceptions were also drawn upon to guide the investigation of children's perceived competencies within the interpersonal domain. The interpersonal domain of peer relationships is considered especially salient for emotional development during the preadolescent

stage (Harter, 1999). Self-concept has been defined as a person's sense of adequacy in various domains of functioning, as well as evaluations of global characteristics of the individual (Harter, 1999). In most theoretical perspectives, self-concept is formed through experience with and interpretations of one's environment (Shavelson, Hubner, & Stanton, 1976). For example, based on the symbolic interactionist perspective (Cooley, 1902; Mead, 1934), Harter (1999) proposed that early socialisation experiences with caregivers and others in the social world produce individual differences in the form of self-representations (e.g., favourable versus unfavourable evaluations of the self). Cooley (1902) defined the self as a social construct, and devised the term "looking glass self" whereby significant others are social mirrors into which the child gazes to form opinions of the self.

Whilst self-conceptions may develop or change throughout life, self-conceptions undergo significant developmental change during middle and late childhood. Harter and Whitesell (1996) reported that the transition period as children move into adolescence is marked by an increase in self-awareness, self-consciousness, social comparison, and preoccupation with one's self-image. Around seven to eight years of age, many children experience a cognitive shift from concrete to abstract thinking, and they begin to reflect on the self within their social environment in terms of their popularity, intelligence and appearance, increasingly comparing themselves to their same-age peers (Harter, 1996). Thus, evidence supports that the concept of global self-worth does not emerge before the age of eight (Marsh & Hattie, 1996). During this cognitive shift, children acquire the ability to form meta-theories about relationships between the self and others, such as the nature of the causal link between self-worth and depression (Harter, Stocker, & Robinson, 1996). This is possible because it is at this developmental stage that children are able to form both positive and negative evaluations of the self, using others for social comparison (Harter, 1999). These self and social cognitions take on even greater importance for older children, who are better able to view themselves in abstract psychological terms when compared to younger

children. For example, preadolescent children between Grades 2 and 5 (i.e., about age 7 to 11) have demonstrated an increase in differentiation of the various domains of competence, suggesting that global self-worth takes on greater meaning from middle childhood (Marsh, 1989).

As self-concept becomes more multidimensional and abstract with age, the conceptualisation of self-concept also becomes more organised and hierarchical. Many theories on self-concept place general self-concept at the apex of the hierarchy, and domain-specific components at lower levels of the hierarchy, which in turn are influenced by more situation-specific behaviours (Shavelson et al., 1976). The four broad domains of the self identified during childhood include academic, social, emotional, and physical, with clusters within these broad domains (e.g., peers and significant others fall under social self-concept). Perceived competence refers to one's perceptions of doing well or poorly in each domain. In measuring self-concept, global self-worth is considered independent to other domains, and taps the extent to which one generally likes the self as a person (Harter & Whitesell, 1996). Self-concept theory provided a theoretical framework for the current studies because children at this developmental stage are making comparisons of their own competence in a number of domains, including social competence. Because of the increased ability to make assessments of how they are doing in their peer relationships compared to classmates, it follows that children who are rejected by peers are increasingly at risk of integrating negative self-representations of one's social competence into their global feelings of self-worth. As stated earlier, acceptance within the peer group becomes an important developmental task in middle to late childhood (Bukowski, 2001), and some researches have highlighted the salience of interpersonally focussed self-schemas in relation to depression during early adolescence compared to achievement focussed self-schemas (Hammen & Goodman-Brown, 1990). Further, due to higher order cognitive functioning that develops during middle childhood, negative self-evaluations are more likely to be integrated into higher-order traits as opposed to behaviours, and are more resistant to conflicting feedback (Harter,

1999). Thus, children's evaluations of their social acceptance and their peers were considered important factors in the current research in terms of their contribution to a child's well-being.

Sociometer theory. Sociometer theory (Baumeister & Leary, 1995; Leary et al., 1999) was also a foundation theory for the current research. This theory provided the current research with a focus on a lack of belonging as an emotional experience that is an outcome of real or perceived problems in peer relationships. In sociometer theory, humans are believed to be motivated to seek inclusion and avoid exclusion from important social groups as a means of maintaining connectedness with others (Leary et al., 1999). When individuals experience a lack of social belonging through real, imagined or anticipated social rejection, negative affective states, such as depression and low self-esteem, emerge. Indeed, many emotional and behavioural problems have been linked to unfulfilled needs for self-esteem and acceptance (Leary et al., 1999). Peer rejection is one form of a lack of belonging that has been associated with depressive symptomatology and low self-esteem or self-worth during late childhood and early adolescence (Boivin, Poulin, & Vitaro, 1994; Harter & Whitesell, 1996). Hence, whilst peer rejection has been noted as an antecedent of psychological difficulties (e.g., depression and low self-esteem), it is believed that this association is mediated by one's perceptions of acceptance or rejection by others.

In sociometer theory, self-esteem is expected to act as a "sociometer", that is, a subjective marker that allows humans to monitor other peoples' reactions towards them so that they may avoid social exclusion. The sociometer is a system that scans the environment for cues that indicate rejection, disapproval or exclusion, alerts the individual to changes (especially decreases) in social acceptance, and motivates the individual to increase behaviours that will restore one's standing in the social group (Leary et al., 1999). Awareness of rejection by others leads to decreases in self-esteem, and subsequent negative internal feedback, such as depressive symptoms, when the individual is unable to regain inclusionary status. In the current studies, it was expected that children who experience rejection by

their peers would develop negative affective states, such as depression. However, for depression to emerge, children must first have an awareness of their lowered social status. Similar to theories of the development of self-concept (Harter, 1999), sociometer theory highlights the significance of social cognitions in relation to negative affect, that is, the importance of beliefs or cognitions regarding one's inclusionary status, perceived social acceptance and beliefs about the self and others within the peer domain.

Higher rates of psychopathology in rejected children provide evidence of the negative effects of deprivation of belongingness (Hamachek, 1992). In terms of emotional responses to decreases in belongingness, people who have experienced some form of social exclusion also tend to display increased depression and anxiety (Baumeister & Tice, 1990). Moreover, a feeling of belongingness or acceptance, rather than mere social contact, appears to be the key factor in determining positive affective states (Baumeister & Leary, 1995). Therefore, it follows that a rejected child is more at risk of negative affect, despite similar levels of social contact as their nonrejected peers. In contrast, research suggests that the formation of social bonds leads to increases in positive emotions, such as happiness and well-being (McAdams, 1985). In a review of the empirical studies in support of the need to belong, Baumeister and Leary (1995) reported evidence that being deprived of belongingness can lead to greater stress, because the individual has less access to supportive relationships that can enhance coping and provide a buffer against stress. Therefore, empirical evidence supports the notion that people are generally motivated to maintain social bonds as a means of maintaining positive affective states and avoiding negative ones.

Depression in Childhood

Depression was the primary focus of the current studies, because rates of depression increase between childhood and early adolescence, especially for girls. Depressive symptoms becomes increasingly prevalent between late childhood and early adolescence (around 10 to 11 years), at the time when children are developing more abstract cognitive skills (Harter, 1983, 1990) and increased

differentiation of self-concept (Marsh, 1989). During middle, late childhood and early adolescence (i.e., 8 to 12 years), depressive symptoms tend to occur in 10-20% of children, with Major Depressive Disorder (MDD) identified in approximately 0.4 – 2.5% of children (Birmaher et al., 1996). Depression in children tends to mirror the symptoms found in adult depression, except that irritability (i.e., externalising, disruptive behaviours) is a more common expression of distress in children as opposed to the more internalised, subjective suffering of depressed mood that occurs in adults (Hammen & Rudolph, 2003). In clinic samples, the mean age of first onset of major depression in children has been reported to occur around 11 years of age (Kovacs, Obrosky, Gatsonis, & Richards, 1997).

Causes and consequences of depression. A vast body of research in many disciplines has detailed the etiological factors associated with childhood depression, the negative long-term outcomes of depression, and the assessment and treatment of depression. Some of the negative consequences of untreated depression in childhood include ongoing sub-clinical symptoms of depression, impaired school performance, impairment in global functioning, early pregnancy and increased physical problems, increased rates of smoking, later risk of substance abuse, suicide attempts and ideation, and comorbid anxiety and disruptive disorders (Hammen & Rudolph, 2003; Kovacs, Krol, & Voti, 1994; Petersen et al., 1993). In addition, depression is associated with poor relationships with others (Hammen & Rudolph, 2003), highlighting the likelihood of bidirectional influences. With respect to the causes of depression, evidence has shown that family factors such as parental depression (Hammen, Burge, & Adrian, 1991), daily stress/life events (Compas, Grant, & Ey, 1994) and poor peer relationships (Rudolph, Hammen, & Burge, 1997) all play a role in the development of depression in children. Important for the current studies, a large body of research has also indicated a number of cognitive factors associated with increased depressive symptoms, including negative self-concept (Hammen, 1988; Hammen & Goodman-Brown, 1990), pessimistic attributional style (Panak &

Garber, 1992), low self-esteem (Renouf & Harter, 1990), and perceived lack of control and helplessness (Rudolph, Kurlakowsky, & Conley, 2001).

Understanding factors associated with childhood depression are important to guide childhood interventions, but may also improve later functioning for many individuals. Depressive and related symptoms in children are associated with increased likelihood of psychopathology later in life. Depressed children and adolescents have demonstrated a marked increased risk of major depression and suicidality when followed up 18 years later, compared to non-depressed psychiatric controls (Harrington et al., 1994). Recurrence of depression from adolescence to adulthood is estimated at 60% to 70%, suggesting continuity with adult depression (Birmaher et al., 1996). Large-scale epidemiological studies have demonstrated that depressive symptoms in childhood are a good, but non-specific, indicator of psychopathology in children (Harrington, Rutter, & Fombonne, 1996). For example, depressive mood in children is often accompanied by conduct and oppositional disorders, reading problems and underachievement, emotional disturbance, as well as anxiety and depressive disorders (Eaves et al., 1997). The increased risk of suicide in depressed youth also highlights the importance of early preventative efforts to minimise risk of depression (Birmaher et al., 1996). These findings underscore the importance of examining both individual and environmental factors which place a child at risk for depression, with the aim of circumventing these serious outcomes at the earliest interception point.

Gender differences in depression. Before the age of about 13, boys and girls have about equal rates of MDD. Girls outnumber boys at a ratio of 2:1 from around 13 years of age (Nolen-Hoeksema & Girgus, 1994; Petersen, Sarigiani, & Kennedy, 1991). This sex difference is comparable to the gender ratio found in adulthood (Birmaher et al., 1996; Nolen-Hoeksema & Girgus, 1994). A number of explanations for this gender difference have emerged, including biological changes associated with puberty (Petersen et al.), girls' increased focus on interpersonal relationships from early adolescence (Gore, Aseltine, & Colten,

1993), girls' greater susceptibility to interpersonal problems (Rudolph & Hammen, 1999), girls' more negative body image and lower self-esteem (Allgood-Merten, Lewinsohn, & Hops, 1990), and girls' tendency to use rumination as a coping method for stress (Nolen-Hoeksema, 1994). For example, in a clinical sample of preadolescents aged 8 to 12 and adolescents aged 13 to 18, girls were found to report more interpersonal stress than boys (Rudolph & Hammen, 1999). Additionally, adolescent girls reported more peer-related stress compared to preadolescent girls, who reported more family conflict. The authors speculated that the higher rates of depression in adolescent females are likely due to personality or behavioural characteristics that are present prior to adolescence.

Whilst a complete explanation for this gender difference in rates of depression is still forthcoming, there is a general consensus that depression increases in early adolescence, especially in girls (Cicchetti & Toth, 1998). Additionally, these changes differ somewhat between boys and girls, making it important to investigate the possibility of gender differences in the pathways to depression as children approach adolescence. This will allow for more accurate conceptualisations and treatment of depression in childhood and adolescence among both boys and girls.

Peer Rejection as a Determinant of Children's Functioning

Developmental researchers interested in the outcomes of children's peer relationships have researched a wide range of areas including dyadic relationships (Schneider, 2000), social competence (Levendosky, Okun, & Parker, 1995), loneliness (Erdley, Nangle, Carpenter, Newman, & Grover, 1999), enemies (Parker & Gamm, 2003), and out-of-school friendships (Kiesner, Poulin, & Nicotra, 2003). One major area of research into children's peer relations that has proliferated in the past 25 years is peer rejection, due to the widespread effects of being excluded from the peer group. Peer rejection usually refers to active dislike, avoidance, and exclusion by others, usually peers within the classroom setting (DeRosier & Thomas, 2003). Rejection is considered a distinct type of unpopularity in childhood – being actively disliked by others – with specific

negative outcomes associated with this status group and not with other status groups, such as children who are neither liked or disliked (i.e., neglected children; Asher, 1990; Coie, 1990). For example, Asher and Wheeler (1985) found rejected children to report more loneliness than neglected children, who did not differ from other peer status groups, highlighting the distinction of rejected status in terms of psychological risk.

Internalising symptoms has been identified as an outcome of peer rejection in childhood and adolescence. Internalising problems in childhood are an important area of study within the developmental literature, as they represent feelings of distress and dissatisfaction within the peer group (Asher & Wheeler, 1985), and can subsequently affect the quality of interactions with peers. Some of the internalising problems linked to peer rejection in middle to late childhood include loneliness and social dissatisfaction (Asher & Wheeler, 1985; Boivin et al., 1995), low self-esteem (Harter, 1982), and social anxiety and social avoidance (Crick & Ladd, 1993; Inderbitzen, Walters, & Bukowski, 1997).

In addition to internalising problems, a number of longitudinal studies have found rejected children to exhibit adjustment difficulties in adolescence and adulthood across a wide range of areas, including conduct problems, academic failure and school drop-out, compared to other peer status groups (Ollendick, Weist, Borden, & Greene, 1992; see Parker et al., 1995 for a review). Therefore, the study of peer relations during childhood deserves continued attention from research psychologists and clinicians, due to both the pervasive negative effects of poor peer relations on children's psychosocial adjustment, as well as the potential benefits of friendships to a young person's well-being.

The study of peer rejection has been significant to the understanding of children's functioning in several ways. First, there are well-documented negative adverse effects of rejection by peers, both concurrently and into adolescence and adulthood (Parker et al., 1995). Second, peer rejection in childhood is important due to the developmental significance of peer group inclusion during middle to late childhood, as children who experience long periods of rejection by peers miss

out on important opportunities for social-cognitive and social skills development only available through interactions with same-aged peers (Bukowski, 2001). For example, rejected boys were found to display social skills deficits and behavioural control problems that made it difficult for them to develop and maintain relationships with peers (Coie & Kupersmidt, 1983). Third, research into the behavioural patterns of rejected children allows for a better understanding of how individuals contribute to their lowered peer status and rejection, thus providing important directions for intervention. For example, short-term improvements in peer status have been documented in low accepted children following interventions aimed at increasing prosocial behaviour within the peer group (Bierman & Furman, 1984; Ladd, 1981). Thus, by focusing on rejected children as representative of a group who are failing in their peer relationships, researchers can identify the adaptive skills they may be lacking, paving the way for what is required to develop and maintain successful relationships with peers (Asher, 1990).

Depression and peer rejection. One important outcome associated with peer rejection in childhood is depression (e.g., Panak & Garber, 1992; Rudolph et al., 1997). These studies have found empirical support for both cognitive vulnerabilities and difficulties with peers as predictors of depression, suggesting that both negative thinking styles and poor relationships with peers are important in understating the pathways to maladjustment in childhood. Concurrent associations between peer rejection and children's global depressive symptoms have been reported in a number of studies (Altmann & Gotlib, 1988; Boivin et al., 1994; Hecht, Inderbitzen, Bukowski, 1998; Kennedy, Spence, & Hensley, 1989; Larson, Rafaelli, Richards, Ham & Jewell, 1990; Rudolph, Hammen, & Burge, 1994; Rudolph et al., 1997). For example, a study of 750 4th grade students found children who were socially rejected (according to self, teacher and peer reports) also reported more concurrent depressive symptoms (Cole, 1990). More convincing evidence can also be found in longitudinal studies that have shown associations between peer rejection and later depressive symptoms after

controlling for initial depressive symptoms (Kiesner, 2002; Panak & Garber, 1992). The majority of these studies have focussed on school samples of children aged 7 to 13, using peer or teacher reports of acceptance and self-reports of depressive symptoms. For example, one study of children aged 7 to 12 found children categorised as high on depressive symptoms (i.e., the top one-third of depression scores from the sample) were rated by their teachers as more rejected by their peers than children in the low-depression group (Rudolph et al., 1994).

Studies that have found a relationship between peer rejection and depression in childhood have been based on a variety of theories and offered a number of explanations for this relationship. Traditional stress exposure or stress-reaction theories posit that peer rejection is a chronic interpersonal stressor that is experienced as equally stressful as other life events such as physical abuse, rape, early loss of a parent and bullying (Dodge et al., 2003). Another theoretical orientation underlying some research is sociometer theory (Baumeister & Leary, 1995, Leary et al., 1999). For example, peer rejection is believed to be associated with depressed mood due to the lack of intimacy and companionship available to rejected children (Oldenburg & Kerns, 1997). Self-concept theory (Harter, 1983) has also informed much of this research. For example, children who are rejected by their peers inevitably miss out on opportunities for social involvement and the critical experiences necessary to acquire social competencies at this developmental stage (Boivin et al., 1995). In addition, they are also more likely to receive negative feedback about their social status and be the victims of negative treatment by their peers, thus influencing the development of low perceived social acceptance. Other studies have also suggested that peer rejection leads to the onset of depressive symptoms over time due to the decline in perceived social acceptance experienced by rejected children (Vernberg, 1990). Thus, having an awareness of one's social inadequacies is a possible mechanism explaining the link between peer rejection and depression. The possibility of mediating factors will be discussed in a later section, nonetheless research to date points to a consistent relationship between peer rejection and depression.

Externalising behaviours and peer rejection. In an extensive review of the literature at the time, Parker and Asher (1987) concluded that children who are poorly accepted by their peers are at increased risk of dropping out of school and juvenile and adult criminality. These findings suggest that being rejected by one's peers places children at risk of a range of later externalising problems, in addition to depression. Moreover, research suggests a high comorbidity between depression and conduct problems during middle childhood and early adolescence (Petersen et al., 1993; Quiggle, Garber, Panak, & Dodge, 1992). For example, Cole and Carpentieri (1990) reported a correlation between the two of .76 in normal 4th graders after accounting for shared method variance. Following Parker and Asher's (1987) review of longitudinal studies of peer rejection, more recent cross-sectional and longitudinal research studies have continued to provide supporting evidence that externalising problems are a consequence of peer rejection in children and adolescents. For example, Coie and colleagues (Coie, Lochman, Terry, & Hyman, 1992; Coie et al, 1995) examined changes in psychosocial functioning from early childhood to adolescence, and found peer rejection to be a strong predictor of adolescent disorder, including self, teacher and parent reports of externalising problems, after partialling out the effects of earlier aggression. Similar longitudinal results have been reported when children have been followed from early to late childhood (Hymel, Rubin, Rowden, & LeMare, 1990). Other studies have found parallel results when children have been followed from late childhood to adolescence (French, Conrad, & Turner, 1995; Laird, Jordan, Dodge, Pettit, & Bates, 2001). However, some of the studies following children as they enter adolescence have included boys but not girls (e.g., Bierman & Wargo, 1995; Lochman & Wayland, 1994), despite evidence to suggest that some preadolescent girls exhibit clinical levels of externalising behaviours (Zoccolilo, 1993).

The above studies underscore peer rejection as an important factor in concurrent and later externalising problems. However, some questions remain unanswered regarding whether peer rejection is merely incidental in children

manifesting problems of an externalising nature (i.e., peer rejection is simply one factor found to co-occur in externalising children), or whether this relationship is causal (i.e., the experience of being rejected by one's peers leads to increases in externalising behaviour). Regarding the specificity of the link between peer rejection and externalising behaviour, some research suggests peer rejection is a broadband risk factor for nonspecific negative outcomes (Kupersmidt & Coie, 1990; Kupersmidt & Patterson, 1991), whereas other research has found peer rejection at age 9 to predict externalising, but not internalising disorders of a clinical level at age 18 (Woodward & Fergusson, 1999). The authors noted that the relationship between earlier peer rejection and later externalising problems was largely explained by concurrent conduct problems, and suggested that the underlying continuities in rejected children's behavioural adjustment explains the link between early peer rejection and later adjustment problems, consistent with an incidental model as opposed to a causal model.

In sum, the negative outcomes of peer rejection, such as depression and externalising behaviour, are likely to be a culmination of both the rejected child's behaviour towards others (e.g., aggression and withdrawal) and subsequent negative treatment by others (e.g., exclusion, victimisation). Primarily, this research focussed on the developmental trajectories of depression in relation to peer rejection, based on the pervasive effects of depression on a young person's functioning. Nevertheless, it was essential that additional problem areas that could be consequences of peer rejection be investigated here to determine whether peer rejection is a specific predictor of depression, or an indicator of broader psychopathology (Rudolph et al., 1994). Therefore, externalising behaviour was also investigated in the current research studies to provide a more comprehensive understanding of the negative outcomes following from poor peer relationships.

Peer Stress and Social Cognitions

Whilst many researchers have reported both concurrent and longitudinal associations between peer rejection and depressive symptoms in childhood and adolescence (e.g., Boivin et al., 1994; Kiesner, 2002), more recent studies have

begun to examine the specific mechanisms that may partially or fully account for this relationship. Stress theories have emphasised a direct effect of peer rejection on depressive affect, whereas other researchers have suggested social cognitive factors may act as a mediator of this relationship. Social cognitions refer to the beliefs and schemas that individuals possess regarding their social worlds, particularly their relationships with others, their reasoning in social situations and views of one's own social behaviours (Bierman, 2003). Many types of social cognitions have been examined in studies of peer relationships and children's functioning. Empirical studies that have focussed on the impact of social cognitions on depressive symptoms in childhood and adolescence have examined social dissatisfaction (Boivin et al., 1995), rejection sensitivity (Downey, Lebolt, Rincon, & Freitas, 1998), perceived deficiencies in peers (Harter & Whitesell, 1996), peer-specific attributions (Crick & Ladd, 1993), beliefs regarding the importance of peer relationships (Prinstein & Aikins, 2004) and negative peer representations (Rudolph et al., 1997).

In general, social cognitions have been an important area of investigation for children's adaptive functioning. Most individuals tend to possess a self-protective bias in terms of holding a favourable view of their own social competence, and, in fact, an inflated self-concept is considered beneficial for social and emotional functioning (Harter, 1983). Children who hold positive views of relationships are more likely to effectively influence and act on their social worlds in adaptive ways, compared to children who are hostile in their approach with peers. Conversely, in cross-sectional studies of children, young people who were relatively less self-protective in their social cognitions (e.g., they tended to blame themselves for social failures) were more likely to display concurrent depressive symptoms (Boivin & Begin, 1989; Quiggle et al., 1992). Crick and Dodge (1994) highlighted the link between children's social adjustment and social cognitions, but noted the lack of research into what specific types of social cognitions are influenced by negative peer experiences.

Cognitive-Interpersonal Models of Depression

Given the strong evidence suggesting a combination of both negative peer experiences and cognitive vulnerability in understanding childhood depression, a recent integration of these factors has been proposed within a cognitive-interpersonal model (Gotlib & Hammen, 1992). This model recognises the interplay between socio-environmental factors and individual vulnerabilities on adjustment, whereby the experience of being rejected by one's peers influences the child's expectations of themselves and others within the peer context (Cillessen & Ferguson, 1989). Over time these expectations become entrenched and the child then carries them into new and current peer groups. In one study, evidence for this cognitive-interpersonal model of depression in children has been provided (Rudolph et al., 1997). In this study, it was found that both poor peer relationships and social cognitions, including negative cognitive representations of the self and the social world, were associated with children's depression. Indeed, there has also been evidence to suggest that interpersonal stress (e.g., peer rejection) is more strongly related to depression than uncontrollable life events (see Gotlib & Hammen, 1992), and that children's social cognitions appear to be more consistently linked to depression when matched with an interpersonal stressor (Rudolph et al., 2000). The researchers recommended further investigation of how social cognitions interact with peer problems to influence depressive symptoms, by examining both moderator and mediator models.

Perceived social acceptance. Many studies that have drawn from the cognitive-interpersonal model of depression have assessed social cognitions in the form of perceived social acceptance. This is largely based on Harter's (1983) theory suggesting that self-concept becomes increasingly stable between middle to late childhood across all domains (Cole et al., 2001). In fact, from middle childhood, perceived support from peers in the "public" domain (i.e., with classmates) has been found to be a stronger predictor of self-worth than support from close friends (Harter, 1990). Classmates seem to represent the "generalised other", whereby approval is perceived to be more accurate and objective than

support from close friends. Some studies have found cognitions relating to the interpersonal domain to be more strongly linked to depression in comparison to self-cognitions (e.g., Rudolph et al., 1997; Weisz, Rudolph, Granger, & Sweeney, 1992). Empirical evidence suggests that peer-salient domains of competence, such as social competence with peers, is more strongly related to depressive outcomes in youngsters when compared to parent-salient domains of competence, such as scholastic competence (Harter & Whitesell, 1996). This highlights the value of focussing on how children view themselves in the peer domain as an important determinant of psychosocial functioning.

Conceptions of relationships. Negative representations of self and others within an interpersonal context are other forms of social cognition that have been linked to depressive symptoms in children (Rudolph et al., 1997). Conceptions of relationships are cognitive representations of the self and significant others that contain generalised expectations and assumptions that influence how individuals process information in a social context (Rudolph & Clark, 2001). Conceptions of relationships are believed to develop within early attachment relationships, when the young child forms internal representations of significant others (Bowlby, 1969, 1973). This “internal working model” is carried into childhood, influencing the child’s beliefs about relationships with significant others, including peers (Cicchetti & Toth, 1998). Attachment theory posits that individuals who are exposed to adverse child rearing practices are more likely to develop negative biases in their conceptions of relationships, which endure into childhood and even adulthood (Bowlby, 1969). Thus, for example, in children who have developed insecure attachment styles in the context of lowered emotional availability of the primary caregiver, the experience of peer rejection during the important developmental stage of preadolescence may serve to reinforce these negative conceptions of relationships. Research examining the effects of negative conceptions of relationships has shown that children who are more negative in their perceptions of peer relationships also concurrently display elevated levels of depressive symptoms (Altmann & Gotlib, 1988; Blechman, McEnroe, Carella, &

Audette, 1986; Rudolph et al., 1997; Rudolph & Clark, 2001). However, it remains unclear whether negative conceptions of relationships lead to increases in depressive symptoms over time, and if these conceptions act as a mediator in the relationship between peer rejection and depression.

Diathesis-stress models of depression. Moderator models, or diathesis-stress models, have pointed to cognitive factors as interacting with stressful experiences to predict depression. For example, using a prospective research design, studies have demonstrated that negative attributional style interacts with negative life events to predict changes in preadolescent depressive symptoms (Abela, 2001; Conley, Haines, Hilt, & Metalsky, 2001; Dixon & Ahrens, 1992; Hilsman & Garber, 1995). However, other studies have failed to support the moderating role of social cognitions. In a longitudinal study of an at-risk sample of youth aged 8 to 16, attributional style did not moderate the association between life events and depressive symptoms (Hammen, Adrian, & Hiroto, 1988), suggesting that this model may be more applicable to normal populations. Similar non-significant results have also been reported in an Australian sample of adolescents aged 12 to 14 years, where attributional style did not interact with negative events to predict depression over a 1-year period, although negative problem-solving orientation was a significant moderator of this relationship (Spence, Sheffield, & Donovan, 2002). One important point to note of the above studies investigating the diathesis-stress model of depression with significant findings is that global measures of attributional style are often used as the diathesis, and negative life events are conceptualised as the stressor. For example, pessimistic attributional style was found to interact with peer rejection in preadolescent children to predict changes in depression over a 1-year period (Panak & Garber, 1992). However, it remains unclear whether the diathesis-stress model is also a useful framework when applied to the chronic stressful experience of peer rejection and social cognitions.

Attributions about success and failure in the peer domain. Attributions about failure or stressful events have been a focus of many studies of stress and

depression (e.g., Hilsman & Garber, 1995). This area of investigation largely stems from the reformulated learned helplessness theory (Abramson, Seligman, & Teasdale, 1978), which posits that people who habitually explain negative events (i.e., stressors) with internal, global and stable causes are more vulnerable to depression when they encounter stressful events. An example of an internal, stable, global attribution for a negative event such as not being invited to a party would be to criticise one's lack of social acceptance (internal), believing they would continue to be excluded from other parties in the future (stable) and generalise the negative event to failure in all areas of life (global). Conversely, an external, unstable, and specific attribution for the same negative event would be to blame the child hosting the party for being too selective (external), believing they would be invited to other parties in the future (unstable) and to attribute this event only to this one occasion or child (specific). The latter type of attribution is one typical of more optimistic children who are less likely to develop depressive symptoms in the face of adversity (Abramson et al.).

When examining the specific types of attributions related to depression, research has highlighted the importance of measuring attributions within particular domains of functioning, because contextual factors appear to influence the type of attributions made for various events. That is, attributions within the social domain relate to the explanations given for social failure or social success (Dorsch & Keane, 1994). For example, an earlier study found children with low peer status to make more internal attributions for social failures (i.e., blaming the self), as well as more external attributions (i.e., blaming others) for social success (Ames, Ames, & Garrison, 1977). Empirical evidence suggests that these peer-specific attributions moderate the relationship between interpersonal stress and maladjustment (e.g., Crick & Ladd, 1993; Graham & Juvonen, 1998; Panak & Garber, 1992). These results suggest that negative attributions in the peer domain may be a vulnerability factor for depression when paired with interpersonal stress. Crick and Ladd (1993) emphasised that subjective measures of "how things are going for them socially", such as children's attributions for social success and

failure, are equally important as more objective measures of peer stress, such as peer ratings of acceptance.

Other recent research has also found attributional style to moderate the effects of peer rejection on depressive symptoms in adolescents (Prinstein & Aikins, 2004). Specifically, adolescents with a negative global attributional style who were rejected by their peers were more likely to display increased depressive symptoms 17 months later. However, the authors noted that it remains unclear whether young people with a pessimistic attributional style differ from those with specific peer-related cognitive vulnerabilities in the face of peer rejection. They recommended that future studies examine whether adolescents who make negative attributions for stressful peer experiences are also at risk of developing depressive symptoms. Thus, whilst the relative contribution of peer-specific attributions to depression remains unclear, research to date suggests the importance of examining these possibilities further, especially in a preadolescent sample and in the peer domain.

Social cognitions as mediator and/or moderator. There has been some suggestion that mediational models rather than moderator models are better suited to explaining depression in childhood because children are yet to develop stable cognitive patterns that are necessary to constitute a "diathesis" (Cole & Turner, 1993). There is some evidence for this proposition. Cole and Turner (1993) reported that, whereby negative cognitions (i.e., attributional style and cognitive errors) were found to partially and fully mediate the relationship between peer evaluations of competence and negative life events in the prediction of depression, there was no support for a moderator effect of negative cognitions. Similar support for a mediational rather than a moderator effect of various cognitive factors on depression has been reported in other recent studies of children and adolescents (Rudolph et al., 2001; Tram & Cole, 2000). For example, Panak and Garber (1992) found that perceptions of peer relationships in Grade 3 to 5 students mediated the relationship between initial peer rejection and depression one year later. Whilst a large number of studies have now examined the mediator

hypothesis in relation to cognitive vulnerabilities, Tram and Cole (2000) highlighted the lack of research examining an important criterion of mediation: whether the effect of stressful events (i.e., peer rejection) on depression is diminished after the mediator (i.e., social cognitions) is included. Nonetheless, there appears to be growing support for the mediational role of social cognitions in the association between stressful events and depressive symptoms. The current studies extended on research to date by examining a number of social cognitions as mediators of the relationship between an interpersonal stressor (i.e., peer rejection) and depression in both cross-sectional and longitudinal analyses.

Peer Rejection and Social Behaviours

Based on the importance of understanding what type of child is most at risk of being rejected by their peers, research has also focussed on the factors that contribute to peer rejection. These factors can be conceptualised as either extra-peer group correlates (i.e., pre-existing characteristics that the child brings with him to the peer group, such as physical appearance), or intra-peer group correlates (i.e., the child's own social behaviour within the peer group; Cillessen & Ferguson, 1989). Since the 1980's, evidence has been accumulating for a number of extra- and intra-peer group correlates associated with peer rejection, such as child maltreatment (Bolger & Patterson, 2001), snobbishness, bragging and unattractiveness (Coie, Dodge, & Coppotelli, 1982), and the presence of physical or mental impairments (Hartup, 1983). A vast majority of research into intra-peer group correlates has also focussed on children's social behaviours, such as aggression, withdrawal and prosocial behaviour. The findings have largely indicated that children who are aggressive, violate rules, and are hyperactive and disruptive are more likely to be rejected. On the other hand, children who are helpful, considerate of others, follow the rules for peer interaction and are actively engaged in positive peer interaction are more likely to be accepted among peers (Cillessen & Ferguson, 1989). Moreover, negative social behaviours are factors related to peer rejection that the child contributes, which is reflected in the developmental psychopathology perspective emphasising that children actively

participate in their environments to shape their social experiences (Rutter et al., 1997). It is important that research determines the specific types of social behaviours that are most strongly related to changes in peer status over time, as these behaviours can become the focus of interventions aimed at improving a child's functioning within the peer group (Foster, 1989). Therefore, this research sought to examine the social behaviours associated with peer rejection and subsequent maladjustment, in line with the developmental psychopathology perspective whereby children engage in behaviours that precipitate interpersonal stress, leading to subsequent negative psychosocial outcomes (Rutter et al.).

A number of studies have found that both aggressive and withdrawn children experience higher rates of peer rejection compared to controls (e.g., French, 1988, 1990; Hymel, Bowker, & Woody, 1993; Parkhurst & Asher, 1992; Pope, Bierman, & Mumma, 1991; Zimmer-Gembeck, Geiger, & Crick, in press). Moreover, one study reported that 100% of children who were both aggressive and withdrawn were also rejected by peers (Boivin et al., 1994), highlighting the robustness of children's behaviour in explaining peer rejection. However, Cillessen and Mayeux (2004) recently highlighted the importance of investigating other behaviours above and beyond aggression and withdrawal in the understanding of peer rejection, as these behaviours alone do not fully explain why children are rejected. Another behaviour that has been linked to peer status is prosocial behaviour, with earlier studies examining the impact of prosocial behaviour on peer acceptance (e.g., Coie, Dodge, & Kupersmidt, 1990). However, other research suggests that low rates of prosocial behaviour are also predictive of peer rejection (Crick, 1996), highlighting another form of social behaviour worthy of further attention in the area of peer rejection.

Physical aggression. Following the proliferation of research into peer rejection in the early 1980's, physical aggression was often cited as the greatest single predictor of peer rejection in childhood (e.g., Coie et al., 1990). Since this period, a large body of evidence has shown a strong association between aggression and peer rejection during childhood and adolescence, especially among

boys (French, 1988, 1990). This relationship has been demonstrated using cross-sectional designs (e.g., Coie et al., 1982; Dumas, Blechman & Prinz, 1994) and longitudinal designs (e.g., Little & Garber, 1995) with naturally occurring groups of school children. Studies with longitudinal designs have provided the best evidence for the influence of aggression in predicting peer rejection whereby temporal ordering of variables can be established and changes over time can be examined. Such research studies have demonstrated the negative influence of children's aggressive behaviours on later rejection by same-age school peers (Bierman & Wargo, 1995; Bukowski & Newcomb, 1984; Coie & Kupersmidt, 1983; Dodge, 1983; Little & Garber, 1995; Panak & Garber, 1992; Schwartz, McFayden-Ketchum, Dodge, Pettit, & Bates, 1999).

Overt aggression in children has been noted as a relatively stable behavioural characteristic throughout childhood and adolescence (Moskowitz, Schwartzman, & Ledingham, 1985). In late childhood and adolescence, it is often accompanied by other adverse behavioural features, such as drug and alcohol use, cigarette smoking, poor school adjustment and drop-out, and delinquency (Coie et al., 1992; Kupersmidt & Coie, 1990; Tremblay et al., 1992). This vast array of negative outcomes, in addition to rejection by peers, highlights the implications of aggression in childhood with regard to not only their peer status but also their global functioning. Furthermore, research examining the link between aggression and peer rejection has reported high rates of comorbid depressive symptoms (Cole & Carpentieri, 1990). Therefore, further research that examines the specific pathways linking childhood aggression with peer rejection and psychosocial outcomes, including externalising problems and depression, are needed.

Although aggression and peer rejection are considered to be largely overlapping phenomena, and probably have a bidirectional influence, there are often many aggressive children who are not rejected by their peers, and many rejected children who are not aggressive (French, 1988). Moreover, other studies have reported some aggressive children who are not rejected by their peers (Bierman & Wargo, 1995), and rejected children who gain social status by using

aggressive behaviour (Sandstrom & Coie, 1999). These findings suggest either a) social behaviours other than aggression also predict rejected status in children, b) methodological issues in the measurement of aggression, or c) certain circumstances where aggression does not result in increased rejection by peers.

