We present a developmental model that describes normal peer relations and highlights processes that underlie the emergence of problems with peers in childhood. We propose that children’s relationships with peers begin in the first years of life, with stable individual differences and preferences for particular peers emerging by three years of age. Social skills that facilitate peer relationships consolidate in the preschool years, during which time peer groups become structured with respect to friendship groups, gender, and dominance relations; some children begin to be rejected by their peers. In later childhood some children develop entrenched relations with peer relationships, in terms of loneliness, bullying and victimisation. Underlying cognitive and emotional processes that facilitate successful peer relationships at all ages are identified, and the extent to which peer relations play a causal role in the genesis of disorder is evaluated. A review of the evidence suggests that, rather than a simple pathway from problematic peer relations to disorder, there is a reciprocal relationship between children’s problems with peers and their psychological problems from infancy to adolescence.

The aim of this review is to propose a developmental model that both describes the normal course of children’s relations with peers and draws attention to cognitive and emotional problems that make it difficult for some children to cope with peers. There is no doubt that peers play important, and sometimes critical, roles in children’s lives, as attested to by the many reviews on this topic (e.g., Deater-Deckard, 2001; Rubin, Bukowski, & Parker, 1998). The study of peer relations is particularly germane for those who are interested in childhood disorders. There is bi-directional influence between peer relationships and children’s disorders, in a manner that evokes the well-known conundrum quoted above. Children’s problems with peers may contribute to the genesis of disorder, in particular anxiety, depression and conduct disorder; conversely, children with disorders may find themselves at odds with their peers from the very first years of life.

We shall argue that the relationship between peer relations and children’s risk for disorder is best understood by taking the long view, and examining the early development of the ability to relate to peers, beginning in the first months of life. In this paper, the developmental model that we propose charts the beginnings of peer interaction in infancy, describes the consolidation of important skills in the childhood years and finally draws attention to some entrenched problems that arise when children spend more of their time in organised peer groups. With respect to each phase of the proposed developmental pathway to problematic peer relationships (i.e., beginnings of interest in peers, consolidation of skills and emergence of problematic relationships), we note evidence for: dyadic relationships and group relations; stable and coherent individual differences; and underlying cognitive and emotional processes. Finally, we consider whether peer relations play a causal role in the genesis of disorder and whether, conversely, relationships with peers serve protective functions in development.

We believe that the study of children’s relationships, with peers as well as with family members and other adults, is best done in appreciation of the fact that children’s lives are bound up with complex social networks (see also Hay & Nash, 2002). Rather than entering into ultimately unsatisfying debates about the differential contribution of parents and peers to children’s development, it is important to strive to understand the interplay of different types of relationships within children’s social networks. Hence the developmental progressions in children’s abilities to relate to peers that we describe must be seen in the context of the other important relationships in children’s lives.

Nevertheless, for present purposes, to limit the scope of this review, there are good reasons to examine peer relations in their own right. Most human infants are born into a world that contains other infants. Many are cared for in group settings, and most others encounter peers in the course of their daily lives, as their parents and siblings spend time with other parents and children. As children grow older, their social networks become increasingly complex, containing friends and acquaintances unknown to their family members. Therefore, to be able to predict which children will find it most difficult to relate to peers, it is important to examine peer relationships in longitudinal perspective, and to seek antecedents to problems in the first years of life. With
its focus on the early determinants of problematic peer relationships, our review complements the recent Annotation on peer relations for this journal (Deater-Deckard, 2001). The model proposed here focuses primarily on development from early infancy to late childhood. We do not describe adolescent peer relations in great detail, but do examine adolescent outcomes when evaluating the contribution of peers to the genesis of disorder.

Because of our primary focus on links between peer relations and childhood disorder, we have reviewed the relevant literature in developmental psychology and child psychiatry. Much of this research pertains to the lives of children in Western industrialised nations. We have cited cross-cultural evidence where possible. However, we have not conducted a thorough review of the ethnographic literature on children’s relationships with peers in many different cultures (for further consideration of the issues that arise when making comparisons of children’s social experiences across cultures, see Harkness, 2002; Shweder et al., 1998).

**Beginnings**

The study of the beginnings of peer relations has ebbed and flowed with fashion in developmental research, and many important findings date from bursts of activity in the 1930s and 1970s. Here we draw on some of those classic studies, as well as more recent observations, to sketch the development of the capacity to relate to one’s agemates.

**Emotional reactions**

For infants in the industrialised West, life often begins in hospital, and it has long been thought that newborn infants influence their peers in the hospital nursery by making them cry (Sagi & Hoffman, 1976; Simner, 1971). Thus, the matching of negative emotion with another infant constitutes the first form of peer interaction that is easily documented. Contagious crying is not coincidental (Hay, Nash, & Pedersen, 1981), but little is known about individual differences in sensitivity to the emotions of a peer. It is possible that variations in responsiveness to young peers may relate to general individual differences in emotionality and behavioural inhibition, and indeed to early emerging differences in neuro-endocrine functioning (e.g., Lewis & Ramsay, 1995; Gunnar & Donzella, 2002).

**Communicative gestures**

By the second half of the first year of life, infants smile at, reach toward and touch other infants (Hay, Nash, & Pedersen, 1983; Vandell, Wilson, & Buchanan, 1980). These behaviours appear at about the same time or shortly after they first appear with adult caregivers, and so competence within both types of relationships develops in parallel (Hay, 1985; Vandell, 1980). An important development in parent–infant relationships is the capacity to engage in interactions that have a topic, namely, where infant and parent interact with reference to a particular object (Bakeman & Adamson, 1984). Such ‘topic-related’ interaction between infant peers is characteristic of the second year of life, when infants direct their peers’ attention to toys, food and other objects by pointing, holding up, or offering such objects to their peers (e.g., Eckerman, Davis, & Didow, 1989).

**Dyadic interactions**

**Contingency.** Contingent responsiveness is an important dimension of infants’ interactions with caregivers and other adults, which have been described as dialogic in nature, with a to-and-fro between infant and adult that resembles a turn-taking sequence. Contingent peer interactions can also be observed as early as 6 months of age, in terms of sequences in which infants touch each other or toys held by their peers; the rate of such contingent sequences distinguishes particular pairs of babies from other dyads (Hay et al., 1983). Infants are better able to sustain interactions with peers if toys are not present (Hay et al., 1983; Jacobson, 1981; Vandell et al., 1980).

**Cooperation, sharing and responses to peers’ distress.** Although young children were long thought to be incapable of engaging in cooperative play, one-year-olds have been observed to engage in cooperative games with their peers, taking part in sustained interactions that entail mutual engagement, repetition of key actions, alternating of turns, and a playful, ‘non-literal’ quality (Ross, 1982). Across a number of different cultures the joyful, exuberant quality of toddlers’ cooperative play has been noted (Løkken, 2000).

Other early forms of prosocial behaviour (sharing, helping, and comforting peers who are in distress) emerge around the first birthday. Some investigators report an increase in prosocial behaviour over the second year (Zahn-Waxler, Radke-Yarrow, Wagner, & Chapman, 1992), but studies of one- and two-year-olds with their peers show no clear trends (Hay, Caplan, Castle, & Stimson, 1991; Hay, Castle, Davies, Demetriou, & Stimson, 1999); indeed, one-year-olds are significantly more likely than two-year-olds to share in response to peers’ requests for objects (Hay et al., 1991). Interactions involving the

---

1 Some investigators refer to object-focused interaction as ‘triadic’; however, in the context of peer relations, this terminology is confusing. In this paper the term ‘triadic interaction’ refers to exchanges amongst three individuals.
giving of objects decline over time (Eckerman et al., 1989).

Conflict and the beginnings of aggression. Although one-year-olds share and sustain cooperative interaction, they also engage in conflict with peers and sometimes use force to pursue their aims. Most conflicts between young peers concern the possession of toys and other objects (Shantz, 1987); another common source of problem is one infant’s violation of another’s personal space (Hay & Ross, 1982). Although early writers characterised infants’ conflicts as ‘socially blind’ pursuits of interest in particular toys (Maudry & Nekula, 1939), conflicts between young peers are characterised by communicative gestures, and signs of social influence (Hay & Ross, 1982).

Two ways in which toddlers direct force against their peers – hitting them and wresting toys from their grasp – may be precursors to later forms of personal and instrumental aggression, respectively. The instrumental grabbing of toys, which is more common, declines over time, becoming less frequent than spontaneous sharing; in contrast, hitting shows no significant decline over time, remaining at stable, low rates (Hay, Castle, & Davies, 2000). Younger toddlers show more frequent, brief aggression, whereas older toddlers show fewer, but more sustained, aggressive behaviours (Fagot & Hagan, 1985). These precursors to aggression peak around 30 months of age (Hay, in press; Tremblay, 2001).

