LESSONS LEARNED: RECENT ADVANCES IN
UNDERSTANDING AND PREVENTING CHILDHOOD AGGRESSION

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I. Introduction

In the present chapter, we summarize and integrate recent developments in the field of childhood aggression and prevention science. Our primary goal is to synthesize these developments into a core set of advances or "lessons learned" since the 1970s in understanding and preventing childhood aggression, and to suggest areas where exciting new advances are most likely to occur in the years to come. For purposes of clarity, we use the term *childhood aggression* to describe behavior aimed at harming or injuring others during childhood and adolescence. In practice, childhood aggression is most commonly used to describe children's behavior, whereas such behavior in adolescence is called youth violence, even though in some cases violence is conceptualized as a more extreme form of aggression (Guerra & Knox, 2002). We use the term *prevention* according to guidelines of the Institute of Medicine that includes *universal interventions* targeting entire populations or groups, *selected interventions* for individuals or groups at high risk, and *indicated interventions* for participants who show some signs of aggression but have not met diagnostic criteria for treatment, for example a conduct disorder diagnosis (Mrazek & Haggerty, 1994).

Highly publicized events such as school shootings and gang violence have sensitized the public to the urgency of the problem in recent years. Still, concerns about understanding and preventing childhood aggression are not limited to contemporary society. More than two centuries ago, debates about the causes of childhood aggression reflected philosophical distinctions about the essence of human nature. On the one hand, children were seen as born unruly only to be made fit for society by training (Hobbes, 1651/1958). On the other hand, children were seen as born innocent only to be corrupted

by social forces (Rousseau, 1762/1979). The nature versus nurture dichotomy continued well into the latter part of the 20th century bolstered by empirical findings, with general theories of aggression based on biological factors such as instinct (Lorenz, 1966) or drive (Dollard, Doob, Miller, Mowrer, & Sears, 1939) contrasted with environmental theories derived from operant or social learning processes (Bandura, 1973).

Although biological theories of aggression often acknowledged environmental constraints and vice versa, it is since the 1970s that the traditional "either/or" approach to nature versus nurture gradually has been replaced by a more integrated framework (deWaal, 1999). A good example of this can be found in contemporary behavior genetics research on aggression. Since the late 1970s there have been more than 100 quantitative genetic studies on aggression and antisocial behavior highlighting the *relative* influences of genes and environment (e.g., Arseneault et al., 2003; O'Connor, McGuire, Reiss, Hetherington, & Plomin, 1998). Evidence across studies points to moderate genetic and nonshared environmental influences and small shared environmental influences on antisocial behavior, particularly for more persistent types of aggression that begin early in development (Moffitt, 2003). Furthermore, rather than acting independently, research suggests that environmental and genetic risk interact, for example, with stronger environmental effects among groups at higher genetic risk (Caspi et al., 2002; Fox et al., 2005; Jaffee et al., 2007).

A different but equally important perspective on the interaction between innate and environmental influences has emerged from the application of evolutionary psychology to the study of aggression. From this point of view, behaviors such as aggression are seen as products of mechanisms internal to the person activated by inputs

that arise from evolution by selection designed to solve adaptive problems in specific contexts. For instance, Buss and Shackelford (1997) described seven adaptive problems to which aggression may have evolved as a solution: (a) co-opt the resources of others; (b) defend against attack; (c) negotiate power and status hierarchies; (d) inflict costs on intrasex rivals; (e) deter rivals from future aggression; (f) deter long-term mates from sexual infidelity; and (g) reduce resources expended on unrelated children. This does not mean that aggression is common to all humans; rather, aggression is context specific triggered by specific environmental and social factors where specific problems are confronted, benefits are likely, and costs are minimized (Hawley, 2003). An individual's own phenotype (e.g., size, personality) provides information about the feasibility of select strategies under specific conditions (Tooby & Cosmides, 1990).

Both behavior genetics and evolutionary approaches indicate important roles for persons and environments. This work is complemented by a large number of empirical studies of specific individual and contextual predictors of risk for aggression. Until the 1990s, much of this risk research yielded a rather haphazard collection of diverse risk and protective factors. Only since the start of the 21st century have attempts been made to develop more integrative theories that emphasize multiple influences on development, multiple levels of influence, and how they operate together over time during childhood and adolescence.

In part, these efforts were informed by ecological models of human development emphasizing nested systems and their mutual interdependence (Bronfenbrenner, 1979), as well as transactional models of behavior grounded in developmental psychopathology (Cicchetti & Carlson, 1989; Shaw, 2003). The integrative orientation of these models is

reflected in their descriptions; for instance, a developmental-ecological model of antisocial behavior (Tolan, Guerra, & Kendall, 1995) or a biopsychosocial model of the development of chronic conduct problems in adolescence (Dodge & Pettit, 2003).

Ecological and integrated theoretical approaches to childhood aggression signaled a growing recognition and understanding of the complexity of risk factors and how they co-occur, interact, and transact (Dodge, Coie, & Lynam, 2006a). At the same time, this has been accompanied by more careful specifications of distinct subtypes of aggressive behaviors. At this juncture, there is general consensus that aggression is best defined as a *heterogeneous* set of behaviors that is aimed at harming or injuring another person or persons (although there has been considerable debate regarding the centrality of intent).

A number of different dimensions and classification schemes have been proposed involving variations in both the function and form of aggression. One important distinction related to the function of aggression hinges on whether it is *proactive* in the strategic service of self goals or *reactive* to provocation or blocked self goals (Little, Brauner, Jones, Nock, & Hawley, 2003). Proactive aggression can be more calculating and delayed whereas reactive aggression is more likely driven by characteristics such as impulsivity, frustration, and low social competence (Crick & Dodge, 1994; Dodge & Coie, 1987). This distinction also may shed light on the inconclusive findings linking testosterone and aggression in humans—high levels of testosterone in males have been shown to predict defensive or reactive aggression related to heightened threat perception rather than proactive or offensive aggression (Olweus, Mattsson, & Low, 1988).

Different forms of aggression also have been identified. *Direct aggression* is overt, including face-to-face physical and verbal confrontations; in contrast, *indirect*

aggression is covert and less visible, such as spreading rumors and social exclusion. To the extent that indirect aggression is designed to manipulate and harm others within the context of peer relationships, it has been called *relational* aggression (Crick & Grotpeter, 1996) or *social* aggression (Galen & Underwood, 1997). This type of aggression has been shown to be more characteristic of girls, while physical aggression is more characteristic of boys. There has also been a surge of interest in *bullying* as a distinct form of aggression most frequently described as proactive aggression repeated over time in the context of a disproportionate power imbalance (Olweus, 1993). Bullying can only occur in a social context (e.g., schools, workplace) because it requires repeated interactions and often involves bystanders who can intervene to help or instigate such acts (Salmivalli, Lagerspetz, Bjorkqvist, Osterman, & Kaukiainen, 1996).

Just as there may be distinct patterns associated with specific subtypes of aggressive behavior, it is also important to understand the broader functions of aggression that may coincide more generally with antisocial behavior. Aggression often occurs with other types of antisocial behavior such as delinquency, drug use, academic failure, and risky sexual behavior, particularly during adolescence (Dryfoos, 1990). It has been suggested that these problem behaviors are highly correlated because they share a common set of personality, behavioral, and environmental predictors (Jessor, 1994; Jessor, Donovan, & Costa, 1993). In other words, various antisocial behaviors may develop together and serve similar psychological functions.

Advances in understanding the etiology of childhood aggression also have been accompanied by progress in designing and evaluating preventive intervention programs. These efforts have been enriched further by significant progress in the field of prevention

science. Two of the most significant developments since the 1980s of relevance to the prevention of childhood aggression are: (a) an increase in randomized controlled laboratory and field trials; and (b) a programmatic and policy shift towards evidence-based practice in health care and psychology.

Since the 1980s, public concern about escalating rates of youth violence and crime in the U.S. has resulted in a proliferation of violence prevention programs (Chaiken, 1998). Most of these programs can be considered *psycho-educational* by virtue of their emphasis on psychological and learning processes. Although the vast majority of these programs remain untested, there has been a marked increase in randomized controlled trials and quasi-experimental field studies of anti-violence programs, particularly since the 1980s (Dodge et al., 2006a). For example, in a meta-analysis of school-based anti-violence programs, Derzon, Wilson, and Cunningham (1999) identified 83 experimental or quasi-experimental program evaluations for inclusion. In a subsequent review of violence prevention programs for individuals, families, and larger social systems, Kerns and Prinz (2002) identified 40 empirically evaluated studies.

Large-scale randomized trials of comprehensive, multi-component programs have also been conducted, including Fast Track (Conduct Problems Prevention Research Group, 2002), the Metropolitan Area Child Study (Metropolitan Area Child Study Research Group, 2002), and the RECAP program (Weiss, Harris, Catron, & Han, 2003). In many cases, prevention experiments have assessed hypothesized mediators of change, providing opportunities to examine causal relations between predictors and violence-related outcomes.

A parallel trend towards documentation of evidence-based practices has also gained considerable momentum in recent years (APA Presidential Task Fork on Evidence-Based Practice, 2006). In the field of prevention of childhood aggression and youth violence, this has spawned a number of efforts to identify model programs with experimental evaluations and replication studies (Elliott & Mihalic, 2004). The push towards evidence-based practice has also informed policymaking, with state and federal funding of aggression and violence prevention programs often mandating inclusion of evidence-based programs.

In sum, there have been a number of important developments that have greatly enhanced our understanding of the causes, course, and prevention of childhood aggression since the 1970s. In particular, research has highlighted the adaptive functions of specific types of aggression in specific contexts, the multiple predictors of aggression and how they interact over time, the intertwined nature of social contexts within a given developmental ecology, and the complex interplay between innate and learned contributions to aggression. There also has been a significant increase in the number of randomized controlled and quasi-experimental field trials of preventive interventions, with a focus on the development of evidence-based practice for the prevention of childhood aggression.

As we mentioned at the outset of this chapter, our primary goal is to summarize and integrate these recent developments into a core set of advances or "lessons learned" in understanding and preventing childhood aggression, including a discussion of challenges and future directions. We highlight four major advances and organize this review accordingly. In Section II, we provide evidence from evolutionary and

developmental studies suggesting that aggression is both adaptive and normative during childhood and adolescence. As we point out, at extreme levels and under specific contextual conditions, aggression becomes maladaptive. However, as we discuss, it is important for preventive intervention programs to recognize how the adaptive function of aggression might interfere with an individual's motivation to change, for instance, in the case of the "popular" bully (Vaillancourt, Hymel, & McDougall, 2007).

In Section III, we review the literature on individual and environmental risk for aggression, emphasizing the ecology of development and the cumulative and interactive influences of risk factors. We emphasize the distinction between modifiable and non-modifiable risk factors. As we point out, non-modifiable risk factors (e.g., difficult temperament) can be useful in identifying individuals for focused intervention, with modifiable risk factors (e.g., parenting skills) more amenable to change. We highlight the most robust risk factors, differentiating between characteristics of individuals, close interpersonal relationships (e.g., peers, families), proximal contexts (e.g., neighborhoods, schools), and societal conditions that can be viable targets for participant selection, prevention, and intervention (Tolan & Guerra, 1994).

In Section IV, we turn to a more focused discussion of the linkages between causal models of childhood aggression and preventive interventions. As we point out, one of the most significant challenges in recent years has been the design, implementation, and evaluation of programs that address the multi-component, multi-context, and transactional nature of risk. As an example of such an effort, we discuss findings from the Metropolitan Area Child Study, a large scale development and prevention study conducted over the course of eight years (Metropolitan Area Child Study Research

Group, 2002). As we note, these large scale studies also provide an opportunity to assess the specific mechanisms (i.e., mediators) of influence, as well as the specific conditions under which prevention programs are most likely to be effective (i.e., moderators).

In Section V, we address both accomplishments and challenges related to the translation of research to practice and the implementation of evidence-based programs. As we point out, the push to develop a solid evidence base of "what works" in the prevention of childhood aggression has often obscured issues related to "what works for whom and under what conditions" (Guerra, Boxer, & Cook, 2006). For example, it is unclear whether programs that have been effective for boys will be equally effective for girls, or whether programs can be generalized across ethnic and cultural groups (Guerra & Philips-Smith, 2005). Furthermore, programs designed with optimal funding and under ideal conditions may be less feasible to implement in everyday settings. We also discuss the challenge of aligning and integrating anti-violence programming within larger systems that emphasize prevention of multiple youth problem behaviors and promotion of positive youth development (Guerra & Bradshaw, in press). Finally, in Section VI, we conclude by briefly reviewing these advances and suggesting areas where important new developments are most likely to occur.

II. The Adaptive Functions of Aggression

Although progress in understanding childhood aggression since the 1970s highlighted its complexity, the notion that childhood aggression is largely maladaptive still prevailed. Empirical studies painted a picture of the aggressive child as socially inept and generally disliked by peers—low social status and peer rejection were consistently identified as correlates of aggression (Coie & Kupersmidt, 1983; Dodge, Coie, Pettit, &

Price, 1990). For the most aggressive children, chronic peer disapproval often led to increased individual aggressiveness (Dodge et al., 2003). Yet the notion of aggression as dysfunctional behavior cast aside evolutionary and developmental perspectives on the adaptive functions of aggression for species survival and its normative status from infancy through adolescence. In other words, although excessive levels of aggression may portend suffering and misfortune, the strategic use of aggression under some conditions may serve adaptive functions from birth onward. Only since the late 1990s or so has there been the recognition that aggression can also be adaptive.

