

RISK PROFILES, TRAJECTORIES, AND INTERVENTION POINTS FOR SERIOUS AND CHRONIC YOUNG OFFENDERS

Raymond Corrado and Lauren Freedman

Abstract: One of the lesser understood research issues about antisocial onset and persistence is whether there are different patterns of risk factors within the broader identified pathways that require distinctive treatment strategies. This article hypothesizes that there are at least five distinct pathways to persistent antisocial behaviour. The pathways are premised upon the developmental perspective and suggest that the experiences of individuals and their exposure to subsequent risk factors are affected by the earliest risk factors to which the individual is exposed. From a policy perspective, development of these pathways focuses on the goal of preventing antisocial onset, or to reduce the likelihood that behaviours will become progressively antisocial, while concurrently encouraging desistance. A key objective is to inform policy-makers about possible program intervention points for specific sets of risk factors, utilizing programs that have already been identified as successful, and developing new experimental programs.

Key Words: young offender, pathway models, intervention, serious offending, chronic offending, violent offending

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By the time they reach adolescence, most youth who are involved in the criminal justice system have been exposed to a multitude of risk factors for serious antisocial behaviour, including violence. A dominant related research theme is that risk factors can accumulate with age and, as the individual transitions through developmental stages, the accumulated risk factors can mitigate the success of interventions (Loeber, Keenan, & Zhang, 1997; Lober & LeBlanc, 1990; Stouthamer-Loeber, Loeber, Stallings, & Lacourse, 2008; Moffitt, 1993; Farrington & Welsh, 2007; Sampson & Laub, 1993). Another important research theme is the considerable increase in the number of risk factors identified especially during the initial developmental stages including pregnancy, birth, infancy, and early childhood. Also, more recent advances in genetic and epigenetic research have added even more complex arrays of risk. Much of the theory development and debate about serious and violent offending among adolescents and adults, therefore, has focused on the identification of developmental pathway models associated with short- and long-term criminal trajectories. However, one of the research issues less understood is whether there are different patterns of risk factors within these identified pathways that require distinctive treatment strategies. The distinguishing feature of more specified pathways is that the first major risk factor experienced by the individual affects both the exposure to additional risk factors and how these risk factors are managed in terms of interventions throughout subsequent developmental stages. We suggest that there are at least five distinct pathways for serious and violent young offenders that require different intervention strategies. These pathways begin with the following respective initial major risk factors: prenatal risk exposure, extreme child maltreatment, childhood personality disorder, extreme temperament, and adolescent onset (see Figures 1 to 5).

Although these pathways are distinct, risk factors often overlap among pathways. Yet it is the sequencing of these risk factors that affects the differences in how and why individuals within each pathway experience them. For example, poor school performance is associated with antisocial behaviour (Hemphill, Toumbourou, Herrenkohl, McMorris, & Catalano, 2006; Corrado, Cohen, & Watkinson, 2008; Weerman, Harland, & van der Laan, 2007; Loeber, Farrington, & Stouthamer-Loeber, 1998), but various types of youth may demonstrate poor school performance for different reasons. Youth with fetal alcohol spectrum disorder (FASD), for example, experience difficulty excelling in the classroom because of neuro-cognitive deficits (Streissguth et al., 2004). In contrast, negative classroom experiences of youth who have been extremely maltreated but do not have neuro-cognitive deficits are more likely explained by the emotional disorientation and stress caused by transfers arising from placement in foster care (Newton, Litrownik, & Landsverk, 2000). Obviously, the treatment strategies for these two pathways are substantially different since FASD is associated with neuro-cognitive disorders and typically requires long-term school and home-based program interventions, while children and youth who have suffered extreme trauma may not suffer from such deficits. Thus, responses for difficulties experienced among these latter children and youth more typically involve shorter-term interventions focused on stabilizing the foster care environment, and school-based emotion and social adjustment support counselling.

The five pathways proposed in this article are premised upon the extensive research of the likely causal risk factors of serious and violent offending which were first developed from

the Cracow multi-problem risk management instrument for serious and violent children and adolescents (Corrado, Roesch, Hart, & Gierowski, 2002). The second source is the more recent research on samples of incarcerated serious and violent young offenders, including our 12-year study of over 1,000 youth incarcerated in British Columbia. The basic objective in developing these models is to increase the effectiveness of strategies to reduce the likelihood of children and adolescents with serious and violent antisocial and criminal behaviours from persisting in such behaviours into adulthood. These models are premised upon the notion that changes in antisocial behaviour are predictable, hierarchical, and orderly. They emphasize the identification of factors that predate antisocial onset. Another underlying assumption is that onset, aggravation, and desistance of violent and serious antisocial behaviour are strongly related to the vulnerability of individuals to specific risks that are embedded in their extant life stages (Loeber & LeBlanc, 1990). The goal is to prevent antisocial onset, or to reduce the likelihood that behaviours will become progressively antisocial, while concurrently encouraging desistance. The pathway models are neither risk prediction nor risk management instruments, but rather are designed to inform policy-makers about possible program intervention points for specific sets of risk factors, utilizing programs that have already been identified as successful and developing new experimental programs.

Key Variables in the Models

The five proposed pathway models highlight how and why various types of youth experience certain risk factors. Prior to discussing the experiences of particular types of youth within each pathway, a brief overview of commonly experienced risk factors across the models is presented and the associated outcome of serious antisocial behaviour is discussed.

School Performance

Poor academic performance, truancy, misbehaviour at school, and suspension and/or expulsion from school have been identified as risk factors for both general and violent antisocial behaviour (Hemphill et al., 2006; Margo, 2008; Farrington, Loeber, Jolliffe, & Pardini, 2008; Wolke, Woods, Bloomfield, & Karstadt, 2000; Nishina, Juvonen, & Witkow, 2005; Henry & Huizinga, 2007; Weerman et al., 2007). Absence from school and poor school performance are common among serious and violent offenders. For example, only slightly more than half of the youth in a sample of incarcerated youth in British Columbia were enrolled in school at the time of their offence and many were already at least one academic year behind other students of the same age (Corrado et al., 2008). Substantial absences from school are also associated with increased time spent with antisocial peers in the absence of adult supervision (Hemphill et al., 2006; Henry & Huizinga, 2007). Further, poor school performance, related learning disabilities, and childhood disruptive disorders are associated with serious antisocial behaviours in adulthood (Sundheim & Voellere, 2004).

Residential Mobility

Residential mobility among adolescents has been linked to antisocial behaviour whether the youth moves with or away from the family unit. Importantly, both placement in the care of child protection services and instability in care (i.e., multiple shifts among placements) have been associated with antisocial behaviour (Alltucker, Bullis, Close, & Yovanoff, 2006; Newton

et al., 2000). The association between residential mobility and antisocial behaviour is explained partly by the increased likelihood of associating with antisocial peers and subsequent exposure to their routine high-risk social activities, such as substance abuse and engaging rival groups of youth in public places. Residentially mobile adolescents are more likely to associate with, and adopt the behaviours of, antisocial peers because they are more readily willing to accept new members than prosocial adolescents (Haynie & South, 2005; Farrington et al., 2008). Further, youth living independently of parents or guardians are more likely to engage in certain criminal behaviours (e.g., theft, prostitution, fraud) as a means of survival (Kempf-Leonard & Johansson, 2007; Baron & Hartnagel, 1998). Once these youth begin engaging in antisocial behaviours, the risk of engaging in serious antisocial behaviours, particularly gang activity, increases (Kempf-Leonard & Johansson, 2007; Cohen, 1955; Decker, Katz, & Webb, 2008; Klein & Maxson, 2006; Kvaraceus & Miller, 1959).

