

THE DEVELOPMENT OF AGGRESSIVE  
BEHAVIOUR IN CHILDREN AND  
YOUNG PEOPLE: IMPLICATIONS FOR  
SOCIAL POLICY, SERVICE PROVISION,  
AND FURTHER RESEARCH

Where problem aggressive behaviours are present in preschool children, as many as 50% of these children maintain these behaviours into adolescence

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## Introduction

Aggression has been defined (Loeber & Hay, 1997) as 'a category of behaviour that causes or threatens physical harm to others' (p.373). The authors note that 'aggression' as generally used is not a unitary term but encompasses a variety of behaviours, including verbal aggression, bullying, physical fighting, robbery, rape and homicide. Since research reports do not always make these distinctions clear, and different forms of aggression tend to be interrelated, this paper takes an inclusive approach in its scrutiny of research results.

A consistent finding, and one that may come as a surprise to many, is that aggressive behaviour begins early in life and, in most children, reaches a peak at about four years of age, declining after that. Campbell, Shaw & Gilliom (2000) point out that it is often not until the school entry age that aggressive behaviour patterns become apparent. Until then the behaviour is explained away as being a function of such factors as age, for example, 'the terrible twos'; gender, for example, 'boys will be boys' or a phase, for example, 'she'll grow out of it'. These reassurances are contradicted by the mounting evidence which suggests that a substantial proportion of aggressive, defiant, overactive toddlers and pre-schoolers continue to have problems at school entry age (Campbell, Pierce, Moore, Marakowitz & Newby, 1996; Shaw, Winslow & Flanagan, 1999).

Recent research results concur with earlier findings that about 67% of children who were rated within the clinical range of conduct disorder at two were still conduct disordered at five and six years old; and almost one third of aggressive five year olds were still aggressive at 14 (Shaw, Gilliom & Giovanelli, 2000; Richman, Stevenson & Graham, 1982; Bor, Najman, O'Callaghan, Williams & Anstey, 2001). Similarly, Moffitt (1993) showed that 86% of children who were conduct disordered at seven, were still exhibiting these behaviours at 15. Where problem aggressive behaviours are present in preschool children, as many as 50% of these children maintain these behaviours into adolescence (Campbell 1995) and a substantial number of these will engage in antisocial behaviour.

Investigating the antecedents of delinquency, researchers from the Australian Institute of Criminology (Bor, Najman, O'Callaghan, Williams & Anstey, 2001) summarised results from the Mater University Study of Pregnancy, a longitudinal study of over 5000 mothers and their children. These showed that aggression at five was a stronger predictor of delinquency than gender (being male), poverty, family structure and maternal education. It increased a child's risk of delinquency by a factor of 4.48. One in six aggressive, compared with one in 33 non-aggressive, children were delinquent by the time they were 14.

By extrapolating figures from the pre- and post-school entry research, it can be estimated that one in five aggressive two year olds are likely to become aggressive adolescents and one in ten may become delinquent. Data from six longitudinal studies from Canada, New Zealand and the United States has similarly shown that chronic physical aggression during the elementary school years is the best behavioural predictor of violent behaviour during adolescence (Nagin & Tremblay, 1999; Broidy et al, 1999).

This still means that the majority of aggressive preschoolers do not become aggressive adolescents. Studies show that many children with early high levels of conduct problems desist by adolescence and only a small percentage identified as being at risk go on to have major problems (Moffitt, Caspi, Kickson, Silva & Stanton 1996; Fergusson, Lunskey & Horwood 1996; Bennett, Lipman, Racine & Offord, 1998; Nagin & Tremblay, 1999; Patterson and Yoerger, 1997).

Those in whom such behaviour persists, however, are of serious concern. A small percentage of adolescents (about 6%) account for the majority of violent acts and arrests. A Stockholm study showed 6.2% of males committed 70% of all offences, with 71% of violent offences being committed by this cohort up to 30 years of age. (Tremblay, 1999). It seems that a small percentage of highly aggressive youths add new aggressive behaviours to their repertoire, replace less serious forms of aggression with more serious forms and shift from minor to more serious forms of the same aggressive behaviour.