The majority of studies in this area have focussed on overt forms of aggressive behaviours, considered more salient for boys than for girls (Zoccolillo, 1993). For example, when measuring aggression, children are asked to nominate peers who "start fights" (e.g., Hymel et al., 1990; Panak & Garber, 1992). This methodology is limiting in that girls are typically rated as non-aggressive; this has been noted as a significant issue in need of further investigation (Crick & Grotpeter, 1995). Indeed, a number of studies have reported higher levels of overt aggression in boys compared to girls (Coie & Dodge, 1998; Henington, Hughes, Cavell, & Thompson, 1998; Osterman et al., 1998). Similar findings have been reported in an observational study of children aged 7 to 11 whereby boys demonstrated significantly higher rates of physically aggressive acts than females (Tapper & Boulton, 2004). However, over the past 10 years, an increasing number of studies have recognised the importance of considering other forms of aggression when examining links to peer rejection. Recent efforts in this area have identified a form of aggression that is more common in girls than physical aggression, namely relational aggression.

Relational aggression. Relational aggression has recently emerged as a predictor of peer difficulties in girls. Relational aggression involves harming others through manipulation or damage to their peer relationships for the purpose of controlling the behaviour of others, such as using social exclusion, gossip or threat of withdrawal of affiliation (Crick & Grotpeter, 1995). Other terms used to describe similar forms of aggression include "indirect" aggression (Lagerspetz & Bjorkqvist, 1994) and "social" aggression (Paquette & Underwood, 1999). All describe somewhat overlapping or related constructs involving manipulation of peer relationships as the avenue of causing harm. Recent research has supported the distinction between physical and relational forms of aggression, finding a two-

factor structure of the two forms of aggression (Vaillancourt, Brendgen, Boivin, & Tremblay, 2003).

Relational aggression has been found to increase drastically around 11 years of age, especially in girls. Some researchers have suggested that in middle/late childhood and early adolescence, girls exhibit higher rates of relational aggression than boys exhibit (Crick, 1997; Crick & Grotpeter, 1995; Lagerspetz & Bjorkqvist, 1994; Osterman et al., 1998; Tapper & Boulton, 2000, 2004). These findings are especially apparent when using discrete categories of relationally aggressive children (i.e., 1 SD above mean). For example, in Crick and Grotpeter's cross-sectional study (1995), 17.4% of girls in 3rd through to 6th Grade were reported to be relationally aggressive using these criteria, compared to 2% of boys. Including a measure of relational aggression in this study was essential in the identification of aggressive girls, as the assessment of only physical aggression would have failed to identify over 80% of aggressive girls (i.e., they were relationally, but not physically aggressive). Rys and Bear (1997) reported that when the 1 standard deviation cut-off criteria was used to identify groups of relationally aggressive children, 95% of children categorised as relationally aggressive were girls. Yet no gender difference was found when comparing average relational aggression scores of boys and girls. One possible explanation for the gender difference in relational aggression is the earlier social maturation in girls that involves more sophisticated means of manipulating social contexts using more indirect forms of aggression (Lagerspetz & Bjorkqvist, 1994), however this argument has been challenged by more recent evidence suggesting that both boys and girls are consistent in the type of aggression they use over time, whether it be physical or relational (Vaillancourt et al., 2003). Although past researchers have provided reasons for girls' higher levels of relational aggression, support for the notion that relational aggression is more typical of girls than boys has been somewhat inconsistent. Some studies have reported a lack of gender differences in relational aggression, while others have found higher levels of relational aggression in boys (e.g., Henington et al., 1998; Rys & Bear, 1997; Tomada & Schneider, 1997). Nonetheless, it is clear that

research focussing solely on overt forms of aggression may be portraying an incomplete picture of the antecedents of social maladjustment in both boys and girls (Crick & Rose, 2000).

When relational aggression does occur it is likely to be more salient in girl's peer groups because it is likely to damage goals more highly valued by girls than boys, namely, the establishment of close intimate connections with others, in comparison to the more instrumental and dominance-oriented goals valued by boys (Block, 1983). There is evidence to suggest that relational aggression is perceived as hurtful by children and adolescents, but is especially seen as hurtful by girls (Crick, Bigbee, & Howes, 1996, Paquette & Underwood, 1999). Cross-sectional studies have shown that both perpetrators and victims of relational aggression report serious psychosocial adjustment problems such as peer rejection, depression, anxiety, loneliness and impulsivity (Crick & Bigbee, 1998; Crick & Grotpeter, 1995). Whilst some of these studies reported negative outcomes for both boys and girls (e.g., Crick & Bigbee, 1998), other studies found significant negative outcomes for girls only (e.g., Crick & Grotpeter, 1995; Paquette & Underwood, 1999). These findings are consistent with the developmental psychopathology perspective insofar as the developing identity of girls entering adolescence is considered more dependent on relationships than boys, and girls' sex-role socialisation emphasises mastery of relationships more so than boys (Hill & Lynch, 1983).

Based on evidence suggesting that relational aggression is perceived as harmful by all children (Crick et al., 1996), it seems reasonable that children who display such behaviours may be rejected by their peers in the same manner as children who are physically aggressive. This has been demonstrated by research finding higher rates of peer rejection in children who are relationally aggressive (Crick & Grotpeter, 1995; Tomada & Schneider, 1997). Crick (1996) provided the first evidence that relational aggression is predictive of peer rejection over time, above and beyond the effects of overt aggression, however this was found for girls but not boys. More recent research has documented a stronger association between

relational aggression and peer rejection in girls compared to boys (Kaplan, Cillessen, & LaFontana, 1999), yet other research has suggested higher rates of maladjustment in children who exhibit gender non-normative forms of aggression, that is, physical aggression in girls and relational aggression in boys (Crick 1997; Henington et al., 1998). However, findings suggest that the specific type of adjustment difficulties appear to be more strongly related to type of aggression used rather than gender, with higher levels of internalising and externalising problems in relationally aggressive children, and more externalising and self-restraint problems for overtly aggressive children (Crick, 1997). Further, teachers perceived children exhibiting both types of aggression to be more maladjusted compared to non-aggressive children, highlighting the negative consequences of both physical and relational aggression on psychosocial adjustment.

In sum, most evidence suggests that physical aggression is more common in boys, that relational aggression may be more common in girls of particular ages, and that both forms of aggression are associated with increased rejection by peers. Clearly, more research in this area is warranted, as the use of longitudinal studies to date suggest the likelihood and complexity of aggression-rejection-adjustment pathways. The present study will include relational aggression as a predictor of peer rejection, to add to the well-established link between physical aggression and peer rejection in order to explore further the pathway from aggression to children's functioning via peer rejection.

Social withdrawal. In classic research prior to the 1980's, there was virtually no evidence to support the notion that social withdrawal in childhood is predictive of later maladjustment, with some researchers arguing that social withdrawal has no impact upon psychosocial adjustment in childhood (Kohlberg, LaCrosse, & Ricks, 1972; Michael, Morris, & Soroker, 1957; Robins, 1966). Primarily because of the research interests prior to the 1990's, most of the existing evidence indicated that children with low peer acceptance and aggressiveness were most likely to have continued problems into adulthood. There was less evidence to support associations between social withdrawal and later

maladjustment. However, methodological flaws have been noted in past research failing to find any negative effects of social withdrawal on later adjustment (Hymel et al., 1990). For example, some earlier studies (e.g., Achenbach & Edelbrock, 1981) predominantly examined externalising behaviours as an outcome measure, despite the fact that withdrawal has been conceptualised as more indicative of internalising disorder than externalising disorder (Rubin, Burgess, Kennedy, & Stewart, 2003). A growing body of literature over the past 25 years has highlighted that there can be long-term negative effects of social withdrawal in childhood. This research has largely stemmed from a normal developmental perspective, whereby social exchange and interaction is believed to be essential for normal growth and development (Piaget, 1970). According to this perspective, social and peer interaction allows for the development of social cognitions, which is the basis for adaptive social behaviour (Rubin & Asendorpf, 1993). Conversely, social withdrawal is considered a sign of abnormal development and may result in social deficits. Withdrawal is now often cited, along with aggression, as one behavioural disturbance in childhood (Parker & Asher, 1987).

Recent evidence has shown that social withdrawal during late childhood and early adolescence is problematic (Kagan, Gibbons, Johnson, Reznick, & Snidman, 1990; Rubin, 1993). Findings of The Waterloo Longitudinal Project (e.g., Hymel et al., 1990; Rubin, 1993; Rubin & Asendorpf, 1993; Rubin, Chen, & Hymel, 1993) support a strong link between children's withdrawn behaviours, peer rejection and subsequent internalising problems in late childhood and adolescence. Other social and individual deficits that accompany social withdrawal in childhood include being unassertive and unable to gain peer compliance, low perceptions of one's social competence and relationships, early school drop-out, low self-worth and loneliness (Rubin, 1993; Rubin, Chen, McDougall, Bowker, & McKinnon, 1995; Rubin & Mills, 1988; Rubin & Stewart, 1996).

Regarding the developmental course of social withdrawal, it does not appear to emerge as a consistent predictor of later internalising problems until middle to

late childhood (Hymel et al., 1990; Kupersmidt & Patterson, 1991). The association between withdrawal and internalising problems becomes more pronounced in the later years of childhood, as withdrawal becomes more non-normative with age and children begin to link it with maladjustment in peers (Boivin et al., 1994). This increased awareness of social withdrawal as non-normative may be due to more advanced processing of social information around 10 to 11 years of age, and by about Grade 4, children are sensitive to socially withdrawn behaviour and are better able to assess and react to this form of maladjustment (Younger, Gentile, & Burgess, 1993). These findings, along with the evidence to suggest that social withdrawal is moderately stable throughout childhood (Rubin, 1993), underscore the need for researchers to include social withdrawal in studies examining children's maladjustment from around middle childhood, based on developmental changes in children's increasing awareness of maladaptive behaviours.

Definitions of social withdrawal have encompassed a wide range of behaviours, including "social isolation", "inhibition" and "shyness" (Rubin & Asendorpf, 1993). Rubin and Stewart (1996) point out that social withdrawal refers to actively isolating oneself *from* the peer group, rather than inhibited responses to novel social situations. This differentiation of terms is important because research has suggested that shyness is not necessarily associated with peer rejection (Coie et al., 1982), although this type of behaviour is often included in measures of social withdrawal. These early findings highlighted the need to investigate the specific type of social withdrawal most strongly associated with negative mental health outcomes (Parker & Asher, 1987). Recent efforts into differentiating among types of socially withdrawn behaviour have resulted in the identification of two distinct types of social withdrawal in childhood: the inhibited/wary subtype and self-conscious/anxious subtype (Younger, Schneider, Wadeson, Guiguis, & Bergeron, 2000). The inhibited/wary subtype of social withdrawal involves an avoidance of others, and identifies children fearful of excessive intimacy who seek to escape social situations (Buss, 1986). On the other hand, the self-conscious/anxious subtype involves a heightened sensitivity to social evaluation by others. This type of

child both avoids and approaches social situations. When these discrete subtypes are considered, the evidence suggests that passive isolation, involving more fearful and avoidant behaviours, as opposed to shyness, is a form of social withdrawal more predictive of peer rejection (Bierman, 2003; Rubin & Mills, 1988).

A widely cited review by Parker and Asher (1987) also suggested that, whilst shyness or withdrawal does not appear to be predictive of later adjustment, follow-back studies have found a high incidence of shyness in individuals with later adjustment problems. This is more likely to suggest that adults at increased risk of developing a disorder went through an earlier period of shyness or withdrawal (Coie et al., 1992). Hence, withdrawal alone may not necessarily be a risk factor for later adjustment problems, but it may become a risk factor only when considered along with other factors such as aggression (Kupersmidt & Patterson, 1991). Other research has found that the combination of peer rejection and withdrawal is a greater risk factor for depression when compared to withdrawal alone (Boivin et al., 1994). This hypothesis has been supported by earlier research demonstrating a greater incidence of mental health problems in children who displayed both social withdrawal and aggression, compared to purely withdrawn children or children who were neither withdrawn or aggressive (Ledingham & Schwartzman, 1984). Further research is needed in this area, to examine the relationship between inhibited/wary types of social withdrawal, peer rejection and subsequent negative outcomes such as depression. The current studies examined the influence of withdrawal on peer rejection simultaneously with other social behaviours, as well as considering the pathway to subsequent depression by examining its impact on peer-related perceptions.

Prosocial behaviour. Whilst increased levels of negative behaviours appear to be predictive of peer rejection in childhood, increased use of prosocial behaviour has also been linked to being liked and having friends during childhood (Coie et al., 1990). Prosocial behaviour has been defined as the demonstration of helpful and cooperative behaviours within the peer group. It includes the display of positive behaviours such as good communication skills, emotion regulation,

social awareness and sensitivity (Bierman, 2003). For example, well-liked children are more skilled at starting conversations, have appropriate self-disclosure, and use turn-taking and listening skills with peers, whereas less accepted children tend to lack these skills (Gottman, 1983). In terms of emotion regulation, children who are seen as more moody, sulky or glum find it more difficult to gain acceptance by their peers than children who are easy-going and affable (Coie et al., 1990). Being agreeable and complying with the suggestions of others is also linked to greater acceptance by peers, compared to children who are rigid in their interactions with peers (Elliott & Gresham, 1993). Well-liked children are also more socially aware, having knowledge of appropriate “play etiquette” and conforming to social expectations, whereas children who exhibit less prosocial behaviour are more intrusive in their approaches to social situations and fail to recognise the impact of their negative behaviours on others (Wentzel & Erdley, 1993).

Cooperation is a necessary part of children's peer relationships, influencing their ability to attract and maintain friendships (Hartup, 1989). From middle childhood, acceptance and rejection by peers is less influenced by shared common activities and interests, and more influenced by the character of the child, such as kindness, politeness and sharing (Townsend, 1992). Peer rejection appears to become more closely linked to the child's interpersonal qualities around the age of seven to eight years, such as excluding others, immaturity and nastiness (Rogosch & Newcomb, 1989). Cross-sectional studies have reported an association between prosocial behaviour and acceptance in middle to late childhood (Crick & Grotpeter, 1995; Wentzel & Erdley, 1993), however it remains unclear whether decreased prosocial behaviour predicts increases in peer rejection over time in the late childhood years included in the current studies.

Children who exhibit decreased levels of prosocial behaviour may be at risk of peer rejection, especially when paired with other negative social behaviours. For example, Rys and Bear (1997) found that by the 6th grade, prosocial behaviour was uniquely and negatively associated with peer rejection after accounting for both

overt and relational forms of aggression. Similar findings have been reported in an Italian sample of 8 to 10 year olds, where rejected children were rated by their peers as less prosocial compared to most other peer status groups at two time periods within the same school year (Tomada & Schneider, 1997). A 6-month longitudinal study of children's social behaviours and social adjustment also found that decreased prosocial behaviour in both boys and girls aged 9 to 12 provided a unique contribution to the prediction of peer rejection (Crick, 1996); similar results were reported by Zimmer-Gembeck et al. (in press) in a 3-year longitudinal study assessing children in Grade 3 and three years later. In a study of children in Grades 3, 5 and 8, rejected children were perceived by their peers as exhibiting less cooperative and supportive behaviour compared to other peer status groups (Coie et al., 1982). These studies suggest that prosocial behaviour is positively associated with acceptance by peers, and the reverse is also true whereby decreased prosocial behaviour is a risk factor for peer rejection. Crick (1996) recommended including measures of prosocial behaviour in studies examining children's social adjustment, based on the findings that low levels of positive skilful behaviour may exacerbate the negative effects of aversive behaviours such as aggression and withdrawal.

Differences in the behavioural subgroups of rejected children. As has been foreshadowed in the previous sections, rejected children do not constitute a homogenous group, but are often differentiated based on the two types of social behaviour most consistently linked with peer rejection, that is, overt aggression and withdrawal (Hecht et al., 1998; Parker & Asher, 1987). Evidence suggests that aggressive and withdrawn children are rejected for different reasons. For example, aggressive children have been found to display less effective and more disruptive communication skills (e.g., less appropriate questioning and showing interest) compared to their non-aggressive peers (Dumas et al., 1994). In contrast, socially withdrawn children may be rejected because they are perceived as anxious, and thus are disliked by their peers (Ollendick, Greene, Weist, & Oswald, 1990). Therefore, aggressive children appear to be rejected as a result of inappropriate social interactions, whereas socially withdrawn children appear to

be rejected as a result of their solitary play and behavioural reticence (Rubin, LeMare, & Lollis, 1990). As a consequence, socially withdrawn children have less opportunity to master the skills necessary for "survival" in the peer group (Rubin & Stewart, 1996), hence leading to a cycle of rejection.

Recognition of these subgroups yields important information regarding the potential causes and consequences of peer rejection, as there appears to be two separate developmental pathways to peer rejection in childhood (Rubin et al., 1990). Rubin et al. proposed that social withdrawal in early to middle childhood would lead to peer rejection by late childhood, resulting in subsequent internalising problems. Alternatively, aggressive behaviour in early to middle childhood was proposed to lead to peer rejection and subsequent externalising problems by late childhood. These two pathways to peer rejection have been associated with differential long-term adjustment problems (Boivin et al., 1994). For example, withdrawn-rejected children have been found especially at risk for development of later internalising problems compared to their aggressive counterparts, who are more likely to experience later externalising problems (Coie et al., 1992; Rubin et al.).

Another area where withdrawn-rejected and aggressive-rejected children appear to differ is their perceptions of their social competence and social relationships. Research in this area has demonstrated evidence for the link between social withdrawal and low perceived social competence (Hymel et al., 1993; Rubin, 1993; Rubin & Mills, 1988; Rubin & Stewart, 1996; Rubin et al., 1995). For example, children who were socially withdrawn in Grades 2 and 5 had more negative social self-perceptions than other children (Hymel et al., 1990). In contrast, children who hold inflated views of their social acceptance are more likely to be rated as aggressive by their peers, both concurrently and in the future (David & Kistner, 2000; Hughes, Cavell, & Prasad-Gaur, 2001). Aggressive-rejected children appear to be less aware of their social difficulties compared to their withdrawn counterparts, resulting in less motivation to change and placing them at greater risk of later externalising problems. For example, aggressive-

rejected children, compared to withdrawn-rejected children, have been found to overestimate how much they are liked by peers (Zakriski & Coie, 1996), whereas withdrawn-aggressive children appear to be more negative, but accurate, perceivers of their low social acceptance (Hymel et al., 1993). The link between social withdrawal and associated beliefs of low social acceptance identifies a potentially important pathway from children's withdrawn behaviour to later maladjustment. Hymel et al. (1990) found a direct relationship between children's withdrawn behaviour in Grade 2 and perceptions of low social self-concept and feelings of loneliness in Grade 5, although the same links were not found for aggressive behaviour. Similar findings were reported in socially withdrawn children who were rejected by their peers, whereby they were more negative in their beliefs about their social competence than any other peer status subgroup (i.e., aggressive-rejected or average status children; Hymel et al., 1993).

Overall, aggressive-rejected children appear to maintain positive perceptions of their social competence, whereby withdrawn-rejected children hold more negative self-perceptions and report more social dissatisfaction (Boivin & Begin, 1989; French, 1988, 1990; Hecht et al., 1998; Hymel et al., 1993; Parkhurst & Asher, 1992). The finding that withdrawn children are more negative in their social self-perceptions is believed to be due to their tendency to make more internal and stable attributions about causes for their social failures (Rubin et al., 2003), in comparison to aggressive children who do not tend to blame themselves for their social failures. These findings outline another important link from children's withdrawn behaviour to their beliefs about their social functioning. In sum, recent findings suggest that earlier claims that withdrawal in childhood is not predictive of future adjustment problems seems to be unfounded, as it appears to be not only as a predictor of peer rejection, but is also associated with negative views of one's social acceptance and, ultimately, internalising problems including depression and low self-esteem.

Transactional Models

The developmental psychopathology perspective asserts that influences between individuals and their environments are transactional in nature, whereby individuals behave in ways that shape their environments according to their own individual predispositions (Rutter et al., 1997), and their environmental experiences impact their future behaviours. Research in the early 1990's highlighted the importance of considering bidirectional influences between peer rejection and adjustment (DeRosier, Kupersmidt, & Patterson, 1994). This transactional approach acknowledges that whilst individuals react to stress in their environment, they also behave in ways that maintain their social circumstances. Rudolph et al. (2000) highlighted differences in stress-reaction and stress-generation models of depression, acknowledging the transactional nature of interpersonal stress, maladaptive cognitions about the self and relationships, and depression. They found that depressed youngsters were more likely to report interpersonal stress (i.e., stress caused by behaviours that are dependent on the individual) compared to non-depressed youth. These results add strength to the argument that whilst young people are susceptible to increased negative psychosocial outcomes when rejected by their peers (i.e., a stress-reaction model), they also contribute to these negative cycles by maintaining behaviours or cognitions that create further isolation from the peer group, suggesting transactional processes between the individual and the environment.

In an attempt to better understand these processes, longitudinal studies have examined various causal pathways that exist between children's poor peer relationships, cognitive processes and psychological well-being. One example whereby transactional processes have been noted to occur is the finding that depression can precede peer rejection (e.g., Levendosky et al., 1995; Vernberg, 1990), in line with a stress-generation model (Rudolph et al., 2000). This direction of influence may be due to the mediating role of social cognitions in this relationship. For example, in a 3-wave longitudinal study spanning 12 months, depressed children aged 9 to 13 developed negative beliefs about the self and the

world over time, and these views, in turn, led to decreases in perceived social competence (Pomerantz & Rudolph, 2003). Therefore, it seems plausible that negative views of the self in the peer context may also result in increased peer rejection over time.

Another example highlighting the transactional nature of person-environment processes is the reciprocal influences among relational self-views, peer stress and social behaviour. This possibility was raised by Crick and Dodge (1994) in their Reformulated Social Information-Processing Model of Children's Social Adjustment. They suggested that children who hold negative views of their peers are likely to engage in behaviours that influence their low peer status. Empirical support for this has been demonstrated in recent research whereby young adolescents with negative views of themselves within the peer context were more likely to disengage from their social worlds, leading to increased peer stress over a 1-year period (Caldwell, Rudolph, Troop-Gordon, & Kim, 2004). However, the reverse was also true; experiences of peer stress led to social disengagement and subsequent negative relational cognitions over time, supporting both a stress-reaction model and a stress-generation model (Rudolph et al., 2000). Similar support for the transactional nature of peer rejection and negative social cognitions was found in a cross-sectional study of preadolescents, where negative representations of relationships had an indirect effect on depressive symptoms via the mediation of peer rejection (Rudolph et al., 1997). No direct effect from peer rejection to negative peer representations was found. Other research has linked children's knowledge of social skills and their level of social-cognitive reasoning about peer relations to peer status and social behaviour (Cillessen & Ferguson, 1989), highlighting the possibility that negative social cognitions may also precede certain behaviours that perpetuate a child's rejected status.

Other examples of bidirectional influences among peer-related constructs can be found in longitudinal studies demonstrating a causal link between early peer rejection and later aggression (e.g., Hymel et al., 1990; Lochman &

Wayland, 1994; Woodward & Fergusson, 1999). This link may be mediated by children's perceptions of their rejected status, as demonstrated in recent research whereby physically aggressive children who perceived they were rejected and blamed their peers for social failures tended to become more physically aggressive over the school year (Guerra, Asher, & DeRosier, 2004). Although this tendency was only found in males and not females, the researchers did not include changes in relational aggression over time, which may be one way that females respond when they perceive their peers are to blame for their social failures.

Thus, research to date has provided evidence of reciprocal relationships between negative behaviours, peer rejection and psychosocial outcomes, forming part of a negative cycle that perpetuates and maintains problems over time. The primary purpose of the current research was to examine the stress-reaction hypothesis whereby children's negative social behaviours leads to increased peer rejection, which is, in turn, related to increased negative social cognitions and subsequent maladjustment over time. However, the use of a longitudinal design allowed for the examination of alternative pathways, such as the transactional processes described here. The examination of a transactional model also was undertaken to inform the design of interventions aimed at reducing depressive affect in children that might otherwise focus solely on decreasing children's negative social behaviour or increasing their peer status.

Measurement of Peer Rejection and Social Behaviour

The most common method used to assess peer rejection and peer acceptance is sociometric nominations (Terry & Coie, 1991). This method most often involves asking children to nominate children in their class or school whom they like most and least. This technique yields measures of peer rejection and acceptance, as well as social preference scores, social impact scores, and a five-category measure of peer status. The categorical system places children into one of five groups, including popular children (i.e., those who are frequently liked by their classmate), average (children who receive an average number of like and dislike nominations from other classmates) and controversial children (children

who are frequently liked and disliked by their classmates; Coie et al., 1982). This differentiation of peer status group membership is important because rejected children as a group differ in their patterns of behaviour and thinking compared to neglected children, and are more at risk for developing a range of psychosocial problems in adolescence and adulthood in comparison to all other peer status groups (Parker & Asher, 1987).

Ratings scales are another method of determining sociometric status, where children are asked to rate each of their classmates on a continuous item usually consisting of 3, 5 or 7 response options (Asher & Dodge, 1986). Several scores can be computed from such a rating scale (Bukowski, Sippola, Hoza, & Newcomb, 2000). A mean of all classmate ratings for each child can be computed to form a continuous measure with peer dislike at one end of the continuum and peer like at the other end. This score invokes both concepts of like and dislike (Bukowski et al.). A second score can be computed by summing the number of times each child received the lowest possible rating (i.e., a 1) and standardising this within the nominating pool, usually the class (Asher & Dodge, 1986). This second score provides a measure of rejection by peers. A high correlation between this measure and nomination-based measures of dislike has been reported, with 91% agreement in the identification of rejected children using these two methods (Asher & Dodge, 1986). A third score is the converse of this, that is, the sum of the number of highest possible ratings, standardised by the nominating pool. This score is highly correlated with nomination-based acceptance scores (Bukowski et al.).

The traditional nomination technique has been critiqued for its use of arbitrary cut-off scores as criterion for inclusion into a particular peer status group. These groups make statistical sense, but may not represent real distinctions in the peer group (Cillessen & Bukowski, 2000). Further, nomination measures often restrict children to nominate only a limited number of classmates (usually three) they “like most” and “like least”, resulting in a large number of children for whom no information is available regarding their status within the peer group

(Maasen, van der Linden, Goossens, & Bokhorst, 2000). Asking each child to rate their liking of each classmate provides information on all children and avoids the limitation of arbitrary classification, as it allows the researcher to examine the linear relationship between increasing peer rejection and other important antecedents and negative outcomes. The current studies used ratings scales to obtain both peer rejection scores and average peer dislike (rating) scores for all children. Analyses were conducted using both peer rejection and peer dislike scores as measures of peer stress, to determine whether these two indices were differentially associated with children's social behaviours and psychosocial functioning.

Some researchers have suggested that same-gender nominations or ratings are preferable to cross-gender reports due to the tendency for children at this age to form same-gender peer groups. Children are expected to be less reliable reporters of their feelings of like and dislike of opposite sex classmates (Daniels-Beirness, 1989). However, many researchers (e.g., Dodge et al., 2003) continue to use cross-gender nominations as outlined by Coie et al. (1982). To date, there does not appear to be a consensus regarding which method is most accurate, and there is no evidence to suggest that using one method results in different classification of peer status to the other (Terry & Coie, 1991). When gender differences are to be examined, cross-gender ratings are recommended, as same-gender ratings are standardised within gender, potentially suppressing any gender differences. However, the current study used both methods, with same-gender ratings used in Study 1 due to time constraints, and cross-gender ratings employed to measure peer rejection in Study 2.

Regarding the examination of social behaviours associated with peer rejection, research has typically used peer, teacher or parent reports of behaviour, as well as observations in the school setting. Peer nomination methods of assessing social behaviour are useful because they tap into multiple peer informants, providing a broad base for measurement (Bierman, 2003). Further, children can provide information about their peers' behaviours on the playground and in other

locations that teachers would otherwise not be privy to, possibly providing a more uncensored account of unacceptable behaviours such as aggression (Coie & Dodge, 1988). However, one limitation of peer and teacher assessments of social behaviour is that they are mostly useful when examining overt manifestations of behaviour, rather than the emotions underlying these behaviours (Bierman, 2003). The current study used peer nominations of social behaviours due to time constraints and the large number of social behaviours examined.

Gender Differences in Social Behaviour and Psychosocial Functioning

Research within a developmental psychopathology framework recognises gender differences when examining the adaptive and maladaptive patterns that may lead to different developmental trajectories (Crick & Zahn-Waxler, 2003; Zahn-Waxler, 1993). As stated earlier, gender differences in depression emerge by early adolescence (approximately 12-14 years), and various models have been proposed to explicate this phenomenon. One theory is that girls and boys carry the same types of risk factors for depression prior to adolescence, but they become more prevalent in girls once they reach adolescence (Nolen-Hoeksema & Girgus, 1994). These individual vulnerabilities, in combination with the greater number of challenges experienced by girls, are believed to lead to the emergence of higher rates in depression among girls when they reach early adolescence (Petersen et al., 1991).

The existing data on gender differences provides some support for this model. For example, preadolescent girls have been found to display more risk factors for depression than boys, such as more negative self-perceptions in certain domains of competence (Altmann & Gotlib, 1988; Ohannessian, Lerner, Lerner, & von Eye, 1999). These findings suggest that the risk factors more common in girls are more closely associated with internalising problems such as depression, whilst higher rates of aggression in boys may place them at greater risk for externalising problems.

Girls have also been found to focus on maintaining interpersonal relationships, compared to the focus on instrumentality and physical dominance

more common in boys (Crick & Grotpeter, 1995). Consistent with this notion are findings to suggest depression in girls, but not boys, is associated with interpersonal conflict (Rudolph & Hammen, 1999). Roberts and Petersen (1992) reported that adolescent girls were more concerned with popularity than adolescent boys, but that no differences were found among preadolescent boys and girls. On the other hand, a study of children in Grades 5 and 8 found stronger links between popularity and depression for girls compared to boys across both grades (Oldenburg & Kerns, 1997). Taken together, it is likely that girls who fail to exhibit positive social behaviours may be more likely to experience interpersonal difficulties such as peer rejection, based on the greater importance girls attach to maintaining positive relations with peers.

Regarding gender differences in the outcomes of peer rejection, there is some suggestion in the literature that boys who are rejected by their peers are more likely to experience adjustment problems, such as externalising problems, compared to rejected girls (Patterson, Kupersmidt, & Vaden, 1990). Whilst other research has failed to support this finding (e.g., DeRosier et al., 1994), the consideration of gender differences in psychosocial outcomes related to peer difficulties remains an important area of investigation. The current research will test the possibility of gender as a moderator of pathways to depression, with the prediction that the association between depression and peer rejection will be stronger in girls compared to boys. In addition, externalising problems will also be examined based on the evidence that, due to socialisation processes, boys tend to exhibit more externalising problems rather than depressive symptoms as manifestations of maladjustment (Zahn-Waxler, 1993).

Summary and Overview of the Current Studies

The above review of the peer literature supports an association between children's social behaviours and peer rejection. More recent research has suggested the importance of assessing several types of children's social behaviour (i.e., physical and relational aggression, social withdrawal and decreased prosocial behaviour) when examining peer rejection due to the differential outcomes. In

addition, recent studies have revealed the value of employing more differentiated measures of children's behaviours, including relational aggression, to better predict peer rejection among girls, and distinguishing between avoidance and shyness when assessing social withdrawal in children (Younger et al., 2000). Importantly, there has been little research examining the relative contribution of each type of social behaviour to peer rejection, by assessing multiple forms of behaviour simultaneously. In the current research study, four social behaviours were assessed to delineate the unique relationship between each behaviour, peer rejection, social perceptions, depression and externalising problems.

The current evidence also supports links between peer rejection in childhood and concurrent or later depressive symptoms. The focus on depression as one primary outcome of rejection raises the question of whether peer difficulties are specific to depression, or a broad indicator of psychopathology (Weisz et al., 1992). Therefore, in addition to depression, teacher reports of children's externalising behaviours were also measured in the current study. In the current study, social cognitions were measured to allow for the examination of a cognitive-interpersonal model, which includes both interpersonal stress (i.e., peer rejection) and social-cognitive vulnerabilities in the prediction of depressive symptoms in late childhood. Assessment of social cognitions included self-perceptions of competence in peer relationships, perceptions of peers, and attributions of peer outcomes. The current research also used both cross-sectional and longitudinal designs to more clearly outline relationships among these factors and the direction of associations. Finally, gender differences in the associations between social behaviours, peer rejection and psychosocial outcomes were examined.

In sum, the aim of the current research studies was to examine a model outlining the specific mechanisms linking social behaviours, peer difficulties and negative outcomes in late childhood, especially depression. Both the antecedents of peer rejection (i.e., the child's behaviour with peers), as well as consequences of peer rejection (i.e., peer perceptions, depression and externalising behaviour)

were examined. Social cognitions were included in the study to test a cognitive-interpersonal model explaining the association between peer rejection and psychosocial outcomes. It was predicted that aggression, social withdrawal, and decreased prosocial behaviour place children at risk of peer rejection. That is, peer rejection is marked by stressful interpersonal interactions and decreased opportunities for positive social interactions with same-aged peers. These behaviours serve to maintain a child's rejected status and, because of this rejection and associated negative perceptions of social acceptance and relationships, exacerbate depressive affect. Moreover, it was hypothesised that peer rejection would predict increases in depressive symptoms over time via a mediator, negative social cognitions. Children who are rejected by their peers, and children who are socially withdrawn, were expected to manifest increasingly negative beliefs about their social acceptance and peer relationships due to the lack of positive feedback and high level of negative feedback regarding their peer acceptance, leading to increased depressive symptoms over time. In contrast, no moderating role of social cognitions was expected to emerge in the current sample of preadolescents.

Regarding gender differences, it was predicted that the association between physical aggression and peer rejection would be stronger for boys than girls, whereas the association between relational aggression and peer rejection was expected to be stronger for girls compared to boys. A gender difference in level of depressive symptoms was not expected to occur given the age of children in the study (mostly aged 9 to 12), although the possibility of gender differences in changes in depressive symptoms over time was examined.

CHAPTER 2

Study 1

The goal of Study 1 was to pilot all measures in preparation for Study 2 involving two waves of data collection, and to conduct an initial examination of concurrent associations between peer rejection, social cognitions and depressive symptoms. Participants were children in Grades 5 and 6 (age 9 to 11). Specifically, the aim of the study was to investigate whether social cognitions, in particular, perceptions of relationships and attributions for social outcomes, mediated the relationship between peer rejection and depressive symptoms, given past research suggesting the utility of mediational models in preadolescent samples (Cole & Turner, 1993). In the current study, an examination of these variables within a diathesis-stress framework was also completed to test the hypothesis that negative cognitions in the peer domain are a vulnerability factor (i.e., a moderator) in the face of peer rejection, combining to better predict higher levels of concurrent depressive symptoms. This is based on past suggestions that children with a negative cognitive style are more vulnerable to depression when stressful events occur (Rudolph & Asher, 2000).

It was predicted that peer rejection would be associated with depressive symptoms in children. It was also predicted that negative social cognitions would be associated with depressive symptoms. In addition, it was hypothesised that the pathway between peer rejection and depression would be fully mediated by social cognitions. Gender differences were also investigated in this study. Whilst large gender differences in levels of depressive symptoms were not expected, as past research suggests that gender differences do not clearly emerge until 13 to 14 years of age (Nolen-Hoeksema & Girgus, 1994), there is evidence to suggest that girls who experience interpersonal stress are more vulnerable to depression than boys during late childhood, due to the greater investment girls place on interpersonal relations (Oldenburg & Kerns, 1997; Rudolph & Hammen, 1999; Sethi & Nolen-Hoeksema, 1997). Therefore, the final aim of this study was to

examine gender moderation. It was predicted that there would be a stronger association between peer rejection and depression for girls compared to boys.

Method

Participants

One primary school and 211 Grade 5 and 6 students participated in the study. Children attend primary schools in Queensland from Grade 1 through to 7, with Grade 5 and 6 students usually aged between 10 and 11 years. The participants had a mean age of 10.8 ($SD = 0.7$), with 97% of children aged between 9 and 11. The sample consisted of 59% females and 41% males. Participants who were missing less than 10% of items on a subscale for each of the three self-report questionnaires received a score based on the completed items. This occurred in 12 cases (6%) for depressive symptoms, 35 cases (17%) for the perceptions of peers and self, and 43 cases (20%) for peer relational attributions. The majority of participants were only missing one or two items on the depressive symptoms and perceptions of peers and self measure, and missing data were randomly distributed across items. However, missing data points on the peer relational attribution scale tended to be the second and third item within each scenario. Analyses that included the attributional measure also included the other measures of social cognitions to account for the potential for measurement error due to missing data. Participants who were missing more than 10% of items on any one measure were excluded from the analyses. This resulted in sample sizes that ranged from 163 to 207 depending on the measures included in each analysis.

Procedure

Following approval from the deputy school principal of one primary school in Queensland, Australia, parental consent forms and information sheets were distributed to all Grade 5 and 6 students. Ethics approval was obtained prior to data collection through the university's ethics committee and the state education department. Questionnaires were administered to all participants with parental consent within their regular classrooms. The parental consent rate was exactly 60%. Verbal instructions were given to participants regarding the confidentiality of their responses, the voluntary nature of their participation and general instructions about the testing process. All questionnaire items were read

aloud to students as they provided their written responses in their booklets to ensure that the entire class completed questionnaire items at the same time, and allowing for questions and thorough pilot testing of measures. Following the questionnaire administration, participants were instructed to refrain from discussing their responses with classmates and were reminded of the confidential nature of their responses. Individual debriefing was offered to students by the researchers following the questionnaire administration. No child sought debriefing.

Following ethical guidelines set out by the university, parents of 29 children who scored in the clinical range on the depression measure (i.e., total score >20) were contacted by phone approximately two weeks after the questionnaire administration. Parents were informed that their children scored within the high range on the depression measure, and the possible reasons for high scores were discussed and referral options were given, on request.