Adult behaviour affects toddlers’ responses to conflict. Mothers frequently intervene in their children’s conflicts with peers, usually supporting the peers rather than their own children; mothers of daughters are especially likely to urge yielding to peers (Ross, Tesla, Kenyon, & Lollis, 1990). However, the presence of mothers in playgroup or domestic settings can inhibit positive interaction between peers (Field, 1979; Rubenstein, Howes, & Pedersen, 1982).

Dyadic preferences and the beginnings of friendship

Infants do not respond in an undifferentiated way to other infants. In general, infants are more likely to respond positively to unfamiliar peers than to unfamiliar adults (Brooks & Lewis, 1976). Furthermore, infants interact in different ways with familiar as opposed to unfamiliar peers (Stefani & Camaioni, 1983; Young & Lewis, 1979). Infants and toddlers who spend their daily lives together develop clear preferences for certain companions, evident in studies in day-care centres (Howes & Phillipsen, 1992) and in kibbutz toddler houses (Zaslow, 1980). Toddlers who are cared for in mixed age groups sometimes prefer to play with older peers rather than with agemates (Rothstein-Fisch & Howes, 1988). Preferences for peers of one’s own sex also emerge in the toddler years, particularly evident on the part of older girls (Howes & Phillipsen, 1992; Hay et al., 1999). However, preferences for particular peers are also related to each toddler’s behavioural traits (Howes & Phillipsen, 1992).

Individual differences in early competence with peers

Consistent individual differences have been found in the quality of play with peers during the first years of life (Howes, 1980). Variations amongst individual infants and toddlers are predicted by dimensions of the broader social environment, including experience with siblings (Vandell, Wilson, & Whalen, 1981; Vandell & Wilson, 1987), attachment figures (Eastbrooks & Lamb, 1979; Pastor, 1981; but see also Howes, Matheson, & Hamilton, 1994), and other caregivers (Howes et al., 1994).

Is this individual variation in early peer relations at all consequential for children’s later development, and for their risk for disorder? There is reason to believe that stable individual differences in competence with peers emerge in the first years of life. For example, longitudinal assessments of a group of 55 children seen at intervals between 1 and 9 years of age indicated that toddlers’ competent play with peers predicted later competence as preschoolers and 9-year-olds (Howes & Phillipsen, 1998). Those toddlers who were capable of engaging in complex play with peers were more prosocial in the preschool setting and less likely to show either aggressive or withdrawn behaviour as 9-year-olds.

It is of particular interest to note that individual differences in precursors to externalising and internalising problems – and consequent risk for disruptive behaviour disorder and emotional disorder, respectively – may be discerned in the first years of life. Aggression in the toddler years is often thought to be normative. However, closer inspection of the literature on peer relations shows that, although many toddlers may use force occasionally, the frequent, proactive and dysregulated use of aggression in early life is a minority phenomenon that may index risk for later externalising problems (Hay, in press). Stable individual differences in aggression and externalising problems emerge in the toddler years (Fagot & Leve, 1998; Hay et al., 2000; Keenan & Wakschlag, 2002; Rubin, Bukowski, & Parker, 1998; Rubin, Burgess, Dwyer, & Hastings, 2003; Shaw, Keenan, & Vondra, 1994). In one study greater long-term stability was found for boys (Cummings, Iannotti, & Zahn-Waxler, 1989) but other studies have noted stability in girls’ aggression (Hay et al., 2000; Rubin et al., 2003).

With respect to internalising tendencies, there is evidence that socially inhibited behaviour in preschool settings is also predicted by earlier patterns of inhibition with peers. Toddlers who show behavioural inhibition in the presence of peers are likely
to continue to be shy 4-year-olds (Rubin, Burgess, & Hastings, 2002).

**Underlying skills**

The foregoing evidence for stable individual differences in competence with peers in the first three years of life suggests that attempts to prevent peer problems from developing may need to begin rather earlier than initially thought. An infant’s ability to engage successfully in interaction with peers rests on a number of achievements in the first years of life, whereby newly emerging cognitive skills and self-regulatory abilities equip young humans to engage in and sustain social interaction with a number of different partners. We propose that the following processes underlie harmonious interaction between young peers (see Figure 1). Deficits in any or all of these skills may interfere with successful peer relations.

**Joint attention.** Social interaction depends on the ability to coordinate attention with another person; this ability develops with adult partners over the last half of the first year of life (e.g., Butterworth, 2001; Striano & Rochat, 1999). Joint attention in the second year predicts theory of mind skills two years later (Charman et al., 2001). Initiating bids for other people’s attention and responding to the bids of others are both associated with patterns of frontal lobe activation and deactivation (Mundy, Card, & Fox, 2000).

The regulation of gaze and the use of communicative gestures are important components of early peer interaction, particularly when more than one peer might be present (Ishikawa, 2003). Gestures that serve to regulate another person’s attention – e.g., pointing to or holding up objects for another to see – are incorporated into peer interaction as early as 12 months of age (Hay et al., 1991); thus successful peer interaction requires being able to read as well as produce such signals. Infants and toddlers with deficits in joint attention skills may be ill equipped to sustain bouts of nonverbal interaction with their peers. Peers, unlike parents, cannot take into account the developmental level of their partners and scaffold the interaction accordingly.

**Emotion regulation.** Joint attention between an infant and another person also has a positive affective component that contributes to pleasurable social interaction (Mundy, Kasari, & Sigman, 1992). In general, the ability to regulate one’s emotion, in particular negative reactions to momentary frustration, is an important skill called upon by the demands of peer interaction. It has been reported that infants generally show lower levels of affect with peers than with their mothers (Adamson & Bakeman, 1985); however, challenging situations produce a broader range of individual differences in emotion regulation (Miller, McDonough, Rosenblum, & Sameroff, 2002), and conflict with peers may be one such emotionally charged setting. It should be noted that self-regulatory behaviours are more successful in reducing anger than in reducing fear (Buss & Goldsmith, 1998), which has implications for toddlers who are aggressive as opposed to fearful of their peers. Interventions that focus on emotion regulation strategies may be more successful with the former than the latter.

Differences in the ability to regulate emotion hark back to excessive crying in very early infancy (e.g., Stifter & Spinrad, 2002) and are also linked to attachment security (Diener, Mangelsdorf, McHale, & Frosch, 2002). Thus problems in emotion regulation may mediate some links between parent-child and peer relations.

**Inhibitory control.** Although a generally inhibited temperament in infancy predicts later shyness with peers (Rubin, Burgess, & Coplan, 2002), inhibitory processes are required for successful social interaction. Inhibitory control is an important dimension of executive function, applied in response to novel challenges (Rabbitt, 1997). When meeting new acquaintances, infants must inhibit impulses to explore their peers as they would objects; intrusions on peers’ personal space provoke conflict (Caplan & Hay, 1991; Hay & Ross, 1982). To the extent that exploratory behaviour is primarily directed to novel stimuli, this type of exploration of peers may naturally decrease upon extended acquaintance. Those infants and toddlers who continue to use physical exploration with peers rather than more distal, communicative gestures or words may be disadvantaged.

**Figure 1** Very early competence with peers is likely to be supported by emotional, cognitive and behavioural skills, as depicted in the hypothesised developmental model.
Infants must also suppress their tendencies to seize toys held by their peers, a behaviour that is already present at 6 months of age, especially in boys (Hay et al., 1983). Attempts to grab toys from peers declines over time (Hay et al., 2000); children who cannot inhibit the impulse to grab may be reacted to quite negatively by their peers.

Imitation. Imitation is an important means whereby infants and toddlers succeed in interacting harmoniously with their peers (Eckerman et al., 1989). Matching the peer’s behaviour is an important strategy for interaction amongst younger toddlers; this strategy emerges around the same time in very different cultural contexts (Eckerman & Whitehead, 1999). With age, interactions are more likely to be complementary, rather than precisely imitative (Camion, Baumgartner, & Perucchini, 1991). However, both imitative matching of another’s behaviour and complementary activities play an important part in maintaining cooperative games (Ross, 1982).

Causal understanding. Successful social interaction depends on a mutual understanding of each participant’s status as an active and intentional agent. For young peers, therefore, an important task is the appreciation that another infant may be the agent of one’s own experiences, be they good or bad. Conversely, it is important to appreciate when unpleasant events occur by accident, and are not intentionally caused by one’s peers. This level of social understanding is underpinned by more general comprehension of cause-and-effect relationships in the world.