A. Evolutionary Perspectives

As historical and cross-cultural evidence shows, our evolutionary history is laced with examples of violence. Paleontological data reveal a continuous stream of human aggression dating back thousands of years. Violence is not restricted to early historical periods or particular cultural groups. Ironically, in spite of recent concerns about the escalating rates of violence in the U.S. and elsewhere, evidence suggests that there is actually less violence now than in ancient times (Guerra & Knox, 2002). From an evolutionary perspective, violence may represent a context-specific solution to particular problems of social living that may ebb and flow in accordance with changing conditions.

As we noted earlier, several adaptive functions of violence have been suggested; for instance, Buss and Shackelford (1997) describe seven problems for which violence may have evolved as a solution. From a developmental vantage point, five of these are particularly relevant for children and youth: (a) co-opting the resources of others; (b) defending against attack; (c) deterring rivals from future aggression; (d) negotiating

status and power hierarchies, and (e) inflicting costs on same sex rivals (with the latter two problems more relevant for older children and adolescents).

Childhood aggression is often about co-opting the resources of others, whether the specific focus is the toys of a two-year-old, the lunch money of an eight-year-old, or the designer tennis shoes of a teenager (Campbell, 1993). In many cases, the threat of aggression is sufficient to engender compliance. In contrast, by defending against an aggressive attack, individuals can build a reputation that can deter future aggression and prevent identification as a victim and accompanying loss of status. Indeed, innovative research using neuro-imaging techniques suggests that the human brain may be pre-wired to exact consequences for misdeeds; for instance, deQuervain et al. (2004) found that areas of the brain linked to anticipated satisfaction were activated with actual but not symbolic punishment.

Taking this even further, merely cultivating a reputation as an aggressor may function to deter rivals from future aggression. In group settings where aggression is valued because it facilitates access to resources, successful aggressors often achieve positions of status and dominance within the group hierarchy (Hawley, 1999). Status and honor within a group add to one's reproductive and survival currency. Within groups defined by violence, such as street gangs, the most aggressive individuals often experience the greatest status elevation (Campbell, 1993). However, status elevation only occurs in groups and under conditions where aggression is normative or desirable (Espelage, Holt, & Henkel, 2003; Vaillancourt et al., 2007; Wright, Giammarino, & Parad, 1986). Finally, aggression can regulate access to valuable members of the opposite

sex—by inflicting costs on same-sex rivals through indirect or direct aggression, they become less desirable to members of the opposite sex (Buss & Shackelford, 1997).

From a developmental standpoint, the form and functions of aggression vary by age from infancy through adolescence. Toddlers may grab things and throw tantrums, but they are unlikely to spread rumors and tell lies about other children, just as adolescents are unlikely to throw public tantrums. Normative aggression must be understood in the context of age-graded standards. However, at any age, aggression may become excessive or chronic. This is particularly troublesome during the early years, when oppositional behaviors that are expected during preschool continue and escalate during the elementary years and beyond. Considerable attention has been paid to this "early starter" group of aggressive children whose behavior seems to persist over time (Moffitt, 2003). We now turn to a discussion of the adaptive functions of aggression during childhood and adolescence, considering the distinction between normative and troublesome behaviors.

B. Developmental Perspectives

As we have discussed previously, aggression is functional and adaptive for human survival. Signs of anger and aggression are evident in infancy, but escalation and regular use of aggression emerges around the end of the first year of life. Most 1- and 2-year-olds engage in regular aggression with peers including retaliation (Caplan, Vespo, Pederson, & Hay, 1991). For young children, aggression serves primarily to signal discomfort, gain attention, access resources, and defend one's possessions and territory. Retaliation seems to serve a further purpose in sending a message to playmates that their aggressive acts will not go unpunished—children who are unwilling to retaliate are more likely to be targeted for future aggression. During the preschool years, the onset of language provides

a new venue for aggressive behavior. This age period is also associated with an increase in verbal demands for appropriate behavior by adults either at home or in the preschool setting, with aggressive noncompliance (e.g., screaming, hitting, tantrums) increasing dramatically (Klimes-Dougan & Kopp, 1999).

Although young children differ in their temperamental and individual propensities to use aggression, such behavior will be used more regularly and become more habitual if it leads to successful outcomes. Consider an irritable boy who wants his playmate's toy. The playmate does not want to share, so the boy grabs the toy and the playmate starts to cry, relinquishing the toy. Aggression works. In other words, to the extent that aggressive behavior helps meet the child's needs, it is likely to be sustained or increase, possibly leading to more extreme and maladaptive levels of aggression.

However, during the preschool years children also learn to regulate and control their aggression according to the demands of the situation. For example, Besevegis and Lore (1983) found that preschool children who played together with a teacher in the room were more aggressive than when the teacher left the room. Even at this early age children recognized that the risk of counterattack was higher without a teacher present and adjusted their behavior accordingly. As this illustrates, not only does adaptation depend on the ability to use aggression and to control aggression, but also on the ability to determine whether aggressive or non-aggressive strategies are optimal under specific environmental conditions. This has been described as "calibration" of response systems, meaning the ability to match responses to the demands of the environment (Malamuth & Heilmann, 1998).

As children enter elementary school, their behavior becomes more compliant and aggression gradually declines. They are better able to delay gratification and regulate their emotions and behavior according to the dictates of their social worlds. Their increasing cognitive sophistication also renders them better at understanding the nuances of aggression, for instance, whether an action was intentional or accidental. A robust literature has demonstrated that aggressive children are more likely to attribute hostile intent to others under ambiguous circumstances (Crick & Dodge, 1994).

Another marked feature of peer relationships from the elementary school years onward is the establishment of social hierarchies. Direct and indirect aggression can serve to elevate an individual's status in the peer hierarchy. This often begins as "rough and tumble" play during childhood, through which children build affiliations and establish dominance patterns (Humphreys & Smith, 1987). As children enter adolescence, the tactics become more subtle, involving gossip, social exclusion, and other forms of indirect aggression, often as part of membership in emerging social cliques.

Under some circumstances, this type of aggression (often considered bullying) can lead to high levels of power and influence within a social group, particularly as children move into adolescence. A literature that emerged in the late 1990s has shown that although some aggressive children are rejected, many aggressive children and adolescents are afforded high levels of status, popularity, and admiration within their peer group (Adler & Adler, 1998; Bukowski, Sippola, & Newcomb, 2000; Farmer & Rodkin, 1996). Thus, as aggression becomes more normative (and often more indirect) during adolescence, it is less likely to engender peer rejection and more likely to elevate one's social status. In disadvantaged contexts where resources are scarce and danger is high,

adolescent aggression may not only result in elevated status but in a wide range of benefits including material goods, protection, deterring rivals from aggression, and power (Fagan & Wilkinson, 1998; Guerra, 1998).

C. Motivation for Change

The majority of preventive intervention programs for childhood aggression are based on the premise that aggression is maladaptive and dysfunctional and that aggressive children lack the social, emotional, and cognitive skills necessary for positive social interactions. An underlying assumption is that socially incompetent children and/or children with low social status should be highly motivated to change their aggressive behavior in order to fit in better with peers. This may, indeed, be the case for some aggressive children who display social-cognitive biases and deficits, poor social skills, and low peer status (Coie & Dodge, 1998). However, two important caveats should be considered in understanding motivation for change and how it can influence receptivity to prevention programs.

First, as discussed earlier, aggression has an adaptive function that varies with age and across contexts. A marker of adjustment is the ability to "calibrate" one's aggression according to the demands of the situation. For example, a child who is threatened by a peer may need to display a willingness to retaliate in order to avoid future victimization, just as a child who perceives every glance as hostile and reacts with aggression would need to improve cognitive cue search and interpretation skills. The important point is that extreme non-aggression may be just as maladaptive as excessive aggression.

Second, some aggressive children are socially competent, high-status youth. Using cluster-analytic techniques, several studies have provided support for a subgroup

of youth who are both popular and aggressive (Luthar & McMahon, 1996; Rodkin, Farmer, Pearl, & VanAcker, 2000). In other words, for some youth in some settings, aggression can lead to high status and dominance within the social group. This does not mean that aggressive children are well-liked. For example, Prinstein and Cillessen (2003) found that aggression was associated with both low and high popularity among adolescents. However, the popular and aggressive youth generally were not well-liked by peers, suggesting a rather complex association between aggression and peer social status.

To the extent that aggressive children have power and status, they may resist intervention efforts designed to reduce this behavior. As Vaillancourt et al. (2007) note, "convincing popular students to reduce bullying behavior will be difficult, if not impossible, when such behavior is viewed as a source of privilege, power, and/or status among peers, and when the status afforded them leads them to view their social interactions as effective and successful" (p. 332). Furthermore, when more aggressive children are mixed together for small group interventions, group effects may elevate the status of aggression so that it becomes more normative and acceptable. For instance, analyses of data from the Metropolitan Area Child Study project revealed that when highly aggressive youth were together in a small group program, they socialized each other to become more aggressive over time—while children in groups who were initially comprised of less aggressive youth became less aggressive over time (Boxer, Guerra, Huesmann, & Morales, 2005). This is also consistent with research on *deviant peer contagion*, whereby grouping aggressive and delinquent offenders together has been found to result in increased antisocial behavior (Dodge, Dishion, & Lansford, 2006b).

Considering the adaptive functions of aggression for social status, popularity, and control and the potential for group dynamics to elevate the status of aggression within the context of preventive intervention programs, it is important to recognize that motivation to change cannot be assumed. Rather, to the extent that aggression and popularity are linked in a given peer context, being "tough" and aggressive might be seen as a desired goal. This may also hinder efforts to encourage bystanders to intervene to stop aggression, particularly if this behavior carries a risk for loss of social status (Salmivalli et al., 1996). This suggests that an important strategy for preventive interventions is to change the adaptive value of aggression in a given setting. This may require moving beyond zero tolerance policies in order to account for the normative reward structure within the peer group.

III. Aggression and the Ecology of Development

A. Aggression as a Multiply-Determined Behavior

Beyond the adaptive value of aggression in a given social context, still many other factors play a role in the etiology of aggression and help explain variations in this behavior across individuals and groups. There is general consensus that aggression is a multiply-determined behavior, influenced by individual factors such as personality, temperament, neuropsychological functioning, and biological predispositions, as well as contextual factors such as peer influences, family socialization, parenting practices, and community disadvantage (Eron, 1987). With aggression and violence increasingly seen as public health problems, much emphasis has been placed on the identification of "risk factors" that increase the likelihood of aggression and "protective factors" that moderate the risk-aggression relation or act to promote healthy development when risk is absent

(Jessor, 2007). A further distinction has been made between non-modifiable or *static* risk factors that can be used to select high-risk youth for intervention (e.g., parental criminality, socioeconomic disadvantage) and modifiable or *dynamic* risk factors (e.g., cognitive distortions, social skills, parenting practices) that can be targeted for change.

However, one limitation of the risk and protective factor approach is that it has led to long lists of factors with very little theoretical integration highlighting the mechanisms or process by which aggression develops. There is clearly redundancy among risk factors suggesting that many risk factors reflect a common theme by virtue of their interrelatedness (e.g., socioeconomic disadvantage, parental stress, lack of social support). There are also varying paths to aggressive behavior in childhood and adolescence. An important contribution since the 1990s has been the development of more integrative theories and related empirical studies that emphasize multiple influences on development, multiple levels of influence, and mechanisms that explain the risk-behavior relation. For example, in a study of the process by which community violence exposure impacted children's aggression, Guerra, Huesmann, and Spindler (2003) proposed that observational learning by witnessing violence would lead to an increase in normative beliefs about the acceptability of violence that, in turn, would lead to increased aggression. Indeed, in a large sample of inner-city elementary school children, normative beliefs about aggression were found to mediate the violence exposure-aggression relation.

Specification of the mechanisms by which risk operates can also have important implications for interventions, particularly when participants are selected based on non-modifiable (or difficult to modify in the short run) risk factors. A common approach has

been to offer selected preventive interventions for groups of youth at-risk by virtue of their living circumstances, for instance, economically disadvantaged, inner-city youth who are exposed to high levels of community violence. However, in order to counteract the effects of specific community risk factors, we must understand how they operate vis a vis aggression. If economic disadvantage primarily compromises academic achievement, leading to school drop out and involvement in juvenile gangs, then the best intervention would be to provide academic tutoring and enhanced instruction during the early school years. Similarly, as Guerra et al. (2003) suggest, if violence exposure leads to approval of aggression, then the best intervention would be to counteract normative beliefs about the acceptability of aggression, particularly for children who regularly witness community violence. Of course, a more sustainable (albeit more difficult) strategy would be to minimize factors that cause initial risk, including economic disadvantage and high levels of community violence.