Measures

Depressive symptoms. The Child Depression Inventory (CDI; Kovacs, 1985) assessed the presence and severity of a range of depressive symptoms. The CDI is a 27-item self-report questionnaire. Respondents selected one of three statements that best described their mood during the past two weeks for each item with response options scored 0 to 2. An overall depressive symptoms score was obtained by summing responses to all items. Possible scores ranged from a minimum of 0 to a maximum of 54, with higher total scores reflecting more depressive symptoms. Good psychometric properties including high reliability (i.e., $\alpha > .80$) and validity have been established in past studies (e.g., Saylor, Finch, Spirito, & Bennett, 1984), and norms for Australian samples have been established (Spence & Milne, 1987). In the current study, this scale demonstrated high internal consistency, $\alpha = .91$. An example item from the CDI was: “*i) I feel like crying every day, ii) I feel like crying many days, iii) I feel like crying once in a while*”.

Perceptions of peers and self. The 30-item Perceptions of Peers and Self (POPS; Rudolph et al., 1995) was used to measure children's perceptions of their peer relationships and self competence when interacting with peers. The peer subscale measured children's generalised perceptions of peers and friendships along dimensions such as dependability, supportiveness and empathy. The self subscale measured children's perceptions of self in the context of peer relationships, and taps both what children know about themselves (a cognitive component) and how children feel about themselves within the peer domain (an affective component). The peer and self subscales contained 15 items each. High reliabilities for both the peer subscale, $\alpha = .74$, and self subscale, $\alpha = .78$, have been demonstrated in past research (Rudolph & Clark, 2001). Adequate test-retest reliability over a 6-month interval has also been reported, $r_s = .47 - .62$, all $p < .01$. High internal consistency was demonstrated for both the peer and self subscales in the current study, both $\alpha = .79$. An example item from the peer subscale was: "*Other kids will try to put you down or tease you if they have a chance*". An example item from the self subscale was: "*When other kids do not want to be around me, it's probably because there's something wrong with me*".

Attributions for peer relational outcomes. Children's attributions for peer relational outcomes were measured with an instrument developed by Crick and Ladd (1993). This measure consisted of 20 hypothetical social outcomes, which assessed four outcome categories, including positive-instrumental, negative-instrumental, positive-relational, and negative-relational. Three possible causes for each outcome were provided that varied according to the locus of attribution (i.e., internal, external, or mutual). Children rated all three causes for each outcome on a 5-point scale, ranging from 1 ("this is never the reason") to 5 ("this is always the reason"). Each child is scored on internal attributions on each of the outcome categories, as well as external and mutual attributions, resulting in a total of 12 scores per child. Previous studies (Gladstone & Kaslow, 1995; Turner & Cole, 1994) have shown that negative attributions show a more robust association with children's depressive symptoms than positive attributions. Further,

researchers have begun to highlight the importance of examining specific attributions within the particular domain of functioning in which the stressor occurs (Dorsch & Keane, 1994). Hence, only negative attributions for relational outcomes were examined in the current study due to the focus on the association between interpersonal stress and depression. Children scoring higher on the negative relational subscale endorsed more negative attributions for relational outcomes. An example item from the negative relational subscale was: “*Imagine that a kid you know does not like you very much. How often would this happen because: a) You and the other kid do not have fun together, b) You do things that bother kids sometimes, c) The other kid does not like very many people*”. The measure has demonstrated high reliability in past research, $\alpha = .83$ (Crick & Ladd, 1993). Cronbach's α for the negative relational subscale in the current study was weak, $\alpha = .55$.

Peer rejection. Children were provided with a class roster in order to rate all their same-gender classmates on a scale ranging from 1 (*do not like at all*) to 5 (*like a lot*). Children rated each of their same-gender classmate rather than asking each child to rate all classmates. This method was selected based on past research suggesting that children aged 10 and 11 are more likely to give positive nominations and ratings for same-gender classmates and negative ratings for cross-gender classmates (Daniels-Beirness, 1989). Also, time constraints necessitated a shorter ratings measure. A peer rejection score was calculated by following procedures outlined by Asher and Dodge (1986) whereby all ratings of 1 that each child received are summed and standardised by class. Also, to obtain a sociometric preference score as described by Bukowski et al. (2000), ratings were reversed and responses were averaged so that each child received a score ranging from 1 to 5, with higher numbers denoting children who were *less* liked by classmates. Throughout the remainder of the current research, this score will be referred to as peer dislike. The correlation between the peer rejection score and the peer dislike score in the current sample was $.66, p < .01$. Due to the focus on peer rejection as an important peer-related stressor, main reported analyses were

based on the peer rejection score. However, analyses were repeated with the peer dislike score to investigate whether results were consistent with those based on the peer rejection measure.

Past research has found peer rejection to have adequate test-retest reliability over a 1-year period using nominations, $r = .53, p < .01$ (Kupersmidt, Burchinal, & Patterson, 1995). More modest stability has been reported using the peer rejection score derived from low ratings (i.e., ratings of 1), $r = .28$ to $.33, p < .01$, and average ratings, $r = .46$ to $.48, p < .01$ (Terry & Coie, 1991).

Results

Tests of Univariate Normality, Outliers and Transformation of Data

Hypotheses were tested using correlation and regression analyses. Prior to conducting tests of hypotheses, the data were inspected to determine whether the normality assumption of correlation and regression analyses was met. As would be expected when assessing depressive symptoms, negative cognitions and peer rejection, all variables had non-normal distributions using the KS-Lilliefors test, all $p < .01$. Standardised scores on each measure that exceeded a z -score of 3.29, $p < .001$, were identified as outliers and were removed to determine their effects on distributions (Tabachnick & Fidell, 2001). One participant was an outlier on all self-report measures and appeared to display an extreme response-set and was removed from all further analyses. This did not result in any changes to distributions, however, and outliers continued to be examined throughout remaining analyses. Table 2.1 provides descriptive statistics for all measured variables in Study 1.

Preliminary analyses were conducted to test for gender and grade differences in all variables. A Bonferroni correction of $p < .008$ was applied to the six oneway ANOVAs comparing gender and grade differences. Using this more conservative cut-off, no significant gender or grade differences were found on any of the measured variables, therefore all further analyses were conducted without controlling for these variables. Depressive symptoms did not differ between boys and girls, $F(1, 205) = .69, p > .05$. However, several trends emerged towards significance. Boys had more negative perceptions of peers compared to girls, $F(1, 194) = 7.02, p < .01$. Grade 5 children's ratings of peer dislike were higher than Grade 6 children's, $F(1, 208) = 5.82, p < .05$. Grade 6 children were more negative in their attributions of social outcomes, $F(1, 168) = 4.70, p < .05$. No other differences were found when gender and grade were compared. Table 2.2 and Table 2.3 provides the results of oneway ANOVAs testing for gender and grade differences in all measured variables.

Table 2.1

Descriptive Statistics of All Measured Variables in Study 1

<i>Variable</i>	<i>N</i>	<i>M</i>	<i>SD</i>	<i>Min</i>	<i>Max</i>
Depressive symptoms	207	10.29	8.74	0	40
Peer rejection	208	.00	.95	-1.26	3.80
Peer dislike	208	1.20	.74	.11	4.00
Negative perceptions of peers	192	2.04	.44	1.07	3.13
Negative perceptions of self	196	1.91	.46	1.13	3.87
Negative relational attributions	170	27.94	5.28	10	45

Table 2.2

Results of Oneway ANOVAs Comparing Males and Females on All Measured Variables

Dependent variable	Group	<i>N</i>	<i>M</i>	<i>SD</i>	<i>df</i>	<i>F</i>	<i>p</i>
Depressive symptoms	Males	83	10.91	8.06	1, 205	.69	.407
	Females	124	9.88	9.18			
Peer rejection	Males	84	-.01	.76	1, 206	.01	.917
	Females	124	.01	1.06			
Peer dislike	Males	84	1.31	.79	1, 206	3.36	.068
	Females	124	1.12	.71			
Negative perceptions of peers	Males	76	2.14	.43	1, 194	7.02	.009
	Females	120	1.97	.44			
Negative perceptions of self	Males	75	1.97	.45	1, 190	2.12	.146
	Females	117	1.87	.46			
Negative relational attributions	Males	68	28.76	5.20	1, 168	2.78	.097
	Females	102	27.39	5.29			

Table 2.3

Results of Oneway ANOVAs Comparing Grade 5 and 6 Children on All Measured Variables

Dependent variable	Group	<i>N</i>	<i>M</i>	<i>SD</i>	<i>df</i>	<i>F</i>	<i>p</i>
Depressive symptoms	Grade 5	110	11.28	9.78	1, 205	3.06	.082
	Grade 6	97	9.16	7.28			
Peer rejection	Grade 5	110	.00	.98	1, 206	.00	1.00
	Grade 6	98	.00	.91			
Peer dislike	Grade 5	110	1.32	.84	1, 206	6.44	.012
	Grade 6	98	1.06	.60			
Negative perceptions of peers	Grade 5	105	2.07	.51	1, 194	1.08	.301
	Grade 6	91	2.00	.35			
Negative perceptions of self	Grade 5	104	1.94	.49	1, 190	1.17	.282
	Grade 6	88	1.87	.41			
Negative relational attributions	Grade 5	91	27.13	5.53	1, 168	4.70	.032
	Grade 6	79	28.87	4.85			

Bivariate Associations Between Depressive Symptoms, Social Cognitions and Peer Rejection

Pearson correlations were computed to determine relationships between depressive symptoms, social cognitions and peer rejection (see Table 2.4). In support of the hypothesis, depressive symptoms was positively correlated with peer rejection and peer dislike, $r = .22$ and $.28$, respectively, $ps < .01$, showing that children who scored higher on depressive symptoms were also rated as more rejected/disliked by their peers. Also as hypothesised, depressive symptoms was significantly positively correlated with perceptions negative of peers and self, $r = .29$ and $.39$, respectively, all $p < .01$; higher depressive symptoms was associated with more negative perceptions of peers and self. Depressive symptoms was also significantly correlated with negative relational attributions, $r = .23$, $p < .01$, indicating that children with higher levels of depressive symptoms also had more negative attributions about relational outcomes. Peer rejection was significantly positively correlated with children's negative perceptions of their peers, $r = .16$, $p < .05$. Peer rejection was not significantly correlated with negative perceptions of self in peer relationships nor with negative relational attributions, $r = .14$ and $.08$, respectively, $ps > .05$. However, peer dislike was significantly correlated with both perceptions of peers and self, $r = .30$ and $.33$, respectively, $ps < .01$.

Finally, there was some intercorrelation among measures of children's perceptions of relationships and attributions about negative social outcomes. Significant positive correlations were found between children's perceptions of peers and self, $r = .64$, $p < .01$, and these perceptions were positively associated with negative relational attributions, both $r = .17$, $p < .05$.

Table 2.4

Correlations Between Children's Depressive Symptoms, Peer Rejection and Social Cognitions (N = 163)

	1	2	3	4	5
1. Depressive symptoms	---				
2. Peer rejection	.22**	---			
3. Peer dislike	.28**	.66**	---		
4. Negative perceptions of peers	.29**	.16*	.30**	---	
5. Negative perceptions of self	.39**	.14	.33**	.64**	---
6. Negative relational attributions	.23**	.08	.04	.17*	.17*

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

Examination of Assumptions of Regression Analyses

Inspection of the scatter diagrams and residual plots demonstrated that the assumption of homoscedasticity did not appear to be substantially violated for any analyses. Multivariate outliers were also examined. Leverage points were examined using Mahalanobis distance scores. Two data points were found to exceed the critical χ^2 value, $\chi^2(3) = 16.27$, $p < .001$. Individual removal of these points resulted in less than 1% change in R^2 . Further, Cook's distance values were inspected to identify any points of influence, and no scores appeared to deviate from the majority of scores. Finally, multicollinearity was assessed via inspection of tolerance values. All tolerance values for multiple regression analyses exceeded .50, suggesting that multicollinearity was not a concern in the current analyses (Tabachnick & Fidell, 2001).

Associations Between Depression and Social Cognitions

A series of multiple regression analyses were conducted to further test all hypotheses in the current study. First, a standard multiple regression was conducted to investigate independent associations between depressive symptoms and the multiple indicators of children's negative social cognitions (i.e., perceptions of peers and self, and attributions for relational outcomes) (see Table 2.5). In this model, children's depressive symptoms was the dependent variable, and negative perceptions of peers, the self in peer relationships and relational attributions were the independent variables. Children's depressive symptoms was significantly associated with negative perceptions of self and negative attributions for relational outcomes, $\beta = .33, p < .01$ and $\beta = .17, p < .05$, respectively. However, perceptions of peers did not have an independent association with depressive symptoms once these other social cognitions were accounted for, $\beta = .05, p > .05$. Overall, a significant amount of variance was accounted for in depressive symptoms, $R^2 = .18, F(3, 159) = 11.62, p < .01$.

Table 2.5

Standard Multiple Regression Examining the Relationship Between Children's Depressive Symptoms and Social Cognitions (N = 163)

Independent variable	<i>B</i>	<i>SE</i>	β
Negative perceptions of peers	1.06	1.90	.05
Negative perceptions of self	6.41	1.86	.33**
Negative relational attributions	.28	.12	.17*

Note. $R^2 = .18, p < .01$.

The dependent variable was depressive symptoms.

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

Social Cognitions as a Mediator of the Association Between Depressive Symptoms and Peer Dislike

A hierarchical multiple regression was conducted to test the hypothesis that negative social cognitions would mediate the relationship between depressive symptoms and peer-related difficulties. The peer dislike variable was used in this analysis because it was more consistently associated with social cognitions (see Table 2.4). An association between the independent variable and mediator is required for testing mediation, especially in a cross-sectional study with proximal measures (Holmbeck, 1997). Negative perceptions of self in peer relationships was examined as the mediator based on its significant association with peer dislike as the independent variable and depressive symptoms as the dependent variable in the previous analysis. A second similar regression was conducted with negative perceptions of peers as the mediator, as this variable also demonstrated a significant bivariate association with depressive symptoms (see Table 2.4).

First, peer dislike was entered at Step 1, and inspection of the individual parameter estimates revealed that peer dislike was significantly associated with depressive symptoms, $\beta = .28, p < .01$ (see Table 2.6). The amount of variance accounted for in depressive symptoms in Step 1 was significant, $R^2 = .08, F(1, 189) = 16.36, p < .01$. Negative perceptions of self was entered at Step 2 and accounted for significant additional variance in children's depressive symptoms, $\beta = .35, p < .01, \Delta R^2 = .11, F_{chg}(1, 189) = 25.63, p < .01$. Inspection of the individual parameter coefficients revealed that the effect of peer dislike on depressive symptoms weakened but remained significant after adding perceptions of self to the model at Step 2, $\beta = .17, p < .05$. The Sobel test (Baron & Kenny, 1986) revealed that the indirect path from peer dislike to depressive symptoms via negative perceptions of self was significant, $z = 3.49, p < .01$. This suggests that negative perceptions of self partially mediated the relationship between peer dislike and depressive symptoms in children, as peer dislike had a significant indirect effect on depressive symptoms via negative perceptions of self.

Table 2.6

Negative Perceptions of Self in Peer Relationships as a Mediator Between Depressive Symptoms and Peer Dislike (N = 191).

Step	Independent variable	B	SE	β
1	Peer dislike	3.34	.83	.28**
2	Peer dislike	1.96	.82	.17*
	Negative perceptions of self	6.80	1.34	.35**

Note. $R^2 = .08$ for Step 1; $\Delta R^2 = .11$ for Step 2, $ps < .01$.

The dependent variable was depressive symptoms.

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

To test the mediational role of negative perceptions of peers, a similar regression model was estimated with peer dislike entered at Step 1. Depressive symptoms was significantly associated with peer dislike, $\beta = .25$, $p < .01$ (see Table 2.7). The amount of variance accounted for in depressive symptoms in Step 1 was significant, $R^2 = .06$, $F(1, 193) = 12.82$, $p < .01$. Negative perceptions of peers was entered at Step 2 and accounted for significant additional variance in children's depressive symptoms, $\beta = .26$, $p < .01$, $\Delta R^2 = .06$, $F_{chg}(1, 192) = 13.33$, $p < .01$. The association between depressive symptoms and peer dislike was reduced. However, peer dislike remained a significant predictor of depressive symptoms after adding negative perceptions of self to the model at Step 2, $\beta = .17$, $p < .05$. The Sobel test (Baron & Kenny, 1986) revealed that the indirect path from peer dislike to depressive symptoms via negative perceptions of peers was significant, $z = 2.89$, $p < .01$. Hence, negative perceptions of peers partially mediated the relationship between peer dislike and depressive symptoms in children, as the indirect effect of peer dislike on depressive symptoms via negative perceptions of peers was significant.

Table 2.7

Negative Perceptions of Peers as a Mediator Between Depressive Symptoms and Peer Dislike (N = 195)

Step	Independent variable	<i>B</i>	<i>SE</i>	β
1	Peer dislike	2.93	.82	.25**
2	Peer dislike	1.94	.84	.17*
	Negative perceptions of peers	5.18	1.42	.26**

Note. $R^2 = .06$ for Step 1; $\Delta R^2 = .06$ for Step 2, $ps < .01$.

The dependent variable was depressive symptoms.

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

Diathesis-Stress Model of Depression: Social Cognition as a Moderator

Negative perceptions of self. The diathesis-stress model of depression was also tested by examining whether social cognitions moderated the association between children's depressive symptoms and peer dislike. To construct the interaction term necessary for testing the moderation role of social cognitions, peer dislike and negative perceptions of self were first centred by subtracting the mean of each measure from each child's score. Second, the interaction between peer dislike and negative perceptions of self was computed by multiplying the two centred variables. This interaction effect was entered at Step 2 of the model after the main effects were entered at Step 1. The interaction between peer dislike and perceptions of self did not add significantly to the explanation of depressive symptoms, $\Delta R^2 = .01$, $F_{chg} = 2.96$, $p > .05$ (see Table 2.8).

Table 2.8

Test of the Diathesis-Stress Model of Depression with Negative Perceptions of Self as the Diathesis and Peer Dislike as the Stressor (N = 191)

Step	Independent variable	<i>B</i>	<i>SE</i>	β
1	Peer dislike	1.96	.82	.17*
	Negative perceptions of self	6.80	1.34	.35**
2	Peer dislike	1.34	.90	.11
	Negative perceptions of self	6.82	1.34	.35**
	Interaction: Peer dislike X negative perceptions of self	2.89	1.68	.12

Note. $R^2 = .19$ for Step 1, $p < .01$, $\Delta R^2 = .01$ for Step 2, $p > .05$.

The dependent variable was depressive symptoms.

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

Negative perceptions of peers. To further test the diathesis stress model of depression using other types of social cognitions as moderators, a second similar regression analysis was performed using negative perceptions of peers as the diathesis. Similar to the above analysis, negative perceptions of peers was centred by subtracting the mean of the construct from each child's score, and the interaction term (i.e., between negative perceptions of peers and peer dislike) was computed by multiplying the centred variables. The interaction term between peer dislike and negative perceptions of peers was entered in Step 2 after the main effects were entered in Step 1. In Step 2, the interaction between peer dislike and negative perceptions of peers did not account for significant additional variance in depressive symptoms, $\Delta R^2 = .00$, $F_{chg}(1, 191) = .02$, $p > .05$ (see Table 2.9).

Table 2.9

Test of the Diathesis-Stress Model of Depression with Negative Perceptions of Peers as the Diathesis and Peer Dislike as the Stressor (N = 195)

Step	Independent variable	<i>B</i>	<i>SE</i>	β
1	Peer dislike	1.94	.84	.17*
	Negative perceptions of peers	5.18	1.42	.26**
2	Peer dislike	1.97	.88	.17*
	Negative perceptions of peers	5.24	1.51	.26**
	Interaction: Peer dislike X negative perceptions of peers	-.18	1.47	-.01

Note. $R^2 = .12$ for Step 1, $p < .01$, $\Delta R^2 = .00$ for Step 2, $p > .05$.

The dependent variable was depressive symptoms.

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

Negative relational attributions. In a final regression model that tested the mediating role of negative relational attributions (see Table 2.10), inspection of the individual parameter estimates revealed that both variables were significantly associated with depressive symptoms, $\beta = .25$ and $\beta = .22$, respectively, $ps < .01$. A significant amount of variance in depressive symptoms was accounted for in Step 1, $R^2 = .11$, $F(2, 166) = 10.49$, $p < .01$. In Step 2, the interaction between peer dislike and negative perceptions of peers did not account for significant additional variance in depressive symptoms, $\Delta R^2 = .00$, $F_{chg}(1, 165) = .23$, $p > .05$. Hence, it was concluded that the association between children's depressive symptoms and peer dislike was not moderated by the three types of negative social cognitions measured here. In other words, the diathesis of negative social cognitions did not seem to exacerbate the association between peer dislike and depressive symptoms.

Table 2.10

Test of the Diathesis-Stress Model of Depression with Negative Relational Attributions as the Diathesis and Peer Dislike as the Stressor (N = 169)

Step	Independent variable	B	SE	β
1	Peer dislike	2.98	.89	.25**
	Negative relational attributions	.37	.12	.22**
2	Peer dislike	2.92	.90	.24**
	Negative relational attributions	.37	.12	.22**
	Interaction: Peer dislike X negative relational attributions	.08	.17	.04

Note. $R^2 = .11$ for Step 1, $p < .01$, $\Delta R^2 = .00$ for Step 2, $p > .05$.

The dependent variable was depressive symptoms.

** $p < .01$.

Gender as a Moderator

To test whether gender moderated associations between depressive symptoms, social cognitions and peer-related difficulties, correlations between all measured variables were obtained separately for girls and boys prior to proceeding to regression analyses (see Table 2.11). The largest gender difference in correlation coefficients for boys versus girls was between depressive symptoms and peer rejection, $r = .37$ and $.07$, respectively, $z = 2.08$, $p < .01$.

A similar pattern was found between peer rejection and perceptions of peers for boys versus girls, $r = .40$ and $.11$, respectively, as well as peer dislike and perceptions of peers, $r = .47$ and $.19$, respectively. However, these differences only approached significance, both $z = 1.94$, $p > .05$. In other words, the stronger association between peer rejection and negative perceptions of peers for boys as compared to girls was only a trend, and requires further examination (see Study 2).

Therefore, the association between depressive symptoms and peer rejection was stronger for boys than girls. This pattern was in the opposite direction as predicted, as it was expected that girls who experienced interpersonal stress (i.e., rejection by peers) would be more susceptible to depressive symptoms than boys who experienced interpersonal stress based on the greater importance they place on maintaining relationships during early adolescence compared to boys (Sethi & Nolen-Hoeksema, 1997). All other correlations between variables did not differ for boys as compared to girls.

Table 2.11

Correlations Between Variables for Males and Females

	1	2	3	4	5	6
1. Depressive symptoms	---	.37**	.35**	.31**	.26*	.19
2. Peer rejection	.07	---	.67**	.40**	.29*	.09
3. Peer dislike	.18*	.60**	---	.47**	.45**	.00
4. Negative perceptions of peers	.30**	.11	.19*	---	.68**	.26*
5. Negative perceptions of self	.48**	.14	.23*	.63**	---	.18
6. Negative relational attributions	.24*	.07	.03	.11	.14	---

Note. Correlations for males are reported above the diagonal, females below the diagonal.

N(males) ranged from 65 to 84. *N*(females) ranged from 99 to 124.

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

A hierarchical regression was conducted to further test the one significant gender difference in correlations (i.e., gender moderation of the association between depressive symptoms and peer rejection). Of interest in this regression was the interaction between gender and peer rejection in the prediction of depressive symptoms, based on the previous correlation analysis revealing a stronger association between depressive symptoms and peer rejection for boys compared to girls. This interaction was computed by multiplying peer rejection and gender (males were coded as 0, females as 1).

In Step 1, the main effects of gender and peer rejection were entered. Only peer rejection was significantly associated with depressive symptoms, $\beta = .16$, $p < .05$ (see Table 2.12). The amount of variance accounted for in depressive symptoms in Step 1 was marginal, $R^2 = .03$, $F(2, 204) = 2.91$, $p = .06$. The interaction between gender and peer rejection was entered at Step 2, and was significantly associated with depressive symptoms, $\beta = -.31$, $\Delta R^2 = .03$, $F_{chg}(1, 203) = 5.38$, $p < .05$, confirming the earlier correlational analyses. The negative direction of the interaction term showed that the association between depressive symptoms and peer rejection was stronger for boys than girls. The interaction between gender and peer rejection in predicting depressive symptoms is illustrated in Figure 2.1.

Table 2.12

Gender as a Moderator of the Association Between Depressive Symptoms and Peer Rejection (N = 207)

Step	Predictors	<i>B</i>	<i>SE</i>	β
1	Gender	-1.04	1.23	-.06
	Peer rejection	1.44	.64	.16*
2	Gender	-1.04	1.22	-.06
	Peer rejection	3.92	1.24	.43**
	Interaction: Gender X peer rejection interaction	-3.34	1.44	-.31*

Note. $R^2 = .03$ for Step 1, $p = .06$, $\Delta R^2 = .03$ for Step 2, $p < .05$.

The dependent variable was depressive symptoms.

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

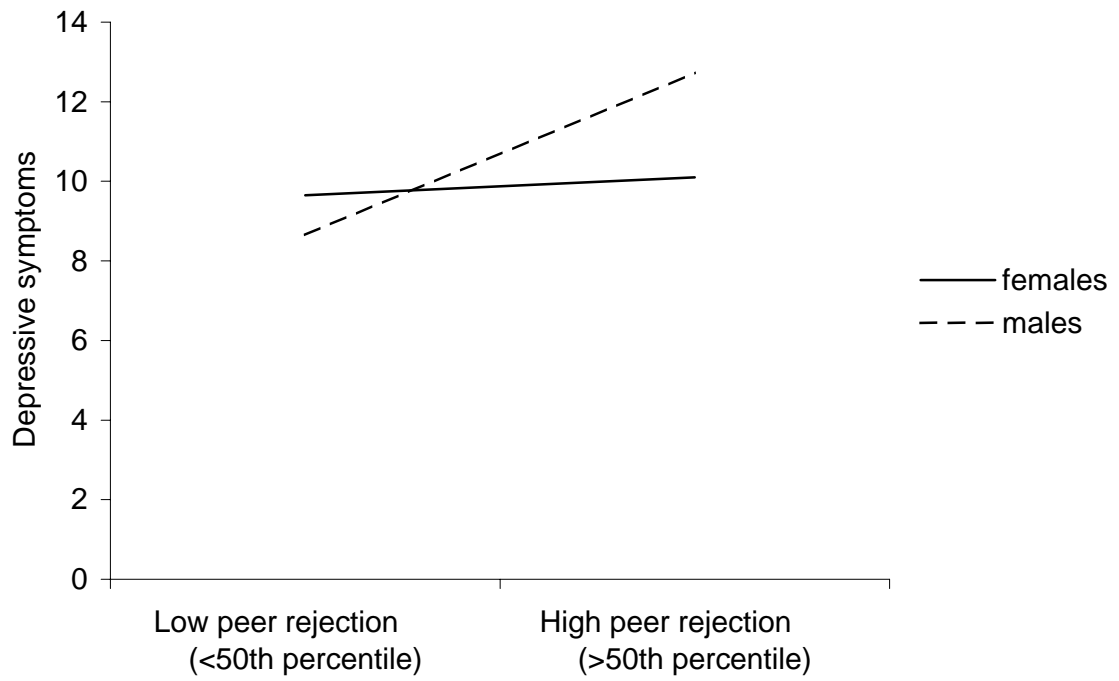


Figure 2.1. Interaction between peer rejection and gender in predicting depressive symptoms.

Discussion

This study tested mediation and diathesis-stress models of children's depressive symptoms, their social cognitions and peer rejection within a cognitive-interpersonal framework (Gotlib & Hammen, 1992). Gender moderation of associations between depressive symptoms, social cognitions and peer rejection were also examined. The results of the current study extended on past findings examining cognitive-interpersonal models of depression (e.g., Rudolph et al., 1997) by including a number of social cognitions, such as peer-related attributions and perceptions of relationships. These extensions of past research allowed a more comprehensive test of the associations between depressive symptoms and peer difficulties. Few studies have considered both mediational and moderator models of depression as an outcome that is specifically linked to the peer context (i.e., including peer rejection as the stressor and peer-related social cognitions as the diathesis), although some studies have tested similar models using stressful life events and other social-cognitive constructs, such as global attributional style (Cole & Turner, 1993).

The current results provide preliminary support of a partial mediational model of depression, with both peer difficulties and social cognitions making an important contribution to the prediction of depressive symptoms in children. More specifically, peer dislike had a direct effect on depressive symptoms, but also an indirect effect via social cognitions. No support for a diathesis-stress model was found in the current study, suggesting that children's social cognitions did not act as a diathesis when combined with peer dislike to explain depressive symptoms in children. Further, the current results suggest that peer rejection was more strongly associated with depressive symptoms for boys as compared to girls, contrary to the original hypotheses that interpersonal stress would be more strongly associated with depressive symptoms in girls.

Peer Rejection and Social Cognitions as Predictors of Depressive Symptoms

Both cognitive (i.e., social cognitions) and interpersonal factors (i.e., peer rejection) were important predictors of children's subjective reports of depression in the current study. Peer rejection was measured using a rating scale that summed the number of times a child received the lowest possible rating, allowing for all class members to receive ratings from a number of other children. An index of peer dislike was also computed by averaging the ratings each child received from his/her same-sex peers. The measure of peer dislike was more robustly associated with depressive symptoms and negative social cognitions as compared to peer rejection. Both peer dislike and peer rejection accounted for a small to moderate amount of variance in depression, consistent with past cross-sectional studies finding a modest but significant correlation (Boivin et al., 1994; Rudolph et al., 1994; Rudolph et al., 1997; Rudolph and Clark, 2001).

It was also predicted that three types of social cognitions, namely, negative perceptions of peers, negative perceptions of self, and negative relational attributions, would be associated with increased depressive symptoms in children. This hypothesis was partially supported, with children's negative perceptions of self, as well as their attributions for negative peer-related outcomes, making an independent contribution to depressive symptoms in a multiple regression analysis. This finding suggests that how children perceive themselves in their social context, as well as the attributions they give for interpersonal failures, are important and somewhat independent cognitive factors associated with children's depressive symptoms. Children's negative perceptions of peers was highly correlated with negative perceptions of self, and partly because of this, negative perceptions of peers was not independently associated with depressive symptoms. Thus, it appears that how children view *themselves* in their social relationships had a stronger relationship with depressive symptoms than whether they perceived their *peers* to be supportive and trustworthy, but these beliefs are interdependent. This finding may be explained by the fact that

positive feelings about the self (e.g., self-esteem) have been more reliably associated with internalising problems, such as depression, compared to feelings about external matters such as peers (Crick & Ladd, 1993; Rudolph et al., 1997; Rudolph & Clark, 2001).

Social Cognitions as a Mediator Between Peer Rejection and Depressive Symptoms

Testing a cognitive-mediation model was the primary purpose of the current study. The results supported a partial mediational model. Whilst peer dislike displayed a direct effect on depressive symptoms, this relationship was partially mediated by negative perceptions of peers and self, as the strength of the association between depressive symptoms and peer dislike was reduced in strength after these social cognitions were added to the predictive model. That is, although there was a direct association between peer dislike and depressive symptoms, after considering children's perceptions of peers and self, the association between depressive symptoms and peer dislike was reduced, but remained significant. Hence, results are consistent with a partial mediational pathway whereby children who are disliked by their peers are more likely to report negative perceptions of peers and self in relationships, and these negative social cognitions, in turn, are related to children's depressive symptoms. Further investigation of a mediator model using a longitudinal design and including the antecedents of peer difficulties would provide a more comprehensive picture of pathways to abnormal development as children enter early adolescence (see Study 2). These results are comparable to a study by Cole and Turner (1993), which reported that a cognitive-mediation model whereby the relationship between depression and positive and negative events was partially mediated by cognitive errors and global attributional style. The current results, however, extend on these past findings by focussing specifically on cognitions within the peer domain as they relate to peer difficulties.

The Interaction Between Peer Rejection and Social Cognitions in Predicting Depressive Symptoms

A diathesis-stress (moderator) model of depression was also examined. The diathesis-stress model of depression posits that adverse environmental stressors interact with negative cognitive styles to place children at greater risk of depression (Gotlib & Hammen, 1992). The possibility that the association between peer dislike as the stressor would be moderated by cognitions that relate specifically to peer difficulties (i.e., social cognitions) to predict depression was examined. No support was found for this model, regardless of the measure of social cognitions that was examined. In other words, no significant interactions were found between children's social cognitions and peer dislike in predicting depressive symptoms. Negative thinking styles in the social and interpersonal domains did not exacerbate the association between depressive symptoms in children and dislike by peers. More specifically, in the current study, having negative views about one's peers and self in the peer domain, and having pessimistic attributions for social failure did not exacerbate the negative association between peer dislike on depressive symptoms. These results are in contrast to past studies finding evidence of a diathesis-stress relationship in preadolescent samples examining the interaction of life stress and global attributional style (e.g., Hilsman & Garber, 1995; Panak & Garber, 1992). In other studies examining age differences in the diathesis-stress model, such results have been reported in early adolescents but not late childhood in both cross-sectional (Turner & Cole, 1994) and longitudinal designs (Abela, 2001). Thus it appears that in the current sample, a diathesis-stress effect may not have emerged because of the age of participants. Cole and Turner (1993) have suggested that preadolescent children have not yet developed a stable cognitive style that could be considered a diathesis. Clearly this is an important area worthy of further attention.

Gender Moderation

Finally, a model of gender vulnerability and peer difficulties was examined. Whilst girls and boys were not expected to differ on depression scores at this age, gender effects in the links between peer-related stress (i.e., peer rejection) and individual vulnerability (i.e., depressive symptoms) emerged in the current sample. No support was found for the prediction that girls were more vulnerable to depression in the face of peer rejection compared to boys, contrary to findings by Rudolph and Hammen (1999) suggesting that depressed girls report higher rates of interpersonal stress compared to depressed boys. Conversely, boys who were relatively more rejected by their peers were also relatively more likely to report increased depressive symptoms when compared to girls. The association between depression and peer rejection was weaker among girls than boys; the association was also not significant for girls but was significant for boys. A similar pattern emerged whereby the association between peer rejection and negative perceptions of peers was stronger for boys as compared to girls, however this difference only approached significance. These results appear to suggest that during the preadolescent years, rejection by peers is more strongly associated with boys' depressive symptoms than girls, despite previous findings suggesting that girls may be more vulnerable to depression due to their focus on relationships as they approach adolescence (Sethi & Nolen-Hoeksema, 1997). Thus, although the results did not support previous findings that girls who experience peer-related stress are more at risk for depression in the current sample, the finding that depressive symptoms are more linked to peer rejection for boys than girls has not been reported in any known studies to date and is worthy of further investigation.

Conclusion

In sum, the investigation of the cognitive-mediational model revealed peer ratings of dislike to be significantly related to perceptions of peers and self. It is an expectation when testing mediation models that the independent and mediator

variables be related. Yet, this association raises important questions about the origin of negative perceptions of relationships. That is, being disliked by peers may lead to more negative perceptions of peers and self in the relational context, eventually resulting in depression. Alternatively, children who perceive themselves and their peers in a negative light may bring about a self-fulfilling prophecy by behaving in ways that lead to rejection by their peers, ultimately resulting in depression. Past research has suggested that rejected children are more hostile in their attributions for interpersonal problems than nonrejected children (Dorsch & Keane, 1994), highlighting a possible area of vulnerability for children who experience difficulties in the peer domain. Indeed, Dorsch and Keane (1994) reported that even nonrejected children endorsed hostile attributions in hypothetical scenarios depicting social failures, underscoring the tendency for all children to engage in some degree of negative cognitive processes when they encounter rejection. Whilst these questions cannot be answered using cross-sectional designs, the current findings provide impetus for the longitudinal design used in Study 2, to better understand the direction of influence linking peer stress, social cognitions and depression.

With regard to children's attributions for social outcomes, the current study found children's explanations for negative peer-related situations to be significantly associated with children's depressive symptoms. The current study examined negative, but not positive, attributions for relational outcomes, based on past suggestions that pessimistic attributions for negative events are somewhat more robustly related to depression than positive events (Gladstone & Kaslow, 1995). Further, the current study focussed on children's attributions within a specific domain of functioning (i.e., relational outcomes), based on recent research suggesting children's specific attributions for negative and positive events are best considered in the context in which they are applied or measured (Dorsch & Keane, 1994). However, the modest reliability and high number children who seemed to have difficulty with this measure mean that results with this aspect of social cognition

should be interpreted with caution. Therefore, the use of negative relational attributions as a measure of social cognitions when assessing peer stress may be somewhat limited in this study.

The findings from Study 1 provide directions for future study in the following areas. First, continued investigation into the cognitive-mediation model of depression seems warranted, given that the relationship between peer stress and depression appears to be at least partially mediated by negative perceptions of peers and self. Other social cognitions not tested in the current study may also play a mediating role. Second, the direction of influence between peer difficulties, negative social cognitions and depressive symptoms remains an important question in the area of peer relationships. These questions require prospective longitudinal studies with repeated measures of all variables (Cole & Maxwell, 2003; see Study 2). Third, the social behaviours that accompany peer rejection deserve attention in any research examining cognitive and interpersonal factors of depression, given the extensive literature suggesting several negative behaviours, such as aggression and withdrawal, associated with peer relationships. To address some of these questions, Study 2A examined cross-sectional associations between peer rejection, social cognitions and depression, and added children's social behaviours as antecedents of peer rejection. A longitudinal design was employed in Study 2B to examine changes in these factors over time and to allow for better investigation of directions of influence.