Most, but not all, serious aggression during adolescence and adulthood is committed by youths who have been persistently aggressive since childhood

Most, but not all, serious aggression during adolescence and adulthood is committed by youths who have been persistently aggressive since childhood (Loeber & Hay, 1997) – a group who have been identified as having a *life-course-persistent or early-onset* variety of aggressive behaviour. Another pattern of life-span-related aggressive behaviour has been described as *adolescent-onset or adolescence-limited* variety. As the label suggests, some youths who have previously not been aggressive start to exhibit such behaviour at adolescence. The *life-course-persistent* and *adolescence-limited* groups are distinguished from each other by the severity of their behaviours and the risk factors associated with them. While it is likely that there are more than just two varieties of aggression-prone youths (Nagin, Farrington & Moffitt, 1995; Loeber & Hay, 1997), this distinction has proved useful in tracing developmental antecedents of these patterns of behaviour.

## Why do children become aggressive?

A wide spectrum of factors has been associated with the development and persistence of aggressive behaviour. This paper goes on to summarise recent research in this field, and to consider future directions for research and implications for social policy.

Traditionally the study of problem behaviour focussed on the individual child, or on the mother-child relationship. Today *developmental psychopathology* has emerged as a key perspective on both developmental processes and the causes and course of psychopathology (Rutter & Sroufe, 2000).

Theoretical models of developmental psychopathology, including the development of aggressive behaviour, are multi-factorial: child, parenting, familial and extra-familial variables are related to conduct problems. The number of factors implicated, and the potential developmental trajectories or pathways which may be followed, increase as the child's ecological contexts expand after the preschool period.

## Child temperament and parenting: interaction effects

Clearly important are infant temperament, socio-demographic factors, and the moderation or exacerbation of the effect of these factors by parental discipline styles and attachment relationships, within the context of overall family functioning (Belsky, Kuang-Hua & Crnic, 1998; Campbell, Shaw & Gilliom, 2000; Lahey, Waldman & McBurnett, 1999; Rubin, Le Mare & Lollis, 1989; Hartup & van Lieshout, 1995).

Several large longitudinal studies from the US (Campbell, Shaw & Gilliom, 2000), England (Deater-Deckard & Dunn, 1999) and Australia (Prior, Sanson, Smart & Oberklaid, 2001) have found consistent correlations between infant temperament, parenting styles and later behaviour problems. Infants with difficult temperaments, that is, infants who are irritable, have strong negative emotional reactions, lack persistence, are overactive and difficult to soothe, may be at greater risk for conduct disorder and anti-social behaviour in early and middle childhood. Whether these difficult infants do, in fact, become distressed is assumed to relate to the quality of parenting. Insecure parent-child relationships and/or parenting styles that are harsh, inconsistent and coercive are related to poor outcomes in children. (Belsky, Woodworth and Crnic, 1996; Campbell, Pierce, Moore, Marakovitz & Newby, 1996, Campbell, Shaw & Gilliom, 2000).

A 'vicious cycle' begins as difficult infant temperament attracts harsher parenting, with mothers becoming more coercive than other mothers by the time their children are two years old (Lee & Bates, 1965). Belsky, Kuang-Hua & Crnic (1998) suggest that this process may be further compounded by the hypersensitivity and therefore greater susceptibility of children with difficult temperaments to the effects of coercive parenting style.

There is some debate about the direction of effects. Evidence is accumulating that preschool children are more likely to show overactive, noncompliant, aggressive and impulsive behavior in the context of uninvolved, rejecting or harsh parenting (Campbell, 1995). But it is not always clear whether harsh disciplinary practices were used from the beginning or were evoked by the child's high level of aggression or transgressions (Dodge, 1990; Lytton, 1990,

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Shaw & Bell, 1993; Wahler, 1990). Lytton has argued that conduct problems are more likely to be the main determinant of negative parenting and that genetic and biological mechanisms need to be addressed.