Antisocial Peers

Involvement in a delinquent peer group throughout adolescence has been associated with increased violent behaviours (Thornberry, Lizotte, Krohn, Farnworth, & Jang, 1994; Thornberry, Lizotte, Krohn, Smith, & Porter, 2003; Farrington, 2005; Farrington et al., 2008). Although removal from such groups is associated with a decrease in violent behaviours, early and prolonged exposure to delinquent peers has long-lasting impacts on the development of persistent patterns of antisocial behaviour (Lacourse, Nagin, Tremblay, Vitaro, & Claes, 2003). This may be explained in relation to a potentially reciprocal relationship whereby youth engaging in antisocial behaviours are attracted to groups characterized by antisocial activities, which increases the likelihood of escalating behaviours, particularly in the context of gangs (Elliott & Menard, 1996; Gatti, Tremblay, Vitaro, & McDuff, 2005; Thornberry et al., 2003; Thornberry et al., 1994).

Substance Abuse

Adolescent substance abuse is related to high-risk behaviours, antisocial behaviour, and poor school performance (Farrington et al., 2008; Wiesner, Kim, & Capaldi, 2005), and is particularly common among incarcerated youth (Neff & Waite, 2007; Corrado & Cohen, 2002). In some cases, youth may engage in substance abuse as a form of self-medication to cope with trauma (Corrado & Cohen, 2002), or as a form of sensation-seeking as a result of low arousal levels (Putnins, 2006). Substance abuse may impact antisocial behaviours in three ways: Youth may engage in antisocial behaviours because they are under the influence of substances at the time of the offence; they may commit crimes to gain money to acquire substances; and/or they may engage in antisocial behaviours associated with the distribution of intoxicating substances (Goldstein, 1985).

Aggressive Behaviours

Both early and previous aggressive and antisocial behaviours have been identified as strong predictors of future antisocial behaviour (Hemphill et al., 2006; Huesmann, Eron, & Dubow, 2002; Nagin & Tremblay, 2001; Schaeffer, Petras, Ialongo, Poduska, & Kellam, 2003; Farrington et al., 2008). In particular, children who are disruptive in kindergarten are at an increased risk of frequent antisocial behaviour as they age (Lacourse et al., 2002). Persistence of aggressive behaviours may be related to the propensity of aggressive children and youth to

perceive the actions of others as hostile (Waldman, 1996), or it could be a reflection of ineffective socialization as a result of hostile or ineffective parenting or other family-level risk factors (Benzies, Keown, & Magill-Evans, 2009; Côté, Vaillancourt, LeBlanc, Nagin, & Tremblay, 2006; Tremblay et al., 2004).

Proposed Pathway Models

Each of the five pathways will be discussed individually, focusing on three things: first, the prevalence of the underlying first risk factor the individual is exposed to that subsequently shapes future experiences and thus each pathway; second, the impact that this factor has on how other risk factors and behavioural problems are experienced; and third, the intervention techniques and considerations relevant to each pathway.

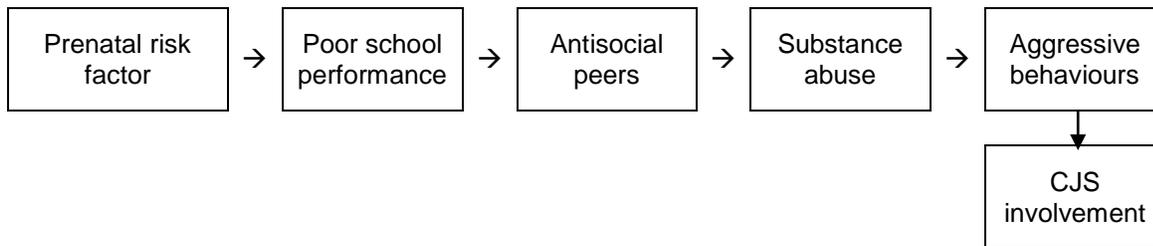
1: Prenatal Risk Factors

There are a variety of risk factors to which children may be exposed in utero that may affect the prenatal stage of development, including lead, cigarette smoke, and poor maternal nutrition (Mick, Biederman, Faraone, Saye, & Kleinman, 2002; Needleman, Riess, Tobin, Biesecker, & Greenhouse, 1996; Streissguth et al., 2004; Raine, 2004). These risk factors can affect the healthy development of the brain, resulting in permanent damage that may heighten the risk of antisocial behaviours in subsequent developmental stages. While smoking and malnutrition are possibly more prevalent risk factors, given the large body of research on fetal alcohol spectrum disorder (FASD) discussion of this pathway will focus on FASD as an illustrative example. There is considerable evidence that exposure to alcohol, especially regular consumption and/or binge drinking during mid-stages of pregnancy, can result in FASD. FASD is causally linked to physical developmental delays, neuro-cognitive deficits including learning disabilities, co-morbid mental health problems throughout the life course that are generally associated with antisocial behaviour, and aggressive, often violent behaviours (Streissguth et al., 2004).

Evidence of Prenatal Risk Factor Exposure among Serious and Violent Offenders

FASD is disproportionately evident among adolescent offender populations. For example, nearly one-third (30%) of youth on probation orders in Canada have been identified as having, or being at high risk of having, FASD (The Assante Centre for Fetal Alcohol Syndrome, 2005). FASD is also overrepresented (23%) among youth in British Columbia who have been remanded for psychiatric inpatient assessment (Fast, Conry, & Loock, 1999). This overrepresentation is in stark contrast to the population estimates of the prevalence of FASD, which are extremely low; for example, it has been estimated that only 1% of all live births in the United States are affected by FASD (Sampson et al., 1997).

Proposed Pathway to Serious Antisocial Behaviour for Offenders Exposed to Prenatal Risk Factors



Largely because of substantial neuro-cognitive deficits, individuals with FASD are more likely to engage in several antisocial behaviours that increase their exposure to a multitude of risk factors in the early and middle developmental stages. As children, those with FASD are at an increased risk for early entry into the care of child protective services and are liable to subsequent shifts among multiple care placements. One study found that 72% of children with FASD in Saskatchewan were placed in care at some point in their lives, often by the age of 2 years, and remained in care for five years on average, during which they experienced multiple placement shifts (Habbick, Nanson, Snyder, Casey, & Schulman, 1996). Similar findings were observed in an American sample (Ernst, Grant, Streissguth, & Sampson, 1999). Not surprisingly, children with FASD often come under the care of child protective services in response to concerns over the welfare of the child (Ernst et al., 1999), which may specifically relate to ongoing substance abuse among their caregivers (Salmon, 2008; Kvigne et al., 2004). Persistent childhood aggressive behaviours cause high levels of stress for caregivers, which also helps to explain the disproportionate number of FASD children and youth in care (Paley, O'Connor, Frankel, & Marquardt, 2006; Paley, O'Connor, Kogan, & Findlay, 2005). Educational special needs and other social deficits also increase the likelihood that mothers and other caregivers will request that their FASD children be taken into care (Kvigne et al., 2004; Ernst et al., 1999).