CHAPTER 3

Study 2A

Study 2A extended on Study 1 by assessing behavioural correlates of peer rejection within a cognitive-interpersonal framework. The purpose of Study 2A was threefold. First, social behaviours associated with peer rejection in children were examined. The social behaviours of interest to the present study were physical aggression, relational aggression, social withdrawal, and prosocial behaviour. Second, children's perceived social acceptance as an important additional cognitive factor specific to the peer domain was included to provide a more comprehensive understanding of the individual vulnerabilities associated with peer stress and psychosocial functioning. Third, functional outcomes that have been previously associated with subtypes of rejected status, including depressive symptoms and externalising behaviour, were investigated. Study 2A is a cross-sectional study of children with the majority aged 9 to 12, and Study 2B will report results of the longitudinal extension of this study.

In Study 2A, it was predicted that negative social behaviour (i.e., physical aggression, relational aggression, social withdrawal and decreased prosocial behaviour) would be associated with increased rejection by peers. Further, it was predicted that peer rejection would be associated with higher levels of depressive symptoms and externalising behaviour, and that certain types of social behaviour will be differentially associated with these outcomes. More specifically, it was predicted that withdrawal, as well as peer rejection, would predict depressive symptoms, but not externalising behaviour. Conversely, physical and relational aggression, as well as peer rejection, were predicted to be associated with externalising behaviour, but not depressive symptoms. No specific predictions were made for prosocial behaviour in terms of psychosocial outcomes, yet it was expected that prosocial behaviour would be negatively associated with children's peer rejection.

Gender differences in the social behaviours associated with peer rejection were also expected in Study 2A, given past research suggesting peer rejection is associated with different types of social behaviours for girls and boys. Specifically, it was predicted that relational aggression would be more strongly related to peer rejection in girls than boys, based on past research suggesting such gender moderation (Kaplan et al., 1999; Zimmer-Gembeck et al., in press). Similarly, it was predicted that physical aggression would be more strongly related to peer rejection in boys than girls, in line with past findings suggesting a more robust association between physical aggression and peer rejection for boys compared to girls (Coie & Dodge, 1998; Zimmer-Gembeck et al., in press).

Furthermore, Study 2A included some replication and extension of Study 1 to again examine the role of social cognitions accounting for the relationship between peer rejection and depressive symptoms. Following from findings in Study 1, it was predicted that social cognitions would mediate the relationship between peer rejection and depressive symptoms, however a diathesis-stress effect was not expected. This hypothesis is consistent with previous research suggesting the relevance of mediational models in children under the age of 13, as they are not yet expected to exhibit stable cognitive styles that could be appropriately labelled a “diathesis” for depression (Cole & Turner, 1993; Turner & Cole, 1994). Gender moderation was also examined to determine any differences in social, behavioural and cognitive processes in predicting psychosocial outcomes at this age. This is based on evidence to suggest that the higher rate of depression in adolescent girls is due to risk factors present in preadolescence, such as negative cognitive styles (Nolen-Hoeksema & Girgus, 1994). In a final analysis using structural equation modelling, a comprehensive cross-sectional model was tested that linked children's social behaviour, peer rejection, social cognitions and depressive symptoms.

Method

Participants

Three primary schools and 350 students from 18 classrooms in Queensland, Australia gave consent to participate in the study. The consent rate was 70%. Eight children were absent on the day of data collection, and also absent on a follow-up two weeks later, therefore did not participate in the study. Participants who missed more than 10% of items on the self-report measures were excluded from all analyses ($n = 8$), resulting in a final sample size of 334. Participants were in Grade 5 ($n = 101$), 6 ($n = 121$) or 7 ($n = 112$). Primary schools in Queensland include Grades 1 through to 7; therefore the current sample comprised children in the final three years of primary school during the developmental period of late childhood to early adolescence. The mean age of participants at time of recruitment was 11.0 ($SD = .9$), with 99% aged between 9 and 12. Approximately equal numbers of males and females participated in the study (48% and 52%, respectively). Seventeen out of 18 teachers consented to complete questionnaires reporting children's behaviours when interacting with classmates at school. Eleven participants who were missing 10% or fewer items on the self-report measures were maintained in the sample by calculating total scores based on remaining items. This small amount of missing data appeared to be distributed randomly and were not expected to influence results with this sample size (Tabachnick & Fidell, 2001).

Procedure

Principals of three primary schools in Queensland, Australia were contacted by facsimile and telephone, and invited to participate in the study. On approval by the school principal and relevant education departments, consent forms and information sheets were distributed to all students in Grades 5 to 7. Ethics approval was obtained from the university's ethics committee and the state education board prior to data collection. Questionnaires were administered to all participants with parent consent within their regular classrooms during school hours. Participants were offered a small

token of appreciation at the time of testing (e.g., a lolly and a pencil). All self-report and peer nomination questionnaires were read aloud to students for ease of administration, and total testing time was approximately 45 minutes. Individual debriefing was made available to students by the research assistants following the data collection, and four students who had questions or concerns following the completion of questionnaires received debriefing. Students were advised to approach parents and the school guidance officer for any ongoing concerns. Parents of children who scored in the clinical range on the depression measure (i.e., total score > 20) were contacted by phone within two to four weeks after the questionnaire administration ($n = 27$). Parents were informed of the high score and possible reasons for high scores were discussed and referral options given on request.

Measures

Depressive symptoms. The Child Depression Inventory (CDI; Kovacs, 1985) was used to assess depressive symptoms. For details on this measure, see Study 1. In the current study, this scale demonstrated high reliability, $\alpha = .88$. Higher scores reflected more depressive symptoms.

Perceived social acceptance. Children's self-perception of their acceptance with peers was assessed with the Self-Perception Profile for Children (SPCC; Harter, 1982). The SPCC is a 36-item questionnaire with six subscales, each with six items. Five domain-specific subscales are designed to assess perceptions of competencies in the social, athletic, physical appearance, scholastic and conduct domains. The sixth subscale measured children's global self-worth. High internal consistency has been demonstrated in past research, with α 's ranging from .77 to .93 across subscales (see Harter, 1982, for complete details on psychometric properties of the SPCC). Only the social acceptance subscale was used in the current research as a measure of children's perceived acceptance within the peer context. An example item from the social subscale is: "*Some kids are really popular with other kids their age*". Participants were required to choose one of two statements that best described themselves, and

then to decide whether this was “sort of true for me” or “really like me”. After reversing some items, scores were averaged so that higher scores reflected higher perceived social acceptance. This measure had high reliability in the current study, $\alpha = .81$.

Perceptions of peers and self. The Perceptions of Peers and Self (POPS; Rudolph et al., 1995) assessed children's generalised perceptions of peers and children's perceptions of self in the context of peer relationships. Study 1 provides details of this measure. The peer and self subscales of this measure had high reliability in the current study, $\alpha = .77$ and $.85$, respectively. Higher scores indicated more negative perceptions of peers and self.

Peer rejection. Children were provided with a roster of all classmates and asked to rate them on a 5-point scale of like/dislike. Study 1 provides a detailed description of the peer rating measure. Both a peer rejection score (i.e., standardised sum of all 1's) and a peer dislike score (i.e., average of all ratings) were obtained from the measure, and the peer rejection score was standardised by class. Hence, all reported analyses were based on the peer rejection score, but were repeated substituting the peer dislike measure, with any changes to results were noted in the text. The correlation between the peer rejection and peer dislike measures in the current study was $.76, p < .01$. In contrast to Study 1, each child rated all other children in the class, regardless of gender. Past evidence has indicated that a larger pool of peer reporters increases the stability of measurement (Terry & Coie, 1991).

Social behaviours. To measure physical and relational aggression, withdrawn behaviour and prosocial behaviour, children nominated up to three classmates who best fit a series of behavioural descriptions. Items from the Children's Social Behavior Scale (Crick & Grotpeter, 1995) were used to form the physical and relational aggression and prosocial subscales, with three items each. Nominations received for a child for each item were summed and standardised within classrooms to adjust for unequal class sizes. These standardised scores were again summed and

standardised to yield total subscale scores. The physical and relational aggression subscales have demonstrated high internal consistency, $\alpha = .94$ to $.97$, $\alpha = .82$ to $.89$, respectively (Crick, 1996; 1997; Crick & Grotpeter, 1995). Similar reliability has been reported for the prosocial scale, $\alpha = .90$ (Crick, 1996). Test-retest reliability for the relational and physical aggression subscales over a 4-week interval have been high in previous research, $r = .82$ to $.90$, respectively. High reliability coefficients for the physical aggression, relational aggression and prosocial behaviour subscales were obtained for the current study, $\alpha = .96$, $.77$, and $.92$, respectively.

The peer nomination form also included three items from the Inhibited/Wary subscale of Younger et al.'s (2000) Behaviour-Based Peer-Nomination Measure of Social Withdrawal. This subscale was combined with items on the Children's Behavior Scale due to the identical question format. Psychometric properties have been detailed in past research (Younger et al.), with high internal consistency for the inhibited/wary subscale, $\alpha = .90$. High reliability was also demonstrated in the current study, $\alpha = .84$.

Externalising behaviour. Teachers completed the externalising subscale of the Child Behaviour Questionnaire (CBQ; Rutter, 1967) for each child in their classrooms. Externalising behaviour was assessed with five items, including a) often destroys own or others' belongings, b) frequently fights with other children, c) often tells lies, d) has stolen things on one or more occasions, and e) bullies other children. Response options ranged from 0 (not true) to 2 (always/often true). High internal consistency for the externalising subscale has been reported in past research, $\alpha = .80$ to $.83$ (Hodges et al., 1999), and was also found in the current study, $\alpha = .85$.

Results

Tests of Univariate Normality, Outliers and Transformation of Data

Prior to conducting analyses to test hypotheses, the assumption of normality of distributions was checked. Most measured variables showed some positive skew, $z > 3.29$, $p < .01$. A square root transformation of depression scores was performed resulting in normal distributions for this variable.¹ Log_{10} transformations were performed on extreme positively skewed variables (i.e., teacher-rated externalising behaviour, physical aggression, relational aggression, withdrawal and prosocial behaviour) after adding a constant so that all scores were positive. Log_{10} transformations yielded normal distributions in all variables except externalising behaviour. However, the positive skew of externalising behaviour was significantly reduced (from $z = 20.85$ to $z = 12.45$, $ps < .01$). Therefore, transformed variables were used in all further correlational and regression analyses to better satisfy the assumptions of the analyses. The perceived social acceptance variable showed moderate negative skew. A square root transformation resulted in this variable showing moderate positive skew thus there was no advantage in transforming this variable; untransformed scores of perceived social acceptance were used in all analyses (Tabachnick & Fidell, 2001).

Univariate and multivariate outliers were also examined. Univariate outliers were observed in one case for relational aggression, $z = 3.43$, and four cases for externalising behaviour, $z = 3.02$ to 3.57 , all $p < .01$. However, these scores appeared valid, therefore all participants were maintained. Mahalanobis distance scores were inspected to examine multivariate outliers. No cases were significant multivariate outliers, $\chi^2(5) = 20.5$.

¹ Tabachnick & Fidell (2001) recommend square root transformations for moderately positive skewed data, and logarithmic transformations for substantial positive skewed data.

Descriptive Statistics and Preliminary Analyses

Means, standard deviations and observed ranges of all variables are presented in Table 3.1. Descriptive statistics for untransformed self-report measures are presented to allow for comparisons with past research, however transformed variables are used in all further correlation and regression analyses and oneway ANOVAs to satisfy the assumptions of the analyses.

Preliminary gender and grade analyses were conducted (see Table 3.2 and Table 3.3). A Bonferroni correction of $p < .005$ was applied to the 11 oneway ANOVAs. Using this more conservative cut-off, the oneway ANOVAs revealed that boys were significantly more physically aggressive than girls, $F(1, 332) = 78.19, p = .000$, and also significantly less prosocial than girls, $F(1, 332) = 71.53, p = .000$. No differences in depressive symptoms were found between boys and girls, $F(1, 332) = .77, p = .380$. No other significant gender differences were found. Significant grade differences were found for peer dislike, $F(2, 331) = 6.28, p = .000$, and negative perceptions of peers, $F(2, 331) = 78.19, p = .002$. Post hoc comparisons revealed that Grade 7 children received significantly lower ratings of peer dislike compared to Grade 5 and 6 children, and Grade 6 children were significantly more negative in their perceptions of peers compared to Grade 7, but not Grade 5, children. No other significant effects were found for gender or grade, and all further analyses were conducted without controlling for these variables.

Table 3.1

Descriptive Statistics of All Measured Variables Prior to Transformations (N = 334)

Variable	<i>M</i>	<i>SD</i>	Min	Max
Depressive symptoms ^a	8.83	7.30	0	42
Peer rejection ^b	.00	.98	-1.99	3.32
Peer dislike ^b	2.77	.59	1.40	4.60
<i>Social behaviour^b</i>				
Physical aggression	-.02	.93	-.84	3.69
Relational aggression	-.01	.80	-1.21	4.19
Withdrawal	.00	.85	-.87	3.95
Prosocial behaviour	.02	.91	-1.56	2.83
<i>Social cognitions^a</i>				
Perceptions of peers	1.97	.42	1.13	3.33
Perceptions of self	1.87	.51	.73	3.53
Perceived social acceptance	3.06	.73	1	4
Externalising behaviour ^c	.72	1.66	0	10

Note. ^aSelf report; ^bPeer report; ^cTeacher report, *N* = 310.

Table 3.2

Results of Oneway ANOVAs Comparing Males and Females on All Measured Variables

Dependent variable	Group	<i>M</i>	<i>SD</i>	<i>F</i> (1, 332)	<i>p</i>
Depressive symptoms	Males	2.74	1.20	.77	.380
	Females	2.62	1.37		
Peer rejection	Males	.06	1.07	1.46	.229
	Females	-.07	.87		
Peer dislike	Males	2.83	.60	2.57	.110
	Females	2.72	.58		
Physical aggression	Males	.01	.33	78.19	.000
	Females	-.26	.21		
Relational aggression	Males	.27	.14	.28	.599
	Females	.27	.16		
Withdrawal	Males	-.13	.31	.82	.366
	Females	-.10	.28		
Prosocial behaviour	Males	.18	.15	71.53	.000
	Females	.34	.18		
Negative perceptions of peers	Males	5.42	.58	.23	.633
	Females	5.39	.57		
Negative perceptions of self	Males	5.28	.75	.50	.479
	Females	5.22	.69		
Perceived social acceptance	Males	3.06	.69	.02	.898
	Females	3.05	.76		
Externalising behaviour ^a	Males	.15	.26	1.54	.216
	Females	.12	.25		

Note. *N*(males) = 161, *N*(females) = 173.

^a*N*(males) = 149, *N*(females) = 161, *df* = 1, 308.

Table 3.3

Results of Oneway ANOVAs Comparing Grade 5, 6 and 7 Children on All Measured Variables

Dependent variable	Group	<i>M</i>	<i>SD</i>	<i>F</i> (2, 331)	<i>p</i>
Depressive symptoms	Grade 5	2.77	1.24	2.39	.094
	Grade 6	2.80	1.28		
	Grade 7	2.46	1.32		
Peer rejection	Grade 5	.00	.98	.01	.994
	Grade 6	.00	.97		
	Grade 7	-.01	.98		
Peer dislike	Grade 5	2.88	.54	21.31	.000
	Grade 6	2.94	.53		
	Grade 7	2.49	.60		
Physical aggression	Grade 5	-.13	.31	.38	.685
	Grade 6	-.15	.33		
	Grade 7	-.12	.28		
Relational aggression	Grade 5	.27	.15	.03	.976
	Grade 6	.27	.15		
	Grade 7	.27	.16		
Withdrawal	Grade 5	-.13	.34	.25	.776
	Grade 6	-.11	.28		
	Grade 7	-.10	.28		
Prosocial behaviour	Grade 5	.27	.18	.01	.992
	Grade 6	.26	.20		
	Grade 7	.26	.18		
Negative perceptions of peers	Grade 5	5.41	.57	6.28	.002
	Grade 6	5.53	.54		
	Grade 7	5.27	.60		
Negative perceptions of self	Grade 5	5.29	.74	1.99	.138
	Grade 6	5.31	.68		
	Grade 7	5.14	.73		
Perceived social acceptance	Grade 5	2.96	.73	1.25	.288
	Grade 6	3.11	.72		
	Grade 7	3.09	.74		
Externalising behaviour ^a	Grade 5	.14	.27	.04	.965
	Grade 6	.13	.24		
	Grade 7	.14	.27		

Note. *N*(Grade 5) = 101, *N*(Grade 6) = 121, *N*(Grade 7) = 112.

^a*N*(Grade 5) = 82, *N*(Grade 6) = 116, *N*(Grade 7) = 112.

Children's Peer Rejection and Social Behaviour

To test the hypothesis that peer rejection is associated with children's social behaviours when interacting with peers, correlations between peer rejection, physical aggression, relational aggression, withdrawal and prosocial behaviour were first inspected (see Table 3.4). Peer rejection was correlated with all four social behaviours; r s ranged from .26 to .43 for the three negative behaviours and -.46 for prosocial behaviour, all $p < .01$. A standard multiple regression was conducted to estimate the amount of variance in peer rejection explained by children's social behaviour. Relational aggression, withdrawal and prosocial behaviour were all significant independent predictors of peer rejection, with 38% of the variance in peer rejection accounted for by behaviours, $R^2 = .38$, $F(4, 329) = 49.41$, $p < .01$ (see Table 3.5). Prosocial behaviour had a negative association with peer rejection, $\beta = -.30$, $p < .01$. Relational aggression and withdrawal were positively associated with peer rejection, $\beta = .25$ and $.37$, respectively, $p < .01$, with withdrawal accounting for more variance in peer rejection than relational aggression. Once other children's behaviours were accounted for in this regression model, peer rejection was not significantly associated with physical aggression.

Table 3.4

Zero-Order Pearson Correlations Between All Measured Variables (N = 334)

	1	2	3	4	5	6	7	8	9	10
1. Depressive symptoms	---									
2. Peer rejection	.22**	---								
3. Peer dislike	.30**	.76**	---							
4. Physical aggression	.09	.26**	.22**	---						
5. Relational aggression	.09	.30**	.28**	.53**	---					
6. Withdrawal	.26**	.43**	.44**	-.07	-.07	---				
7. Prosocial behaviour	-.30**	-.46**	-.50**	-.43**	-.21**	-.27**	---			
8. Negative perceptions of peers	.53**	.20**	.36**	.10	.15**	.20**	-.23**	---		
9. Negative perceptions of self	.63**	.25**	.30**	.03	.03	.31**	-.29**	.65**	---	
10. Perceived social acceptance	-.56**	-.36**	-.41**	.03	.00	-.45**	.28**	-.56**	-.65**	---
11. Externalising behaviour ^a	.20**	.27**	.29**	.43**	.43**	.02	-.22**	.20**	.06	-.12*

Note. ^aTeacher report, $N = 310$.

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

Table 3.5

Standard Multiple Regression Examining Associations Between Peer Rejection and Children's Social Behaviour (N = 334)

Independent variable	<i>B</i>	<i>SE B</i>	β
Physical aggression	.07	.18	.02
Relational aggression	1.59	.33	.25**
Withdrawal	1.22	.15	.37**
Prosocial behaviour	-1.56	.27	-.30**

Note. $R^2 = .38, p < .01$.

The dependent variable was peer rejection.

** $p < .01$.

The Effects of Peer Rejection and Social Behaviour on Children's Functioning

In support of study hypotheses, children's functioning (i.e., depressive symptoms and externalising behaviour) was significantly correlated with peer rejection, $r = .22$ and $.27$, $ps < .01$, respectively (see Table 3.4). Yet, it was also predicted that certain social behaviours would have specific relationships with specific psychosocial outcomes (i.e., externalising behaviour versus depressive symptoms) over and above the effects of peer rejection. That is, peer rejection was expected to be associated with both outcomes, however specific social behaviours were expected to be associated with these outcomes. Physical and relational aggression were expected to predict externalising behaviour, whereas social withdrawal was expected to predict depressive symptoms. Two separate hierarchical regressions were conducted to test these hypotheses.

Predicting depressive symptoms. To test the association of depressive symptoms with children's behaviours and peer rejection, a hierarchical multiple regression was conducted with the four peer-reported social behaviours and peer rejection as the independent variables (see Table 3.6). A second model with peer dislike as the independent variable at Step 2 was estimated (see Table 3.6). As predicted, withdrawal was significantly associated with depressive symptoms at Step 1, $\beta = .20$, $p < .01$. Although not an initial hypothesis, prosocial behaviour was also predictive of depressive symptoms, $\beta = -.25$, $p < .01$. Also as expected, the two aggressive behaviours (i.e., physical and relational) were not significant predictors of depressive symptoms, $\beta = -.04$ and $.08$, $ps > .05$. A significant amount of variance in depressive symptoms was accounted for at Step 1, $R^2 = .13$, $F(4,329) = 12.09$, $p < .01$. Contrary to the hypothesis, peer rejection was not an additional significant predictor of depressive symptoms at Step 2 above and beyond the effect of social behaviours, $\Delta R^2 = .00$, $F_{chg}(1, 328) = .09$, $p > .05$. In the second regression model substituting peer dislike for peer rejection at Step 2, it was a modest, but significant, predictor of depressive symptoms, $\beta = .14$, $\Delta R^2 = .01$, $F_{chg}(1, 328) = 4.36$, $p < .05$.

Table 3.6

Results of a Hierarchical Linear Model Regressing Depressive Symptoms on Children's Social Behaviour and Peer Rejection/Peer Dislike (N = 334)

Model 1: Peer rejection at Step 2				
Step	Independent variable	<i>B</i>	<i>SE B</i>	β
1	Withdrawal	.86	.24	.20**
	Prosocial behaviour	-1.71	.42	-.25**
	Physical aggression	-.18	.28	-.04
	Relational aggression	.65	.52	.08
2	Withdrawal	.83	.26	.19**
	Prosocial behaviour	-1.67	.44	-.24**
	Physical aggression	-.19	.28	-.05
	Relational aggression	.61	.53	.07
	Peer rejection	.02	.09	.02
Model 2: Peer dislike at Step 2				
Step	Independent variable	<i>B</i>	<i>SE B</i>	β
2	Withdrawal	.65	.26	.15*
	Prosocial behaviour	-1.36	.45	-.20**
	Physical aggression	-.16	.28	-.04
	Relational aggression	.36	.53	.04
	Peer dislike	.30	.14	.14*

Note. Model 1: $R^2 = .13$ for Step 1, $p < .01$, $\Delta R^2 = .00$ for Step 2, $p > .05$.

Model 2: $R^2 = .13$ for Step 1, $p < .01$, $\Delta R^2 = .01$ for Step 2, $p < .05$.

The dependent variable was depressive symptoms.

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

Predicting externalising behaviour. To test associations with externalising behaviour, a hierarchical regression was conducted, with the four peer-reported social behaviours entered in Step 1 and peer rejection entered at Step 2 (see Table 3.7). A second model was also estimated replacing peer rejection with peer dislike at Step 2 (see Table 3.7). As predicted, the two aggressive behaviours (i.e., physical and relational) were both significantly associated with teacher-reported externalising behaviour, $\beta = .27$ and $.28$, respectively, $ps < .01$. Also as predicted, withdrawal was not associated with externalising behaviour, $\beta = .04$, $p > .05$. Although not included in the hypothesis, prosocial behaviour was not significantly associated with externalising behaviour at Step 2, $\beta = .04$, $p > .05$. A significant amount of variance in externalising behaviour was accounted for by physical and relational aggression at Step 1, $R^2 = .25$, $F(4, 305) = 25.03$, $p < .01$.

Peer rejection was an additional significant predictor of externalising behaviour at Step 2, $\beta = .13$, $p < .05$, along with the two aggressive behaviours. The additional variance accounted for by peer rejection was small in magnitude, but significant, $\Delta R^2 = .01$, $F_{chg}(1, 304) = 4.05$, $p < .05$. This regression was repeated substituting the peer dislike measure for the peer rejection measure, with similar results for predicting externalising problems at Step 2, $\beta = .19$, $\Delta R^2 = .02$, $F_{chg}(1, 304) = 8.79$, $p < .01$.

Table 3.7

Results of a Hierarchical Linear Model Regressing Externalising Behaviour on Children's Social Behaviour and Peer Rejection/Peer Dislike (N = 310)

Model 1: Peer rejection at Step 2				
Step	Independent variable	<i>B</i>	<i>SE B</i>	β
1	Physical aggression	.22	.02	.27**
	Relational aggression	.47	.10	.28**
	Withdrawal	.03	.05	.04
	Prosocial behaviour	-.05	.08	-.04
2	Physical aggression	.22	.05	.27**
	Relational aggression	.42	.10	.25**
	Withdrawal	.00	.05	-.01
	Prosocial behaviour	.00	.08	.00
	Peer rejection	.03	.02	.13*
Model 2: Peer dislike at Step 2				
Step	Independent variable	<i>B</i>	<i>SE B</i>	β
2	Physical aggression	.23	.05	.28**
	Relational aggression	.39	.10	.23**
	Withdrawal	-.02	.05	-.03
	Prosocial behaviour	.04	.09	.03
	Peer rejection	.08	.03	.19**

Note. Model 1: $R^2 = .25$ for Step 1, $p < .01$, $\Delta R^2 = .01$ for Step 2, $p < .05$.

Model 2: $R^2 = .25$ for Step 1, $p < .01$, $\Delta R^2 = .02$ for Step 2, $p < .01$.

The dependent variable was externalising behaviour.

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

Behaviour Group Differences in Psychosocial Functioning

Following from the above analyses finding specific functioning associated in the different types of negative behaviour exhibited by children, further analyses were conducted. Children were classified into the following five groups according to their scores on peer-nominated social behaviours using a cut-off of 1 standard deviation above the mean: 1) physically aggressive children, 2) relationally aggressive children, 3) physically and relationally aggressive children, 4) withdrawn children, and 5) average children.² The group of children classified as average did not exhibit high levels of any of the negative behaviours. First, it was predicted that the first four groups would be more rejected by their peers than average children. Second, it was predicted that withdrawn children would report increased depressive symptoms compared to the four other groups. Third, it was predicted that children in the three aggressive groups would be rated by their teachers as more externalising than withdrawn and average children. Fourth, it was predicted that withdrawn children would report more negative social cognitions than the four other groups. Comparisons were conducted to test these hypotheses.

A significant main effect for group was found in all models, all $p < .01$ (see Table 3.8). As predicted, children who were classified as physically aggressive, relationally aggressive, both physically and relationally aggressive, or withdrawn were more rejected by their peers than average children, in support of the first hypothesis. Second, in the oneway ANOVA for depressive symptoms, a priori comparisons revealed that withdrawn children did not have significantly more depressive symptoms when compared to all other groups of children (i.e., the behaviour problem and average groups), although this comparison approached significance, $p = .07$. Post hoc pairwise comparisons revealed that the only group difference in depressive symptoms was between withdrawn children and average children, with withdrawn children reporting higher depressive symptoms. Third,

² Children who were withdrawn and physically and/or relationally aggressive were excluded from this analysis ($n = 4$).

children in the three aggression groups had higher levels of teacher-rated externalising behaviour than withdrawn and average children, scoring at least 1 standard deviation higher than the overall mean for externalising behaviour. Finally, withdrawn children reported lower perceived social acceptance and negative perceptions of self compared to all other groups. A main effect for negative perceptions of peers was found, $F(4, 325) = 4.90, p < .01$, however, withdrawn children did not significantly differ from the four other groups as predicted in the a priori comparisons. Yet, post hoc tests revealed that withdrawn children were more negative in their perceptions of peers than average children, $p < .01$. In sum, children in the negative behaviour groups were more rejected than other children. Withdrawn children were significantly more depressed than average children, and also displayed more negative social cognitions compared to all other groups. Children classified as aggressive (either physically, relationally, or both) were more externalising than all other children.

Table 3.8

Results of Oneway ANOVAs Comparing the Functioning of Children Classified as Aggressive, Withdrawn or Average (N = 330)

Dependent variable	Group	<i>M</i>	<i>SD</i>	<i>F</i> (4, 325)
Depressive symptoms	PA	2.93	1.10	4.83**
	RA	2.97	1.22	
	PA/RA	2.99	1.51	
	WD	3.26	1.20	
	AV	2.45	1.27	
Peer rejection	PA	.00	.98	12.23**
	RA	.15	.70	
	PA/RA	.74	1.18	
	WD	.61	1.30	
	AV	-.24	.75	
Negative perceptions of peers	PA	5.54	.50	4.90**
	RA	5.53	.47	
	PA/RA	5.59	.64	
	WD	5.66	.70	
	AV	5.31	.54	
Negative perceptions of self	PA	5.27	.81	5.14**
	RA	5.26	.64	
	PA/RA	5.32	.83	
	WD	5.70	.75	
	AV	5.14	.66	
Perceived social acceptance	PA	3.18	.69	12.65**
	RA	3.06	.69	
	PA/RA	3.16	.65	
	WD	2.34	.79	
	AV	3.18	.66	
Externalising behaviour ^a	PA	.34	.30	21.26**
	RA	.30	.34	
	PA/RA	.35	.37	
	WD	.06	.19	
	AV	.06	.17	

Note. PA = physically aggressive only ($n = 37$), RA = relationally aggressive only ($n = 20$), PA/RA = physically and relationally aggressive ($n = 20$), WD = withdrawn only ($n = 38$), AV = average ($n = 215$).

^a $N = 306$, $df = 4, 301$.

** $p < .01$.

Differences Between Rejected and Nonrejected Children on Social Behaviour and Functioning

Children were categorised into groups of rejected and nonrejected children based on extensive research suggesting that classifying children in discrete peer status groups continues to be important in terms of predicting negative outcomes (Cillessen & Mayeux, 2004). This information also provides directions for interventions targeting at-risk groups based on peer status. Rejected children were identified using a 1 standard deviation cut-off of the peer rejection score (see Coie et al., 1982). Children scoring 1 standard deviation or above on the peer rejection variable (i.e., $>.97$, $n = 51$, 15% of all children) were classified as rejected; all other children were classified nonrejected ($n = 283$).

Rejected and nonrejected children were compared to determine the magnitude of differences in their functioning (i.e., depressive symptoms and externalising problems), social cognitions and social behaviour. On average, rejected children scored higher on all measures compared to nonrejected children. Rejected children reported higher levels of depressive symptoms than nonrejected children, $F(1, 332) = 10.86$, $p < .01$, scoring about four raw points higher on the CDI³ (i.e., mild depressive range versus normal range, respectively, see Table 3.9). Rejected children were not functioning in the classroom as well as nonrejected children; they were rated significantly higher on externalising behaviour by their teachers, $F(1, 308) = 15.50$, $p < .01$. Rejected children were rated by their peers as significantly more physically and relationally aggressive, more withdrawn and less prosocial than nonrejected children. That is, children who were classified as rejected displayed higher mean levels on all four negative behaviours compared to nonrejected children. Finally, rejected children reported more negative perceptions of peers and self, and lower perceived social acceptance, than nonrejected children.

³ The Oneway ANOVAs were conducted with both untransformed and transformed data with similar results.

Table 3.9

Results of Oneway ANOVAs Comparing the Social Behaviour and Functioning of Rejected to Nonrejected Children (N = 334)

Dependent variable	Group	<i>M</i>	<i>SD</i>	<i>F</i> (1, 332)
Depressive symptoms	Rejected	3.22	1.33	10.86**
	Nonrejected	2.58	1.26	
Physical aggression	Rejected	.01	.41	13.32**
	Nonrejected	-.16	.28	
Relational aggression	Rejected	.35	.17	18.87**
	Nonrejected	.25	.14	
Withdrawal	Rejected	.18	.31	68.88**
	Nonrejected	-.16	.26	
Prosocial behaviour	Rejected	.10	.15	51.28**
	Nonrejected	.29	.18	
Negative perceptions of peers	Rejected	5.63	.64	9.25**
	Nonrejected	5.37	.56	
Negative perceptions of self	Rejected	5.52	.74	9.04**
	Nonrejected	5.20	.70	
Perceived social acceptance	Rejected	2.54	.79	34.08**
	Nonrejected	3.15	.68	
Externalising behaviour ^a	Rejected	.26	.35	15.50**
	Nonrejected	.11	.23	

Note. Rejected children: $n = 51$; Nonrejected children: $n = 283$.

^aTeacher reports, rejected children: $n = 48$; nonrejected children: $n = 262$, $df = 1$, 308.

** $p < .01$.

Gender as a Moderator of Associations Between Children's Social Behaviour and Peer Rejection

Gender analyses were conducted based on past theory and research suggesting gender moderates the association between various types of negative social behaviour and peer rejection (Coie & Dodge, 1998; Kaplan, et al., 1999). It was also hypothesised that certain social behaviours would be associated with different psychosocial outcomes for girls and boys based on past research suggesting girls' functioning is more closely related to interpersonal stress (Rudolph & Hammen, 1999), and boys' functioning is more strongly associated with externalising problems such as aggression (Patterson, Kupersmidt, & Vaden, 1990). Further, although Study 1 suggested a trend of a stronger correlation between peer rejection and negative perceptions of peers for boys compared to girls (although this difference was not significant), this pattern was not replicated for correlations between social cognitions and all other variables for boys versus girls in Study 2A, therefore no further analyses examining gender as a moderator of social cognitions were conducted.

Separate correlation matrices were obtained for boys and girls to compare the magnitude of correlations between social behaviour, peer rejection, peer dislike and psychosocial functioning (see Table 3.10). The correlation between peer rejection and physical aggression was significantly stronger for boys than girls, $r = .34, p < .01$ and $r = .10, p > .05$, respectively, $z = 2.17, p < .01$. The correlation between depressive symptoms and prosocial behaviour was significantly weaker for boys compared to girls, $r = -.16, p < .05$ and $r = -.41, p < .01$, respectively, $z = 2.26, p < .01$. All other bivariate correlations between social behaviours, peer rejection, peer dislike and functioning did not differ in magnitude for boys and girls. Whilst a significant interaction between gender and peer rejection in the prediction of depressive symptoms was found in Study 1, a similar difference in this correlation for boys and girls was not replicated in the current study.

Table 3.10

Correlations Between Depressive Symptoms, Peer Rejection, Peer Dislike, Social Behaviours and Functioning for Males and Females

	1	2	3	4	5	6	7	8
1. Depressive symptoms	---	.19*	.31**	.10	.11	.32**	-.16*	.15
2. Peer rejection	.26**	---	.74**	.34**	.40**	.46**	-.47**	.29**
3. Peer dislike	.29**	.77**	---	.32**	.36**	.43**	-.54**	.31**
4. Physical aggression	.05	.10	.05	---	.70**	-.05	-.40**	.49**
5. Relational aggression	.08	.21**	.23**	.51**	---	-.04	-.35**	.44**
6. Withdrawal	.22**	.41**	.47**	-.05	-.09	---	-.21**	.07
7. Prosocial behaviour	-.41**	-.49**	-.49**	-.20**	-.17*	-.42**	---	-.24**
8. Externalising behaviour ^a	.24**	.23**	.25**	.40**	.43**	-.02	-.18*	---

Note. Correlations for males are reported above the diagonal; females below the diagonal.

$N(\text{males}) = 161$, $N(\text{females}) = 173$.

^aTeacher report, $N = 310$.

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

Based on the stronger association between physical aggression and peer rejection for boys compared to girls, a hierarchical multiple regression was conducted to test the interaction of gender and physical aggression in the prediction of peer rejection (see Table 3.11). Gender and physical aggression were entered at Step 1 of the regression equation, and the interaction of gender and physical aggression was entered at Step 2. The results of the regression found that physical aggression was significantly associated with peer rejection at Step 1, $\beta = .35, p < .01$, but gender was not, $\beta = .07, p > .05$. A significant amount of variance in peer rejection was accounted for in Step 1, $R^2 = .10, F(2, 331) = 19.52, p < .01$. At Step 2, there was no significant association between peer rejection and the interaction of gender and physical aggression, $\Delta R^2 = .00, F_{chg}(1, 330) = 1.44, p > .05$. That is, the association between peer rejection and physical aggression did not significantly differ for boys and girls even though simple correlations were significantly different in magnitude. Hence, it appears this gender difference was weak and somewhat unstable.

Table 3.11

Results of a Hierarchical Multiple Model Regressing Peer Rejection on the Interaction of Gender and Physical Aggression (N = 334)

Step	Independent variable	<i>B</i>	<i>SE</i>	β
1	Gender	.14	.11	.07
	Physical aggression	.37	.06	.35**
2	Gender	.12	.12	.06
	Physical aggression	.38	.06	.37**
	Interaction: Gender X physical aggression	-.31	.35	-.05

Note. $R^2 = .10$ for Step 1, $p < .01$; $\Delta R^2 = .00$ for Step 2, $p > .05$.

The dependent variable was peer rejection.

** $p < .01$.

A similar hierarchical multiple regression was conducted to test the interaction of gender and prosocial behaviour in the prediction of depressive symptoms (see Table 3.12). At Step 1, prosocial behaviour was a significant predictor of depressive symptoms, $\beta = -.34$, $p < .01$, but gender was not, $\beta = .09$, $p > .05$. At Step 2, prosocial behaviour remained a significant predictor of depressive symptoms, and the interaction between gender and prosocial behaviour accounted for additional variance in depressive symptoms, $\beta = -.19$, $\Delta R^2 = .01$, $F_{chg}(1, 330) = 5.07$, $p < .05$. This suggests that girls who exhibit relatively lower levels of prosocial behaviour have relatively higher levels of depressive symptoms, but this association is significantly weaker among boys.

