

**Predicting Serious Violent and Serious Property Offending:  
School- and Family-Problem Risk Factors  
Revealed by Incarcerated Youth**

**by**

**Leigh Anne Deana Erlichman**

M.A. (Education), Simon Fraser University, 2004

B.A. (First Class Honors, Criminology), Simon Fraser University, 1999

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# Approval

**Name:** Leigh Anne Deana Erlichman  
**Degree:** Doctor of Philosophy (Criminology)  
**Title of Thesis:** *Predicting Serious Violent and Serious Property Offending: School- and Family-Problem Risk Factors Revealed by Incarcerated Youth*

**Examining Committee:**

**David MacAlister, LL.M.**  
Chair  
Associate Professor

**Dr. Raymond Corrado**  
Senior Supervisor  
Professor

---

**Dr. Martin Bouchard**  
Supervisor  
Associate Professor

---

**Dr. William Glackman**  
Supervisor  
Associate Professor

---

**Professor Meguido Zola**  
Supervisor  
Associate Professor  
Faculty of Education

---

**Dr. P. Randall Kropp**  
Internal Examiner  
Adjunct Professor  
Department of Psychology

---

**Dr. John Winterdyk**  
External Examiner  
Professor  
Department of Justice Studies  
Mount Royal University

**Date Approved:** October 25, 2013

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## Abstract

Serious violent young offenders have been described as “a rare species.” Most general population studies do not examine serious and violent young offenders. The vast majority of research on school risk factors and offending focus on delinquency as opposed to serious and violent offending by youth. Research has demonstrated that school problems (poor academic performance, truancy, dropout) are related to delinquency. The aim of the current study is to assess whether school and family problems are significant predictors of serious violent and serious property offences for incarcerated youth. This study also examines whether Aboriginal ethnicity is a significant predictor of serious violent and serious property offences.

Data for this thesis is from a sample of serious and violent young offenders in custody drawn from two secure custody facilities and two open custody units located in a major urban centre of British Columbia, Canada ( $n = 404$ ). The sample consists of youth (aged 12–19) who were interviewed as part of the research project entitled the *Vancouver Serious and Violent Incarcerated Young Offenders Study*.

Bivariate tests and logistic regression models are used to analyze the role of school and family problems in predicting serious violent and serious property offences. Results show that school problems, family problems, age, mental health problems, and substance use are significant predictors of serious violent offences. Family problems, mental health problems, gender, and Aboriginal ethnicity are significant predictors of serious property offences. School problems, gender, age, mental health problems, and

substance use are significant predictors of *serious violent and serious property offences* (SVSP offences). School problems, family problems, gender, mental health problems, and substance use are significant predictors of *no serious violent and no serious property offences* (no-SVSP offences). When adjusting for the effect of demographics, mental health problems, and substance use, school and family problems are important independent predictors of serious violent offences and no-SVSP offences. School problems are also a strong independent predictor of SVSP offences. Family problems emerged as an independent risk factor for serious property offences.

**Keywords:** Serious and Violent Incarcerated Young Offenders Study; incarcerated youth; youth violence; serious property offender and serious violent offender; school risk factors and family risk factors; Aboriginal young offender

## Acknowledgements

An endeavor of this type is never the sole product of the author,  
but the culmination of the efforts of many.

(Schuster, 1978, p. iii)

The above quote, which appeared in the acknowledgment section of another dissertation, captures the essence of my academic endeavour. My dissertation would not have been possible but for the support and guidance of others.

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Thank you to Amanda McCormick for her assistance with the Vancouver *Serious and Violent Incarcerated Young Offenders* Study dataset. I appreciate her helpful suggestions. Thank you to Evan McCuish for his statistical advice.

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I am grateful to the library staff at Interlibrary Loans, Simon Fraser University. Throughout many years of research, Nancy Blake and Vera Yuen ensured excellent delivery of my interlibrary loan requests.

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## Dedication

*For my husband, daughters, and parents.*

To my husband and family for their encouragement and unrelenting, loving support over the years. I know you are proud and happy this day has finally come!

Growing up, I learned from my father's drive to succeed, attention to detail, and even desire to strive for perfection. All of the above turned out to be necessary attributes for reaching the doctorate degree level.

My mother taught me good common sense. My father characterizes her as having "extreme common sense." This virtue helped guide my academic career.

My husband taught me the importance of persistence. As his mother once told me, if the road he travels on is broken he will still find a way. I have witnessed that quality both in a literal and metaphorical sense. His teachings inspired me to succeed in my doctorate program.

My brother's dedicated work ethic has inspired me during the writing of my dissertation. My brother, who owns a painting company, strives to produce craftsmanship no matter how much effort or time it takes.

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## List of Acronyms

ADHD	Attention Deficit Hyperactivity Disorder
AHS	Aboriginal Head Start
AL	Adolescent-limited
DSM	Diagnostic and Statistical Manual of Mental Disorders
DYS	Denver Youth Survey
FAE	Fetal Alcohol Effects
FAS	Fetal Alcohol Syndrome
FASD	Fetal Alcohol Spectrum Disorder
LCP	Life-course-persistent
No-SVSP	No serious violent and no serious property offences
OJJDP	Office of Juvenile Justice & Delinquency Prevention
PYS	Pittsburgh Youth Study
SVO	Serious Violent Offenders
SVSP	Serious violent and serious property offences
VYOS	Vancouver Serious and Violent Incarcerated Young Offenders Study
YCJA	Youth Criminal Justice Act
YOA	Young Offenders Act

# **Chapter 1.**

## **Introduction**

In criminological research it has long been recognized that serious violent young offenders are "a rare species" (Hamparian, Schuster, Dinitz, & Conrad, 1978, p. 101). Not surprising, most of the theory and research on risk factors for young offenders have focused on delinquency rather than the far fewer serious and violent young offenders (Huizinga & Jakob-Chien, 1998; Loeber & Farrington, 1998; Loeber, Slot, & Stouthamer-Loeber, 2008; Loeber, Farrington, Stouthamer-Loeber, & White, 2008b). In the original cohort study by Glueck and Glueck (1950) as well as the subsequent earlier large scale cohort studies, including the longest continuing study, West and Farrington's (1973) Cambridge–London project and the Wolfgang, Figlio, & Sellin (1972) Philadelphia Cohort study, all initially identified the now traditional profiles of risk factors and protective factors. Regarding the former, it was overwhelmingly evident that serious delinquency and related criminality were highest in neighbourhoods that were socially disorganized with high concentration of economic disadvantage and low levels of social all forms capital (Laub & Lauritsen, 1998; Loeber & Wikström, 1993; Sampson, 2006; Sampson, 2012; Sampson, Castellano, & Laub, 1981; Sampson, Castellano, Laub, & Hindelang, 1981; Sampson & Groves, 1989; Sampson & Laub, 1993; Sharkey & Sampson, 2010; Wikström & Sampson, 2003). It was in these neighbourhoods, therefore, that cohort studies drew their child samples which were followed into adolescence and various

stages of adulthood. The dominant original theories including Strain, Subcultural, Differential Association, Drift, Labelling, and Social Control all focused on the key role of the family and related neighbourhood institutions, most importantly, schools. The dominant trajectory began with either somewhat widespread non-serious delinquency in middle childhood i.e., school age of 8 to 12 or adolescence i.e., middle school age of 13 to 16 and then on to criminality in late adolescence 17 to 18 for a smaller number which was reduced further for those who continued into adulthood. In effect, delinquency was seen typically as peaking at age 15 then decreasing other than for a small number of delinquents who had more serious delinquency histories/criminality. For example, it was the Philadelphia cohort study that first reported the existence of the "eight percent" who committed the bulk of serious delinquency/criminality. Thus even in neighbourhoods with highest levels of delinquency/criminality, only a small number of children and adolescents engaged in such anti-social behaviours. And, further, many of these youth were in either youth gangs or adult/youth gangs. The cohort studies then began identifying the specific risk factors for general delinquency and for the eight percent group plus the protective factors that distinguished both of these youth types from children and adolescents who did not engage in any systematic anti-social or delinquent/criminal behaviours. The protective factors appeared to involve a stable family and pro-social involvement in community institutions mainly school and church. The primacy of these three institutions was integral to the dominant theory of delinquency in criminology for much of the last half of the 20<sup>th</sup> Century, Hirschi's Social Control Theory. This theory postulated that children who bonded early to parental pro-social attitudes and community activities especially family and school related



overwhelmingly avoided developing the “low self control” i.e., inability to defer gratification, especially by age 10, that explained why children engaged in a pattern of serious delinquencies which typically continued into adolescence and adulthood (Gottfredson & Hirschi, 1990). While social control theory has been criticized as either just simply wrong or woefully incomplete, there is little disagreement that “low self control” concept is important in explaining, at least partially, why delinquency occurs. This consensus extended further to the importance of low self-control in accounting for another central risk factor for delinquency, poor school performance. Children and adolescents who have an extensive profile of school problems including frequent truancy, poor academic performance, persistent disciplinary infractions, expulsions and drop-outs are at overwhelming much higher risk for engaging in persistent delinquency. In contrast, critical protective factors were parental involvement in their children’s routine school activities e.g., homework and parent teacher meetings and high verbal skills (Brier, 1995; Herrenkohl, Hawkins, Chung, Hill, & Battin-Pearson, 2001; Loeber, Farrington, Stouthamer-Loeber, & Van Kammen, 1998; Maguin & Loeber, 1996; Sweeten, Bushway, & Paternoster, 2009; Thornberry, Moore, & Christenson, 1985; Tremblay, Vitaro, Nagin, Pagani, & Séguin, 2003). However, while nearly all the risk and protective factors for delinquency more recently have been identified as similarly important for predicting serious and violent young offenders, there are few studies of the importance of education based risk factors while controlling for other key risk factors such as family problem profile and, in Canada, Aboriginal ethnicity/race, for this relatively numerically small number of young offenders. Very importantly, there are even fewer such studies of these correlates of serious and violent young offenders in

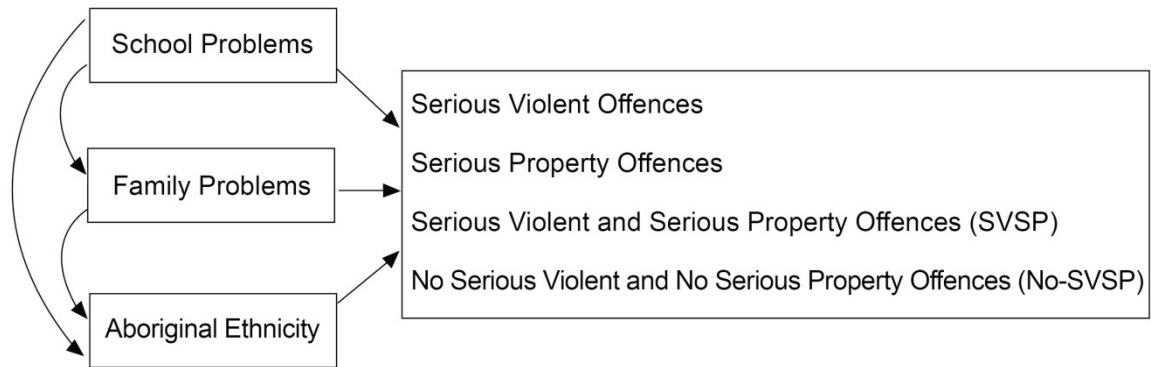
Canadian contexts. The latter, arguably, are fundamentally different than the United States (US), the United Kingdom, and Sweden where most of the classic cohort studies that included subsamples of serious and violent young offenders were conducted (Farrington, 1989, 1991; Farrington & West, 1981; Herrenkohl et al., 2000; Hodgins, Kratzer, & McNeil, 2002; Huizinga, Esbensen, & Weiher, 1991; Huizinga & Jakob-Chien, 1998; Huizinga, Loeber, & Thornberry, 1993, 1995; af Klinteberg, Andersson, Magnusson, & Stattin, 1993; Kratzer & Hodgins, 1999; Loeber & Farrington, 2011; Loeber, Farrington, Stouthamer-Loeber, Moffitt, & Caspi, 1998; Loeber et al., 2008b; Stattin & Magnusson, 1989; Thornberry, Huizinga, & Loeber, 1995; Wadsworth, 1978, 1979; West & Farrington, 1973). While there have been several renowned Canadian studies in Quebec, these studies' samples involved either very young children or a broad sample of delinquents but few serious and violent young offenders generally and Aboriginal young offenders, specifically (see Côté, Vaillancourt, LeBlanc, Nagin, & Tremblay, 2006; Haapasalo & Tremblay, 1994; Haapasalo, Tremblay, Boulerice, & Vitaro, 2000; LeBlanc & Fréchette, 1989; Nagin & Tremblay, 1999, 2001; Tremblay, Mâsse, Pagani, & Vitaro, 1996; Tremblay & Nagin, 2005; Tremblay et al., 2004; Tremblay et al., 1992; Tremblay et al., 2003; Tremblay, Pihl, Vitaro, & Dobkin, 1994). In other words, all the studies have contributed enormously to understanding the key education risk and protective factors for this type of young offender but the generalizability of their findings to certain Canadian context is problematic for several reasons. Very importantly, for example, US studies of serious and violent young offenders overwhelmingly have had disproportionate numbers of African American and Spanish/Hispanic in their samples, many associated with another key risk factor,

involvement in long standing or institutionalized adult/youth gangs. Similarly, studies from New Zealand and elsewhere did not include large subsamples of Aboriginal youth, despite the latter country's large Māori minority population. According to Moffitt, Caspi, Dickson, Silva, & Stanton (1996), "the sample members are of predominantly European ancestry. Fewer than 7% identified themselves as Māori or Polynesian at age 18 years, which matches the ethnic distribution of New Zealand's South Island" (p. 405).

The current limited study investigates whether three key risk factors—school problems, family problems, and Aboriginal/non-Aboriginal ethnicities—in a Canadian, primarily metropolitan, context are significant predictors of serious violent and serious property offences (Figure 1). The main hypotheses are:

1. School problems are a strong predictor of serious violent offences, serious property offences, serious violent and serious property offences (SVSP offences), and no serious violent and no serious property offences (no-SVSP offences);
2. Family problems are a strong predictor of serious violent offences, serious property offences, serious violent and serious property offences (SVSP offences), and no serious violent and no serious property offences (no-SVSP offences);
3. Aboriginal ethnicity is a strong predictor of serious violent offences, serious property offences, serious violent and serious property offences (SVSP offences), and no serious violent and no serious property offences (no-SVSP offences);
4. School and family problems are the strongest predictor of serious violent offences, serious property offences, serious violent and serious property offences (SVSP offences), and no serious violent and no serious property offences (no-SVSP offences).

**Figure 1. Predicting Serious Violent and Serious Property Offences**



## Thesis Outline

The cohort and cross sectional designed research projects along with several of the comprehensive risk management instruments for serious aggressive and violent children and older youth have identified an enormous array of protective, risk, and promotive factors. The latter concept is more recent and has been defined by Loeber et al. (2008) as factors that reduce the likelihood of children generally engaging in serious and violent behaviours. Promotive factors are defined as “factors that predict a low probability of serious offending” (Loeber, Farrington, Stouthamer-Loeber, & White, 2008a, p. 9). It is beyond the scope of this thesis to review all of these factors let alone examine their relative importance to education problems in understanding serious and violent offenders in this study. However, several of the key risk factors and research related to each of them are discussed in the next chapter along with the concept of serious and violent offending. However, before, it is important to briefly describe the chapter outline of this thesis.

Chapter 2, as stated, involves a review of the key risk factors and the dependent variables along with related empirical studies. Education related risk factors are emphasized. Chapter 3 consists of a discussion of the major theories that have been utilized to derive the above hypotheses and possibly explain them. Chapter 4 outlines the research project, the Vancouver *Serious and Violent Incarcerated Young Offenders Study*, and methodology employed to assess the four hypotheses. Chapter 5 includes a description of the univariate, bivariate, and multivariate analyses of the study data more generally and the four hypotheses, specifically. Chapter 6 consists of the discussion of the results of the general analysis and for the hypotheses in terms of the theories reviewed in Chapter 3. The concluding chapter identifies the limits of this study including the generalizability of its findings. In addition, several policy implications of this study's findings are discussed briefly.

## **Chapter 2.**

### **The Serious and Violent Young Offenders Concept and Selected Risk Factors**

As mentioned above, much of the original theoretical and related empirical research on serious and violent young offending emerged from the renowned US gang studies largely throughout the second half of the 20<sup>th</sup> Century beginning with Miller (1966, 1974), Cohen (1955, 1969) and Klein (1971, 1995), and then Hagedorn (1988, 1998), Thornberry (Thornberry, 1998; Thornberry, Krohn, Lizotte, & Chard-Wierschem, 1993; Thornberry, Krohn, Lizotte, Smith, & Tobin, 2003; Thornberry, Lizotte, Krohn, Smith, & Porter, 2003), Decker & Van Winkle (1996), and more recently, Jody Miller (1998, 2001a, 2001b, 2001c, 2002a, 2002b, 2009, 2014; Miller & Decker, 2001; Peterson, Miller, & Esbensen, 2001, 2006) and Cheryl Maxson (Egley, Maxson, Miller, & Klein, 2006; Klein & Maxson, 2006; Maxson & Whitlock, 2001; Maxson, Egley, Miller, & Klein, 2013) involving girls. In effect, the gang context, especially in the United States, overwhelmed other risk factors including school and problems in theories of the most serious and violent offending. These gangs engaged in the most extreme acts of serious offending including drug trafficking, extortion, threats/intimidation, assaults and murder. Yet, these serious gang related crimes were committed by a small number of young offenders, therefore, had limited generalizability to serious and violent offending by non-gang members particularly in countries such as Canada, which

historically has had few intergenerational youth gangs typical of the US gang context in cities such as Chicago and Los Angeles. The concept of serious and violent offending beyond the more narrow gang context emerged gain largely from broad US surveys of youth crime (Elliott, 1994; Elliott, Huizinga, & Menard, 1989; Elliott, Huizinga, & Morse, 1986; Huizinga et al., 1991; Huizinga & Jakob-Chien, 1998) and the now classic cohort studies by Loeber, Stouthamer-Loeber, and Farrington (Farrington, 1989, 1991; Farrington & West, 1981; West & Farrington, 1973; Loeber & Farrington, 2011; Loeber, Farrington, Stouthamer-Loeber, Moffitt, & Caspi, 1998; Loeber et al., 2008b; Loeber et al., 2005; Loeber, Wei, Stouthamer-Loeber, Huizinga, & Thornberry, 1999; Thornberry et al., 1995) and Moffitt et al. (Moffitt, 2003; Moffitt et al., 1996; Moffitt, Caspi, Harrington, & Milne, 2002; Moffitt, Caspi, Rutter, & Silva, 2001). However, the US studies did elaborate several comprehensive conceptualizations of serious and violent offending along with related operational indicators of this concept. Several of these key studies' concepts and indicators will be described.

In the National Youth Survey, Elliott (1994) defined serious violent offenders accordingly: "aggravated assaults, robberies, and rapes that involved some injury or a weapon" and gang fights that involved the use of a weapon or injury requiring medical treatment (p. 4). More specifically, for example, regarding aggravated assault, the following self-reported measures of violent behaviour were employed:

["Have] you attacked someone with the idea of seriously hurting or killing that person"; for robbery, ". . . used force or strong-arm methods to get money or things from people?"; and for rape, ". . . had or tried to have sexual relations with someone against their will?" (Elliott, 1994, p. 3)

Similarly, Ellickson, Saner, and McGuigan's (1997) study operationalized serious youth violence as "gang fights, strong-arm methods, carrying a hidden weapon, or attacking with intent to hurt or kill" (p. 987). However, the Seattle Social Development Project utilized a broader definition i.e., acts involving serious harm or threats of harm to other persons and set of indicators for serious violent behaviour: "(a) hit a teacher, (b) picked a fight, (c) hit someone with intent of hurting him or her, (d) threatened someone with a weapon, (e) used force or threats of force to get things from others, and (f) beat someone so badly he or she required medical attention" (Herrenkohl et al., 2000, p. 179). Herrenkohl et al.'s (2000) operationalization required that youth had engaged in three or more acts involving either "picked a fight" or "hit someone with intent of hurting him or her" (p. 179).

Farrington and Loeber (1998) and Loeber, Farrington, and Waschbusch (1998) distinguished serious non-violent young offenders and violent juvenile offenders. First, serious violent offending involved one or more of the following: homicide, voluntary manslaughter, aggravated assault (which included weapons offences and attempted murder), kidnapping, either rape or attempted rape, robbery (including use of a weapon), and arson of occupied building. Second, serious nonviolent offences involved one or more of the following: carjacking, felony larceny/theft, arson (other than of an occupied dwelling), auto theft, fraud, dealing in stolen property, burglary, break and enter, extortion, forgery and counterfeiting, embezzlement, drug trafficking, weapons violation and firearms regulations/statutes (Loeber, Farrington, & Waschbusch, 1998, pp. 14–15). More recently, Loeber, Farrington, Stouthamer-Loeber, and White (2008a) summarized their original distinction as: serious violent offenders as having committed



“forcible robbery, attacking with intent to injure, sexual coercion, or rape”; and, serious theft as “breaking and entering, or auto theft” (p. 9). There appeared, therefore, to be a consensus concerning conceptual and operational definitions of serious and violent offenders, much of it based on Loeber and his colleagues’ on-going cohort studies in Pittsburgh, particularly, and in Denver, Colorado and Rochester, New York as well (see, for example, Huizinga & Jakob-Chien, 1998; Loeber, Slot, & Stouthamer-Loeber, 2006; Loeber et al., 1993).

For the most part, the above conceptualizations appear to be directly applicable to the Canadian context especially given that there is a single common code for the Canadian provinces/territories even though there are often differences in the wordings or phrasing of specific crimes compared to US states with their separate criminal codes. As stated above, three major cohort studies initiated in 1986 by the United States (U.S.) Office of Juvenile Justice and Delinquency Prevention (OJJDP), under the Program of Research on the Causes and Correlates of Delinquency, has been the major impetus in recent research and theoretical development concerning serious and violent offenders, especially the Pittsburgh and Rochester studies, respectively (Thornberry et al., 1995; U.S. Department of Justice, Office of Juvenile Justice and Delinquency Prevention, 2010). It is important, therefore, to review these studies’ findings in more detail.

## **Office of Juvenile Justice and Delinquency Prevention Cohort Studies**

The main general theme of the OJJDP sponsored cohort studies was the enhancement of the understanding of serious delinquency, violence, and drug use by

examining how youth develop within the long standing conceptual domains of family, school, peers, and community. As mentioned above, there has been an increasing theoretical consensus based on largely initial cohort studies but sophisticated cross sectional research studies as well that risk and protective factors have overwhelmingly but, not exclusively, involved these broad conceptual domains.

Pittsburgh, Pennsylvania; Denver, Colorado; and Rochester, New York were the three sites selected for the cohort studies based, in part, on these cities being where several of the three research teams' principal investigators were located but, more importantly, because of the availability of the appropriate samples of both delinquent and serious violent young offenders as well as neighbourhoods. The common theoretical focus was Loeber et al.'s multi-developmental pathways model concerning different types of delinquency and criminal offending from middle childhood into different adulthood stages for the latter types of offences. Beginning in 1988, the cohort design involved repeated face-to-face survey interviews every 6 or 12 months of the three projects' initial samples totalling 4,500 inner-city youth from 7 to 15 years of age. Because of the well-established low base rates of serious chronic delinquency, youth at risk for more serious delinquency were overrepresented in the samples (Thornberry et al., 1995). In addition, primarily to obtain information concerning development stage defined childhood risk and protective factors, the child's primary caretaker was interviewed in all three sites along with their teachers, whenever possible, for the school-based factors (teacher interviews were conducted mainly at the Pittsburgh site) (Huizinga et al., 1993, 1995; Huizinga, Loeber, Thornberry, & Cothorn, 2000). Also, information from government and community agencies, including police, courts,

schools, and social services was obtained for additional risk factors, very importantly, official delinquency and criminal offending outcome measures. The latter two measures subsequently were utilized as key risk factors for serious and violent offending in later developmental age stages including adulthood (Loeber et al., 2008b; U.S. Department of Justice, Office of Juvenile Justice and Delinquency Prevention, 2012).

Given Farrington's pioneering and continuing Cambridge–London East London cohort project and Loeber et al.'s multi-developmental pathways theoretical model, it was not surprising that their Pittsburgh study has been preeminent concerning serious and violent offending research and theory building. Yet all three studies examined a common array of risk and protective factors for serious delinquency. The Pittsburgh Youth Study (PYS) is a longitudinal study of the life course of offending and other problem behaviours of boys who were enrolled in public schools in Pittsburgh in 1987–1988 (Farrington, Loeber, Jolliffe, & Pardini, 2008). Three age cohorts of boys who were in the first, fourth, or seventh grades were recruited and initially assessed concerning their risk and protective profiles for serious delinquency. The initial total sample was 1,517, with approximately 500 boys from each grade who were tracked concerning their official serious and violent offending records and reinterviewed periodically over 13 years (Loeber et al., 2008a; Howell, 2008). In the PYS, serious violence was defined as "forcible robbery, attacking with intent to injure, sexual coercion, or rape," and serious theft was defined as break and enter or auto theft (Loeber et al., 2008a, p. 9).