Whatever the direction of effects, this combination of difficult temperament and poor parenting predicts clinical status at school entry age (Maziade, Cote, Thivierge, Boutin & Bernier, 1989). Boys from an urban community who engaged in persistent aggression and offences almost invariably exhibited earlier persistent oppositional behaviour (Loeber, Breen, Keenan & Lahey, 1995; Loeber, Keenan and Zhang, 1997). The reverse was found for boys who were not antisocial. The same associations were found in the Longitudinal Dunedin study (Moffitt, Caspi, Dickson, Silva & Stanton, 1996). Thus there is a strong association between early oppositional behaviour and later antisocial behaviour, specific to youths with earlier ages of onset of antisocial behaviour, who are more likely to be aggressive (Lahey, Waldman & McBurnett, 1999).

Not only the quality of the parental care but also the degree of family conflict appear to be significant factors. Tschann, Kavner, Chesney and Alton's (1996) research showed that difficult temperament acted as a vulnerability factor in families which were highly conflicted, whereas easy temperament acted as a protective factor in these types of families. The reverse is also likely: difficult children in low conflict families may become more resilient while placid children in high conflict families may become more difficult. In support of this speculation, Prior, Sanson, Smart & Oberklaid (2001) point out that the temperaments of children who are withdrawn can be moderated by a warm, nurturing home where parents do not push children to early independence.

In sum, both quality of parenting and infant temperament seem to be implicated in predicting later distress in children. Deater-Deckard and Dunn's (1999) research suggests that the quality of the maternal relationship (negativity) and parental stress are the more salient factors, ahead of infant temperament and socio-demographic variables, in predicting later distress in children.

### Genetic factors

The influence of genetic factors on behaviour and development has been increasingly emphasised in recent years and there is a growing body of evidence on the importance of different types of gene-environment correlations and gene-environment interactions. Some have worried that this implies a genetic determinism. But nature and nurture are not neatly separable in the way that was once envisaged (Bronfenbrenner & Ceci, 1994; Rutter, Dunn, Plomin, Simonoff, Pickles, Maughan, Ormel, Meyer, & Eaves, 1997; Rutter, 1997). One of the most important messages of genetic research has been that genetic influences are probabilistic and not deterministic. And that environmental factors and genetic factors are, broadly speaking, of roughly equal importance (Plomin & Rutter, 1998; Rutter & Plomin, 1997).

All that being said, there is good evidence of a strong genetic component in liability for hyperactive behaviour, attention span, prosocial behaviour and the ability to inhibit behaviour during infancy, toddlerhood and the preschool period (Rutter, Giller & Hagel, 1998; Thapar, Harold & McGuffin, 1998, Campbell, 1995; see Rutter & Sroufe, 2000, for a more detailed discussion of hyperactivity –inattention).

Cognitive deficits have been associated with aggressive behaviour and these are substantially heritable (Taylor, Sandberg, Thorley, & Giles, 1991; Taylor, 1994). There is also reason to believe that temperamental predispositions to anti-social behaviour are moderately to highly heritable (Lahey, Waldman & McBurnett, 1999).

Higher levels of parental supervision during childhood have been found to predict less antisocial behaviour during adolescence

## Family factors and family functioning

The literature provides convincing evidence that physical aggression runs in families (Baillargeon, Tremblay & Willms, 2002). Physical aggression of boys at two years of age was found by Keenan and Shaw (1995) to be predicted by a history of familial criminality. Youths who engage in high levels of antisocial behaviour are much more likely than other youths to have a biological parent who also engages in chronic antisocial behaviour (Farrington, 1995; Lahey, Hartdagen, Frick, McBurnett, Conner & Hynd, 1988).

Farrington, Barnes and Lambert (1996) followed 411 males from 397 London families from eight to 40 years of age. They found that half of the criminal convictions recorded in the sample were accounted for by only 6% of the families. Fifty-three percent of males with a convicted family member were themselves convicted, compared with only 24% of those without a convicted family member. Robins et al (1975) found similar results in the US.

Tremblay, Boulerice, Harden, McDuff, Perusse, Pihl & Zoccolillo (1996) found that family effects explained 38% of total variance in physically aggressive behaviour after controlling for age, sex, socioeconomic status and family structure. Siblings are more similar to each other than to children of other families. The odds of a second child being highly physically aggressive if the first child was aggressive were found to be three or four times higher than if the first child was non-aggressive (Baillargeon, Tremblay & Willms, 2002).