FASD is further associated with poor school performance and school discipline problems. Poor school performance and disruptive behaviours in the classroom among these youth can best be understood in relation to neuro-cognitive deficits that impair language comprehension, reading, spelling, and math abilities (Mattson, Riley, Gramling, Delis, & Jones, 1998; Duquette & Stodel, 2005; Streissguth et al., 2004). The ability of these youth to develop and maintain peer relationships is hindered by their increased tendency to become frustrated and angry with their difficulties and inability to keep pace with other students in their classrooms. In addition, multiple care placements are associated with more frequent school transfers, changing family environments, and peer social disruptions. In a study of 415 individuals diagnosed with FASD, 55% of adolescents and adults had been in trouble at school for disruptive behaviours, 53% had been suspended, 29% expelled, and 25% dropped out of school (Streissguth et al., 2004).

FASD is also associated with difficulties relating to the development of prosocial peer relationships because of underdeveloped, or age inappropriate, social skills. For this reason,

youth with FASD are more likely to associate with antisocial peers who are more likely to accept them and then become negative reinforcing role models (Thomas, Kelly, Mattson, & Riley, 1998; Streissguth et al., 2004). Due to poor behavioural controls stemming from neuro-cognitive deficits and difficulties understanding the negative impact of antisocial behaviour, including substance abuse, individuals with FASD may be more susceptible to social pressures. Thus individuals with FASD are more likely to engage in early antisocial behaviours such as early onset substance abuse (Paley & O'Connor, 2009).

Poor behavioural control across developmental stages among individuals with FASD is largely explained by the damage caused by alcohol exposure in utero, that impedes the development of neural structures that regulate impulsivity and aggression (Bookstein, Streissguth, Sampson, Connor, & Barr, 2002; Berman & Hannigan, 2000; Schonfeld, Paley, Frankel, & O'Connor, 2006). In effect, FASD inhibits the ability to process social cues that typically delay inconsiderate and inappropriate behaviours. Failure to inhibit these behaviours results in negative responses from others that routinely and rapidly frustrate the individual, which is often met with overreaction from the individual with FASD, including aggressive and violent responses. While FASD is associated with poor motivation, an absence of empathy, plus the presence of defiance, anger, and aggression, these traits are overwhelmingly explained by neuro-cognitive deficits rather than wilful motivation (Green, 2007; Olson, Jirikowic, Kartin, & Astley, 2007; Scott & Dewane, 2007).

Intervention

FASD is preventable. Interventions typically focus on providing expectant mothers with information and incentives designed to reduce the likelihood of exposure to alcohol during pregnancy. There are currently no known treatments that can reverse the organic brain damage associated with FASD; therefore, subsequent interventions are most effective when they target the accumulation of additional risk factors discussed above, such as poor school performance and substance abuse. Given the permanency of the organic brain damage and the accumulation of new risk factors in subsequent developmental stages, interventions designed to reduce the impact of additional risk factors may be helpful to improve positive life outcomes across the life course (Paley & O'Connor, 2009).

Initial interventions must first determine the extent of the damage along the FASD spectrum at the earliest possible date with a valid assessment. Typically, this requires a family physician who suspects FASD, or a public health nurse or social worker who reports the likelihood of FASD given their awareness of the mother's alcohol history. There are mild, moderate, and extreme expressions of FASD that are important in determining the most appropriate stage-specific interventions in the short and long term. For example, mild FASD children are more likely to adapt to regular daycare and preschool programs with minimum levels of assistance, while the more extreme cases are more likely to require specialized programs. The second step is the assessment of the ability of the FASD child's family to either mitigate (with their own resources and those external to the family unit) or intensify the impulsivity and related harmful traits associated with FASD, regardless of external resources.

Regarding the former more positive family context, the interventions include providing the parent(s) assistance to relieve accumulated daily stress in providing developmental learning and discipline experiences to the child, and promoting access to appropriately resourced daycare facilities and schools. In the latter negative family context, where the FASD child is at high risk of being placed in the care of child protective services, it is critical that such families not only be provided with a complete set of in-house and school or community resources, but also that they be carefully monitored to ensure that they are consistently tending to the physical and emotional needs of the child. When the child is placed in care, placement stability is essential. Typically, the challenge for foster care providers is having both a complete understanding of the extent of the FASD needs of the child, and access to the internal and external resources necessary to effectively respond. Again, lifelong assistance to the caregiver is an important consideration so that even in adulthood, the provision of routine living assistance must be provided as it is needed for the adult to remain in the community and avoid a life threatening “street life” which is likely to result in negative life outcomes, including criminal justice involvement (Paley & O'Connor, 2009; Hannigan & Bergman, 2000).

As mentioned above, the education system is another crucial intervention resource. There are specialized education environments that increase the learning context by reducing irritability and frustration, and providing for prosocial peer and teacher experiences (Paley & O'Connor, 2009; Green, 2007). The health care system is also important not only for the initial diagnosis but also for the monitoring and treatment of the onset of related childhood disorders such as oppositional defiant, and adult co-morbid disorders often involving substance dependency.

2: Childhood Personality Disorders

Personality disorders are clinical syndromes with long-lasting symptoms that negatively impact the way the individual interacts with the environment (American Psychiatric Association, 2000). Although there are a variety of types of personality disorders, this pathway will focus on conduct disorder, oppositional defiant disorder, and early psychopathic traits because they are most closely associated with externalizing behavioural problems. The diagnostic criteria of conduct disorder and oppositional defiant disorder both refer to a pattern of persistent antisocial behaviour (American Psychiatric Association, 2000). Although early identification of psychopathy remains controversial, psychopathic traits are associated with callous, deceptive, unemotional behaviour (Hare, 1993) and there is support for the identification of these traits in adolescence (Vincent, Odgers, McCormick, & Corrado, 2008; Corrado, Vincent, Hart, & Cohen, 2004).