An extensive review of risk and protective factors for childhood aggression and violence is beyond the scope of this chapter and can be found elsewhere (see Dodge et al. 2006a for a comprehensive review). Rather, we provide a brief review of the most robust risk factors for aggression that can be used to select participants for intervention and/or to design focused intervention programs. We group risk factors into characteristics of individuals, close interpersonal relationships (e.g., peers, families), and proximal contexts (e.g., neighborhoods, schools), emphasizing the ecology of development and the cumulative and interactive nature of risk factors (Tolan & Guerra, 1994; Tolan et al., 1995). We recognize the importance of the larger societal context (for instance, cultural norms and firearm policies) but concede that these influences are unlikely to be impacted

by the short-term, psycho-educational preventive interventions that are the focus of this chapter.

B. Risk for Aggression across Individuals and Contexts

1. *Characteristics of individuals.* As we have discussed previously, a variety of individual characteristics have been identified that increase risk for childhood aggression. Some of these individual factors (such as perinatal trauma) begin in utero (Mungas, 1983), whereas others (such as difficult temperament, fearlessness, impulsivity, low verbal ability, and lack of control) begin at birth or shortly after (Bates, Bayles, Bennett, Ridge, & Brown, 1991; Tremblay, Pihl, Vitaro, & Dobkin, 1994). Over time, distinct dimensions of personality including low agreeableness and low conscientiousness also crystallize and increase the likelihood of aggression (Miller & Lynam, 2001). In other words, a host of individual predispositions, whether written on a child's biological birth certificate or emerging early in the course of development, render certain children more prone to aggression than others from a very early age.

Without intervention, children who develop aggressive behavioral patterns early in life are also more likely to graduate to more serious aggression in adolescence and continue such behavior chronically (Moffitt, 2003). For this reason, elevated aggression and its precursors in early childhood are among the best factors for selecting individuals or subgroups for focused prevention and intervention programs (Tolan & Loeber, 1993). However, selecting children based on early aggression does not provide specific guidance for the content and scope of the intervention itself. Indeed, many individual risk factors linked to temperament, personality, and neuropsychological functioning are difficult to change, although how these unfold in a given context can dictate their course. It is

important to bear in mind that children both shape and are shaped by their environments, a point we will return to in our subsequent discussion of contextual risk for aggression and the cumulative and interactive influence of risk factors. For instance, difficult temperament is more likely to result in ineffective parenting and ineffective parenting is more likely to exacerbate the relation between difficult temperament and later aggression (Bates et al., 1991; Bates, Petit, Dodge, & Ridge, 1998).

It is also the case that children actively navigate and interpret their social worlds. How they come to understand both their own behavior and the behavior of others has important implications for action. Over time, children learn specific patterns of cognition that make aggression more or less likely. For example, one of the most robust findings in the social-cognitive literature on children's aggression is the tendency of more aggressive children to attribute hostile intent to others under ambiguous circumstances, known as *hostile attributional bias* (Dodge, 1986; Crick & Dodge, 1994; Graham & Hudley, 1994; Guerra & Slaby, 1990). This means that a child who interprets another's glance as hostile is more likely to respond with aggression than a child who believes the same glance is neutral or benign.

Beginning in the 1960s, there has been an increasing recognition of the cognitive underpinnings of aggression (Anderson & Bushman, 2002; Bandura, 1986; Crick & Dodge, 1994; Huesmann, 1998). Most social-cognitive models of childhood aggression draw heavily from cognitive information-processing theory, emphasizing both discrete social information-processing skills as well as specific types of social knowledge stored in memory (the 'data base" that individuals develop over time). Furthermore, because the child's cognitive system develops over time, it is amenable to early preventive efforts

while cognitions are most malleable (Huesmann & Guerra, 1997) as well as later efforts to modify maladaptive patterns of thought (Guerra & Slaby, 1990). Indeed, cognitive-behavioral prevention and intervention programs consistently have been shown to be effective for aggression, violence, and delinquency (Lipsey & Wilson, 1998).

This leads us to ask what specific social information-processing skills and/or specific types of social knowledge are the most robust risk factors for childhood aggression *and* are the most viable targets for prevention and intervention? Much of the work in this area has emphasized discrete and sequential social information-processing skills that involve encoding and interpretation of cues, response search, evaluation, decision, and action (Crick & Dodge, 1994; Guerra & Huesmann, 2004). In short, the cognitive system is seen as processing inputs of social stimuli (what happened and why?), searching memory for relevant information (what does this mean?), and generating outputs accordingly (what should I do and what are the consequences?). In addition to hostile attributional bias, aggression is associated with increased attention to aggressive cues (Baumeister, Smart, & Boden, 1996; Dill, Anderson, Anderson, & Deuser, 1997), generation of more aggressive solutions, and anticipation of positive outcomes such as tangible rewards for aggression (Guerra & Slaby, 1990; Perry, Perry, & Rasmussen, 1986).

However, a child's choice of an appropriate response also hinges on what is encoded in memory as acceptable behavior. We have referred to these internalized standards as *normative beliefs* about the appropriateness of aggression. These beliefs develop from observation of one's own behavior and the behavior of influential models as well as from direct instruction across contexts. As children get older, normative beliefs

about aggression become increasingly predictive of their own aggressive behavior (Huesmann & Guerra, 1997). A normative context that supports or sanctions aggression can also influence individual children's behavior within that context and is thus an important focus for prevention and intervention programs (e.g., Olweus, 1993).

Information-processing shortcuts and memory structures help decrease the cognitive workload. Over time, many of these biases and beliefs are invoked automatically without deliberate attention. Furthermore, expected events and actions often are linked together in *scripts* or event schemas that serve as guides for behavior in everyday situations. Because scripts also simplify cognitive processing, in many cases a particular scripted response becomes dominant or automatic. More aggressive children presumably have more well-connected and dominant aggressive scripts encoded in memory (Huesmann, 1998). This highlights the need to consider the importance of automatic as well as controlled processing for social-cognitive interventions.

2. *Close interpersonal relationships*. As we have discussed previously, individual risk for aggression is molded and shaped by contextual influences. Even highly heritable characteristics such as temperament have been shown to interact with contextual factors such as parenting styles to exacerbate risk (Bates et al., 1991; Bates et al., 1998). Furthermore, individual factors that are primarily learned are highly influenced by models and reward structures across settings (Bandura, 1986). From birth, children are embedded in a series of close interpersonal relationships with parents, relatives, caring adults, siblings, and peers that shape their development rather than rubber stamp their genetic destiny. There is now a substantial literature documenting the effects of these

relationships on aggressive behavior, with particular emphasis on the influence of parents and peers.

Several aspects of the parent-child relationship have been shown to influence the development of aggression, including the quality of the parent-child relationship, parenting practices, and parental monitoring. A consistent finding in the research literature is that certain parenting practices and parent-child relationships can increase the likelihood of child aggression, and that the influence of these factors is particularly salient for younger children. Children who experience rejection, neglect, or indifference from parents are more likely to display aggressive behavior (Bousha, & Twentyman, 1984; Dahlberg, 1998; Loeber & Stouthamer-Loeber, 1986). Parents who are neglectful or disengaged are often unresponsive to the needs of their children and demand little of them. These children may engage in aggressive behaviors to gain attention from their parents. In contrast, parents who are warm, supportive, and responsive have children who are less aggressive and exhibit less behavioral problems (Bates & Bayles, 1988).

The quality of the parent-child relationship also influences child aggression. Although consistent discipline practices have been linked to lower levels of aggression, problematic discipline practices and erratic expressions of anger promote aggression in children (Patterson, 1982, 2002). Children become less inhibited from displaying aggression when discipline is inconsistent and parenting practices are inept. This often leads cycles of mutually coercive behavior. Parents who use inconsistent discipline tactics have been found to punish children not only for deviant behaviors but for prosocial behaviors as well (Patterson, 1982). However, children are also part of this coercive cycle. Children will purposely use aversive behaviors, such as whining or

tantrums, to coerce their parents into giving them what they want. The children are then rewarded for this behavior, because the parents give in, which reinforces the aggressive or aversive behavior.

The use of corporal punishment also has been associated with increased aggression in children. There are several reasons for this. First, when parents resort to physical means of controlling and punishing their children they send a message that aggression is a normative, acceptable, and effective way to gain compliance (Bandura, 1973; 1986). When corporal punishment is used in response to children's aggression, in essence, parents are punishing children with the very behavior they are trying to eliminate. This, in turn, communicates to the child that it is acceptable to hit others when they behave in ways they do not like. Second, the use of this disciplinary tactic leads to avoidance of the disciplinary figure, reducing parental opportunities to direct and influence their child. Third, corporal punishment also promotes hostile attributions, which in turn, predicts aggressive behavior. Experience with harsh treatment from parents results in children who are hypervigilant to hostile cues, who attribute hostile intent to others, access more aggression potential responses, and view aggression as a way to attain social benefits (Dodge, Pettit, McClaskey, & Brown, 1986). Taken to the extreme case of physical abuse, the evidence is compelling, with physical abuse linked to early aggression as well as violent and delinquent behavior during adolescence (Luntz & Widom, 1994).

One of the goals of parenting is to teach children to behave independently in morally and socially acceptable ways. Attributing compliance to internal rather than external sources is an integral part of this process, and corporal punishment also has been

found to interfere with this process by promoting external attributions (Gershoff, 2002; Hoffman, 1983). Physical force by the parent provides external controls to which children can attribute their compliance, and therefore, can propel children to avoid misbehaviors in order to avoid future punishment but does not teach children the responsibility to behave independently in morally and socially acceptable ways (Hoffman, 1983). Thus, the child may never learn socially acceptable ways of handling situations and instead views aggression and violence as a reasonable option for solving social conflicts.

As children grow and become adolescents, a lack parental monitoring is associated with higher levels of aggression, violence, delinquency, as well as poorer relations with peers and teachers (Pettit et al., 2001). Monitoring refers to parents knowing where their children are, whom they are with, and what they are doing. Good supervision allows parents to respond appropriately to antisocial and delinquent behaviors, as well as minimizes the adolescent's contact with risky circumstances.

In addition to parental influences, characteristics of a child's peer group can increase risk for aggression, although the specific mechanisms seem to vary by age. For younger children, aggression can lead to peer rejection (which then leads to increased aggression), particularly when this behavior is ineffective and/or excessive. Indeed, by the time children are in second and third grades, children demand more social competence from their friends where problem solving with less physical coercion is expected (Dodge, Coie, Pettit, & Price, 1990; Kupersmidt & Patterson, 1991). Aggressive children who are quick to fight and slow to employ negotiation, bargaining, and other forms of problem solving are more likely to be rejected by peers (Bierman, Smoot, & Aumiller, 1993; Fraser, 1996). However, as we mentioned earlier, aggression does not

always lead to peer rejection. When children are viewed as defending themselves, they are usually viewed positively by their peers (Fraser, 1996; Lancelotta & Vaughn, 1989). In some settings and particularly as children get older, aggression and bullying can lead to increased popularity and social status (Luthar & McMahon, 1996; Rodkin et al., 2000; Vaillancourt et al., 2007). To the extent that aggression becomes more normative for certain youth during adolescence, it is less likely to engender peer rejection and more likely to elevate one's social status.

During adolescence the influence of the peer social clique or network also increases, with peer groups providing further validation and support for the standards of behavior they are defined by. Aggressive, antisocial, or delinquent peer groups tend to attract like-minded youth (a phenomenon known as *homophily*), and being in a deviant peer group tends to increase antisocial behavior, particularly for the moderately deviant youth who may still be experimenting with different behavioral styles (Tremblay, Mâsse, Vitaro, & Dobkin, 1995a). The peer group can provide an organizational context for more sophisticated displays of aggressive and antisocial behavior, attracting more aggressive youth and also legitimizing their behavior as normative. In more extreme cases, such as high violence juvenile gangs, this context becomes highly structured and proscriptive with clear mandates for aggressive and delinquent behavior.

3. Proximal contexts. Two of the most important proximal developmental contexts for children are neighborhoods and schools. These contexts exert independent influences on children's development and behavior, but also influence the quality and capacity of caregivers and others. Consistent with ecological principles, contexts are nested and interdependent (Bronfenbrenner, 1979). Consider the effects of community

economic disadvantage. Family poverty increases the probability of peer-directed

aggressive behavior by children, adolescents, and adults (Bradley & Corwyn, 2002;

Sampson & Laub, 1994; Spencer, Dobbs, & Phillips, 1988). One potential mechanism of

influence involves the effect of poverty on parents' ability to raise their children. Faced

with limited resources and support, multiple stressors, and unemployment (or multiple

jobs), parents may have little time and energy left to actively participate in childrearing

(McLoyd, 1990). For instance, Sampson and Laub (1994) found that family poverty was

associated with harsh discipline, low supervision, and poor parent-child attachment,

which was in turn related to delinquency.

Neighborhood influences can also operate independent of their effect on families

or other relationships. Consider the effect of exposure to community violence. Children

(particularly boys) who are exposed to higher levels of community violence are more

likely to be aggressive (Attar, Guerra, & Tolan, 1994; Morales & Guerra, 2006). Children

who witness violence more regularly come to see it as acceptable behavior and

internalize normative beliefs supporting aggression (Guerra et al., 2003). It may also be

that high levels of community violence create a climate of fear where children are more

attentive to aggressive cues and more willing to interpret ambiguous cues as threats (for

their own safety).