Twin studies have been conducted to identify the extent to which genetic and environmental effects are involved. A recent US twin study found that there were no genetic effects on anti-social traits during adolescence, but important genetic effects on anti-social traits during adulthood (Lyons, True, Eisen, Goldberg, Meyer, Faraone et al, 1995). The authors concluded that the similarity of antisocial behaviour during adolescence was mainly due to family environments, while the similarity during adulthood, when siblings have left the common family environment, was due to genetic similarity.

This evidence underlines the truth of the statement that 'young children with the highest degree of temperamental and cognitive predisposition [to aggression and antisocial behaviour generally] are usually raised in families that are ill-prepared to provide child-rearing that could prevent the development of antisocial behaviour' (Lahey, Waldman & McBurnett, 1999:678.).

## Parental stress and family dysfunction

The effect of sociodemographic variables such as poverty and unemployment is mediated through, and has its effects on, parent-child interactions through causing increasing levels of parental stress. This in turn impairs the quality of parenting and lowers the threshold of parental reaction to child misbehaviour. Single parenthood, divorce and reconstituted families, poverty, maternal depression, alcohol and substance abuse, all have been positively related to children's aggressive behaviours.

Elevated levels of aggression, apparent even in toddlers, are found in abused children (Dodge, Bates & Pettit, 1990; George & Main, 1979). Children from homes where domestic violence is occurring are also more likely to exhibit aggressive behaviour (Forrestrom-Cohen and Rosenbaum 1985; Hughes 1988; Jaffe, Wolfe, Wilson & Zak 1986; Mathias, Mertin & Murray 1995; Mertin & Mathias 1991; Sternberg, Lam, Greenbaum, Cichetti, Dawud, Cortes, Krispin & Lorey 1993). Children in these violent circumstances have been 'primed to be reactive', what has been described as hypervigilant, that is, always on the outlook for danger. As they grow up, this may be protective for children living with violence. At school, however, if they are hyper-reactive, too readily inclined to attribute hostile intent to others, this might incline them to be aggressive in readiness to defend themselves and therefore unpopular with classmates.

## Antisocial parent attitudes

Often parents of antisocial youth don't discourage antisocial behaviour. They consider it to be appropriate and normal. In a sense, such children are given permission to be aggressive by their parents (Gottfredson & Hirschi 1990; West and Farrington 1973).

## Parental supervision

Higher levels of parental supervision during childhood have been found to predict less antisocial behaviour during adolescence (Dishion & McMahon, 1998; Dishion, Patterson, Stoolmiller, & Skinner, 1991; Farrington, 1995; Stouthamer-Loeber, Loeber, Farrington, Zhang, VanKammen & Maguin, 1993). Lax supervision plays a stronger role in late childhood and adolescence than in early childhood, with poor parental supervision playing an especially important role in late onset (*adolescence-limited*) aggressive behaviour (Reid & Patterson, 1989). Less parental supervision allows youths to spend more time with delinquent peers.

## Peers

Peers may influence each other to engage in antisocial behaviour (Keenan, Loeber, & Zhang, 1995). Earlier-onset aggressive children are often friends of other oppositional, aggressive children (Cairns & Cairns, 1994; Tremblay, Masse, Vitaro, & Dobkin, 1995). The influence of delinquent peers on later-onset (*adolescence-limited*) antisocial behaviour appears to be much stronger, however. Association with antisocial peers was related to the emergence of antisocial behaviour at adolescence among youths who had not previously exhibited behaviour problems (Bartusch, Lynam, Moffitt & Silva, 1997; Fergusson, Lynskey & Horwood, 1996).