Table 3.12

Results of a Hierarchical Multiple Model Regressing Depressive Symptoms on the Interaction of Gender and Prosocial Behaviour (N = 334)

Step	Independent variable	<i>B</i>	<i>SE</i>	β
1	Gender	.24	.15	.09
	Prosocial	-2.32	.40	-.34**
2	Gender	.21	.15	.08
	Prosocial	-1.23	.63	-.18*
	Interaction: Gender X prosocial behaviour	-1.82	.81	-.19*

Note. $R^2 = .10$ for Step 1, $p < .01$; $\Delta R^2 = .01$ for Step 2, $p < .05$.

The dependent variable was depressive symptoms.

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

Structural Model of Children's Social Behaviour, Peer Rejection, Social Cognitions and Depressive Symptoms

A proposed path model (see Figure 3.1) incorporating children's social behaviour, peer rejection, social cognitions and depressive symptoms was tested using structural equation modelling (SEM; Jöreskog & Sörbom, 1993; Kaplan, 2000) and maximum likelihood estimation available within AMOS software (SmallWaters Corporation, 1999). SEM is considered a sophisticated data analytic technique that provides several benefits over the use of traditional regression techniques, including the estimation of overall fit of the model. Also, the ability to use latent variables in SEM addresses the issue of measurement error in most psychological measures (Cole & Maxwell, 2003), and is useful for large sample sizes over 300 (Tabachnick & Fidell, 2001). Untransformed variables were used in all SEM analyses due to recommendations by McDonald and Ho (2002) that parameter estimates remain valid in SEM techniques even when assumptions of normality are violated.

Model fit was assessed with commonly used fit indices, including the χ^2 test statistic and associated level of significance and the Comparative Fit Index (CFI) (Bentler & Bonett, 1980). The Root Mean Square Error of Approximation (RMSEA) (Browne & Cudeck, 1993) provided an estimate of error due to approximate fit of the models. The CFI is more acceptable as the values approach one and values over .95 are considered indication of very good model fit (Hu & Bentler, 1999). RMSEA values below .05 are considered good, values between .05 and .08 are considered indicative of fair fit, and values between .08 and .10 are considered an indication of mediocre fit (Kaplan, 2000). Critical ratios were used to determine significance of model paths (t -values above an absolute value of 1.96).

SEM analyses were used to determine linkages between children's social behaviour (i.e., physical aggression, relational aggression, withdrawal and prosocial behaviour) and peer rejection, and associations between peer rejection and social cognitions (i.e., perceptions of peers, perceptions of self, and perceived

social acceptance). In turn, social cognitions (i.e., children's perceptions of their relationships with peers) were hypothesised to fully mediate the relationship between peer rejection and depressive symptoms.

Prior to testing the hypotheses included as part of this model, the fit of the measurement model was determined using latent and measured variables of children's behaviours and social cognitions (McDonald & Ho, 2002). Following this, the second step was to test the mediating role of social cognitions in the association between peer rejection and depressive symptoms, which formed part of the hypothesised model (see Figure 3.2). Then the hypothesised structural model included all aspects of the measurement model, plus hypothesised covariances and directional paths. Because the structural and measurement models were nested, model fit was compared using the $\chi^2_{\text{difference}}$ test to draw conclusions regarding the fit of the hypothesised paths between variables apart from the fit of the measurement components of the model.

Bootstrapping techniques (Shrout & Bolger, 2002) were applied to the measurement and structural models to obtain all standard errors and 95% confidence intervals of path coefficients with 1000 iterations of 200 participants each. These samples were randomly selected with replacement. The use of bootstrapping techniques is recommended in multivariate nonnormal data as it allows for the evaluation of the stability of model parameters, thus reporting parameter values with more accuracy (Byrne, 2001).

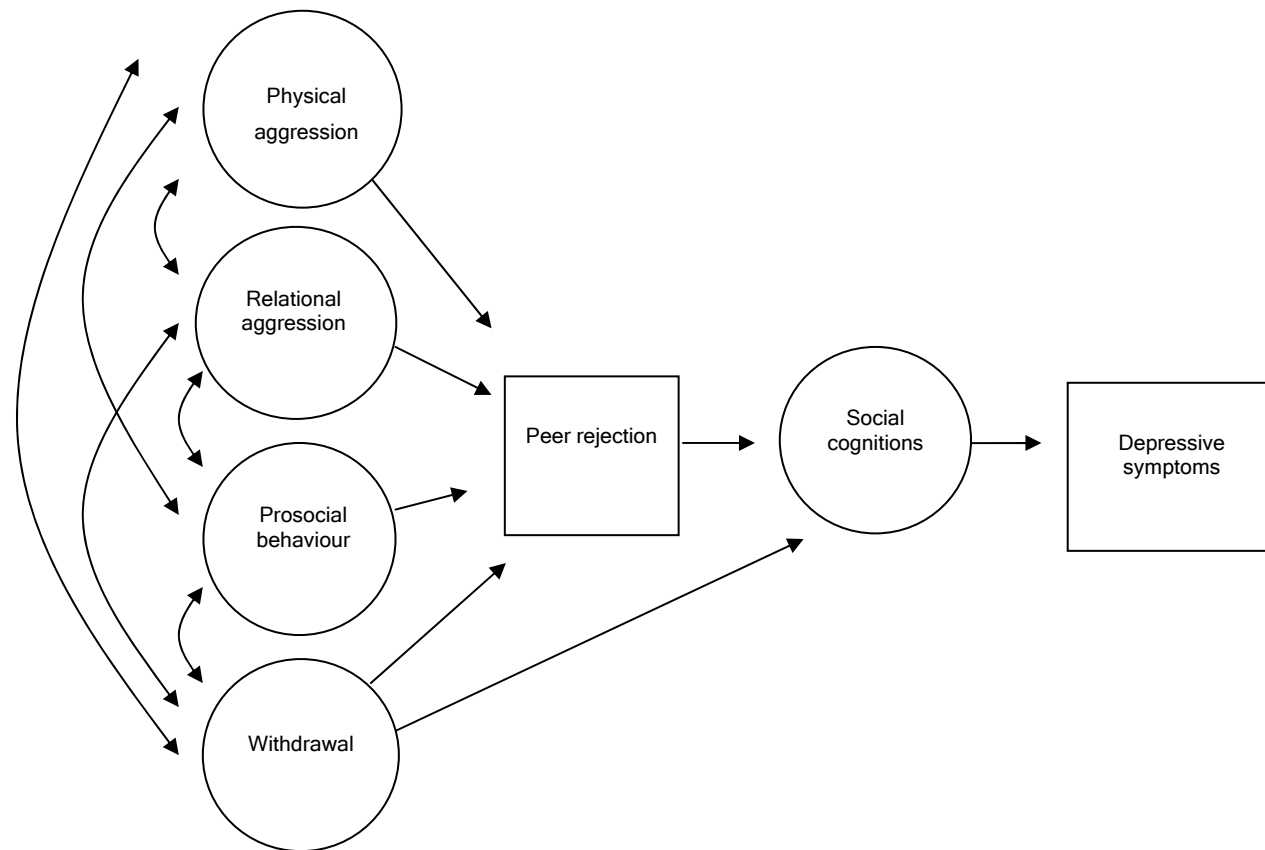


Figure 3.1. Hypothesised structural model of children's social behaviour, peer rejection, social cognitions and depressive symptoms.

Note. Latent constructs are shown with a circle. Measured variables are shown with a square.

Measurement Model

Prior to testing the structural model, the measurement model was assessed to determine the fit of the five latent variables to be included in the structural model (i.e., physical aggression, relational aggression, withdrawal, prosocial behaviour and social cognitions). Each latent construct had three measured indicators. For the children's behaviours, these measured indicators were three individual peer nomination items. For social cognitions, three subscale scores were the measured indicators, including negative perceptions of peers, negative perceptions of self, and perceived social acceptance. In addition to determining the fit of the measurement model, an additional aim was to examine item loadings on the hypothesised latent constructs. As suggested in recent literature (Cole & Maxwell, 2003), each measured indicator was constrained to only load onto the respective latent variable, and each latent variable was allowed to correlate with all other latent variables.

The measurement model fit the data well on all fit indices: $\chi^2(80, N = 334) = 230.61, p < .01, CFI = .96, RMSEA = .075$. Factor loadings were generally high and are shown in Table 3.13 along with item descriptors. Loadings ranged from an absolute value of .52 to .96. All but two loadings were above .74. It was concluded that the measurement model provided an adequate fit to the data and latent variables were appropriate for inclusion in the structural model.

Table 3.13

Factor Loadings for Measurement Model Testing Fit of Five Latent Variables (N = 334)

Latent variable	Factor Loading		
	Unstandardised	SE	Standardised
<i>1. Physical aggression</i>			
i) Hits or kicks other kids	1.00 (fixed)		.92**
ii) Threatens to hit or beat up other kids	1.02	.03	.94**
iii) Pushes or shoves other kids	1.05	.03	.96**
<i>2. Relational aggression</i>			
i) Gets others to stop playing with/liking the classmate	1.00 (fixed)		.79**
ii) Spreads rumours or gossips about some classmates	1.07	.09	.83**
iii) Ignores/stops talking to classmates when mad at them	.66	.08	.52**
<i>3. Withdrawal</i>			
i) Stays by themselves most of the time	1.00 (fixed)		.90**
ii) Doesn't talk much to other kids	.70	.06	.64**
iii) Doesn't play with other kids	.95	.06	.86**
<i>4. Prosocial behaviour</i>			
i) Cheers up other kids when upset or sad	1.00 (fixed)		.86**
ii) Kind to other kids	1.07	.05	.92**
iii) Helpful to other kids	1.05	.05	.91**
<i>5. Social cognitions</i>			
i) Negative perceptions of peers	1.00 (fixed)		.74**
ii) Negative perceptions of self	1.34	.10	.84**
iii) Perceived social acceptance	-1.86	.14	-.79**

Note. $\chi^2(80, N = 334) = 230.61, p < .01, CFI = .96, RMSEA = .075. **p < .01.$

The Mediation Role of Social Cognitions

A mediation model was tested using structural equation modelling (SEM; Jöreskog & Sörbom, 1993; Kaplan, 2000), with social cognitions as a latent variable with three indicators as described in the previous measurement model, and peer rejection and depressive symptoms as measured variables. The four conditions for testing mediated effects were first investigated using four separate SEM models (see Holmbeck; 1997). Figure 3.2 outlines all paths tested to meet these conditions. The first model tested the condition that the predictor (A) was significantly associated with the endogenous variable (C) by examining the significance of the A to C path. In this case, A was peer rejection and C was depressive symptoms. The second model tested the condition that the predictor (A) was significantly associated with the mediator (B). In this case, B was social cognitions. The third and fourth models tested the association between B and C after A was accounted for. This tests the third and fourth conditions that the mediator (B) must be significantly associated with the endogenous variable (C), and the impact of the predictor (A) is reduced after accounting for the mediator (B).

To meet the first condition, Model 1 was fit with a direct path from peer rejection (A) to depressive symptoms (C). This direct path was significant, standardised path coefficient = .30, $p < .01$. To test the second condition, the direct effect of social cognitions (B) on depressive symptoms (C) was tested in Model 2, without the inclusion of peer rejection in the model. There was a significant direct effect of social cognitions on depressive symptoms in this model, standardised path coefficient = .73, $p < .01$. The third condition was tested in Model 3 (see Figure 3.2) to assess the indirect effects of peer rejection on depressive symptoms via social cognitions. Model 3 included direct paths from A to B and from B to C, and the direct A to C path. In this model both the A to B and B to C paths were significant, with standardised path coefficients of .33 and .74, respectively, $ps < .01$. Also, the A to C path, which was previously significant

in Model 1, was non-significant, standardised path coefficient = $-.02$. Thus, all criteria for testing mediation were met.

The mediation model fit the data adequately on all fit indices: $\chi^2(4, N = 334) = 15.12, p < .01, CFI = .98, RMSEA = .091$ (see Table 3.14). Lower and upper 95% confidence intervals provided by bootstrapping techniques also confirmed that the paths from peer rejection to social cognitions and social cognitions to depressive symptoms were significantly different to zero. The standardised direct path coefficient from peer rejection to depressive symptoms had a 95% confidence interval of $-.11$ and $.06$; because these lower and upper confidence intervals were not significantly different than 0, it was concluded that children's social cognitions fully mediated the link between peer rejection and depressive symptoms. The amount of variance accounted for in social cognitions was 11%; the amount of variance in depressive symptoms was 54%. The Sobel test (Baron & Kenny, 1986) was applied to determine whether the reduction in the path from peer rejection to depressive symptoms was due to the indirect effect of social cognitions; this test was significant, $z = 5.31, p < .01$, providing further evidence that social cognitions fully mediated the relationship between peer rejection and depressive symptoms.

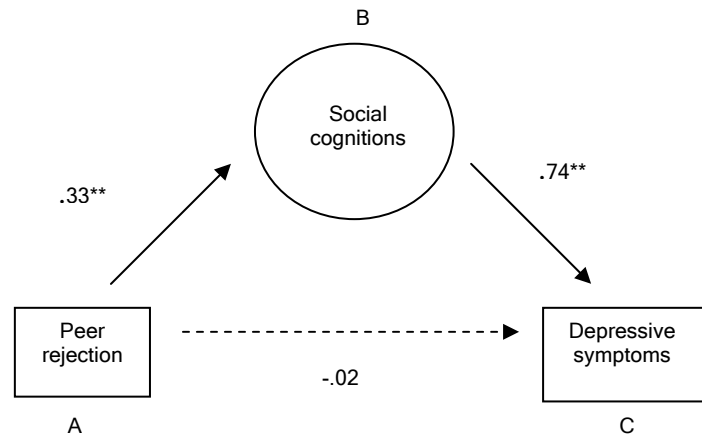


Figure 3.2. Results of a structural equation model testing the mediational role of social cognitions including the previously significant A to C path.

Note. $\chi^2(4, N = 334) = 15.12, p < .01, CFI = .98, RMSEA = .091.$

** $p < .01.$

Table 3.14

Path Estimates, Standard Errors and 95% Confidence Intervals for the Social Cognitions Mediator Model (see Figure 3.2, N = 334)

Model path	Unstandardised			Standardised		
	Estimate (SE)	95% CI		Estimate (SE)	95% CI	
		Lower	Upper		Lower	Upper
Peer rej → Soc cog**	.15 (.03)	.10	.20	.33 (.06)	.22	.44
Soc cog → Dep**	12.19 (1.22)	9.99	14.75	.74 (.04)	.66	.81
Peer rej → Dep	-.14 (.33)	-.83	.46	-.02 (.04)	-.11	.06

Note. Peer rej = peer rejection, Soc cog = social cognitions, Dep = depressive symptoms.

** $p < .01$.

Hypothesised Structural Model of Children's Social Behaviour, Peer Rejection, Social Cognitions and Depressive Symptoms

Building on the previously tested measurement model, and the mediational model of peer rejection, social cognitions and depressive symptoms, a structural model that included direct paths from children's social behaviour to peer rejection was fit. Based on evidence discussed in the literature review suggesting children's withdrawn behaviours, but not aggression, are directly related to low perceptions of social competence (Rubin, 1993; Rubin & Mills, 1988; Rubin & Stewart, 1996; Rubin et al., 1995), a direct path from withdrawal to social cognitions was also estimated in this model.

The hypothesised model fit the data well on all fit indices: $\chi^2(108, N = 334) = 275.79, p < .01, CFI = .96, RMSEA = .068$ (see Figure 3.3 and Table 3.15). Bootstrapping techniques provided lower and upper 95% confidence intervals for the standardised direct path coefficients; all paths were significantly different than 0, $p < .01$, except for the path from physical aggression to peer rejection, and peer rejection to social cognitions. That is, the path from peer rejection to social cognitions, which was significant in the previous mediation model (see Figure 3.2), was no longer significant in the current model adding a direct path from withdrawal to social cognitions. The path from physical aggression to peer rejection had a standard error of .07 and a 95% confidence interval of -.13 to .15, and the path from peer rejection⁴ to social cognitions had a standard error of .07 and a 95% confidence interval of .00 to .26. The amount of total variance accounted for in peer rejection was 45%; the amount of variance accounted for in social cognitions was 20%; the amount of variance accounted for in depressive symptoms was 53%.

⁴ When peer dislike scores were substituted for peer rejection in the above analyses, the path from peer dislike to social cognitions was significant, standardised path estimate = .28, $p < .01$.

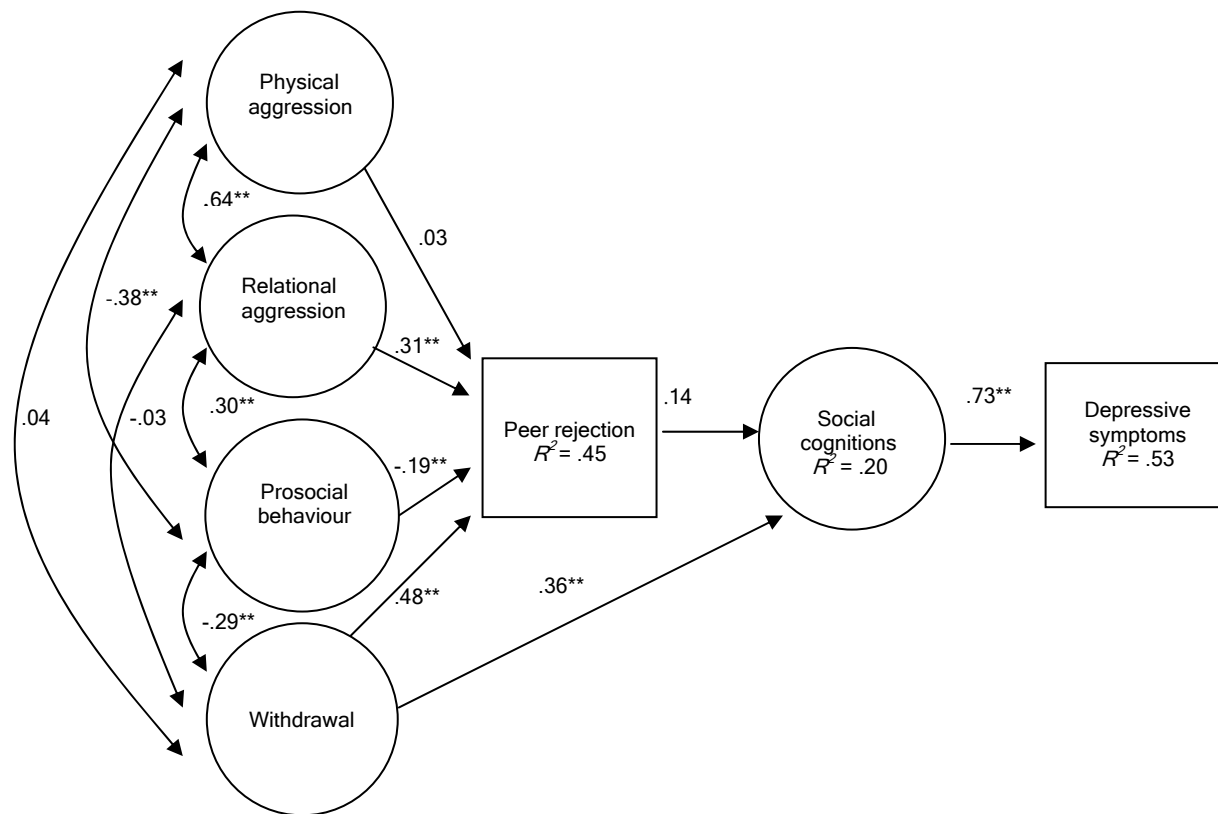


Figure 3.3. Standardised path coefficients of hypothesised model of children's social behaviour, peer rejection, social cognitions and depressive symptoms.

Note. $\chi^2(108, N = 334) = 275.79, p < .01, CFI = .96, RMSEA = .068. **p < .01.$

Table 3.15

Path Estimates, Standard Errors and 95% Confidence Intervals for the Hypothesised Model (N = 334)

Model path	Unstandardised			Standardised		
	Estimate (SE)	95% CI		Estimate (SE)	95% CI	
		Lower	Upper		Lower	Upper
<i>Cross-sectional associations</i>						
Physag, Relag**	.44 (.08)	.30	.61	.64 (.06)	.52	.77
Physag, Prosoc**	-.29 (.04)	-.39	-.22	-.38 (.03)	-.45	-.31
Physag, Withd	.03 (.06)	-.08	.16	.04 (.08)	-.10	.20
Relag, Prosoc**	-.19 (.04)	-.28	-.12	-.30 (.05)	-.39	-.19
Relag, Withd	-.02 (.04)	-.11	.07	-.03 (.06)	-.15	.10
Prosoc, Withd**	-.22 (.04)	-.32	-.15	-.30 (.04)	-.38	-.22
<i>Direct effects</i>						
Physag → Peer rej	.03 (.08)	-.15	.17	.03 (.07)	-.13	.15
Relag → Peer rej**	.39 (.11)	.24	.66	.31 (.07)	.19	.45
Prosoc → Peer rej**	-.22 (.06)	-.33	-.10	-.19 (.05)	-.28	-.08
Withd → Peer rej**	.53 (.07)	.39	.67	.48 (.06)	.36	.59
Withd → Soc cog**	.18 (.04)	.10	.26	.36 (.08)	.19	.51
Peer rej → Soc cog	.07 (.03)	.00	.12	.14 (.07)	.00	.26
Soc cog → Dep**	12.06 (1.12)	10.08	14.60	.73 (.03)	.66	.79

Note. CI = confidence interval, Physag = physical aggression, Relag = relational aggression, Withd = withdrawal, Prosoc = prosocial behaviour, Peer rej = Peer rejection, Soc cog = social cognitions, Dep = depressive symptoms.

** $p < .01$.

Discussion

The purpose of Study 2A was to expand on findings from Study 1 by examining the links between children's social behaviours, peer rejection, social cognitions and psychosocial outcomes. This study adds to the existing literature on the correlates of children's peer rejection by testing an overall model incorporating paths from children's social behaviours to peer rejection, and the pathway from peer rejection to depressive symptoms via the mediation effect of social cognitions. The results provide evidence of specific social behaviours associated with peer rejection, thus paving the way for future longitudinal designs to test directionality of these relationships. Social cognitions were related to increased depressive symptoms in children. Externalising behaviour was also an important outcome of peer-related difficulties, especially in children that exhibited more aggressive behaviours in the peer environment. These results outline important extensions to the current literature, by examining a wider range of children's social behaviours concurrently, and used a latent variable of social cognitions as a mediator of peer rejection and depressive symptoms.

Social Behaviours as Predictors of Peer Rejection

The results suggest that about 45% of children's peer rejection was explained by the child's social behaviour with peers. Specifically, relational aggression, withdrawal, and prosocial behaviour were independently related to peer rejection. Physical aggression was not related to peer rejection in the current sample after these other social behaviours were accounted for, although physical aggression and peer rejection were related when examined in isolation. Thus it appears that children who behave in relationally aggressive ways, who are socially withdrawn, or who display low levels of prosocial behaviour with peers are more likely to be rejected by their classmates. These findings are supported by previous studies of children in Grades 3 to 6 finding a concurrent association between relational aggression and peer rejection (Crick & Grotpeter, 1995; Rys & Bear, 1997). Previous research has suggested that children who are relationally aggressive behave in ways that damage relationships and inclusion, and are more

likely to ignore peers, spread rumours and threaten to end a friendship, thus placing them more at risk of rejection by the larger peer group (Crick & Grotpeter, 1995). This association is also likely due to the betrayal of trust implicit in relational forms of aggression (Rys & Bear, 1997).

Children who were rated as more withdrawn by their classmates were also more rejected by their peers, and this was the most robust predictor of peer rejection. This finding is supported by previous research finding moderate to strong concurrent correlations by late childhood (Boivin et al., 1995; Hymel et al., 1990; Rubin, 1993). By Grade 4, children are more aware that social withdrawal deviates from age-appropriate behaviour and peers become increasingly less tolerant of non-normative social behaviour (Younger et al., 1993). Thus, it appears that withdrawn children are more likely to be rejected by their peers because they are less likely to exhibit age-appropriate skills required to interact competently within the peer environment (Rubin & Stewart, 1996).

Prosocial behaviour was also associated with peer rejection in the current study. That is, children who displayed low levels of prosocial behaviour were more likely to be rejected by their peers, above and beyond the contribution of negative social behaviours such as relational aggression and withdrawal. This suggests that children are less accepting of peers who fail to display age-appropriate behaviour, including both high levels of maladaptive behaviours and low levels of prosocial behaviours. This finding is in line with past studies finding a negative association between prosocial behaviour and rejection (Coie et al., 1990; Crick, 1996; Rys & Bear, 1997), whereby children were less accepting of classmates who failed to display prosocial acts such as being kind to others, or helping children when in need. Taken together, these findings highlight the importance of not only focussing on children's negative social behaviours, but also fostering the development of prosocial behaviours in children lacking these skills as a pathway to healthy peer relationships and normal development.

Peer Rejection as a Predictor of Psychosocial Functioning

The current study also found that peer rejection was associated with lower levels of psychosocial functioning, namely depressive symptoms and externalising problems. This finding has been previously established in both cross-sectional (e.g., Boivin et al., 1994; Hecht et al., 1998; Rudolph et al., 1997) and longitudinal studies (e.g., Coie et al., 1995; French et al., 1995; Laird et al., 2001; Lochman & Wayland, 1994; Woodward & Fergusson, 1999). The current study extended on past cross-sectional designs, however, by examining whether specific social behaviours, in addition to peer rejection, were related to different negative outcomes. This hypothesis was driven by previous research highlighting the need to examine the specificity of individual risk factors in relation to various forms of psychopathology (Rubin et al., 1993; Rudolph et al., 1994; Weisz et al., 1992). In particular, it was hypothesised that there would be links between children's aggressive behaviours and externalising problems, but not between aggressive behaviours and depressive symptoms. Conversely, it was predicted that children's withdrawn behaviour would be related to depressive symptoms, but withdrawal was not expected to be associated with teacher-reported externalising problems. These hypotheses were supported, with withdrawal and peer rejection predicting self-reported depressive symptoms, and aggressive behaviours and peer rejection predicting teacher-reported externalising behaviours. Whilst not a prediction of this study, decreased prosocial behaviour was also associated with increased depressive symptoms along with social withdrawal. Peer rejection was an additional predictor of externalising behaviour, but not depressive symptoms, after accounting for the relevant social behaviours. Thus it appears that certain negative social behaviours are directly associated with specific negative outcomes (i.e., either depressive symptoms or externalising behaviour), and peer rejection provided additional information regarding externalising behaviour, but not depressive symptoms. This highlights the importance of further investigation into the specific outcomes associated with peer rejection and various social behaviours.

Social Cognitions as a Mediator Between Peer Rejection and Depressive Symptoms

It was hypothesised that social cognitions would fully mediate the relationship between peer rejection and depressive symptoms. In order to test this mediation hypothesis, both peer rejection and social cognitions were required to be independently associated with depressive symptoms. The hypothesised association between social cognitions and depressive symptoms was supported, with social cognitions (measured as a latent construct) accounting for 53% of the variance in self-reported depressive symptoms. Similar findings have been reported in past studies using various measures of social cognitions, including the same measures used here (i.e., negative perceptions of peers and self; Rudolph & Clark, 2001) and perceived social acceptance (Cole et al., 2001). Thus, it appears that children who interpret their social world in negative, hostile or fearful ways are more likely to manifest concurrent depressive symptoms.

With regard to the association between peer rejection and depression, it was expected that more negative perceptions of peers and the self in peer relationships and lower perceived social acceptance would mediate this relationship. This hypothesis was supported, whereby the relationship between depressive symptoms and peer rejection was fully mediated by negative social cognitions in an initial model not including social behaviours. However, in the final structural model including a direct path from social withdrawal to social cognitions, the significant path from peer rejection to social cognitions in the mediational model was no longer significant. It should be noted that when peer dislike replaced peer rejection in the final model, the path from peer dislike to social cognitions was significant, even with the direct effect of social withdrawal on social cognitions. Therefore, average feelings of dislike by the broader peer group appear to be more important in relation to children's negative social cognitions in the pathway to depressive symptoms, as opposed to being outright rejected by classmates. This is an important finding that extends on past research, as it demonstrates a possible mechanism by which disliked children become

depressed, suggesting that peer difficulties has an indirect effect on depressive symptoms, via the influence of negative social cognitions. Some researchers have noted that extreme groups of rejected children tend to blame others for peer difficulties (Crick & Ladd, 1993), and have been found to overestimate their social competence relative to peer reports (Patterson, Kupersmidt, & Griesler, 1990), providing support for continued examination of the level that children are disliked by all peers rather than only focussing on rejected children.

The findings reported in the current study concur with past studies reporting similar associations between peer-related cognitions and depression (Dill, Vernberg, Fonagy, Twemlow, & Gamm, 2004; Rudolph et al., 1997; Tram & Cole, 2000). However, the current study differed in that peer rejection was not directly related to depressive symptoms once the mediating influence of negative social cognitions was considered, and the direct effect of social withdrawal on social cognitions was estimated. Thus, it appears that the relationship between peer rejection and depressive symptoms is best understood by considering other important behavioural and social-cognitive processes linking the two. The mediating role of social cognitions found in the current research is congruous with past research supporting the mediating role of peer-related cognitions (Panak & Garber, 1992, Caldwell et al., 2004).

The Association Between Social Withdrawal and Social Cognitions

It was hypothesised that social withdrawal, whilst demonstrating an indirect effect on social cognitions via peer rejection, would also have a direct effect on social cognitions. This hypothesis was supported, with social withdrawal predicting increased negative social cognitions in the overall structural model. The current findings of a direct path from social withdrawal to negative social cognitions have been demonstrated in past research (Hymel et al., 1990; Parkhurst & Asher, 1992; Rubin, 1993; Rubin et al., 1995). In contrast, physically and relationally aggressive children were not more negative in their social cognitions compared to other children; this finding parallels previous research reporting that aggressive children do not differ to well-adjusted children in their perceived

competence, indicating a self-serving bias that appears to protect them from internalising problems such as depression, but at the cost of more externalising difficulties (Brendgen, Vitaro, Turgeon, & Poulin, 2002; David & Kistner, 2000; Hymel et al., 1993; Patterson, Kupersmidt, & Griesler, 1990).

Gender Moderation

Finally, gender differences in the effects of social behaviours on peer rejection and psychosocial outcomes (i.e., gender moderation) were examined based on past research suggesting that the types of aggression used by girls and boys are related to different psychosocial outcomes and peer rejection (Coie & Dodge, 1998; Crick, 1997; Kaplan et al., 1999). In correlation analyses, the association between peer rejection and physical aggression was stronger for boys compared to girls, however, the association between peer rejection and prosocial behaviour was stronger for girls compared to boys. In regression analyses, the interaction between gender and prosocial behaviour in predicting peer rejection was significant, suggesting a stronger relationship between peer rejection and prosocial behaviour for girls compared to boys. Overall, gender moderation of physical aggression, relational aggression and withdrawal on peer rejection was not supported. This lack of gender moderation is somewhat surprising given the higher rates of overt aggression in boys and relational aggression in girls reported in past studies (Crick, 1997), although the findings appear to suggest that any type of negative social behaviour is rebuffed equally in girls and boys. Prosocial behaviour was more strongly negatively associated with depressive symptoms in girls compared to boys. This finding is consistent with a recent study of Grade 4 and 5 children suggesting that girls endorse more prosocial goals for maintaining friendships compared to boys (Rose & Asher, 1999). Therefore, it appears that girls who fail to conform to these normative expectations are more likely to also report concurrent depressive symptoms, whereas boys with relatively lower levels of prosocial behaviour are not necessarily higher in depressive symptoms.

Conclusion

In summary, it appears that social behaviours, such as relational aggression, withdrawal and prosocial behaviour, play an important role in contributing to children's peer rejection or dislike within the peer group. In addition, modest support was found for the hypothesis that children who are disliked by their peers are more likely to exhibit negative perceptions about their peer relationships and their social acceptance, which is, in turn, linked to increased depressive symptoms. The findings from the current study raise questions regarding the temporal ordering of influence between social behaviours, peer rejection, social cognitions and psychosocial functioning, and the crucial factors that lead to increases in depressive symptoms over time. The current results, therefore, provide a good basis for investigating longitudinal links between children's negative social behaviours, their status within the peer group, and the impact on their psychosocial functioning in Study 2B.

CHAPTER 4

Study 2B

The findings from Studies 1 and 2A suggested a pathway from children's social behaviour to depressive symptoms via peer rejection and social cognitions. Findings also showed the importance of children's behaviours as potential antecedents of peer rejection, and, in the case of withdrawal, perceptions of peers and other social cognitions. Findings showed that certain behaviours were better predictors of depressive symptoms, whereas other behaviours were better predictors of externalising behaviour. Finally, gender differences were found that supported some expectations, but there were few differences and they were somewhat unstable. Study 2B aimed to extend the findings from Studies 1 and 2A by examining longitudinal associations between these factors. In particular, an important goal of this 2-wave longitudinal study was to determine which social behaviours had a direct effect on peer rejection over time after controlling for the effects of initial peer rejection, especially when these four social behaviours are examined simultaneously. This would provide information regarding the most robust predictors of change in peer rejection during late childhood and early adolescence. Only recently has research begun to investigate relational aggression and prosocial behaviour as important predictors of peer rejection over time, in addition to physical aggression (Crick, 1996).

Studies 1 and 2A suggested that negative social cognitions either partially or fully mediated the relationship between peer rejection and depressive symptoms. Although these findings were important, longitudinal designs are optimum for testing mediation, as strict definition of a mediator requires that it is both preceded temporally by the independent variable in question, and also influences the dependent variable over time (Cole & Maxwell, 2003). Whilst time and financial constraints only allowed for two waves of data collection in the current study, mediation models are ideally suited to three waves. Nonetheless, adequate procedures have been outlined for testing mediation with two waves of data (Cole & Maxwell, 2003). Therefore, the aim of the current study was to

examine the mediating role of social cognitions, using children's negative perceptions of peers and self and perceived social acceptance as indicators of social cognitions using a 2-wave longitudinal design with a 6-month lag between Time 1 and Time 2. The mediation hypothesis has largely been tested using life stress and attributional style or other cognitive variables in the prediction of depression in cross-sectional studies (e.g., Cole & Turner, 1993). Few studies have examined the mediating role of peer-related cognitions on depression using peer rejection as the stressor (see Panak & Garber, 1992, for an exception). Thus, the current study extends on these findings by focussing on three types of social cognitions as they specifically relate to peer rejection in an Australian sample of young people aged 9 to 12.

In the current study, the possibility of transactional associations between peer rejection, social cognitions and depression were also considered. More recent research has underscored the likelihood of transactional processes among peer relationship variables within the developmental psychopathology perspective, with evidence to suggest that earlier negative relational self-views also leads to increased peer stress over time (Caldwell et al., 2004). These causal alternatives were examined in an alternative model with opposite directions of influence to the hypothesised mediation model (i.e., depressive symptoms leading to increased negative social cognitions, and negative social cognitions leading to increased peer rejection over time). The testing of both the hypothesised and alternative models allowed for a comparison of the stress-reaction hypothesis (whereby children develop depressive symptoms as a result of stressful experiences) and a stress-generation hypothesis (whereby depression leads to behaviour with peers that maintain rejection).

Based on findings from both Studies 1 and 2A, multiple gender effects were not expected to occur after only a 6-month time lag. However, based on past research suggesting some gender differences in the types of aggressive behaviours associated with peer rejection in boys' and girls' peer groups (Coie & Dodge, 1998; Crick et al., 1996; Crick & Grotpeter, 1995), combined with past findings

that girls find relationally aggressive acts more distressing and are more frequently the targets of relationally aggressive acts compared to boys (Crick, 1995; Crick & Bigbee, 1998; Paquette & Underwood, 1999), the possibility of gender differences in model pathways were examined. Further, based on past evidence that girls are more vulnerable to depression as they approach early adolescence (Nolen-Hoeksema, 1994), a gender comparison of changes in depressive symptoms over time was completed. In sum, this current study was a longitudinal extension of the cross-sectional model tested in Study 2A. Analyses were completed by estimating a series of structural equation models, one testing the longitudinal associations between children's social behaviours and peer rejection, and another testing the mediation of social cognitions between peer rejection and depressive symptoms over time. Additional models were completed testing the longitudinal pathways from withdrawal to social cognitions based on the direct path found in Study 2A. As stated, an alternative model testing transactional influences between peer rejection, social cognitions and depressive symptoms was also tested in a separate structural model. A model testing the paths from physical and relational aggression to peer rejection and later externalising behaviour was also estimated.

Method

Participants

Participants who had obtained consent to participate at T1 were eligible to participate at T2. Following the 6-month time lag from T1 data collection, 11 children out of the 342 initially tested had left the participating school.⁵ Seven children were absent on the day of data collection, and were absent again one week later when data collection was repeated.⁶ This resulted in a total of 324 participants at T2 (93% retention). Mean age of participants at T2 testing was 11.5 ($SD = .9$) with 47% males and 53% females. Seventeen out of 18 teachers completed questionnaires on participating students at T2.

A small number of participants who were missing 10% or fewer items on the self-report scales were given a calculated score based on their responses to other items to maintain the case in the analyses. Missing items were distributed randomly, which rarely cause problems in large data sets (Tabachnick & Fidell, 2001). However, five children were excluded from analyses because of excessive missing data on one or more measures at T2. Three participants had ticked two responses on all the items on the perceived social acceptance subscale from the Self-Perception Profile for Children (SPCC; Harter, 1982), making their scores invalid and were excluded from the final analyses. Eight of the participants at T2 had invalid measures from T1 (i.e., excessive missing data), therefore were excluded from Study 2B analyses. These exclusions resulted in a final longitudinal sample of 308 children.