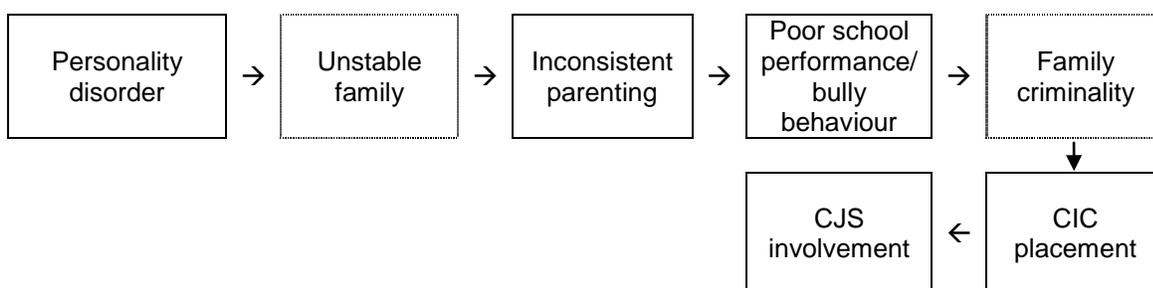
Evidence of Personality Disorders among Serious and Violent Offenders

Oppositional defiant disorder is estimated to be present among one in seven children by the age of 5 years (Sutton & Glover, 2004) and among approximately 12% of incarcerated male youth and 15% of incarcerated female youth (Teplin, Abram, McClelland, Dulcan, & Mericle, 2002). This childhood personality disorder is associated with the later development of conduct disorder, which progresses into antisocial personality disorder in adulthood among approximately 40% to 70% of documented cases (Duggan, 2009). Both conduct disorder and antisocial personality disorder are disproportionately prevalent among incarcerated youth and

adult populations (Corrado, Cohen, Hart, & Roesch, 2000; Teplin et al., 2002; Fazel, Doll, & Långström, 2008; Compton, Conway, Stinson, Colliver, & Grant, 2005; Torgensen, Kringlen, & Cramer, 2001; Coid, Yang, Tyrer, Roberts, & Ullrich, 2006; Robins, Tipp, & Pryzbeck, 1991; Fazel & Danesh, 2002). Not uncommonly, these personality disorders predate juvenile justice involvement (Hirshfield, Maschi, White, Goldman-Traub, & Loeber, 2006).

Both oppositional defiant disorder and conduct disorder are asserted to be precursors to psychopathy. There is an accumulation of research indicating that while the full range of psychopathic traits is not convincingly evident in children and adolescents, several key psychopathic traits are observable in early childhood (Tremblay et al., 2005), and even more psychopathic traits can be identified among adolescents, especially in samples of incarcerated serious and violent young offenders (Corrado et al., 2004; Vincent et al., 2008). It has been estimated that as many as 9.4% of adolescent offenders exhibit high levels of psychopathic traits (Campbell & Porter, 2004). In addition to engaging in a general range of antisocial behaviours consistent with psychopathic traits, young offenders with this profile are also more prone to recidivism more quickly and more violently than young offenders without this profile (Corrado et al., 2004; Vincent et al., 2008).

Proposed Pathway to Serious Antisocial Behaviour for Offenders with Childhood Personality Disorders¹



A chaotic family environment may increase the risk of the development of childhood personality disorders. Young children whose mothers experience abuse are significantly more likely to develop internalizing and externalizing behavioural problems (McFarlane, Groff, O'Brien, & Watson, 2003). Also, children in homes characterized by violence often directly witness abuse (Fantuzzo & Fusco, 2007). One explanation is that unstable households characterized by violence do not provide children with emerging personality disorders the routine structure necessary to develop prosocial skills. As well, parents in chaotic family environments characterized by violence are more likely to apply inconsistent and progressively harsh parenting techniques with their children who are displaying aggressive tendencies associated with personality disorders. In this type of environment, the opportunities for the development of empathy, adaptive self-regulation, and other skills that aid in the suppression of abnormal childhood antisocial outbursts are substantially reduced (Hill, Fonagy, & Safier, 2003). Specifically, regarding both oppositional tendencies and conduct problems, increasingly harsh parenting may aggravate the development of externalizing behaviours, because children do not

¹ Risk factors in dotted lines have likely always been present, but take on new meaning for as others accumulate.

learn to effectively moderate their aggressive behaviours and antisocial tendencies (Tremblay et al., 2005; Hill et al., 2003). In addition, children reported as aggressive by their parents are more likely to suffer abuse, which may initiate a cycle of aggressive/abusive behaviours in the next developmental stage, which may involve school environments (Berger, 2005; Lemmon, 2006).

Children with personality disorders are by definition more likely to engage in authority conflict behaviours in the classroom, particularly with teachers. Conflict with peers, in the form of bullying, is also likely. Further, the above-noted pattern of inconsistent and harsh parenting often reflects antisocial parental attitudes, particularly towards fighting, which may normalize aggressive behaviours (Solomon, Bradshaw, & Wright, 2008). Together, these risk factors substantially increase risk of poor school performance, which is often related to general oppositional attitudes, disruptive behaviours, and disregard for rules and authority, thereby reducing access to prosocial peers and positive reinforcement from teachers, parents, and other authority figures (Moffitt, 1993).

Children and youth with personality disorders are also more likely to be placed in child welfare care either because of parental abuse, parental neglect, or extreme truancy (Dodge, 2000). Once in the care of child protective services, the aggressive behaviours of these youth often translate into multiple placements as caregivers express an unwillingness to expose themselves, and often other family members, to the persistent angry and manipulative behaviours of the youth (Newton et al., 2000).

In later childhood and early adolescence, youth with these personality disorders are very likely to become involved in serious forms of antisocial behaviour, including major alcohol and substance abuse (Compton et al., 2005; Knop et al., 2009), primarily because of poor impulse control (Thapar, van den Bree, Fowler, Langley, & Whittinger, 2006). Critics have argued that conduct disorder is too broad a diagnostic construct (i.e., varying levels of aggressiveness and antisociality cover too many diverse negative attitudes and behaviours) to explain serious and violent antisocial behaviour or to assist clinicians in determining effectively targeted therapies (Frick & Dickens, 2006). However, it remains a strong predictor of violent behaviour even after controlling for other critical risk factors (Hodgins, Cree, Alderton, & Mak, 2007).

Intervention

Effective treatments exist for both oppositional defiant disorder and conduct disorder to reduce the likelihood of these disorders progressing into antisocial personality disorder. The latter is associated with serious and violent offending into adulthood. Since the main traits associated with each of these personality disorders are failure to develop prosocial skills and moderate aggressive behaviours, the most effective intervention is training programs designed to teach parents to impart these positive behaviours to their children. However, an obvious limitation of these parental training programs occurs when parents are unable or unwilling to participate in such interventions, or when certain traits of the child impede the effectiveness of parenting training programs (e.g., extreme callousness and unemotional traits). In cases where parenting training programs are not effective or possible, cognitive skills training interventions are appropriate for children of at least 8 years of age (Duggan, 2009).

In cases where early interventions are neither attempted nor successful, interventions external to the home environment may reduce the likelihood that risk factors will accumulate. Again, school is an important intervention context, where programs may focus on enhancing positive learning and social experiences. Non-stigmatizing remedial programs attenuate learning problems and increase school performance. For the more extreme cases “alternative schools” provide concentrated teaching resources. Yet, it is difficult to avoid stigmatizing and further isolating youth in special programs, especially alternate schools, from prosocial students. Another challenge for this pathway is that schools in socially disorganized neighbourhoods, with high concentrations of economically disadvantaged and single-parent families, increase the likelihood that these personality disordered youth will be influenced by the pervasive presence of street-based informal and formal youth gangs. In other words, schools in these neighbourhoods have to compete with highly accessible and powerful antisocial organizations that have particular appeal to youth in this pathway who are searching for outlets for their aggressive and antisocial tendencies. Promising programs integrate remedial school and prosocial programs into the larger community to include churches, sports, recreational, and business organizations, thereby creating an interconnected and non-stigmatizing network of support.