Current research on infants’ understanding of causality in the physical world suggests that understanding of cause-and-effect relations develops over infancy, with important strides being made in the last half of the first year of life (Oakes, 1994; Desrochers, Ricard, Decarie, & Allard, 1994). Younger infants are sensitive to causal relationships in some tasks but not others (Belanger & Desrochers, 2001; Oakes, 1994). Of particular relevance to peer relations is the challenge of perceiving cause-and-effect in social interaction, which constitutes one of the first earliest forms of social understanding. Even quite young infants are sensitive to human-like motion that adult observers interpret as causal (Rochat, Morgan, & Carpenter, 1997). Infants also show sensitivity to physical displays that suggest human beings are approaching (Schlozman & Surian, 1999), and to negative vs. positive social interactions (Premack & Premack, 1997). However, only somewhat older toddlers appear to comprehend more complex causal sequences, such as those found in complex bouts of social interaction (Cohen, Rundell, Spellman, & Cashon, 1999). It is not yet known whether there are stable individual differences in causal understanding in the toddler years, nor whether these impact on actual interaction with peers. However, causal understanding is associated with two sets of skills used in social contexts, infants’ intentional communications (Harding & Golinkoff, 1979) and social referencing (Desrochers et al., 1994).

Toddlers also show an understanding of their peers as intentional agents in the course of conflicts over toys, when one toddler reaches for or gestures toward a particular object that is in the possession of the peer. In response to such gestures, peers are often likely to withdraw the object, or move away from the peer (Hay et al., 2000), or, less frequently, give it to the peer (Hay et al., 1991, 1999). The former, suspicious responses to peers’ indications of interest in an object are correlated with aggression, especially proactive aggression (Hay et al., 2000), whereas the latter, more generous behaviour is positively correlated with sensitivity to peers’ distress (Hay et al., 1999). Thus an understanding of the intentions of peers as social agents may be viewed as an early step in the development of a theory of mind, and is correlated with both aggression and prosocial behaviour.

Language. As soon as toddlers acquire some words, they use them in interaction with their peers, although nonverbal means of interacting remain more important for some time (Eckerman et al., 1989). Speech to peers is used both as a means of expressing one’s desires and pursuing one’s aims in conflict, without using overt aggression, and in attempts to resolve conflict (Caplan et al., 1991). Toddlers’ comments concerning the possession and use of objects, and the display of manners, are related to both aggression and sharing (Hay, 2000). In a large sample of 19-month-old twins, expressive vocabulary was significantly and negatively related to physical aggression (Dionne, Tremblay, Boivin, Laplante, & Pérusse, 2003).

Implications for children with developmental disorders

The foregoing consideration of the various skills that underlie successful interaction with peers suggests that young children with developmental disorders may be at a particular disadvantage. For example, for children with disorders in the autistic spectrum, impairment of joint attention skills (Charman et al., 1997) and deficits in imitation (Rogers, Hepburn, Stackhouse, & Wehner, 2003) might hinder adjustment to peers in group settings. It is also possible that language delay might impede peer relationships (Dionne et al., 2003). Thus some of the problems with peer relations seen in mainstreamed preschool classrooms (e.g., Guralnick, Connor, Hammond, Gottman, & Kinnish, 1996; Guralnick et al., 1998) may partly derive from deficits in skills typically acquired in the course of the first years of life. This possibility deserves further investigation.
Conversely, comparisons of children with developmental disorders with typically developing children may draw attention to the processes that underlie successful peer interaction.

**Consolidation of social skills and group relations**

During the next few years of life, most children consolidate their social skills and form pleasurable relationships with other children. In the industrial West, this often takes place in the context of organised groups, in nursery schools, day-care centres and recreational activities. New ways of relating to peers come to prominence in the preschool years. As children spend more time in groups, their experience comes to be organised with respect to particular friendships, gender-related preferences, and dominance hierarchies. It is against this background of increasing social competence and more rigid group structure that some children's difficulties in dealing with their peers become apparent.

**Types of interactions in early childhood**

**Conversation.** As children acquire language and fluent vocabularies, they spend more time simply talking to their peers. Conversational competence is greatest in familiar situations, where children can draw on reserves of ‘script knowledge’ for their conversations with peers (Furman & Walden, 1990). Preschoolers use their conversational abilities for many different purposes; for example, they may seek information, argue, agree or disagree with peers, and tell stories (Kuentay, 2001; Pickert, 1985). Young children take their conversations seriously: information received in conversation with peers may distort preschoolers’ memories of actual events (Principe & Ceci, 2002).

Conversational competence is one factor that affects the extent to which children interact successfully with, and are accepted by, their peers (Black & Hazen, 1990). In one longitudinal study of children’s conversations with their classmates, responsiveness to peers’ speech predicted social status a year later (Kemple, Speranza, & Hazen, 1992). Children who stutter sometimes meet with negative reactions from their peers (Meyers, 1990; Davis, Howell, & Cooke, 2002).

**Cooperation.** We have seen that the beginnings of cooperation lie in infants’ and toddlers’ first attempts to coordinate their activities with those of their peers. The ability to cooperate with others develops further in the preschool years. In situations where access to resources is restricted, some children may behave cooperatively and others competitively. Cooperation vs. competition is affected by gender and culture (e.g., Sparkes, 1991), and by attachment status (Kerns & Barth, 1995). The choice of competition or cooperation may depend on the identity of the peers, with children cooperating more equitably with friends (LaFreniere & Charlesworth, 1987). Preschool children gradually learn to balance cooperative and competitive behaviour whilst dealing with their peers (LaFreniere, 1996). However, different norms may hold for the two sexes. Sociometric measures indicate that competitive boys, but not competitive girls, are liked by their same-sex peers (Sebanc, Pierce, Cheatham, & Gunnar, 2003).

**Helpfulness, sympathy and kindness.** Meta-analyses have shown that the capacity for prosocial interactions involving helping, sympathising and concern for others increases over the years of childhood (Eisenberg & Fabes, 1998). Helping and sharing are more common forms of prosocial behaviour in preschool groups (e.g., Babcock, Hartle, & Lamme, 1995). Although preschoolers only rarely intervene actively to alleviate the distress of their peers, they are very likely to pay close attention to such distress and, when interviewed, can suggest constructive ways of comforting or helping a distressed peer (Caplan & Hay, 1989).

Gender differences in prosocial behaviour emerge during the preschool years, although the extent of these depends on the mode of assessment (Eisenberg & Fabes, 1998) and on the social context, in particular whether children are interacting with peers of the same or opposite sex (e.g., Burford, Rollins, & Rosario, 1996).

**Conflict and aggression.** Conflict over tangible resources decreases in frequency over the preschool years; instead, children begin to quarrel over social issues, such as the violation of gender-role stereotypes, or the inclusion of particular children in group activities (Hay, 1984; Shantz, 1987). For example, in a study of 400 preschoolers, two-year-olds were significantly more likely to engage in conflict over resources than were three- and four-year-olds; the older children were more likely to engage in disputes about forms of play and ideas (Chen, Fein, & Tam, 2001). Thus, the frequency of conflict does not decrease over the preschool years, but changes occur in the content of disputes and children’s roles in resolving their conflicts (Chen et al., 2001). Aggressive strategies tend to bring an interaction to an abrupt end, whereas conciliatory attempts to resolve conflict lead to continued interaction following the dispute (Caplan et al., 1991; Laursen & Hartup, 1989).

Early childhood is a time when gender differences in conflict and aggression become quite marked. Girls and boys show similar approaches to conflict in the toddler years (Caplan et al., 1991; Hay & Ross, 1982; Hay et al., 2000); gender differences in aggression emerge more clearly between three and four years of age (Keenan & Shaw, 1997; Loeber & Hay, 1997). Furthermore, girls and boys begin to
take qualitatively different approaches to conflict. Girls express more positive emotion than boys do in the course of conflict (Garner, Robertson, & Smith, 1997). When interviewed, preschool girls are more likely than their male counterparts to advocate socially acceptable approaches to conflict with peers (Hay, Zahn-Waxler, Cummings, & Iannotti, 1992; but see also Iskandar, Laursen, Finkelstein, & Fredrickson, 1995).

Pretend play. A striking feature of peer relations in the early childhood years is the extent to which interactions between young peers reflect the life of the mind, and indeed a degree of intersubjectivity between children’s minds. Preschoolers spend considerable periods of their time in imaginative pretence, which is an important force in the consolidation of early friendships (Gottman, 1983) and the persistence of those friendships into later childhood (Dunn, Cutting, & Fisher, 2002).

The ability to pretend that imaginary things are real emerges in a rudimentary fashion in the second year of life (e.g., Howes & Farver, 1987; Musatti & Mayer, 1987), and increases in complexity thereafter (e.g., Howes & Matheson, 1992), partly as a function of language development (Garvey & Kramer, 1989). Pretend play is seen across cultures (e.g., Farver, Kim, & Lee, 1995), although themes may vary across cultural settings. Socialisation practices in different cultural groups appear to affect the frequency and content but not the complexity of pretend play (Farver, Kim, & Lee-Shim, 2000).

Both girls and boys show pretend play, though again the topics and themes of the pretend episodes may differ (Black, 1989). Pretend play is found to be less complex under conditions of socioeconomic disadvantage (Doyle, Ceschin, Tessier, & Doehring, 1991) and less adequate child care settings (Howes & Matheson, 1992). Because pretend play fosters friendships, factors that disrupt it may generally interfere with harmonious peer relations.