Other neighborhood factors can decrease the risk of violence, even within

disadvantaged and more violent communities. Sampson and colleagues (e.g., Sampson,

Morenoff, & Gannon-Rowley, 2002; Sampson, Raudenbush, & Earls, 1997) coined the

term *collective efficacy* to refer to the willingness of residents to intervene for the

common good based on mutual trust and solidarity. Juvenile crime rates are lower in

neighborhoods where residents monitor children's play groups, intervene to prevent deviant behaviors such as truancy, confront people who are disturbing public space, and organize to maximize community resources, (Sampson et al., 1997). In essence, the community assumes a parenting role in monitoring children's behavior and garnering resources beyond what is done by individual families in their own homes.

Characteristics of schools can also increase the likelihood of childhood aggression. Some of these characteristics are directly related to the communities they serve. Schools in more disadvantaged neighborhoods typically have fewer resources, higher student-teacher ratios, and higher turnover rates (McLoyd, 1990). These schools may simply be less able to educate children effectively. Not only do academic difficulties portend heightened aggression, but children who are struggling with school are less likely to feel connected to their school and more likely to drop out or engage in risky behaviors (Hawkins, Catalano, Kosterman, Abbott, & Hill, 1999). In addition, specific school practices such as ability tracking (Dahlberg, 1998; Kerckhoff, 1988), assignment to classrooms with deviant peers for special education (Dodge, Coie, & Lynam, 2006a; Peetsma, Vergeer, Roeleveld, & Karsten, 2001), and temporary suspension programs (Arum & Beattie, 1999) can foster negative peer group interactions and antisocial behavior. Even at the classroom level, the proportion of classmates who are aggressive and endorse aggressive normative beliefs has an influence on individual levels of aggression (Henry et al., 2000).

C. The Cumulative and Interactive Nature of Risk

Specific characteristics of individuals, close interpersonal relationships, and proximal social contexts increase risk for childhood aggression. Still, no single factor

explains more than a modest proportion of variance. As suggested by an ecological framework, individuals are nested within a social system comprised of relationships, settings, and larger societal influences, all of which reciprocally influence each other as well. The effects of risk on aggression can accumulate over time and/or across settings, but the effects of risk also can be triggered only when other risk factors are present (or in direct proportion to the amount of other risk factors present).   Cumulative models emphasize the additive nature of risk such that the number of risk factors rather than any particular factor augments risk. An emphasis on how many risk factors are present suggests that children with the greatest number of risk factors should be identified for focused prevention and intervention, and that interventions should be multi-component and multi-context (Tolan et al., 1995). Interactive models emphasize the fact that many risk factors exert their influence contingently. For example, children with an early propensity to behave aggressively appear to be more sensitive to the effects of peer rejection than their less aggressive peers (Dodge & Pettit, 2003). Interactive models suggest that interventions should identify those at-risk children most likely to be impacted by a specific malleable risk factor and target services accordingly; however, in both cases greater risk exposure is linked to more negative outcomes.

It is also important to consider how early risk factors, if left unchecked, can set in motion a downward spiral of events that increase the likelihood of aggression and other negative outcomes. A boy with a difficult temperament who is spanked and harshly disciplined may come to see hitting as an effective strategy (and learn few other social skills), triggering rejection by peers at school and withdrawal from his parents, leading to even harsher discipline and more aggression. As his social cognitive understanding

crystallizes, he may develop a hostile attributional bias and aggressive scripts leading to more aggressive social interactions. The implication is that risk is transactional. In other words, risk factors for aggression exert a reciprocal influence on each other across time. This is consistent with a robust literature showing that children whose aggression becomes more marked early in development are more likely to develop chronic and persistent patterns of antisocial behavior later in life (Farrington, 1991; Moffitt, 2003).

In sum, advances in understanding the complex nature of individual and contextual risk and how it unfolds over time have significant implications for the prevention of childhood aggression. We now turn to a discussion of the specific "lessons learned" from ecological models of risk, as illustrated by a large scale prevention research trial, the Metropolitan Area Child Study.

IV. Risk, Causality, and Prevention

A. Prevention and the Multiple Determinants of Aggressive Behavior

Given the multiple determinants of aggressive behavior, the multiple processes by which risk can be exacerbated or reduced, variations in these processes by age, and a finite amount of resources dedicated to prevention of childhood aggression, a critical issue involves how best to prioritize and direct our efforts. A starting point is to consider key questions that have yielded significant advances and that have clear program and policy implications. We propose the following questions:

(1) At what age should systematic prevention programming begin?

(2) Should the prevention net be cast widely for all youth or should we identify children (or populations) most at-risk for targeted preventive interventions?

(3) Which specific individual or contextual risk factors are the best candidates for preventive efforts and what types of programs have been proven most effective?

(4) Should we integrate programming across multiple contexts of development so that several risk factors are addressed simultaneously and anti-violence socialization mechanisms are consistent over time and across settings?

We draw on the extant literature to address each of these questions. To provide a specific example of how these issues have been addressed in prevention research trials, we discuss findings from the Metropolitan Area Child Study, a large scale development and prevention study conducted over the course of eight years (Metropolitan Area Child Study Research Group, 2002). We then summarize strategies for incorporating sound, empirically-derived theories into program design.

B. The Metropolitan Area Child Study

The Metropolitan Area Child Study (MACS) is a longitudinal school-based development and prevention study conducted during the 1990s with elementary school children from inner-city and urban communities (Guerra et al., 1993). It was funded under a request for applications issued by the National Institute of Mental Health in 1990 with the primary purpose being to develop, implement, and evaluate multi-component, multi-context anti-violence programs for at-risk children and youth. The study was grounded in a *cognitive-ecological* model of the development of aggression that stressed the social-cognitive and contextual factors empirically linked to the learning of aggression in childhood (Guerra, Eron, Huesmann, Tolan, & VanAcker, 1997). The specific social cognitive areas targeted were self-understanding/self-efficacy, social perspective taking, normative beliefs about aggression, social problem-solving skills, and

cognitive scripts. The contexts targeted for intervention were the classroom, peer group, and family.

Although the cognitive-ecological model driving the intervention suggested it was important to modify multiple cognitions across these multiple contexts as they developed during the elementary years, from a practical standpoint it is unlikely that schools or community agencies would be able provide interventions for all children in their classrooms, peer groups, and families across all school years. To address the potential of this research to be translated into everyday settings, the study was designed to answer the question of how much intervention, at what age, and in which contexts is necessary to prevent aggression among the most aggressive children. Three intervention conditions were evaluated at two grade levels (in addition to a no-treatment control condition). The three intervention conditions (labeled Levels A, B, and C) represented increases in the number of contexts involved and the dose received through this cognitive-ecological model. The two grade levels were early elementary (Grades 2-3) and late elementary (Grades 5-6).

The Level A intervention was seen as the most cost-effective and least intrusive method of intervention delivered for all children at the classroom level. This *general enhancement classroom* intervention provided a 2-year program that included teacher consultation on classroom management and a 40-lesson social-cognitive curriculum (*Yes I Can)* delivered by teachers in the classroom during the regular school day. The curriculum covered the five areas of social cognition described above.

The Level B intervention provided the general enhancement classroom component plus a 2-year, small-group training for the most aggressive children. This

general enhancement plus small-group peer-skills training intervention was designed to change cognitions and behavior among the most aggressive children as well as to minimize peer reinforcement of aggression by changing peer group norms about the acceptability of aggression (Eargle, Guerra, & Tolan, 1994).

The Level C intervention provided the most costly and comprehensive intervention by adding a 1-year family intervention to the classroom enhancement and small group program. The family intervention was designed primarily to help parents recognize and reinforce prosocial behavior, improve parenting skills, enhance family communication, and provide an opportunity for family support (Tolan & McKay, 1996).

Finally, an important consideration was the extent to which community context and school resources moderated intervention effects. Although the need for preventive interventions may be greatest in the most distressed, inner-city contexts, the effects of psycho-educational interventions may simply be overwhelmed by the economic and social strain present in these settings. To examine how efficacy varied as a function of these school and community characteristics, each of the intervention conditions included schools from both low-income inner-city communities (average poverty rates of 40.25%) and moderate-income urban communities (average poverty rates of 25%).

As has been reported previously (Metropolitan Area Child Study, 2002) there were significant effects on aggressive behavior for high-risk children only for the most comprehensive intervention (Level C) when delivered early (Grades 2-3) and in the moderate resource communities. Furthermore, when the early intervention was followed by an additional 2-year intervention delivered later (Grades 5-6), the magnitude of the effect doubled. It is important to note that none of the intervention conditions yielded

significant positive effects for the older elementary school children; in fact, the Level B intervention that included small group peer-skills training resulted in modest iatrogenic effects, consistent with research on deviant peer contagion (Dodge et al., 2006b). Taken in conjunction with the expanding research base in the field of prevention science, these findings can provide direction for research-driven programs and policies.

C. Research-Driven Programs and Policies

A noteworthy development in anti-violence prevention and intervention programming has been an increasing recognition of the importance of theory-driven versus problem-driven programs (Kerns & Prinz, 2002). Many problem-driven programs evolved in response to a particular community problem but with little rationale for the particular approach employed or emphasis on systematic evaluation. In contrast, theory-driven programs are based on sound, empirically derived theories, with evaluations emphasizing short-term and long-term outcomes as well as mediators and moderators of change. A focus on theory-driven programs also has led to an expanding number of scientifically evaluated aggression prevention programs. This growing evidence-base provides direction on several important issues that bear directly on programs and policies.

1. At what age should systematic prevention programming begin? An important advance in the prevention and intervention of childhood aggression has been the convergence of evidence supporting the "earlier is better" dictum. It is clear that by the elementary school years, childhood aggression is predictive of later aggressive and antisocial behavior across cultures and contexts (Farrington, 1991; Moffitt, 2003). This early aggression does not appear spontaneously upon school entry, but is related to a myriad of individual, family, and community risk factors that exert their influence from

birth onward. The importance of preventive efforts during the preschool period also is supported by several comprehensive reviews showing that programs for very young children can have short-term impacts on behavior as well as long-term impacts on the prevention of delinquency (Yoshikawa, 1994; Zigler, Taussig, & Black, 1992).

Even within the elementary school years up until approximately age 12, the research evidence suggests that earlier intervention is better. An aggressive child who is disruptive at school entry is likely to alienate peers and teachers. In turn, this can lead to social rejection and academic failure that further escalate risk for aggression. Even a child who is not aggressive at school entry may experience new social or academic challenges leading to aggressive behavior. Cognitions and characteristic behavioral styles also appear to crystallize during the later elementary years, suggesting they are more malleable with younger children (Huesmann & Guerra, 1997).

Findings from MACS clearly illustrated the importance of early intervention for this age group. This is consistent with a number of other early intervention studies that have found preventive benefits for programs beginning in kindergarten or shortly after (Conduct Problems Prevention Research Group, 2002; Kellam, Rebok, Ialongo, & Mayer, 1994; Tremblay, Kurtz, Masse, Vitaro, & Phil, 1995b). Although some programs have proven effective with older elementary school children (e.g., Graham & Hudley, 1993), the fifth and sixth[h] grade children who participated in the MACS intervention did not display reductions in aggression, even with the most comprehensive program. However, the effects of the early intervention were significantly enhanced when followed by a late intervention, suggesting that later interventions are most effective for children whose aggression has not yet become habitual.

In sum, the evidence from prediction and prevention studies suggests that "earlier is better" when cognition and behavior are most malleable. As Dodge and Pettit (2003) note, "prevention during the early stages of the evolution of chronic conduct problems is more likely to be successful than intervention in adolescence, after antisocial outcomes have become inevitably overdetermined" (p. 363). Of course this does not mean that prevention programs should not try to reach older youth—given that adolescence is a time of heightened violence and victimization, it is also important to develop effective prevention programs for this age group. In practice, most programs for adolescents would be considered treatment rather than prevention because they involve identified (often adjudicated delinquent) youth. Unfortunately, there is scant evidence for effective prevention programs for adolescents, and only a limited number of effective treatment programs for seriously antisocial and violent youth (Guerra, Kim, & Boxer, in press).

2. *Should the prevention net be cast widely for all youth or should we identify children (or populations) most at-risk for targeted interventions?* Universal interventions cast a wide net to include all individuals in a given setting. A common strategy is to provide programs for children in a classroom or school without identification of those most at-risk for aggression. School-based universal programs often emphasize social skills deemed important regardless of risk status and/or normative standards (such as "no bullying") that apply to all students. Universal programs can provide a foundation for more focused-programs by promoting anti-violence messages and skills. They may be successful in making aggression somewhat less normative and/or adaptive. However, it is less likely that they can provide the individualized attention and intensive intervention needed by the most at-risk youth.

For this reason, a number of preventive interventions have included or been limited to a selected group of high-risk children. Given the constellation of risk factors, many of which are present from an early age, the question then becomes how best to determine risk status in order to select participants. The most common strategy has been to identify the most aggressive children (typically beginning in elementary school) from populations most at risk such as economically-disadvantaged children living in violent urban neighborhoods. The success of this strategy hinges on the predictive accuracy of early aggression as a marker for later aggression, typically around 50%. In other words, approximately half of the children identified as aggressive in early childhood continue at elevated aggression levels or escalate to serious antisocial behavior.