In cases where antisocial personality disorder is not prevented or in cases of psychopathy, behavioural management strategies must be employed. Antisocial personality disorder and psychopathy in particular are extremely difficult to treat and thus they require ongoing attention in the form of continued interventions and monitoring (Losel, 2001). However, both individuals with antisocial personality disorder and psychopathy tend to develop an oppositional attitude towards authority, thereby making them resistant to change (Tyrer, Mitchard, Methuen, & Ranger, 2003; Hare, 1993; Wong & Hare, 2005). Some successes in the treatment of antisocial personality disorder have been noted with the use of cognitive behavioural therapy (Duggan, 2009), which is also the recommended course of treatment for individuals with psychopathy (Wong & Hare, 2005). It is important to note that while individuals with antisocial personality disorder and psychopathy can potentially learn to limit their antisocial behaviours with appropriate goals and maintenance, in many cases, these individuals will require long-term interventions and monitoring (Wong & Hare, 2005).

3: Extreme Child Temperament

Temperament essentially refers to the range of behavioural responses elicited by a particular individual to various experiences as a result of emotional reactivity, first evident at four months of age (Kagan & Snidman, 2004). There are several definitions of temperament with most definitions stating that it is inherited, evident in early life, and stable across all developmental stages (Frick, 2004b). Optimal temperament reflects an ability to respond to events in a flexible and adaptive manner that matches the social context (Eisenberg & Morris, 2002). However, some infants have extreme responses to novel events: High reactive children become tense, cry, scream, and arch their backs in an escape movement, and low reactive children remain physiologically unperturbed, interested, and curious (Kagan & Snidman, 2004). Both extremely high and low levels of emotional reactivity likely increase the risk for antisocial behaviour (Frick et al., 2003; Loney, Frick, Clements, Ellis, & Kerlin, 2003).

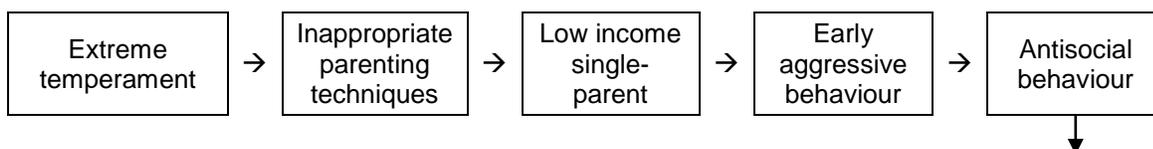
While extreme levels of emotional reactivity may be functional and positive in certain contexts (e.g., extreme threats), such reactions are maladaptive when they interfere with prosocial relationships (Cicchetti, Ackerman, & Izard, 1995). Although temperament affects child, adolescent, and adult behaviours, and the range of prosocial and antisocial personalities that develop, temperament is not deterministic of antisocial behaviour (Kagan & Snidman, 2004). However, temperament may be understood as reflecting a spectrum with various psychopathologies associated with each end. Anxiety and conduct disorders are examples of high reactivity, while certain callous and unemotional traits, in addition to ADHD, are examples of low reactivity (Clark, Watson, & Mineka, 1994; Frick, 2004a). In other words, there is very likely a relationship between temperament type and personality disorders, but they are not the same and there are other factors (e.g., environmental) that also affect personality development.

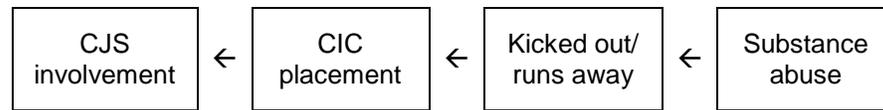
The separation between personality disorders and temperament is supported by studies controlling for the overlap in measures and definitions of temperament and psychopathologies, which have found that temperament alone maintains predictive associations of behaviour (Lemery, Essex, & Smider, 2002; Lengua, West, & Sandler, 1998). Further, although children with low reactivity tend to be more distractible, there is no concrete support for the association between low reactivity and ADHD (Kagan & Snidman, 2004). Despite the complexity of the conceptual distinctions between temperament and personality disorders, their probabilistic relationships, and the somewhat inconsistent research concerning their respective predictive validity regarding certain psychopathologies generally associated with antisocial behaviours, there is sufficient evidence to suggest that the optimal intervention strategies are separate for the temperament pathway and the personality disorder pathway.

Prevalence

Children with conduct problems have difficulty regulating their emotions (Eisenberg, Fabes, Guthrie, & Reiser, 2000; Eisenberg et al., 2001; Frick et al., 2003; Loney et al., 2003; Krueger, Caspi, Moffitt, White, & Stouthamer-Loeber, 1996; Frick, Lilienfeld, Ellis, Loney, & Silverthorn, 1999). Individuals with high reactivity are prone to frustration and are more likely to present conduct problems, while those high reactive children with difficulty regulating sadness are more likely to present with internalizing behaviours (Eisenberg et al., 2001; Kagan, 1994; Kagan & Snidman, 2004; Rosenbaum et al., 2002; Eisenberg et al., 1996). In contrast, low reactive children are more likely to display defiant behaviours associated with a disregard for consequences, which tend to be associated with externalizing behavioural problems (Kagan & Snidman, 2004). Both internalizing and externalizing behavioural problems are overrepresented among offender populations (Corrado et al., 2000; Teplin et al., 2002; Fazel et al., 2008; Torgensen et al., 2001; Fazel & Danesh, 2002).

Proposed Pathway to Serious Antisocial Behaviour for Offenders with Extreme Child Temperament





Extreme temperament, either high or low, can create negative parenting responses. Parents of high reactive children are more likely to have difficulty inculcating prosocial/normative behaviours from their children because children tend to be so emotional that they are not able to effectively internalize messages communicated by their parents (Kockanska, 1993, 1995, 1997). This persistent irritability may be inaccurately perceived as inappropriate and wilful defiance, which can increase the likelihood of parental anger, emotional and physical punishment responses, which then exacerbates the child's excitability thereby further encouraging aggression or withdrawal (Kagan & Snidman, 2004; Keenan & Shaw, 2003).

When negative parent-child interaction is continuously repeated, particularly in early childhood, it can lead to a cycle of increasing parental coerciveness and punishment or parental accession to the child's reactions (i.e., letting the child succeed in rejecting parental prosocial discipline). This cycle of negative parent-child interactions facilitates increasingly coercive responses from both the parent and the child, encouraging the development of antisocial response types from the child (Patterson, Reid, & Dishion, 1992; Patterson, 1986; Snyder & Patterson, 1995). Regarding parental reactions to low reactive or "easy going" children, parents often presume these children require little consistent and proportional discipline, which can be associated with their failure to learn how to delay gratification and self-regulate antisocial behaviours (Keenan & Shaw, 2003). In part, this occurs because parental reprimands are less likely to generate uncertainty, anxiety, self-disappointment, or shame. Consequently, for extreme low reactive children, attempts to punish or control their behaviour are often met with anger and tantrums. Again, if this cycle continues into subsequent developmental stages, the child may develop an opposition to authority (Kagan & Snidman, 2004).