Often and initially, however, the problem is not association with antisocial peers, but with being 'a loner', rejected by peers. Where shyness or social withdrawal co-occurs with aggression in childhood, this predicts more serious antisocial behaviour than aggression on its own (Blumstein, Farrington & Moitra, 1985; Serbin, Moskowitz, Schwartzmann & Ledingham, 1991). Even when they are not shy, highly aggressive children are rejected by their peers, partly as a function of the poor social skills that accompany their aggression (Parker & Asher 1987, Pope, Bierman & Mumma 1989). Aggressive children who are rejected, compared with those who are not, show more diverse and severe conduct problems (Bierman, Smoot & Aumiller 1993). Rejection is evident as early as age six and predicts later negative outcomes (Kupersmidt & Coie 1990; Tremblay, Le Blanc & Schwartzman, 1998).

Conflictual peer relationships may eventually promote alliances among aggressive youngsters who can work together to harass and bully others. Longitudinal data shows that an individual's rate of violence usually increases after entry into a gang and only drops when leaving the gang (Thornberry, Krohn, Lizotte & Chard-Wierschem, 1993).

By the onset of adolescence, most aggressive youths have formed social networks with other deviant peers (Cairns, Cairns, Neckerman, Gest & Garipey, 1988). The glamour associated with groups of delinquent peers may contribute to the late onset of aggression in adolescents with no prior history of serious problems (Moffitt 1993).

Among girls, an unusually early menarche (age of first period) has been associated with an increase in disruptive behaviour and heavy drinking. Such outcomes are dependent on these girls entering an older peer group, and the effect is confined to co-educational schools (Caspi, Lyman, Moffitt & Silva, 1993; Caspi & Moffitt, 1991; Japel, Tremblay, McDuff & Willms, 2002).

## Neighbourhood

The quality of neighbourhoods is related to the development of aggression in children (Attar, Guerra & Tolan 1994; Kupersmidt, Griesler, De Rosier, Patterson & Davis 1995; Loeber & Wikstrom 1993). Epidemiological research suggests that individuals with behavioural problems tend to cluster in neighbourhoods and that behavioural problems and their negative consequences echo throughout neighbourhoods (Wilson & Hernstein, 1994). Children living in disadvantaged neighbourhoods experience more stress than other children which is associated with heightened aggression in children. Early onset of juvenile aggression occurs mostly in the worst neighbourhoods (Sommers & Baskin 1994).

Shaw, Winslow, Owens & Hood (1998) found a consistent relationship between high risk neighbourhoods and children's later conduct problems and social skills deficits at home and school. Young children have the greatest amount of exposure to aggressive peers in the neighbourhood context (Sinclair, Pettit, Harris, Dodge & Bates, 1994). From about five to six years of age, differences in conduct problems in children living in disadvantaged neighbourhoods become more pronounced, even after controlling for family demographic characteristics (Brooks-Gunn, Duncan, Klebanov & Sealand, 1993; Chase-Landsdale & Gordon, 1996).

Parents who are worried about the influence of peers in high-risk neighbourhoods may be overly restrictive and harsh in their parenting. Parental supervision may also be more difficult in disadvantaged neighbourhoods.

## Research on the development of aggression: implications for social policy, provision of services, and directions for future research

### Definition

Research on the development of aggression would benefit from clearer definition of the behaviours being studied. Aggression is often combined, or confounded, with conduct disorder, behaviour problems, externalising behaviours and antisocial behaviour. It would be helpful if distinctions between these terms were made and used consistently.

Behaviours included under the general term 'aggression' are also not precisely defined. Should 'aggression' simply mean *physical* aggression? What about *verbal* aggression? What about 'relational aggression', such as, exclusion by peers, character defamation, bullying and gossip? Do different types of aggression follow different developmental pathways? Is there a continuum in the seriousness of aggressive behaviours, from very mild verbal aggression to violent, murderous assault? Can aggression be prosocial as well as *antisocial*? What are the different antecedents and consequences of different types of aggression? Such questions could usefully be addressed in research to come.

### Early intervention programs

#### Infancy and toddlerhood

The evidence is now substantial that very young children who are highly aggressive are at risk of progressing to involvement in seriously aggressive and delinquent behaviour in adolescence. This indicates a need for preventative programs targeted at very young children and their parents. Transitional phases in development, or 'points of change', are times of both increased stress and increased openness to change (Ruble & Seidman, 1996, cited in National Crime Prevention 1999: 52). Hence efforts should be directed at transitions in parent-child relationships, for example, in the early months of infancy; and during the period from the first to the second year of age, when the infant grows into the challenging toddler.