This raises a concern that many children will be unnecessarily involved in prevention programs, using valuable resources, potentially being labeled as aggressive or at-risk, and possibly being exposed unnecessarily to more aggressive youth. Still, the fact that children are being identified based on a behavior which is disruptive at the moment (regardless of future predictive accuracy) supports the inclusion of aggressive children in focused interventions.

A primary caution is that programs are framed so as to reduce possible stigma and iatrogenic effects. In the MACS intervention, the peer intervention for the more aggressive children was described as a "leadership training program" to reinforce skills and beliefs of children who were likely to be influential in their classrooms. Being cognizant of the potential for peer contagion, the groups included children above the school median for aggression, resulting in a mix of moderate and high aggressive youth. However, as we learned, this still resulted in iatrogenic effects--when highly aggressive

youth were together in the small group program, they socialized each other to become more aggressive over time, while children in groups who were initially comprised of less aggressive youth became less aggressive over time (Boxer et al., 2005). This suggests that interventions based on identification of aggressive children should not group them together in small group programs.

3. Which specific individual or contextual risk factors are the best candidates for preventive efforts and what types of programs have been proven most effective?

Consistent with the organization of our earlier review of risk factors for childhood aggression, most psycho-educational preventive interventions can be grouped into one of three categories: individual-level interventions; close interpersonal relations interventions; and proximal social contexts interventions. A fourth category of multi-dimensional, multi-context programming represents different combinations of the above approaches and is discussed in the next section.

In an earlier review of adolescent violence prevention programs, Tolan and Guerra (1994) noted that approximately half of the preventive interventions as of the mid-1990s would be considered individual-level interventions. These included a range of approaches including psychotherapy, behavior modification, cognitive-behavioral programs, and social skills training. There has been a shift in the last two decades towards an increasing focused on social-cognitive and social skills development programs. This is based on increasing evidence supporting the influence of social-cognitive factors on aggression from an early age and related support for the effectiveness of cognitive-behavioral programs (and general lack of empirical support for non-cognitive-behavioral counseling, social work, and other therapeutic preventive

interventions). Furthermore, social-cognitive skills and beliefs are amenable to change through structured interventions in classrooms, youth agencies, and other intervention settings so that they are appropriate for universal, selected, and indicated programming.

Individual-level interventions targeting social cognition and social skills now form the majority of prevention programs, particularly for school children (Wilson et al., 2001). A number of different social-cognitive skill programs have been developed, primarily for elementary school children, although some programs have been evaluated with preschool children and adolescents. Programs developed during the 1970s and 1980s generally focused on a specific skill or area of social cognition, demonstrating improvements in areas such as moral reasoning (e.g., Arbuthnot & Gordon, 1986) and anger coping (e.g., Lochman, Burch, Curry, & Lampron, 1984). Although some single component programs were successful, in many cases social-cognitive gains did not translate into significant behavioral improvements or long-term effects, suggesting that single component programs may be necessary but not sufficient to change behavior. Subsequent programs were more likely to provide integrated programs that addressed multiple aspects of social cognition and skills related to individual risk for aggression.

One of the most widely used multi-dimensional social-cognitive/social skills interventions aimed directly at reducing aggression and violence is Aggression Replacement Training. This 30-hour, multi-modal program for identified aggressive children and youth emphasizes skill acquisition, impulse and anger control, and moral reasoning development. Outcome evaluations have revealed some positive effects, particularly with older youth (Goldstein, 2004). Another popular program for elementary, middle, and high-school youth with demonstrated effectiveness is Life Skills Training

(Botvin, Mihalic, & Grotpeter, 1998). Life Skills Training is a classroom-based universal

program emphasizing decision-making, anger control, social competence, and peer

resistance skills. Although originally developed as a drug abuse prevention program, it

has also been shown to be effective in preventing aggressive and antisocial behavior

(Botvin, Griffin, & Nichols, 2006). Other universal interventions targeting multiple

aspects of social cognition have been shown to be effective in changing cognition and

behavior at the elementary school level, including the Providing Alternative Thinking

Strategies Program (Greenberg, Kusche, & Mihalic, 1998), the Resolving Conflict

Creatively Program (Aber, Brown, & Henrich, 1998) and the Second Step Violence

Prevention Program (Grossman et al., 1997 McMahon & Washburn, 2003).

  Most interventions targeting close interpersonal relationships focus on families.

Families are the primary socialization context children and their influence endures

throughout childhood (although the salience of the peer group increases during

adolescence). As we mentioned earlier in this chapter, a consistent finding in the research

literature is that certain parenting practices and parent-child relationships can increase the

likelihood of child aggression making them viable targets for preventive interventions.

Furthermore, family risk begins early in development, although the nature of risk changes

over time. Accordingly, family interventions have been developed for parents of infants,

preschoolers, children, and teenagers, and the specific focus of the intervention has been

connected to the nature of risk during these different developmental periods.

Furthermore, family interventions are by and large selected or indicated due to the need

to identify participants most likely to benefit from interventions. In some cases, services

are offered to high-risk populations, such as low-income, first-time mothers (regardless

of their individual risk status). This practice is more typical for programs targeting infants and young children.

One of the most widely cited early family intervention programs with demonstrated effectiveness for preventing childhood aggression is the Nurse Home Visitation Program (Olds, Hill, Mihalic, & O'Brien, 1998). This program was designed to help women experiencing the transition to motherhood for the first time, providing them with skills needed to gain confidence and increase their self-efficacy as a parent. The program also draws on attachment theory to highlight the significance of trusting and warm relationships. Programs for parents of preschoolers tend to be more directly focused on effective parenting practices for high-risk families that encourage prosocial behavior and reduce aggression, such as the Incredible Years Training for Parents Program (Webster-Stratton et. al., 2001).

Family interventions for children and adolescents reflect a broad range of theoretical underpinnings and techniques. Some interventions emphasize behavioral parent training. One of the most well-known of these approaches is Parent Management Training developed by Patterson and colleagues for antisocial boys and their families (Patterson, 1982, 2002; Patterson, Reid, & Dishion, 1992). The emphasis of Parent Management Training is on changing interaction patterns of parents and children in order to decrease the "coercive" style of interacting that promotes child aggression and later delinquency.

Other approaches to family intervention that have been found effective in preventing aggression and antisocial behavior include parent training but also address issues related to overall family functioning. For example, Functional Family Therapy is a

family behavioral intervention designed several decades ago to work with less serious and generally younger aggressive and delinquent youth. It is a structured intervention that combines family systems concepts, social learning theory, behavior management, and most recently cognitive processes (Sexton & Alexander, 2000). A main focus of the program is to improve family functioning through increased family problem-solving, enhanced emotional bonds among family members, and improved ability of parents to provide structure and guidance to their children.

Still other approaches that build on behavioral parent training also provide direct instruction for children in social and life skills as well as family practice sessions based on therapeutic play or parent-child interactive therapy (Herschell, Calzada, Eyberg, & McNeil, 2002). For example, Families and Schools Together is a multi-family group intervention that uses a systems-based family strategy to build skills in children and empower parents to be primary prevention agents for their children. The program includes play therapy, family therapy, and behavioral skills training for parents of elementary-school age children (although the program has also been used with younger and older children). Effectiveness has been demonstrated on a variety of positive behavioral and prevention outcomes during the elementary school years across diverse ethnic and economic groups (McDonald & Frey, 1999).

For older youth who are most at-risk of violence and delinquency, comprehensive family interventions that incorporate parent training, family functioning, and management of external demands have been found to be effective. Perhaps the most widely-cited and well-evaluated program of this type is Multisystemic Family Therapy. This family-based intervention targets family risk factors for adolescent antisocial

behavior including low levels of parent monitoring, poor discipline practices, association with antisocial peers, and poor school performance. In addition to improving parents' abilities to address these risk factors, Multisystemic Family Therapy also addresses barriers to family empowerment and effective functioning within the family ecology (Henggeler, Schoenwald, Borduin, Rowland, & Cunningham, 1998).

Proximal social context interventions focus on changing the system-level or organizational influences on behavior rather than changing individuals or close interpersonal relationships directly. For example, although individual-level social-cognitive programs often are implemented in school or community settings, the primary focus is on changing the individual. The social settings most frequently targeted for change in programs to prevent childhood aggression are the classroom and the school. The most common types of classroom and school interventions are efforts to establish appropriate norms and expectations for classroom behavior and classroom or instructional management programs emphasizing effective teacher practices (Wilson et al., 2001). School-wide interventions emphasize different strategies including coordinated school-level planning and development (Cook, Murphy, & Hunt, 2000), creation of caring communities and enhancing school climate (Battistich, Schaps, Watson, & Soloman, 1996), and strengthening teacher instructional practices (Metropolitan Area Child Study Research Group, 2002).

An example of a school-wide approach that has gained considerable popularity in recent years is the Olweus Bullying Prevention Program (Olweus, 1993; Olweus, Limber, & Mihalic, 1999). This is a universal intervention engaging all adults and students to create a normative climate and set standards against bullying. The intervention does not

include a curriculum or specific lessons but rather emphasizes the formation of a bullying prevention coordinating committee, increased supervision of locations where bullying is most likely to occur, class meetings and the enforcement of class rules, and targeted strategies for working with bullies and victims. The overarching goal of this program is to change the normative context in order to discourage bullying and victimization. Although this program has shown effectiveness internationally (Olweus, 1993; Olweus et al., 1999), there is limited support for its success across schools in the U.S. It has been suggested that school-based prevention focused on changing the social context may need to carefully consider the combinations or sequences of programs and strategies that work best in order to design comprehensive packages of prevention strategies (Wilson et al., 2001). In other words, the complexity of risk suggests that a more comprehensive approach crossing multiple domains may have more powerful effects.

4. Should we integrate programming across multiple contexts of development so that several risk factors are addressed simultaneously and anti-violence socialization mechanisms are consistent over time and across settings?

Throughout this chapter we have highlighted the multi-component, multi-context nature of risk for childhood aggression. The convergence of risk factors across domains and contexts points to the need for multi-component, multi-context interventions. A significant advance since the early 1990s has been the development and evaluation of various combined approaches, often assessed by testing the relative efficacy of components alone or in various combinations.

For example, the MACS intervention compared a classroom enhancement program for all students (Level A) with the classroom program plus a small group peer

skills program (Level B), with the classroom plus small group plus family intervention (Level C). The research question was whether the extension in context (including peers and families) resulted in greater preventive effects that, in turn, warranted the additional costs involved. As discussed previously, for the moderately disadvantaged urban children participating in the intervention, only the combined condition (Level C) was effective in preventing aggression and only for the younger elementary school children. However, in the most distressed inner-city communities, even the most comprehensive and multi-context program was not found effective in preventing aggression. It may be that the community context of scarce resources, residential mobility, and high levels of violence simply overwhelmed any potential effects from the intervention (given that the intervention did not address these community factors).

A number of other studies have added components to expand contexts impacted beyond individuals. For example, the Coping Power Program developed by Lochman and colleagues targeted an array of social-cognitive problem solving skills in aggressive 4th and 5th grade boys (Lochman & Wells, 2004). An enhanced version of the program that also included 16 parent group sessions providing behavioral parent management training was more effective than the child program alone or a control (Lochman & Wells, 2004). Similar benefits from adding a parent component to social-cognitive/social skills program have been found in other studies (Kazdin, 2003; Tremblay et al., 1995b).

However, in some cases, multi-context interventions can have paradoxical effects, particularly when the peer context is addressed. For instance, Dishion and Andrews (1995) found that adding a peer intervention to a family program actually undermined the effects of the family intervention. This is consistent with the MACS findings wherein

students in the classroom plus small group intervention evidenced iatrogenic effects. In sum, the evidence suggests that the most effective combination is individual social-cognitive/social skills and family interventions. However, there is clearly a need for continued evaluation of multi-component, multi-context prevention programs. As Weissberg, Kumpfer, and Seligman (2003) note, "One of the field's highest priorities and payoffs will come from systematically evaluating multiyear, multicomponent programs that target multiple social and health outcomes" (p. 430).

V. Translating Research to Practice: Building an Evidence Base

A. Evidence-based Programs and Principles

As we mentioned at the outset of this chapter, one of the most significant developments in the field of prevention science since the 1990s has been the recognition of the value of research-based preventive interventions and the importance of identifying and disseminating such empirically-supported programs. In order to accomplish this goal there has been considerable dialogue about the appropriate consensus standards for identifying programs worthy of adoption, a push to create readily accessible registries of efforts, and the development of a new infrastructure of organizations specifically tasked with translating research into practice (Biglan, Mrazek, Carnine, & Flay, 2003).

Most of the translational work in the field of childhood aggression and youth violence has emphasized the identification of empirically-supported interventions based on standards set by panels or study groups. One of the most well-known efforts is the Blueprints project at the Center for the Study and Prevention of Violence at the University of Colorado (Elliott & Mihalic, 2004). Using a rigorous standard of evidence (e.g., strong research design, sustained effects, multi-site replication), the center has

reviewed over 600 aggression and violence prevention programs, identifying 10 original "Blueprint" programs, although one was subsequently dropped and two were added (for a current total of 11 programs). These programs include several interventions discussed in this chapter—the Olweus Bullying Prevention Program, Multisystemic Family Therapy, Functional Family Therapy, Nurse-Home Visitation, Life Skills Training, The Incredible Years, and Promoting Alternative Thinking Strategies. The center has also identified 18 promising programs with good scientific evidence. The central premise of this evidence-based approach is that programs must be implemented with strict fidelity to the model as designed and evaluated.