The Denver Youth Study (DYS) involved annual personal interviews with a probability sample of five different birth cohorts and their parents from socially

disorganized neighbourhoods in Denver, Colorado with a high risk for delinquency determined by official crime rates (Huizinga et al., 1991). The sample includes 1,527 children and youth who were age 7, 9, 11, 13, or 15 in 1987. Interviews with the youth and caretaker were conducted annually between 1988 to 1992 and then from 1995 through 1999 (U.S. Department of Justice, Office of Juvenile Justice and Delinquency Prevention, 2010). Serious violent offenders were defined in the study as “those engaged in aggravated assault, robbery, rape, and gang fights” (Huizinga & Jakob-Chien, 1998, p. 50) and serious nonviolent offenders were defined as “those not engaged in serious violence but who are engaged in thefts over \$50, burglary, auto theft, and so forth” (p. 50).

The Rochester Youth Development Study began in 1988 with a sample of 1,000 students in the seventh and eighth grades of Rochester, New York public schools in high-crime neighbourhoods (Thornberry et al., 1995). Youth and their primary caretakers were interviewed at 6-month intervals between 1988 and 1992 and then, annually, from 1994 to 1996 (U.S. Department of Justice, Office of Juvenile Justice and Delinquency Prevention, 2010). Subjects were reinterviewed in 1997 (U.S. Department of Justice, Office of Juvenile Justice and Delinquency Prevention, 2010). In addition, data were collected from a variety of Rochester agencies, including the schools, police, courts, and social services.

Researchers from these three major cohort studies joined other researchers in 1995 to participate in the OJJDP’s Study Group on Serious and Violent Juvenile Offenders with the main goal of the Study Group to “relate the evidence of early childhood problems to the various pathways leading to serious and violent conduct”

(Ohlin, 1998, p. xiii). The Study Group identified both risk and protective factors for these offending types and related intervention strategies/programs. The results were published in Loeber and Farrington's 1998 *Serious and Violent Juvenile Offenders: Risk Factors and Successful Interventions* which concluded that "SVJ [serious and/or violent juvenile] offenders tend to start displaying behavior problems and delinquency early in life, warranting early intervention . . . prevention is never too early" (Loeber & Farrington, 1998, p. xx). Very importantly for this thesis study Loeber and Farrington (1998) reported that, independent of ethnicity/race, school problems such as truancies, suspensions and dropout along with substance abuse and mental health problems characterized the majority of serious and violent of young offenders. As well, these multi-problem young offenders were disproportionately victims of violence. With regard to intervention strategies, most involved the family multi-problem context.

Unlike the above cohort studies, there has been long and extensive theorizing and research about its importance in affecting school problems and, in turn, serious and violent offending. Yet, more contemporary cohort research has been able to describe more intricately the complex set of risk factors and dynamics involved in family's role regarding school and serious and violent offending. One of the more definitive manifestations of family problems has been "running away from home" for the obvious reason that it is a convincing indicator that a youth has reached a breaking point with family problems that leaving is seen as the way to move away from this traditionally protective institution.

## **Family Problems Serious and Violent Offending**

Based on PYS data, running away from home significantly predicted serious violence generally even when controlling for other risk factors (Farrington et al., 2008; Loeber & Farrington, 2011). One important pattern that was reported was running away from home in the previous development stage predicted serious violence either in the next development age stage or a subsequent stage: running away from home in middle childhood (ages 7–9) was predictive of serious violence in late childhood (ages 10–12); running away in early adolescence (ages 13–15) was associated with serious violence in late adolescence (ages 16–19); and, running away in early adolescence was correlated with serious violence in early adulthood (ages 20–25) (Farrington et al., 2008).

Virtually the same pattern was evident as well for serious theft in the PYS (Farrington et al., 2008). Running away in the youngest middle childhood cohort was predictive of serious theft in late childhood as this factor was for late childhood and serious theft in early adolescence, and, finally, running away from home in early adolescence was associated with serious theft in late adolescence (Farrington et al., 2008). Finally, running away from home significantly predicted both serious violence trajectories and serious theft trajectories (Lacourse, Dupéré, & Loeber, 2008). More specifically, running away at age 7 significantly predicted serious violence trajectories at ages 10–19, and this factor at age 13 was a statistically significant predictor of both serious violence and serious theft at ages 13–25 (Lacourse et al., 2008).

This PYS pattern was also evident in a large sample ( $n = 495$ ) of incarcerated female young offenders (46%) in a US study where nearly half had histories of running away from home (Lederman, Dakof, Larrea & Li, 2004). However, even for incarcerated male youth in a Los Angeles, California youth detention sample, an identical proportion reported similar running away histories (Newman, 1996). Even higher proportions for both genders were reported in an Oregon study of 531 incarcerated youth; 57% of males and 91% of females had run away from home (Allen, 2004). In this study, more than a majority of males with this risk factor had committed either a violent offence (55%) or property (61%) offence while even far higher proportions of female respondents had committed either a violent offence (88%) or property offence (97%) (Allen, 2004).

As mentioned above, running away has been associated with a myriad of family problems, most seriously, parental physical, sexual, and emotional abuse, especially for girls (Fejes-Mendoza, Miller, & Eppler, 1995).

### **Abusive Family Histories and Serious Theft and Serious Violent Offending**

In the PYS study, child maltreatment by age 12<sup>1</sup> significantly predicted serious violence (Farrington et al., 2008). Again, for the most part, the above patterns evident for the running away risk factor were also reported for the child maltreatment risk factor, i.e., child maltreatment in an earlier developmental stage was predictive of

<sup>1</sup> "Child maltreatment by age 12" is defined in the Pittsburgh Youth Study as "all forms of substantiated maltreatment requiring the intervention of Children and Youth Services" (Stouthamer-Loeber & Stallings, 2008, p. 66).

serious violence in a subsequent stage. Specifically, child maltreatment, in middle childhood, was a significant predictor of serious violence in late adolescence, child maltreatment in late childhood was associated with serious violence in early adolescence, and child maltreatment in early adolescence was predictive of serious violence in late adolescence. However, for the oldest cohort, child maltreatment was not a significant predictor of serious violence in early adulthood.

A similar pattern was evident for the relationship between child maltreatment and serious theft. This risk factor, again like its relationship with serious violence, when evident in middle childhood, was predictive of serious theft in late childhood and late adolescence (Farrington et al., 2008). As with serious violence, child maltreatment in late childhood was a significant predictor of serious theft in early adolescence and child maltreatment in early adolescence was predictive of serious theft in late adolescence. When evident in early and late adolescence, child maltreatment was associated with early adulthood serious theft, but not early adulthood serious violence. Very importantly, for the oldest cohort, a relationship between child maltreatment and serious theft was not evident when the early adolescence to late adolescent stages were examined. This relationship was significant only for the youngest cohort. This finding of the oldest cohort supports Moffitt's (1993) model which identified the Adolescent-Limited (AL) offender type i.e., Moffitt (1993, 1997; Moffitt et al., 1996), this type was more likely to engage in serious theft as part of their wanting to be part of risk taking behaviours based life style not typically normative or accepted in early adolescence yet this type desist in late adolescence when other "mature" or independent of parental and other authority control become typically more available and acceptable.



Similarly, Moffitt's other key type, Life-Course-Persistent (LCP), was supported somewhat in that middle childhood maltreatment was associated with early adulthood serious theft. While Moffitt's LCP was derived from a complex interaction between neuro-deficits and serious early childhood maltreatment on the one hand and middle childhood serious delinquency, it is possible that even maltreatment in middle childhood, without the presence of identified neuro-deficits, might affect persistent serious theft offending in early adulthood. Also, there is an extensive research and theoretical literature in developmental psychology that emphasizes the potential importance of trauma in both early and middle childhood to the presence of childhood disorders such as oppositional defiant disorder and conduct disorder in particular. These two disorders, independent of major neuro-deficits, in turn, have been associated with chronic physical aggression in childhood and chronic offending in later developmental stages (see Farrington, Loeber, & Van Kammen, 1990; Isaak, 2012; Loeber, Burke, & Pardini, 2009a, 2009b; Loeber & Farrington, 2011; Loeber, Farrington, Stouthamer-Loeber & Van Kammen, 1998; Loeber, Green, Keenan, & Lahey, 1995; Loeber, Slot, van der Laan, & Hoeve, 2008; Tremblay, 2003, 2010).

However, an earlier meta-analysis of longitudinal research on predictive risk factors for violent or serious delinquency in adolescence and early adulthood by Lipsey & Derzon (1998) found abusive parents was among the weakest predictors of violent or serious delinquency between ages 15–25. The "abusive parents" category included "child emotional abuse, maltreated as a child, neglected as a child, physically abused as a child, and sexually abused as a child" (Lipsey & Derzon, 1998, p. 103). Nonetheless, the PYS findings were based on very sophisticated research design that divided age

categories into more complete set developmental age stages which facilitated the above sequential analysis relating risk factors such as child abuse to subsequent serious violence and serious theft in later developmental stages.

The key relationship between child abuse and serious offending was further complicated when physical punishment occurred along with child abuse. It was not surprising, therefore, that the PYS found that child abuse and physical punishment separately were predictive of serious violent offending in young adult men i.e., 18 to 25 years of age, including homicide (Loeber & Farrington, 2011; Loeber et al., 2005). Again, serious violent offenders were defined as those in the sample who had either been convicted of homicide, index violence (conviction for forcible rape, robbery, or aggravated assault), or reported violence (self-, parent-, or teacher-reported rape, robbery, or aggravated assault) (Loeber et al., 2005, p. 1081).

Another somewhat more controversial risk factor for serious and violent offending is the early exposure to violence in the family (witnessing and physical victimization). Elliott (1994) utilized cohort data from the National Youth Survey, a longitudinal study of a national probability sample of 1,724 youth ages 11–17 in 1976 to examine this relationship. Based on self-reported data from waves 1–8 (1976–1989), Elliott did not acknowledge a statistically significant association between early exposure to violence in the family and the onset of serious violent offending: just a weak relationship. He states that “early exposure to violence also have direct effects, but these effects are weak” (Elliott, 1994, p. 16). In the Seattle Social Development Project study that involved a panel of 808 youth recruited in 1985 from 18 Seattle public

elementary schools serving high-crime areas, parental violence, at age 14, was a strong predictor of serious violence at age 18 (Herrenkohl et al., 2000). However, in this study, “parental violence” was based on parents’ self-report assessments of their own violence rather than domestic violence witnessed by the youth.

There was little doubt, therefore, that child abuse was consistently associated with increased violent delinquency in adolescence and adulthood (Gold, Sullivan, & Lewis, 2011; Lewis et al., 2007; Smith, Ireland, & Thornberry, 2005). Very importantly, as widely expected, young offenders who had been sexually abused were at higher risk for serious violence (Bergen, Martin, Richardson, Allison, & Roeger, 2004; Yun, Ball, & Lim, 2011). The above studies along with European studies also identified a relationship between children who witnessed inter-parental violence and subsequent violent offending (e.g., Bolger & Patterson, 2001; Fagan, Van Horn, Hawkins, & Arthur, 2007; Kolko & Swenson, 2002; Stouthamer-Loeber, Wei, Homish, & Loeber, 2002; Swenson & Chaffin, 2006; Swenson, Henggeler, Taylor, & Addison, 2005; Widom, 1989a, 1989b).

The above review of the major studies of the relationship between child abuse and serious offending involved general samples, albeit, which over sampled neighbourhoods with a greater likelihood of such offenders. Another important source of data concerning this relationship are studies based on incarcerated serious and violent young offenders.

### ***Incarcerated Youth Studies***

Given the above review of more general samples, it was expected that the numerous studies of incarcerated youth would confirm that child familial abuse was

associated with serious and violent offending. However, there was considerable variability in the presence of this relationship in custodial samples. For example, a 1982–1983 limited sample study of 114 male violent juvenile offenders in custody reported child abuse and sexual abuse in the home appeared to have occurred at rates of 15% and 2%, respectively (Hartstone & Hansen, 1984). According to Hartstone and Hansen (1984), one reason, though, for the unexpectedly low reported abuse rates in their study was the common underreporting of family violence in both youth official case files and face-to-face interviews. In other words, this study's rate of youth who were exposed to family violence was possibly vastly underestimated because of the shame and stigma traditionally associated with such abuse generally but overwhelmingly regarding sexual abuse of boys.

In contrast, much higher rates for certain types of abuse were reported in a larger sample study of 444 incarcerated young offenders (Belknap & Holsinger, 2006). Slightly more than two thirds (68%) of youth had suffered physical abuse from a family member (father, stepfather, mother, stepmother, or sister) (Belknap & Holsinger, 2006). Fourteen percent of the youth were sexually abused by a family member (Belknap & Holsinger, 2006). A small sample study of 79 incarcerated young offenders also found high rates of abuse (Falshaw & Browne, 1997). While slightly more than half (53%) of the sample had been physically abused by a family member, other forms of abuse by family members, though less prevalent, were, nonetheless, substantial; sexual abuse (14%), severe emotional abuse (28%), and neglect (32%). As mentioned above, Belknap and Holsinger's (2006) study also found the same rate of sexual abuse by a family member. Approximately similar rates were evident in a recent study by Mulder,

Brand, Bullens, & van Marle (2010). They reported that, in their sample ( $n = 1,147$ ) of serious incarcerated young offenders, 45% of offenders were victims of parental physical abuse, 29% experienced severe abuse, and 16% had "some problems" (p. 96). This study limited family abuse only to parental abuse rather than by any family member. In addition to the more prevalent forms of abuse, approximately 13% of offenders had been sexually abused and, again, it was suspected this too was underreported. Childhood neglect was experienced by nearly three quarters (72%) of offenders (Mulder et al., 2010). This rate of neglect was more than twice the rate reported by Falshaw and Browne (1997) in their early study.

Regarding gender, Fejes-Mendoza et al.'s (1995) study of incarcerated female youth found that youth's family history typically included familial abuse, including physical, sexual, and emotional abuse from parents (who were reportedly also abused). In a study of incarcerated youth ( $n = 515$ ) in a Southwestern US state, 44% of females were reportedly "beaten by a parent" compared to 28% of males (Rial, 2002). Females reported sexual abuse approximately four times (34%) more than males 8% (Rial, 2002). Another study of 100 incarcerated female youth from the state female juvenile detention centre in Sydney, Australia and a socio-economically matched comparison group of 100 female non-offenders reported that approximately 49% of offenders had been physically abused compared to only 6% of non-offenders (Dixon, Howie, & Starling, 2004). Because there was only one detention centre facility for juvenile females in Australia's most populous state, New South Wales, participants in the study were the most serious female juvenile offenders in the state. The majority of offenders (71%) were incarcerated for violent crimes (e.g., murder, robbery, assault), followed by

approximately 25% for property offences only (e.g., break and enter, auto theft, larceny) and 4% for drug-related crimes (e.g., possession and/or trafficking). Approximately 50% of the offenders had been sexually abused compared to 5% of non-offenders. The researchers do not specify the perpetrator of the abuse, therefore, the proportion of physical and sexual abuse committed by a parent, guardian, or family member was not known.

Even with the strong possibility of under-reporting of abuse, especially sexual abuse by boys, there appeared to be convincing comparative research confirming gender differences regarding the prevalence of the various forms of direct abuse among samples of incarcerated and non-incarcerated samples of serious and violent young offenders.

However, the discrepancy in rates in many of the above studies suggested that the generalizability of findings regarding this sensitive set of abuse risk factors for serious and violent offending has been necessarily limited by a range of validity issues including different measurement indicators, small sample sizes, and other sample characteristics e.g., ethnicity/race and presence of formal gangs. Also, abuse consists of a wide range of types including controversial ones such as “witnessing domestic violence.” Much of the controversy centers on whether it is a form of abuse and whether it should be considered more appropriately as a separate risk factor.

### **Witnessing Domestic Violence**

Despite the conceptual/theoretical controversy involving this concept, it was reported to have occurred not infrequently. In Mulder et al.’s (2010) recent large study

of institutional files of male (n = 1,112) and female (n = 35) offenders, aged 12 to 23 years old, sentenced to custody in the Netherlands between the years 1995 and 2005, more than one third of their sample (39%) had witnessed domestic violence with one quarter of them having been highly exposed. This witnessing domestic violence also was associated with parents who often displayed poor parenting skills and were not available for their child physically, pedagogically, or emotionally (Mulder et al., 2010).

Concerning this risk factor's relationship with serious and violent offending, an earlier study of 213 incarcerated boys in Arizona found it was a risk factor (Spaccarelli, Coatsworth, & Bowden, 1995). This study's research design allowed for a more valid assessment of this relationship. The sample was divided first into four categories:

"Violent Offenders," who were arrested for and self-reported involvement in serious violence; "Undetected Violent Offenders" who self-reported serious violence, but had never been arrested for it; "Deniers," who were arrested for at least one serious violent offence, but denied any such behavior in a self-report; and "Control Delinquents," who were never arrested for a serious violent crime and self-reported no acts of serious violence. (Spaccarelli et al., 1995, p. 167)

Second, the detected and undetected violent offender groups reported experiencing serious physical abuse (55% and 66%, respectively) at a statistically significant higher rate than the control group (33%) and the deniers group (30%). Serious physical abuse was defined as "any report of being kicked, bit, or hit with a fist; being beaten up; choked; threatened with a knife or gun; or actually assaulted with a knife or gun" (Spaccarelli et al., 1995, p. 170). Physical abuse was measured by "how frequently an adult in their home had used any of the same types of physical force or violence against them" (Spaccarelli et al., 1995, p. 170). Very importantly, there was no

statistically significant difference in mean proportions of “abuse involving adults wielding weapons against the youth” and witnessing serious inter-adult violence between the groups (Spaccarelli et al., 1995, p. 171). More specifically, 15% of the violent offender group, 16% of the undetected violent group, and 4% of deniers had experienced “abuse involving adults wielding weapons against the youth” compared to 6% of the control group. More than half of the violent offender group and undetected violent offender group had witnessed serious inter-adult violence (60% and 55%, respectively) compared to 39% of deniers and 41% of the control group. Also important was the finding that a higher proportion of serious violent offenders had reported having witnessed weapons use between adults living in the home (28% violent offenders, 30% undetected violent offenders, and 26% deniers) compared to the control group (9%) (Spaccarelli et al., 1995). There was a statistically significant difference in mean proportions of witnessing interadult weapons use in the home between the groups.

In the above mentioned Dixon et al. (2004) study, approximately half (52%) of offenders had witnessed domestic violence compared to 15% for non-offenders. There was a statistically significant difference in mean proportions regarding the witnessing of domestic violence between offenders versus non-offenders. In Lederman et al.’s (2004) study of incarcerated female youth approximately one third (33%) reported either a family member being a victim of abuse (physical abuse, sexual abuse, or child neglect) or had family members who were accused of being a perpetrator of abuse (31%). In effect, these youth were at least aware of abuse if not direct witnesses.

There appears to be sufficient research that at least suggested witnessing and possibly being intimately aware of family abuse might be important in understanding



serious and violent offending. Theoretically there is an established literature that explains this risk factor as contributing to fear, anxiety, withdrawal and aggression beginning in infancy and early childhood and continuing into later developmental stages if left unabated. For example, attachment theory (Bowlby, 1969, 1973, 1980) posits that several negative attachment types with potential life long difficulties in forming healthy relationships which avoid routine aggression and violence have been associated with angry, aggressive family contexts and not only just direct victimizations. Also, Tremblay et al. (Côté, Vaillancourt, Barker, Nagin, & Tremblay, 2007; Côté et al., 2006; Haapasalo & Tremblay, 1994; Tremblay, 2010) and Patterson et al. (Capaldi & Patterson, 1996; Patterson, 1982, 1986; Patterson, Capaldi, & Bank, 1991; Patterson, Reid, & Dishion, 1992; Patterson & Yoerger, 1993) have utilized developmental psychology perspectives and Thornberry et al. (Smith & Thornberry, 1994; Thornberry, 1994; Thornberry, et al., 1995; Thornberry & Krohn, 2005; Thornberry et al., 2003) and Farrington et al. (Farrington et al., 2008; Huizinga, Loeber, & Thornberry, 1994; Loeber & Farrington, 2011) from developmental criminological perspectives provide examples of theorists/researchers who identified hostile family contexts as a risk factor for serious and violent offending later in the life course if not a primary or independent risk factor.

There is, however, a long standing theoretical and research consensus that family problem profiles, which very importantly included child abuse, were strongly associated with school problems. How these family problems interact with school problems to explain serious and violent offenders is the foci of the next section on school problems.

## **School Related Risk Factors**

Developmental criminology until recently has focused its theorizing and research on older children and subsequent developmental stages while developmental psychology traditionally had begun with infancy e.g., mother baby bonding at birth and infancy. Regarding later developmental stage serious and violent, it was Tremblay and colleagues (Côté, Vaillancourt et al., 2007; Côté et al., 2006; Haapasalo & Tremblay, 1994; Haapasalo et al., 2000; LeBlanc & Fréchette, 1989; Nagin & Tremblay, 1999, 2001; Tremblay, 2010; Tremblay et al., 1996; Tremblay & Nagin, 2005; Tremblay et al., 2004; Tremblay et al., 1994; Tremblay et al., 1992; Tremblay et al., 2003) who was preeminent in both theorizing and presenting cohort data to assess his related hypotheses. The latter included how family problems such as those discussed above interacted with child temperament risk factors such as irritability and low reactivity to explain his key concept of early and middle childhood Chronic Physical Aggression (CPA) mentioned above. CPA, in turn, was a critical risk factor for serious delinquency and serious and violent young offending. Tremblay further asserted that physical aggression was normative until the end of toddlerhood around age three and then diminished substantially for most children in early childhood as they developed verbal and social skills to interact with parents, other authority figures and, very importantly, child peers/friends. This pro-social or non-aggressive/non-violent social interaction pattern accelerated in large part too because of pre-school and kindergarten learning contexts where teachers encouraged and enforced rules. However, for a small number of children in this early childhood stage, the aggression/violence did not abate hence the CPA designation. This non-normative behaviour often has been identified as early onset

bullying which often was most observable in school contexts rather than in homes where there are fewer opportunities for victims and certain parenting styles encouraged bullying rather than providing the role modeling and rules/discipline to discourage it. In contrast, these rules have always been routine in virtually all school contexts, albeit, in varying degrees (Farrington, Lösel, Ttofi, & Theodorakis, 2012; Lösel & Bender, 2003, 2006).

More recently, Hodgins (2007) and Hodgins et al. (2002) has expanded on the infancy and early childhood risk factors for aggression and violence, again within the developmental psychology perspective. However, Lussier et al. (Lussier, Corrado, & Tzoumakis, 2012; Lussier, Corrado, Healey, Tzoumakis, & Deslauriers-Varin, 2011; Lussier & Healey, 2010; Lussier, Tzoumakis, Corrado, Reebye, & Healey, 2011) has integrated this perspective into the criminological perspective to explain high levels of aggression and violence in a large toddler/early childhood Canadian sample. Again, from the latter theoretical perspective, authority conflict is exhibited early, first with parents and then typically with other initial authority figures such as with teachers (Loeber & Hay, 1994; Loeber et al., 2006, Loeber et al., 1999; Loeber et al., 1993). Similarly, both social control theory (Hirschi, 1969) and, its more contemporary derivative, the General Theory of Crime (Gottfredson & Hirschi, 1990; Hirschi & Gottfredson, 2000), both focus on low self control in all social contexts but particularly school where deferred gratification, discipline, planning, and verbal skills are essential to successful performance and pro-social teacher and peer relationships. In addition, virtually all theoretical perspectives identify positive school performance as a strong protective factor against serious and violent behaviours in early and middle childhood as

well as later ages or developmental stages. According to General Theory of Crime proponents, low self-control is the single predictor needed to predict serious and violent offending in all subsequent ages. And, further, this risk factor is central to why it also predicts poor school performance and related school problems including persistent disciplining, bullying, expulsion and early drop out. Gottfredson and Hirschi (1990) asserted further that self-control is largely immutable by age 10 despite intervention programs in school or elsewhere: regarding institutions such as school, they stated, however, that children “not socialized by the family may eventually learn self control through the operation of other sanction systems or institutions. The institution given principal responsibility for this task is the school” (p 105). Nonetheless, they expressed little confidence, at least in the US, in the ability of schools to impart self control to low self control children and adolescents because their families simply were very likely not willing to assist schools in this sensitive task (Na & Paternoster, 2012). This dim view of US schools partly was likely related to other contemporary theories, very importantly, Sampson’s social capital perspective (Sharkey & Sampson, 2010; Wikström, 2012; Wikström & Sampson, 2003), that identified poorly resourced schools (i.e., adequate school buildings and school yards, appropriately trained and motivated teachers and administrators) in the US historically having been located in largely ethnic minority dominated neighbourhoods e.g., African American and Hispanic/Mexican. These areas, as mentioned above, also have been characterized by the highest concentration of: economically disadvantaged families, disproportionately single parent mothers; social disorganization exhibited in highly visible delinquent street youth, sex trade and drug use/trafficking; run-down and old rental housing stock; and, organized adult/youth

gangs. Families in these neighbourhoods often lack the social capital i.e., cooperative efforts of friends and neighbours to cooperate to gain access to political resources needed to improve schools and other key community institutions e.g., recreation facilities, small businesses, transportation and community policing.

However, other theorists such as Sampson and Laub (1993, 1997) have countered the pessimistic view of self-control and serious and violent offending along with the potential positive impact of schools on this relationship (see also Laub & Sampson, 2003). They have argued that not only was self-control changeable but so too were serious and violent offenders. The key protective factor was a critical "turning point" such as a strong pro-social intimate relationship, athletic/artistic achievement and a rewarding job. In effect, schools can provide potential turning points, as can families, religious institutions and peers. The role of the schools will be discussed further below but, before, the risk factors associated with schools will be reviewed.