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Intervention experiments with newborns show positive effects on children's cognitive development and behaviour problems (Achenbach, Phares, & Howell, 1990; Johnson, 1990; Wasik, Ramey & Bryant, 1990). Infant boys were found to be more emotionally expressive, with girls regulating their own emotional states better. Boys might depend more on input from their mothers in learning to regulate their feelings and behaviour (Weinberg & Tronick, 1997). Hence programs designed to improve responsive mothering behaviour might be more crucial for boys than for girls.

With toddlers, understanding of child development is needed to distinguish the self-assertion and discipline problems which are normative at this stage (Kaler & Kopp, 1990) from consistent, angry defiance which is often associated with inconsistent and harsh maternal control (Lee & Bates, 1985; Lytton, 1990; Paterson, 1980; Webster-Stratton, 1990; Crockenberg & Littman, 1990).

Programs that assist parents in meeting the challenges of parenting in the second and third years of life are also recommended. A home visiting program (Olds, Henderson, Chamberlin & Talebaum, 1986) was effective in reducing parental child abuse and children's behaviour problems.

### **Language development and early intervention**

Stattin and Klackenber-Larsson (1993) showed that language skills at 18 to 24 months were a good predictor of adult criminality in a Swedish sample. An inverse correlation of verbal skills with impulsivity and criminal behaviour has been demonstrated (Moffitt, 1993; Lynam, Moffitt & Stouhamer-Loeber, 1993; Moffitt & Silva, 1988). Toddlers with better communication skills are easier to socialise and less frustrating to their parents (Keenan & Shaw, 1997). Toddlers themselves are also clearly happier when they can make themselves, and their needs, understood. Learning delay of gratification and being able to use language to convince others to satisfy your needs may be the most important protective factors for chronic physical aggression and antisocial behaviour (Mischel, Shoda & Rodriguez, 1989). So activities designed to monitor and enhance toddlers' language skills could be an important component of programs aimed at this age group.

### **Child care**

The relevance of child care to the development of aggressive behaviour appears to be directly related to the quality of care. High quality child care has been found to enhance the development of children. The need for subsidised high-quality child care for very young children with early signs of behaviour problems living in high-risk families and neighbourhoods has been strongly argued (Ramey & Ramey 1998; Scarr, 1998).

A large-scale NICHD study in the United States found significant effects of child care related to the quality of the care that the child attended (Vandell & Wolfe, 2000). Not surprisingly, where the quality of care was high, there were fewer reports of behaviour problems than where it was low. However, the longer the child had been in care, the more behaviour problems were reported. Of great concern were findings from the same data set, reported by Belsky, Weinraub, Owen & Kelly (2001) showing that children who attended child care, regardless of its quality, were more aggressive on starting school. In addition, the more hours of care that children attended, the more aggressive they were likely to be on starting school.

This contrasted with earlier findings from Hausfather, Toharia & Engelsmann (1997) indicating that age of entry and quality of the day care centre combine to increase vulnerability or resilience in children. They found that early entry into poor quality care is detrimental to children's development in that it increases angry defiance, whereas early exposure to high quality care can be beneficial in terms of social competence.

Given the increasing number of children in child care in Australia, starting at increasingly younger ages, the link between child care, especially poor quality care, and aggression is concerning and needs to be investigated further.

## Programs to improve children's social skills

Aggressive and anti-social children often lack the basic social skills necessary for developing a supportive friendship network (Giordano, Cerkovitch & Pugh, 1986). Craig, Peters & Willms (2002) found that social competence plays an important role in determining whether an adolescent suffers from behavioural problems.

Although parents and educators recognise the importance of social skills, little time is spent in directly teaching these skills. We generally rely on the broader socialisation that occurs during the school years. Where these informal processes have failed, preventative programs have been designed to improve children's social skills. In the Baltimore Prevention Trials (Kellam & Rebok, 1992) and in a study reported by Rotheram-Borus (1988) effective social skills training programs were found to reduce aggressive behaviour. However, in the absence of follow-up evaluations, their long-term impact on antisocial behaviour is unknown.