However, in practice there are many barriers to broad or consistent implementation of evidence-based programs, a point we will return to shortly. A parallel development in translational research has been a "common factor" approach based on evidence-based principles (Tashiro & Mortensen, 2006). Common factors approaches emphasize the specific elements or components of interventions that are most effective. For example, Nation et al. (2003) identified nine characteristics or principles of effective prevention for youth problem behaviors including opportunities for positive relationships, sociocultural relevance, and well-trained staff. These characteristics address both the program emphasis (for instance, on positive relationships) as well as important implementation characteristics (for instance, well-trained staff). Although proponents of the evidence-based model programs and common factors approach do not always agree, there is agreement that dissemination and implementation concerns merit focused attention (Biglan et al., 2003).

B. Dissemination and Implementation

The science behind evidence-based programs does not automatically guarantee that they will be adopted in different settings and improve outcomes under all conditions. In practice, although policy shifts have favored evidence-based programs (and often state this as a requirement for funding), selection and careful implementation of evidence-based programs is the exception rather than the rule (Backer, 2000). In part, this is due to limitations in dissemination—many programs are not manualized or packaged to allow for easy distribution and adoption (although the intent of projects such as Blueprints is to provide careful guidelines for implementation). In some cases, widespread dissemination becomes a business enterprise, with program costs exceeding many agency and school budgets. Very little research has been conducted to understand the process of program adoption, that is, how educators and other service providers make decisions to select, use, adapt, or combine specific evidence-based programs (Greenberg et al., 2003). Difficulties with dissemination also extend to efforts to infuse evidence-based strategies in agencies and systems. It is often the case that certain strategies become popularized at the expense of others and that a culture emerges supporting these strategies (which are sometimes misunderstood). The research on essential core components or effective strategies has lagged behind the documentation of evidence-based programs.

It is also the case that evidence-based programs and strategies will not improve outcomes unless they are implemented properly. Although a clear premise of an evidence-based approach is to implement a program with fidelity (including fidelity in adhering to program principles), in practice, this has proven difficult for several reasons. Programs that have proven efficacious tend to be costly and demanding of both staff and participant engagement; however, few studies have examined the minimum intensity

needed to produce meaningful change, assuming that a program will be implemented with fidelity in its entirety. Although fidelity is a worthwhile goal, in practice it is also likely that some modifications will be needed in order to adapt a program to local cultural conditions, resources, and needs. If practitioners do not see the relevance of a given intervention to a particular setting, they are unlikely to implement the program as planned. Furthermore, only recently are evaluations emphasizing program costs and providing cost-benefit analyses of program impact that can impact both adoption and sustainability. It is typically the case that aggression prevention programs are designed and evaluated without consideration of whether they are low cost and sustainable within youth-serving systems, suggesting a need for greater dialogue and coordination among researchers and practitioners.

C. Linking Prevention with Positive Youth Development

Another issue related to dissemination and implementation is how to coordinate prevention efforts within a given setting and connect them with positive youth development activities. Although a focus on risk factors has dominated the field of prevention of aggression and other problem behaviors since the 1980s, there has been a subsequent backlash generated by the negative connotations of risk models and their role in encouraging a deficit-oriented, problem-centered vision of youth (Damon, 2004). This has resulted in support for a positive youth development approach that focuses on building strengths and assets for all youth rather than correcting deficiencies in identified youth (Eccles & Gootman, 2002).

Rather than pitting a risk strategy against a positive youth development strategy, a number of prevention researchers have called for a synthesis of prevention and promotion

approaches (Weissberg et al., 2003; Guerra & Bradshaw, in press). Many of the risk factors for childhood aggression as well as the protective factors that prevent aggression can be recast as core competencies and supports for success that, when absent, lead to problem behaviors. In other words, positive outcomes can protect youth from adversity and support healthy development and success (Cichhetti, Rappaport, Sandler, & Weissberg, 2000).

VI. Conclusion

As we have illustrated throughout this chapter, a number of important advances in the understanding and prevention of childhood aggression have emerged since the 1980s. Several major shifts are worth highlighting. First, our understanding of the causes of aggression has shifted from general theories of aggression that emphasized nature versus nurture to integrated theories of development that emphasize the multiple predictors of aggression and how they interact across contexts and over time from conception onward. Rather than contrast nature versus nurture, the focus has shifted to the complex interplay between innate and learned contributions to aggression. From a developmental perspective, the child is seen as possessing certain individual propensities and temperamental risk that can escalate or decrease over time as a function of contextual influences and how they unfold. This individual risk is evident from an early age and certainly by elementary school when characteristics patterns of aggression emerge. Not only can contextual risk exacerbate the effects of individual risk, for instance the interaction of difficult child temperament and ineffective parenting, but environmental contingencies also determine the adaptive value of aggression in a given setting. An

important conclusion is that prevention should begin early in development when behavior is more malleable.

Second, there has been an increasing emphasis on the child's emerging pattern of social cognition. As we have seen, how a child interprets and understands his or her social world can impact patterns of responding, including aggression. Aggressive children are more likely than their less aggressive peers to overattribute hostile intent to others under ambiguous circumstances, generate aggressive solutions, perceive the consequences of aggression to be more positive and less negative, endorse the legitimacy of aggression as a response, and develop aggressive scripts that render this behavior more automatic under commonplace circumstances. Fortunately, these social-cognitive patterns are quite amenable to modification through intervention. Indeed, cognitive-behavioral programs that emphasize the link between social cognition and aggression have proven to be among the most effective preventive interventions (Guerra & Huesmann, 2004).

Third, developments in the field of prevention science have highlighted the importance of randomized controlled trials as opportunities to test developmental theories and to develop an evidence-base of effective programs. These trials have increasingly been used to test multi-component, multi-context interventions that address the complex nature of risk. As we have pointed out, many of the challenges and areas where new developments in understanding and preventing aggression are likely to occur will most likely be informed by advances in prevention science. Of particular importance is the need to specify more carefully the specific mediators of prevention outcomes in order to best identify critical program components or principles. Another concern is the conditions under which prevention is most effective. As we illustrated in our discussion of the

MACS intervention study, important moderators such as community resources can also render programs more or less effective under different conditions. Finally, the challenge remains to understand the implementation conditions that must be met for programs to improve outcomes, including the need to align prevention programming with school and community-wide efforts to enhance positive youth development.

References

Aber, J. L., Brown, J. L., & Henrich, C. C. (1999). *Teaching conflict resolution: An effective school-based approach to violence prevention.* New York: National Center for Children in Poverty.

Adler, P. A., & Adler, P. (1998). *Peer power: Preadolescent culture and identity.* New York: Rutgers University Press.

Anderson, C. A., & Bushman, B. J. (2002). Human aggression. *Annual review of psychology, 53,* 27-51.

APA Presidential Task Force on Evidence-Based Practice. (2006). Evidence-based practice in psychology. *American Psychologist, 61,* 271-285.

Arbuthnot, J., & Gordon, D. A. (1986). Behavioral and cognitive effects of a moral reasoning development intervention for high-risk behavior-disordered adolescents. *Journal of Consulting and Clinical Psychology, 54,* 208-216.

Arsenault, L., Moffitt, T. E., Caspi, A., Taylor, A., Rijsdijk, F. V., Jaffee, S. R., Ablow, J. C., & Measelle, J. R. (2003). Strong genetic effects on cross-situational antisocial behavior among 5-year-old children according to mothers, teachers, examiner-observers, and twins' self reports. *Journal of Child Psychology & Psychiatry, 44,* 832-848.

Arum, R., & Beattie, I. (1999). High school experience and the risk of adult incarceration. *Criminology, 37,* 515–537.

Attar, B., Guerra, N. G., & Tolan, P. (1994). Neighborhood disadvantage, stressful life

    events, and adjustment in elementary school children. *Journal of Clinical Child*

    Psychology, 23, 394-400.

Backer, T. E. (2000). The failure of success: Challenges of disseminating effective

    substance abuse prevention programs. *Journal of Community Psychology*, 28,

    363-373.

Bandura, A. (1973). *Aggression: A social learning analysis.* Englewood Cliffs, NJ:

    Prentice-Hall.

Bandura, A. (1986). *Social foundations of thought and action: A social-cognitive theory*.

    Englewood-Cliffs, NJ: Prentice-Hall.

Bates, J. E., & Bayles, K. (1988). Attachment and the development of behavior problems.

    In J. Belsky & T. Nezworski (Eds.), *Clinical implications of attachment* (pp. 253-

    299). Hillsdale, NJ: Erlbaum.

Bates, J. E., Bayles, K., Bennett, D. S., Ridge, B., & Brown, M. M. (1991). Origins of

    externalizing behavior problems at eight years of age. In D. Pepler & K. Rubin

    (Eds.), *Development and treatment of childhood aggression* (pp. 93-120).

    Hillsdale, NJ: Erlbaum.

Bates, J. E., Pettit, G. S., Dodge, K. A., & Ridge, B. (1998). Interaction of temperamental

    resistance to control and restrictive parenting in the development of externalizing

    behavior. *Developmental Psychology, 34,* 982-995.

Battistich, V., Schaps, E., Watson, M., & Solomon, D. (1996). Prevention effects of the

    Child Development Project: Early findings from an ongoing multi-site

    demonstration trial. *Journal of Adolescent Research, 11,* 12-25.

Baumeister, R. F., Smart, L., & Boden, J. M. (1996). Relation of threatened egotism to

    violence and aggression: The dark side of self esteem. *Psychological Review, 103,*

    5-33.

Besevegis, E., & Lore, R. (1983). Effects of an adult's presence on the social behavior of

    preschool children. *Aggressive Behavior, 9,* 243-252.

Bierman, K. L., Smoot, D. L., & Aumiller, K. (1993). Characteristics of aggressive-

    rejected, aggressive-nonrejected, and rejected-nonaggressive boys. *Child*

    Development, 64, 139-151.

Biglan, A., Mrazek, P. J., Carnine, D., & Flay, B. (2003). The integration of research and

    practice in the prevention of youth problem behaviors. *American Psychologist,*

    58, 433-440.

Botvin, G. J., Griffin, K. W., & Nichols, T. R. (2006). Preventing youth violence and

    delinquency through a universal school-based prevention approach. *Prevention*

    Science, 7, 403-408.

Botvin, G. J., Mihalic, S. F., & Grotpeter, J. K. (1998). *Blueprints for violence*

    prevention: Book five: Life skills training. Boulder, CO: Center for the Study and

    Prevention of Violence.

Bousha, D. M., & Twentyman, C. T. (1984). Mother-child interactional style in abuse,

 neglect, and control groups: Naturalistic observations in the home. *Journal of*

 Abnormal Psychology, 93, 106-114.

Boxer, P., Guerra, N. G., Huesmann, L .R., & Morales, J. (2005). Proximal effects of a

 small-group selected prevention program on aggression in elementary school

 children: An investigation of the peer contagion hypothesis. *Journal of Abnormal*

 Child Psychology, 33, 325-338.

Bradley, R. H., & Corwyn, R. F. (2002). Socioeconomic status and child development.

 Annual Review of Psychology, 53, 371-399.

Bronfenbrenner, U. (1979). *The ecology of human development: Experiments by nature*

 and design. Cambridge, MA: Harvard University Press.

Buss, D. M., & Shackelford, T. K. (1997). Human aggression in evolutionary

 psychological perspective. *Clinical Psychology Review, 17,* 605-619.

Bukowski, W. M., Sippola, L. K., & Newcomb, A. F. (2000). Variations in patterns of

 attraction to same- and other-sex peers during adolescence. *Developmental*

 Psychology, 36, 147-154.

Campbell, A. (1993). *Men, women, and aggression.* New York: Basic Books.

Caplan, M., Vespo, J. E., Pedersen, J., & Hay, D. F. (1991). Conflict over resources in

 small groups of 1- and 2-year-olds. *Child Development, 62,* 1513-1524.

Caspi, A., McClay, J., Moffitt, T. E., Mill, J., Martin, J., Craig, I. W., Taylor, A., & Poulton, R. (2002). Role of genotype in the cycle of violence in maltreated children. *Science, 297,* 851-854.

Center for the Study and Prevention of Violence, *Blueprints for Violence Prevention.* Retrieved July 10, 2007 from http:/www.colorado.edu/cspv/blueprints/index.htm.

Chaiken, M. R. (1998). Tailoring established after-school programs to meet urban realities. In D. S. Elliott, B. A., Hamburg, & K. R. Williams (Eds.), *Violence in American Schools: A new perspective* (pp. 348-375). New York: Cambridge University Press.

Cicchetti, D., & Carlson, V. (1989) (Eds.). *Child maltreatment: Theory and research on the causes and consequences of child abuse and neglect.* New York: Cambridge University Press.