As has long been recognized in industrial and post-industrial societies, school has been a primary socializing institution second only to the family in importance. According to the key criminological theories perspectives discussed above, school is either a risk factor or protective factor for both delinquency generally and serious and violent offending. It's central theoretical importance is based to a considerable extent on the simple proposition that children are influenced typically by institutions, formal and informal, where they spend the greatest amount of time socially. The introduction of mandatory school attendance in the late 19<sup>th</sup> Century occurred because of the needs for literacy and common languages required for both work in industrial economies and participating in civil societies in rapidly evolving multi-ethnic urban contexts. As more

complex industrial economies and metropolitan contexts developed toward the second half of 20<sup>th</sup> Century, the amount of time children, youth and young adults spent in various educational institutions, arguably, vastly increased their theoretical importance for explaining delinquency and criminality. For example, again, regarding Sampson and Laub's (1993, 1997, 2005) developmental criminological based theory, even pre-school environments potentially could provide "turning point" opportunities for very young children who exhibit aggressive and violent behaviours (see also Laub & Sampson, 2003). For some of these children, the disciplined structure of pre-school administered by professionals along with the rewards associated with positive school learning and pro-social peer and adult experiences have been associated with a reduction of the above serious anti-social behaviours (Schweinhart et al., 2005; Tremblay, Gervais, & Petitclerc, 2008). More recently, day care too has been identified as a potential positive learning context for these children (Belfield, Nores, Barnett, & Schweinhart, 2006; Borge, Rutter, Côté, & Tremblay, 2004; Côté, Boiven, et al., 2007; Currie, 2001; Duncan & Magnuson, 2004; Farrington & Welsh, 2003, 2007; Reynolds et al., 2007; Reynolds, Temple, Robertson, & Mann, 2001; Schweinhart, 2007; Schweinhart et al., 2005; Tremblay et al., 2008; Welsh & Farrington, 2007). At the other end of the education continuum, technical schools/colleges, colleges, and universities including post graduate degrees also provide an increase set of "turning point" opportunities in the later life course stages. Several programs that illustrated this were the introduction of high school completion programs in youth and adult detention facilities, and similar programs for returning adult school dropouts. University degrees as well have been available in the last 30 years in adult custodial institutions in many advanced industrial countries

including Canada. Specialized schools also have been long available for adolescents who often, but not exclusively, have been expelled from middle and high schools for discipline reasons including aggressive and/or violent behaviours. These school/educational contexts, therefore, can constitute a protective factor that either inhibits the development of a delinquent and adult criminal trajectories or promotes the desistance from these behaviours (Laub & Sampson, 2003; Sampson & Laub, 1993, 1997, 2005).

In contrast, to the role of school providing a protective factor and “turning point” opportunity, school has been associated with an array of risk factors for serious and violent offending according to virtually all the major criminological theories but particularly for those within the developmental perspective. The research involving several of the key school related risk factors is discussed in the next section.

### ***Research on Specific School Risk Factors Associated with Serious and Violent Offending***

In an earlier meta-analysis study, Lipsey and Derzon (1998) found that school attitude/performance at age 12–14 was one of the strongest predictors of violent or serious delinquency at age 15–25. They operationalized school attitude/performance with the standard measures: low interest in education, low school achievement, poor-quality school, and truancy. However, contrary to the key themes mentioned above involving the developmental criminological perspective, school attitude/performance in the combined middle/late stage (ages 6–11) was not predictive of violent or serious delinquency at age 15–25. Possibly, combining the wide range of ages and stages in a

single 10 year grouping indicator of the latter dependent variable explained the absence of the expected relationship.

An important empirical theme was evident regarding the prevalence of school problems for non-serious and serious young offenders in the Denver Youth Survey (DYS); it was highly prevalent for serious violent offenders (87%) and serious nonviolent offenders (79%) (Huizinga & Jakob-Chien, 1998). In effect, while there was a small but significant difference, this risk factor alone did not substantially distinguish serious violent offending and serious non-violent offenders. Instead, this risk factor appeared to be common to both types of serious offenders, and, therefore, likely an essential part of the explanation for both. This was evident in the highly shared prevalence of specific types of school problems. Truancy and school suspension, for example, accounted for the largest proportion of school problems among serious violent (truancy 68%, suspension 55%) and serious nonviolent offenders (truancy 54%, suspension 42%). This suggested that being absent from school likely reflected the long recognized life style of young serious offenders, generally, i.e., they often engaged in serious violent and serious non-violent offending in groups away from where they can be monitored or observed. Both Cohen and Felson's (1979) earlier Routine Monitoring Theory and, more recently, Wikström's (Wikström, 2006, 2010a, 2010b; Wikström & Treiber, 2009a, 2009b; Wikström, 2010; Wikström, Ceccato, Hardie, & Treiber, 2010; Wikström & Svensson, 2010) Situational Action Theory, explained the complex set of risk factors, including criminal peer group, related to school problems and criminal opportunities away from the classroom as well as homes. Carrington (2009) confirmed that young offenders in Canadian contexts also were more likely to have engaged in criminal



activities with other young offenders. Also based on Canadian research, Bouchard et al. (Bouchard & Nguyen, 2010; Nguyen & Bouchard, 2013) confirmed the central importance of Networking theory to explain how and why young offenders develop crime related structured peer/adult activities.

To further add to the complexity of understanding school performance especially involving a key indicator, passing grades, Huizinga and Jakob-Chien (1998) reported that, although their study found a statistically significant relationship between academic problems and serious violent and serious nonviolent delinquency, over three-quarters of each delinquent group, including serious offender groups, received "satisfactory" grades of As, Bs, or Cs. Their research indicated that the importance of the school performance risk factor was related to other highly prevalent risk factors including drug use problems, mental health problems, and victimization (i.e., victim of either a violent or nonviolent crime). Approximately one third of both serious violent offenders (34%) and serious nonviolent offenders (39%) experienced at least two of these risk factors while the presence of three risk factors were far less prevalent for the serious nonviolent group (16%) than the serious violent offender group (28%). The presence of four factors was equally though considerably less prevalent (9%), for both groups.

In comparison to the two types of serious offending, the Rochester study reported that less than half (41%) of male persistent serious delinquents had persistent school problems (Huizinga et al., 2000). The co-occurrence of persistent serious delinquency and persistent school problems was considerably lower in the Denver (14%) and Pittsburgh (9%) studies (Huizinga et al., 2000). In these studies, persistent serious delinquency (serious assault or serious property offending) and school problem

behaviour (D/F grades or dropped out of school) had to occur for 2 years or more in order to be considered persistent in the study. The researchers collapse the figures for serious violent and serious non-violent offender types into one rate in the research report, which precludes a comparison of these two offender types (Huizinga et al., 2000).

A more recent study utilizing data from the Rochester Youth Study found that school factors, termed the "school disengagement warning index," was a statistically significant predictor of serious violence and serious property crime (Henry, Knight, & Thornberry, 2012, p. 160). The researchers define the school disengagement warning index as "standardized test scores (scoring not proficient in one or more subjects, (b) attendance (missed 20% or more of the school days in a given school year), (c) failing one or more core subjects, (d) one or more suspensions from school, and (e) grade retention" (Henry et al., 2012, p. 160). The researchers define serious violent crime as "attacking someone with a weapon, gang fighting, robbery, and rape" and serious property crime as "breaking and entering, theft of an item over \$50, purchase of stolen goods, and theft of a vehicle" (p. 160). The school disengagement warning index was predictive of serious violent crime and serious property crime in middle adolescence (ages 15–16) and late adolescence (ages 17–18). For young adulthood (ages 21–23), the school disengagement warning index was significantly associated with serious violent crime, however, not a significant predictor of serious property crime (Henry et al., 2012).

### ***Comparative Studies of Truancy and Serious and Violent Offending***

As mentioned above, truancy, theoretically, has been considered a key risk factor because it has been related to the larger theme of child delinquent life style and/or delinquent trajectories, and adolescent criminal life styles and/or criminal trajectories. The Denver Youth Study found that slightly more than two thirds (68%) of serious violent offenders and approximately half (54%) of serious nonviolent offenders were truant (Huizinga & Jakob-Chien, 1998). Again, this risk factor was significantly, but not overwhelmingly, more prevalent for the more serious offender type. In an earlier custody based US study, Hartstone and Hansen (1984) reported that slightly more than one quarter (28%) of their sample were not enrolled in school during the six months prior to arrest while, of those enrolled, one third had attended school "about half the time" or less (p. 97).

The longest continuing cohort study is the Cambridge Study in Delinquent Development, which involves a prospective longitudinal survey study of 411 London males from ages 8 to 32 years old (Farrington, 1989, 1991; Farrington & West, 1981; West & Farrington, 1973). The subjects were first contacted in 1961–1962 where they were living in a working class area of London, England (Farrington, 1989). Violent offences included serious assault (not minor), wounding, robbery, and threatening behaviour (Farrington, 1989). In this classic study, frequent truancy (ages 12–14) significantly predicted teenage violence, adult violence, and convictions for violence (ages 10–32) (Farrington, 1989). In Farrington et al.'s (2008) PYS study, truancy also significantly predicted serious violence. Their bivariate and multivariate logistic

regression analyses of serious violence found that high truancy<sup>2</sup> in middle childhood was a statistically significant predictor of serious violence in late childhood and late adolescence. Furthermore, Farrington et al.'s (2008) bivariate analysis found that high truancy in late childhood significantly predicted serious violence in early adolescence. High truancy in early adolescence was associated with serious violence in late adolescence and early adulthood.

A similar pattern was evident for the relationship between high truancy and serious theft. Farrington et al.'s (2008) bivariate and multivariate logistic regression analyses of serious theft found that high truancy in middle childhood was a statistically significant predictor of serious theft in late childhood. Furthermore, Farrington et al.'s (2008) bivariate analysis found that high truancy in late childhood was a statistically significant predictor of serious theft in early adolescence. High truancy in early adolescence was associated with serious theft in late adolescence and early adulthood.

According to another study's findings based on Pittsburgh Youth Study data, high truancy significantly predicted both serious violence trajectories and serious theft trajectories (Lacourse et al., 2008). High truancy at age 13 was a statistically significant predictor of serious violence and serious theft at ages 13–25 (Lacourse et al., 2008). High truancy at age 7 significantly predicted serious violence trajectories at ages 10–19.

An analysis of longitudinal data from the Pittsburgh Youth Study showed that truancy significantly predicted serious violent offending in young men, including

<sup>2</sup> "Truancy" is defined in the Pittsburgh Youth Study as "A youth was considered truant if any informant [youth, caretaker, teacher] reported that he had been truant" (Stouthamer-Loeber & Stallings, 2008, p. 60).

homicide and other serious violence (Loeber & Farrington, 2011; Loeber et al., 2005). Approximately 40% of the violent offender group had engaged in truancy compared to 23% of the non-violent offender group (Loeber et al., 2005). A subsequent study using data from the Pittsburgh Youth Study found that approximately more than half (54%) of the homicide offender group<sup>3</sup> and over three quarters (79%) of the homicide arrestees<sup>4</sup> group (i.e., arrested but not convicted) had engaged in truancy (Loeber & Farrington, 2011). The researchers' logistic regression analysis found truancy significantly predicted serious violence, including homicide and other serious violence (Loeber & Farrington, 2011; Loeber et al., 2005). In their bivariate analyses, Loeber & Farrington (2011) found that aside from African American race, the strongest predictor of homicide arrestees was truancy (OR=6.2, CI=2.7–14.3). However, truancy was a weaker predictor of convicted homicide offenders (OR=1.9, CI=1.0–3.8) (Loeber & Farrington, 2011). Truancy also significantly predicted violent offending (OR=2.7) (Loeber & Farrington, 2011). This violent offender group does not include homicide offenders in order for analysis of a separate homicide offender group (Loeber & Farrington, 2011).

A study of incarcerated male youth found that, according to prior school records, the vast majority of the youth had poor attendance (86%) (Newman, 1996). Cesaroni's (2005) study of incarcerated male youth ( $n = 100$ ) in Ontario, Canada found that only 12% of the youth attended school on a daily basis prior to incarceration: 38% attended most of the time and 5% attended less than half the time or almost never. Mulder et al.

<sup>3</sup> The convicted offender group ( $n = 37$ ) ranged in age from 15 to 26 years at the time of the killing (Loeber & Farrington, 2011, p. vi).

<sup>4</sup> Homicide arrestees group includes 33 boys who were arrested for homicide but not convicted (Loeber & Farrington, 2011, p. 66).

(2010) also found that truancy was highly prevalent among incarcerated youth. Of the 76% of truant offenders, truancy was rated as very problematic for 56% of offenders and 20% had at least some problems (Mulder et al., 2010). The above studies by Newman (1996) and Cesaroni (2005) were limited to males, unlike Mulder et al.'s (2010) study, which precluded a meaningful comparison of their rates reported for truancy. In another recent large study of incarcerated youth ( $n = 453$ ), truancy was overwhelmingly prevalent (88%) (Gordon & Moore, 2005). Very importantly, truancy was extremely high for incarcerated young offenders whether they had a key learning disorder, Attention Deficit and Hyperactivity (ADHD) (87%), or not (88% of non-ADHD youth). The ADHD risk factor will be discussed in the next section.

Again, a key theoretical issue for most risk factors for serious and violent offending is whether they are independent of other risk factors as well as certain protective factors e.g., stable family. For example, in the above Gordon & Moore (2005) study, it did not appear to be that truancy was dependent on ADHD generally since school attendance, while ranked as a severe problem for 40% of the ADHD youth, was higher (53%) for the non-ADHD youth. In the next section, research on other key school risk factors that focus on behavioural problems will be reviewed.

### ***Behavioural Problems***

Both developmental and non-developmental theories assert that childhood anti-social behaviours were one of the strongest predictors of serious and violent young offending. Loeber and his colleagues (Loeber & Farrington, 2001; Loeber et al., 2008b; Loeber, Slot, & Stouthamer-Loeber, 2008; Loeber, Slot, van der Laan, et al., 2008; Stouthamer-Loeber & Loeber, 2002) asserted, for example, that children who displayed

serious anti-social behaviours persistently in childhood were the most likely to continue on to more serious criminal trajectories in their adolescence. Similarly, as mentioned above, the General Theory of Crime proponents maintained that anti-social problems related to low self-control by age 10 were highly predictive of long term i.e., into adulthood, criminal trajectories.

Also, there has been theoretical consensus that nearly all behavioural problems, whether risk factors for serious and violent offending or not, typically were exhibited in school environments in classroom or playground contexts. Because of the prominence of the school, generally, as either risk or protective factor, both cross sectional and longitudinal research designs often have relied on teachers to provide information on these factors. In the Seattle Social Development Project, antisocial behaviour in school, at ages 10 and 14, as rated by teachers was strongly predictive of serious violence at age 18 (Herrenkohl et al., 2000). In the Dunedin, New Zealand cohort study, teachers' ratings of behavioural problems in kindergarten were strongly correlated with serious violent offending in early adulthood i.e., age 26 (Moffitt et al., 2002).

Newman's (1996) study of incarcerated male youth found that they overwhelmingly (84%) displayed disruptive and anti-social behaviours in school. The above mentioned more recent Gordon & Moore (2005) study of incarcerated youth reported that virtually all of them had experienced school behaviour problems apparently independent of a key related risk factor for learning, ADHD; approximately 94% of ADHD youth and 87% of non-ADHD youth. However, while nearly two thirds (64%) of ADHD youth experienced "severe behavior problems at school," less than half (42%) of non-ADHD youth had this risk factor for serious and violent offending (Gordon

& Moore, 2005). In other words, the severity of severe behaviour problems at school appeared to be associated with ADHD.

### **Suspension/Expulsion**

As discussed, school risk factors and protective factors include a range of behaviours and attitudes; however, one of the most extreme school indicators is suspension/expulsion. Obviously, this too occurs for a range of violations of school rules from more relatively minor incidents such as possession of banned substances such as alcohol and marijuana to the most serious such as assault of students/teachers. In reaction to the public/political response to the perceived increased threats of violent and disruptive student behaviours over the last several decades, a “zero tolerance” policy was introduced by many schools in the United States, in particular, but also in some Canadian schools as well (Accepting Schools Act, 2012; Education Act, 1990; Education Amendment Act [Progressive Discipline and School Safety], 2007; Ontario Ministry of Education, 2000a, 2000b, 2008). This policy involves the suspension of a student i.e., limited withdrawal from school or their permanent expulsion. The political controversy has emphasized this policy’s unfair and discriminatory application to students with multi-problem individual and family profiles typically associated with poverty, ethnicity/race, immigration related cultural challenges adjustment including language, inadequately resourced schools, socially/economically disadvantaged neighbourhoods and families with low forms of all social capital. The theoretical issue is whether the zero tolerance policy has made schools safer and is a protective factor against adolescent violent offending (Maimon, Antonaccio, & French, 2012).



However, suspension and expulsion appeared to be risk factors for serious and violent young offending, both violent and non-violent. In the Denver Youth Study, approximately half (55%) of the serious violent offenders and slightly less than half (42%) of the serious nonviolent offenders had been suspended from school (Huizinga & Jakob-Chien, 1998). The PYS indicated that school suspension significantly predicted violent offending in young men, including homicide and other serious violence (Loeber & Farrington, 2011; Loeber et al., 2005). More than three quarters (78%) of the homicide offender group had been suspended compared to 60% of the violent offender group and 28% of the non-violent offender group (Loeber & Farrington, 2011). The researchers' bivariate and logistic regression analyses found that school suspension significantly predicted homicide and other serious violence (Loeber & Farrington, 2011). In their bivariate analysis, Loeber and Farrington found that the strongest predictor of convicted homicide offenders was suspended from school: 78% of homicide offenders were suspended compared to 43% of the control group (OR=4.9, CI=2.2–10.7).

In an English–Welsh study of 151 young offenders in secure custody, Chitsabesan et al. (2006) reported that more than three quarters of this sample (78%) had a history of school expulsion/suspension compared to approximately one third (33%) of young offenders in their community sample ( $n = 150$ ). In a US study of incarcerated young offenders ( $n = 203$ ) in three states (Delaware, Ohio and Pennsylvania), prior to incarceration, slightly more than one third (35%) of the sample had been suspended for 10 or more days, and approximately one fifth (19%) had been absent 10 or more days of school due to being expelled (Dembo et al., 2007). Similarly, a US study of incarcerated youth ( $n = 444$ ) found that almost one quarter (24%) of the

sample of youth had been suspended and 22% were expelled (Belknap & Holsinger, 2006). Two studies of incarcerated male youth ( $n = 100$ ,  $n = 113$ , respectively) in Ontario, Canada found that more than three quarters (78%) had been suspended from school in the year prior to incarceration (Cesaroni, 2005; Cesaroni & Peterson-Badali, 2005). According to a study of youth ( $n = 243$ ) in seven youth custody centres in British Columbia, Canada, 92% of the youth had a history of school expulsion/suspension (Murphy, Chittenden, & The McCreary Centre Society, 2005). In a previous study of youth ( $n = 243$ ) in nine youth custody centres in British Columbia, conducted four years prior by the same organization, the rate reported for expulsion/suspension was 4% higher (96%) (The McCreary Centre Society, 2001). Most likely, this considerable country variability reflected substantial differences in suspension/expulsion policies.

Another source of variability regarding school problems generally is related to Hirschi's (1969) social bonding theory proposition that these problems reflect weak social bonding. This bonding involves various dimensions including valuing school and committing behaviourally to its pro-social rules and norms.

### ***Weak School Bonding***

In a Canadian study, as predicted, low or weak school bonding (i.e., low commitment) was associated with increased risk for delinquency generally (Sprott, Jenkins, & Doob, 2005). Regarding serious violence at age 18, Herrenkohl et al. (2000) found that low school commitment and low educational aspirations, at ages 14 and 16, were significant predictors. In the more recent Pittsburgh Youth Study, negative attitude toward school at age 13 significantly predicted both serious violence trajectories

and serious theft trajectories at ages 13–25 (Lacourse, et al., 2008). In an early study of lack a commitment to school among a sample of youth in custody, Hartstone and Hansen (1984) concluded that it was pervasive. For example, slightly more than one quarter (28%) of the youth reported that they were not enrolled in school during the six months prior to arrest while, of those enrolled, one third had attended school “about half the time” or less (Hartstone & Hansen, 1994, pp. 97–98). But based on the National Youth Survey, Elliott (1994) reported that school bonding was not a significant predictor of serious violent offending for youth ages 11–17. In other words, this measure of school bonding in a general youth population sample that vastly under-represented serious violent offenders who had been arrested or incarcerated was not predictive of this pattern of offending. This was not unexpected, though, since Hirschi (1969) and other theoretical perspectives, including Merton’s pioneering Strain theory and the various developmentally based criminological theories, all identified non-delinquent and/or non-criminal negative outcomes associated with weak school bonding. These outcomes included social withdrawal/isolative behaviours and self-harmful behaviour related to depression and severe anxiety such as substance abuse, self-mutilation (cutting), and suicidal ideation/attempts.

Weak social bonding also has been associated with low or poor school performance for the obvious reasons centered on its associated unwillingness to engage in the routine school activities including attending classes, active engaging in learning, and assignment completion (Catalano, Haggerty, Oesterle, Fleming, & Hawkins, 2004; Hirschi, 1969; Huebner & Betts, 2002; Maguin & Loeber, 1996). As will be discussed in the next section, poor school performance has been identified as key risk predictor for

serious and violent offending and, conversely, strong school performance measures have been identified as a strong protective factor.

### ***Poor Academic Performance***

In Maguin and Loeber's (1996) earlier meta-analysis of studies of academic performance and delinquency, lower academic performance was also associated with the frequency, persistence, and severity of violent and non-violent behaviour. Foley's (2001) literature review of academic characteristics of incarcerated youth found that they typically had significant problems in intellectual functioning and academic performance. Specifically, incarcerated young offenders typically functioned in the low-average to below-average range of intelligence, were one to several years below expected grade levels, performed academically between fifth- and ninth-grade levels, and had high rates of both academic failure (i.e., failing grades) and grade retention (Foley, 2001).

In the broader Seattle Social Development Project sample, low academic performance, at ages 10, 14 and 16, significantly predicted violence at age 18 (Herrenkohl et al., 2000). Similarly, the PYS indicated that poor school performance (low academic achievement, low school motivation, grade retention) significantly predicted violent offending in young men (Loeber & Farrington, 2011; Loeber et al., 2005). More specifically, a logistic regression analysis found that low school motivation was a significant predictor of violence (Loeber et al., 2005). Very importantly, because it is an indicator of the most extreme expression of serious violent offending, homicide offenders were strongly associated with lower grade retention, i.e., operationalized as "old for the grade" (Loeber & Farrington, 2011, p. 61; Loeber et al., 2005, p. 1083).

Homicide offenders were nearly twice (54%) as likely than other violent offenders (30%) to have been held back in school (OR=2.1)(Loeber & Farrington, 2011; Loeber et al., 2005).

From the perspective of serious violence trajectories and serious theft trajectories, low academic achievement and repeating a grade were both important predictors (Lacourse, et al., 2008). More specifically, these school risk factors at age 13 were predictive of serious violence and serious theft at ages 13–25. Low academic achievement and repeating a grade at age 7 significantly predicted serious violence at ages 10–19. Low academic achievement at age 7 significantly predicted serious theft at ages 10–19 (Lacourse et al., 2008). High academic achievement at age 7 and 13 had a promotive effect, i.e., reducing the probability of serious violence at ages 10–19 and 13–25, respectively. Another analysis of PYS data utilizing a different analytic approach confirmed that repeating a grade and low academic achievement separately were substantial predictors of serious violence and serious theft (Farrington et al., 2008). More specifically, repeating a grade at ages 7–9 and 13–16 was a significant predictor of serious violence at ages 10–12 and 17–19, respectively. Repeating a grade at ages 10–12 was associated with serious violence and serious theft at ages 13–16. Repeating a grade at ages 13–16 and 17–19 was predictive of serious violence at ages 20–25. Low academic achievement at ages 7–9 and 10–12 significantly predicted serious violence and serious theft at ages 10–12 and 13–16, respectively. Low academic achievement at ages 13–16 was a significant predictor of serious violence and serious theft at ages 17–19. High academic achievement at ages 7–9 and 10–12 significantly predicted a low probability of serious violence and serious theft at ages 10–12 and 13–16, respectively.

High academic achievement at age 13–16 significantly predicted a low probability of serious violence at ages 17–19 and 20–25.

In Ellickson et al.'s (1997) earlier major longitudinal study of serious violent youth utilizing a sample of 4,586 high school seniors and dropouts in California and Oregon that included both girls and boys, of those young offenders who reported multiple and persistent acts of violence in the previous year, approximately nearly half of both genders (47% of males and 43% of females) had "low academic orientation" (p. 986). The latter concept was defined as being ranked on the lowest third on a scale that combined grades and future academic intentions. Multiple and persistent violence was defined as "at least three instances in past year of at least two types of violence from the following list: gang fights, strong-arm methods, carrying a hidden weapon, attacking someone, and hitting family or nonfamily members" (p. 988). Of the group who reported some but not multiple or repeated acts of serious violence, less than one third of (29%) of males and (30%) of females had low academic orientation. Respondents were classified as having had "some violence" if they reported having engaged in one of the following: gang fights, used strong-arm methods, carried a hidden weapon, attacked someone with intention to hurt or kill, hit/threatened to hit someone in family, or hit/threatened to hit someone *not* in family "in the past year minus the multiple and persistent cases" (Ellickson et al., 1997, pp. 987–988).