Group relations in the preschool years

The major transition that takes place in the preschool years concerns the ability to relate to peers in groups, as opposed to one-to-one relationships. These groups may take the form of informal, often unsupervised, mixed-age play groups in villages and neighbourhoods in many cultures, or more formal, age-graded organisations in day nurseries and preschool classrooms. When young children begin to spend time in groups, some children interact preferentially with others, and so groups of children become structured in particular ways.

Interaction beyond the dyad. Infants’ interactions with peers are usually dyadic, and it is not completely clear when in development children become able to interact with more than one person at a time; the first documentation of triadic interaction comes from studies of family groups (e.g., Hay, Vespo, & Zahn-Waxler, 1998; Ross et al., 1996). When two-year-olds are tested in groups of three, about a fifth of the interaction is actively triadic (Ishikawa, 2003). However, as young children spend more time in nursery schools, day-care centres and organised playgroups, they begin to engage in more formal group activity. In these groups of young peers, social structures soon emerge. The following patterns can be seen.

Friendships. The early preferences for particular peers discerned as early as the second year of life (e.g., Howes & Phillipsen, 1992) flower into reciprocated friendships in the preschool years. Although it was once thought that early friendships reduce to fleeting interactions around common toys, more recent research has confirmed the complexity and enduring quality of early friendships (e.g., Gottman, 1983), some being maintained from infancy through early childhood (Howes & Phillipsen, 1992). Preschool children’s cognitive understanding of friendship is attested to by the fact that they make different judgements about other children’s transgressions, depending on whether or not they are friends (Slomkowski & Killen, 1992). Thus any group of preschool children becomes structured by the various friendships embedded within it.

Gender segregation. Initially young children form friendships with same- and opposite-sex peers, but gradually come to prefer to interact with members of the same sex, a phenomenon referred to as gender segregation. Maccoby (1998) has gone so far as to describe girls and boys as living in two separate worlds through most of childhood, which she considers a critical influence on the gender differences that characterise adult life. The phenomenon is seen across cultures (e.g., Hold-Cavell, Attili, & Schleidt, 1986). Increasing gender segregation of preschool children’s groups impacts on their friendships: girls’ early friendships tend to be more stable than those of boys (Howes & Phillipsen, 1992). Gender segregation may derive from the differential responding to same- and opposite-sex peers that begins to be evident in the preschool years. For example, two- and three-year-old girls are more likely to share with other girls than with boys, particularly in response to peer requests; in observations of toddlers with familiar peers, girls never gave boys what they asked for (Hay et al., 1999). Conciliatory gestures to resolve conflict are more likely to be directed to same-sex peers (Sackin & Thelen, 1984). Differences between girls and boys in the use of negotiation as opposed to coercive means to resolve disputes are seen more clearly when interacting with same-sex peers (Burford et al., 1996). Gender segregation may also derive from preferences for different types of activities, and from girls’
preferences for dyadic as opposed to group interaction (Benenson, 1993).

Dominance hierarchies. Research by human ethologists and sociobiologists has called attention to the phenomenon of dominance in children's groups (e.g., Strayer & Strayer, 1976). The notion of dominance implies that, when children are engaging in conflict with other group members, some are more likely than others to yield to the peer. Even amongst toddlers, the tendency to initiate conflict is a stable characteristic of individuals, but the tendency to yield to the peer depends very much on the identity of the peer (Hay & Ross, 1982). Transitive dominance structures within young children's groups are seen as early as the toddler years (Bakeman & Brownlee, 1982). Dominant children tend to engage in conflict most often with other dominant children (Strayer & Strayer, 1978). However, dominance relations affect play as well as conflict; rough-and-tumble play, which is shown more often by boys than by girls, is a context in which dominance is established and tested (Pellegrini & Smith, 1998). It should be noted, however, that dominance hierarchies are apparent for girls as well as boys (Sebanc et al., 2003; Strayer & Strayer, 1976). The influence of dominant children over their peers is attested to by the fact that dominant children find it easier to deceive their peers, often smiling while telling lies in a manner reminiscent of some successful adult politicians (Keating & Heltman, 1994).

Peer acceptance and rejection. The foregoing phenomena serve to structure preschool children's groups, and all operate to determine the place of individual children in the group. Some children are accepted by most of their peers, whereas others are ignored or actively rejected by peers. Because peer acceptance is an important issue with respect to the child's risk for disorder and, conversely, because children with disorders may be rejected by their peers, considerable attention has been paid to the determinants of peer acceptance in the preschool years. A variety of age-appropriate methods have been developed to measure sociometric preferences and dislikes (e.g., Asher, Singleton, Tinsley, & Hymel, 1979; Musun-Miller, 1990).

It is important to note once again that peer relationships take place within children's broader social networks, and so peer relations are affected by children's relationships with parents (e.g., Kerns & Barth, 1995; Kochanska, 1992; Moss, Goesselin, Parent, Rousseau, & Dumont, 1997), siblings (e.g., Herrera & Dunn, 1997), and teachers (Howes, Matheson, & Hamilton, 1994). Marital conflict between parents is sometimes reflected in children's relationships with peers (e.g., Gottman & Katz, 1989). Mothers' own support networks influence their children's acceptance by peers (Bost, 1995; Melson, Ladd, & Hsu, 1993). Perhaps because of access to wide networks, mothers who take the initiative in arranging children's contacts with peers have children who themselves initiate such contacts and are accepted by their peers (Ladd & Hart, 1992). However, despite mothers' efforts, children who display particular styles of interaction may fail to gain acceptance by their peers. Of particular importance is the relative frequency of positive and negative interactions with peers.

Individual differences that affect peer acceptance

Prosocial behaviour. Stable individual differences in prosocial behaviour emerge in the preschool years; long-term stability from early childhood to adolescence has been reported for spontaneous sharing (Eisenberg et al., 1999) and helpfulness (Côté, Tremblay, Nagin, Zoccolillo, & Vitaro, 2002). Furthermore, cooperation in early childhood predicts low rates of externalising problems in early adolescence (Hay & Pawlby, 2003). Prosocial behaviour is a key factor in gaining acceptance with peers; preschool children report that they like their prosocial classmates (Denham et al., 1990; Ladd, Price, & Hart, 1988). Sometimes it is the absence of prosocial behaviour in kindergarten, not the presence of aggression, that best predicts which children will be rejected a year later (Vitaro, Gagnon, & Tremblay, 1990).

Aggressiveness. The individual differences in aggressiveness that emerge in toddlerhood (e.g., Cummings et al., 1989; Hay et al., 2000; Rubin et al., 1998) consolidate during the preschool years. Although for most children aggression occurs more frequently in early than in later childhood (e.g., Broidy et al., 2003), even then it is not a majority phenomenon. In a normative sample of children between 3 and 5 years of age, in which a variety of different antisocial acts were recorded, approximately 40% of the children exhibited at least one antisocial act each day; however, only 10% showed antisocial behaviour at very high rates (Willoughby, Kupersmidt, & Bryant, 2001). These early individual differences tend to persist. Stability in aggression and other externalising problems is evident from three years of age on (Loeber & Hay 1997; Lahey, Waldman, & McBurnett, 1999). Indeed, early aggression is part of the profile of behaviours and deficits that characterise life-course persistent antisocial behaviour (Moffitt & Caspi, 2001).

When interviewed, young children condemn aggression that is hostile (as opposed to instrumental), and not used in self-defence (Ferguson & Rule, 1988; Hay, Zahn-Waxler, Cummings, & Iannotti, 1992). Given these views, it is not surprising that highly aggressive children are not well liked by their peers. This holds true not only for overt, physical aggression but the sort of 'relational aggression' that is shown more often by girls than by boys; this
sort of behaviour similarly leads to peer rejection (Crick, Casas, & Mosher, 1997). Furthermore, peer rejection may be underpinned by beliefs about the stability of aggressive behaviour in particular peers. Preschool children who believe in the stability of antisocial behaviour over time are less likely to exhibit prosocial behaviour and are more accepting of aggressive behaviour during peer interactions (Giles & Heyman, 2003). This implies that, even before children begin primary school, they already hold general belief patterns that they use to interpret peer relationships and respond in a differential way to aggressive and non-aggressive peers.

**Shyness.** Some children seem to find it difficult to engage with their peers to any great extent. Just as there is stability in aggressive behaviours from precursors in infancy, so general behavioural inhibition in infancy predicts shyness with peers in the preschool years (Rubin et al., 2002). Moreover, there is continuity from shyness across the childhood years, with many features similar to shyness amongst young adults (Asendorpf, 1992). Individual differences in shyness have been linked to insecure attachment relationships in infancy, although that may depend on the infant’s temperament (Rubin et al., 2002). However, shyness has also been found to be associated with mothers’ own social phobias (Cooper & Eke, 1999), suggesting a possible biological transmission of social anxiety from one generation to the next. There has been considerable interest in the biological bases of shyness. Several reports suggest that shyness is associated with blue eye colour in males (e.g., Coplan, Coleman, & Rubin, 1998) and with neuroendocrine functioning (e.g., Dettling, Gunnar, & Donzella, 1999).