## Programs for older children

Another transitional period occurs when the preschool child enters the school system and aggressive behaviour becomes manifest in a wider context. In the Montreal Longitudinal-Experimental Study with kindergarten boys, parent training, social skills training and teacher support were provided by professionals, and included home visiting. At end of elementary school treated subjects were doing better in school, were less aggressive, had less aggressive friends, and were less delinquent (Tremblay, McCord, Boileau, Charlebois, Gagnon, Leblanc, & Larivee, 1991; Vitaro & Tremblay, 1994). At 15, treated boys reported less delinquent behaviour, gang involvement, fewer police arrests, less alcohol abuse and less drug use.

With regard to adolescents, some pessimism has been expressed about the possibilities for change at this stage:

- When aggressive behaviour reaches the level of diagnosable disorder in school-age children and adolescents, it is relatively resistant to treatment (Hinshaw, 1994; Kazdin, 1993).
- Effects of programs for adolescent and preadolescent boys are 'perilously close to zero' (Lipsey 1992).

Given the impact on society of adolescent aggression and delinquency, despair is an unhelpful response. While programs focussing on parent-child interaction may be inappropriate for adolescents, research highlighting the importance of parental supervision and peer relations suggests approaches that need further study and consideration. Craig, Peters and Willms (2002) refer to good programs for adolescents that foster skills in forming and maintaining positive relationships, dealing with conflict and understanding their own feelings and behaviours. They suggest that placing greater emphasis on social skills would reduce the incidence of adolescent behaviour problems. (See also National Crime Prevention, 1999, for an overview of crime prevention initiatives which emphasise developmental and early intervention approaches).

Given the crucial role played by peer group influence and relationships in the development of aggressive and antisocial behaviour, especially with regard to *adolescence-limited* aggression, it is pleasing to discover that research into many aspects of peer group dynamics, such as pathways, rejection, popularity and unpopularity with peers, is a particularly active area of current activity (Haselager, Cillessen, Van Lieshout, Riksen-Walraven & Hartup, 2002; McElwain, Olson & Volling, 2002; Wood, Cowan & Baker, 2002; Miller-Johnson, Coie, Maumary-Gremaud & Bierman, 2002; Bagwell, Molina & Pelham, 2001). As findings from these studies accumulate, it is to be hoped that they can be applied in the development of new initiatives to foster positive peer group relationships and to counter the adverse consequences of negative peer influences.

There is considerable evidence that boys are disproportionately represented among seriously aggressive children and young people

## Gender

There is considerable evidence that boys are disproportionately represented among seriously aggressive children and young people. From about four years of age onwards, boys are more likely than girls to engage in both aggressive and nonaggressive antisocial behaviour (Keenan & Shaw, 1997; Lahey, Schwab-Stone, Goodman, Rathouz, Miller, Canino, Bird, Jensen & Waldman, 1998; Coie & Dodge, 1997; Tremblay, Boulerice, Harden McDuff, Perusse, Pihl & Zoccolillo, 1996). Tantrums, overactivity and fighting occur at a higher rate in schoolage boys (Campbell, 1995:115-6). Young men are more likely to commit crime than young women (Rutter, Giller & Hagell, 1998). Average aggressiveness ratings are higher for boys at all ages (Lahey, Waldman & McBurnett, 1999). The *life-course-persistent* variety of aggression is much more common in males (Moffitt, Caspi, Rutter & Silva, 2000). Males predominate to a large extent in the *adolescence-limited* group also, though not as much as in the *life-course-persistent* group.

However, there is not total agreement about 'the facts' on male and female aggression. Some find tantrums, overactivity and fighting higher in boys, others find relatively trivial gender differences. Overall, the findings are inconsistent (Campbell, 1995:115-6) Few gender differences in toddler peer-directed aggression have been found (Loeber & Hay, 1997). And in Crick (1996) and Crick and Grotpeter (1995) it is argued that much aggression in girls has been overlooked because it is in a different form from that of boys. Girls are more likely to use 'relational aggression', that is, verbal and indirect aggression, such as, alienation, ostracism, character defamation and gossip. One study found the same rate of bullying by schoolage girls as boys, although girls were less likely to own up to bullying in interviews (Pepler & Craig, 1995). Both boys and girls report fairly high rates of physical aggression with their siblings, which is, therefore, not necessarily seen as a form as maladjustment (Dunn, 1993).