While poor school performance was labelled differently in the above studies and conceptualized somewhat differently in many of the above studies, there was little doubt that this broad or multi-indicator risk factor was associated with serious and violent

offender samples. Again, as with the above previous school performance indicators, there were studies that examined incarcerated samples as well.

### **Incarcerated Youth**

One trend that appeared with several of the school performance concepts was the high prevalence levels for girls and boys. Not surprisingly, therefore, Fejes-Mendoza et al.'s (1995) multistate US study of incarcerated female young offenders indicated educational history characterized by multiple low or weak performance indicators. A majority of the youth, for example, were performing at least one year below their current grade placement. The researchers do not report percentage rates for those youth performing below their current grade placement. Nearly half or more respondents reported having been "retained a grade *at least* once"; 43% in the Iowa and Montana samples, and 53% of the Arizona sample (Fejes-Mendoza et al., 1995, p. 315). These high prevalence rates were evident in another later US study by Lederman et al (2004). In a more recent study, Dembo et al. (2007) also reported high prevalence with 56% of the youth having reported repeating one or more grades. An even higher rate was reported in Belknap and Holsinger's (2006) study, which found that two thirds (66%) of the youth had repeated a grade. Nonetheless, there appeared to be some variability concerning this school based risk factor since another US study reported less than a third (31%) failed a grade in public school prior to commitment to custody (Bullis & Yovanoff, 2005). Similarly, a Canadian study of incarcerated male youth found that 27% of the youth had repeated a grade (Cesaroni, 2005). Another Canadian study of incarcerated youth found that the average grade completed was Grade 10, which was approximately two years behind the age norm (Corrado, Gronsdahl, MacAlister, &

Cohen, 2007). Very importantly in the latter study by Bullis and Yovanoff (2005), this risk indicator appeared to be associated with a special education disability for more than one third (37%) of those who had failed a grade or more (Bullis & Yovanoff, 2005). As mentioned above, there was considerable research that suggested that this and other school performance concepts were associated with a range of behavioural problems. This research will be discussed further below.

Regarding a study of incarcerated males, one study reported nearly all (87%) had school records that indicated poor academic performance (Newman, 1996). However, in Mulder et al.'s (2010) more recent study, which also provided a more ordinal profile of this risk factor, the reported general prevalence level was much lower (approximately 50%) than the previous study were. Also, while of the incarcerated youth who had low academic achievement, 16% had very problematic academic achievement and 34% had some problems. Mulder et al. (2010) examined 70 risk factors (five school related) in their sample of incarcerated serious juvenile offenders in the decade between 1995 and 2005. Intelligent Quotient (IQ) was the one risk factor whose prevalence level was different between the earliest cohort and the last cohort. Slightly more than one quarter (29%) of the sample of young offenders who were incarcerated between 1995 and 1999 had an IQ lower than 85, in contrast, closer to half (44%) of offenders who entered between 2000 and 2005 had the same IQ level. Very importantly, IQs less than 85 are considered below average. While not necessarily a risk factor by itself, low IQ has been associated with other risk factors for serious and violent offending besides school performance including impulsivity, low self-control, and early onset delinquency (Farrington, 1978, 1989, 1998; Koolhof, Loeber, Wei, Pardini, &



D'Escury, 2007; Loeber et al., 2012; Lynam, Moffitt, & Stouthamer-Loeber, 1993; Moffitt, 2003; Moffitt et al., 2002; Moffitt, Lynam, & Silva, 1994; White et al., 1994). Accordingly, special or remedial educational programming often has been part of custodial institutions. Several studies of incarcerated youth indicated that approximately one third of youth have been placed in special education programming. For example, Fejes-Mendoza et al. (1995) report that approximately 33% of students ( $n = 40$ ) in their Iowa ( $n = 20$ ) and Montana ( $n = 20$ ) sample reported previous special education programming or placement compared to 27% of the Arizona ( $n = 30$ ) sample in custody. Another study found that approximately 32% of non-ADHD youth were placed with special education services prior to incarceration compared to 61% of youth diagnosed as ADHD (Gordon & Moore, 2005).

Another school related risk factor for serious and violent offending is reading deficits. It has been of obvious critical importance in school performance given that learning routinely involves this skill. As well, there is an extensive, if not enormous literature not only in education but also in related disciplines including psychology and medicine that has identified the complex nature and types of learning disorders. Arguably, partly because of this complexity, there has been no direct relationship established between this risk factor and serious and violent offending but rather several indirect ones often through school related risks factors. Yet, it has long been identified as a highly prevalent risk factor for this type of young offending.

### ***Reading Deficits***

From the early seminal studies in the 1970s such as Project Reading Efficiency and Delinquency (READ) national study in 1978 to current research, incarcerated youth

disproportionately have been reported to be characterized by below grade level literacy skills compared to non-delinquent peers regarding reading, math, written, and oral deficits (Christle & Yell, 2008; Foley, 2001; Harris, Baltodano, Bal, Jolivette, & Malcahy, 2009; Leone, Krezmien, Mason, & Meisel, 2005; Leone, Meisel, & Drakeford, 2002; Rogers-Adkinson, Melloy, Stuart, Fletcher, & Rinaldi, 2008; Svensson, 2011). Project READ (1978) revealed that young offenders committed to juvenile correctional facilities read, on average, at a Grade 4 level even though, at the time of testing, the average student was 15 years, 6 months old and in Grade 9. Furthermore, more than one third (38%) of the youth read below a Grade 4 level. This study was initiated and funded by the United States Office of Juvenile Justice and Delinquency Prevention and involved a national sample of 2,670 juvenile offenders from training schools (training institutions) and alternative schools.

Subsequently other studies similarly found high rates of reading deficits among incarcerated youth. Wolff, Waber, Bauermeister, Cohen, and Ferber (1982), for example, in their study that compared incarcerated boys to non-incarcerated boys found a significant relationship between reading achievement and incarceration after controlling for intelligence. Language deficits were highly prevalent among the incarcerated group. Wolff et al. (1982) stated that the incarcerated offenders were "significantly impaired" compared to the control groups on nearly all language measures (p. 272).

According to a national survey of reading teachers working in juvenile correctional facilities, nearly all (90%) of the teachers reported having students who had reading deficits as demonstrated by their inability to "decode accurately and fluently

words in their own spoken vocabularies" (Brunner, 1993, p. 3). Approximately half (51%) of the teachers reported they had students who read two or more years below grade level (Brunner, 1993). Similarly, Beebe and Mueller's (1993) study of youth in a secure custody facility ( $n = 583$ ) in Michigan found that virtually all of the incarcerated young offenders (95%) had performed below grade level in reading. Regarding serious violent offenders and serious property offenders in this study, young offenders incarcerated for aggressive violent offences<sup>5</sup> had significantly more severe reading deficits than those incarcerated for less serious property offences,<sup>6</sup> misdemeanors,<sup>7</sup> and status offences.<sup>8</sup>

There was also variability in the grade level of reading deficits. In another US study of incarcerated male youth ( $n = 102$ ) (Newman, 1996), while less than half (41%) were at a Grade 4 reading level or less, approximately one quarter (26%) was reading at the Grade 2 and 3 levels. Somewhat surprising, there were no significant relationships between this risk factor and other risk factors including: "history of violence, prior academic performance and behavior, substance abuse, diagnosed [mental] disorder, family structure, age, socioeconomics, gang affiliation, and a history of runaway" (Newman, 1996, p. 86). The obvious expected relationship was that lower

<sup>5</sup> Aggressive felonies (offences) were defined in the study as "assault and battery, manslaughter, rape, arson, armed robbery, criminal sexual misconduct, carrying a concealed weapon" (Beebe & Mueller, 1993, p. 193).

<sup>6</sup> Property felonies (offences) were defined in the study as "breaking and entering, larceny, extortion, uttering and publishing, possession of stolen property, violation of controlled substances" (Beebe & Mueller, 1993, p. 193).

<sup>7</sup> Misdemeanors were defined in the study as "violation and probation, intoxication, shoplifting, entering without authority, fleeing and eluding, driving without a license, soliciting" (Beebe & Mueller, 1993, p. 193).

<sup>8</sup> Status offences were defined in the study as "running away, truancy, incorrigibility, curfew violation" (Beebe & Mueller, 1993, p. 193).

reading levels generally would have been associated with these other risk factors for serious and violent offenders simply because the latter set of risk factors typically have been considered inherently disruptive of all learning domains including reading levels (Christle & Yell, 2008; Huizinga et al., 1993; Keith & McCray, 2002; Loeber & Farrington, 2011; Loeber et al., 2008b; Loeber, Farrington, & Waschbusch, 1998; Maguin & Loeber, 1996; Reppucci, Fried, & Schmidt, 2002).

A more recent study of detained and incarcerated boys ( $n = 555$ ) in one mid-Atlantic state, in the United States, found that the youth scored 4 years behind their same-aged peers in the general population in reading and math (Krezmien, Mulcahy, & Leone, 2008). A broader study of incarcerated male juvenile offenders in three regions of the United States (Southwestern, Southeastern, and mid-Atlantic states) found that reading achievement was in the "lower end of the average range" (Harris et al., 2009, p. 140). The sample of youth ( $n = 455$ ), ages 12–21, were in long-term custody in one of three long-term juvenile correctional facilities (Harris et al., 2009). The majority of youth were between the ages of 15 and 17 (mean age = 15.99) (Harris et al., 2009).

It was evident that there was considerable variability in the prevalence of the reading deficit risk factor in the various states and broader regions, however, there appeared to be less variability in the relationship between this risk factor and ethnicity/race. This was evident in a study of 186 male young offenders, ages 13–17, in a long-term Arizona juvenile correctional facility (Baltodano, Harris, & Rutherford, 2005). Again the average reading level was low; Grade 8 level with the mean age of the sample at 16.23. The reading achievement scores for all ethnic groups included in the study—Native American, African American, Hispanic, and Mexican Nationals—were below

average with the exception of the Caucasian group. Very importantly for this thesis, the mean reading score for Native Americans was the lowest of all ethnic groups, however, only 3 Native Americans were included in the study. As briefly mentioned above, Aboriginal ethnicity/race has been an important risk factor for serious and violent offending in Canada but apparently far less so in US jurisdictions, especially compared to African American ethnic groups and Hispanic/Mexican ethnic groups. Quite likely, part of the explanation for this discrepancy between Canada and the US was related to the relatively higher ratio of Aboriginal youth and families to other ethnic/racial groups in Canada compared to the Native American ratio to the above other numerically predominant ethnic/race groups in the US. In other words, possibly Native American ethnicity/race would have been an equally important risk factor in the US as it has been in Canada if the above ratios were equivalent. Despite the obvious limited generalizability of the above finding regarding the Native American lowest reading level, it suggests, at least, that there were potential parallels with the Aboriginal historical experiences in Canada that have been associated with their disproportionately higher risk and lower protective factor profiles. This Aboriginal risk factor theme will be examined further in regard to several other risk factors for serious and violent offending to be discussed in the next sections of this chapter.

From a broader comparative perspective, a recent literature review by Svensson (2011) of reading and writing disabilities among incarcerated youth from the Nordic countries, particularly Sweden, concluded, "there is an extensive overrepresentation of persons with reading and writing deficiencies in prisons and juvenile institutions" (p. 27). This, therefore, also was consistent with the conclusion regarding the more than 30

years of research since the seminal Project READ (1978) report concerning the widespread prevalence of this key risk factor for serious and violent offending in the US (Christle & Yell, 2008; Krezmien, et al., 2008; Rogers-Adkinson et al., 2008; Svensson, 2011).

The variability in the reading deficit risk factor in the US states, again, compared to, for example, Scandinavian countries possibly was related to the US federal political structure, whereby, each state has complete responsibility for juvenile laws and related juvenile justice systems. In contrast, Scandinavian countries have unitary political systems with a single youth justice law and system. In addition, the latter countries have long and consistently utilized the Welfare Model approach that emphasizes the limited use of custody even for serious and violent young offenders and the extensive use of rehabilitation programs, typically, that address reading and other learning deficits risk factors primarily in their educational systems. The US states predominantly have employed more Justice Model and Crime Control models that focus on holding young offenders "responsible" for their offending and utilize custody, especially for serious and violent offenders, for either denunciation, deterrence, proportionality of the seriousness of the offence and consequent punishment, protection of society or some combination of these sentencing principles. As well, there have been enormous historical disparities among states in the availability of treatment programs including remedial learning. For example, Massachusetts and Minnesota have had a wide range of these programs while Mississippi and Louisiana did not (Bishop & Decker, 2006; Bishop & Feld, 2012; Corrado, Gronsdahl, & MacAlister, 2007; Corrado & Turnbull, 1992; Feld & Bishop, 2012). Nonetheless, despite any disparities in the prevalence of the reading deficit risk factor,

there has been a consensus that it is an important school related risk, generally. One prominent explanation of this deficit has been its apparent association with dyslexia disorders and certain mental health disorders, such as Fetal Alcohol Spectral Disorders (FASD), and Autistic Spectral Disorders (ASD), and, very importantly, the far more prevalent ADHD. The latter has been associated with several of the above school related risk factors school and will be discussed in more depth in the next section.

### **Attention Deficit Hyperactivity Disorder (ADHD)**

While ADHD has had a long history of being recognized in some form, even in child fiction, it has not been well understood until more recently in the scientific based research in disciplines such as psychology and education. Regarding general literature, Dr. Heinrich Hoffmann's famous 1844 poem entitled "The Story of Fidgety Philip" is frequently referred to in Attention Deficit Hyperactivity Disorder literature. This form of unruly child behaviour was considered learned and based on poor child rearing by the parents. The illustrated poem depicted a hyperactive boy who refuses to sit still at the dinner table, swinging backward and forward in his chair, until he falls to the ground pulling with him the table cloth and everything on it (food, plates, glasses, cutlery, etc.). The poem was published in Hoffmann's children's book of illustrated poems entitled *Struwwelpeter* (as cited in Hoffmann, 1995).

In 1902, a British paediatrician, Sir George F. Still, provided the first clinical description of the disorder in a series of published lectures, the Goulstonian Lectures, to the Royal College of Physicians in London (Still, 1902a, 1902b, 1902c). He described a group of children in his clinical practice that had serious behavioural problems involving

sustained attention and self-regulation (Still, 1902a, 1902b, 1902c). He attributed the cause to genetics but did not use the term "attention-deficit hyperactivity disorder." However, as Barkley (2006) stated, "Many historians of ADHD have inferred that the children he described in his series of three published lectures to the Royal College of Physicians would likely have qualified for the current disorder of ADHD combined type, among other disorders" (p. 137). From this "historical beginning" ADHD first appeared in the third revision of the DSM (DSM-III) (American Psychiatric Association, 1980). The DSM-III indicated two subtypes of ADD: Attention Deficit Disorder with Hyperactivity and Attention Deficit Disorder without Hyperactivity. In the revised DSM-III-R, the American Psychiatric Association (1987) eliminated the subtyping and instead adopted Attention Deficit Hyperactivity Disorder (see Lowe & Reynolds, 2007, for history of ADHD).

In the last version, DSM-IV, ADHD is classified as an Axis I Clinical Disorder in the general section entitled "Disorders Usually First Diagnosed in Infancy, Childhood, or Adolescence" (American Psychiatric Association, 1994). It has been described in the DSM-IV-TR as follows; "the essential feature of Attention-Deficit/Hyperactivity Disorder is a persistent pattern of inattention and/or hyperactivity-impulsivity that is more frequently displayed and more severe than is typically observed in individuals at a comparable level of development" (American Psychiatric Association, 2000, p. 85). Symptoms of ADHD must have been present before age 7. Inattention is exhibited in multiple social contexts including school, work, home, or peer play. Regarding school, typical manifestations are carelessly performed schoolwork, failure to complete schoolwork and task shifting before completion more generally. Inattentive listening,



inability to follow instructions or requests, difficulties organizing tasks and activities, and easily distracted by noise or events that others could easily ignore are routinely evident in all contexts but are heightened in school contexts: "Symptoms typically worsen in situations that require sustained attention or mental effort or that lack intrinsic appeal or novelty (e.g., listening to classroom teachers, doing class assignments, listening to or reading lengthy materials, or working on monotonous repetitive tasks" (American Psychiatric Association, 1994, p. 79; 2000, p. 86).

More specifically, hyperactivity among school-age children is manifested in their difficulty to remain seated and, instead, they are constantly getting up or squirming in their seat which occurs along with fidgeting with objects, tapping their hands, the shaking of their feet or legs, talking excessively, and making frequent noise during quiet activities (American Psychiatric Association, 1994, 2000). Related impulsive behaviour include: "impatience, difficulty in delaying responses, blurting out answers before questions have been completed, difficulty awaiting one's turn, and frequently interrupting or intruding on others to the point of causing difficulties in social, academic, or occupational settings" (American Psychiatric Association, 1994, p. 79; 2000, p. 86).

Very importantly from the developmental psychological perspective, in later childhood, symptoms typically become less obvious even though other symptoms of inattention continue to negatively affect classroom work and academic performance. By late childhood and early adolescence, signs of inordinate gross motor activity (e.g., excessive running and climbing, not remaining seated) are less common, and hyperactivity symptoms may be limited to "fidgetiness or an inner feeling of jitteriness or restlessness" (American Psychiatric Association, 1994, pp. 81–82; 2000, p. 89). There is

continuity, though, since impulsive symptoms still are associated with breaking educational and familial rules, particularly in adolescence. Academic performance, therefore, continues often to be impaired and the value of underrated academic achievement. Also, conflicts with school authorities and family can intensify in part because these ADHD symptoms are often misconceived by parents and teachers more simplistically as either laziness, irresponsibility or oppositional/defiant (American Psychiatric Association, 1994, 2000).

ADHD, tentatively, has been considered a genetically inherited disorder since it has been found to be more prevalent in the first-degree biological relatives of children with ADHD than in the general population (American Psychiatric Association, 1994). However, subsequently, it also has become associated with other risk factors including drug exposure in utero, neurotoxin exposure (e.g., lead poisoning), infections (e.g., encephalitis), mental retardation, a history of child abuse, and multiple foster placements (American Psychiatric Association, 2000).

Prevalence estimates in adolescence and adulthood have been limited (American Psychiatric Association, 1994, 2000). As mentioned above, children with Attention-Deficit/Hyperactivity Disorder (ADHD) have had a higher likelihood of lower intellectual development and serious learning problems. The prevalence of ADHD has been estimated to be 3%–9.5% in school-age children according to Canadian and US national studies (American Psychiatric Association, 1994, 2000; Bloom & Cohen, 2007; Bloom, Cohen, & Freeman, 2012; Canadian Institutes of Health Research, 2005, 2006, 2007; Charach, Lin, & To, 2010; Froehlich et al., 2007; Merikangas et al., 2010; Pastor & Reuben, 2008; Visser, Bitsko, Danielson, Perou, & Blumberg, 2010; Visser & Lesesne,

2005; Visser, Lesesne, & Perou, 2007). It also has been associated with other risk factors many that have been identified as risk factors for serious and violent offending as well. Very importantly, ADHD has been more prevalent for males: the gender ratio has ranged "from 2:1 to 9:1, depending on the type (i.e., the Predominantly Inattentive Type may have a greater ratio that is less pronounced) and setting (i.e., clinic-referred children are more likely to be male)" (American Psychiatric Association, 1994, 2000, p. 90).

Regarding its prevalence in incarcerated or young offender populations, Odgers, Burnette, Chauhan, Moretti, and Reppucci (2005) cautioned that accurate assessments of ADHD typically have been difficult to obtain. The primary validity challenge has been that a formal diagnosis requires at least partial onset of symptoms before the age of 7 yet most estimates have been based on researchers and clinicians in forensic settings relying on young offenders' self reported symptomologies which are subject to several standard validity threats e.g., memory loss and faulty memory. Similarly and, more importantly, Vermeiren et al. (2006) asserted that the relationship between ADHD and the persistence or desistence of delinquency has not been definitively established because of this diagnostic reliability issue in forensic populations.

Another common limitation in forensic and custody settings has been the lack of information from third-party informants such as parents and teachers which is critical in assessing developmental manifestations of ADHD, described above in detail, and related childhood and adolescent disorders. Richards (1996), for example, asserted that the low proportion of ADHD (4%) young offenders in his custody study was most likely because of another challenge i.e., distinguishing ADHD symptoms from antisocial behavioural

symptoms. Vermeiren et al. (2006) agreed with this “diagnostic complexity” challenge regarding ADHD: “differentiating the features of ADHD from the diagnostic symptoms of other disorders may be particularly complex in delinquent youth characterized by high comorbidity rates” (p. 342). These concerns likely are a part of the explanation of the highly variable proportions of ADHD reported in the following studies of serious and violent offenders including custodial samples.

### ***ADHD Prevalence Among Samples of Incarcerated Young Offenders***

In their review of studies concerning the prevalence of ADHD in custodial samples, Vermeiren, Jaspers, and Moffitt (2006) identified the range to be between 1% to 18% in boys and 6% to 34% in girls (Dixon et al., 2004; Gosden, Kramp, Gabrielsen, & Sestoft, 2003; Lederman et al., 2004; Richards, 1996; Ruchkin, Schwab-Stone, Koposov, Vermeiren, & Steiner, 2002; Teplin, Abram, McClelland, Dulcan, & Mericle, 2002; Vreugdenhil, Doreleijers, Vermeiren, Wouters, & van den Brink, 2004; Wasserman, McReynolds, Lucas, Fisher, & Santos, 2002).

In a subsequent systematic review and meta-analysis of research literature on mental disorders of youth in juvenile detention and correctional facilities, the prevalence of ADHD diagnosis among boys was approximately one tenth (12%) and, surprising, given the above reported much higher boy–girl ratio, approximately one fifth (19%) for girls (Fazel, Doll, & Långström, 2008). This review was based on 13 surveys<sup>9</sup> involving

<sup>9</sup> The following studies were included: Chitsabesan et al., 2006; Dixon et al., 2004; Duclos et al., 1998; Gosden et al., 2003; Lederman et al., 2004; Oliván, 2002, as cited in Fazel et al., 2008, pp. 1015, 1019; Pliszka, Sherman, Barrow, & Irick, 2000; Ruchkin et al., 2002; Teplin et al., 2002; Ulzen & Hamilton, 1998; Vreugdenhil et al., 2004; Waite & Neff, 2008, as cited in Fazel et al., 2008, pp. 1015, 1018; Wasserman et al., 2002.

14,639 adolescents. However, Fazel et al. (2008) included the Chitsabesan et al. (2006) study even though it did not assess ADHD but rather only hyperactivity.

Newman's (1996) study of incarcerated male youth also reported a low proportion (12%) diagnosed with ADHD. Similarly, Karnik et al.'s (2009) California study found approximately one tenth of the entire sample of incarcerated youth was diagnosed as ADHD (8% males and 16% females) (Karnik et al., 2009). Dixon et al.'s (2004) earlier study also found that 13% of incarcerated female offenders were diagnosed as ADHD compared to only 1% of female non-offenders. While Mulder et al.'s (2010) study of serious incarcerated young offenders found ADHD to be the second most prevalent mental disorder (31% had symptoms of ADHD), approximately 14% of the juveniles were diagnosed as "very problematic" ADHD and 17% had "some problems" (p. 97). In comparison, conduct disorder (88%) was the most prevalent mental disorder in the sample: 61% of youth were diagnosed as "very problematic" conduct disorder and 27% had "some problems" (Mulder et al., 2010, p. 97).

In another recent elaborate designed study of psychiatric disorders among detained youth in Chicago, Illinois, less than one tenth (8%) of youth who received a prison sentence had ADHD (Washburn et al., 2008). This rate is similar to the 10% rate reported by Karnik et al. (2009). Youth who received a sentence other than prison had similar rates of ADHD (10%) (Washburn et al., 2008). ADHD was prevalent among 9% of youth processed in adult court (minimum transfer age of 13 and for major felony offences only e.g., first-degree murder, aggravated criminal sexual assault, armed robbery committed with a firearm) and 8% of youth processed in juvenile court (Washburn et al., 2008).

In contrast to the much lower prevalence reported in the previous meta-analytic study, an earlier study of incarcerated youth in Ohio found overwhelmingly higher ADHD prevalence rates by gender; approximately three quarters (76%) for male and approximately two thirds (68%) for females offenders (Timmons-Mitchell et al., 1997). However, these study estimates had major validity limitations i.e., small subsamples ( $n = 25$  males,  $n = 25$  females) selected randomly from full sample ( $n = 173$ ). The researchers noted that sub-samples were necessary for practical reasons that involved lengthy interviews of the youth to diagnose mental health problems.