In evaluating the effects of shyness on peer relations, it is important to take into account the child’s sex (Stevenson-Hinde & Glover, 1996), and also the degree of heterogeneity in the category of shy children (Asendorpf, 1990). In a review of the literature on solitary play, Katz and Buchholz (1999) focused on the nature of solitary play in a preschool setting. Of those children who played alone more than was typical, four groups emerged: shy, non-shy, isolated and depressed children. Only the children in the latter two groups present clear concerns during the preschool years. It appears that children in these groups already show signs of psychopathology that set them apart from other shy and non-shy children.

**Underlying processes**

In examining the individual differences in preschool children’s relations with peers, and the consequences of those differences for peer acceptance and rejection, it is again important to attempt to identify the underlying processes that contribute to successful peer interaction. The following processes seem particularly important for peer relations in the preschool years and beyond (see Figure 2).

**Emotionality and emotion regulation.** Children’s abilities to display and regulate emotions appropriately are linked to the quality of their friendships with their peers (McDowell, O’Neil, & Parke, 2000). Effective regulation strategies are positively correlated with ratings of social competence.

It is important to examine the joint contribution of emotionality and emotion regulation, rather than the independent contributions these constructs make to children’s competence with peers (Fabes et al., 1999). For example, both the experience of intense anger, as well as the possession of strategies for dealing with anger, affect peer relations in early childhood. Inappropriate strategies for managing anger, such as aggression, or venting of anger, are linked to higher rates of general emotionality, which in turn is associated with lower social status (Eisenberg, Fabes, Nyman, Bernzweig, & Pinuelas, 1994).

Skill at regulating emotions can help children deal with their own anger. For example, observations of 4-year-olds’ free play with peers were recorded every 3 months during the spring semester of the school year (Fabes et al., 1999). The findings indicated that children’s experience of negative emotions was negatively correlated with social competence. However, the child’s ability to regulate emotion moderated that relationship; the higher the level of emotion regulation, the weaker the association between negative emotional responding and social competence.

The experience of negative emotions, and problems in regulating those feelings, have long-term consequences for peer relations. In a longitudinal

**Figure 2** In childhood, problems in emotion regulation, social understanding and executive function are proposed to underlie individual differences in shyness, aggression and prosocial behaviour, which in turn influence the extent to which preschoolers are accepted or rejected by their peers.
Much research has examined the contribution of skill deficits and biases in theory of mind and social information-processing to peer relations. These processes begin to become important in the early childhood years, when children achieve an understanding of other people’s desires and beliefs, and when they become better able to generate solutions to interpersonal problems. For example, preschool children’s degree of social understanding affects their competence at dyadic interaction with peers; the peer partner’s degree of social understanding is also important (McElwain & Volling, 2002).

Social understanding may play an important role in determining which children become rejected. Conversely, peer rejection may interfere with the development of social understanding. For example, in the sociocultural view of development of theory of mind, theory of mind skills are thought to develop through social interactions with peers; the aggressive exchanges and lack of positivity that mark peer-rejected children’s social interactions may thus deprive them of opportunities to develop theory of mind skills through social interactions (Badenes, Estevan, & Bacete, 2000).

Links between theory of mind and social competence have indeed been found (e.g., Slaughter, Dennis, & Pritchard, 2002). In particular, understanding of deception and white lies is associated with positive status within the peer group (Badenes et al., 2000; Peterson & Siegal, 2002). Theory of mind skills were greater in those children who had greater verbal skills, a mutual friendship, and were considered to be popular by the peer (Peterson & Siegal, 2002). However, children who are rejected by their peers are not necessarily deficient in social understanding: Performance in theory of mind tasks did not differ in a comparison of peer-rejected children with popular and average children (Badenes et al., 2000).

Problems in social understanding may take the form of biases as well as deficits. One aspect of theory of mind is the understanding of another person’s intentions; misunderstanding of another’s intent has been linked to increasingly serious peer problems. Misattribution of peers’ intentions is associated with reactive aggression, involving angry retaliation in response to perceived provocation or frustration (Schwartz et al., 1998). Reactive aggression is negatively evaluated by peers, and correlated with victimisation (Price & Dodge, 1989).

Whilst aggression has been linked to peer acceptance, not all aggressive children are rejected by the peer group; social cognitive biases appear to play a role in determining which children are rejected (Schonberg, Tussey, & Stickney, 2003). American boys aged 9 to 11 years from low-income areas, and representative of diverse ethnic backgrounds, attended a summer camp for a period of two weeks. Children who made hostile attributions about peers’ intentions were more prone to reactive aggressive displays, which in turn predicted peer rejection. A subsequent study of somewhat younger children replicated and extended these findings (Yoon, Hughes, Cavell, & Thompson, 2000). In that study, aggressive-rejected children found it difficult to generate appropriate responses to social information. Their aggressive responses led to further rejection by the peer group. Thus, not only the misunderstanding of other children’s intentions, but also an inability to generate alternative means of solving social problems, leads to difficulties with peers.

Executive function. Deficits in social understanding may interact with broader patterns of cognitive function to pose difficulties in relating to peers. In a sample of British 4-year-olds, children who were characterised as ‘hard to manage’ showed deficits in both theory of mind and executive function skills (Hughes, Dunn, & White, 1998). The children were filmed whilst engaged in dyadic play with a friend (Hughes, White, Sharpen, & Dunn, 2000). The ‘hard-to-manage’ children were significantly more antisocial than other children, but deficits in theory of mind were not associated with antisocial behaviour. Rather, a significant and negative association between executive functioning and antisocial behaviour was found for both ‘hard-to-manage’ and comparison children. However, when the same children were filmed in dyadic competitive situations at ages 5 and 7 years (Hughes, Cutting, & Dunn, 2001), the combined effects of theory of mind and executive function deficits at age 4 predicted antisocial behaviour in peer relations at age 5 but not age 7 years.

The importance of one dimension of executive function, inhibitory control, was further attested to in a study of links between self-regulation at age
3 years and peer relations at age 4½ years in the nationally representative US sample drawn for the NICHD study of day care (Balaraman, 2003). Children with weak inhibitory control were involved in more negative exchanges with peers than children who showed good inhibitory control.

Thus, in addition to specific deficiencies in the form of a reduced capacity to understand mental states in others, cognitive impairments in the form of reduced inhibitory control are also implicated in the development of problems in peer relations. It should be noted, however, that inhibitory control and theory of mind skills are themselves related; indeed, executive function abilities may contribute to the young child’s growing awareness of other people’s mental states (Carlson & Moses, 2001).

The foregoing evidence concerning the problems faced by insensitive, aggressive and ‘hard-to-manage’ children draws attention to problematic relations with peers likely to be experienced by young children with serious disorder. In particular, highly dysregulated preschoolers – those already diagnosed with Attention-Deficit/Hyperactivity Disorder and Oppositional-Defiant Disorder – might be expected to have particular problems dealing with their peers. Conversely, it may be in response to the challenge of life in peer groups that these disorders become acknowledged and diagnosed.

**The emergence of entrenched problems in relating to peers**

In general, friendships flower and group relations become increasingly complex throughout the childhood years (Rubin et al., 1998). Nevertheless, peer relations go very badly wrong for some children. Some children do not develop satisfactory friendships, and feel very lonely. Others may be bullied, bully others, or both. Both of these phenomena are particularly relevant when considering the contribution of peer relations to risk for disorder.

**Loneliness and solitude**

The subjective experience of loneliness. An important distinction must be made between playing alone and the subjective experience of loneliness (Qualter & Munn, 2002). Furthermore, the phenomenology of loneliness is itself multidimensional. Goossens and Beyers (2002) compared six self-rating measures of childhood loneliness. The scales measured four different but interrelated latent constructs: peer-related loneliness, family-related loneliness, negative attitudes towards being alone and positive attitudes towards being alone. These different sorts of feelings about being alone emerge over the course of childhood.

The correspondence between solitude and loneliness seems most marked in the middle childhood years. Toddlers and preschoolers spend a great deal of time engrossed in constructive solitary play. In middle childhood, however, a tendency to play on one’s own is linked to the phenomenology of loneliness (Cassidy & Asher, 1992; Fordham & Stevenson-Hinde, 1999) and to social isolation and depressive symptoms (Katz & Buchholz, 1999). The significance of solitude then changes again between late childhood and early adolescence: For adolescents, solitude has a positive effect on emotional state, with those who spend an intermediate amount of their time alone being better adjusted than those who spent little or a great deal of time alone (Larson, 1997).