Important additional risk factors in parental responses to extreme reactive children are low socioeconomic status (SES) and/or single-parenthood. Parents with very limited social support (e.g., partners, extended family or friends, and neighbours), little access to information concerning prosocial child rearing, and the inability to afford daycare facilities are more likely to have difficulties understanding, communicating, and engaging in prosocial responses to children (Hoff, 2003; Huttenlocher, Vasilyeva, Waterfall, Vevea, & Hedges, 2007; Pan, Rowe, Singer, & Snow, 2005). This is particularly important in infancy during crucial stages for mother-child bonding, and throughout early childhood as the child engages in vocabulary development, toilet training, and initial social interactions with peers. Poverty and social isolation, especially in socially disorganized and highly economically disadvantaged neighbourhoods, are strongly associated with parental stress that further inhibits the ability to respond appropriately to extreme temperament children (Hay, Pawlby, Angold, Harold, & Sharp, 2003).

When transitioning through school grades, children with poor regulation of negative emotions (e.g., anger and frustration) are at a heightened risk of peer rejection (Rubin, Bukowski, & Parker, 1998). In particular, high reactive children and youth are more likely to respond to routine school activities involving teachers and peers with aggressive outbursts, in

part because their intense emotional arousal increases their difficulty in accurately interpreting social cues (i.e., non-hostile) and responding prosocially (Dodge & Pettit, 2003; Dodge, Lochman, Harnish, Bates, & Pettit, 1997; Waldman, 1996).

In the later childhood stage, (10 to 12 years old), high reactivity is associated with substance abuse, in part because of boredom and low self-control (Wills, Sandy, & Shinar, 1999; Wills, Sandy, & Yaeger, 2002). In contrast, low reactivity children are more likely to engage in externalizing behaviours largely because they lack the normative heightened sense of fear of being punished (Eisenberg et al., 2001; Frick et al., 1999; Frick et al., 2003; Schwartz, Snidman, & Kagan, 1996; Tremblay, Pihl, Vitaro, & Dobkin, 1994). For these youth, the motivation for high-risk antisocial behaviours and potentially self-destructive behaviours (e.g., excessive hard drug use and driving cars at reckless speeds) is the intense physiological desire to engage in novel and exciting experiences (Raine, 2002). Low reactive children begin engaging in antisocial behaviours early and disregard age norms, again, largely because they lack fear associated with potential punishment and seek intense stimulation. A small proportion of youth on this pathway experience aggression in the form of bullying, followed later by serious violence in adolescence (Kagan & Snidman, 2004).

Intervention

Despite the evidence that temperament is genetically determined, its relationship to antisocial behaviour is not deterministic. Children with extreme temperaments can develop skills to cope with adverse situations either on their own, or as a result of parental intervention (Rubin, Burgess, & Hastings, 2002; Kagan & Snidman, 2004). Extreme temperaments are identifiable at multiple life stages, beginning as early as four months of age with the use of a 45-minute assessment of responses to stimuli conducted by a trained professional (Kagan & Snidman, 2004). In cases where extreme temperament is undetected at the earliest developmental stage, there are several types of instruments available at the later stages including, for example, cognitive assessments for 4 year olds, teacher and parent questionnaires for 7 year olds, and biological assessments for 11 year olds (Kagan & Snidman, 2004). Thus, there are multiple points of detection, and a range of intervention points which are associated with programs. Intervention programs for extreme high reactive children emphasize the minimization of anxiety by avoiding stress-inducing expectations and overly critical reactions to failure by authority figures, particularly parents and teachers. Interventions for extreme low reactive children focus instead on structured discipline, and high-energy activities focused on rewards rather than punishment to engage the children (Wills & Dishion, 2004; Kagan & Snidman, 2004).

4: Childhood Maltreatment Pathway

This pathway focuses on severe or repeated child maltreatment during the early years of life. While there is no common definition or consensus about what constitutes the broad range of acts that define serious maltreatment, typically this concept refers to a one or more incidents of neglect, emotional abuse, physical or sexual abuse. Severe maltreatment increases the likelihood of immediate and/or long-term substantial damage to the physical and mental health of the child. One of the difficulties in explicating the severe maltreatment pathway is that cumulative acts of non-severe maltreatment such as hostile and ineffective parenting also have immediate and long-

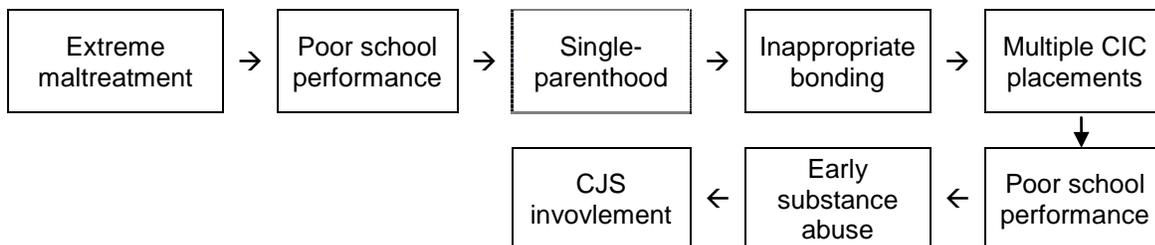
term effects on aggression and general antisocial behaviour (Benzies et al., 2009; Farrington, 1996).

Both recurrent abuse of a less serious nature (Ryan & Testa, 2005) and experiencing abuse by multiple perpetrators (Hamilton, Falshaw, & Browne, 2002) are associated with antisocial behaviour. In other words, repeated less serious incidents of maltreatment can result in cumulative substantive damage, not unlike single incidents of major maltreatment. The key concern is whether maltreatment contributes to changes in the child's neuro-anatomical structures or brain chemistry that impact the ability of the brain to moderate reactivity associated with impulsivity and aggression (Perry, 1997). Children who experience repeated and unpredictable violence are more likely to be hyper-vigilant to threats, thereby misperceiving them and reacting impulsively and aggressively (Perry, 1997).

Prevalence

A recent provincial survey in British Columbia found that 64% of incarcerated youth had been physically abused, most commonly by a parent or step-parent; 11% had experienced sexual abuse, and 10% had experienced both physical and sexual abuse (Murphy, Chittenden, & McCreary Centre Society, 2005). Similar findings were observed in a sample of incarcerated youth in England, which found that nearly 55% of youth had experienced abuse on multiple occasions, both by the same perpetrator on multiple occasions and by different perpetrators (Hamilton et al., 2002).