The Vancouver *Serious and Violent Incarcerated Young Offenders Study* (VYOS) found that 14% of youth were clinically diagnosed as ADHD (Wayte, 1999). In a subsequent study based on additional VYOS data, approximately half (52%) of the serious and violent young offenders either self-reported or had been diagnosed with ADHD (Corrado, Gronsdahl, MacAlister, & Cohen, 2007). Corrado et al. noted that, in their study, youth with ADHD likely were even more prevalent: "Given the method used to collect this data, and the difficulty in diagnosing ADHD and other mental disorders in a custodial setting, it is likely that this finding underrepresents the actual proportion of youth with ADHD (Corrado, Gronsdahl, MacAlister, & Cohen, 2007, p. 555). Another limitation of the VYOS estimates was that the samples were based on potentially different incarcerated serious and violent young offenders regarding the seriousness of their offences because the initial study involved only young offenders sentenced under the Young Offenders Act (YOA; 1982) while the subsequent sample included young offenders sentenced under the new Youth Criminal Justice Act (YCJA; 2002). The former law resulted in far less serious offenders with high treatment needs being

sentenced to custody while the latter and current law did not allow non-serious property and violent to be similarly sentenced. However, both laws included young offenders sentenced to custody for extensive administrative offences i.e., repeated violations of post-custody probation conditions (Spratt, 2006).

In another Canadian study, of incarcerated young offenders from two secure custody facilities in Toronto, Ulzen and Hamilton (1998) found that approximately one quarter (27%) of the youth were diagnosed as ADHD (males–30%; females–18%) compared to 2% in a comparison community group of non-delinquent adolescents. Similarly, Murphy et al.'s (2005) study of youth ( $n = 243$ ) in seven custody centres in British Columbia, Canada found that 33% of the youth had been diagnosed with ADHD. In a previous study of youth ( $n = 243$ ) in nine youth custody centres in British Columbia, conducted four years prior by the same organization, the rate reported for ADHD was 7% higher (40%) (The McCreary Centre Society, 2001). However, in their study involving custody facilities in Illinois and New Jersey, Wasserman, Ko, and McReynolds (2004) found that only 2% of incarcerated male youth been diagnosed with ADHD. Again, though, this remarkably low ADHD rate was attributed to the underreporting of ADHD symptoms by youth and lack of diagnostic information from parents; "Parental informants are more likely than youth to report symptoms of disruptive behavior disorders such as attention deficit/hyperactivity disorder (ADHD)" (Wasserman et al., 2004, p. 4). In contrast, in a Mississippi study of incarcerated of young offenders, the prevalence of ADHD was nearly one fifth (18%). However, like the Fazel et al. (2008) gender estimates, females had nearly double (28%) the male rate (12%) (Robertson,

Dill, Husain, & Undesser, 2004). Similarly, in a Virginia study of incarcerated youth, one fifth of the sample was diagnosed with ADHD (Gordon & Moore, 2005).

Clearly the assumed causal direction of all the above studies has been that ADHD was a key risk factor for serious and violent young offending. Interestingly, this assumption was challenged by the PYS study of this relationship. Surprisingly, in the PYS, while low ADHD symptoms had a promotive effect i.e., reducing the probability of serious violence and serious theft, ADHD was not a risk factor (Farrington et al., 2008; Loeber et al., 2008b; Stouthamer-Loeber, Loeber, Stallings, & LaCourse, 2008). Very importantly, even high ADHD symptoms did not increase the likelihood of serious violence and serious theft. Low ADHD predicted both a low probability of serious offending (violence and theft combined) and desistance from moderate/serious offending (Stouthamer-Loeber et al., 2008).

The enormous variability in the above ADHD estimates among studies of incarcerated samples of serious and violent young offenders likely were related to the themes discussed above regarding similar variability for other risk factors for serious and violent offending; study validity limitations; and fundamental differences in the models of youth justice regarding sentencing principles, generally, and custody, specifically. Nonetheless, even the lower estimates of ADHD suggested that it could be considered an important risk factor on its own and because of its relationship to other risk factors even profiles of risks.

A comparison study of ADHD and non-ADHD incarcerated youth, for example, indicated that nearly two thirds (64%) of ADHD youth had a higher severity of several



behavioural issues than non-ADHD young offenders (42%) within the school prior to their having entered it (Gordon & Moore, 2005). In Moffitt's now seminal 1993 Dunedin, New Zealand population cohort study, from which she developed her classic dichotomy of Life-Course-Persistent (LCP) Offenders and Adolescent-Limited (AL) offenders, nearly one third (32%) of the LCP boys who had neurocognitive impairments and serious antisocial behaviour also were diagnosed with ADHD compared to slightly more than one tenth (12%) of AL offenders (Raine et al., 2006). Also, Moffitt and Silva earlier (1988) had found that more than half (58%) of their child population who had a childhood diagnosis of ADD had become delinquent by age 13.

One of the more complex relationships among the risk factors for serious and violent offending, particularly for the broad school risk domain, has involved FASD. Also, in Canada, this organic disorder has been disproportionately prevalent among Aboriginal youth and Aboriginal serious and violent young offenders, and, therefore will be discussed in greater detail as a risk factor (Corrado & Cohen, 2003; Latimer & Foss, 2004; Murphy et al., 2005; Rojas & Gretton, 2007; The McCreary Centre Society, 2001).

### **Fetal Alcohol Spectrum Disorder**

Rouquette (1957) was among the first researchers to identify the association between the mothers' consumption of alcohol during pregnancy and their childrens' subsequent facial deformities. Shortly after, pediatrician, Paul Lemoine of Nantes, France, observed abnormal development in 127 children prenatally exposed to alcohol including physical malformations, growth delays, and "psycho-motor anomalies" (Lemoine, Harousseau, Borteyru, & Menuet, 1968; Lemoine, Harousseau, Borteyru, &

Menuet, 2003, p. 133 [English translation of Lemoine et al., 1968]; Lemoine & Lemoine, 1992). In 1973, Jones and Smith labelled the relationship between pregnant chronic alcoholic mothers and birth related defects as Fetal Alcohol Syndrome (FAS). These physical defects included growth deficiency, developmental delay, fine-motor dysfunction, and cardiovascular problems (Jones & Smith, 1973; Jones, Smith, Ulleland, & Streissguth, 1973). Based on an autopsy performed on a patient with Fetal Alcohol Syndrome, these researchers identified "serious dysmorphogenesis of the brain" they then hypothesized caused "functional abnormalities and the joint malposition seen in the syndrome" (Jones & Smith, 1973 p. 999). Soon after, Clarren and Smith (1978) also reported central nervous system damage in FAS patients. Several modifications of FAS category occurred for children who presented some but not all the features of FAS; Fetal Alcohol Effects (FAE) (Hanson, Streissguth, & Smith, 1978) or Possible Fetal Alcohol Effects (Clarren & Smith, 1978). FAE described children who do not manifest the full physical anomalies (e.g., facial features and/or growth deficiency) but still had prenatal alcohol exposure (Clarren & Smith, 1978; Hanson et al., 1978; Streissguth, Barr, Kogan, & Bookstein, 1996) and some central nervous system dysfunction (Clarren & Smith, 1978). Finally, more recently, Fetal Alcohol Spectrum Disorder (FASD) (O'Malley & Hagerman, 1998; Streissguth & O'Malley, 2000) has been utilized to describe a range of related disorders from FAS, known for facial dysmorphology, growth, and neurocognitive deficits, to more narrow neurobehavioural abnormalities caused by prenatal alcohol exposure (Koren, Nulman, Chudley, & Looke, 2003; Mukherjee, Hollins, and Turk, 2006; Streissguth & O'Malley, 2000). Cognitive and behavioural indicators of FASD include: "attention deficit hyperactivity disorder; inability to foresee consequences;

inability to learn from previous experience; inappropriate or immature behaviour; lack of organization; learning difficulties; poor abstract thinking; poor adaptability; poor impulse control; poor judgement; speech, language and other communication problems" (Koren et al., 2003, p. 1181). Several of these symptoms were associated also with ADHD particularly the "inattention subtype" (O'Malley & Nanson, 2002, p. 350). Approximately half of children with FASD have been identified with ADHD too (Koren et al., 2003).

It was not surprising, therefore, that FASD was strongly associated with learning disabilities including: lower IQ (Carmichael Olson, Feldman, Streissguth, Sampson, & Bookstein, 1998); attention deficits (Boland, Duwyn, & Serin, 2000; Carmichael Olson et al., 1998; Koren et al., 2003; O'Malley, 2007, O'Malley & Nanson, 2002; Streissguth et al., 1986, 1989, 2004); memory deficits (Carmichael Olson et al., 1998; O'Malley & Nanson, 2002; Streissguth et al., 1989); distractibility (Streissguth et al., 1986; Streissguth et al., 1989); arithmetic difficulties (Boland et al., 2000; O'Malley & Nanson, 2002; Streissguth et al., 2004); and language problems (Boland et al., 2000; Koren et al., 2003; O'Malley & Nanson, 2002; Streissguth et al., 1990; Streissguth et al., 1986). In addition, FASD has been strongly associated with a wide range of anti-social behaviours such as delinquency, poor school achievement, and other mental health disorders as well as physical illnesses:

In Streissguth et al.'s (Streissguth et al., 1996; Streissguth et al., 1997; Streissguth & O'Malley, 2000) study of 415 individuals with FAS or FAE, secondary disabilities were highly prevalent:

60% had major disruptions in their school experience (suspended, expelled, or dropped out); 60% had been in trouble with authorities,

charged or convicted of a crime; 50% had been in a confinement setting at some point in their lives, either a psychiatric hospital, a jail or prison, or an inpatient alcohol/drug treatment program; 50% were reported to have had repeated problems with one or more of 10 inappropriate sexual behaviors, or had been sentenced to a sexual offenders' treatment program; 30% were reported to have had alcohol abuse or drug abuse problems or had been treated for alcohol or drug problems. (Streissguth & O'Malley, 2000, p. 183)

Very importantly regarding serious and violent young offending and serious life course crime trajectories, the inability to control frustration and related anger, combined with the difficulty understanding the motives of others, poor judgement and inability to foresee consequences, were strongly associated with FAS individuals being disproportionately involved in violent or volatile situations (Connor, Sampson, Bookstein, Barr, & Streissguth, 2000; Streissguth et al., 1996). The Pittsburgh Youth Study reported that mother's alcohol use during pregnancy was a significant predictor ( $p$ -value < .01) of violent offending in young men even though it, alone, was not a significant predictor of homicide (Loeber & Farrington, 2011; Loeber et al., 2005).

Yet, while there has been considerable research on FASD generally, there has been very limited research on the prevalence of FAS, FAE, and FASD among incarcerated young offenders. Fast, Conry, and Loock's (1999) study of Fetal Alcohol Syndrome in a sample of young offenders referred, typically by Youth Court judges, to the Youth Forensic Services centre in Burnaby, British Columbia, Canada for a psychiatric and psychological assessment, was the first published study on the prevalence of FAS/FAE in youth in the criminal justice system. The sample youth were assessed for Fetal Alcohol Syndrome and Fetal Alcohol Effects by an experienced pediatrician (one of the authors) using the criteria of Sokol and Clarren (1989). Of the

287 youth remanded to the Inpatient Assessment Unit, 67 (23%) had an alcohol-related diagnosis with nearly all of them further diagnosed as having Fetal Alcohol Effects and only three with full Fetal Alcohol Syndrome. The FAE group included youth who had partial FAS (18%,  $n = 52$ ) and/or alcohol-related neurodevelopmental disorder (4%,  $n = 12$ ). Fast et al. (1999) placed the overrepresentation of FAS youth in custody in a broader context:

The percentage of occurrence of fetal alcohol syndrome (FAS) in the youth remanded to the Inpatient Assessment Unit (IAU) (1%) is 3 to 10 times the accepted worldwide incidence for this disorder (which is estimated to be 1–3 per 1,000 births). The percentage of these youth with any alcohol-related diagnosis (23.3%) is 10 to 40 times the accepted worldwide incidence. The data support the conclusion that this group is disproportionately represented in the juvenile justice system. (p. 371)

According to a survey study of youth ( $n = 243$ ) in seven custody centres in British Columbia, Canada, 12% of the youth reported that a health professional had at some time diagnosed them with Fetal Alcohol Syndrome/Fetal Alcohol Effects (Murphy et al., 2005). Truitt (2006) conducted a much smaller study of prenatal fetal alcohol exposure in a sample of 20 young offenders committed to an all male secure custody treatment facility, at McLaughlin Youth Center, in Anchorage, Alaska. Less than half (40%,  $n = 8$ ) of the youth were diagnosed with FASD according to the 4-Digit Diagnostic Code classification system developed by Astley and Clarren (2000) for diagnosing the full spectrum of fetal alcohol-exposed individuals (Astley & Clarren, 2000). This instrument included four key diagnostic features of FAS: growth deficiency; FAS facial features; central nervous system damage; and prenatal (gestational) alcohol exposure (Astley & Clarren, 2000; Truitt, 2006). Prenatal exposure to alcohol was

assessed utilizing the offender's case file, structured interviews with the offenders, and, where possible, interviews with their biological mother. One fifth of the sample (20%) was exposed to alcohol but only one young offender had a high risk of exposure and only three had "some risk of alcohol exposure." Yet, Truitt (2006) reported further, "the 20% with known alcohol exposure have long histories of mental health difficulties, including hospitalization, numerous placements, school disruption, social difficulties, and extensive interactions with the legal system" (p. 157). Equally disturbing, though, 40% of offenders ( $n = 8$ ) who had "unknown alcohol exposure" had a neurobehavioural disorder or static encephalopathy (central nervous system related disorders).

As stated several times above, Aboriginal ethnicity race has been a strong predictor for serious and violent offending in Canada and elsewhere for various historical reasons associated with the colonializing of First Nations and Aboriginal societies. One of the well-documented disastrous consequences has been the vastly disproportionate prevalence of alcohol use and abuse among Aboriginal youth and adults (Aboriginal Corrections Policy Unit, Public Safety Canada, 2010; Corrado & Cohen, 2002; Health Canada, 2009; La Prairie, 1996, 2008; Latimer & Foss, 2004; Mann, 2009; Reading, 2009; Truitt, 2006). It was not unexpected, therefore, that in Rojas and Gretton's (2007) study of youth who were ordered to attend a sex offender treatment program in the above Youth Forensic Services centre in Burnaby, British Columbia, FASD was not only a risk predictor, generally, but also that it was nearly seven times more prevalent for Aboriginal young offenders (27%) than non-Aboriginal young offenders (4%). The researchers relied on physicians to diagnose FASD cases. FAS/FAE assessments were based on either formal diagnosis or suspicion from a physician that the adolescent had

FAS/FAE, and it was identified as FASD. According to a survey study of youth in seven custody centres in British Columbia, Canada, FAS/FAE among Aboriginal young offenders was three times more prevalent compared to non-Aboriginal young offenders (Murphy et al., 2005). Aboriginal youth in custody (19%) reported that a health professional had at some time diagnosed them with FAS/FAE compared to 6% of non-Aboriginal youth in custody (Murphy et al., 2005).

As with most of the other risk factors for serious and violent offending discussed above, FASD has also been associated with another risk predictor, dropping out of school.

## **Dropouts**

In Hirschi's (1969) original social control theory, commitment to school was essential to one of his four pro-social commitment bonds. Dropping out of school, therefore, has long been considered a critical factor for delinquency. The even earlier other dominant early theories of delinquency and adolescent criminality such as Merton's strain theory (1938) and Sutherland's differential association theory (1939, 1947, 1956) along with Cohen's (1955, 1969) and Miller's (1966, 1974) subcultural theories of serious gang violence all emphasized the importance of this risk factor. Dropping out of school typically was seen as an indicator that the youth had very limited pro-social means to achieve and maintain their personal goals unless their families had extensive social capital i.e., job contacts or family businesses, that allowed the drop out to obtain more than minimum wage employment. Without a high school diploma or equivalent technical trade diploma, there were few stable employment opportunities for adolescent

youth in industrial societies such as Canada and the US. One obvious anti-social means to obtain money and goods was property crime and certain violent crimes such as robbery. Gangs were considered a more organized means for obtaining economic benefits. This theme regarding the dropping out of school risk factor was further elaborated in the more contemporary theories of child and adolescent crime such as Agnew's modified Strain theory, especially Baron's (2003, 2004, 2009; Baron & Hartnagel, 1997, 1998) Canadian studies of this theory among urban "street youth," and Wikström's Situational Action theory (Wikström, 2004, 2005, 2006, 2009, 2012; Wikström & Butterworth, 2006; Wikström & Treiber, 2009a, 2009b). The latter theories examined the complex social networks of school dropouts and other youth utilized to survive without or with limited pro-social employment or other legal monetary means. These theories effectively depicted a criminal life style as necessary to survive often because the adolescent did not graduate from high school with the qualifications that allowed them to either obtain a job immediately or obtain further post secondary qualifications in trade schools, colleges and universities. The latter qualifications and related skills became increasingly critical in the post-industrial economies of Canada and the US beginning in the latter part of 20<sup>th</sup> Century.

It was not unexpected, therefore, that Farrington (1989) found in the Cambridge–London prospective cohort study that leaving school at an early age (15 years old) significantly predicted teenage violence (ages 16–18), adult violence (age 32), and convictions for violence (ages 16–32). In Ellickson et al.'s (1997) general population sample study in California and Oregon, approximately one fifth (19%) of males and approximately one quarter (24%) of females in the persistently violent group



had dropped out of high school. In sharp contrast though, less than one twentieth (4%) of the serious violent and serious nonviolent offenders in the Denver Youth Survey were school dropouts (Huizinga & Jakob-Chien, 1998). This disparity in the prevalence of this risk factor was evident in more recent studies. For example, at the other extreme for this risk factor, Dixon et al. (2004) reported that nearly three quarters (74%) of incarcerated youth in their study had dropped out while two other studies of incarcerated young offenders indicated either that less than one percent (.03%) had dropped out (Martin, Martin, Dell, Davis, & Guerrierri, 2008) or it was not a significant risk predictor of serious and violent offending in a large population sample ( $n = 1,083$ ) (Blackburn, Mullings, Marquart, & Trulson, 2007).

However, there was also considerable variability in drop out rates even within custodial samples often depending on the country where the study took place. For example, in an Australian study of female juvenile offenders in custody, approximately three quarters (74%) of the sample had dropped out of school before Grade 10 (Dixon et al., 2004) while Lederman et al.'s US study (2004) found that approximately one fifth (22%) of incarcerated female youth had dropped out of school. Corrado, Odgers, and Cohen's (2001) Canadian study found that less than half (48%) of incarcerated female youth were enrolled in school at the time of the offence. Similarly, while Corrado et al.'s (2001) and Newman's (1996) US study found approximately half (55% and 49%, respectively) of the incarcerated male youth were not attending school prior to incarceration, other studies reported dropout rates of youth in custody ranging from 20%–28% (Blackburn et al., 2007; Hartstone & Hansen, 1984). A considerably lower dropout rate was reported in a study of youth ( $n = 243$ ) in nine youth custody centres in

British Columbia, Canada where only 12% of the youth had dropped out of school (The McCreary Centre Society, 2001).

A more complex perspective of the drop out risk factor emerged from Bullis, Yovanoff, Mueller, and Havel's (2002) study of the 531 formerly incarcerated youth. Similar to most of the above custody studies, approximately one quarter (23%) of the young offenders were not enrolled in school six months after their release from custody. In addition, in this 5-year longitudinal study, slightly more than half (58%) of the released young offenders were not enrolled one year later. Young offenders who were engaged in school or work six months after release tended not return to the juvenile correctional system. Part of the explanation for continued drop out status according to Bullis et al. (2002) was; "It is clear that participants with special education disabilities fared worse than their peers without disabilities in terms of returning to the juvenile correctional system and in being involved with work or school in the community" (p. 18).

As with all the school risk factors, the above research, in particular, Bullis et al. (2002), suggested that there appeared to be a complex web of relationships among the risk factors that explained why no single factor risk factor alone was sufficient in understanding serious and violent offending. The Aboriginal risk factor has been intertwined with all the above risk factors as discussed repeatedly above and, again, was evidently important in the research concerning the drop out risk factor.

### ***Aboriginal Dropouts in Canada, Australia, and New Zealand***

Historically, school dropout has been catastrophic for Aboriginals in Canada, Australia, and New Zealand for numerous reasons concerning not only serious and

violent offending but other life style diminishing threats such as health, mental health, mortality, domestic violence, and poverty. In Canada, Cohen, Corrado, and McCormick (2008) stated, "Although Aboriginal youth make up less than 5% of the Canadian population, they represent a disproportionate number of youth who fail to graduate from high school" (p. 1). Aboriginals have had lower rates of high school secondary completion, which range from 46% to 70%, compared to the non-Aboriginal student population, which range from 73% to 81% (Beavon & White, 2007; British Columbia Ministry of Education, 2009; Hull, 2000, 2005; Maxim & White, 2006; Mendelson, 2006). Educational attainment for Registered Indians is lower compared to the Canadian population (Beavon & White, 2007). Beavon and White (2007) report that the Registered Indian population, measured in 2001, had a high school completion rate (66%) similar to the rate of non-Aboriginals in 1981. Furthermore, according to 2001 data, Aboriginals had a much lower rate of high school completion (50%–65%, depending on Aboriginal type) compared to other ethnic groups<sup>10</sup> (78%–80%, depending on ethnicity type) in Canada (Beavon & White, 2007, p. 14). The prevalence of post-secondary education is even more dismal for Aboriginals: the proportion of Registered Indians with post-secondary education in 2001 (2%) is at the same level as the Canadian general population was in the 1950s (Beavon & White, 2007). Furthermore, this rate of post-secondary education for Registered Indians in 2001 is considerably lower compared to all other Canadians (2% versus 15%) (Beavon & White, 2007).

<sup>10</sup> Note that the researchers, Beavon and White (2007), should have included exact percentages of rates in the text of their research report to correspond with graph illustrations. The reader must estimate these percentages by judging the space between intervals on the bar graph.

White and Maxim's (2002) national study of graduation and dropout rates in First Nations communities reported that only one fifth of students on average graduated. There was an 18% withdrawal rate among Band-resident registered Indian students at age 16 for the 1995–1996 school year.

A recent study by the British Columbia Ministry of Education reported that, for the 2007–2008 school year, slightly more than half (53%) of Aboriginal students did not complete high school within 6 years from the first time enrolled in Grade 8 (British Columbia Ministry of Education, 2009). Similar rates occurred in the previous school years 2000–2001 through 2006–2007 (British Columbia Ministry of Education, 2009). The government report indicated further that approximately half (49%) of Aboriginal students received a high school diploma in the 2007–2008 school year compared to nearly three quarters (73%) of non-Aboriginal students.

According to a review of the Youth in Transition Survey (YITS)<sup>11</sup> data, Maxim and White (2006) reported that slightly less than half (43%) of the Aboriginal sample did not have a secondary school diploma compared to nearly one quarter (24%) for the non-Aboriginal sample.

Regarding samples of incarcerated serious and violent young offenders, in Canada, one study indicated similar drop out ratios for Aboriginal young offenders (54% Aboriginal males and 46% Aboriginal females) compared to non-Aboriginal males (48%) and females (47%) at the time they committed their current offence (Corrado & Cohen,

<sup>11</sup> YITS is a longitudinal survey conducted by Human Resources and Skills Development Canada and Statistics Canada.

2002). Furthermore, Aboriginal youth were two to three academic years behind their non-Aboriginal peers (Corrado & Cohen, 2002).

In Australia and New Zealand, Aboriginal youth also experienced high dropout rates. For example, the Australian state of New South Wales' Department of Education and Training and New South Wales Aboriginal Education Consultative Group (2004) reported that Aboriginal students had consistently much higher dropout, absenteeism, suspension, and expulsion rates compared to non-Aboriginal students as early as Grade 9, a full academic year before non-Aboriginal students begin to drop out in significant numbers. According to the report, "only three in ten Aboriginal students make it to Year 12" (New South Wales' Department of Education and Training & New South Wales Aboriginal Education Consultative Group, 2004, p. 29). Retention for all students in Grades 7–12, from 1999–2003, was more than twice as high compared to Aboriginal students. The retention rate for all students in Grades 10–12 was nearly twice as high as Aboriginal students. For example, the Grades 10–12 retention rate in 2003 was 36% for Aboriginal students compared to 68% for all students. Similarly, the Grades 7–12 retention rate in 2003 was 29% for Aboriginal students compared to 64% for all students.

Aboriginals had consistently lower attendance rates in grades kindergarten through Grade 12 compared to non-Aboriginals (New South Wales' Department of Education and Training & New South Wales Aboriginal Education Consultative Group, 2004). Truancy among Aboriginal students was nearly twice as high as non-Aboriginal students. Aboriginal truancy rates for grades kindergarten through Grade 6, in 2004, vary between 11%–13% compared to 6%–7% for non-Aboriginal students in those

same grades. In Grades 7–12, truancy rates ranged between 17%–25% for Aboriginals compared with 9%–15% for non-Aboriginals. The researchers should have included exact percentages of rates in the text of their research report to correspond with graph illustrations. The reader must estimate these percentages by judging the space between intervals on the line chart.

The study data indicated that Aboriginal students are more likely to be suspended compared to non-Aboriginal students (New South Wales' Department of Education and Training & New South Wales Aboriginal Education Consultative Group, 2004). The rate for short-term suspension (1–4 school day length), in 2003, for Aboriginal female students in grades kindergarten through Grade 2 and Grades 3 through 6 ranges between approximately 8 to 9 times higher compared to their non-Aboriginal female counterparts, respectively. Aboriginal male students in Grades kindergarten through Grade 2 and Grades 3 through 6 were suspended at a rate 4 to 6 times higher than non-Aboriginal male students, respectively. The short-term suspension rate reported for Aboriginal male and female students in Grades 7 through 10 is three or four times higher than non-Aboriginals, respectively. For senior male and female students (Grades 11–12), Aboriginals were suspended at a rate approximately 2 or 3 times that of non-Aboriginals, respectively.