**Loneliness and competence with peers.** In the childhood years, loneliness is moderately correlated with lower levels of peer competence (Asher, Hymel, & Renshaw, 1984; Asher, Parkhurst, Hymel, & Williams, 1990; Cassidy & Asher, 1992), although these effects appear to be mediated by social conditions and emotional competence. Lonely children are rejected and victimised by their peers, becoming more rejected over time (Boivin, Hymel, & Burkowski, 1995). However, it is important to distinguish dispositional ‘anxious solitude’ from solitude due to peer exclusion (Gazelle & Ladd, 2003). In longitudinal analyses, the most severe depressive trajectories occurred when anxious solitary children also experienced high levels of peer exclusion. Anxious solitude predicted significantly elevated levels of peer exclusion at school entry or soon after. Those anxious solitary children who experienced early peer exclusion were at greater risk for depressive symptoms over the course of middle childhood. Conversely, anxious solitary children who did not experience significant peer exclusion displayed decreased levels of anxious solitude over time.

**Family factors.** Although solitude and subjective loneliness may derive from peer exclusion, there are also important links with parent–child relationships. Children who reported the most loneliness in early childhood were those who had been previously classified during infancy as having insecure–ambivalent attachment relationships (Berlin, Cassidy, & Belsky, 1995). Intergenerational continuities in the experience of loneliness have also been identified. Positive associations have been found between the loneliness experienced by parents and their children at the time of school entry (Henwood & Solano, 1994), and during the university years (Lobdell & Perlman, 1986); family conflict heightens feelings of loneliness (Jones, 1992). Loneliness is also related to the way in which parents socialise their children to resolve difficulties that arise during interactions with their peers; a controlling interaction style shown by mothers and fathers was positively related to children’s loneliness scores and depressive symptoms (McDowell, Parke, & Wang, 2003). In that study,
mothers’ (but not fathers’) warmth was related to lower levels of reported loneliness in children. In addition, parents’ controlling interaction style predicted negative ratings by peers and teachers, which may in turn have influenced peers’ decisions to exclude a child, thus compounding the level of loneliness experienced by the child.

Bully–victim relationships

The incidence of bullying. Any attempt to determine how many children experience bullying depends on the use of definitions that apply across developmental epochs and, if possible, across cultural settings. What exactly does it mean to bully others? A large-scale international study of school bullying attempted to address the problem of differing cultural definitions of the term bullying, whilst also focusing on age and gender differences (Smith, Cowie, Olafsson, & Liefooghe, 2002). Cartoons were used to investigate the meanings given to various terms, covering a range of social situations between peers. Whilst 8-year-olds were able to discriminate between non-aggressive and aggressive social situations, 14-year-olds were able to discriminate amongst fighting, physical bullying, verbal bullying and social exclusion.

Overall, there were no gender differences in the understanding of social situations, confirming earlier research on the definition of bullying (Smith & Levan, 1995). The study demonstrated that there are nuances within each language with regard to the terms for bullying that children use in each culture, which must be carefully considered for future international comparisons.

Increasing attention has been paid to the fact that some victims of aggression are themselves aggressive, and so distinctions are made between ‘passive victims’ and ‘bully/victims’. In assessments of primary-school-aged boys (Schwartz, Dodge, Pettit, & Bates, 1997), some boys were classified as aggressive victims (8%), others as passive victims (11%), and still others as non-victimised aggressors (17%). Thus over a third of the boys were actively involved in bully–victim relationships.

Bully–victim relationships may be transient. For example, in a small-scale observational study of classroom bullying, 60 bullying episodes were recorded in 28 hours of observations; on average, bullying occurred twice an hour, and was transient (Atlas & Pepler, 1998). Although only a minority of children are classified as bullies, other peers do participate in interactions that involve bullying. In 85% of the bullying episodes, other peers were involved in some capacity, from active participation to passive onlooker.

Developmental trends. Bully–victim relationships begin to emerge in the preschool years. For example, a social network analysis of 4- to 5-year-old children showed that a ‘combined central victim/aggressor model’ best described the pattern for both physical and general aggression (Vermande, van den Oord, Goudena, & Rispens, 2000). Aggressive relationships were transient, with only a minority of children victims and aggressors. Most children involved in aggressive relationships were dissimilar with respect to the level of aggression displayed, with one child the aggressor and the other the victim; however, some reciprocal aggressive relationships did occur.

Does the rate of bullying change with age? An age decline in the frequency of children being bullied at school has been reported in many empirical studies (for a recent review see Smith, Madsen, & Moody, 1999). However, many studies rely heavily on self-report data, with only a small number considering other methods. Experiences of victimisation are subjective. Indeed, Perry, Kusel, and Perry (1988) and later Graham and Juvenon (1998) confirmed that there is a subset of children who report being victims of bullying but are not recognised as victims by their peers. Another subset does not report any victimisation, but peers recognised these children as victims of bullying. Similarly, Ladd and Ladd (2001) state that as many as 77% of school children report that they have experienced victimisation, yet only 14% report that this affected them negatively. Clearly, the subjective nature of children’s perception of bullying and victimisation and an over-reliance on self-report methods may have caused some disparity in the literature.

Several possible explanations for a decline in bullying have been offered (Smith et al., 1999). Younger children may report higher rates of victimisation because they have not yet acquired social and assertiveness skills to combat bullying incidents and discourage further incidents. Furthermore, younger children are in a more vulnerable position; there are many older children at school who are bigger and are in a position to bully them. The higher rates of reported bullying amongst the younger children can also be explained by differences in understanding of the definition of bullying (Smith et al., 1999, 2002). These age differences in children’s understanding of bullying make it difficult to draw firm conclusions about developmental trends.

If there is a true decline in victimisation as children grow older, this should also be confirmed by peers and teachers. However, in a study of 48 school classes, a decrease in self-reported victimisation was found between 9 and 12 years of age, but this was not corroborated by peers or teachers (Salmivalli, 2002). The children were classified into one of four groups: self-identified victims, peer-identified victims, self- and peer-identified victims and non-victims. There was a significant decrease in victimisation as a function of age for self-identified victims, whilst the number of children whose reports of being bullied were confirmed by their peers remained steady through the age range.
Longitudinal observations of a US sample showed a curvilinear trend, with bullying and aggression increasing with the transition to middle school and declining thereafter (Pellegrini & Long, 2002). Overall, boys were victimised more than girls, with boys targeting boys more than they targeted girls, and girls targeting girls more than they targeted boys. Gender differences in patterns of bullying and victimisation have been noted in many different samples (e.g., Bjorkqvist, Lagerspetz, & Kaukiainen, 1992; Bukowski, Sippola, & Newcomb, 2000; Olweus & Endresen, 1998).

**Family factors.** Early family experiences predict which boys later emerge as bullies, victims and victimised aggressors (Schwartz et al., 1997). In a longitudinal study, mothers of 5-year-old boys were interviewed and the home environment assessed. Five years later, those children who had experienced more punitive, hostile and abusive family treatment during their preschool years were both aggressive and victimised by others. In contrast, children who were aggressive but not victimised by their peers had earlier received greater exposure to adult aggression and conflict than children who were neither aggressive nor victimised; however, these aggressive youngsters who were not victims had not experienced victimisation by adults. Those victims who were not aggressive did not differ from children who were neither victims nor bullies on any dimension of the home environment.

**Underlying processes.** We have seen that problems in emotion regulation and social understanding affect children’s acceptance by peers in early childhood; it thus seems likely that deficits in these domains, which may indeed derive from early family experiences, also contribute to a child’s emerging roles as bully, victim, or victimised aggressor. Indeed, victims of bullying sometimes show problems in regulating emotion (Mahady Wilton, & Craig, 2000). However, the relationship between social cognitive skills and bully-victim relationships is complex.

It might be thought that aggressive children have deficits in social understanding, and that such problems in social cognition are associated with bullying others. However, the assumption that bullies have a poor understanding of others can be challenged (Sutton, Smith, & Swettenham, 1999). Some bullies possess good social cognition and theory of mind skills, which equip them well to manipulate others, often inflicting suffering upon others subtly to avoid detection. Such social acumen may characterise many bullies, but social cognitive skills are particularly likely to be used by ringleader bullies and in indirect forms of bullying, which are common amongst girls (Sutton et al., 1999).

Self-control processes and, in particular, the ability to regulate one’s attention and activity also influence bullying and victimisation. Dysregulated children may be especially vulnerable to bullying and may also bully others. It is of particular interest to examine the relationship between bullying and ADHD. In a study of 1315 middle-school pupils, path analysis indicated that pupils who had taken medication for ADHD had low levels of self-control and were at increased risk for bullying and victimisation by bullies (Unnever & Cornell, 2003). For these pupils, it was not low self-control that increased the probability of being bullied, but rather other symptoms related to ADHD, including poor social skills and frequent, inappropriate behaviour, which peers found obtrusive. In contrast, lower levels of self-control were associated with a higher probability of bullying other pupils.