Evidence of increased aggression among young females is a matter for concern and requires further investigation of the causes of this increase. In 1973-74, 23.5 boys were arrested for assault for every girl arrested. By 1993-4, this ratio had dropped to 4.4 (National Crime Prevention, 1999). However, there can be no argument with the fact that males are convicted of violent delinquent and criminal acts in considerably greater numbers than females. Clearly, we need to look more deeply at why most forms of antisocial behaviour are so much more prevalent in males than females (Moffitt, Caspi, Rutter & Sylva, 2000).

## Multi-risk factors and ameliorative programs and policies

Evidence suggests that well-targeted and evaluated preventative programs, will reduce the rate of adverse developmental outcomes, including aggressive behaviour

Where children were grouped according to the number of risk factors that impacted upon them (no risk; moderate risk; child-risk only; family-risk only and multiple-risk), boys in the multiple-risk factor showed the poorest functioning and most problems over a nine year period of study (Campbell, Shaw & Gilliom, 2000). Other studies indicate that it is the number of serious risks, rather than the nature of any one risk, that is critical (Sameroff, 2000; Winslow, Owens & Hood, 1998). Those most likely to continue on a problem pathway seem to be those whose risks cut across child, parenting, family and sociodemographic domains.

Recent evidence supports Rutter's finding that the number of risk factors experienced multiplies the possibility of adverse outcomes. It is arguable, therefore, that *all* political, social and economic initiatives that alleviate stresses experienced by children and families, and more particularly, well-targeted and evaluated preventative programs, will reduce the rate of adverse developmental outcomes, including aggressive behaviour.

## Children who desist from early aggressive behaviour

Several longitudinal studies reveal a sizeable group of children who engage in high levels of conduct problems during childhood, but desist from antisocial behaviour by adolescence (Moffitt, Caspi, Dickson, Silva & Stanton, 1996). These 'recovered' boys were not as alienated from their families as those who continued towards more serious problems, and their families were less dysfunctional. At 18, the recovered boys were less likely to have dropped out of school, to be unemployed, to have delinquent friends or to have abused alcohol and drugs.

Sampson & Laub (1993) theorised that desistance resulted from strong social ties to adult institutions, for example, family, community and work. Policies that reduce the rate of youth unemployment would therefore increase the likelihood of desistance by enabling more young people to experience the socialising effects of workforce participation.

Studies of the variables that predict persistence versus desistance from childhood conduct problems should reveal much about the factors that maintain childhood antisocial behaviour over time (Loeber & Hay, 1997).

## Addressing neighbourhood disadvantage

It is important for parents and teachers to facilitate children's involvement in supervised activities, given the association between lack of adult supervision and delinquent behaviour. Children are less likely to engage in antisocial behaviours, and more likely to establish meaningful friendships, when they are engaged in enjoyable activities in environments where resources and amenities can be readily accessed.

In communities where opportunities are provided for youth to engage in organised activities in community centres, youth groups, sports clubs and extended school programs, young people are more easily able to establish positive relationships. This requires substantial investment of adult time in working with young people, which in turn requires the accommodation of workplaces to the need for flexible work arrangements enabling adult-youth involvement. Support within local communities, and a willingness by all levels of government to commit to the necessary policy formulation, implementation and financial investment, is also vital.

## Conclusion

Aggression that begins in the earliest years of life is clearly linked to delinquent and criminal behaviour in later life. Preventative interventions during the early years of life for at risk families reduce the prevalence and the seriousness of such behaviour problems.

When the costs of failing to provide supportive contexts for developmental health, as measured by increased antisocial behaviour, are examined, it is clear that they are substantial. Conversely, future savings from early interventions that prevent these problems are substantial. It is to be hoped that the findings of research on aggressive behaviour in children will contribute to the development of a serious commitment to the implementation and refinement of programs that address the issues identified in this paper.



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