Procedure

Questionnaires were administered to all child participants and teachers in the same manner described in the Procedures section of Chapter 3. Individual debriefing was offered to students following the data collection; four children

⁵ Of the 11 children who had left the school, 69% were male and 31% female, and their mean depression score at T1 was 11.06 ($SD = 8.03$), which was not significantly different than remaining children.

⁶ Of the 7 children who were absent on both T2 data collection days, 43% were male and 57% female, and mean depression score at T1 was 9.71 ($SD = 9.12$), which was not significantly different than remaining children.

requested to speak with a researcher regarding issues such as bullying and loneliness at school. The children's concerns were validated and permission was asked to liaise with the child's parents and principal to report the concerns and encourage follow-up action.

Measures

All measures administered at T1 were collected again at T2. Descriptions of these measures are outlined in the Measures section of Chapters 2 and 3. All measures had high inter-item correlations at T2, ranging from $\alpha = .82$ (relational aggression) to $\alpha = .94$ (physical aggression) (see Table 4.1).

Table 4.1

Inter-item Correlations of Measures Administered at Time 2

Variable	Cronbach's α
Depressive symptoms	.89
Physical aggression	.94
Relational aggression	.82
Social withdrawal	.88
Prosocial behaviour	.90
Negative perceptions of peers	.83
Negative perceptions of self	.85
Perceived social acceptance	.84
Externalising behaviour	.83

Results

Distributional Properties of Measured Variables, Transformations and Outliers

Prior to the main analyses, the data were inspected for normality and outliers. To meet the assumptions of correlational analyses and repeated measures ANOVA (Tabachnick & Fidell, 2001), square root transformations were performed on moderately positively skewed variables (i.e., depressive symptoms, peer rejection, perceptions of peers and perceptions of self) and \log_{10} transformations were performed on extreme positively skewed variables (i.e., teacher-reported externalising behaviour and all peer-nomination social behaviours). The transformations substantially reduced the skewness of these variables. It has been recommended that untransformed variables are used in SEM analyses as parameter estimates are fairly robust in SEM techniques even when assumptions of normality are violated (McDonald & Ho, 2002). Therefore transformed variables were only used in the correlational analyses and ANOVA to better satisfy statistical assumptions. There was one univariate outlier on the negative perceptions of peers variable, $z = 3.41$, $p < .01$, and two on the negative perceptions of self variable, $z = 3.44$ and 3.73 , $ps < .05$. These children appeared to have valid responses, however, so they were not excluded from analyses.

Descriptive Statistics and Preliminary Analyses

Descriptive statistics for all measured variables at T2 are presented in Table 4.2. Untransformed self-report measures are presented in descriptive statistics to allow for comparisons with past research, however transformed variables are used in all further correlation and regression analyses and oneway ANOVAs to satisfy the assumptions of the analyses.

Preliminary gender and grade analyses were conducted again at T2 (see Table 4.3 and Table 4.4). A Bonferroni correction of $p < .005$ was applied to the 11 oneway ANOVAs comparing gender and grade differences. Using this more conservative cut-off, boys were significantly more physically aggressive than girls, $F(1, 306) = 74.78$, $p = .000$, and also significantly less prosocial than

girls, $F(1, 306) = 57.09, p = .000$. Girls tended to be rated as more relationally aggressive than boys at T2, $F(1, 306) = 7.63, p = .006$. Similar to T1, depressive symptoms did not differ between boys and girls, $F(1, 306) = .84, p = .360$. No other significant gender differences were found. Gender differences in associations between social behaviours and outcome variables were examined in later analyses, based on the above gender differences on three of the measured social behaviours. Grade differences were found for negative perceptions of peers, $F(2, 305) = 3.82, p < .05$. Using the Bonferroni correction of $p < .005$, no significant effects were found for grade, therefore grade was not controlled for in further analyses.

Table 4.2

Time 2 Descriptive Statistics of All Measured Variables (N = 308)

Variable	<i>M</i>	<i>SD</i>	Min	Max
Depressive symptoms ^a	7.78	7.37	0	42
Peer rejection ^b	.00	.97	-2.02	3.29
Peer dislike ^b	2.67	.61	1.31	4.59
<i>Social behaviours^b</i>				
Physical aggression	-.03	.89	-.71	3.83
Relational aggression	.01	.85	1.16	3.76
Withdrawal	.02	.89	.72	3.96
Prosocial behaviour	.07	.89	-1.36	2.95
<i>Social cognitions^a</i>				
Negative perceptions of peers	1.88	.44	1.00	3.67
Negative perceptions of self	1.79	.48	1.00	3.93
Perceived social acceptance	3.16	.71	1	4
Externalising behaviour ^c	.75	1.63	0	8

Note. ^aSelf report; ^bPeer report; ^cTeacher report, $N = 286$.

Table 4.3

Results of Oneway ANOVAs Comparing Males and Females on All Measured Variables at Time 2

Dependent variable	Group	<i>M</i>	<i>SD</i>	<i>F</i> (1, 306)	<i>p</i>																																																																																							
Depressive symptoms	Males	2.35	1.36	.84	.360																																																																																							
	Female	2.50	1.39			Peer rejection	Males	.06	1.02	.95	.332	Female	-.05	.92	Peer dislike	Males	2.74	.61	3.73	.054	Female	2.60	.60	Physical aggression	Males	.06	1.02	74.78	.000	Female	-.05	.92	Relational aggression	Males	.25	.15	7.63	.006	Female	.30	.17	Withdrawal	Males	-.09	.29	.44	.510	Female	-.11	.27	Prosocial behaviour	Males	.20	.15	57.09	.000	Female	.35	.18	Negative perceptions of	Males	1.37	.16	.07	.794	Female	1.36	.15	Negative perceptions of	Males	1.33	.18	.08	.772	Female	1.32	.17	Perceived social	Males	3.18	.68	.06	.800	Female	3.15	.74	Externalising behaviour ^a	Males	.16	.27	1.50	.222
Peer rejection	Males	.06	1.02	.95	.332																																																																																							
	Female	-.05	.92			Peer dislike	Males	2.74	.61	3.73	.054	Female	2.60	.60	Physical aggression	Males	.06	1.02	74.78	.000	Female	-.05	.92	Relational aggression	Males	.25	.15	7.63	.006	Female	.30	.17	Withdrawal	Males	-.09	.29	.44	.510	Female	-.11	.27	Prosocial behaviour	Males	.20	.15	57.09	.000	Female	.35	.18	Negative perceptions of	Males	1.37	.16	.07	.794	Female	1.36	.15	Negative perceptions of	Males	1.33	.18	.08	.772	Female	1.32	.17	Perceived social	Males	3.18	.68	.06	.800	Female	3.15	.74	Externalising behaviour ^a	Males	.16	.27	1.50	.222	Female	.12	.25						
Peer dislike	Males	2.74	.61	3.73	.054																																																																																							
	Female	2.60	.60			Physical aggression	Males	.06	1.02	74.78	.000	Female	-.05	.92	Relational aggression	Males	.25	.15	7.63	.006	Female	.30	.17	Withdrawal	Males	-.09	.29	.44	.510	Female	-.11	.27	Prosocial behaviour	Males	.20	.15	57.09	.000	Female	.35	.18	Negative perceptions of	Males	1.37	.16	.07	.794	Female	1.36	.15	Negative perceptions of	Males	1.33	.18	.08	.772	Female	1.32	.17	Perceived social	Males	3.18	.68	.06	.800	Female	3.15	.74	Externalising behaviour ^a	Males	.16	.27	1.50	.222	Female	.12	.25															
Physical aggression	Males	.06	1.02	74.78	.000																																																																																							
	Female	-.05	.92			Relational aggression	Males	.25	.15	7.63	.006	Female	.30	.17	Withdrawal	Males	-.09	.29	.44	.510	Female	-.11	.27	Prosocial behaviour	Males	.20	.15	57.09	.000	Female	.35	.18	Negative perceptions of	Males	1.37	.16	.07	.794	Female	1.36	.15	Negative perceptions of	Males	1.33	.18	.08	.772	Female	1.32	.17	Perceived social	Males	3.18	.68	.06	.800	Female	3.15	.74	Externalising behaviour ^a	Males	.16	.27	1.50	.222	Female	.12	.25																								
Relational aggression	Males	.25	.15	7.63	.006																																																																																							
	Female	.30	.17			Withdrawal	Males	-.09	.29	.44	.510	Female	-.11	.27	Prosocial behaviour	Males	.20	.15	57.09	.000	Female	.35	.18	Negative perceptions of	Males	1.37	.16	.07	.794	Female	1.36	.15	Negative perceptions of	Males	1.33	.18	.08	.772	Female	1.32	.17	Perceived social	Males	3.18	.68	.06	.800	Female	3.15	.74	Externalising behaviour ^a	Males	.16	.27	1.50	.222	Female	.12	.25																																	
Withdrawal	Males	-.09	.29	.44	.510																																																																																							
	Female	-.11	.27			Prosocial behaviour	Males	.20	.15	57.09	.000	Female	.35	.18	Negative perceptions of	Males	1.37	.16	.07	.794	Female	1.36	.15	Negative perceptions of	Males	1.33	.18	.08	.772	Female	1.32	.17	Perceived social	Males	3.18	.68	.06	.800	Female	3.15	.74	Externalising behaviour ^a	Males	.16	.27	1.50	.222	Female	.12	.25																																										
Prosocial behaviour	Males	.20	.15	57.09	.000																																																																																							
	Female	.35	.18			Negative perceptions of	Males	1.37	.16	.07	.794	Female	1.36	.15	Negative perceptions of	Males	1.33	.18	.08	.772	Female	1.32	.17	Perceived social	Males	3.18	.68	.06	.800	Female	3.15	.74	Externalising behaviour ^a	Males	.16	.27	1.50	.222	Female	.12	.25																																																			
Negative perceptions of	Males	1.37	.16	.07	.794																																																																																							
	Female	1.36	.15			Negative perceptions of	Males	1.33	.18	.08	.772	Female	1.32	.17	Perceived social	Males	3.18	.68	.06	.800	Female	3.15	.74	Externalising behaviour ^a	Males	.16	.27	1.50	.222	Female	.12	.25																																																												
Negative perceptions of	Males	1.33	.18	.08	.772																																																																																							
	Female	1.32	.17			Perceived social	Males	3.18	.68	.06	.800	Female	3.15	.74	Externalising behaviour ^a	Males	.16	.27	1.50	.222	Female	.12	.25																																																																					
Perceived social	Males	3.18	.68	.06	.800																																																																																							
	Female	3.15	.74			Externalising behaviour ^a	Males	.16	.27	1.50	.222	Female	.12	.25																																																																														
Externalising behaviour ^a	Males	.16	.27	1.50	.222																																																																																							
	Female	.12	.25																																																																																									

Note. *N*(males) = 145, *N*(females) = 163.

^a*N*(males) = 136, *N*(females) = 156, *df* = 1, 290.

Table 4.4

Results of Oneway ANOVAs Comparing Grade 5, 6 and 7 Children on All Measured Variables at Time 2

Dependent variable	Group	<i>M</i>	<i>SD</i>	<i>F</i> (2, 331)	<i>p</i>
Depressive symptoms	Grade 5	2.43	1.42	1.53	.218
	Grade 6	2.59	1.32		
	Grade 7	2.27	1.37		
Peer rejection	Grade 5	.00	.98	.00	1.00
	Grade 6	.00	.97		
	Grade 7	.00	.98		
Peer dislike	Grade 5	2.76	.64	3.87	.022
	Grade 6	2.71	.62		
	Grade 7	2.54	.54		
Physical aggression	Grade 5	-.12	.28	.05	.951
	Grade 6	-.14	.28		
	Grade 7	-.12	.29		
Relational aggression	Grade 5	.27	.16	.00	1.00
	Grade 6	.27	.16		
	Grade 7	.27	.16		
Withdrawal	Grade 5	-.11	.30	.17	.843
	Grade 6	-.09	.26		
	Grade 7	-.09	.28		
Prosocial behaviour	Grade 5	.28	.18	.49	.613
	Grade 6	.29	.17		
	Grade 7	.26	.19		
Negative perceptions of peers	Grade 5	1.39	.16	3.82	.023
	Grade 6	1.36	.14		
	Grade 7	1.33	.16		
Negative perceptions of self	Grade 5	1.34	.18	.89	.411
	Grade 6	1.33	.16		
	Grade 7	1.31	.18		
Perceived social acceptance	Grade 5	3.12	.76	.63	.533
	Grade 6	3.14	.73		
	Grade 7	3.23	.65		
Externalising behaviour ^a	Grade 5	.16	.26	.25	.782
	Grade 6	.13	.25		
	Grade 7	.13	.26		

Note. $N(\text{Grade } 5) = 95$, $N(\text{Grade } 6) = 105$, $N(\text{Grade } 7) = 108$.

^a $N(\text{Grade } 5) = 75$, $N(\text{Grade } 6) = 105$, $N(\text{Grade } 7) = 108$.

Stability of Constructs and Zero-Order and Longitudinal Correlations

Correlations between T2 variables are presented in Table 4.5. All correlations between T2 measured variables were similar in magnitude when compared to T1 correlations, except for an increase in the correlation between relational aggression and depressive symptoms, T1: $r = .09$, *ns*; T2: $r = .21$, $p < .01$, however this difference was not statistically significant, $z = -1.51$, $p > .05$.

Correlations between T1 and T2 variables and stabilities of constructs over six months are presented in Table 4.6. Moderate to strong stability was found for all constructs, ranging from .61 (negative perceptions of peers) to .79 (physical aggression), all $p < .01$. Among the social behaviour variables, relational aggression had the lowest stability, $r = .65$. The outcome variables, depressive symptoms and externalising behaviour, were both relatively stable over time, $r_s = .71$ and $.65$, respectively. All longitudinal analyses were conducted to test the effects of T1 predictors on T2 dependent variables above and beyond these strong stabilities.

Correlations between T1 and T2 variables revealed similar patterns to Study 2A. All T1 social behaviours showed moderate significant correlations with T2 peer rejection, with Pearson's r_s ranging from .24 (physical aggression) to .41 (withdrawal), all $p < .01$. The three T1 social cognitions were significantly associated with T2 depressive symptoms, ranging from -.45 (perceived social acceptance) to .56 (negative perceptions of self), all $p < .01$. T1 peer rejection and peer dislike were also significantly correlated with T2 depressive symptoms, $r = .18$ and $r = .24$, respectively, both $p < .01$. Finally, all T1 social behaviours except withdrawal were moderately correlated with T2 externalising behaviour, $r = .43$ (physical aggression), $r = .36$ (relational aggression), $r = -.30$ (prosocial behaviour), all $p < .01$.

Table 4.5

Time 2 Zero-Order Correlations Between All Measured Variables (N = 308)

	1	2	3	4	5	6	7	8	9	10	11
1. Depressive symptoms	--										
2. Peer rejection	.19**	--									
3. Peer dislike	.27**	.76**	--								
4. Physical aggression	.08	.27**	.24**	--							
5. Relational aggression	.21**	.28**	.23**	.45**	--						
6. Withdrawal	.15**	.46**	.51**	-.05	-.04	--					
7. Prosocial behaviour	-.25**	-.48**	-.55**	-.46**	-.18**	-.33**	--				
8. Perceptions of peers	.60**	.25**	.34**	.12*	.21**	.25**	-.23**	--			
9. Perceptions of self	.64**	.24**	.29**	.04	.08	.33**	-.27**	.72**	--		
10. Social acceptance	-.58**	-.40**	-.45**	-.03	-.08	-.48**	.33**	-.60**	-.69**	--	
11. Externalising behaviour ^a	.17**	.36**	.39**	.52**	.38**	.03	-.31**	.15*	.06	-.13*	--

Note. ^a*N* = 286.**p* < .05. ***p* < .01.

Table 4.6

Correlations Between Time 1 and Time 2 Measured Variables (N = 308)

Time 1	Time 2										
	1	2	3	4	5	6	7	8	9	10	11
1. Depressive symptoms	.71**	.19**	.30**	.09	.14*	.22**	-.32**	.52**	.54**	-.53**	.19**
2. Peer rejection	.18**	.69**	.65**	.18**	.16**	.46**	-.44**	.20**	.21**	-.34**	.32**
3. Peer dislike	.24**	.62**	.76**								
4. Physical aggression	.09	.24**	.20**	.79**	.36**	.00	-.41**	.06	.03	-.01	.43**
5. Relational aggression	.16**	.31**	.28**	.42**	.65**	-.05	-.22**	.15*	.07	-.08	.36**
6. Withdrawal	.16**	.41**	.44**	-.11	-.11	.72**	-.27**	.23**	.29**	-.45**	.07
7. Prosocial behaviour	-.25**	-.40**	-.47**	-.42**	-.11	-.29**	.76**	-.19**	-.26**	.30**	-.30**
8. Negative perceptions of peers	.49**	.24**	.36**	.11	.18**	.27**	-.26**	.61**	.51**	-.44**	.20**
9. Negative perceptions of self	.56**	.18**	.31**	.01	.04	.28**	-.24**	.55**	.64**	-.53**	.06
10. Perceived social acceptance	-.45**	-.35**	-.47**	.02	-.06	-.44**	.31**	-.47**	-.51**	.67**	-.17**
11. Externalising behaviour ^a	.13*	.25**	.29**	.46**	.34**	.05	-.23**	.10	.07	-.09	.65**

Note. ^aN = 286.

Longitudinal stabilities are presented in bold.

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

Overall Model of Longitudinal Data

Structural equation modelling (SEM; Jöreskog & Sörbom, 1993; Kaplan, 2000) was conducted to test longitudinal associations of children's social behaviour, peer rejection, social cognitions and depressive symptoms using maximum likelihood estimation available within AMOS software (SmallWaters Corporation, 1999). Model fit was assessed using the χ^2 test statistic and associated level of significance, the Comparative Fit Index (Bentler & Bonett, 1980) and the Root Mean Square Error of Approximation (RMSEA; Browne & Cudeck, 1993) as described in the results section of Study 2A. The longitudinal data were analysed in two parts, as suggested by Cole and Maxwell (2003) when two waves of data are collected. First, a model testing the paths from T1 social behaviours to T2 peer rejection was tested (see Figure 4.1). Second, a model testing the mediational role of social cognitions was tested. In this model, paths from T1 peer rejection to T2 social cognitions and T1 social cognitions to T2 depressive symptoms were included (see Figure 4.2).⁷ Cole and Maxwell (2003) suggest that the causal effects implied by mediation can be tested using these models with two waves of data. Third, an alternative transactional model was tested (see Figure 4.3). In this model the hypothesised paths depicted in the mediational model were included, and two additional paths were freed: one from depressive symptoms to social cognitions, and one from social cognitions to peer rejection, to test for transactional processes among these variables over time.⁸ Finally, a series of models were fit after replacing depressive symptoms with externalising behaviour. It was predicted that children's earlier aggressive behaviours and peer rejection would influence later externalising behaviour over a 6-month time lag.

⁷ The model reflects Cole and Maxwell's (2003) *Model 5*, recommended for testing mediation with two waves of data.

⁸ The transactional model reflects Cole and Maxwell's (2003) *Model 7*, recommended for testing alternate transactional models with two waves of data.

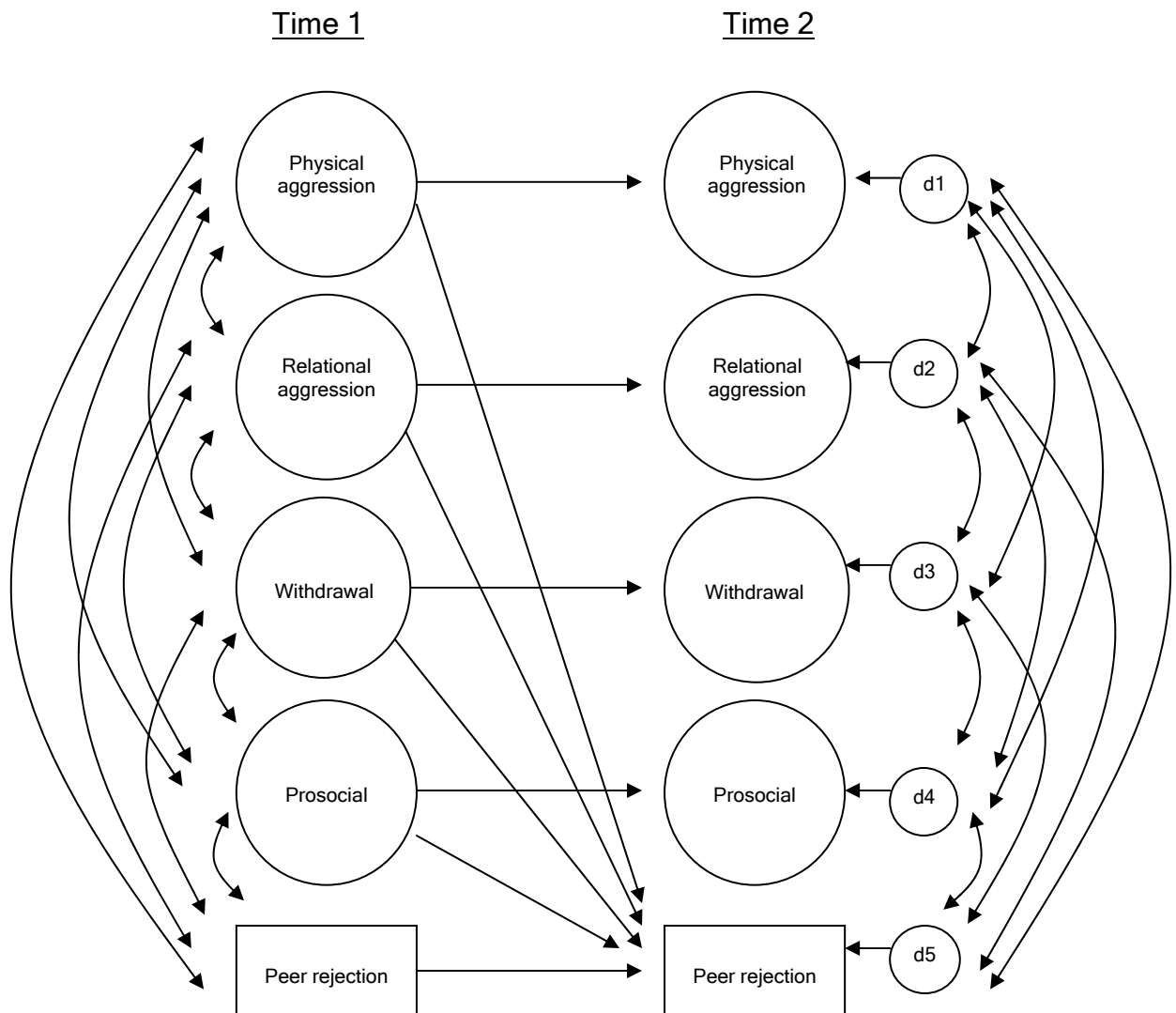


Figure 4.1. Hypothesised model of paths from children's social behaviour to later peer rejection.

Note. Latent constructs are shown with a circle. Measured variables are shown with a square.

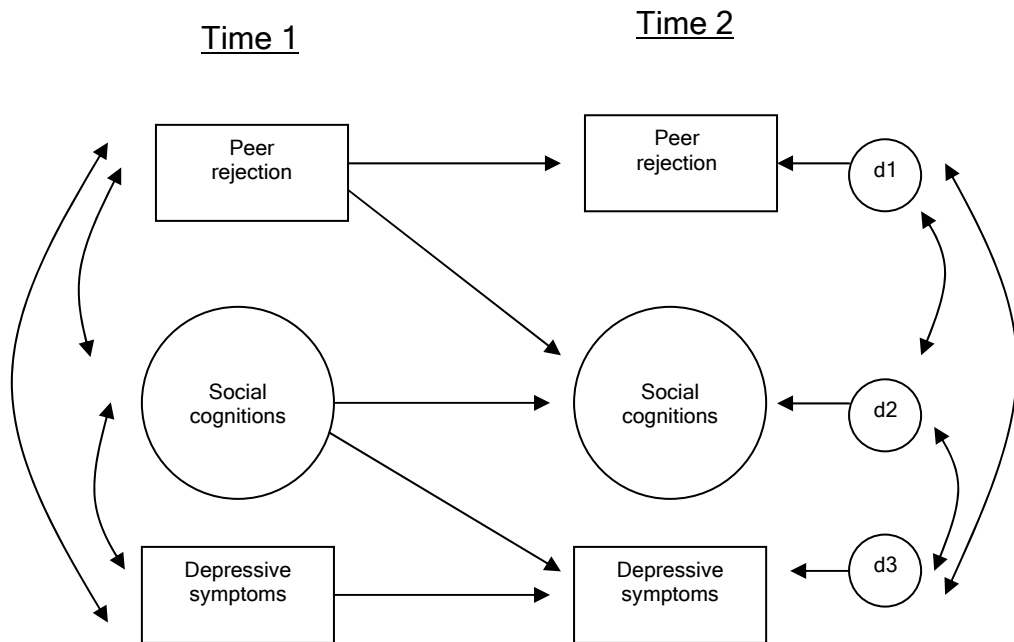


Figure 4.2. Hypothesised model of social cognitions as a mediator of the association between peer rejection and later depressive symptoms.

Note. Latent constructs are shown with a circle. Measured variables are shown with a square.

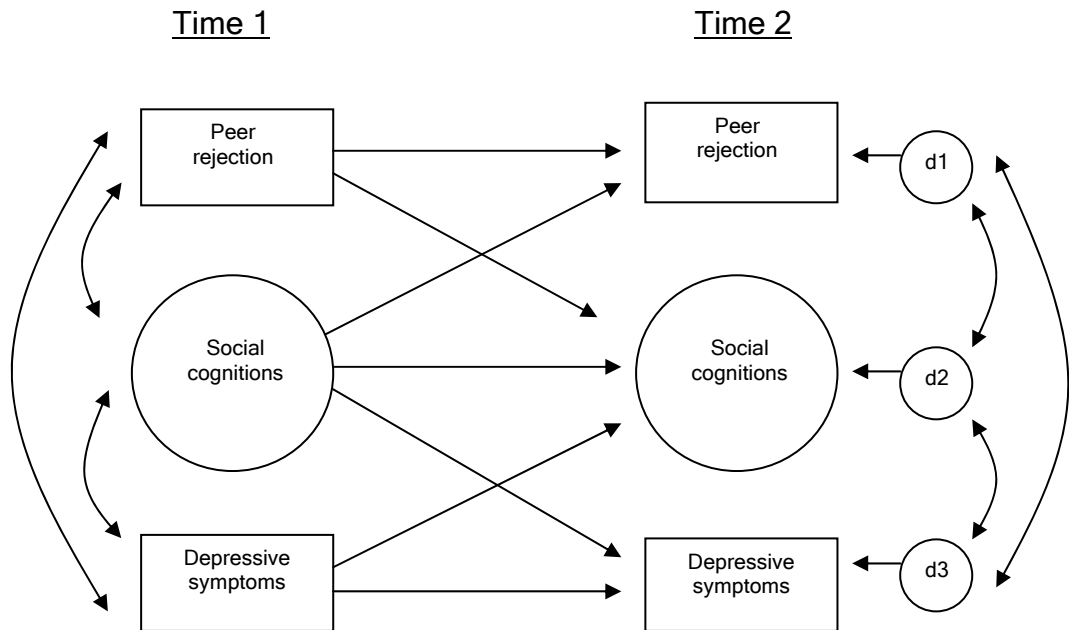


Figure 4.3. Alternative transactional model of reciprocal processes between peer rejection, social cognitions and depressive symptoms.

Note. Latent constructs are shown with a circle. Measured variables are shown with a square.

Predicting Peer Rejection at Time 2

Direct effects of children's social behaviour on later peer rejection were expected over a 6-month time lag. SEM (Jöreskog & Sörbom, 1993; Kaplan, 2000) was used to test the hypothesised model (see Figure 4.1). As recommended by Kline (1998) when estimating a longitudinal model, stabilities of variables over time were simultaneously estimated in this model, as were associations between all T1 variables and all T2 disturbances.⁹ Children's social behaviours were latent constructs with three items loading onto each variable, and peer rejection was a measured variable.

The hypothesised model provided an adequate fit to the data, $\chi^2(276, N = 308) = 738.16, p < .01, CFI = .93, RMSEA = .074$ (see Figure 4.4 and Table 4.7). The amount of total variance accounted for in T2 peer rejection by T1 social behaviour, T1 peer rejection and correlations between T2 disturbances was 55%. Standard errors and lower and upper 95% confidence intervals for all path coefficients were estimated with bootstrapping techniques (Shrout & Bolger, 2002). The paths from T1 relational aggression and withdrawal to T2 peer rejection were significant, standardised path coefficient = .24 and .28, respectively, $ps < .01$. The two non-significant standardised direct paths from T1 physical aggression and prosocial behaviour¹⁰ to T2 peer rejection had standard errors of .07 and .04 respectively, and 95% confidence intervals of -.16 to .11, and -.14 to .01, respectively, $ps > .05$.

⁹ The disturbance of T2 withdrawal was not freed to correlate with other T2 disturbances because of a high stability between withdrawal at T1 and T2, which resulted in a negative error variance.

¹⁰ When peer dislike (i.e., children's average score of peer acceptance) was substituted for peer rejection, T1 prosocial behaviour had a small but significant effect on peer acceptance at T2, standardised regression path = -.11, $p < .05$.

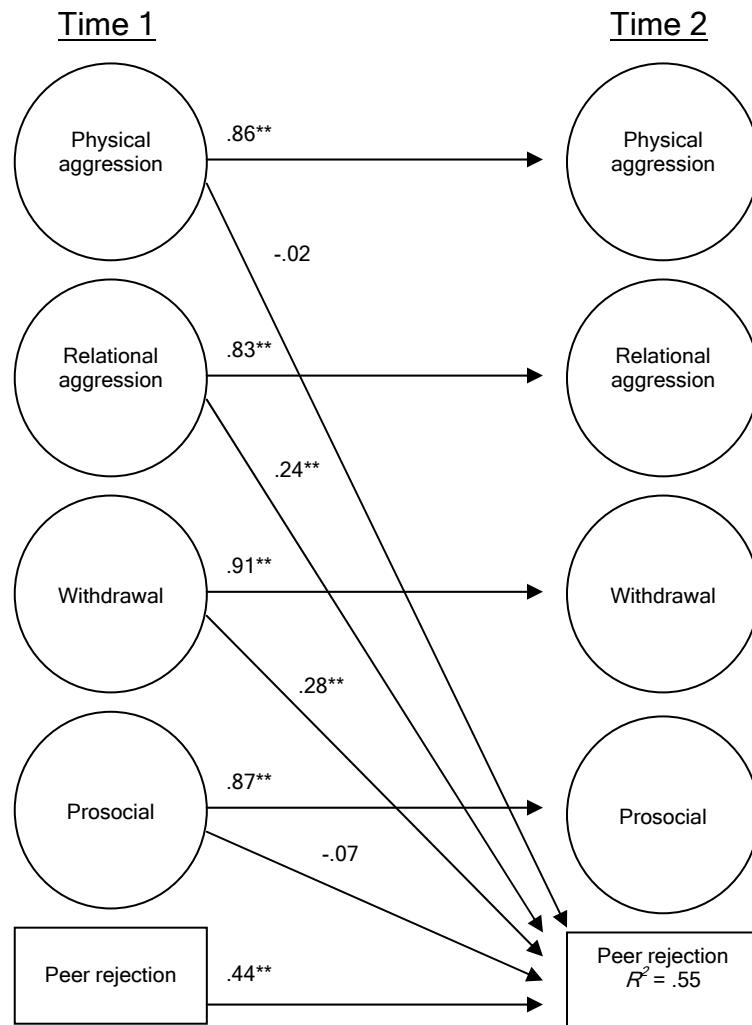


Figure 4.4. Standardised results of a structural equation model testing paths from children's social behaviour to later peer rejection.

Note. Latent constructs are shown with a circle. Measured variables are shown with a square. Path estimates for associations between variables within waves were not included in the figure for ease of presentation (see Table 3.4 and Table 4.5 for within-time correlations).

Table 4.7

Path Estimates, Standard Errors and 95% Confidence Intervals for the Social Behaviour-Peer Rejection Model (see Figure 4.4, N = 308)

Model path	Unstandardised			Standardised		
	Estimate (SE)	95% CI		Estimate (SE)	95% CI	
		Lower	Upper		Lower	Upper
<i>T1 associations^a</i>						
Physag, Relag**	.35 (.05)	.24	.51	.58 (.06)	.45	.70
Physag, Withd	.01 (.04)	-.09	.14	.01 (.04)	-.14	.19
Physag, Prosocial**	-.27 (.05)	-.36	-.19	-.39 (.04)	-.46	-.32
Physag, Peer rej**	.20 (.07)	.06	.37	.26 (.06)	.10	.42
Relag, Withd	-.02 (.05)	-.10	.06	-.03 (.04)	-.15	.10
Relag, Prosocial**	-.18 (.09)	-.27	-.09	-.27 (.07)	-.37	-.15
Relag, Peer rej**	.22 (.06)	.12	.34	.29 (.06)	.17	.42
Withd, Prosocial**	-.24 (.08)	-.34	-.16	-.31 (.08)	-.39	-.23
Withd, Peer rej**	.47 (.04)	.30	.66	.56 (.06)	.40	.66
Prosocial, Peer rej**	-.36 (.06)	-.46	-.28	-.43 (.08)	-.49	-.36
<i>Longitudinal stabilities**</i>						
Physag	.97 (.06)	.86	1.11	.87 (.03)	.80	.92
Relag	.90 (.11)	.68	1.12	.83 (.06)	.70	.93
Withd	.90 (.07)	.76	1.04	.91 (.03)	.83	.97
Prosocial	.79 (.05)	.69	.90	.87 (.02)	.82	.91
Peer rej	.44 (.06)	.30	.55	.44 (.06)	.30	.55
<i>Longitudinal effects</i>						
Physag → Peer rej	-.03 (.09)	-.21	.14	-.02 (.07)	-.16	.11
Relag → Peer rej**	.30 (.10)	.12	.52	.24 (.08)	.09	.42
Withd → Peer rej**	.30 (.07)	.17	.45	.28 (.06)	.17	.41
Prosocial → Peer rej	-.07 (.04)	-.16	.01	-.07 (.04)	-.14	.01

Note. SE = standard error, CI = Confidence interval, Physag = physical aggression, Relag = relational aggression, Withd = withdrawal, Prosocial = prosocial behaviour, Peer rej = Peer rejection.

^aCorrelations between T2 disturbances were similar to correlations between T1 variables and T2 zero-order correlations. Hence, they are not reported in the table for ease of presentation. Zero-order correlations between T2 variables are presented in Table 4.5.

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

Hypothesised Model of the Longitudinal Association Between Peer Rejection and Depressive Symptoms as Mediated by Social Cognitions

The hypothesis that social cognitions would mediate the relationship between earlier peer rejection and later depressive symptoms was tested using structural equation modelling. Peer rejection and depressive symptoms were measured variables, and social cognitions was a latent variable with three measured indicators, including the subscales of negative perceptions of peers, negative perceptions of self, and perceived social acceptance.

Prior to testing the mediation model, three separate models were tested using SEM to address the four conditions for testing mediated effects (Holmbeck, 1997). In Model 1, the A to C path (i.e., T1 peer rejection to T2 depressive symptoms) was significant, standardised path coefficient = .24, $p < .01$, thus satisfying the condition that the predictor has a direct effect on the exogenous variable. In Model 2, the A to B path (i.e., T1 peer rejection to T2 social cognitions) was significant, standardised path coefficient = .34, $p < .01$, thus satisfying the condition that the predictor also has a direct effect on the mediator. In Model 3, the B to C path (i.e., T1 social cognitions to T2 depressive symptoms) was significant, standardised path coefficient = .22, $p < .01$, and the previously significant A to C path was reduced but remained significant, standardised path coefficient = .16, $p < .01$. This satisfied the third and fourth conditions that the mediator has a direct effect on the exogenous variable, and that the effect of the predictor on the exogenous variable is reduced once the mediator is included in the model.

Thus, to test whether children's social cognitions mediated the association between earlier peer rejection and later depressive symptoms, a direct path from T1 peer rejection to T2 social cognitions, and a direct path from T1 social cognitions to T2 depressive symptoms, were estimated. In this model, stabilities of all variables were also estimated, as were associations between all T1 variables and all T2 disturbances. Because the measurement errors of the same variables measured repeatedly over time may covary (Kline, 1998), associations between T1 and T2 disturbances for repeated measures were also freed in this model.

All fit indices indicated that the hypothesised model fit the data well, $\chi^2(25, N = 308) = 53.42, p < .01, CFI = .99, RMSEA = .061$ (see Figure 4.5). T1 peer rejection, T1 social cognitions and correlations with other T2 variables accounted for 62% of the variance in T2 social cognitions. The path from earlier peer rejection to later social cognitions was not significant in the final model, $p > .05$, although a simple direct effect from T1 peer rejection to T2 social cognitions was found. T1 social cognitions, T1 depressive symptoms and correlations with other T2 variables accounted for 50% of the variance in T2 depressive symptoms. The path from T1 social cognitions to T2 depressive symptoms was significant, $p < .01$. Standard errors, and lower and upper 95% confidence intervals for all path coefficients were estimated with bootstrapping techniques (see Table 4.8). The one non-significant direct path from T1 peer rejection to T2 social cognitions had a standard error of .05 and a 95% confidence interval of -.05 to .12. Hence, it could not be concluded that social cognitions mediated the association between earlier peer rejection and later depressive symptoms during this 6-month window of time, because T1 peer rejection did not have a significant influence on later social cognitions, after accounting for earlier social cognitions.