Physical size has been linked to individual differences in aggression (Raine, Reynolds, Venables, Mednick, & Farrington, 1998), and may also affect bullying; however, this appears to depend on an interaction with self-control. In the sample just described (Unnever & Cornell, 2003), pupils with low self-control who perceived themselves to be stronger than their peers were most likely to bully others, but, for students with high self-control, strength was not associated with bullying. Low self-control plus greater height and/or weight increased the likelihood of bullying others. However, pupils who were both overweight and had ADHD were the most likely to be bullied. Thus, physical characteristics may interact with psychological processes to predict the quality of peer relationships, in the context of childhood disorder.

**Do peer relationships play a causal role in the genesis of disorder?**

As we have just seen, children with disorders may experience problems in relating to peers, and problematic peer relations are associated with greater levels of emotional and behavioural problems. However, can we say confidently that peer relations play a causal role in the genesis of disorder?

**Emotional disorders**

Evidence concerning the contribution of peer relations to emotional disorders remains equivocal. There is retrospective evidence that depressed women recall having poor peer relationships in childhood (Hock & Lutz, 2001). Furthermore, there are links between being victimised by peers and subsequent internalising problems (Goodman, Stormshak, & Dishion, 2001), and between the subjective feeling of loneliness and depressive symptomatology (Gazelle & Ladd, 2003). Nevertheless, there is also some counterevidence. In longitudinal observations of the Christchurch, New Zealand cohort, peer problems in childhood were not associated with risk for anxiety or depressive...
aggression is not uncommon, aggressive children, and especially those who lack prosocial strategies, are disliked by their peers (e.g., Denham et al., 1990; Schwartz, McFayden-Ketchum, Dodge, Pettit, & Bates, 1999). The relationship between externalising problems and peer relationships is seen for girls as well as boys (e.g., Ferguson, Swain-Campbell, & Horwood, 2002), and for verbal as well as physical aggression (Khatri & Kupersmidt, 2003). The phenomenon is also seen across cultures, having been demonstrated in a number of longitudinal studies in Western industrialised nations (e.g., Ferguson et al., 2002; Schwartz et al., 1999) and in a study of children in semi-rural India, in which both aggressors and victims were rejected by their peers (Khatri & Kupersmidt, 2003). Children who have been maltreated are at special risk to show the levels of aggression that result in peer rejection (Bolger & Patterson, 2001).

Children do not have to be aggressive to be rejected; social withdrawal and victimisation also lead to peer rejection (Bierman, Smoot, & Aumiller, 1993; Bolger & Patterson, 2001; Khatri & Kupersmidt, 2003). However, within the group of children who are rejected by their peers, it appears to be the aggressive children who show a broader array of conduct problems, which in turn lead to continued rejection (Bierman et al., 1993). As we have seen, the presence of social cognitive problems increases the likelihood that aggressive children are rejected (Schonberg et al., 2003).

Whether or not aggressive children are rejected also appears to depend on the base rates of aggression within their peer group. Peers may evaluate aggressive behaviour in light of the social norms of the peer group; if the behaviour is deemed as fairly normal for the group then peer rejection will not occur (Stormshak, Bierman, Bruschi, Dodge, & Coie, 1999). In support of this claim, in a sample of 1895 American 6-year-olds, levels of classroom aggression were inversely correlated with the extent of negative effects of aggression on peer acceptance (Stormshak et al., 1999). This implies that aggressive children may find friends in contexts where there is a higher than usual amount of aggression in the peer group, which in turn suggests that children who are rejected by their non-aggressive peers may aggregate into new, increasingly aggressive peer groups. At the individual level, this process may increase a child’s level of aggression and other conduct problems.

**Does peer rejection lead to further escalation of aggression?** There is accumulating evidence for a link between rejection by the peer group and consequent antisocial behaviour (e.g., Miller-Johnson et al., 2002; Woodward & Fergusson, 1999). For example, in a sample of 566 American children who were assessed first at the age of 5 and then annually until they were 10, peer rejection significantly predicted externalising behaviours at 10 (Deater-Deckard, Dodge, Bates, & Pettit, 1998).
Being rejected by the peer group might directly increase the likelihood of becoming involved in antisocial activities, insofar as rejection leads to hostility and aggression by the child (Dodge et al., 2003). Rejection by the peer group might be especially detrimental to children who are already showing signs of maladaptive behaviour, acting like a stressor for the already vulnerable child. However, in a sample of 259 American children, early rejection by the peer group was associated with antisocial behaviour four years later, regardless of the extent of antisocial behaviour evident at the time of peer rejection (Dodge et al., 2003); the association was especially strong for reactive aggression. Similarly, children who had been rejected as 6-year-olds in first grade were likely to manifest conduct problems four years later, even when their levels of aggression and symptoms of ADHD in first grade were taken into account (Miller-Johnson et al., 2002). In contrast, in a second sample of 585 children (Dodge et al., 2003), the detrimental influence of peer rejection at age 5 was only apparent in those children who had already shown aggressive tendencies. Girls and reactive-aggressive children were most vulnerable to the detrimental consequences of peer rejection.

The effect of peer rejection on children’s later tendencies to be aggressive may partially be due to the fact that some children who are not accepted by their peers become actively victimised. For example, in longitudinal observations, children with early behaviour problems were likely to be rejected by the peer group, which in turn led to victimisation by the peer group at a later time, and thus peer rejection did mediate the association between behaviour problems at age 5–6 years and victimization by the peer group at ages 8–9 years (Schwartz et al., 1999). Some victims become aggressive, especially when they have also been victimised by the adults in their lives (Schwartz et al., 1997).

The effect of victimisation on aggression may depend on the victim’s sex (Egan, Monson, & Perry, 1998). In a sample of American children between 8 and 12 years of age, boys who were victims of peer aggression did not show an increase in aggressive behaviour over time, despite having social cognitions supporting the use of aggression. In fact, those boys who were victims of peer aggression tended to evaluate aggressive responses less positively over time. However, girls who were victims of peer aggression became more aggressive over time.

**Deviant friendships and peer groups.** As we have seen, rejection by non-aggressive peers in early childhood may play a role in the establishment of friendships between aggressive children in later childhood. Peer rejection is predictive of associations with deviant peers by early adolescence (Dishion, Patterson, Stoolmiller, & Skinner, 1991). It is therefore important to examine the quality of peer relations in groups of aggressive children.

In general, children who are identified as being rejected or aggressive-rejected have fewer friends than their non-rejected non-aggressive counterparts (Deptula, 2003). However, by early adolescence, aggressive children may be as likely as non-aggressive children are to belong to a peer group (Hodgetts, 2003). Groups of aggressive children may experience a level of conflict that exceeds the norm (e.g., Espleage, Holt, & Henkel, 2003). For example, friendships between aggressive children have been observed to be more fraught than those of non-aggressive children (Capaldi, Dishion, Stoolmiller, & Yoerger, 2001). These authors suggested that the increased levels of conflict in these friendships lead to further aggressive episodes, which provides a further explanation of how aggressive children’s friendships serve to facilitate aggression.

Nevertheless, peer groups comprised of aggressive youth establish group norms and provide social support in the same manner as other peer groups. For example, in a sample of 684 children aged 11 to 13 years, from diverse ethnic and economic backgrounds, aggressive/delinquent children’s friendships were characterised by as much instrumental and emotional support as those of non-aggressive/non-delinquent children were (Hodgetts, 2003). Despite reporting higher levels of conflict within friendships, aggressive/delinquent children stated that they were more satisfied with the friendships and received a greater level of support from their friendships than non-aggressive/non-delinquent children did. This suggests that friendships amongst aggressive youth constitute an important, emotionally charged arena for the further socialisation of aggression and other forms of criminal offending.

In particular, the establishment of social norms within aggressive peer groups may spur on further aggression. Group members are likely to influence each other’s views about the utility and acceptability of aggressive actions. For example, in a sample of 206 Latino children aged 11 to 12 years, from mainly low-income areas, aggressive friends provided a social context within which aggressive thought and actions were endorsed, leading to increases in aggressive behaviour over time (Isaacs & Hodges, 2003). Thus, as a function of social cognitive as well as learning processes, aggressive children tend to make each other more aggressive over time.