For long-term suspensions (5–20 school day length), in 2003, Aboriginal female and male students in Grades 3 through 10 were suspended at a rate approximately 3 to 4 times higher compared to their non-Aboriginal counterparts, respectively (New South Wales' Department of Education and Training & New South Wales Aboriginal Education Consultative Group, 2004). Aboriginal females in grades kindergarten through Grade 2

were more likely to be suspended long-term than non-Aboriginal females: 1 per 1,000 students compared to 0 per 1,000 students, respectively. Aboriginal males in grades kindergarten through Grade 2 were approximately 2 times more likely to be suspended long-term than non-Aboriginal males. Senior Aboriginal/non-Aboriginal female student long-term suspension rates were the same. Conversely, the rate for Aboriginal male senior student long-term suspension rates is approximately 4 times higher than non-Aboriginal male senior students.

According to the 2003 survey, expulsion, although a “relatively rare” event, was most prevalent in the senior years of high school (New South Wales’ Department of Education and Training & New South Wales Aboriginal Education Consultative Group, 2004, p. 27). The expulsion rate for Aboriginal males in Grades 11–12 is twice as high compared to senior male non-Aboriginal students: 4 per 1,000 compared to 2 per 1,000 students. Aboriginal females were expelled at a rate 16 times higher compared to their non-Aboriginal counterparts: 16 per 1,000 compared with 1 per 1,000. For students in Grades 7–10, the expulsion rate for Aboriginal males was 3 per 1,000 compared to 2 per 1,000 for non-Aboriginal males. The expulsion rate for both Aboriginal and non-Aboriginal females was 0 per 1,000.

New Zealand’s Ministry of Education (2010) indicated that the proportion of Māori school leavers (66%) was twice the national average and Māori students had the lowest rate for remaining in school until age 17 compared to other ethnic groups. The Ministry of Education (2010) stated that “a disproportionate number of students who experienced disengagement from school are Māori [indigenous] students” (p. 51). Furthermore, Māori students had the highest suspension rates and exclusion rates (i.e.,

not allowed to return to the school excluded from, but must enrol elsewhere), and second highest expulsion rates.

### ***Dropout in the United States***

In the US, as discussed above, the disproportionality of all risk factors were associated with their enormous prevalence among young offenders from African American and Hispanic ethnic/racial groups. In the 36-year period of 1972–2008, Hispanics (18%) had the highest dropout rates followed by African Americans (10%) with “whites” having the lowest (5%) (Chapman, Laird, & KewalRamani, 2010, p. 8). These proportions were disturbing because they involved subgroups from minority populations of approximately 38.9 million African Americans and 50.5 million Hispanic/Mexican Americans of all ages<sup>12</sup> (Humes, Jones, & Ramirez, 2011; Rastogi, Johnson, Hoeffel, & Drewery, 2011). Very critically, the above dropout rates did not include incarcerated populations or young adults in the military (Chapman et al., 2010). However, the American Community Survey (ACS) involved dropout out rates that included both institutionalized populations (adult and juvenile correctional facilities, nursing facilities, and other health care facilities) and non-institutionalized (e.g., military quarters), and households (Aud et al., 2010). Dropout rates among institutionalized populations were overwhelmingly higher; 48% Hispanics, 45% Blacks, 43% “American Indians/Alaska Natives,” 39% Asians, 38% for “Two or More Races,” and 31% for Whites (Aud et al., 2010).

<sup>12</sup> Population estimates based on United States Census 2010.



A nationwide study in the United States found that, in 2007, the dropout rate was highest for Blacks and Hispanics (21% and 28%, respectively) compared to Whites and “other” racial groups (12% and 11%, respectively) (Northeastern University–Center for Labor Market Studies and Alternative Schools Network in Chicago, 2009). An analysis of incarceration rates found that, amongst American male high school dropouts, institutionalization rates were higher for young Black men compared to other ethnic groups (Hispanic, White, and Asian) (Sum, Khatiwada, & McLaughlin, 2009). Institutions are defined in the study as juvenile homes, jails, and prisons. Approximately one in four (23%) young Black male high school dropouts, ages 16–24, were institutionalized in 2006–2007 versus only 6% to 7% of Hispanics (6%), Whites (7%), and Asians (7%) (Sum et al., 2009).

The high dropout rate among African American male students in the United States has been described as a national crisis (Kunjufu, 2010). Young Black male high school dropouts (16–24 years old) were 38 times more likely to be incarcerated compared to a group of similar aged peers who held a bachelor’s degree (Sum et al., 2009). Yet, this comparison rate was even more staggering for White (66 times) and Asian (72 times) young male high school dropouts. Conversely, Hispanics were 7 times more likely to be incarcerated compared to a group of similar aged peers with a bachelor’s degree (Sum et al., 2009). The reality for American young minority drop out men, in particular, African American, was described by a US politician as: “an apprenticeship for prison” (as cited in Sum et al., 2009, p. 11) because, as Sum et al. (2009) stated:

Given the severe labor market difficulties faced by many young male dropouts, ex-offenders with limited formal schooling and academic proficiencies run the highest risk of becoming recidivists and imposing large incarceration, probation, and parole costs on the rest of society. (p. 11)

Regarding African American young men, The National Correctional Reporting Program (NCRP) (1983–2001) indicated that an estimated one in six Black male dropouts entered prison every year in the late 1990s (Western, Kleykamp, & Rosenfeld, 2006). NCRP data provided an annual census of all prison admissions and releases in 38 reporting states, representing 80% to 90% of the total prison population. Black and White high school dropouts were approximately five times more likely to be imprisoned annually than men who have completed high school (Western et al., 2006). Rates of prison admission for African Americans were five to 10 times higher than for Whites (Western et al., 2006). A recent study of incarcerated youth in three long-term correctional facilities, in the United States, reported that, although African Americans comprise only 12% of the United States population, African Americans represented 52% of the youth in their sample (Harris et al., 2009).

While there are no direct comparisons with Canadian minority youth and the African American experience because of the latter's centuries of slavery and official and unofficial apartheid right up to the contemporary historical period, albeit in less obvious forms, the colonialization of Aboriginal and First Nations peoples had parallel of negative consequences to a considerable degree.

## Aboriginal Ethnicity

As discussed several times above, the Aboriginal incarceration rate in Canada has been disproportionately high. According to the 2006 Census of Canada, approximately one twentieth (6%) of all youth (12–17 years old) in Canada self-identified as Aboriginal (Calverly, Cotter, & Halla, 2010), yet, in 2008/2009, Aboriginal youth comprised slightly more than one third (36%) of the young offenders sentenced to custody<sup>13</sup> and one quarter (27%) of youth remanded.<sup>14</sup> These ratios were evident in the previous 5-year period (Kong, 2009; Milligan, 2008). The proportion of Aboriginal youth admitted to custody in those years was 33% in 2007/2008, 31% in 2005/2006, and 28% in 2003/2004 (Kong, 2009; Milligan, 2008). In 2003/2004, Aboriginals accounted for 21% of youth admitted to open custody<sup>15</sup> and 20% of youth admitted to secure custody<sup>16</sup> (Brzozowski, Taylor-Butts, & Johnson, 2006). In 2000, just prior to the passage of the YCJA, a 1-day snapshot study of incarcerated youth nationally reported even higher rates for Aboriginal young offenders: 42% in secure custody, 40% in open custody, and 27% on remand (Bittle, Quann, Hattem, & Muise, 2002). Latimer and Foss (2004)

<sup>13</sup> "Sentenced custody" is defined as "Detention of offenders convicted of a crime, either in a federal (2 years or more), or a provincial (less than 2 years) facility" (Calverly et al., 2010, p. 35).

<sup>14</sup> "Remand" is defined as "Court ordered temporary detention of a person, pursuant to a Remand Warrant, while awaiting trial or sentences, or prior to commencement of a custodial disposition" (Calverly et al., 2010, p. 34).

<sup>15</sup> "Open custody" is defined as "Youths in sentenced custody 'in (a) a community residential centre, group home, childcare institution, or forest or wilderness camp or (b) any like place or facility'. A facility is considered 'open' when there is minimal use of security devices or perimeter security. The extent to which facilities are 'open' varies across jurisdictions" (Brzozowski et al., 2006, p. 18).

<sup>16</sup> "Secure custody" is defined as "A facility is considered secure when youths are detained by security devices, including those which operate with full perimeter security features and/or where youths are under constant observation. The extent to which facilities are 'secure' varies across jurisdictions" (Brzozowski et al., 2006, p. 18).

conducted a 1-day snapshot of Canadian youth in custody after the implementation of the YCJA, and reported that one third of young offenders in custody were Aboriginal.

A key controversy about these overwhelmingly disproportionately high rates of Aboriginal young offender incarceration rates in Canada has involved the issue of whether the youth criminal justice systems in the Canadian provinces/territories have been engaged in systematic charging and sentencing discrimination. While it is beyond the scope of this thesis to address this issue, there has been considerable evidence identifying the high prevalence of violence in many Aboriginal communities involving both youth and adults (Charron, Penney, & Senécal, 2010; LaPrairie, 2008; Latimer & Foss, 2004; Moyer, 1992; Silverman & Kennedy, 1993; Wood, 1997; Wood & Griffiths, 2000). In their extensive study of far Northern First Nations and Aboriginal communities, Wood and Griffiths (2000) stated, "there is one attribute that many Aboriginal bands and communities share—a high rate of violent crime and victimization" (p. 250). Not surprisingly, Aboriginal youth crime often involved violent offences (Bittle et al., 2002; Calverly et al., 2010; Corrado & Cohen, 2002; Isted, 2009; Latimer & Foss, 2004; Moyer, 1992; Silverman & Kennedy, 1993) and property offences (Bittle et al., 2002; Calverly et al., 2010; Corrado & Cohen, 2002; Griffiths & Wood, 1995; Latimer & Foss, 2004; Quann & Trevethan, 2000). More specifically, in an earlier study regarding youth related murders in Canada, Silverman and Kennedy (1993) reported that nearly one third (29%) of young offenders convicted of murder involved Aboriginal young offenders. Similarly, Moyer (1992) specified that Aboriginal youth comprised one third of all juveniles suspected of homicide. More recently, in 2008/2009, the proportion of Aboriginal young offenders under the YCJA sentenced to custody for serious violent

offences (murder, attempted murder, and aggravated assault) (14%) was only slightly higher than non-Aboriginal youth (8%) (Calverly et al., 2010). Latimer and Foss' (2004) earlier study found that Aboriginal youth were more likely to be incarcerated and on remand for serious violent offences compared to non-Aboriginal youth.<sup>17</sup> For example, a larger proportion of Aboriginal youth were in custody and on remand for homicide/attempted homicide, serious assault, and serious sexual assault than non-Aboriginal youth. However, Aboriginal young offenders were less likely to be incarcerated or on remand for robbery than non-Aboriginal young offenders. Regarding serious property offences, a larger proportion of Aboriginal youth were in custody and on remand for theft over \$2,000 while there was virtually no difference for break and enter (Latimer & Foss, 2004). Bittle et al.'s (2002) study also provided a similar profile of serious violent and serious property offending for Aboriginal youth offenders both in custody and on remand<sup>18</sup>. While break and enter was the most common type of serious property offence among Aboriginal youth both in custody (60%) and on remand (50%), serious violent offences prevalence rates, for Aboriginal youth in custody, were substantial: robbery (27%), assault with a weapon/causing bodily harm (19%), murder/attempted murder (5%), and aggravated assault (4%). Aboriginal youth on remand were charged with the following serious violent offences: robbery (20%),

<sup>17</sup> Percentage rates for type of offences reported in Latimer and Foss (2004) represent "most serious offence" or "most serious charge" based on the Canadian Centre for Justice Statistics' Seriousness Index utilized to calculate the most serious charge/offence (pp. 7-8, 31). Offences are reported based on the most serious charge (MSC) or offence (MSO) for each youth for the current custody or remand admission (Latimer & Foss, 2004, p. 31).

<sup>18</sup> Percentage rates reported in Bittle et al. (2002) represent "most serious offence" or "most serious charge" based on the Canadian Centre for Justice Statistics' Seriousness Index utilized to calculate the most serious charge/offence (pp. 6-9, 90, 166). Offences are reported based on the most serious charge (MSC) or offence (MSO) for each youth for the current custody or remand admission (Bittle et al., 2002, p. 166).

assault with a weapon/causing bodily harm (21%), murder/attempted murder (17%), and aggravated assault (12%) (Bittle et al., 2002). Of the 500 participants in the Vancouver *Serious and Violent Incarcerated Young Offenders* Study, half of the 14 young offenders convicted of murder were Aboriginal (Corrado & Cohen, 2002). However, the proportions of Aboriginals (41%) and non-Aboriginal males (43%) incarcerated for a violent offence were nearly identical. Yet a smaller percentage of Aboriginal girls (34%) than non-Aboriginal girls (42%) were in custody for a violent offence.

Taken together, the earlier and more recent studies indicated that Aboriginal young offenders were more disproportionately involved in serious violent and serious property offending than non-Aboriginal young offenders. However, another important risk factor identified in virtually all theories of serious and violent offending has been delinquent peers. As Carrington (2009) confirmed in a study of Canadian young offenders, they were more likely to engage in criminality with peers and others than adult criminal offenders.

## **Peers**

From the earliest theories of delinquency and related research such as Shaw and Mackay's (1942, 1969) explanation for their definitive and classic research about the concentration of delinquency and crime in certain inner city neighbourhoods and the Glueck and Glueck (1950) cohort findings regarding juvenile delinquency in similar Boston neighbourhoods, peers have been considered a risk factor or protective factor depending on the type of association i.e., anti-social or pro-social. Contemporary

theories have focused on related issues such as whether delinquency precedes joining anti-social peer groups, most importantly gangs, or follows joining them. Also, another important theme has been the relationship between anti-social peers and groups and criminal life styles and trajectories (Baron, 2004, 2005; Bouchard & Nguyen, 2010; Elliott, 1994; Farrington et al., 2008; Hawkins et al., 1998; Herrenkohl et al., 2000; Lipsey & Derzon, 1998; Mulder et al., 2010; Nguyen & Bouchard, 2013; Thornberry, 1987; Thornberry et al., 1995; Wikström, 2009, 2012; Wikström & Butterworth, 2006; Wikström & Treiber, 2009a, 2009b). However, Moffitt (1993) argued that delinquent peers were not a primary risk factor for serious and violent offending that distinguished "life-course-persistent" offenders from Adolescent-Limited offenders as described above: "Consider that the behaviour problems of the few pioneering antisocial children of an age cohort must develop on an individual basis; such early childhood pioneers lack the influence of delinquent peers (excepting family members)" (p. 687). In effect, while there is a theoretical and empirical consensus concerning peers being a risk factor for serious and violent offending, its importance relative to other risk factors has been in dispute.

Hartstone and Hansen's (1984) earlier study, for example, identified delinquent peers as a key variable regarding violent and property offences since most of the violent offender's peer group had been in contact with the juvenile justice system. Similarly, Mulder et al.'s (2010) study of incarcerated serious juvenile offenders found that more than three quarters (78%) of them had been involved with criminal peers to some extent. More recent research too has confirmed this relationship. The Seattle Social Development Project (Herrenkohl et al., 2000) found that peer delinquency, at ages 10,

14 and 16, was a statistically significant predictor of serious violence at age 18 while gang membership was a significant predictor of serious violence at ages 14 and 16 years old.

Similarly, the Pittsburgh Youth Study indicated that peer delinquency was associated with serious violence and theft, and, further, that high peer delinquency was the only aggravating risk factor that consistently predicted serious theft across all age groups from early childhood to early adulthood (Farrington et al., 2008). High peer delinquency also emerged as a consistent predictor of serious violence across all age groups (Farrington et al., 2008). Regarding gang membership, this study reported that gang membership in late childhood (ages 10–12) significantly increased the risk of serious violent offending in early adolescence (ages 13–15). In the oldest cohort (ages 13–25), gang membership was associated with serious violence into late adolescence (ages 17–19) and into young adulthood (ages 20–25). However, gang membership was not a significant predictor of serious theft (White, Loeber, & Farrington, 2008).

The PYS indicated that peer delinquency significantly predicted violent offending in young men, including homicide and other serious violence (Loeber & Farrington, 2011; Loeber et al., 2005). Half (50%) of the homicide offender group had delinquent peers compared to one third (33%) of the violent offender group and nearly one fifth (16%) of the non-violent offender group (Loeber & Farrington, 2011). The researchers' bivariate analyses found that peer delinquency was a strong predictor of homicide offenders (OR=3.0) and violent offenders (OR=2.5) (Loeber & Farrington, 2011; Loeber et al., 2005). Loeber et al.'s (2005) logistic regression analysis also found that peer delinquency significantly predicted serious violence.



In incarcerated young offenders samples, Lederman et al.'s (2004) study, for example, of female youth in a juvenile detention facility did not indicate that a majority of their sample had close female peer friendships that had been either arrested (42%) or (30%) detained. However, for more serious criminal peers involved in gangs, Blackburn et al.'s (2007) study of incarcerated youth in Texas found that gang membership was an "exceptional predictor":

Simple assaults, aggravated assaults, homicides and attempted homicides—commonly by drive-by shootings—are all normal practices for many youth gang members. Because of these violent activities, many juvenile gang members come to the attention of law enforcement and are often arrested for violent offences and placed in juvenile correctional facilities (p. 37).

Most of the above studies of the anti-social peers risk factors as well many, if not most, of the other risk factors involved studies of male samples. Yet gender has been long identified as one of the, if not the strongest, predictors of serious and violent offending. Where appropriate in the above review of research on the selected risk factors, gender was mentioned. It also has been one of the most controversial risk factors both theoretically and empirically, which will be discussed in the next section.

## **Gender**

One of the reasons that major cohort studies have utilized samples of males only has been their overwhelming prevalence in serious and violent offending. Historically, the original gender ratios were as high as 10 to 1 boys to girls (Beuhring, 2002; Carcach, 1997; Moffitt & Caspi, 2001; Moffitt et al., 2001). Part of the current controversy of the gender risk is whether this ratio has decreased. In a recent OJJDP

report, Zahn et al. (2008) argued that statistical data trends did not support the current popular assertion that female violence, including serious violent, offending had increased overwhelmingly. The gender ratio has been reported as narrowing to three to one. There also has been controversy concerning gender differences in the type of violence; whether boys were overwhelmingly more likely to engage in physical violence and, conversely, were girls overwhelmingly more likely to be involved with relational/non-physical aggression (Morash & Chesney-Lind, 2009; Moretti & Odgers, 2002, 2006; Moretti, Odgers, & Jackson, 2004; Moretti, Odgers, Reppucci, & Catherine, 2011; Odgers & Moretti, 2002; Odgers et al., 2007). Also, based on her and colleagues' Dunedin cohort population study, Moffitt et al., 2001 asserted that the identical risk factors for the most extreme expressions of violence were evident for both boys and girls. In other words, there were no gender differences for extreme violence. Yet, the prevailing gender theories appeared to provide fundamental different sets of risk/protective factors for each gender based on the premise that girls traditionally have been socialized with a far fewer aggressive and violent expectations or norms. And, further, as a consequence, girl violence was more associated with their being victimized by family and others, typically males, therefore, their motivations were defensive and self-protective while other girls sought the approval of desirable boys by imitating their violent values and behaviour (Artz, 1996, 1997, 1998, 2000, 2001, 2002, 2004a, 2004b, 2005; Artz, Blais, & Nicholson, 2000; Artz & Nicholson, 2000, 2001, 2002, 2010; Artz, Nicholson, & McNamara, 2009; Chesney-Lind, Artz, & Nicholson, 2002; Chesney-Lind & Jones, 2010; Chesney-Lind & Pasko, 2013; Irwin & Chesney-Lind, 2008; Miller, 2001a, 2001b, 2001c, 2002a, 2002b, 2009; Nicholson & Artz, 2003). From feminist perspectives, generally,

girls have been victimized by widespread male dominated cultural values and related images that too often result in certain particularly vulnerable girls internalizing their emotions in self-hurtful e.g., cutting their bodies, anorexia, bulimia, obesity, and other related anxiety and depressive disorders while other girls/women responded with aggressive externalizing behaviours such as anger/rage, defiance/obstruction, and physical aggression against others. For example, several notorious cases have popularized the latter image including the female US serial killer of seven, primarily randomly selected, men, Aileen Carol Wuornos. She was convicted of six of these murders and was executed despite an intense controversy concerning her history of severe sexual abuse and possible schizophrenia. Her enormously violent story was made into a Academy award-winning movie by Charlize Theron. In Canada, one of the most examined cases involved Kelly Ellard who was referred to in the media as "Killer Kelly." For a variety of technical legal issues, Ellard had three separate trials over five years for the same horrific brutal beating and killing of an innocent and highly vulnerable fellow informal gang member, Reena Virk, before being sentenced to a long prison term (by Canadian standards). In Artz's (1998) in-depth ethnography of this crime, it became evident that the girl "gang members" lead by Ellard had a complex set of motivations for engaging in the initial violent beating of Virk. This analysis indicated that several key feminist themes were evident as was a major aggressive/violent personality disorder regarding Ellard. While on bail awaiting her final retrial for murder, Ellard was convicted of another unrelated vicious assault on an elderly woman who had tried to offer assistance to Ellard and her friend.

While there is a continuing theoretical debate about the importance of the gender risk factor for serious and violent offending, there has been little doubt that females remained far less likely to engage in serious and violent offending than boys, especially in certain classic criminogenic contexts e.g., youth and adult/youth gangs.

As was evident for most of the risk factors for serious and violent offending, the anti-social peer risk factor and the gender risk factors both appeared to have a complex rather than simple empirical relationship with this extreme form of young offending. Arguably, this complexity reflected to some degree the development of continuously more sophisticated theories of serious and violent offending, particularly in the last part of the 20<sup>th</sup> Century and in the contemporary period including the classic and revised strain theory and more recent developmental perspective based theories.

## **Chapter 3.**

# **Theoretical Perspectives of Serious and Violent Offending**

Developmental theories have been preeminent in explaining the relationship of key variables related to serious and violent offending reviewed in Chapter 2. The general theory of crime, revised strain theory, and situational crime theory also have been prominent. These different theories, typically though, all recognized the importance of the key role of education related variables in explaining extreme youth and adult criminality. The theoretical and related empirical debates has continued between the essentially static perspective asserted by general theory proponents who maintained that the single and overwhelmingly dominant variable, low self control, did not vary by age stage, and developmental theorists who maintained that many risk and protective factors are inherently dynamic and their inter-relationships with serious and violent offending are both complex, evolving, and dependent on essentially age defined developmental stages. As discussed in the above review, the latter theoretical perspective has relied largely on cohort research design studies to validate their hypotheses (Farrington, 2005a, 2005b). It is beyond the scope of this thesis to assess this debate, however, since the focus of this thesis involves school related risk factors for serious and violent offending, the developmental perspective theories, arguably, provide a more complete explanation of this set of risk factors.

Generally, developmental and life-course criminology has focused on the development of criminal and antisocial behaviour associated with a wide range of risk factors, some of which were discussed in the previous chapter, along with protective factors at different stages of age development and the effects of major life events in all these stages, particularly in the late adolescence and adulthood. Critically, though, developmental theorists asserted that early childhood variables/risk factors were primary predictors of serious criminal behaviour throughout the life course stages (Loeber et al., 2008b; Loeber, Slot, & Stouthamer-Loeber, 2008; Farrington et al., 2008; Moffitt et al., 2002). Loeber et al. (Loeber & Hay, 1994; Loeber et al., 2006; Loeber et al., 1999; Loeber et al., 1993) were among the first such theorists to outline developmental pathways to the main and varied forms of criminal behaviours e.g., minor, property, drug, serious property, and serious violent. Loeber et al. (2006) stated theirs and other "research shows that for some offenders, early involvement in status offences and delinquency are stepping stones on pathways to serious, violent, and chronic offending" (p. 157). As mentioned above several times, another pioneering theorist from this perspective has been Moffitt along with her colleagues.

## **Moffitt's Developmental Taxonomy**

Moffitt's (1993) developmental theory has been described as "one of the most influential typological accounts of crime" (Laub & Sampson, 2003, p. 84). Again, Moffitt's (1993) developmental taxonomy of antisocial behaviour postulated two categories or "prototypes": life-course-persistent (LCP) offenders and adolescent-limited (AL) offenders (see also Moffitt et al., 2002). Life-course-persistent offenders' antisocial

behaviour begins in childhood and continues to persist thereafter. Conversely for the AL offender, antisocial behaviour starts in adolescence and desists in young adulthood.

Most AL antisocial behaviour desist when they enter adulthood because their early childhood (i.e., pre-delinquent) development was normal and healthy i.e., key protective factors were evident such as normal verbal skills, moderate reactive temperament, and stable family. Most young offenders have been categorized as AL (Moffitt et al., 2002).

In contrast, there typically were far fewer LCP offenders because the risk factors for this type were incorporated into a low prevalence developmental pathway:

The "life-course-persistent" antisocial behavior originates early in life, when the difficult behavior of a high-risk young child is exacerbated by a high-risk social environment . . . . The child's risk emerges from inherited or acquired neuropsychological variation, initially manifested as subtle cognitive deficits, difficult temperament, or hyperactivity. (Moffitt et al., 2002, p. 180)

As discussed above, early childhood stage environmental risks included inadequate parenting, weak family bonds, and poverty (Moffitt et al., 2002, 2001). In middle childhood and alter developmental stages these initial risk factors cause weak relationships with peers and teachers, and later partners and employers. These negative relationships then effect school discipline, truancy, poor school performance, and drop out. Low self control related to neurological deficits was the other critical risk factor that interacted with the environmental risk factors to contribute to the persistent early childhood social negative events including pre-school contexts. From the developmental psychology perspective, this pattern was central to the development of a "disordered personality," which included physical aggression and antisocial behaviour continuing, at least, to midlife (Moffitt et al., 2002, 2001). For LCP offenders then, the

developmental principle of “cumulative continuity” explained and predicted that early and middle childhood antisocial behaviour sequenced into serious adolescent criminality, and then to adult criminality, employment problems, and victimization of intimate partners and children (Moffitt et al., 2002).