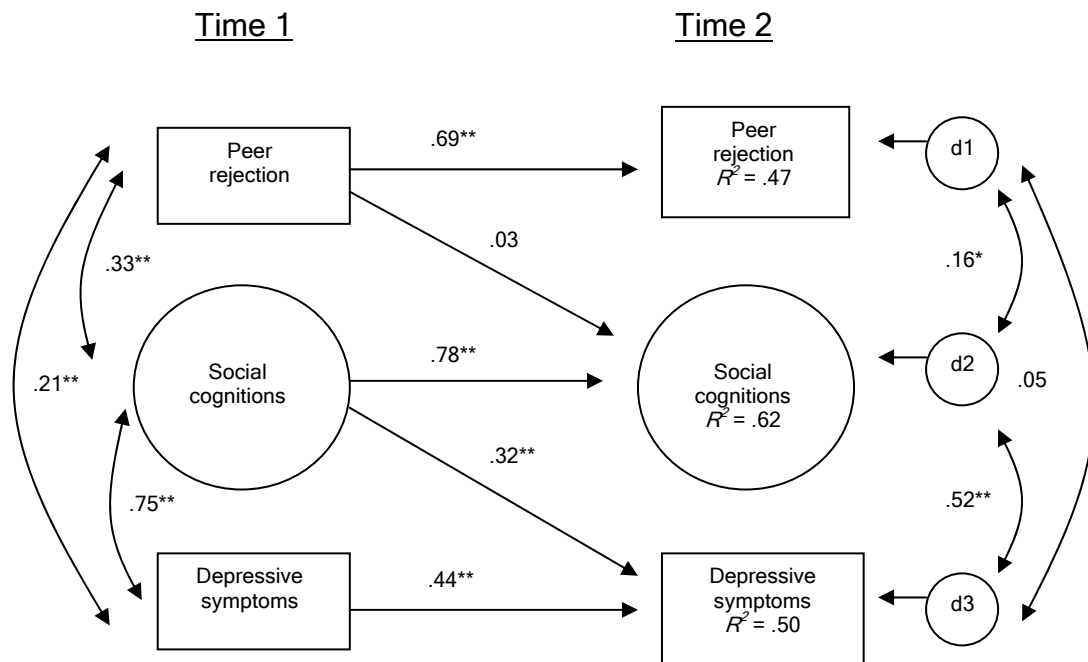


Figure 4.5. Standardised results of a structural equation model testing social cognitions as a mediator of the association between peer rejection and later depressive symptoms.

Note. Latent constructs are shown with a circle. Measured variables are shown with a square.

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

Table 4.8

Path Estimates, Standard Errors and 95% Confidence Intervals for the Mediation Model of Peer Rejection, Social Cognitions and Depressive Symptoms (see Figure 4.5, N = 308)

Model path	Unstandardised			Standardised		
	Estimate (SE)	95% CI		Estimate (SE)	95% CI	
		Lower	Upper		Lower	Upper
<i>T1 associations**</i>						
Peer rej, Soc cog	.10 (.02)	.06	.15	.33 (.06)	.20	.45
Peer rej, Dep	1.41 (.41)	.63	2.27	.21 (.06)	.10	.31
Soc cog. Dep	1.71 (.22)	1.35	2.25	.75 (.03)	.69	.81
<i>T2 associations</i>						
Peer rej, Soc cog	.03 (.02)	.01	.07	.19 (.09)	.03	.39
Peer rej, Dep	.20 (.28)	-.25	.85	.05 (.08)	-.08	.21
Soc cog. Dep**	.58 (.13)	.37	.90	.53 (.07)	.38	.65
<i>Longitudinal stabilities**</i>						
Peer rej	.70 (.05)	.61	.79	.69 (.04)	.60	.76
Soc cog	.86 (.08)	.70	1.03	.77 (.04)	.68	.84
Dep	.45 (.07)	.31	.58	.44 (.07)	.30	.56
<i>Longitudinal effects</i>						
Peer rej → Soc cog	.01 (.02)	-.02	.04	.03 (.05)	-.05	.12
Soc cog → Dep**	7.30 (1.83)	4.01	11.21	.32 (.07)	.20	.47

Note. SE = standard error, CI = confidence interval, Peer rej = peer rejection, Soc cog = social cognitions, Dep = depressive symptoms.

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

The Longitudinal Association Between Withdrawal and Social Cognitions

Based on findings from Study 2A reporting a direct effect of social withdrawal on social cognitions, a structural model including withdrawal, social cognitions and depressive symptoms at T1 and T2 was conducted. A direct path from T1 withdrawal to T2 social cognitions and T1 social cognitions to T2 depressive symptoms were estimated. In this model, stabilities of all variables were also estimated, as were associations between all T1 variables and all T2 disturbances. Because the measurement errors of the same variables measured repeatedly over time may covary (Kline, 1998), associations between T1 and T2 disturbances for repeated measures were also freed in this model.

All fit indices indicated that the hypothesised model fit the data well, $\chi^2(62, N = 308) = 127.05, p < .01, CFI = .98, RMSEA = .058$ (see Figure 4.6 and Table 4.9). T1 withdrawal, T1 social cognitions and correlations with other T2 variables accounted for 63% of the variance in T2 social cognitions. The path from T1 withdrawal to T2 social cognitions was significant, standardised path coefficient = .15, $p < .01$. The path from T1 social cognitions to T2 depressive symptoms was also significant, standardised path coefficient = .32, $p < .01$. Fifty percent of the variance in T2 depressive symptoms was accounted for in this model. Standard errors, and lower and upper 95% confidence intervals for all path coefficients were estimated with bootstrapping techniques.

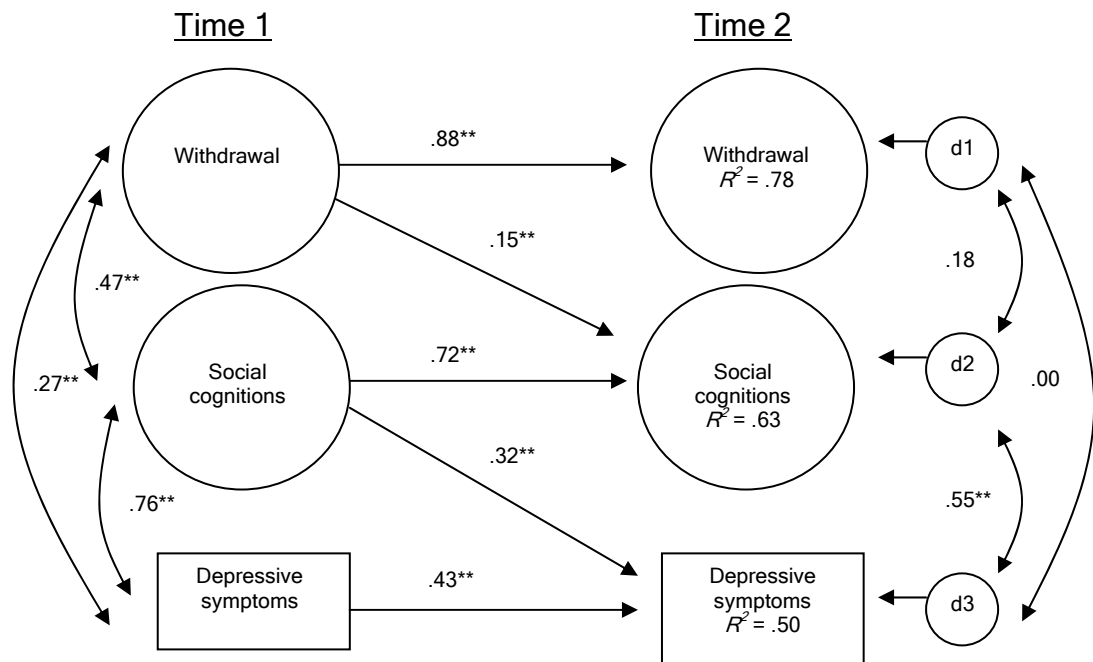


Figure 4.6. Standardised results of a structural equation model testing the path from withdrawal to later social cognitions and depressive symptoms over time.

Note. Latent constructs are shown with a circle. Measured variables are shown with a square.

** $p < .01$.

Table 4.9

Path Estimates, Standard Errors and 95% Confidence Intervals for the Model of Withdrawal, Social Cognitions and Depressive Symptoms (see Figure 4.6, N = 308)

Model path	Unstandardised			Standardised		
	Estimate	95% CI		Estimate	95% CI	
	(SE)	Lower	Upper	(SE)	Lower	Upper
<i>T1 associations**</i>						
Withd, Soc cog	.02 (.01)	.01	.03	.47 (.07)	.33	.61
Withd, Dep	.29 (.08)	.14	.46	.27 (.06)	.14	.40
Soc cog, Dep	.02 (.22)	.01	.03	.76 (.03)	.69	.81
<i>T2 associations</i>						
Withd, Soc cog	.02 (.01)	.00	.04	.18 (.11)	-.04	.37
Withd, Dep	-.01 (.19)	-.36	.39	.00 (.09)	-.18	.19
Soc cog, Dep**	.61 (.13)	.39	.92	.56 (.07)	.41	.67
<i>Longitudinal stabilities**</i>						
Withd	5.23 (.40)	4.39	5.99	.88 (.03)	.82	.93
Soc cog	.79 (.08)	.64	.96	.72 (.05)	.61	.80
Dep	.44 (.07)	.29	.58	.43 (.07)	.28	.55
<i>Longitudinal effects</i>						
Withd → Soc cog**	.35 (.13)	.09	.59	.15 (.05)	.04	.25
Soc cog → Dep**	7.43 (1.90)	4.12	11.63	.32 (.07)	.19	.48

Note. SE = standard error, CI = confidence interval, Withd = withdrawal, Soc cog = social cognitions, Dep = depressive symptoms.

** $p < .01$.

Transactional Model

A transactional model was estimated to test whether reciprocal influences occur among peer relationship variables during this developmental period (Caldwell et al., 2004). Building on the hypothesised mediation model, two additional paths were freed in this model. First, a path from earlier depression to later social cognitions was freed, based on evidence to suggest that depressive affect is associated with perceptions that friendships are less supportive and more stressful (Feldman, Rubenstein, & Rubin, 1988). Second, a path from earlier social cognitions to later peer rejection was freed, based on research suggesting that negative thinking patterns can lead to increased rejection by peers as children manifesting negative social cognitions are more likely to act in ways that perpetuate rejection (Caldwell et al., 2004).

As was found with the hypothesised model, the transactional model provided good fit to the data on all fit indices: $\chi^2(23, N = 308) = 45.85, p < .01, CFI = .99, RMSEA = .057$. In addition, the χ^2 -difference test indicated that this transactional model provided a significantly better fit to the data compared to the hypothesised mediational model, $\chi^2_{\text{difference}}(2) = 7.57, p < .05$. All stability paths, as well as the paths from earlier social cognitions to later depressive symptoms and earlier depressive symptoms to later social cognitions, were significantly different from 0, all $p < .01$ (see Figure 4.7). However, the two reciprocal paths between earlier peer rejection and social cognitions (and vice versa¹¹) were not significantly different from 0, $ps > .05$. Hence, there was a transactional association between children's social cognitions and their depressive symptoms over time, but no transactional association between peer rejection and social cognitions. Table 4.10 shows bootstrapped estimates of standard errors, and lower and upper 95% confidence intervals for all path coefficients. The standardised confidence intervals for the two transactional paths (i.e., T1 social cognitions to T2 peer rejection, and T1 depressive symptoms to T2 social cognitions) both included 0, indicating weak associations.

¹¹ When peer dislike (i.e., children's average score of peer acceptance) was substituted for peer rejection, the non-significant path from T1 social cognitions to T2 peer rejection was significant, standardised path coefficient = .15, $p < .01$.

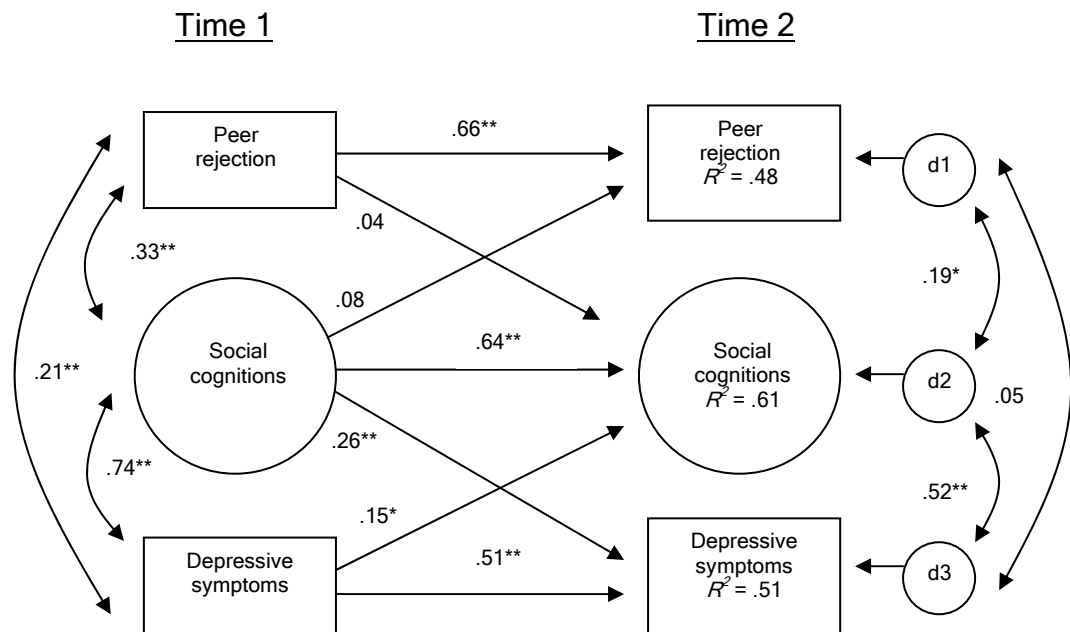


Figure 4.7. Standardised results of a structural equation model testing the transactional model of peer rejection, social cognitions and depressive symptoms.

Note. Latent constructs are shown with a circle. Measured variables are shown with a square.

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

Table 4.10

Path Estimates, Standard Errors and 95% Confidence Intervals for the Transactional Model of Peer Rejection, Social Cognitions and Depressive Symptoms (see Figure 4.7, N = 308)

Model path	Unstandardised			Standardised		
	Estimate (SE)	95% CI		Estimate (SE)	95% CI	
		Lower	Upper		Lower	Upper
<i>T1 associations**</i>						
Peer rej, Soc cog	.10 (.02)	.06	.15	.33 (.06)	.20	.45
Peer rej, Dep	1.41 (.41)	.63	2.27	.21 (.06)	.10	.31
Soc cog, Dep	1.70 (.22)	1.34	2.24	.74 (.03)	.67	.80
<i>T2 associations</i>						
Peer rej, Soc cog	.03 (.02)	.01	.07	.19 (.09)	.03	.39
Peer rej, Dep	.17 (.28)	-.27	.86	.05 (.08)	-.08	.21
Soc cog, Dep**	.59 (.13)	.39	.91	.53 (.07)	.38	.65
<i>Longitudinal stabilities**</i>						
Peer rej	.67 (.05)	.58	.76	.66 (.04)	.58	.74
Soc cog	.72 (.10)	.53	.94	.65 (.08)	.49	.81
Dep	.52 (.08)	.34	.68	.50 (.08)	.33	.63
<i>Longitudinal effects</i>						
Peer rej → Soc cog	.02 (.02)	-.02	.05	.04 (.05)	-.04	.13
Soc cog → Peer rej	.25 (.17)	-.09	.58	.08 (.06)	-.03	.19
Soc cog → Dep**	6.02 (1.97)	2.52	10.64	.26 (.08)	.11	.44
Dep → Soc cog*	.01 (.00)	.00	.01	.15 (.07)	.00	.28

Note. SE = standard error, CI = confidence interval, Peer rej = peer rejection, Soc cog = social cognitions, Dep = depressive symptoms.

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

Prediction of Children's Externalising Behaviour

Based on findings in Study 2A, it was predicted that physical and relational aggression at T1 would predict peer rejection and externalising behaviour at T2, controlling for T1 variables. Further, it was predicted that peer rejection at T1 would account for additional variance in children's T2 externalising problems, above and beyond the effects of aggressive behaviour. This analysis was included to extend on the above findings regarding children's depressive symptoms, given that other areas of children's functioning are also affected by peer relationships. For example, a positive association between depression and externalising behaviours has been reported during middle childhood to early adolescence, especially among boys (Kessler, Avenevoli, & Merikangas, 2001). Furthermore, evidence in the literature suggests that both aggressive behaviour and peer rejection have an independent association with externalising behaviour in children (Brendgen, Vitaro, & Bukowski, 1998; French et al., 1995; Laird et al., 2001).

In the SEM analyses, relational and physical aggression were latent constructs with three measured indicators for each variable. Peer rejection and externalising behaviour were both measured variables. A model was estimated with direct paths from T1 physical and relational aggression to T2 peer rejection, and T1 physical and relational aggression and peer rejection to T2 externalising behaviour. All longitudinal stabilities were also freed in this model. Associations between all T1 variables and between all T2 disturbances were also freed, as well as correlations between T1 and T2 disturbance of the same items loading onto the latent variables. The model provided adequate fit to the data on all fit indices: $\chi^2(82, N = 286) = 301.24, p < .01, CFI = .94, RMSEA = .097$ (see Figure 4.8). This model accounted for 50% of the variance in T2 externalising behaviour. Using bootstrapping techniques to estimate standard errors and lower and upper bound confidence intervals, only T1 physical aggression and peer rejection had significant direct effects on T2 externalising behaviour, above and beyond the effects of T1 externalising behaviour. Relational aggression at T1 did not significantly predict T2 externalising behaviour, $p > .05$ (see Table 4.11).

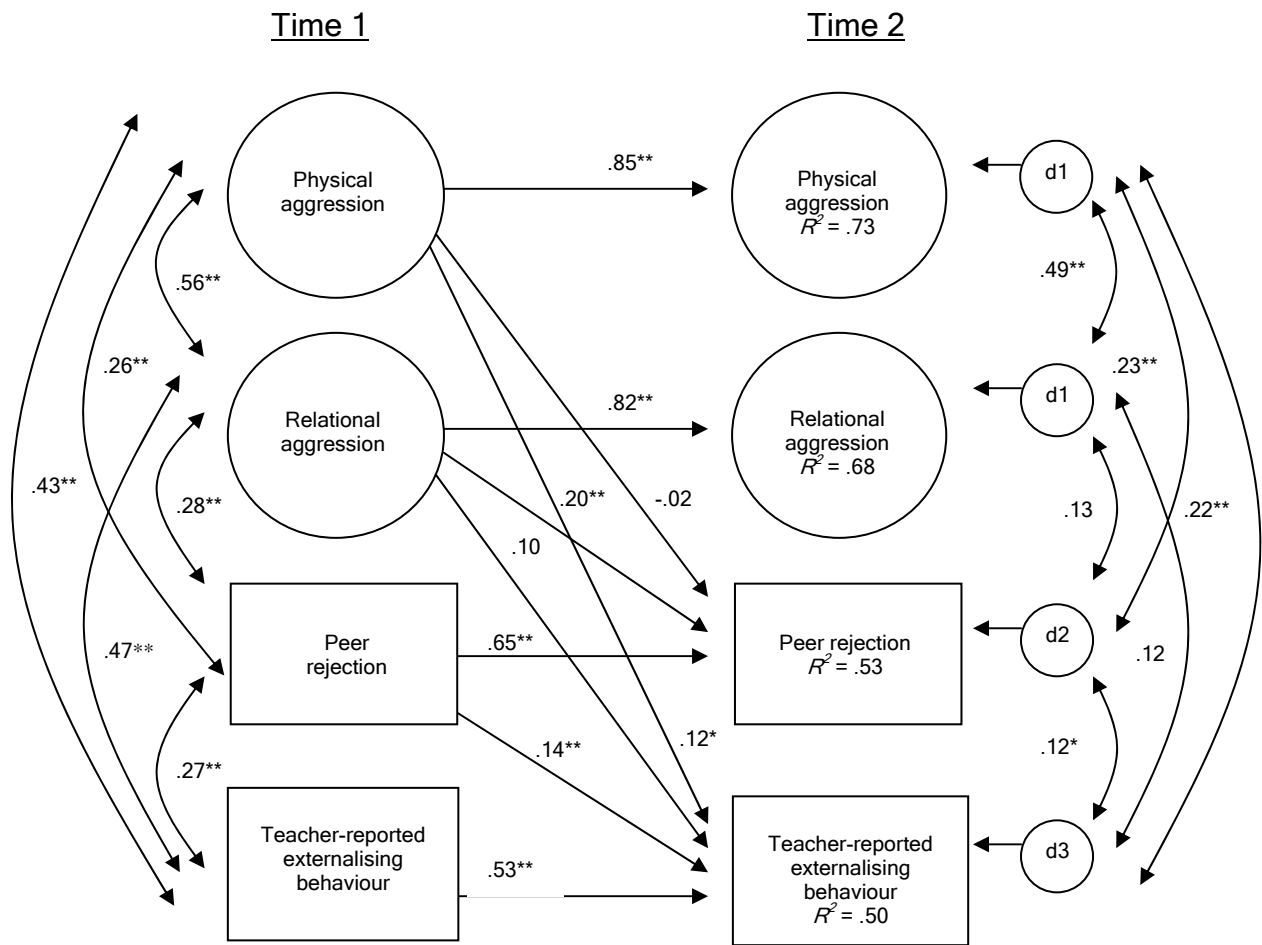


Figure 4.8. Standardised results of a model testing the paths from earlier aggression and peer rejection to later externalising behaviour.

Note. Latent constructs are shown with a circle. Measured variables are shown with a square.

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

Table 4.11

Path Estimates, Standard Errors and 95% Confidence Intervals for the Externalising Behaviour Model (see Figure 4.8, N = 286)

Model path	Unstandardised			Standardised		
	Estimate (SE)	95% CI		Estimate (SE)	95% CI	
		Lower	Upper		Lower	Upper
<i>T1 associations**</i>						
Physag, Relag	.33 (.06)	.22	.47	.56 (.07)	.43	.70
Physag, Peer rej	.19 (.08)	.06	.38	.26 (.08)	.09	.43
Physag, Ext	.52 (.14)	.27	.82	.43 (.08)	.26	.57
Relag, Peer rej	.20 (.06)	.10	.33	.28(.07)	.15	.42
Relag, Ext	.55 (.14)	.30	.85	.47 (.08)	.30	.60
Peer rej, Ext	.40 (.16)	.15	.78	.27 (.08)	.11	.42
<i>T2 associations</i>						
Physag, Relag**	.50 (.10)	.30	.70	.11 (.03)	.06	.17
Physag, Peer rej**	.23 (.08)	.08	.39	.07 (.03)	.03	.14
Physag, Ext*	.22 (.09)	.02	.39	.11 (.05)	.02	.22
Relag, Peer rej	.13 (.10)	-.07	.32	.04 (.03)	-.02	.11
Relag, Ext	.12 (.09)	-.07	.30	.07 (.05)	-.02	.17
Peer rej, Ext	.12 (.07)	-.01	.28	.09 (.06)	.00	.23
<i>Longitudinal stabilities**</i>						
Physag	.97 (.07)	.86	1.11	.85 (.03)	.78	.90
Relag	.92 (.11)	.71	1.18	.82 (.06)	.68	.91
Peer rej	.67 (.05)	.56	.76	.65 (.05)	.54	.74
Ext	.54 (.09)	.37	.72	.53 (.08)	.35	.67
<i>Longitudinal effects</i>						
Physag → Peer rej	-.03 (.08)	-.19	.13	-.02 (.06)	-.15	.10
Physag → Ext*	.25 (.16)	-.03	.58	.12 (.08)	-.01	.28
Relag → Peer rej**	.27 (.11)	.09	.50	.20 (.08)	.06	.40
Relag → Ext	.21 (.20)	-.16	.66	.10 (.09)	-.07	.30
Peer rej → Ext*	.23 (.09)	.05	.42	.14 (.06)	.03	.25

Note. SE = standard error, CI = confidence interval, Physag = physical aggression, Relag = relational aggression, Peer rej = peer rejection, Ext = externalising behaviour. * $p < .05$. ** $p < .01$.

The Influence of Gender

Social behaviour and peer rejection. To examine gender differences in associations, separate correlation matrices for boys and girls were obtained. There were no gender differences when the correlations between T1 social behaviours and T2 peer rejection were compared. The largest discrepancy in correlations was for T1 prosocial behaviour and T2 peer rejection, $r = -.38$ and $-.20$, respectively. These correlations were not significantly different, however, $z = 1.56$, $p > .05$. Correlations between T1 physical and relational aggression and T2 peer rejection were similar in magnitude for boys and girls, $r_s = .27$ and $.20$ for physical aggression, $z = .61$, respectively, $ps > .05$, and $r_s = .28$ and $.34$ for relational aggression, respectively, $z = -.52$, $ps > .05$. Thus, no further analyses examining gender differences in associations between social behaviour and other measures were conducted.

Changes in depressive symptoms over time. Analyses were conducted to determine whether changes in depressive symptoms over a 6-month period differed for girls versus boys. To compare changes in depression from T1 to T2 between boys and girls, a 3 x 2 repeated-measures ANOVA was conducted with time as the within-subject factor with two levels (T1 and T2), and gender and grade entered as the between-subjects factors. The dependent variable was depressive symptoms. There was a significant main effect for time, $F(1, 302) = 16.99$, $p < .01$, as well as a significant interaction between gender and time, $F(1, 302) = 9.63$, $p < .01$ (see Figure 4.9). The interaction between grade and time was not significant, $F(2, 302) = 1.00$, $p > .05$, and the interaction between grade, gender and time was also not significant $F(2, 302) = 1.58$, $p > .05$. Two post-hoc paired t-tests were conducted to determine whether the change in depression scores over time were significant for boys and girls. The results of the t-tests suggest that the change in boys' depression scores over time was significant, $t(144) = 5.27$, $p < .01$. However, the change in girls' depression scores over time was not significant, $t(162) = .81$, $p > .05$. Therefore, boys displayed a significant decrease in depressive symptoms over time, while depressive symptoms amongst girls remained stable.

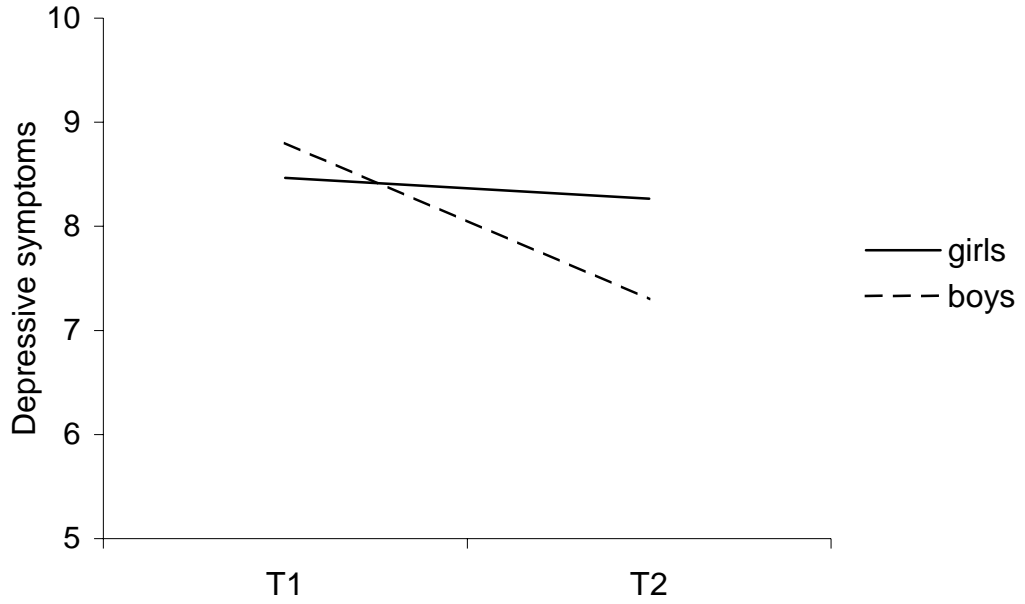


Figure 4.9. Changes in girls and boys depressive symptoms over a 6-month period.

Discussion

The purpose of Study 2B was to extend findings of Study 1 and Study 2A by examining temporal links between children's social behaviour, peer rejection, social cognitions and psychosocial functioning. The findings from this study also extend on other past research in the area of peer rejection, depression and externalising behaviour by examining a number of directional paths that explain the mechanisms underlying negative developmental trajectories during a period of life when peer relationships are of increasing importance. In the current study, children who are more relationally aggressive and withdrawn are also more likely to be rejected by their peers. Also, children who have negative social cognitions, such as negative perceptions of peers and self, and lower perceived social acceptance, are more likely to increase in depressive symptoms over time. In addition, a transactional process was found; children who have higher depressive symptoms also show increasingly negative perceptions of peers, negative perceptions of self in the peer domain, and lower perceived social acceptance. These findings are consistent with both stress-reaction and stress-generation models (Rudolph et al., 2000).

Longitudinal Associations Between Social Behaviours and Peer Rejection

The current findings replicated some of the cross-sectional associations reported in Study 2A between earlier social behaviour and later peer rejection. Therefore, it appears that children do contribute at least partially to their rejection by peers when they exhibit higher levels of non-normative social behaviours, especially relational aggression and withdrawal. The finding of a longitudinal association from earlier relational aggression and withdrawal to later peer rejection is supported by previous studies of preadolescents (e.g., Boivin et al., 1995; Crick, 1996; Boivin, Hymel, & Hodges, 2001; Hymel et al., 1990; Rubin, 1993). The finding that earlier prosocial behaviour and physical aggression were not independently associated with later peer rejection may be due to the relatively high intercorrelations of behaviours, making it difficult to detect more moderate effects of these behaviours.

Social Cognitions as a Mediator Between Peer Rejection and Depressive Symptoms Over Time

It was hypothesised that negative thinking patterns about peers would be one mechanism accounting for the temporal association between peer rejection and depression. However, this hypothesis was not supported across a 6-month period. Yet, peer rejection was positively associated with negative social cognitions at both time periods, however earlier peer rejection was not associated with later negative social cognitions; therefore a longitudinal mediation model was not fully supported. However, earlier negative social cognitions was a significant prospective predictor of depressive symptoms, even after accounting for negative social cognitions and depressive symptoms six months previous. This finding shows that children who harbour negative cognitions regarding their peer relationships are at risk of developing increased depressive symptoms over time. Panak and Garber (1992) found similar patterns in a 3-wave longitudinal study, which reported that peer-related cognitions (i.e., attributions for peer problems and perceived peer rejection) mediated the relationship between peer rejection and depression in Grade 3 to 5 students over a 1-year period.

Therefore, it can be concluded that peer rejection was *concurrently* associated with negative social cognitions, which, in turn, was associated with increasing depressive symptoms. That is, the experience of being rejected by one's peers is related to negative views of the self within the peer domain, which directly affect subsequent psychosocial problems such as depression, in partial support of the stress-reaction model (e.g., Caldwell et al., 2004, see also Ladd & Troop-Gordon, 2003).

Transactional Processes Among Peer Rejection, Social Cognitions, and Depressive Symptoms

An alternative stress-generation model was also examined (Rudolph et al., 2000). This model allowed for the possibility of reciprocal relationships between peer rejection, social cognitions and depressive symptoms. A stress-generation model follows from a developmental psychopathology perspective suggesting that

children do not only react negatively to stress in the peer environment, but also play an active role in constructing and shaping their social environments (Cicchetti & Toth, 1995). That is, children who hold negative views about peers and self and have low perceived social acceptance may be more likely to exhibit negative behaviours with peers that reflect these beliefs, leading to further rejection by peers. In fact, in the current study, a transactional model provided a better fit to the data compared to a unidirectional, mediational model testing only the hypothesised stress-reaction effect. Specifically, earlier social cognitions were related to increased depressive symptoms over time (as found in the hypothesised mediation model), but the reverse was also true, whereby earlier depressive symptoms led to children's increased negative social cognitions over the 6-month period of this study. In sum, children with depressive symptoms were more likely to develop increasingly negative views of themselves within their peer relationships over time, and negative social cognitions led to increases in depressive symptoms over time. Further, social cognitions had a direct effect on children's overall acceptance of peers over time, although this effect did not occur when examining peer rejection as the target variable. This finding is parallel to the stress-generation hypothesis, whereby children's negative views of their peers and social acceptance exert influence on their acceptance or rejection within the peer setting (Rudolph et al.).

Externalising Problems as an Outcome of Peer Rejection and Aggression

The current study also extended on past research by examining teacher-reported externalising behaviour as an important outcome of peer-related stress and negative social behaviour in late childhood. Both physical aggression and peer rejection, but not relational aggression, had a significant direct effect on later externalising problems. These associations were found even after controlling for initial levels of externalising problems. These results are supported by past research finding a longitudinal association between earlier peer rejection and aggressive behaviours and later externalising problems in early adolescence (e.g., Kupersmidt et al., 1995; Kupersmidt & Patterson, 1991), and supports the notion

that earlier aggression is predictive of later externalising problems during childhood (Hymel et al., 1990; Rubin & Mills, 1988). However, the current study extends on past findings by examining multiple aggressive behaviours simultaneously to outline the specificity of physical aggression as a pathway to externalising behaviour, even when accounting for peer rejection. These results are important considering the current analyses found no longitudinal association between physical aggression and peer rejection. Thus, physical aggression as rated by classmates does appear to have a negative effect on later teacher-rated externalising behaviour, and peer rejection is a cumulative risk factor in this prediction.

Gender Moderation

The current results found no evidence for gender differences in associations between earlier social behaviour and later peer rejection (i.e., gender moderation). The lack of gender moderation in this study shows that the social behaviours examined (i.e., physical and relational aggression, withdrawal, and prosocial behaviour) were similarly related to peer rejection in both boys and girls. No differences in the strength of associations between social cognitions and other measured variables were found between boys and girls, suggesting that girls and boys manifest similar thinking patterns regarding their peer relationships and social functioning when they experience difficulties in the peer domain.

The hypothesis that girls would be more at risk of developing depressive symptoms over time compared to boys was also investigated, based on past findings suggesting girls are more at risk of developing depression as they approach adolescence due to pre-existing vulnerabilities that increase their tendency to react more strongly to peer stress at this time (Petersen et al., 1991). In contrast to these theories and hypotheses, depressive symptoms remained stable for girls, whilst a *decrease* in depressive symptoms over time occurred among boys. These findings suggest that whilst girls did not increase in their depressive symptoms compared to boys, boys' levels of depressive symptoms decrease, accounting for a gender difference in depressive symptoms at T2. Boys may be at

some advantage compared to girls in terms of their resilience to stress as they enter adolescence. These findings are somewhat consistent with past research examining gender differences in depression, although most studies have documented the trend for gender differences to emerge from around 13 years of age (Nolen-Hoeksema & Girgus, 1994). Therefore, the current results provide further evidence that depression in Grades 5 to 7 girls does *not* increase over a short 6-month period across a school year. However, their male age-mates experience a decrease in depressive symptoms, possibly outlining one area of relative resilience for boys as they enter adolescence.

Conclusion

Overall, the results of Study 2B suggest that negative social behaviours, especially relational aggression and withdrawal, are important predictors of increased peer rejection over six months. These findings highlight the salience of children's behaviour with their peers at this stage. The current study also found that whilst peer rejection, social cognitions and depressive symptoms were related constructs, social cognitions did not appear to play a mediating role over a short period of six months. Instead, peer rejection and social cognitions appear to be concurrently related, and social cognitions had a direct effect on increased depressive symptoms over time. It may be that the effect of peer rejection on social cognitions occurs at an earlier developmental stage, so that by late childhood and early adolescence the major impact of peer rejection on perceptions of peers, perceptions of the self in peer relationships, and perceived social acceptance has already occurred to a great extent. Yet, at this age, social cognitions remain an important predictor of increased depressive symptoms over time. In addition, the current study supported a pathway from earlier physical aggression and peer rejection to later externalising problems, highlighting the importance of multiple social behaviours relating to social functioning when investigating maladaptive developmental trajectories as children enter adolescence.

CHAPTER 5

General Discussion

In this thesis, relationships between social behaviour, peer rejection, social cognitions and psychosocial functioning in children mostly aged 9 to 12 were examined. A cross-sectional pilot study was first conducted to test whether children's negative perceptions of peer relationships mediate the association between depressive symptoms and peer rejection, and to examine the validity and reliability of measures when used with a group of Australian students aged 9 to 12. Following this pilot study, a longitudinal study with two waves of data collection was conducted. Cross-sectional associations using Time 1 data were examined in Study 2A and longitudinal associations were investigated in Study 2B. Children's social behaviours associated with peer rejection were examined, as well as depression and externalising behaviour as two outcomes related to these behaviours and peer rejection. Alternative transactional processes among peer rejection, social cognitions and depression were also examined in Study 2B.