Cicchetti, D., Rappaport, J., Sandler, I. N., & Weissberg, R. P. (Eds.) (2000). *The promotion of wellness in children and adolescents.* Washington, DC: Child Welfare League of America Press.

Coie, J. D., & Dodge, K. A. (1998). Aggression and antisocial behavior. In N. Eisenberg (Ed.), *Handbook of child psychology* (pp. 779-862). New York: Wiley.

Coie, J. D., & Kupersmidt, J. (1983). A behavioral analysis of emerging social status in boys' groups. *Child Development, 54,* 1400-1416.

Conduct Problems Prevention Research Group. (2002). Evaluation of the first three years of the Fast Track Prevention Trial with children at high risk for adolescent conduct problems. *Journal of Abnormal Child Psychology, 30,* 19-35.

Cook, T. D., Murphy, R. F., & Hunt, H. D. (2000). Comer's School Development Program in Chicago: A theory-based evaluation. *American Educational Research, 37,* 535-597.

Crick, N. R., & Dodge, K. A. (1994). A review and reformulation of social information-processing mechanisms in children's social adjustment. *Psychological Bulletin, 115,* 74-101.

Crick, N. R., & Grotpeter, J. K. (1996). Children's treatment by peers: Victims of relational and overt aggression. *Development and Psychopathology, 8,* 367-380.

Dahlberg, L. L. (1998). Youth violence in the United States: Major trends, risk factors, and prevention approaches. *American Journal of Preventive Medicine, 14*, 259-272.

Damon, W. (2004). What is positive youth development? *Annals, AAPSS, 591,* 13-24.

De Quervain, D. J. F., Fischbacher, U., Treyer, V., Schellhammer, M., Schnyder, U., Buck, A., & Fehr, E. (2004). The neural basis of altruistic punishment. *Science, 305,* 1254-1258,

Derzon, J. H., Wilson, S. J., & Cunningham, C. A. (1999). *The effectiveness of school-based interventions for preventing and reducing violence.* Final Report, Center for Evaluation Research and Methodology, Vanderbilt University.

deWaal, F. (1999). The end of nature versus nurture. *Scientific American,* pp. 94-99.

Dill, K. E., Anderson, C. A., Anderson, K. B., & Deuser, W. E. (1997). Effects of aggressive personality on social expectations and social perceptions. *Journal of Research in Personality, 31,* 272-292.

Dishion, T., J., & Andrews, D. W. (1995). Parenting escalation in problem behaviors with high-risk young adolescents: Immediate and 1-year outcomes. *Journal of Consulting and Clinical Psychology, 63,* 538-548.

Dodge, K. A. (1986). A social information processing model of social competence in children. In M. Perlmutter (Ed.), *The Minnesota symposium on child psychology* (pp. 77-1125). Hillsdale, NJ: Erlbaum.

Dodge, K. A., & Coie, J. D. (1987). Social information-processing factors in reactive and proactive aggression in children's peer groups. *Journal of Personality and Social Psychology, 53,* 1146-1158.

Dodge, K. A., Coie, J. D., & Lynam, D. (2006a). Aggression and antisocial behavior in youth. In W. Damon (Ed) & N. Eisenberg (Vol. Ed.), *Handbook of child psychology: Vol 3, Social, emotional, and personality development (6th ed.)* (pp. 719-788). Hoboken, NJ: Wiley.

Dodge, K. A, Coie, J. D., Pettit, G. S., & Price, J. M. (1990). Peer status and aggression in boys' groups: Developmental and contextual analysis. *Child Development, 61,* 1289-1309.

Dodge, K. A., Dishion, T. J., & Lansford, J. E. (Eds.), (2006b). *Deviant peer influences in programs for youth.* New York: Guilford.

Dodge, K. A., Lansford, J. E., Burks, V. S., Bates, J. E., Pettit, G. S., Fontaine, R., & Price, J. M. (2003). Peer rejection and social information-processing factors in the development of aggressive behavior problems in children. *Child Development, 74,* 374-393.

Dodge, K. A., & Pettit, G. S. (2003). A biopsychosocial model of the development of chronic conduct problems in adolescence. *Developmental Psychology, 39,* 349-371.

Dodge, K. A., Pettit, G. S., McClaskey, C. L., & Brown, M. M. (1986). Social competence in children. *Monographs of the Society for Research in Child Development, 51*(2, Serial No. 213).

Dollard, J., Doob, L. W., Miller, N. E., Mowrer, O. H., & Sears, R. R. (1939). *Frustration and aggression.* New Haven: Yale University Press.

Dryfoos, J. (1990). *Adolescents at risk: Prevalence and prevention.* New York: Oxford University Press.

Eargle, A., Guerra, N. G., & Tolan, P. H. (1994). Small-group treatment for children living in high violence neighborhoods. *Journal of Child and Adolescent Group Therapy, 4,* 229-243.

Eccles, J., & Gootman, J. (Eds.). (2002). *Community programs to promote youth development.* Washington, DC: National Academy Press.

Elliott, D. S., & Mihalic, S. (2004). Issues in disseminating and replicating effective prevention programs. *Prevention Science*, *5*, 47-52.

Eron, L. D. (1987). The development of aggressive behavior from the perspective of a developing behaviorism. *American Psychologist, 42,* 435-442.

Espelage, D. L., Holt, M. K., & Henkel, R. R. (2003). Examination of peer-group contextual effects on aggression during early adolescence. *Child Development, 74,* 205-220.

Fagan, J., & Wilkinson, D. L. (1998). The social contexts and functions of adolescent violence. In D. S. Elliott, B. A. Hamburg, & K. R. Williams (Eds.). *Violence in American schools* (pp. 55-93). New York: Cambridge University Press.

Farmer, T. W., & Rodkin, P. C. (1996). Antisocial and prosocial correlates of social positions: The social network centrality perspective. *Social Development, 5,* 174-188.

Farrington, D. P. (1991). Childhood aggression and adult violence: Early precursors and later life outcomes. In D. Pepler & K. Rubin (Eds.), *The development and treatment of childhood aggression* (pp. 5-29). Hillsdale, NJ: Erlbaum.

Fox, N. A., Nichols, K. E., Henderson, H. A., Rubin, K., Schmidt, L., Hamer, D., Ernst, M., & Pine, D. S. (2005). Evidence for a gene-environment interaction in predicting behavioral inhibition in middle childhood. *Psychological Science, 16,* 921-926.

Fraser, M. W. (1996). Aggressive behavior in childhood and early adolescence: An ecological-developmental perspective on youth violence. *Social Work, 41*, 347-361.

Galen, B. R., & Underwood, M. K. (1997). A developmental investigation of social aggression among children. *Developmental Psychology, 33,* 589-600.

Gershoff, E. T. (2002). Corporal punishment by parents and associated child behaviors and experiences: A meta-analytic and theoretical review. *Psychological Bulletin, 128*, 539-579.

Goldstein, A. P. (2004). Evaluations of effectiveness. In A. P. Goldstein, R. Nensen, B. Daleflod, & M. Kalt (Eds.), *New perspectives on aggression replacement training* (pp. 230-244). Chichester: John Wiley & Sons.

Graham, S., & Hudley, C. (1993). An attributional intervention to reduce peer-directed aggression among African-American boys. *Child Development, 64,* 124-138.

Graham, S., & Hudley, C. (1994). Attributions of aggressive and nonaggressive African-American male early adolescents: A study of construct accessibility. *Developmental Psychology, 30*, 365-373.

Greenberg, M. T., Kusche, C., & Mihalic, S. F. (1998). *Blueprints for violence prevention: Book ten: Promoting alternative thinking strategies (PATHS).* Boulder, CO: Center for the Study and Prevention of Violence.

Greenberg, M., Weissberg, R., O'Brien, M., Zins, J. E., Fredericks, L., Resnick, H., & Elias, M. J. (2003). Enhancing school-based prevention and youth development through coordinated social, emotional, and academic learning. *American Psychologist, 58,* 466-474.

Grossman, D. C., Neckerman, H. J., Koepsell, T. D., Liu, P. Y., Asher, K. N., Beland, K., & Rivara, F. (1997). Effectiveness of a violence prevention curriculum among children in elementary school: A randomized controlled trial. *Journal of the American Medical Association, 277,* 1605–1611.

Guerra, N. G. (1998). Intervening to prevent childhood aggression in the inner city. In J. McCord (Ed.), *Children at risk: Growing up in the inner city* (pp. 256-312). New York: Cambridge University Press.

Guerra, N. G., & Bradshaw, C. (Eds.) (in press). Core competencies to prevent problem behaviors and promote positive youth development. *New Directions in Child and Adolescent Development.*

Guerra, N. G., & Huesmann, L. R. (2004). A cognitive-ecological model of aggression. *Revue Internationale de Psychologie Sociale, 17*, 177-203.

Guerra, N. G., & Knox, L. (2002). Violence. *Encyclopedia of Crime and Justice* (pp. 1649-1655). New York: MacMillan.

Guerra, N. G., & Phillips-Smith, E. (Eds.) (2005). *Preventing youth violence in a multicultural society.* Washington, DC: American Psychological Association Press.

Guerra, N. G., & Slaby, R. G. (1990). Cognitive mediators of aggression in adolescent offenders: II. Intervention. *Developmental Psychology, 26*, 269-277.

Guerra, N. G., Boxer, P. & Cook, C. (2006). What works (and what does not) in preventing youth violence. Special issue, *New Directions in Evaluation Research, 110,* 59-72.

Guerra, N. G., Huesmann, L. R., & Spindler, A. (2003). Community violence exposure, social cognition, and aggression among urban elementary-school children. *Child Development, 74,* 1507-1522.

Guerra, N. G., Kim, T., & Boxer, P. (in press). What works: Best practices with juvenile offenders. In R. Hoge, N. G. Guerra, & P. Boxer (Eds.). *The juvenile offender: Treatment approaches.* New York: Guilford Press.

Guerra, N. G., Eron, L. D., Huesmann, L. R., Tolan, P. H., & VanAcker, R. (1997). A cognitive-ecological approach to the prevention and mitigation of violence and

aggression in inner-city youth. In P. Fry & K. Bjorkqvist (Eds.), *Cultural variation in conflict resolution: Alternatives for reducing violence* (pp.199-213). New York: Polonium.

Guerra, N. G., Tolan, P. H., Huesmann, L. R., VanAcker, R., Eron, L. D., & Henry, D. (1993). *Prevention of antisocial behavior in inner city and urban youth.* (National Institute of Mental Health Research Grant No. MH-48034).

Hawkins, J. D., Catalano, R. F., Kosterman, R., Abbott, R., & Hill, K. G. (1999). Preventing adolescent health-risk behaviors by strengthening protection during childhood. *Archives of Pediatrics and Adolescent Medicine, 153,* 226-324.

Hawley, P. H. (1999). The ontogenesis of social dominance: A strategy-based evolutionary perspective. *Developmental Review, 19,* 97-132.

Hawley, P. H. (2003). Strategies of control, aggression, and morality in preschoolers: An evolutionary perspective. *Journal of Experimental Child Psychology, 85,* 213-235.

Henggeler, S. W., Schoenwald, S. K., Borduin, C. M., Rowland, M. D., & Cunningham, P. B. (1998). *Multisystemic treatment of antisocial behavior in children and adolescents.* New York: Guilford Press.

Henry, D., Guerra, N. G., Huesmann, L. R., Tolan, P., VanAcker, R., & Eron, L. D. (2000). Normative influences on aggression in urban elementary school classrooms. *American Journal of Community Psychology, 28,* 59-81.

Herschell, A., Calzada, E., Eyberg, S., & McNeil, C. B. (2002). Parent-child interaction

therapy: New directions in research. *Cognitive and Behavioral Practice, 9,* 9-15.

Hobbes, T. (1651/1958). *Leviathan*. Indianapolis, IN: Liberal Arts Press.

Hoffman, M. L. (1983). Affective and cognitive processes in moral internalization. In E.

T. Higgins, D. N. Ruble, & W. W. Hartup (Eds.), *Social cognition and social

development* (pp. 236-274). New York: Cambridge University Press.

Huesmann, L. R. (1998). The role of social information processing and cognitive schema

in the acquisition and maintenance of habitual aggressive behavior. In R. Geen &

E. Donnerstein (Eds.), *Human aggression* (pp. 73-109). San Diego, CA:

Academic Press.

Huesmann, L. R., & Guerra, N. G. (1997). Social norms and children's aggressive

behavior. *Journal of Personality and Social Psychology, 72*, 408-419.

Humphreys, A. P., & Smith, P. K. (1987). Rough and tumble, friendship, and dominance

in school children: Evidence for continuity and change with age. *Child

Development, 38,* 201-212.

Jaffee, S. R., Caspi, A., Moffitt, T. E., Dodge, K. A., Rutter, M. & Taylor, A. (2005).

Nature x nature: Genetic vulnerabilities interact with physical maltreatment to

promote conduct problems. *Development and Psychopathology, 17*, 67-84.

Jessor, R. (1994). Problem-behavior theory and the life course in adolescence:

Epistemology in action. *Mind and Medicine, 8,* 57-68.

Jessor, R. (2007). Personal communication.