A more complicated multi-pathway developmental model was introduced by Loeber and Hay (1994) that paralleled Moffitt’s taxonomic based model. This model too has been influential in situating important risk and protective factors for serious and violent offending into long term varied criminal trajectories. School based predictive factors have been prominent in this model as well.

### **Other Selected Developmental Pathways**

Loeber and Hay (1994) specified three development pathways (i.e., trajectories) related first to different types of delinquency and subsequently to adolescent criminality: Authority Conflict Pathway, Covert Pathway, and Overt Pathway. The first and earliest pathway was categorized as authority conflict: persistent and abnormal stubborn behaviour in early childhood, followed by frequent acts of defiance/disobedience in middle childhood, and later authority avoidance in late childhood (e.g., truancy, running away, and staying out late). The Authority Conflict Pathway involved youth before the age of 12. The second pathway, Covert Pathway, was characterized by: middle childhood minor covert behaviours (e.g., shoplifting, lying), and then escalation to property damage such as vandalism and fire setting in late childhood followed by “moderate to serious delinquency” such as fraud, burglary, and serious theft in adolescence (p. 504). The third and most serious, Overt Pathway, consisted of, first,



minor childhood aggression, such as annoying and bullying others, second, moderately serious physical fighting (e.g., individual and gang violence), and, then, third, serious violent crime (e.g., rape and armed robbery). These pathways, therefore, consist of anti-social, delinquent and/or criminal trajectories across developmental stages.

Loeber et al.'s (1993) revised model divided the covert pathway "moderate to serious delinquency" category into "serious delinquency" (auto theft, burglary) and "moderately serious delinquency" (fraud, pickpocketing) categories (Loeber et al., 2006, p. 158; Loeber, Slot, & Stouthamer-Loeber, 2008, p. 137; Loeber et al., 1999, p. 247; Loeber et al., 1993, p. 109). The other two pathways in the revised model, overt and authority conflict, remained the same as Loeber and Hay's (1994) model. Finally, Loeber et al. (2006) identified homicide as the separate and most serious and hierarchical component of the overt pathway and summarized the general model as: "the pathways are hierarchical in that those who have advanced to the most serious behaviour in each of the pathways have usually displayed persistent problem behaviour characteristics at the earlier stages in each pathway" (p. 157).

The validity of this model has been substantiated in several of the OJJDP cohort studies discussed in Chapter 2. For example, an analysis of longitudinal data from the Denver Youth Survey and Rochester Youth Development Study confirmed that the two developmental pathways of serious and violent offending were indeed hierarchical (Loeber et al., 1999). This analysis indicated that there was a distinctive Overt Pathway to serious violent juvenile behaviour which, as predicted, began with aggression (annoying others, bullying), followed by fighting (physical fighting and gang fighting), and then violence, such as "attacking someone, strong-arming, or forcing sex." Nearly

all serious violent offenders (95%–99%) reported fighting at an earlier age and that their behaviour had escalated from fighting to serious violence. Similarly, there was a Covert Pathway of serious delinquency that included auto theft, drug trafficking, and breaking and entering typically proceeded by property damage (e.g., setting fires, damaging property) and moderately serious delinquency (e.g., fraud, pickpocketing, joyriding, stealing from car, fencing stolen goods). As predicted, only 13%–21% of persisters who had escalated to serious covert delinquent behaviours entered the Covert Pathway with serious delinquent behaviours only (Loeber et al., 1999).

Finally, Loeber et al. (2006) confirmed that there was empirical support for their cumulative, developmental model of serious delinquency based on their previous pathways model. This 3-dimensional model of developmental pathways consisted of developmentally graded risk factors and promotive factors. Risk factors are defined as “events or conditions that are associated with an increased probability of serious forms of delinquency, and are distinguished from promotive factors, which are those associated with lowered risk of delinquency” (Loeber et al., 2006, p. 154). As predicted, young offenders who subsequently had engaged in the most serious delinquent acts tended to have been exposed to the highest number of risk factors and the lowest number of promotive factors. Loeber et al. (2006) concluded “It is the mixture of risk and promotive effects that appears most crucial in determining the future risk of serious offending as well as the probability of full desistance or lower-level offending” (p. 185).

Loeber et al. (2008a, 2008b) identified preventive promotive and remedial promotive factors. The former were factors that predicted a low probability of later

delinquency in the general population while remedial promotive factors “predict desistence from offending in populations of known delinquents” (Farrington et al., 2008, p. 169).

Along with Moffitt (1993) and Loeber et al. (Loeber & Hay, 1994; Loeber et al., 2006; Loeber, Slot, & Stouthamer-Loeber, 2008; Loeber et al., 1999; Loeber et al., 1993), Elliott (1994) also formulated a path model that predicted the onset of serious violent offending. Elliott’s theoretical model consisted of several of the variables discussed in Chapter 2: family and school bonding; early exposure to violence in the family (witnessing and victimization); stressful family events; parental sanctions; attitudes toward deviance (based on personal belief or internal control); and peer factors. The latter factor included perceived normative orientation of peers, the presence or absence of peer sanctions for delinquent acts, and exposure to delinquent peers.

During this period in the 1990s, Catalano and Hawkins (1996) formulated their social development model of delinquency and drug abuse, ultimately, of critical importance to serious and violent offending. This model was based on integrating key propositions from several earlier theories including differential association, social learning, and social control theories to explain and predict delinquency and drug abuse over the course of development (Catalano et al., 2005). The social development model emphasized the social learning theory of repeated patterns of behaviour. The two key classic socialization pathways were the prosocial and antisocial paths which involved four social developmental processes: “(1) perceived opportunities for involvement in activities and interactions with others, (2) the degree of involvement and interaction, (3), the

skills to participate in these involvements and interactions, and (4) the reinforcement they perceive as forthcoming from performance in activities and interactions" (Catalano & Hawkins, 1996, p. 156). The key postulate of this model was that both prosocial or antisocial behaviour patterns depended on the predominant behaviours, norms, and values held by the "socializing unit" to whom the individual was bonded. Socializing units included family, school, community, or peers. Using a developmental perspective, the theory features four distinct, developmentally specific sub models to address age-specific behaviour. Regarding the key school related risk factors of this thesis, the theory further postulates that the etiology of delinquent and conforming behaviour occurred across during four phases of social development involving the key school stages i.e., preschool, elementary school, middle school, and high school (Catalano & Hawkins, 1996).

More recently, Farrington (Farrington, 2005b) formulated the Integrated Cognitive Antisocial Potential (ICAP) Theory. This extremely complex theory involved a wide range of risk and protective factors for the major types of offending including serious and violent such as low income, unemployment, school failure, criminal parents, delinquent peers, delinquent schools, high crime neighbourhood, poor child rearing, disrupted families, low anxiety, attachment, socialization, life events, impulsiveness, cognitive processes (thinking and decision-making), opportunities, and victims. These factors were linked to types of offending as a series of both separate and integrated hypotheses theory derived from many of the diverse various theories discussed in the previous chapters including strain, control, learning, labelling, and rational choice approaches. The central postulate of ICAP theory was that all antisocial behaviour,

including criminal, can be explained by interactions between individual risk/protective factors and the social environment risk/protective factors, in particular, criminal opportunities and victims.

Sampson and Laub (2005) have been critical of the developmental criminology paradigm because it has been interpreted as emphasizing that young offenders were “locked” into certain trajectories. They explain by way of an apt metaphor that developmental theories were similar to travelling by train—“one gets on a trajectory and ends up at a later point directed by the plan set down at the beginning” (p. 42). However, they argued that social influences, like a train accident, can alter an offender trajectory course. Nonetheless, Sampson and Laub’s (2005) age-graded theory of informal social control theory can also be considered to having added an important and novel “turning point” theme into the developmental criminological perspective. In their initial theoretical formulation, Sampson and Laub (1993) included life-course events that altered apparent embedded young offender criminal trajectories or life styles: “the transition to young adulthood brings with it new social control institutions and potential turning points that go well beyond adolescence” (Sampson & Laub, 2005, p. 15). Sampson and Laub’s (2005) theory emphasized that protective factors involved in informal social controls such as: parenting styles (specifically, persistent supervision, warmth, consistent discipline), parental attachment in childhood, school attachment, and pro-social peers in adolescence have critical change potential in the pre-adult developmental stages while marital stability, military service, and employment in adulthood also have enormous change potential in the adult developmental stages.

Still, while most developmental theories asserted that several combinations of risk factors in early childhood were strong predictors of life course criminal trajectories, Sampson and Laub (2005) countered that it has been impossible to fully predict adult criminality based on childhood antisocial behaviour patterns alone. They referred to Robins' paradox (Robins, 1978) to explain their key criticism: "Antisocial behavior in children is one of the best predictors of antisocial behavior in adults, yet most antisocial children do not grow up to be antisocial adults" (Sampson & Laub, 2005, pp. 20–21). However, Laub and Sampson (2003) did not intend to minimize the long-term effect of "high-risk childhoods" because high-risk children still were more likely to engage in crime compared to children categorized as low-risk. Yet, their emphasis that desistance from a criminal trajectory or life style especially in adulthood stages because of unforeseen yet predictable change agent "turning points" has important implications for the importance of continuing education opportunity programs.

The developmental perspective more generally has been related to the school risk related factors for serious and violent offending because "primary" preventive or "promotive" factor based school programs have historically been a primary means for reducing the likelihood of children and adolescents engaging in anti-social behaviours let alone serious delinquent and criminal behaviours. In other words, schools have been a critical community based resource to address potential risk factors by increasing both promotive and protective risk factors. Even for the most serious and violent offending contexts involved with organized youth gangs or adult/youth gangs, school based programs have typically been the focus of both mitigating at-risk youth joining them and providing incentives for gang members to leave for pro-social life styles. Similarly, day

care, pre-school and kindergarten facilities have been community resources for families at-risk of their children engaging in serious anti-social behaviour such as persistent and physically aggressive bullying at the early childhood age. Not surprising, developmental theories have been the main impetus for the creation of risk management instruments designed to prevent or mitigate the risk factors associated with the development of serious and violent behaviours. These instruments typically include an array of school related risk and protective factors, and, equally important, these factors have to be considered along with an array of many of the other risk factors discussed in Chapter 2 when assessing general risk and the related need for targeted intervention programming from multiple, typically, government resources e.g., nurse home visiting programs, in-home learning assistance, mentoring programs (Big Brothers and Big Sisters), and after school day care and sport programs. The Cracow Instrument will be discussed in the next section to illustrate how such risk management instruments integrates school related risk factors with many of the other risk factors discussed above.

## **The Cracow Instrument**

The developmental perspective basis for the Cracow Instrument (CI) was evident in the explanation provided by one of the members of the multi-disciplinary team that included researchers from 13 North American and European countries: "the theoretical genesis of our instrument is derived from the key theme that multiple pathways characterize the different sequence of variables that describe and explain how some youths become serious and violent young offenders" (Corrado, 2002, p. 298). The CI was designed for the assessment and management of risk and need factors related to

youth violence and targeted children and adolescents at risk for serious violent behaviours i.e., "the actual, attempted, or threatened physical harm of another person perpetrated by a child or adolescent" (Corrado, 2002, p. 295). The CI is designed primarily to assist practitioners addressing youth violence and other antisocial behaviour, and, secondarily, to provide valid research data to assess program evaluation and theoretical development. The CI, therefore, focuses on "the process of evaluating individuals and the environments in which they live to understand their risk for engaging in violence" in order to assist "the process of intervening in a case to reduce the risk of violence" (Corrado, 2002, p. 296).

The CI underlying conceptual framework divides risk factors by individual developmental stages. This framework resonates with Shaw and Winslow's (1997) assertion that, "In order to successfully identify pathways to violence, the transactions that occur between children and their environments must be plotted developmentally because risk factors are not necessarily stable across the lifespan" (Odgers, Vincent, & Corrado, 2002, p. 302).

The framework for this instrument includes individual functioning in three domains associated with playing a role in youth violence: biological, psychological, and interpersonal domains. Several key premises are that there are multiple and complex causal pathways to youth violence, interventions need to address risk and protective factors specific to individuals on a case-by-case basis, and the patterns of factors are age stage specific and cumulative. The latter include four major developmental stages: prenatal, early childhood (birth–age 5), late childhood (ages 6–12), and adolescence (ages 13–18) (Odgers et al., 2002). For example, the first age domain (prenatal)



includes genetic predispositions, mother's health, and birth complications. Birth complications include abnormalities that occur during pregnancy, delivery, and the early neonatal period, that is, the period just after birth. Examples of complications include poor maternal physical health, forceps extraction, breech delivery, and preeclampsia. Maternal substance use during pregnancy is a prenatal/perinatal complication. Prenatal exposure to substances such as alcohol and crack cause neurological damage and increase the risk of criminal offending.

The second age domain (early childhood) focuses on parent/child attachment (bond), parenting and abuse issues, and learning and educational problems. Parent/child attachment (bond) refers to weak attachment to infant's primary caregiver or strong attachment to antisocial parents. Parenting and abuse issues are part of the Cracow Instrument's family domain. Consistent with the discussion of school related problems in Chapter 2, learning and educational problems include poor school achievement and performance, and low commitment and bonding to school. Learning disabilities, below average IQ, language deficits, and attention deficits (ADD/ADHD) are classified in the CI as cognitive delays/disorders. For the Cracow Instrument, cognitive disorders are scored using neuropsychological and diagnostic assessments. For example, diagnostic learning impairments and ADHD are rated as the "highest severity" assessment category (Corrado, 2002).

The third age domain (late childhood) includes family, school, and peer constructs. In the family domain, factors are grouped under Parental Characteristics, Family Dynamics, and Parent-Child Relationship. Parental Characteristics include teenage pregnancy, maternal/parental coping ability, parental antisocial

practices/attitudes (e.g., parental criminality), and parental education and IQ. Family Dynamics include familial supports, family conflict/domestic violence, and family structure/single-parent family. Parent-Child Relationship includes ineffective parenting (e.g., poor supervision and monitoring, early rejection or neglect, harsh discipline), early caregiver disruption (early separation from parents), and parent/child attachment (bond). The school domain includes school functioning and school environment. School environment refers to schools that are characterized by a "culture of violence" where students are more likely to be victimized and associate with delinquent peers involved in serious and violent offending (Odgers et al., 2002). School environment also includes availability of resources and community support. The peer domain includes peer socialization (i.e., peer influences). Antisocial peer influence is assessed by level of exposure and/or bonding to antisocial or delinquent peers. Peer rejection and gang association are other forms of peer socialization.

The fourth age domain focuses on interventions for youth at risk of violence. Previous interventions and child/youth responsivity to intervention are listed under the interventions domain. Previous interventions include accessibility to interventions: "*availability* of interventions, *feasibility* of the proposed intervention plan for the particular individual and targeted risk factors, and the overall *quality* of those interventions that are available" (Odgers et al., 2002, p. 320). Familial responsivity to intervention involves predicting how acceptive, responsive, and cooperative the caregiving family will be to interventions. Child/youth responsivity to intervention involves determining how "amendable" the youth is for treatment based on their individual characteristics (Odgers et al., 2002, p. 321).

CI constructs most relevant to the current study are school (referred to as school functioning in the instrument), family, mental health, and substance use. The school problem variable in this study "skipped class" relates to the Cracow Instrument's school functioning category. If a student is truant on a regular basis, they clearly have a school functioning problem. The other school problem variable in this study, "trouble at school for property crime" (see Chapter 4, "Main Independent Variables", for definition of this variable), also indicates a school functioning problem in terms of low commitment and bonding to school. The construct of learning problems is also relevant to the current study as an important school problem.

The family problem variable in the current study, "ever left home," is related to the CI "family dynamics" category under subcategory "family conflict." The variable "family member was physically abused" relates to the CI "family dynamics" category subcategory "domestic violence." Subjects in the study who indicated that a member of their family had a history of physical abuse (i.e., family member had been physically abused) would be at a higher risk of domestic violence, such as experiencing and/or witnessing child abuse and witnessing spousal assault, if their family member models abusive behaviour. A family member who was physically abused may perpetuate a cycle of violence and aggressive/antisocial behaviour on to other family members (see Widom, 1989a, 1989b).

The control variable "previous psychiatric contact" in the current study (which will be described in detail in Chapter 4) is related to the CI "cognitive delays/disorders," "personality traits/disorders" and "other mental illnesses" categories. The control variable in the current study history of sexual abuse relates to the above categories for

cases where the abuse resulted in a mental disorder or mental health problem. The control variable in the current study "currently use drugs" represents the CI "substance use" category under "externalizing behavior."

Because developmental theories generally have not focused on specific contexts for serious and violent offending other than some related studies that included gangs, it is important to discuss a much empirically assessed theoretical perspective, Agnew's Revised Strain theory, that has emphasized the importance of the "street" and other contexts for serious and violent offending. While this theory was mentioned several times regarding specific risk factors in Chapter 2, it has special relevance to serious and violent offending since several of its proponents, Hagan and McCarthy (1997) and Baron (2004, 2009), have undertaken extensive and innovative empirical assessments of many of its central propositions in multi-Canadian contexts.

## **Revised Strain Theory**

Merton (1938) pioneered the original Strain theory but did not specify the more detailed set of risk factors for serious and violent young offending, especially those more contemporary psychology risk factors as well as key contexts such as school. In revising Merton's original theory, Agnew (1985) introduced the key construct, the "blockage of pain-avoidance behavior," again, not specifically regarding serious and violent young offenders. Nonetheless, the central proposition was that, if a legal escape from an "aversive situation" was not viable, this blockage in the path of escape became a major source of strain that could lead to illegal escape attempts or anger-based delinquency. This general proposition seems obviously appropriate to understanding serious and

violent young offenders especially given that Baron (2004, 2009) employed it in his study of "street" young offenders involved in serious criminal life-styles discussed in the next section. Agnew theorized further that adolescents compelled to stay in painful or aversive environments, such as family and school, have limited means to legally escape, thereby, increasing frustration and the likelihood of both illegal escape attempts and anger-based delinquency. For example, adolescents escape from an aversive home environment e.g., perceived "mean parents," by running away<sup>19</sup> and/or by stealing to gain financial independence of parents. If escape or removal of the aversive source is not possible, "the adolescent may become angry and strike out in rage at the source of aversion or a related target" (Agnew, 1985, p. 156). In the school environment, adolescents, for example, may engage in physical or verbal fights at school to stop harassment from peers and in response to overly punitive or "mean teachers." Regarding "mean parents," Agnew (1985) referred to a national survey of tenth grade boys in US public high schools where boys reported parents were overly punitive who frequently "scream, slap, threaten, nag, withdraw love, withdraw privileges, and ignore them," and assign "undeserved blame" (pp. 157–158). Regarding aversive school environments, the boys typically mentioned finding school boring, a "waste of time," and "mean teachers" who are short tempered, make negative comments, and talk down to students (Agnew, 1985, p. 158).

<sup>19</sup> Running away from home is considered to be a "status offence" (Loeber & Farrington, 2001, p. 5). Status offences were abolished in Canada since the legislative change from the Juvenile Delinquents Act to the *Young Offenders Act* in 1982 (Bala, 1997). The *Youth Criminal Justice Act* also eliminated status offences (Bala, 2003, Bala & Anand, 2009). However, some provinces retain the status offence of truancy (Bala & Anand, 2009; Carrington, 2010).

"Skipping class," a key education risk factor/variable of the current study, coincides with Agnew's example of "escape attempts from the school environment" which included truancy, and often late for class and school. "Ever left home," another key variable of this thesis, ties into Agnew's (1985) example of "running away from home" as a form of escape from an aversive family environment. Agnew's (1985) example of "stealing to reduce their financial dependency on parents" (p. 156) relates to the current study variable, trouble at school for property crime, where some subjects admitted to having committed theft at school.

### **Baron's Canadian Assessment of Revised Strain Theories**

Baron (2003, 2004, 2009) and Baron and Hartnagel (1997, 1998) utilized revised strain theory to explain and predict serious criminal behaviour of street youth. Baron (2004, 2009) and Baron and Hartnagel (1997, 1998) conducted interviews with street youth in Edmonton, Toronto, and Vancouver to examine the relationship between various types of strain experienced by the youth along with other risk factors and their violent offending. Surprisingly, in Baron and Hartnagel's (1997) study of 200 homeless male street youths in Edmonton, Alberta, no statistically significant relationship was found between school commitment and violent offending, and, further, school commitment was only a weak predictor of property offending. However, school commitment was measured by a single indicator; subjects were asked, "How often did you have trouble with teachers?" (Baron & Hartnagel, 1997, p. 419). In contrast, as expected, familial physical abuse was a statistically significant predictor of violent offending, though a weak predictor of property offending. Physical abuse was measured by two questions, "Did your parents or guardians ever use physical forms of discipline?"

and "Have you ever been intentionally struck so hard by a parent or guardian that it caused a bruise or bleeding?" (Baron & Hartnagel, 1997, p. 419). Violent crime was measured by asking respondents how many times in the past year they had committed the following acts: "used physical force to get money or things from another person, attacked someone with a weapon or fists injuring them so badly they probably needed a doctor, got into a fight, taken part in a group fight" (Baron & Hartnagel, 1997, p. 417). Property crime was measured by asking respondents how many times in the past year they had committed the following acts: "broken into a car, broken into a building, taken something worth less than \$50, taken something worth more than \$50, broken into a structure to sleep, stolen food, taken a car without permission of the owner" (Baron & Hartnagel, 1997, p. 417).

Based on their Edmonton study, Baron and Hartnagel (1998) reported that familial physical abuse was a statistically significant predictor of robbery, aggravated assault, and the "total violent crime index" (an aggregate of robbery, aggravated assault, common assault, and group fights offences). Baron and Hartnagel (1998) concluded, "a history of violent victimization seems to be fertile breeding ground for the creation of violent offenders" (p. 183). They theorized that young offenders in their study appeared to have modeled violent behaviour learned from their abusive experiences in the home. Equally important, Baron and Hartnagel (1998) maintained that aggravated assault committed by street youth was explained not only by their abusive family backgrounds but also by both their subsequent serious violent victimization on the street and the stresses of poverty. Finally, serious violent offending was associated further with youth seeking revenge for a violent attack or perceived

threat of one's honour or status. In effect, youth learned from these experiences that violence was an acceptable means of settling disputes.

Baron (2003, 2004, 2009) subsequently further assessed Agnew's (1992, 2001, 2002) revised strain theory (general strain theory) to study the link between violent victimization and street youths' serious violent offending. Baron (2003) and Baron and Hartnagel (1997, 1998) proposed that backgrounds of physical and sexual abuse victimization were key risk factors for youth locating on streets and engaging in violent behaviour once living on the street. In Baron's (2004) study of street youth in Vancouver, British Columbia, he conducted interviews with 400 street youth and reported that physical abuse was a statistically significant predictor of violent crime<sup>20</sup>. However, neither physical nor sexual abuse were significant predictors of property crime.<sup>21</sup> Physical abuse was measured utilizing items from the Childhood Trauma Questionnaire (CTQ) (Scher et al., 2001, as cited in Baron, 2004, p. 468), for example, "When you were growing up how true is it that people in your family hit you so hard that it left you with bruises or marks?". Sexual abuse was also measured by items in the CTQ, for example, "When you were growing up how true is it that someone tried to make you do sexual things or watch sexual things?"

More recently, Baron (2009) explored the importance of direct and indirect victimization experiences i.e., "experienced violent victimization," "vicarious violent victimization," and "anticipated violent victimization" relationships within street youths'

<sup>20</sup> Baron utilized the same measurement of violent crime as his previous study by Baron and Hartnagel (1997), Baron (2004), and Baron (2009).

<sup>21</sup> Baron utilized the same measurement of property crime as his previous study by Baron and Hartnagel (1997).



serious violent offending in a study involving interviews with 300 street youth in Toronto, Ontario. Agnew (2002) hypothesized that, in addition to "experienced" strain, "vicarious" and "anticipated" strain were also important forms of strain associated with "delinquent coping" behaviour, including serious violence against others to prevent future strain. Vicarious strain refers to strain experienced by others whom the individual has a close relationship (e.g., family members or friends) either as a direct witness (e.g., assault), hearing (e.g., gunshots, screams), or being told (e.g., from victims or in the media). Anticipated strain refers to an individual's perception or expectation that their current strain will repeat in the future or that a new form of strain will be experienced (Agnew, 2002). Most research on strain theory had focused on experienced victimization to the neglect of vicarious and anticipated forms of strain.