The findings in the current research provide significant extensions to past research in the area of peer relationships, social cognitive processes and depressive symptoms. Overall, results show that both individual and environmental factors play a role in perpetuating maladjustment as children approach the developmental stage of adolescence. In particular, there were two key findings to highlight. First, a concurrent relationship between peer rejection and three social behaviours (i.e., relational aggression, withdrawal and decreased prosocial behaviour) was supported. Furthermore, the association between peer rejection and two of the social behaviours, relational aggression and withdrawal, was replicated when examined in a longitudinal, latent-variable structural equation model. Second, peer rejection and social cognitions were linked with depressive symptoms both concurrently and over time, and there was some support for a mediating role of social cognitions in the relationship between peer rejection and depressive symptoms. However, although this mediational role of social cognitions was found in Study 1 and Study 2A (the two cross-sectional

studies), a longitudinal mediational effect of social cognitions was not found in Study 2B. Some evidence for bidirectional associations between social cognitions and depression in the current studies highlight important processes that maintain children's depression.

A third set of findings concerned the prediction of externalising behaviour and a comparison of the pathways to externalising behaviour versus depressive symptoms. Externalising behaviour was examined to provide a more comprehensive investigation into children's peer relationships and psychosocial functioning. The results suggested a concurrent relationship between peer-rated physical and relational aggression and teacher-rated externalising behaviour, above and beyond the contribution of peer rejection. However, only physical aggression was a predictor of externalising behaviour over time, after controlling for initial levels of externalising behaviour and peer rejection. These findings underscore the importance of considering specific pathways to maladjustment in late childhood. That is, physical aggression was related to later externalising behaviour, whereas withdrawal and relational aggression were related to subsequent depressive symptoms via the pathway of peer rejection and negative perceptions of peers and the self in relationships.

In the current studies, there was not consistent evidence that different social behaviours affect boys' versus girls' peer relationships. Yet, a few gender differences that were found are noteworthy. First, contrary to the original hypothesis, peer rejection was more strongly associated with concurrent depression in boys compared to girls in Study 1, although this finding was not replicated in Study 2. Second, a significant interaction was found between gender and prosocial behaviour in the prediction of concurrent depression in one cross-sectional analysis, indicating that prosocial behaviour is more predictive of decreased depressive symptoms among girls than boys. However, these findings were also not replicated. Third, boys reported a significant decrease in depressive symptoms over time, whereas girls' depressive symptoms remained stable.

Some limitations of past research on peer rejection that are addressed in Study 2 include the measurement of aggression types as predictors of peer rejection that have been found to be more common in boys (physical aggression) and more common in girls (relational aggression) in previous research (Coie & Dodge, 1998; Crick, 1997). A peer-report measure of prosocial behaviour as an additional predictor of peer rejection was also included. This is more rarely done in studies of children's behaviour and peer relationships. Social withdrawal was also assessed with a focus on the inhibited/wary subtype of withdrawal. This type of withdrawal was expected to be more important for understanding pathways to peer rejection and mental health difficulties.

In addition to including a range of social behaviours in Study 2, a number of social cognitions as potential mediators of the relationship between depressive symptoms and peer rejection were considered in both Study 1 and Study 2. These social cognitive factors included peer-related attributions, conceptions of relationships and self in relationships, and perceived social acceptance. Finally, gender was considered as a potential moderator of relationships between social behaviours, peer rejection, social cognitions, and psychosocial functioning in Study 2 and similarly considered in Study 1.

Overall, the implications of this study include a more comprehensive understanding of the predictors and outcomes of peer rejection, as well as the social-cognitive factors associated with depressive symptoms in late childhood. Further, the use of a variety of measures, including peer nominations (i.e., social behaviours), peer ratings (i.e., peer rejection), self-report (i.e., depressive symptoms and social cognitions) and teacher report (i.e., externalising behaviours), extended past research. This combination of measures and the variety of reporters reduces reporter bias and allows for more firm conclusions. The use of a multi-informant approach minimises the likelihood that results are merely an artefact of reporter bias and shared method variance. Past research suggests the importance of multiple reporters when measuring child and adolescent emotional functioning (Swenson & Rose, 2003).

Associations Between Peer Rejection, Social Cognitions, and Depression

Current study findings indicated that children who are more rejected by their peers have more depressive symptoms. However, the concurrent association between depressive symptoms and peer rejection is reduced or is non-significant once social cognitions are considered, showing that social cognitions are a partial mediator (Study 1) or full mediator (Study 2A) of the peer rejection-depressive symptoms link. These findings add to past studies that have reported a direct effect of peer rejection on depression (Boivin et al., 1994) by demonstrating the mediating role of social cognitions. However, this mediational effect was not replicated using the two waves of data in Study 2B. In this longitudinal analysis there was no mediational role of social cognitions after accounting for the stability of peer rejection, social cognitions and depressive symptoms. These findings differ from one past longitudinal study (Panak & Garber, 1992), which found that perceptions of relationships (in this case perceptions of peer rejection) mediates the relationship between earlier peer rejection and depressive symptoms in Grade 3 to 5 students over a 12-month time lag. In this study, perceptions of relationships fully accounted for the effect of earlier peer rejection on later depressive symptoms. However, the above study involved three waves of data, which may have allowed for a more robust test of mediation when compared to the 2-wave model tested here (Cole & Maxwell, 2003). Nonetheless, the lack of longitudinal mediation effects in the current study concur with another longitudinal study reporting only a main effect for *perceived* peer acceptance, but not *actual* peer acceptance, in Grades 4 and 5 in the prediction of depression in Grades 11 and 12 (Kistner, Balthazor, Risi, & Burton, 1999).

In addition to the limited number of waves included in this study, another possible explanation for the lack of a longitudinal mediational role of social cognitions may be the age of the sample. The children in the current longitudinal study may have already experienced the “cognitive shift” around seven to eight years of age involving increasingly complex self-descriptions and the ability to observe and criticise the self (Harter, 1996). With regard to the current findings,

middle childhood may also be a critical period when children's awareness of their lowered peer status takes on greater meaning, whereas the children in the current sample have gone beyond the age where self-perceptions develop and change based on social experience. Another possibility is that a longer time lag is needed when studying children this age and this longer time lag might yet yield longitudinal associations between social cognitions and peer rejection. Taken together, these findings still underscore the importance of considering children's perceptions of their peer functioning as part of a pathway linking peer stress, in the form of rejection, to psychosocial functioning during late childhood and early adolescence.

A diathesis-stress model of depression was tested in Study 1 in addition to a cognitive-mediation model. A diathesis-stress model points toward the consideration of social cognitions as a moderator of the association between peer rejection and depressive symptoms. In this model, the association between a stressor, such as peer rejection, is expected to be more strongly associated with depressive symptoms among children with relatively higher negative perceptions of their peers and their social competencies. In other words, in the face of stress, children with more negative social cognitions will be at more risk of elevated depressive symptoms than children with less negative social cognitions.

In the current study, children's negative perceptions of relationships and negative relational attributions were examined as diatheses that may interact with peer rejection to predict increased depressive symptoms. However, no significant interaction effect was found. Hence, social cognitions did not moderate the association between peer rejection and depressive symptoms. These results are incongruous with some past findings reporting an interaction between peer stress and cognitive style in the prediction of depression. For example, in one study of Grade 3 to 5 students, a pessimistic attributional style interacted with peer rejection to predict increased depression over a 12-month period (Panak & Garber, 1992). It should be noted that many studies finding support for the diathesis-stress model have largely focussed on non-interpersonal forms of stress

(e.g., life events), and global attributional style or cognitive errors (Abela, 2001; Dixon & Ahrens, 1992; Hilsman & Garber, 1995), largely focusing on discrete stressful experiences or life events occurring in the past week. To date, few studies have examined peer rejection as the stressor and peer-related cognitions as the diathesis in children. Furthermore, Cole and Turner (1993) put forth the argument that children between Grades 4 and 8 are yet to have developed stable cognitive patterns to constitute a "diathesis"; this has been supported in empirical research finding a diathesis-stress effect to emerge only in early adolescence (Turner & Cole, 1994). The participants in the current study were mostly aged 9 to 12 and may not have developed a stable "diathesis" in the form of ingrained thinking patterns about peers. Nonetheless, the diathesis-stress model of depression remains a topic of interest in the literature (see Rudolph et al., 2000), and studies using larger samples followed prospectively and examining a wider range of peer-related stressors may advance this area further.

Links Between Peer Rejection and Social Behaviours

Children's own social behaviours were also of interest as predictors of peer rejection. The developmental psychopathology perspective has highlighted the importance of investigating individual as well as environmental factors that lead to maladaptive developmental trajectories (Cicchetti & Toth, 1995). This leads to an emphasis on the way in which a child interacts with his/her peers as one important area that can provide greater understanding of the pathways to disorder during childhood. The study of individual behaviours also provides a test of the stress-generation hypothesis (Rudolph et al., 2000), whereby children partially contribute to their own psychopathology, providing important targets for intervention. These relationship between peer rejection and social behaviours were investigated in Study 2A and Study 2B. In concurrent analyses completed in Study 2A, relational aggression, withdrawal, and prosocial behaviour were all related to peer rejection. Children relatively higher in relational aggression and withdrawal are also more rejected by peers, while children who are more prosocial are less rejected by their peers. In Study 2B, there were also longitudinal

associations between earlier relational aggression and withdrawal and later peer rejection. Physical aggression was not associated with peer rejection either concurrently or over time after accounting for the effects of the three other social behaviours and, in the longitudinal model, stabilities of peer rejection, behaviours and within-wave correlations between all constructs.

The finding that withdrawn children were more rejected by their peers concurrently and becoming increasingly more rejected over time concurs with some previous research findings (Boivin et al., 1995; Rubin et al., 1993). The fact that withdrawn children in grades 5 to 7 are more rejected and become increasingly rejected over time is not surprising, given that, by middle childhood, social withdrawal is perceived as a deviation from normality by the peer group (Younger et al., 1993). Withdrawal was measured as the inhibited, wary subtype. This type of withdrawn behaviour has been a more robust predictor of peer problems as opposed to a focus on shy, inhibited behaviours that do not necessarily signify peer rejection (Younger et al., 2000).

Relational aggression was concurrently associated with peer rejection in Study 2A, and also predicted later peer rejection in a comprehensive structural equation model tested in Study 2B. Of note was the comparable magnitude of the associations for both concurrent and longitudinal effects, indicating the robust association between relational aggression and peer rejection. The above findings are supported by previous research documenting a concurrent and predictive relationship between relational aggression and peer rejection (e.g., Crick, 1996; Rys & Bear, 1997; Tomada & Schneider, 1997; Zimmer-Gembeck et al., in press). Relational aggression has been noted as a form of behaviour used to control or hurt others, and given the evidence that girls are more likely to value behaviours that are opposing to aggression (Clark & Bittle, 1992), it would be expected that relational aggression would be one type of social behaviour that leads to rejection by peers. Indeed, empirical support for this argument has been documented in studies reporting that girls view relationally aggressive acts by classmates as harmful and distressing (Crick, 1995; Crick et al., 1996), thus increasing the

likelihood that some children would reject peers who exhibit maladaptive behaviour.

Although the relationships between withdrawal and peer rejection, and between relational aggression and peer rejection, were robust, there was much variance in peer rejection left unaccounted in all models tested. Part of this unaccounted variance might be explained by findings that suggest that relational aggression may not be associated with rejection at all ages and for all children. A recent study reported that the initial level of relational aggression predicted perceived popularity in Grade 7 and 9 girls over a 6-month period, although these results did not emerge in Grade 3 and 5 girls (Rose, Swenson, & Waller, 2004). The authors made the important distinction between perceived popularity and peer preference, stating that children who are popular are not necessarily liked by the broader peer group. Therefore, whilst relational aggression may serve a function by manipulating the peer context to gain short-term popularity for some children at some ages, it may be more likely to evoke feelings of dislike by peers before adolescence and in later adolescence, ultimately resulting in subsequent maladjustment, at least in the short term.

Whilst children who were more prosocial were less likely to be concurrently rejected in Study 2A, there was no temporal relationship between prosocial behaviour and peer rejection in Study 2B. However, earlier prosocial behaviour did have a direct effect on the ratings-based measure of peer dislike six months later, even after accounting for the concurrent and temporal influences of other forms of negative social behaviour. Both cross-sectional and longitudinal research has demonstrated a negative association between peer rejection and prosocial behaviour in late childhood (Crick, 1996; Parkhurst & Asher, 1992). Moreover, because children become increasingly aware of social norms around age seven or eight, and are more likely to base their friendships on positive interpersonal qualities (Rogosch & Newcomb, 1989), children who fail to conform to age-appropriate behaviours may be more likely to experience rejection by peers.

The hypotheses that physical aggression would predict peer rejection both concurrently and over time were not supported. That is, physical aggression did not show an independent relationship with peer rejection when considered simultaneously with other social behaviours, although a simple association between the two was found at both time periods. However, when children were categorised into discrete groups of rejected and nonrejected children in Study 2A, rejected children were rated higher on all negative behaviours, including physical aggression. These findings suggest increased physical aggression in children who are highly rejected. However, when considered in tandem with other social behaviours, physical aggression was not an independent predictor of peer rejection after accounting for relational aggression, social withdrawal and prosocial behaviour. The lack of a significant concurrent and longitudinal association between physical aggression and peer rejection is in contrast to some past studies reporting significant correlations between children's overt aggression and concurrent or later peer rejection (e.g., Little & Garber, 1995; Panak & Garber, 1992; Rys & Bear, 1997). The current findings differ from these studies in that three other types of social behaviour were examined simultaneously. On the other hand, the current results concur with past studies reporting no longitudinal association between earlier peer-rated physical aggression and peer rejection three years later during middle to late childhood (Hymel et al., 1990; Zimmer-Gembeck et al., in press). Other research that has found a strong overlap between overt and relational aggression, which accounted for the variance in perceived popularity (Rose et al., 2004).

Hence, one possible explanation for the lack of effect of physical aggression on peer rejection is that the association between physical aggression and peer rejection was partly due to the overlap it shared with other behaviours, such as relational aggression and decreased prosocial behaviour. Whilst recent research suggests that physical and relational aggression are two distinct constructs, they are moderately correlated (e.g., Crick, 1997; Vaillancourt et al., 2003). In the current study, there was also moderate positive correlations between

physical and relational aggression. Thus, children who are more physically aggressive are often more relationally aggressive. Taken together, these findings highlight the need to consider both physical and relational forms of aggression simultaneously when investigating children's functioning within the peer group, based on the evident overlap between the two. It appears that physical aggression is commonly found in children who are also relationally aggressive or low in prosocial behaviour. This highlights the importance for future research to more clearly delineate the influence of various types of aggression, as well as other forms of behaviour, when studying peer functioning in late childhood and early adolescence.

The Direct Path from Social Withdrawal to Social Cognitions

Based on past research suggesting a direct effect of withdrawal on children's perceptions of their peer relationships and social acceptance (e.g., Hymel et al., 1990; Hymel et al., 1993; Parkhurst & Asher, 1992; Rubin et al., 1993), it was expected that social withdrawal would be associated with increased negative thinking patterns regarding one's peer relationships and perceived social acceptance. This hypothesis was tested in both the cross-sectional and longitudinal studies (Study 2A and Study 2B). Withdrawal was significantly positively associated with negative social cognitions both concurrently and over time, even after controlling for negative social cognitions measured six months previously. Rubin et al. (2003) hypothesised that the experience of consistent peer non-compliance and rebuff that occur among socially withdrawn children are likely to result in attributing their social failures to internal, stable causes, and ultimately more negative views of their social competence, acceptance and peer relationships. These findings further substantiate the importance of considering socially withdrawn behaviour as not only a predictor of subsequent rejection by peers, but also a risk factor for the development of negative beliefs about one's social acceptance and conceptions of peer relationships, ultimately resulting in depressive symptoms.

Gender Moderation

Gender differences and moderation were also examined in the current study. There has been mixed evidence for differences in the peer relations of boys and girls (Underwood, 2004), and there were few gender differences in the current studies. Most gender differences found here were small and inconsistent across studies. In Study 1, a stronger association between depressive symptoms and peer rejection for boys compared to girls was found, but no gender moderation was found in Study 2A or Study 2B. These findings are contrary to past findings suggesting girls are more focussed on maintaining interpersonal relationships compared to boys, indicating a greater vulnerability for girls when they experience peer difficulties (Crick & Grotpeter, 1995). For example, girls with increased interpersonal vulnerability in Grade 6 and 7 have been found to report increased internalising symptoms one year later compared to boys (Leadbeater, Kuperminc, Blatt, & Hertzog, 1999). However, other studies have found changes in depressive affect to become more enhanced in girls only once they enter adolescence (Rudolph & Hammen, 1999). In the current studies, children between Grades 5 and 7 were assessed, so it is possible that reliable gender differences in the relationship between peer rejection and depressive symptoms will emerge as they get older.

In Study 2A, prosocial behaviour was more strongly related to depressive symptoms in girls than boys. This finding extends on past research focussing solely on aggressive behaviour and gender. Given that girls' peer groups involve more prosocial interactions, such as turn-taking and acknowledging another's viewpoint (Maccoby, 1990), girls who fail to adhere to these normative expectations may also have more symptoms of maladaptive functioning, such as depressive symptoms. In the current study, the magnitude of the association between physical aggression and peer rejection did not differ for boys and girls. Overall, the results suggest similar relationships between negative social behaviours and peer difficulties for boys and girls.

Grade and Gender Differences

Grade differences were also considered in the current research when examining children's functioning over time, based on the developmental psychopathology perspective highlighting the need to address such factors when examining pathways to maladjustment at varying developmental stages throughout the lifespan (Cicchetti & Toth, 1995). No grade differences in social behaviours, social cognitions or psychosocial functioning were found in the current study. This lack of grade differences may be a result of the narrow age range of study participants. In addition, this finding is similar to past research with a similar age group (Rudolph et al., 1995, 1997, 2000). Interestingly, boys' depressive symptoms declined over the 6-month time lag in Study 2B, but there were no changes in depressive symptoms among girls. This result was found even despite a lack of gender difference in depressive symptoms within each time period. These results are in contrast to past research reporting a gradual decline in self-reported depressive symptoms for both boys *and* girls between 9 and 13 years of age, with males slightly higher on self-reported depression scores (Ge, Lorenz, Conger, Elder, & Simons, 1994).

Transactional Associations

In the current longitudinal study, transactional associations between depressive symptoms, negative social cognitions, and peer stress were examined. A bidirectional association between negative social cognitions and depression emerged with earlier negative social cognitions leading to increasing depressive symptoms over time and earlier depressive symptoms leading to increased negative social cognitions over time. This bidirectional association was found despite controlling for previous levels of the dependent variables, providing stronger evidence for these associations than designs using unpartialled or cross-sectional analyses. The transactional processes reported in the current study are also supported by recent longitudinal research finding evidence for reciprocal influences between negative social cognitions and depression during early adolescence. For example, depressed children were found to report increased

negative views of the self and the world, which then led to underestimation of their social competence over a 12-month period (Pomerantz & Rudolph, 2003). The current results, when considered in light of the above findings, provide further evidence for the transactional processes between children's negative perceptions of their social acceptance and relationships and depressive symptoms. It seems that children who have negative perceptions of their peers and their own social competencies at one point in time become increasingly depressed even over a 6-month period. In turn, these depressive symptoms result in increasingly negative views of peers, self and social competence.

A transactional association between peer rejection and social cognitions was also hypothesised and tested. This bidirectional association did not emerge. These results are contrary to recent findings suggesting a bidirectional association between peer stress and social cognitions. In a 3-wave longitudinal study spanning 12 months, children in Grades 5 and 6 with negative relational views were found to contribute to their own peer stress via increased negative social behaviours such as disengagement from peers, thus supporting a stress-generation hypothesis (Caldwell et al., 2004). However, in this previous study, the reverse was also found, whereby peer rejection led to youths' negative self-views in the peer context, resulting in later disengagement from peers. This latter finding supported a stress-reaction hypothesis.

Externalising Behaviour, Peer Rejection and Aggression

In addition to depressive symptoms, externalising behaviour was of interest in the current research as an important psychosocial outcome related to children's social behaviours and peer rejection. Past researchers have highlighted the importance of determining whether peer-related difficulties in childhood are specific to depression, or whether they are indicators of broader psychopathology (Rudolph et al., 1994). Hence, this was the purpose of the current study. Externalising behaviour was assessed via teacher rating scales for all participants at two time periods. Relational aggression and physical aggression, along with peer rejection, were associated with concurrent teacher-reported externalising

problems. However, using structural equation modelling with the longitudinal data, these results were only replicated for physical, but not relational, aggression, when the effects of initial levels of externalising behaviour and aggressive behaviours, and intercorrelations between measures within each wave were simultaneously estimated. In other words, relational aggression was not independently related to later externalising behaviour. Previous cross-sectional studies have reported similar findings of teacher-rated externalising problems as related to both relational and physical aggression (Crick, 1997). The number of children identified in Study 2A as relationally aggressive only was equal to the number of children identified as both relationally *and* physically aggressive ($n = 20$). This finding suggests a significant overlap between physical and relational aggression, providing one possible explanation for the lack of an independent contribution of relational aggression on externalising behaviour over time.

Overall, results of the current studies suggest that there are specific social behaviours that are part of a pathway to depressive symptoms versus externalising behaviour with both pathways including peer rejection as an important antecedent of problems. These pathways were examined both concurrently and over time, with the prediction that withdrawal would be specific to depressive symptoms, whereas physical and relational aggression were expected to be specific to externalising problems. Withdrawal was positively associated, and prosocial behaviour was negatively associated, with concurrent depressive symptoms. The aggressive behaviours examined, however, were not related to depressive symptoms in the cross-sectional or longitudinal studies. These results suggest the specificity of certain social behaviours that set in motion a series of problems that result in somewhat different psychosocial problems.

In sum, there seem to be specific pathways to maladjustment based on the type of social behaviour associated with peer rejection. In other words, peer rejection served as a mediator in the association between children's social behaviour and depression, and the association between social behaviours and externalising problems. Yet, the behaviours that partially triggered this rejection

were important to understanding children's particular future outcomes of either depression or externalising problems. Social withdrawal predicted later negative social cognitions, which were in turn related to both concurrent and later depressive symptoms. However, physical aggression predicted later externalising problems. These findings extend on past research that recommends analysing separate pathways to specific negative outcomes via peer rejection, as an alternative to the hypothesis that all negative behaviours during childhood lead to the same problem (i.e., equifinality). The current results support Rubin et al.'s (2003) model, proposing two pathways to maladjustment, with aggressive behaviours predicting peer rejection and subsequent externalising behaviours, and social withdrawal predicting peer rejection and subsequent internalising disorders. Similarly, the current results concur with Hymel et al.'s (1990) findings regarding the specific relationships between withdrawn versus aggressive behaviours and internalising versus externalising problems, concluding that future research needs to consider factors that mediate these specific pathways from early social difficulties and subsequent maladjustment. The current research revealed one such pathway to depressive symptoms, namely social cognitions. However, the specific social cognitions that mediate the pathway to externalising problems deserve further attention.

Peer Rejection and Peer Dislike as Indices of Children's Peer Stress

Both measures of peer rejection and peer dislike, previously described by Bukowski et al. (2000), were used in the current studies. These two indicators of peer status were used to provide a more complete analysis of the peer difficulties (both more extreme levels of peer rejection and less extreme measures of 'dislike') in the prediction of psychosocial outcomes. The peer rejection measure identified children who received a large number of the lowest possible ratings of like, whereas the peer dislike measure provided an average index of relative likeableness with higher scores reflecting more general dislike by the peer group. In the current research, the use of peer rejection as an index of peer difficulties appeared most robust when examining associations with social behaviour,

whereas the measure of peer dislike appeared most robust when examining associations with social cognitions both concurrently and over time. These findings highlight the overlap, but some possibility of difference, in the correlates and consequences of being “disliked” versus being “rejected”. Indeed, since the explosion of research into children’s peer relations over the past 20 years, when Coie and colleagues first documented unique methods for measuring peer status (Coie et al., 1982), researchers have explored multiple ways of assessing peer relations, including ratings, observation of play, teacher- and peer-reports. Whilst the use of sociometric ratings in the current research over nominations is not without its limitations (e.g., response sets, time consuming), ratings have been noted as providing more discriminating information on each child, and minimising issues such as arbitrary thresholds and measurement error inherent in the commonly used limited-choice nominations (Terry, 2000). Cillessen and Mayeux (2004) recommended continued research into the various methods of measuring peer rejection, as this will undoubtedly influence the way researchers view children’s peer relationships, their social behaviour and adjustment in the future.

Limitations of the Research

A number of limitations of the current research must be highlighted. First, paper and pencil measurement methods were used, despite the awareness that virtually no psychological constructs are measured without error (Cole & Maxwell, 2003). Superior research designs endeavour to reduce this error by collecting measures from multiple sources using multiple methods, such as interviews and observation, to minimise reporter bias. In the current study, multiple reporters were relied upon to reduce some bias and error. However, it is ideal to include multiple reporters of the same constructs. This was not conducted in the current studies. An advantage, however, was the use of structural equation modelling, which has the benefits of incorporating a combination of latent and observed constructs to test how well the specified model fits the sample data, allowing a clearer conceptualisation of the theory under examination (Byrne, 2001).

Whilst a number of measures of social cognitions were utilised and a latent construct was estimated in Study 2, one self-report measure of children's depressive symptoms was relied upon for the current studies. This limitation might be overcome in the future by collecting reports of children's depressive symptoms from teachers, parents and peer reports, although accuracy of such reports have been inconsistent, and may vary as a function of gender and familiarity with the reporter (Swenson & Rose, 2003). In addition, past researchers have noted that the likelihood of negative affect distorting children's perspectives of their social functioning is greater for self-reports compared to clinical interviews. Nonetheless, no assessment tools for measuring depression are immune to the possibility of reporting biases, and self-reports remain the most common method of measuring depression in children (Nolen-Hoeksema & Girgus, 1994). Furthermore, both self-reports of depression and teacher-reports of externalising behaviour were employed as the two outcome measures in the current study. Therefore, whilst shared method variance may account for some of the relationships between self-reported social cognitions and depressive symptoms, the associations found between children's behaviours and externalising problems were based on different reporters, that is, peers and teachers, respectively. Ideally, the inclusion of teacher or peer reports of depressive symptoms and self-reports of externalising behaviour would have strengthened study conclusions. However, multiple reporters were included within the constraints of time, finances, and the recruitment of a large sample.

Another limitation is the use of cross-sectional designs in Study 1 and Study 2A, whereby conclusions regarding the directionality of these reported associations cannot be made. Cole and Maxwell (2003) advise that without the use of longitudinal designs, researchers often make erroneous conclusions regarding directionality of effects. This limitation was partially addressed through the longitudinal design of Study 2B. However, the two waves of data in this longitudinal study made it difficult to draw firm conclusions regarding the mediating role of negative social cognitions. The two waves of data did allow for

the examination of bidirectional effects to minimise this limitation. The possibility of reciprocal causation between variables has been raised in past studies where depression predicted later peer rejection (e.g., Levendosky et al., 1995; Vernberg, 1990), although few studies to date within the area of peer relations have employed a longitudinal design with multiple waves of data to test the mediating influence of social cognitions (however see Caldwell et al., 2004; Ladd & Troop-Gordon, 2003).

A number of limitations specific to longitudinal research should also be highlighted. One such issue is the choice of a 2-wave study design with a 6-month time lag, providing a “snapshot” of children's functioning at two time periods. It should be noted that many of the longitudinal associations were small in magnitude in the current study, affecting the strength of conclusions. This raises the question of whether a 6-month time lag was the optimum period for testing the predicted associations among variables (see Cole & Maxwell, 2003). Nonetheless, all longitudinal findings were above and beyond the high stability of all constructs over a very short (6-month) time lag, as well as stronger cross-sectional associations. These conditions make it difficult to detect significant longitudinal associations, given that high stability of measures limits the amount of variance to be explained after adjusting for initial levels (Vernberg, 1990). In addition, the choice of a 6-month time lag allowed for comparisons with other developmental studies employing relatively short time lags (e.g., Caldwell et al., 2004; Crick, 1996; Panak & Garber, 1992). As noted earlier, one possible explanation for the modest effects is that the current sample may be at an age where the social-cognitive effects of peer rejection have already occurred to a great extent, therefore little change in perceptions of the peer group and perceived social acceptance might be expected to occur within a 6-month window of time.

Finally, the current research was also limited by not taking advantage of recent advances in the peer literature that have uncovered a number of individual child factors that explain additional variance in the links between children's negative social behaviours, peer rejection and maladjustment. These include the

friendships of rejected children (Brendgen, Little, & Krappmann, 2000; Hodges et al., 1999), having enemies (Parker & Gamm, 2003), being victimised (Dill et al., 2004), or having friends outside the school environment that may moderate the effects of peer rejection (Kiesner et al., 2003). For example, a recent study found withdrawn and aggressive behaviours only predicted peer rejection in classroom contexts where these types of behaviours were considered non-normative (Stormshak, Bierman, Bruschi, Dodge, & Coie, 1999). In addition, other important outcomes of peer rejection were not included in the current research and deserve mentioning, such as loneliness and social dissatisfaction (Boivin et al., 1995; Boivin & Hymel, 1997), social anxiety (Inderbitzen et al., 1997) and low achievement and poor school adjustment (French & Conrad, 2001). Thus, future research is needed to determine those factors that have a strong and stable association with children's maladaptive development, and those outcomes that are most important in terms of children's long-term adjustment. The heterogeneity of internalising outcomes associated with negative peer experiences suggests the multiple pathways that result from peer rejection, and has been noted as an area worthy of further investigation (Sandstrom & Zakriski, 2004).

Implications for Theory, Research and Practice

The findings of the current study have several implications for theory, research and practice. Regarding implications for theory, the current results are consistent with a cognitive-interpersonal model of depression (Gotlib & Hammen, 1992; Rudolph et al., 1997). Of interest are the dynamic processes among cognitive and interpersonal variables that are complex and transactional in nature. Both subjective reports of social cognitions and objective reports of rejection by peers were related to children's depressive symptoms. Further, the bidirectional influence between social cognitions and depression found in the current study must be considered within the developmental psychopathology framework, which emphasises the importance of examining changes to cognitive processes that are taking place within the individual in the understanding of abnormal development (Rutter & Sroufe, 2000).

Support for sociometer theory (Baumeister & Leary, 1995) and self-concept theory (Harter, 1983) was also found. For example, it seems that one mechanism by which rejected children become depressed is the cognitive awareness of their lack of belonging in relationships, which are focussed on feelings of detachment and lack of connection to the peer group. It is well established in the developmental literature that children between ages 9 and 13 place increasingly greater importance on feeling a sense of connection with their same age peers, as they spend more time contemplating their friendships compared to earlier stages of childhood (Hartup, 1989). These results suggest children's negative interpretations about rejection experiences are crucial to understanding why many rejected children are at risk of depression.

Regarding implications for research, some interesting questions can be raised regarding the social-cognitive factors that may be more relevant to aggression and negative outcomes. The social cognitions examined in the current study (i.e., negative perceptions of relationship, negative relational attributions, and perceived social acceptance) were associated with social withdrawal and depression. Yet, the associations between the social cognitions measured in the current study and externalising behaviour were weak to negligible. Past empirical evidence suggests aggressive children have unique types of cognitive vulnerabilities that place them at greater risk of externalising outcomes, including hostile beliefs about unfamiliar peers (MacKinnon-Lewis, Rabiner, & Starnes, 1999), blaming peers for social failures (Guerra et al., 2004), inflated views of their social competence and positive perceptual biases (David & Kistner, 2000), and lack of awareness into peer-related difficulties (Brendgen et al., 2002; Sandstrom & Cillessen, 2003). Furthermore, research into Social-Information-Processing theory (Crick & Dodge, 1994) has uncovered important cognitive processing deficits more salient to aggressive-rejected children. For example, in a longitudinal mediation study involving three waves of data collection in Grades 1, 4 and 5, hostile attributional biases mediated the relationship between earlier social preference and later aggression (Dodge et al., 2003). Although these types

of cognitive patterns are not likely to lead to internalising problems because the child does not blame the self for their social shortcomings, they may serve to perpetuate aggressive interactions as the child fails to acknowledge their role in these social difficulties (David & Kistner, 2000). Thus, aggressive-rejected children may form a distinct subset of children that manifest particular social cognitions that protect them from internalising symptoms due to the blame they place on others for their social failures, but instead, these social cognitions lead to subsequent externalising problems. The current study assessed social cognitions more relevant to internalising difficulties, due to the focus on depression as the primary outcome of interest. However, inclusion of a broader range of social cognitions pertinent to both internalising and externalising problems in future research would allow for an even more comprehensive understanding of the particular cognitive risk factors associated with specific psychosocial outcomes.

Regarding implications for practice, the current research raises questions regarding the optimal target variables for interventions aimed at improving social functioning in rejected children. Earlier studies of skills-based interventions designed for children with low sociometric status focussed on promoting social skills such as social problem solving, communication, and cooperation (e.g., Bierman & Furman, 1984; Ladd, 1981; Oden & Asher, 1977). However, these interventions effected little change in social interactions with peers. Since these early intervention studies, other researchers have implemented similar social skills interventions using coaching and peer modelling modes of delivery to target rejected children, with moderate success in affecting change in level of rejection (Dill, 2000; Pietrucha, 1998; Tiffen & Spence, 1986; Zapatero, 1996). However, to the author's knowledge, no study has included a comparison of cognitive-behavioural interventions generally targeting both withdrawn-rejected and aggressive-rejected children with components that address the specific behavioural and social-cognitive factors identified within each group. This is despite the growing amount of research suggesting aggressive-rejected and withdrawn-rejected children differ in their social-cognitive deficits, such as low

perceived social competence in withdrawn-rejected children (Hymel et al., 1993), and hostile attributional biases in aggressive-rejected children (Dodge et al., 2003). Furthermore, the indirect path from children's social withdrawal to depressive symptoms via peer rejection and social cognitions suggest important social and cognitive mechanisms by which withdrawn children develop adjustment problems (Boivin & Hymel, 1997), highlighting an additional important target for intervention.

A recent review of the effectiveness of social skills training for children and young people with emotional and behavioural adjustment problems has noted the importance of combining social skills training with other components in treatment (Spence, 2003). A social skills deficit is only one aspect of children's social competence. Failure to address other contributing factors in intervention, such as affect regulation, cognitive distortion, social perspective taking and social information processing may fall short of producing change in children with low social competence. In sum, the stronger influence of social cognitions on depression in the current research, compared to the influence of children's actual peer status, suggests the importance of addressing children's thinking patterns in relation to their social experiences in both school-based and clinical interventions. Indeed, research has noted that perceived social acceptance does not necessarily mirror children's actual peer status (Hymel, LeMare, Ditner, & Woody, 1999). Overall, these findings support the development and investigation of intervention programs that target specific negative social behaviours and accompanying maladaptive cognitions relevant to these subgroups of rejected children to prevent the onset of both internalising and externalising problems.

Future Directions

Much of the research into the effects of poor peer relations in childhood focuses on the individual factors that contribute to a child's lowered peer status. However, further research into the influence of the peer environment as a powerful force that can maintain a child's rejected status, such as the reactions and responses of classmates to the rejected child's behaviours (Bierman, 2003), is

clearly warranted. The negative reputational biases assigned to rejected children make peer group re-entry difficult, due to the aversive treatment they are subjected to (Rogosch & Newcomb, 1989). Cillessen and Ferguson (1989) highlight the importance of further attention to the peer group as a powerful force that can perpetuate and maintain a child's lowered peer status, rather than accepting the view that peer rejection represents an individual problem that should be addressed by changing the social behaviours of the rejected child. Children who are excluded from peer interactions are denied important opportunities for developing social competence and skills, leading to a vicious cycle whereby their rejected status becomes more stable over time (Dodge et al., 2003). Thus, whilst the current research makes a contribution to understanding individual factors in relation to the links between peer rejection and negative outcomes, it is also acknowledged that the wider peer environment can exert its influence in harmful ways.

In addition to replicating some past findings regarding the contribution of peer rejection and social cognitions in the understanding of children's depressive symptoms, the current study leaves some questions unanswered, such as whether children's perceptions of themselves in the peer domain are more powerful than their actual acceptance by peers in the understanding of depression. Further, it is still unclear whether a cognitive-mediation model is more appropriate to describe the relationship between *peer*-related stress, *peer*-related social cognitions and depression compared to a diathesis-stress model at all ages during childhood and adolescence. Such questions are worthy of continued cross-sectional and longitudinal research to more specifically outline the pathways linking these constructs.

In conclusion, the findings presented here support a cognitive-interpersonal model of depression (Gotlib & Hammen, 1992), sociometer theory (Baumeister & Leary, 1995) and self-concept theory (Harter, 1983) confirming the importance of children's social behaviour, peer rejection, and social cognitions in understanding the developmental of mental health problems. Support was also

found for specific pathways to depression and externalising behaviour via peer rejection that are dependent on the social behaviours associated with peer rejection. It is noteworthy that all four types of social behaviours measured in this study have not been simultaneously examined as predictors of later peer rejection in a single study. Certainly, over-reliance on withdrawal and physical aggression as the two primary antecedents and/or outcomes of peer rejection has been noted as too simplistic (Sandstrom & Zakriski, 2004), therefore neglecting to include a range of negative social behaviours may overlook the diverse negative social behaviours that lead to peer rejection and mental health problems. Peer rejection is associated with a number of maladaptive approaches to interacting with peers, including avoidance of the peer group at one extreme and intrusive or offensive behaviours at the other. Further, what seems most important in understanding depression is the child's perceptions regarding her own perceived social acceptance and the trustworthiness of her peers. Continued research is still required to explore children's functioning in the context of peer relations over time, and in combination with other domains of functioning. The social-cognitive and transactional models examined in the current study are sound bases for these future endeavours.