Proposed Pathway to Serious Antisocial Behaviour for Offenders Exposed to Child Maltreatment²



Children exposed to repeated maltreatment, particularly in combination with neglect, are at an increased risk of early poor school performance. This relationship is explained by a heightened state of defensive alertness that distracts from the ability to focus on routine lessons needed for positive school performance. Early school success is strongly correlated with longer-term academic performance including intermediate or secondary school graduation which, in turn, is associated with decreased likelihood of antisocial behaviour and serious violence (Stewart, Livingston, & Dennison, 2008; Jonson-Reid, Drake, Kim, Porterfield, & Han, 2004; Perry, 1997).

Regarding trauma related to maltreatment, there is a strong relationship between single-parent homes and harsh parenting practices (Benzies et al., 2009), and adolescents raised in

² Risk factors in dotted lines have likely always been present, but take on new meaning for as others accumulate.

single-parent households have been found to be significantly more likely to engage in antisocial behaviours (Demuth & Brown, 2004; Fergusson, Boden, & Horwood, 2007). Thus, there is an increased likelihood of stacked risk factors for these youth in the case of single-parent families. However, in both single- and two-parent households, as the emotional and behavioural problems associated with the trauma intensify, the ability of these children to bond with their caregivers diminishes (Perry, 1997). This creates a downward spiral, whereby the combination of continued abuse and insecure attachment increases the likelihood of conduct problems (Vando, Rhule-Louie, McMahon, & Spieker, 2008).

As chronic maltreatment continues, the likelihood of entry into the care of child protective services increases. Given the likelihood of severely maltreated children to display conduct problems, they are also likely to experience a high number of placement breakdowns, which may further reduce the likelihood of school success if placements require school transfers (Newton et al., 2000). These youth tend to engage in substance abuse at a young age in an attempt to self-medicate and cope with their trauma. Substance abuse, particularly of hard drugs, has been discussed as a form of self-medication among incarcerated youth, who in many cases had experienced trauma (Corrado & Cohen, 2002).

As these youth are shifted among placements in child protection services, unequipped to effectively navigate through social settings as a result of failed socialization techniques by neglectful and abusive parents, they have few anchors to help them avoid antisocial behaviours. Their propensity to engage in aggressive behaviours is increased by their tendency to view the actions of others as threatening, thereby eliciting a hostile response. They are unlikely to seek attachments to school, as they generally fail to become attached to school at any point due to their early classroom difficulties. As such, these youth become highly likely to engage in serious antisocial behaviour.

Intervention

Initial intervention strategies focus on service agents with most routine access to families, encouraging their ability to integrate efforts to identify families at high risk for child abuse. Public health nurses who visit pregnant mothers, family physicians, social workers, daycare workers, and police are critical sources for identifying cases of maltreatment of infants and toddlers. Later in childhood, preschool and kindergarten teachers have routine contact with their students that allow them to identify abuse and thus also take on a key role in protecting children. Early identification of abuse may be improved with knowledge of particular types of high-risk families, such as those headed by young single parents who are also unemployed or with very limited income, have little familial or friendship support, engage in routine substance abuse, and/or have serious and long-term mental health problems. Unstable intimate partner relationships further increase the childhood risk especially if histories of criminality and violence are also evident among one or both of the parents (Benzies et al., 2009). Single parenthood is pervasive in Canada since one-fifth of children in Canada in 2004 resided in single-parent homes (Vanier Institute of the Family, 2004).

Another intervention point is later childhood, just prior to adolescence. This stage is important because children who experience chronic victimization continuing from childhood to

adolescence are more likely to engage in antisocial behaviours than those whose victimization was limited to early childhood or the first year of grade school (Verrecchia, Fetzer, Lemmon, & Austin, 2010). Parent training programs that focus on improving the ability of parents to identify problematic behaviours in their children and to modify these behaviours accordingly are particularly effective (Kazdin, 1997; Howell & Hawkins, 1998). Evaluations of these programs have reported reductions in certain risk factors associated with poor family management techniques (Greenwood, 2004). However, when either the maltreatment is extreme or when maltreatment persists despite attempts to improve parenting strategies, child protection services are typically mandated by law to remove the child from the family. While there is considerable controversy over removing a child from parental care quickly, in extreme incidents of severe maltreatment resulting in major trauma including brain damage, the immediate experience of secure and intensely loving caregivers can mitigate and even reverse brain damage, especially for infants and very young children (Perry, 1997).

Another important treatment concern is assessing why some children in care experience multiple placement shifts. The latter are strongly associated with early and even chronic involvement in youth and adult criminal justice systems along with more serious offending and longer sentences. One explanation is that there is a category of maltreated children who suffer post-traumatic disorders and/or present with undiagnosed co-morbid personality disorders, some of which are discussed in the above pathways. Foster care providers who are unaware of these disorders or lack the resources to parent these types of children, not uncommonly return them to child services for another placement. In effect, by failing to identify the extent of maltreatment related trauma or childhood and adolescent disorders, the negative impact of the original trauma is compounded because of the continuing experience of “familial” rejection and related emotional/physical disruptions resulting from multiple placements (Doyle, 2007; Jonson-Reid & Barth, 2000; Newton et al., 2000). An accompanying treatment concern is the need to provide continuing housing, income, and employment assistance along with mental health services for the period of transition from late adolescence to early adulthood (Courtney & Heuring, 2005).

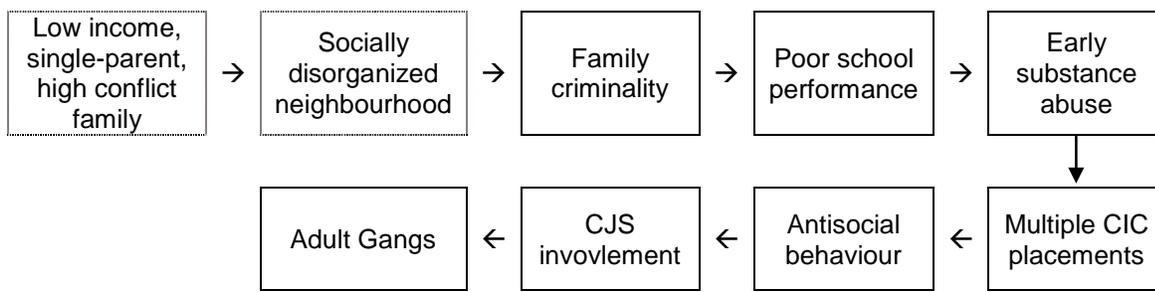
5: Adolescent Onset

There is a consensus that serious antisocial behaviour, particularly criminal behaviour, most commonly begins during adolescence (Moffitt, 1993; Gottfredson & Hirschi, 1990). The pre-eminent theoretical model of why this occurs is Moffitt’s typology consisting of Life-Course Persistent Offender and Adolescence-Limited Offender. This adolescent onset pathway is premised upon Moffitt’s (1993) identification of an adolescent-onset type of offender: individuals who begin engaging in antisocial behaviours during early adolescence, but whose earlier life experiences were not characterized by exposure to risk factors for serious antisocial behaviour. Most adolescent onset young offenders desist by late adolescence or early adulthood because of age appropriate opportunities for mature relationships and independence from parents and other authority figures (Moffitt, 1993). However, more recently Moffitt, Caspi, Harrington, and Milne (2002) acknowledged a small proportion of adolescent onset offenders who continue offending into adulthood.

