

The Early Development of Physical Aggression in Children

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Aggressive behaviour is typically associated with older children. Research suggests however, that it may actually peak in the second year of life and steadily decline after that. Most children learn to regulate physical aggression during the preschool years, but a significant number of boys and girls will continue to display this behaviour as adolescents and adults.

The study summarized in this Policy Brief looks at the early development of physical aggression in children. The research team was able to identify the developmental trajectories of physical aggression during early childhood and to determine the antecedents of high levels of physical aggression in some children. The study entailed the collection of survey data from a random sample of 572 families with a five-month old newborn. Information was obtained from the mothers at 17, 30, and 42 months after the birth of their babies. It included questions about the frequency and nature of physical aggression, and parental behaviour and practices. Multivariate logistic regression and a specialized technique for identifying patterns of growth trajectories (a semi-parametric mixture model) were used to analyze the survey data.

KEY POINTS:

- While aggressive behaviour is now thought to peak at around 30 months after birth and decline steadily in the preschool years, it is not until school age that these behaviour patterns become apparent.
- Children need to be socialized to unlearn patterns of aggressive behaviour.
- Fewer girls than boys reach the highest frequency levels of physical aggression and girls tend to reduce frequency levels earlier in life.
- Chronic physical aggression during the elementary school years is the best behavioural predictor of violent behaviour during adolescence.
- The best predictors before or at birth of a high physical aggression trajectory are having young siblings, mothers with high levels of antisocial behaviour before the end of high school, mothers who started having children early, and mothers who smoked during pregnancy.
- The best predictors at 5 months of age are mothers' coercive parenting behaviour and family dysfunction.
- Preventive interventions need to specifically target the parents' control over their own physical aggression and their skills in teaching their infant not to be physically aggressive.
- Interventions to cut the odds of future aggression should begin as early as possible. In general children seem to learn to control physical aggression in the preschool years, yet efforts to curb such behaviour are normally targeted at school-aged children whose habits are more ingrained.

Introduction

Rosie and Zack are playing happily in the sandbox. Five minutes later Rosie is throwing sand in Zack's eye and Zack digs his teeth into the little girl's forearm in retribution. With time outs finished, apologies made and the last tears shed, the toddlers return to their sand castles.

The sandbox scuffle is not unusual. Most toddlers and preschoolers are active, have difficulty sharing, and get angry and cry when their desires are not satisfied. This behaviour is both normal and developmentally appropriate. The majority of these children learn to use alternative ways of dealing with their emotions in the years before they enter elementary school. However, those who do not learn to handle emotional situations without resorting to violence are at a higher risk of serious aggressive behaviour during adolescence and adulthood.

The work of Richard Tremblay and his research team (Tremblay et. al., 2004) is based on their longitudinal study of the development of physical aggression in children from 17 to 42 months after birth. With the objective of guiding preventive interventions by learning more about the early development of physical aggression, the study looked at the trajectories of physical aggression during early childhood and the antecedents of high levels of physical aggression displayed by some children.

Background

While aggressive behaviour is typically associated with older children, Dr. Tremblay's research shows that it may actually peak around 30 months after birth and decline steadily in the preschool years. In other words, the number of aggressive acts carried out by a child hits the highest point at the cute and terrible age of two. Yet, it is not until school age that these aggressive behaviour patterns become apparent (Campbell, Shaw & Gilliom, 2000). Until then, biting, kicking, hitting, scratching, hair-pulling and other undesirable actions are regarded as completely normal. A lot of work has been done on the developmental precursors of physical aggression in school-aged children. But only a few studies have focussed on this behaviour in pre-school aged children. The consequences of physical aggression perpetuated by an 18 year-old teenager are, after all, more dramatic than that of a three year-old toddler. It is also easier for researchers to observe and interview school-aged children (Tremblay, 2002).

The social learning theory on aggression has led us to believe that children learn this behaviour during the school years where they are more exposed to

models of aggression (Tremblay, 2002). However, children do not need to observe models of physical aggression to initiate the use of such behaviours. Hebb (1972) noted that children do not have to learn to take temper tantrums, and Cairns (1979) argued that the most aggressive animals are those that have been isolated from the time they are born.

Children learn not to be physically aggressive through various forms of interactions with their environments. They need to be socialized by their parents to *unlearn* patterns of aggressive behaviour. As their cognitive functions mature, children are more able to be selective in the use of physical aggression. This factor is also consistent with the more rapid decline of physical aggression among girls based on their higher verbal fluency in the toddler to preschool years (Shaw, 2003).

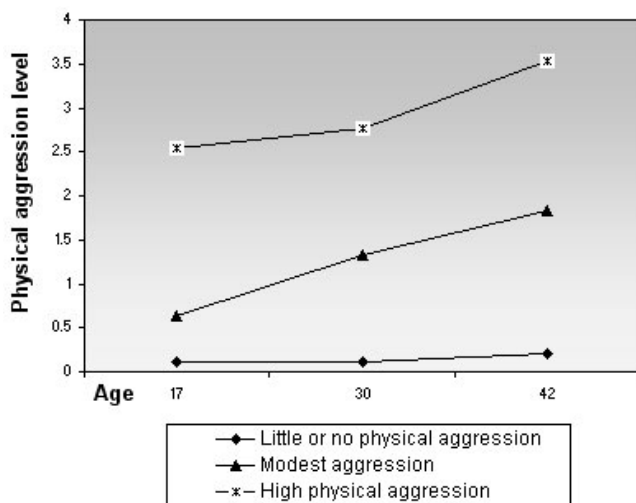
Fewer girls than boys reach the highest frequency levels of physical aggression and girls tend to reduce frequency levels earlier in life (Tremblay, Japel, Pérusse, et. al., 1999; Cairns, Cairns, Neckerman, et. al. 1989; Bjorkqvist, Lagerspetz & Kaukiainen, 1992). As toddlers, girls and boys are equally likely to hit, bite, and kick, especially if they have siblings. From age four onward, however, girls move more quickly toward indirect aggression while boys continue to push and shove (Keenan & Shaw, 1997; Tremblay, Boulerice, Harden, et. al., 1996). Girls are more likely to use verbal and indirect aggression such as alienation, ostracism, character defamation and gossip, and this is often overlooked by parents and teachers (Pepler & Craig, 1995).