Jessor, R., Donovan, J. E., & Costa, F. M. (1993). Problem behavior theory and young

adulthood: Beyond methodological orthodoxy. *Contemporary Psychology, 38,*

898-900.

Kazdin, A. (2003). Psychotherapy for children and adolescents. *Annual Review of*

Psychology, 54, 253-276.

Kellam, S. G., Rebok, G. W., Ialongo, N., & Mayer, L. S. (1994). The course and

malleability of aggressive behavior from early first grade into middle school:

Results of a developmental epidemiologically-based preventive trial. *Journal of*

Child Psychology and Psychiatry and Allied Disciplines, 35, 259-281.

Kerckhoff, A. C. (1988). Effects of ability and grouping in British secondary schools.

American Sociological Review, 51, 842–858.

Kerns, S. E. U., & Prinz, R. J. (2002). Critical issues in the prevention of violence-related

behavior in youth. *Clinical Child and Family Psychology Review, 5,* 133-160.

Klimes-Dougan, B., & Kopp, C. B. (1999). Children's conflict tactics with mothers: A

longitudinal investigation of the toddler and preschool years. *Merrill-Palmer*

Quarterly, 45, 226-241.

Kupersmidt, J. B., & Patterson, C. J. (1991). Childhood peer rejection, aggression,

withdrawal, and perceived competence as predictors of self-reported behavior

problems in preadolescence. *Journal of Abnormal Child Psychology, 19*, 427-449.

Lancelotta, G. X., & Vaughn, S. (1989). Relation between types of aggression and

    sociometric status: Peer and teacher perceptions. *Journal of Educational*

    Psychology, 81, 86-90.

Lipsey, M. W., & Wilson, D. (1998). Effective intervention for serious offenders: A

    synthesis of research. In R. Loeber & D. Farrington (Eds.), *Serious and violent*

    juvenile offenders, (pp. 313-345). Thousand Oaks, CA: Sage.

Little, T., Brauner, J., Jones, S., Nock, M., & Hawley, P. (2003). Rethinking aggression:

    A typological examination of the functions of aggression. *Merrill-Palmer*

    Quarterly, 49, 343-369.

Lochman, J. E., Burch, P. R., Curry, J. F., & Lampron, L. B. (1984). Treatment and

    generalization effects of cognitive-behavioral and goal-setting interventions with

    aggressive boys. *Journal of Consulting and Clinical Psychology, 52,* 915-916.

Lochman, J. E., & Wells, K. C. (2004). The coping power program for preadolescent

    aggressive boys and their parents: Outcome effects at the 1-year follow-up.

    Journal of Consulting and Clinical Psychology, 72, 571-578.

Loeber, R., & Stouthamer-Loeber, M. (1986). Family factors as correlates and predictors

    of juvenile conduct problems and delinquency. In T. M. Morris (Ed.), *Crime and*

    justice: An annual review of research (Vol. 7, pp. 29-149). Chicago: University of

    Chicago Press.

Lorenz, K. (1966). *On aggression.* New York: Harcourt.

Luntz, B. K., & Widom, C. S. (1994). Antisocial personality disorders in abused and

    neglected children grown up. *American Journal of Psychiatry, 151*, 670-674

Luthar, S. S., & McMahon, T. J. (1996). Peer reputation among inner-city adolescents:

    Structure and correlates. *Journal of Research on Adolescence, 6,* 581-603.

Malamuth, N. M., & Heilmann, M. F. (1998). Evolutionary psychology and sexual

    aggression. In C. H. Crawford & D. L. Krebs (Eds.), *Handbook of evolutionary*

    psychology (pp. 515-542). Hillsdale, NJ: Erlbaum.

McDonald, L., & Frey, H. E. (1999). *Families and schools together: Building*

    relationships. OJJDP Bulletin. Washington, DC: U.S. Department of Justice,

    Office of Justice Programs, Office of Juvenile Justice and Delinquency

    Prevention.

McLoyd, V. (1990). The impact of economic hardship on black families and children:

    Psychological distress, parenting, and socioemotional development. *Child*

    Development, 61, 311-346.

McMahon, S. D., & Washburn, J. (2003). Violence prevention: An evaluation of program

    effects with urban African-American students. *The Journal of Primary*

    Prevention, 24, 43–62.

Metropolitan Area Child Study Research Group. (2002). A cognitive-ecological approach

    to preventing aggression in urban settings: Initial outcomes for high-risk children.

    Journal of Consulting and Clinical Psychology, 70, 179-194.

Miller, J. D., & Lynam, D. R. (2001). Structural models of personality and their relation to antisocial behavior: A meta-analytic review. *Criminology, 39*, 765-792.

Moffitt, T. E., (2003). Life-course persistent and adolescence-limited antisocial behavior: A 10-year research review and a research agenda. In B. Lahey, T. E. Moffitt, & A. Caspi (Eds.), *The causes of conduct disorder and serious juvenile delinquency* (pp. 49-75). New York: Guilford.

Morales, J., & Guerra, N. G. (2006). Effects of multiple context and cumulative stress on urban children's adjustment in elementary school. *Child Development, 77,* 907-923.

Mrazek, P. J., & Haggerty, R. J. (Eds.). (1994). *Reducing risks for mental disorders: Frontiers for preventive intervention research.* Washington, DC: National Academy Press.

Mungas, D. (1983). An empirical analysis of specific syndromes of violent behavior. *Journal of Nervous and Mental Diseases, 171,* 354-361.

Nation, M., Crusto, C., Wandersman, A., Kumpfer, K. L., Seybolt, D., Morrissey-Kane, E., & Davino, K. (2003). What works in prevention: Principles of effective prevention. *American Psychologist, 58,* 449-456.

O'Connor, T. G., McGuire, S., Reiss, D., Hetherington, E., & Plomin, R. (1998). Co-occurrence of depressive symptoms and antisocial behavior in adolescence: A common genetic liability. *Journal of Abnormal Psychology, 107, 27-37.*

Olds, D. L., Hill, P. L., Mihalic, S. F., & O'Brien, R. A. (1998). *Blueprints for violence prevention: Book seven: Prenatal and infancy home visitation by nurses.* Boulder, CO: Center for the Study and Prevention of Violence.

Olweus, D. (1993). *Bullying at school: What we know and what we can do.* Oxford, UK: Blackwell Publishers.

Olweus, D., Limber, S., & Mihalic, S. F. (1999). *Blueprints for violence prevention: Book Nine: Bullying Prevention Program.* Boulder, CO: Center for the Study and Prevention of Violence.

Olweus, D., Mattson, A., & Low, H. (1988). Circulating testosterone levels and aggression in adolescent males: A causal analysis. *Psychosomatic Medicine, 50,* 261-272.

Patterson, G. R. (1982). *Coercive family process*. Eugene, OR: Castalia Press.

Patterson, G. R. (2002). The early development of coercive family processes. In J. B. Reid, G. R. Patterson, & J. Snyder (Eds.), *Antisocial behavior in children and adolescents* (pp. 25-44). Washington, DC: American Psychological Association.

Patterson, G. R., Reid, J. B., & Dishion, T. J. (1992). *Antisocial boys: A social interactional approach (Vol. 4.)*. Eugene, OR: Castalia.

Peetsma, T., Vergeer, M., Roeleveld, J., & Karsten, S. (2001). Inclusion in education: comparing pupils' development in special and regular education. *Educational Review, 53,* 125–135.

Perry, D. G., Perry, L. C., & Rasmussen, P. (1986). Cognitive social learning mediators of aggression. *Child Development, 57*, 700-711.

Pettit, G. S., Laird, R. D., Dodge, K. A., Bates, J. E., & Criss, M. M. (2001). Antecedents and behavior-problem outcomes of parental monitoring and psychological control in early adolescence. *Child Development, 72*, 583-598.

Prinstein, M. J., & Cillessen, A. H. N. (2003). Forms and functions of adolescent peer aggression associated with high levels of peer status. *Merrill-Palmer Quarterly, 49,* 310-342.

Rodkin, P. C., Farmer, T. W., Pearl, R., & VanAcker, R. (2000). Heterogeneity of popular boys: Antisocial and prosocial configurations. *Developmental Psychology, 36,* 14-24.

Rousseau, J. J. (1762/1979). *Émile.* New York: Basic Books.

Salmivalli, C., Lagerspetz, K., Bjorkqvist, K., Osterman, K., & Kaukiainen, A. (1996). Bullying as a group process: Participant roles and their relations to social status within the group. *Aggressive Behavior, 22,* 1-15.

Sampson, R. J., & Laub, J. H. (1994). Urban poverty and the family context of delinquency: A new look at structure and process in a classic study. *Child Development, 65*, 523-540.

Sampson, R. J., Morenoff, J. D., & Gannon-Rowley, T. (2002). Assessing "neighborhood effects": Social processes and new directions in research. *Annual Review of Sociology, 28*, 443-478.

Sampson, R. J., Raudenbush, S. W., & Earls, F. (1997). Neighborhoods and violent crime: A multilevel study of collective efficacy. *Science, 277*, 918-924.

Sexton, T. L., & Alexander, J. F. (2000). *Functional family therapy* (Bulletin). Washington, DC: Department of Justice, Office of Justice Programs, Office of Juvenile Justice and Delinquency Prevention

Shair, H. N. (Ed.). (1991). *Development and psychobiology: New methods and changing concepts.* New York: Oxford University Press.

Shaw, D. S. (2003). Innovative approaches and methods to the study of children's conduct problems. *Social Development, 12,* 322-326.

Spencer, M.B., Dobbs, B., & Phillips, D. (1988). African-American adolescents: Adaptational processes and socioeconomic diversity in behavioral outcomes. *Journal of Adolescence, 11*, 117-137.

Tashiro, T., & Mortensen, L. (2006). Translational research: How social psychology can improve psychotherapy. *American Psychologist, 61,* 959-966.

Tolan, P. H., & Guerra, N. G. (1994). Prevention of delinquency: Current status and issues. *Applied and Preventative Psychology, 3*, 251-273.

Tolan, P. H., Guerra, N. G., & Kendall, P. C. (1995). A developmental-ecological perspective on antisocial behavior in children and adolescents: Toward a unified risk and intervention framework. *Journal of Consulting and Clinical Psychology, 63,* 579-584.

Tolan, P. H., & Loeber, R. (1993). Antisocial behavior. In P. H. Tolan & B. J. Cohler (Eds.), *Handbook of clinical research and practice with adolescents* (pp. 307-331). New York: Wiley.

Tolan, P. H., & McKay, M. (1996). Preventing serious antisocial behavior in inner-city children: An empirically based family intervention program. *Family Relations: Journal of Applied Family and Child Studies, 45,* 145-155.

Tooby, J., & Cosmides, L. (1990). On the universality of human nature and the uniqueness of the individual: The role of genetics and adaptation. *Journal of Personality, 58,* 17-67.

Tremblay, R. E., Kurtz, L., Mâsse, L. C., Vitaro, F., & Phil, R. O. (1995b). A bimodal preventive intervention for disruptive kindergarten boys: Its impact through adolescence. *Journal of Consulting and Clinical Psychology, 63,* 560-568.

Tremblay, R. E., Mâsse, L. C., Vitaro, F., & Dobkin, P. L. (1995a). The impact of friend's deviant behavior on early onset of delinquency: Longitudinal data from 6 to 13 years of age. *Development and Psychopathology, 7*, 649-667.

Tremblay, R. E., Pihl, R. O., Vitaro, R., & Dobkin, P. L. (1994). Predicting early onset of male antisocial behavior from preschool behavior. *Archives of General Psychiatry, 51*, 732-739.

Vaillancourt, T., Hymel, S., & McDougall, P. (2007). Bullying is power: Implications for School-based intervention strategies. In J. E. Zins, M. J. Elias, & C. A. Maher (Eds.), *Bullying, victimization, and peer harassment* (pp. 317-337). New York: Haworth Press.

Webster-Stratton, C., Mihalic, S., Fagan, A., Arnold, D., Taylor, T., & Tingley, C. (2001). *Blueprints for violence prevention: Book eleven: The incredible years: Parent, Teacher, and Child Training Series.* Boulder, CO: Center for the Study and Prevention of Violence.

Weiss, B., Harris, V., Catron, T., & Han, S. H. (2003). Efficacy of the RECAP intervention program for children with concurrent internalizing and externalizing problems. *Journal of Consulting and Clinical Psychology, 71,* 364-374.

Weissberg, R. P., Kumpfer, K. L., & Seligman, M. E. P. (2003). Prevention that works for children and youth: An introduction. *American Psychologist, 58,* 425-432.

Wilson, D. B., Gottfredson, D. C., & Najaka, S. S. (2001). School-based prevention of problem behaviors: A meta-analysis. *Journal of Quantitative Criminology, 17,* 247-272.

Wright, J. C., Giammarino, M., & Parad, H. W. (1986). Social status in small groups: Individual-group similarity and the social "misfit." *Journal of Personality and Social Psychology, 50,* 523-536.

Yoshikawa, H. (1994). Prevention as cumulative protection: Effects of early family support and education on chronic delinquency and its risks. *Psychological Bulletin, 115,* 28-54.

Zigler, E., Taussig, C., & Black, K. (1992). Early childhood intervention: A promising preventive for juvenile delinquency. *American Psychologist, 47,* 997-1006.