The negative effects aggressive youngsters have on each other have been illustrated most dramatically by studies of interventions that unwittingly increased rather than decreased levels of conduct problems in their participants. A natural tendency on the part of researchers and policy-makers is to try to intervene with aggressive youth efficiently by aggregating troubled individuals into groups, who then spend time together in after-school programmes, summer camps and the like. This exposure to other aggressive individuals may be a more powerful influence than the planned intervention designed to deter aggres-
sion. For example, in the classic Cambridge–Somerville study, the long-term follow-up showed that the experimental group, who received an intervention designed to reduce delinquency, fared more poorly than the comparison subjects (McCord, 1992). Findings in recent studies (Dishion, Bullock, & Granic, 2002; Hektner, August, & Realmuto, 2000) similarly attest to the power of iatrogenic effects on conduct disorder. In contrast, family-based interventions that reduce the time spent with deviant peers may reduce risk (Dishion et al., 2002). For example, a prevention programme that did not isolate and aggregate highly aggressive children, but, rather, occurred relatively early in development and focused on small groups of both aggressive and pro-social children, in tandem with a focus on parenting skills, deflected at-risk children from increasingly violent trajectories (Lacourse et al., 2002).

**Does peer rejection lead to deviant peer groups and thereby to conduct disorder?** Although there is certainly evidence for a link between peer rejection and increasingly aggressive behaviour, and for the emergence of friendships amongst aggressive youth, which further encourages conduct problems, is there clear evidence for the full causal pathway from early aggression to later disorder, mediated by peer rejection and associations with deviant peers (Figure 3)? In addressing this question, it is important to take into account the child’s earlier level of aggression and other behavioural problems. The evidence is mixed, and may depend on the population being studied. In a longitudinal follow-up of British youngsters who spent time in care, peer rejection was associated with associations with deviant peers, and indeed assortative mating with deviant partners (Quinton et al., 1993). However, in the follow-ups of the Christchurch, New Zealand cohort, peer rejection in middle childhood did not lead to associations with deviant peers in adolescence, once the level of conduct problems at age 9 were taken into account (Fergusson, Woodward, & Horwood, 1999). Furthermore, in that sample, the association between peer rejection and problems in adolescence (criminal offending and substance use) was largely explained by family risk factors and other characteristics of the child, such as cognitive ability (Woodward & Fergusson, 1999). However, peer rejection continued to predict educational underachievement and unemployment, even when other risk factors were taken into account (Woodward & Fergusson, 2000).

In the Christchurch sample, there was indeed an effect of deviant peers on criminal activity and substance use, which was evident for girls as well as boys, and was especially marked if the association with deviant peers occurred around 14 to 15 years of age, rather than in young adulthood (Fergusson et al., 2002). Thus, the pathway to conduct disorder and substance use observed in that sample seemed to be one of children with initial levels of conduct problems beginning to associate with deviant peers in mid-adolescence, which increased risk. This is, of course, exactly the sampling frame and procedure that would be used in group-based intervention studies designed to reduce aggression (Dishion et al., 2002).

**Peer relations as a protective factor in development**

Having enquired whether peers play a role in the genesis of disorder, it is important to ask the complementary question of whether peer relationships can serve as a protective factor in psychological development. In very early childhood, peers foster exploration of the physical and social world (e.g., Gunnar, Senior, & Hartup, 1984; Ispa, 1981) and facilitate cognitive development (e.g., Light & Gla- chan, 1985). Under conditions of extreme deprivation, in the absence of caring adults, peers provide a source of emotional security (Freud & Dann, 1949). Nonetheless, with respect to the development of psychopathology, it is clear that we know rather more about the ill effects of peer rejection than the positive effects of children’s friendships and membership in well-functioning peer groups.

One exception to this general trend is a study of the protective effects of acceptance by the peer group and the extent of children’s friendships, which controlled for the children’s level of social skills, which might influence peer acceptance whilst having a direct effect on later social adjustment (Criss, Pettit, Bates, Dodge, & Lapp, 2002). At the time of the first assessment the sample consisted of 585 American children aged 3 to 6 years, from middle-class backgrounds. Social information processing skills were assessed during home interviews when the children were 3 years old. Measures of peer acceptance, friendships and mean levels of peer aggressiveness were obtained via sociometric interview at different points in the study, with teachers’ reports of child’s externalising behaviours obtained at age 7 years. Peer acceptance and friendships served as protective factors against the development of externalising problems, with peer acceptance serving a somewhat enhanced protective function. Importantly, social information processing skills were not found to account for the protective role of peer acceptance and friendships, and the protective role of peer acceptance and friendship was not influenced by whether the friendship was conflictual or not. Rather, simply having a friend at an early age seemed to protect a child against the risk of further aggression and rejection.

In later childhood and adolescence, the protective features of peer relations must be studied with attention to the complex social networks that characterise the world of peers. Recent theoretical advances in the study of social networks provide new
means of understanding the structure of peer relations and the place of an individual child vis-à-vis various peer groups (e.g., Cairns, Cairns, Neckerman, Gest, & Gariépy, 1988; Moody, 2001). It is important to study affiliations amongst well-functioning youth as well as the networks of deviant peers. For example, during the secondary school years teenagers form friendships and peer groups based on academic achievement and aspirations, as well as common interests, sport and charitable activities. The relative levels of psychological problems within one’s peer group may serve as risk factors for an individual’s mental health and socio-educational adjustment. For example, associations with deviant peers may deprive youngsters of age-normative experiences that foster educational achievement and entry into the world of work (Woodward & Fergusson, 2000). The social ‘homophily’ (Espelage et al., 2003) of childhood and adolescent peer groups deserves further investigation.

Conclusions
To summarise, in the foregoing review of the literature on peer relations, we have outlined a developmental pathway from the initial peer encounters in infancy to complex peer networks in adolescence and young adulthood (with some underlying processes summarised in Figures 1–3). We have argued that early competence with peers depends on key skills and self-regulatory abilities (Figure 1); individual differences in the level of aggression within peer relationships, and in shyness, are already present in the toddler years. Both of these tendencies, which are affected by executive function, social understanding and emotional regulation, play an important role in the consolidation of social skills in children’s first peer groups, and influence the extent to which individual children are accepted or rejected by peers (Figure 2). Peer acceptance or rejection in turn influences children’s risk for victimisation, associations with deviant peers and disorder, although the causal pathways are not completely known (Figure 3).

It is evident that an individual child’s ability to engage positively with his or her peers is affected by that child’s individual skills and temperament, as well as by factors in the family and greater social environment at all points in development. When all of these individual and familial risk factors are taken into account, the contribution of peers to the child’s risk for disorder may be attenuated (e.g., Woodward & Fergusson, 1999); put another way, family interventions may mitigate against the negative effects of deviant peers (Dishion et al., 2002). Such findings, however, do not negate the importance of peers for psychological development. Indeed, our search for a direct, causal influence of peer relations on disorder may have missed the point so earnestly debated by the 4-year-olds quoted at the beginning of this article. To put it bluntly, peer relations may be both the chicken and the egg, and it behoves us to exploit methods for the analysis of longitudinal data to explore the reciprocal relation between peers and disorder more fully (see Kenny, 1979).

Whether or not problematic peer relations play a direct causal role in the development of disorder – and the iatrogenic effects of experimental interventions suggest that they sometimes do – the world of peers constitutes a challenging and sometimes unforgiving environment in which disorder manifests itself. Young toddlers with developmental disorders may have particular difficulties adjusting to the demands of peer groups, and it may be in the peer setting that the severity of their problems is first recognised. Children with internalising or externalising problems may suffer academically as well as socially, to the extent that difficulties with peers interfere with adjustment to formal educational settings. Ultimately, problematic peer relationships and a growing association with deviant peers hold important implications for a choice of romantic partner (Quinton et al., 1993); intimate relationships with deviant peers may encourage early sexual relationships and parenthood, thereby conveying added risk for the next generation.

Nonetheless, despite the emerging evidence for the negative effects of peer relations on children’s adjustment and risk for disorder, it is also salutary to remember that, in the analyses of representative community samples reported here, most children have friends and ‘good enough’ relationships with their peers. Although the world of peers can indeed be cruel at times (Deater-Deckard, 2001), it can also be enormously supportive, constructive and, most of all, fun. Perhaps it is the fun we have with our peers that conveys both the greatest risk if – the fun involves antisocial flirtation with physical and social dangers – and the greatest positive contribution peers make to psychological development.

We suggest that it is time for psychologists and psychiatrists to turn their attention once again to the serious study of fun. It is worth noting that, in the index of the most recent Handbook of Child Psychology (Damon, 1998), in contrast to editions from earlier decades, there is a full chapter on peer relations, with many citations pertaining to problematic peer relationships (Rubin et al., 1998). However, throughout all four volumes, only a handful of references are made to the main thing that children in virtually all cultures do with their peers, namely, play. Play with peers was once a major topic in developmental psychology, and deserves to be studied anew. It is our hope that future studies of peer relationships will focus more extensively on the positive and protective features of children’s relationships with their friends and acquaintances, whilst not forgetting that, for some children,
difficulty getting along with peers is a harbinger of very serious psychological problems.

Correspondence to
Dale Hay, School of Psychology, University of Cardiff, Tower Building, Park Place, PO Box 901, Cardiff CF10 3YG, Wales; Email: haydf@cf.ac.uk

References


Manuscript accepted 12 July 2003