Data from Canada's National Longitudinal Survey of Children and Youth and longitudinal studies from the United States and New Zealand suggest that while the majority of aggressive preschoolers do not become aggressive adolescents a small proportion of aggressive, defiant, overactive toddlers and preschoolers continue to have problems at school age. 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). Finally, most, but not all, serious aggression during adolescence and adulthood is committed by young people who have been persistently aggressive since early childhood (Loeber & Hay, 1997).

Methodology

Tremblay and his research team used the Quebec Ministry of Health and Social Services Registry of new births to recruit a provincially representative random sample of 572 families with a five-month old newborn. They obtained survey data from the

mothers at 17, 30, and 42 months after the birth of their babies. This included information on the nature and frequency of physical aggression. The mothers were then interviewed about their own school-age behavioural problems, as well as more recent factors such as smoking and drinking during pregnancy and current family conflicts. Mothers were asked to rate their infants' temperament and describe their parenting habits. Using a specialized statistical technique for identifying growth trajectories (semi-parametric mixture model), the research team identified distinct clusters of physical aggression trajectories. Multivariate logistic regression analysis was also used to identify which family and child characteristics before 5 months of age, predict individuals on a high level physical aggression trajectory from 17 to 42 months after birth.



Results

The research team identified three clusters of trajectories of physical aggression. The first was comprised of children who displayed little or no aggression. These children accounted for 28% of the sample. The largest group, 58% of the sample followed a rising trajectory of modest aggression. A group comprising 14% of the sample followed a rising trajectory of high physical aggression.

The best predictors before or at birth of the high physical aggression trajectory group were having young siblings, mothers with high levels of antisocial behaviour before the end of high school, mothers who started having children early, and mothers who smoked during pregnancy. The best predictors at five months of age were mothers' coercive parenting behaviour and family dysfunction.

Siblings: By definition, to be physically aggressive, one needs to have a target so it is not

surprising that children with siblings are more likely to display this type of behaviour (Tremblay et. al., 2004). This result corresponds with Dunn and Munn's 1985 study that between the ages of 14 and 24 months, younger siblings tended to be physically aggressive toward older siblings more often than the reverse. When younger siblings start to be physically aggressive, the older sibling is learning to control his or her aggressive behaviour.

Parent's Past Behaviours: When other risk factors were considered, children whose mothers had significant behaviour problems as teens, such as fighting, skipping school or getting into trouble with the police, were three times more likely than others to become highly aggressive. The mother's history of antisocial behaviour played a more important role than the father's history in teaching infants to regulate physical aggression.

Environment During and After Pregnancy: Similar effects were found when mothers started having children at age 20 or younger. The results suggest that these women do not learn to help their children regulate physically aggressive behaviour. Mothers' who smoked during pregnancy were more likely to have physically aggressive infants. Good studies are needed to determine the physiologic mechanisms at play during pregnancy that could explain the impact of smoking on an infant's behaviour. Five-month olds exposed to family conflict were also more prone to aggression before the age of four.

Parenting Practices: Infants with difficult temperaments often attract harsher parenting. For instance, a mother may frequently get angry and lose her temper about her baby's fussiness. Mothers of these children become more coercive than other mothers by the time their children are two years old. The combination of difficult temperament and poor parenting predicts aggressive behaviour by the time the child starts school.

Policy Implications

Preventive interventions to reduce the odds of future aggression should begin as early as possible. In general, children seem to learn to control physical aggression in the preschool years, yet efforts to curb such behaviour are normally targeted at school-aged children whose habits are more ingrained. Earlier interventions such as home visitations from nurses to new parents may be more effective. Preventive interventions need to specifically address the parents' control over their own physical aggression and their skills in teaching their infant not to be physically aggressive (Tremblay, et. al., 2004).

❖ About CRISP

The Canadian Research Institute for Social Policy (CRISP) is a multi-disciplinary research organization dedicated to conducting policy research aimed at improving the education and care of Canadian children and youth, contributing to the training of social scientists in quantitative research methods, and supporting low-income countries in their efforts to build research capacity in child development.

❖ About the Research

CRISP's research program, "Raising and Levelling the Bar" conducts research based on Canada's National Longitudinal Survey on Children and Youth (NLSCY) and other national and international surveys. It explores specific factors that can contribute to the improvement of outcomes for Canada's young people. The programme is funded by the Social Sciences and Humanities Research Council's Initiative on the New Economy.

The Research Unit on Children's Psychosocial Maladjustment (GRIP) investigates risk and protective factors that influence children's development from birth to adolescence. It consists of a multidisciplinary group of researchers from the University of Montreal, Laval University, and McGill University. Research conducted at Health Canada's Centre of Excellence for Early Childhood Development (CEECD) seeks to improve knowledge of the social and emotional development of young children. Both centres are directed by Dr. Richard Tremblay.

❖ About this Policy Brief

CRISP's Policy Briefs are designed to highlight the policy implications of research findings. They are available in paper form and electronically on CRISP's website at www.unb.ca/crisp/pbrief.html. The main analysis in this Policy Brief was carried out by Dr. Richard Tremblay and colleagues. Stacey Wilson-Forsberg, Knowledge Transfer Manager at CRISP, drafted this brief.

❖ Further Reading

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