Prevalence

Adolescent onset offending is common among offender populations, with estimates as high as 95% of the antisocial population (Moffitt, 1993). The typical trajectory for adolescent onset offenders who persist into adulthood (albeit at a reduced rate) is most frequently characterized by desistance around 26 years of age (Moffitt et al., 2002). Yet a small proportion do not desist during early or middle adulthood, and this is explained in relation to experienced “snares” or certain key risk factors, including substance addictions, incarceration, involvement in adult criminal gangs, and early and overwhelming parenthood responsibilities that hinder the ability of individuals to effectively desist in adolescence or early adulthood (Moffitt, 1993; Gatti et al., 2005; Thornberry et al., 2003). In other words, there are risk factors that increase the likelihood of persistence among those who would otherwise be likely to desist prior to adulthood (Lacourse et al., 2003; Stouthamer-Loeber et al., 2008).

Proposed Pathway to Serious Antisocial Behaviour for Offenders with Adolescent Onset³



The adolescent onset offender is not typically exposed to family and education risk factors as these youth are more likely to have experienced prosocial parenting, positive early school performance, and prosocial peer relationships. However, there are a significant number of adolescents who express disagreement with their parents. For example, in Rutter, Graham, Chadwick, and Yule’s (1976) early seminal Isle of Wight cohort study, up to one-third of 14 year olds indicated some disagreement with their parents. Family stability, successful routine involvement in school and leisure activities such as sports, animal care, and arts, and neighbourhood cohesion, all limit expressions of typical adolescent rebellion. Nonetheless, experiencing change (such as that brought on by divorce, changing custody arrangements, health issues, accidents, death, school transfers, bullying, change of residences and/or cities) may sufficiently disrupt daily life, resulting in an increased likelihood of adolescent onset serious antisocial behaviour.

Often, sudden changes in school performance, such as incomplete assignments and lowered grades, are linked to skipping classes in an attempt to reject authority and establish autonomy. School failure is linked to higher drop-out rates, cumulative skill deficits, reduced employment opportunities, and long-term unemployment (Moffitt, 1993; Corrado, Cohen, &

³ Risk factors in dotted lines have likely always been present, but take on new meaning for as others accumulate.

McCormick, 2008; Cohen, Corrado, & McCormick, 2008). The more excessive expressions of rebellion against authority involve association with antisocial peers, whose lifestyles mimic adult roles without the concomitant responsibilities and resources. To obtain the latter, routine property crime and drug trafficking are resorted to, and, not uncommonly, instigated and organized by life-course persistent young offenders. The lifestyle of the latter also includes illegal substance use, early onset and non-normative sexual activities, along with a range of high risk and violent behaviours. These activities are essential to the explanation of adolescent limited offenders (Moffitt, 1993). In extreme situations, these youth are either dismissed from their homes or run away. In early adolescence, and even beginning in late childhood, this reaction increases the likelihood that child/youth care agencies will become involved to place the child in the care of child protective services. However, it is likely that these youth would also run away from care placements and thus also experience multiple placements and shifts across group homes. More disconcerting, some of these youth will become “street kids” where the risk for victimization and criminal offending increase dramatically (Baron & Hartnagel, 1998; Hagan & McCarthy, 1997).

A minority of offenders become life-course persistent, such as those who experience the presence of neighbourhood risk factors (e.g., concentrated social or economic disadvantage and ethnic or racial homogeneity), family risk factors (e.g., family criminality and single parenthood), and poor school performance, rendering them more likely to be recruited into informal and formal gangs. The appeal of these gangs stems first from a desire to obtain protection through membership, and membership is sustained by interest in the associated lifestyle or by ongoing threats to survival that appear to be mitigated by gang involvement (Howell & Egley, 2005; Thornberry et al., 2003). This gang involvement is strongly correlated with persistent serious and violent offending, custodial sentences, and criminal trajectories into adulthood (Thornberry et al., 2003; Gatti et al., 2005).

Intervention Strategy

Programs based on parenting techniques for behavioural issues that commonly arise on a daily basis for this adolescent onset age group have empirical support (Gardner, Lane, & Hutchings, 2004). Specifically, improved parental recognition of risk factors and related parent management skills for devising graduated levels of responsibility and increases in child autonomy are associated with a reduction in negative behaviours at home, disruptive behaviours in the classroom, peer aggression, and improved school readiness and academic engagement. Teaching parents to avoid rigid and authoritarian language or behaviours, and establishing normative standards of conduct facilitates effective communication with adolescents. In effect, parental openness to discussion and negotiations with an adolescent can reduce their perceived sense of a lack of autonomy and minimize the desire to prematurely engage in adult behaviours. A key objective is to teach parents how to minimize the likelihood of a continuous cycle of parent-child anger, parental recrimination, and the escalation of language by both parties with the resultant rebellious behaviour displayed by the adolescent (Webster-Stratton & Taylor, 2001; Gardner et al., 2004; Sanders, Turner, & Markie-Dadds, 2001).

Programs focused on the adolescent pathway are often necessary because it is the presence of actual programs that de-escalates the above cycle despite all the best parental intentions. Again, schools and other community-based programs can provide opportunities to experience autonomy and more adult-like prosocial excitement. Beyond sports programs that are usually highly exclusive and limited to a handful of the best athletes, sports clubs led by older students and supervised by adult mentors can be an important source for positive self-image and autonomy. Programs to develop trade skills, along with apprenticeships, can also be targeted at middle and late adolescents to provide another school/community-based opportunity. Government sponsored independent living experiences can also be targeted at the small number of older adolescents who have fundamental difficulties remaining at home.

Conclusion

It is not possible in the limited space of this article to explicate the complete series of potential risk factors, intervention points, and related programs appropriate for each pathway. The essential theme of this article is that recent developmental theories, empirical research, and related risk measurement instruments in Canada and elsewhere, have provided vitally important information concerning intervention strategies to reduce child and adolescent antisocial behaviours that progress into adult criminal trajectories. Indeed, the literature is now sufficiently developed and specified within a developmental framework to provide a degree of specificity as to what prevention strategies at which developmental points will best target appropriate risk in the context of evidence-based strategies (Leschied, Chiodo, Nowicki, & Rodger, 2008).

Another theme is that there are multiple developmental pathways that are hypothesized to require different intervention points, and therefore, different programs are appropriate according to the initial risk factor, despite the numerous risk factors shared across the developmental stages. A key assumption is that valid diagnostic instruments exist to identify risk factors for each pathway, and that there are valid treatment interventions as well. This optimistic perspective, arguably, is embedded in the Canadian research presented in all the other articles in this special edition. At a minimum, there is an emerging consensus among developmental theorists and researchers that there is considerable causal heterogeneity among serious and violent young offenders. This diversity is specifically evident in the 12-year SSHRC-funded study of over 1,000 incarcerated young offenders in British Columbia that the authors have been involved in. Finally, these pathways are also designed to stimulate a debate about additional risk factors, the sequencing of risk factors, appropriate treatment strategies, and the identification of additional pathways.

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