In Baron's (2009) study, experienced victimization was measured by asking participants "how many times in the past year they had physical force used against them to get money or things; been attacked by someone with a weapon or fists, injuring them so badly they needed a doctor; and been physically attacked for no apparent reason" (p. 445). Vicarious victimization was determined by asking the respondents "how many of their friends had been the victim of a serious assault; a minor assault; and having someone use threats or force against them to get things" (Baron, 2009, p. 445). Anticipated victimization (fear) was measured by asking the respondents "how afraid are you of becoming a victim of serious assault; becoming a victim of a minor assault; having physical force used against you to get your money or things" (Baron, 2009, p. 445). Baron found that all three types of strain (experienced, vicarious, and anticipated-fear) were statistically significant predictors of violent crime. However, vicarious and

anticipated strains were not found to be statistically significant predictors of violent crime in full regression models where the conditioning variables were entered. These conditioning variables included violent peers, low constraint, negative emotionality, violent values, social support, and self-esteem. In the full models, only experienced strain was associated with violent crime. In effect, there were other individual level variables that appeared more important than indirect or vicarious victimizations regarding the most serious violent offending.

Another central theme in Agnew's general strain theory (1992, 2002, 2006) was the importance of deviant peers influences on the youth's individual reaction to strain. Agnew argued that association with deviant criminal peers increased the likelihood of one reacting to strain with criminal behaviour. Similarly, Baron (2009) asserted, "violent peers may encourage illegal coping strategies and may actually discourage and punish legal coping strategies" (Baron, 2009, p. 449). Baron's study found that violent peers was a statistically significant predictor of violent crime. The novel measure of violent peers involved youth study participants being provided with three scenarios that depicted a violent crime and then asking them how many of their friends had engaged in those scenarios. Baron and Hartnagel (1998) found criminal peers was a statistically significant predictor of common assault and the total violent crime index (an aggregate of robbery, aggravated assault, common assault, and group fights offences) but not a strong predictor of robbery, aggravated assault, and group fights.

Another classic Canadian study of street youth and violence and other serious offending in Toronto and Vancouver that utilized a form of strain theory was the basis for Hagan and McCarthy's (1997) book entitled *Mean Streets*.

## **Hagan and McCarthy: Mean Streets**

Hagan and McCarthy's (1997) study of street youth too focused on the important role of school and family background in understanding criminal offending, including serious violence and serious theft. They theorized that lack of school involvement and commitment and extensive school conflict together with class and family experiences were critical in the explanation of why youth ended up living the precarious street life and related crime life style. Family problems included non-intact original nuclear family structure, and erratic and explosive parenting. Erratic parenting involved inconsistent parental attachment, supervision, and discipline. Explosive parenting refers to violent parenting such as use of physical force. School problems consisted of lack of school involvement, commitment, and teacher conflict. School involvement was measured by how often the youth did homework, projects, and other school related tasks after school. Commitment referred to long-term school goals. Teacher conflict was assessed according to how often the youth had trouble with teachers (Hagan & McCarthy, 1997). Hagan and McCarthy's (1997) theoretical model of street life and crime integrated strain, control and developmental theories since parental unemployment, family violence and school conflicts were considered sources of background and developmental strain while erratic parenting, school involvement and commitment were based on social control theory. More specifically, they theorized that parental unemployment problems (categorized as class-based background factors) largely explained family disruptions and erratic and explosive forms of parent-child interactions. These two strain factors then lead to childhood behavioural problems, primarily at school, and later in adolescent peer group contexts. Most importantly, youth who lacked school commitment (lower school

goals) and experienced conflict with teachers were then more likely to leave and/or be kicked out of home for the street life style. Regarding the developmental theoretical perspective, Hagan and McCarthy (1997) utilized an "ontogenetic" dynamic whereby having a physically abusive parent, youth abusing his/her parents, and violent delinquency at home initiated a sequence of stages where children and adolescents move finally, and, often irrevocably toward the street life, unless, typically, community based programs were available and resorted to by the street youth. Violent acts were defined as "three behaviours that reflect the use of excessive if not brutal force: beating someone up so badly that they probably needed bandages or a doctor, using a knife or other weapon in a fight, and attacking someone with the idea of seriously hurting or killing them" (Hagan & McCarthy, 1997, p. 122). Hagan and McCarthy found youth physically abusing his/her parents and violent delinquency at home were strongly and most directly related to violent street crime. Hagan and McCarthy (1997) explained that their research indicated, "violent street crimes display continuity over the life course, as evidenced both by the recurrence of these behaviours while at home and on the street and by their anticipation in youth-initiated violence against parents" (p. 133).

However, Hagan and McCarthy (1997) also included "sociogenic" factors i.e., externally imposed risk factors for serious and violent street young offending forces such as spending nights on street and criminal opportunities. Yet no direct sociogenic relationships were found either in the Toronto or Vancouver panel samples despite fundamental differences in the risk factors in these two cities. The latter city was considerably more dangerous than the former because of an array of drug related violence and absence of community programs. Hagan and McCarthy (1997) explained

that this lack of variation between the cities for violent crime was “consistent with the salience of ontogeny in the causation of these [violent context based] events” (p. 133). In other words, although spending nights on the street and criminal opportunities were apparent in the standard model of violent crime, these sociogenic factors were not as important in the “causation of violent crime” compared to “ontogenetic factors” (Hagan & McCarthy, 1997, p. 115).

More specifically, Hagan and McCarthy’s (1997) study reported that most homeless street youth had suffered family based physical and sexual abuse and neglect. Most street youth (87%) indicated that their parents or guardians used physical discipline and approximately 60% had reportedly suffered physical injuries, bruise or bleeding, as a result of being hit (p. 23). Approximately 60% of street youth living in Toronto and Vancouver in 1992 left home where a parent had used violence: 55% had been slapped, 37% hit, and 25% beaten. Based on an open-ended question about reasons for leaving home (1987–1988 study), 14% of females and 6% of males reported that they were victims of sexual abuse. Similarly, 16% of street youth interviewed in 1992 indicated that they had been sexually abused. Hagan and McCarthy found that neglected and abused youth were less likely to be committed to school and more likely to be in conflict with teachers. One fifth of the sample indicated that they frequently had conflicts with their teachers and many street youth also had difficulty socializing or coping with other students and had experienced problems understanding school material. One fifth of the sample reported that they “always” or “often” (Hagan & McCarthy, 1997, p. 24) had problems understanding school material. Most of the youth street sample had a Grade 9 level of education, and one in five had no higher

than a Grade 8 education. Hagan and McCarthy (1997) asserted that the above school problems usually originated with problems at home. For example, one youth interviewed explained that it was difficult for him to attend school due to feeling embarrassed by his obvious physical injuries (bruising, black eye), which he sustained from ongoing beatings by his stepfather. Another youth attributed his school problems to disinterested and inadequate teachers coupled with lack of parental support for his learning needs.

Hagan and McCarthy (1997) asserted further that school problems e.g., least involved with homework and frequently in conflict with teachers were associated with serious theft. Serious theft included "taking things from cars (e.g., tape decks); taking things worth more than \$50 from stores; illegally using a bank or credit card; taking a stranger's car without permission; taking things worth over \$50 that belong to others; and breaking into a house or building and taking something. Parental use of force, however, was not found to increase serious theft among street youth.

Hagan and McCarthy (1997) theorized that being associated with criminal street peers introduced these youth into a "criminal underworld" and distance youth from school and job networks divergent from legitimate life opportunities (p. 233). As Hagan and McCarthy (1997) explained, "this kind of downward trajectory involves a process of criminal embeddedness that in the case of street youth results from exposure to mentors and tutors encountered on the street" (p. 233). In effect, these criminal networks provided information, skills, and street crime opportunities essential for the criminal life style needed to survive living on the "mean" streets. These street youth lacked conventional families or peers, and, therefore, become members of "street

families” in search of mutual support, safety, and survival needs. However, Hagan and McCarthy’s study concluded that street families did not provide adequate solutions to continuous emotional and survival problems of street youth.

These Canadian studies have become important in utilizing several of the major criminological theories that integrated many of the complex and enormous array of risk and protective factors identified with serious and violent offending, some which were reviewed in the previous chapter. All these studies and theories emphasized the centrality of education related school factors both protective and risk. Yet, few Canadian studies have examined the importance of education related risk factors in conjunction with several other key risk factors as outlined in Figure 1 in samples of incarcerated serious and violent young offenders utilizing more rigorous multivariate statistics as discussed in the introductory chapter. The following methodology chapter describes this study’s research design and the operationalization of the variables that are included in this thesis’ four main hypotheses.

## Chapter 4.

### Methods

Data for this thesis is from a sample of serious and violent young offenders in custody from a major urban centre in British Columbia, Canada. The sample consists of youth (aged 12–19) who were interviewed as part of the research project entitled the Vancouver *Serious and Violent Incarcerated Young Offenders Study* (VYOS). The VYOS is a study of incarcerated young offenders in British Columbia developed by Dr. Raymond Corrado, principal investigator of the VYOS. The study continued until 2012. Follow-up studies are currently being conducted on the full sample. The VYOS was funded by Social Sciences and Humanities Research Council of Canada (SSHRC) grants awarded to Dr. Raymond R. Corrado, School of Criminology, Simon Fraser University.

The sample that comprises the dataset of the current study is drawn from four main detention centers at the time of the study: two secure custody facilities and two open units in British Columbia, Canada. Secure custody centres include Burnaby Youth Secure Custody Centre located in Burnaby, a major urban centre that borders the city of Vancouver, and Boulder Bay Youth Custody Centre located in Maple Ridge, a suburb of Vancouver. The two open custody facilities include Burnaby Youth Open Custody Centre (Holly Coed) and Burnaby Youth Open Custody Centre (Holly) located on the same premises as the Burnaby Youth Secure Custody Centre. The majority of youth were



from the Burnaby Youth Secure Custody Centre (220) followed by the Burnaby Youth Open Custody Centre (128) (total for both Holly and Holly Coed), and Boulder Bay Youth Custody Centre (47).

The sample of interview participants consists of 404 young offenders (296 males, 108 females (see Table 1). The sample of subjects is restricted to those who were interviewed between July 9, 1998 and January 8, 2002 (inclusive). This interview date parameter is necessary because interview questions related to school problems were added in July 1998. In order to avoid unacceptable levels of missing data, the author of this thesis removed all case numbers with interview dates prior to July 9, 1998, which included subjects interviewed from January 1998 to July 8, 1998. This resulted in the removal of 98 case numbers (i.e., interview participant subjects).

Each youth sentenced to one of the four youth custody facilities was asked to participate, which resulted in a 93% response rate (Corrado & Cohen, 2002). This response rate is based on the original full sample of 502 young offenders who participated in the study. As previously discussed, the author of this thesis removed 98 case numbers from the dataset thereby reducing the full sample size to 404 subjects. The most common reason for not participating in the research project was a time conflict with either a scheduled visit or a scheduled program (Corrado & Cohen, 2002).

**Table 1. Description of the Sample of Offenders (n = 404)**

<b>Variables</b>	<b>% (n)</b>
<b>Demographics</b>	
Gender (females = 2)	26.7 (108)
Gender (males = 1)	73.3 (296)
Ethnicity (Aboriginal = 3)	22.1 (86)
Ethnicity (Asiatic = 4)	5.9 (23)
Ethnicity (Black = 2)	3.3 (13)
Ethnicity (Caucasian = 1)	61.2 (238)
Ethnicity (Indian = 6)	2.1 (8)
Ethnicity (Other = 5)	5.4 (21)
<b>Mental health risk factors</b>	
Previous psychiatric contact	61.5 (244)
History of sexual abuse	20.5 (80)
<b>Substance use risk factor</b>	
Currently use drugs	68.5 (276)
<b>School problem risk factors</b>	
Trouble at school for property crime	11.1 (41)
Skipped class	90.5 (363)
<b>Family problem risk factors</b>	
Ever left home	79 (316)
Family member was physically abused	50.1 (193)
<b>Dependent variables</b>	
Serious violent offences	41.8 (169)
Serious property offences	24.0 (97)
Serious violent and serious property offences	4.7 (19)
No serious violent and no serious property offences	38.9 (157)

A primary focus of the Vancouver *Serious and Violent Incarcerated Young Offenders* Study is to “assess the impact that a period of incarceration has on a young offender’s intentions and decisions to recidivate” (Corrado & Cohen, 2002, p. 20).

Subjects participated in a one-on-one semi-structured interview that covered a broad range of issues, including:

offending history, experiences with all facets of the criminal justice system, education and employment, family life and living situation, drug and / or alcohol use / abuse, physical and mental health, sexual and physical victimization, peers, identity formation, and attitudes towards various sentencing models, including restorative justice initiatives. (Corrado & Cohen, 2002, p. 20)

The above identified correlates of serious and violent offending were derived, as discussed in Chapter 2, from the developmental and criminological perspectives as represented in the Cracow Instrument. Study data was gathered from institutional file reviews, and structured and semi-structured in-depth questionnaire interviews were conducted by the VYOS research team between January 1988 – January 2002. The file reviews provided additional information on each youth and served to corroborate information obtained in the interview. The quantitative and qualitative methodology of the VYOS resulted in a rich, unique data set. The youth's institutional files were coded prior to each interview. These files typically included: (1) a pre-disposition report detailing the youth's social, educational, family, peer, substance use, and correctional history; (2) psychological reports that described the mental health profile of the youth and any relevant psychological test scores; (3) institutional reports detailing the youth's behaviour within the institution; (4) provincial case files that listed the youth's offending and disposition data; and (5) extraneous documents, such as programming reports, staff alerts, and medical information. During the interview, participants were asked a number of closed and open-ended questions relating to their experiences with the youth justice

system; social, educational, and family experiences; attitudes towards their offending and their victims; and, their victimization experiences.

Participation was fully voluntary since subjects were reassured there was no obligation to participate and could terminate the interview at any time. Complete confidentiality also was provided as stated in the standard informed consent form all participants were read and then signed according to the requirements of Simon Fraser University Ethics Review Committee and the Ministry of Child and Family Development of British Columbia. In addition to the option to end the interview at any point, participants are reassured that they are under no obligation to respond to particular questions during the interview (McCormick, 2007).

## **Measures**

### **Dependent Variables**

This study has four dependent variables: (a) serious violent offences; (b) serious property offences; (c) serious violent and serious property offences; and (d) no serious violent and no serious property offences. *Serious violent and serious property offences* are referred to as SVSP offences while *No serious violent and no serious property offences* are referred to as no-SVSP offences. Each subject is considered to be a serious violent offender if the current charge(s) he/she was sentenced for included any of the following offences: assault, assault with a weapon, aggravated assault, assault causing bodily harm, manslaughter, murder 1 (first degree murder), attempted murder, murder 2 (second degree murder), intimidation, robbery, attempted robbery, armed robbery,

attempted armed robbery, assault of a police officer, sexual assault, sexual assault with a weapon, aggravated sexual assault, criminal negligence causing death, kidnapping, and impeding attempt to save life (Appendix A). If a subject's current offence included any of the above listed offences, the subject was coded as 1 for this dependent variable (serious violent offending). If a subject's current offence did not include any of the above offences, the subject was coded as 0 for this dependent variable (serious violent offending).

Each subject is considered to be a serious property offender if their current offence included any of the following offences: theft over \$1,000, theft over \$5,000, break and enter, grand theft auto (motor vehicle theft), arson, attempted arson, forgery, possession of a break and enter instrument, extortion, and fraud (Appendix A).

Each subject is considered to be a SVSP offender if their current offence included any of the following types of offences: assault, assault with a weapon, aggravated assault, assault causing bodily harm, manslaughter, murder 1 (first degree murder), attempted murder, murder 2 (second degree murder), intimidation, robbery, attempted robbery, armed robbery, attempted armed robbery, assault of a police officer, sexual assault, sexual assault with a weapon, aggravated sexual assault, criminal negligence causing death, kidnapping, impeding attempt to save life, theft over \$1,000, theft over \$5,000, break and enter, grand theft auto (motor vehicle theft), arson, attempted arson, forgery, possession of a break and enter instrument, extortion, and fraud.

Each subject is considered to be a no-SVSP offender if their current offence did *not* include any of the following types of offences: assault, assault with a weapon,

aggravated assault, assault causing bodily harm, manslaughter, murder 1 (first degree murder), attempted murder, murder 2 (second degree murder), intimidation, robbery, attempted robbery, armed robbery, attempted armed robbery, assault of a police officer, sexual assault, sexual assault with a weapon, aggravated sexual assault, criminal negligence causing death, kidnapping, impeding attempt to save life, theft over \$1,000, theft over \$5,000, break and enter, grand theft auto (motor vehicle theft), arson, attempted arson, forgery, possession of a break and enter instrument, extortion, and fraud.

Definitions of serious violent offences and serious property offences in the current study are based on Loeber, Farrington, and Waschbusch's (1998) definition of "serious offenders" (pp. 14–15) and "violent offenders" (pp. 14–15) and Loeber et al.'s (2008a) definition of "serious violence" and "serious theft" (p. 9). Unlike Loeber et al. (2008a), the current study includes assault as a serious violent offence because the current study's sample is incarcerated serious and violent youth. The Pittsburgh Youth Study (Loeber et al., 2008a, 2008b) was not a custody sample. As stated earlier, the dependent variables in the present study represent the incarcerated youth's current offence, which typically are serious in nature considering the youth are in custody. The dependent variables were also determined utilizing the Statistics Canada, Canadian Centre for Justice Statistics' Uniform Crime Reporting system (Dauvergne & Turner, 2010; Latimer & Foss, 2004; Quann, 2006; Statistics Canada, Canadian Centre for Justice Statistics, 2002; Wallace, 2009), which indicates offence seriousness.

The following offences were not measured in this study: breach of probation, breach of YOA (Young Offenders Act), AWOL (absence without leave), theft under

\$1,000, theft under \$5,000, shoplifting, possession of stolen property, conspiracy, attempted conspiracy, NCA (narcotics) trafficking, dangerous operation of a motor vehicle, possession of a weapon, possession of a concealed weapon, resisting arrest, causing disturbance, trespassing, failure to appear, driving under the influence, mischief, mischief over \$1,000, mischief under \$5,000, mischief over \$5,000, NCA (narcotics) possession, escape from custody, other classified, breach of recognizance, harassment/stalking, uttering threats, failure to comply YOA, failure to stop, prostitution, obstruction of a police officer, attempt to commit accessory, taking a motor vehicle, unlawfully in dwelling, indecent act, breach of MVA (Motor Vehicle Act), breach of peace bond, U.A.L. (Unlawfully At Large), hit and run, false immigration, and procure/import sex.

### **Main Independent Variables: School and Family Problems**

Independent variables include school problems and family problems. School problem variables included truancy, from the interview question "Do you ever skip out of class?" and trouble at school for property crime. These were the only indicators available to the author of this thesis. Consequently, there is concern of internal validity of these two indicators. Nonetheless, these two constitute a minimal measure of school risk factors, including weak school bonding. As discussed above, truancy was a common variable in studies that examined risk factors for serious violent and serious property offenders (e.g., Farrington, 1989, 1998; Huizinga & Jakob-Chien, 1998; Lacourse et al., 2008; Loeber et al., 2008b; Mulder et al., 2010).

Trouble at school for property crime is based on qualitative data that emerged from an open-ended interview question regarding types of acts the youth had been in trouble at school for. In this study, the following criminal acts occurring at school are considered property crime: theft, damage to property, possession of stolen property, motor vehicle theft (i.e., grand theft auto), extortion, and mischief. The trouble at school variable is an indicator of poor commitment to school (Corrado & Cohen, 2002). Low commitment to school is a school-related risk factor for serious and violent delinquency (e.g., Hartstone & Hansen, 1984; Hawkins et al., 1998; Herrenkohl et al., 2000; Thornberry et al., 1995). For example, the Rochester Youth Development Study analyzed low commitment to school as a school risk factor for chronic violent offenders (Thornberry et al., 1995). Trouble at school was a central variable to Hagan and McCarthy's (1997) model concerning the relationship between school conflict as a risk factor for street life and crime. Trouble at school for property crime, and Hagan and McCarthy's variable, teacher conflict, are comparable since Hagan and McCarthy defined teacher conflict as trouble with teachers and school authorities. Trouble at school for property crime would inevitably involve "trouble" with teachers and/or school authorities.

Family problem variables include the categorical variables from the interview questions "Have you ever left home (of your own volition to live somewhere else)?" and "Has a member of your family been physically abused?" Leaving home is a common variable in studies that predict serious and violent juvenile offenders (e.g., Farrington, 1998; Hawkins et al., 1998). The Pittsburgh Youth Study utilizes the construct "running away" (from home) to predict violent and serious theft (Farrington et al., 2008; Loeber



et al., 2008b; Stouthamer-Loeber & Stallings, 2008). Newman (1996) and Lederman et al. (2004) investigated the prevalence of youth running away from home in their sample of incarcerated youth. Allen (2004) examines the association between running away and offending (violent and property) amongst incarcerated male youth, however, the variable is not limited to running away from the family home, specifically.

The categorical variable "Have you ever left home (of your own volition to live somewhere else)" indicates if the youth ever left home or did not. It does not provide an estimate of how many times the youth left home. The variable is designed to measure if the youth left home at least one point in time thereby suggesting the youth experienced a family problem serious enough to result in the youth leaving his/her home.

The variable "Has a member of your family been physically abused" is related to variables found in studies of serious and violent young offenders such as witnessing domestic violence (e.g., Elliott, 1994; Hartstone & Hansen, 1984; Mulder et al., 2010) and child abuse (i.e., physical and sexual abuse) (Hartstone & Hansen, 1984; Hawkins et al., 1998; Lipsey & Derzon, 1998; Loeber et al., 2008b; Loeber et al., 2005; Mulder et al., 2010). The variable is similar to one found in Lederman et al.'s (2004) study where incarcerated youth were asked if they had a family member who had been a victim of abuse (physical abuse, sexual abuse, or child neglect). For that measure, Lederman et al. collapsed all three types of abuse into one category as opposed to the current study that has a separate measure for family member's experience of physical abuse.

## **Control Variables**

The logistic regression models adjusted for the effects of demographic based risk factors (gender, ethnicity, and age), mental health risk factors (previous psychiatric contact and history of sexual abuse), and substance use risk factors (current drug use) variables. More specifically with respect to demographics, the following variables were controlled for: gender, age of subject at disposition, and ethnicity. The latter risk factor was operationalized as Caucasian, Aboriginal, Asiatic, Black, South Asian Indian, and Other.

## **Analytical Strategy**

Data analysis for this thesis was conducted using SAS (Statistical Analysis System) statistical software version 9.1. Bivariate tests were used to examine the relationship between each independent variable and the dependent variables. Chi-square tests were then used to test significance between pairs of variables. Logistic regression models were used to examine the relationship between the dependent variables and sets of independent variables. These independent variables included control variables, school problem variables, and family problem variables. Only variables tested that were found to be statistically significant at the bivariate level were included in the logistic regression model.

T-tests were used to compare the mean age at disposition between levels of gender (independent variable) and levels of each dependent variable.

Logistic regression models were used to predict serious violent offences. The first stage is the baseline model (Model 1), which examines the effect of control variables on serious violent offences. The second stage, the school model (Model 2), analyzes the role of school problems using the two school problem variables plus all control variables. The third stage, family model (Model 3), examines the role of family problems using the two family problem variables plus all control variables. The fourth stage is the best model (Model 4), which includes the control variables plus school problem and family problem variables found to be statistically significant at the 0.1 level of significance. The decision to have a cut off point of 0.1 is justified in order to avoid removing important predictors, which would otherwise be overlooked and forgotten if unnecessarily removed. Unless otherwise indicated, all statistical tests discussed assumed an alpha level of 0.05.

Each stage for Models 1 to 4 was performed in separate logistic regression models for each of the four dependent variables (Tables 6 to 9).

## **SVSP Versus No-SVSP Offences**

An explanation of the SVSP offences model versus no-SVSP offences model in the current study is needed in order to clarify the relationship between these two models necessary to interpret the study findings. The results of the current study show consistent findings in all models (see Chapter 5).

In a standard binary logistic regression model, if predicting the binary response variable violent offences with a predictor variable age, one can model the outcome

success (commit violent offence) or failure (did not commit a violent offence). If modeling the success outcome for violent offences, the slope estimate ( $B$ ) for age is +0.17 (Appendix C). If modeling the failure outcome for violent offences, the slope estimate for age is -0.17 (Appendix C). In this case, the slope estimate ( $B$ ) for age will have the opposite sign but same magnitude. See Appendix C for logistic regression results where violent offences is modeled as the success outcome in one model and violent offences is modeled as the failure outcome in another model with the same predictors in both models. Another example is the predictor variable Aboriginal ethnicity. If modeling the success outcome for violent offences, the slope estimate ( $B$ ) for Aboriginal ethnicity is -0.42 (Appendix C). If modeling the failure outcome for violent offences, the slope estimate ( $B$ ) for Aboriginal ethnicity is +0.42 (Appendix C). In this case, the slope estimate ( $B$ ) for Aboriginal ethnicity has the opposite sign but same magnitude. This is true for all simple binary logistic regression models. One has the choice to select which level of the response to model in a study.

In comparing the results from the four response models in the current study, one is able to draw similar conclusions for the predictor variables. If modeling serious property and serious violent offences (SVSP offences) as the response variable in one model and no serious property and no serious violent offences (no-SVSP offences) as the response variable in another model with the same predictors in both models, the slopes for the predictors between these two models tend to be opposite in sign. The conclusions or findings are both consistent. The slope estimates ( $B$ ) for any of the predictors in the "best models" between these two models (SVSP or no-SVSP) show that the direction of the slopes tend to be opposite in sign (positive versus negative). A

negative slope estimate ( $B$ ) for a predictor indicates that an offender is *less likely* to commit a SVSP offence while a positive slope estimate ( $B$ ) indicates that an offender is *more likely* to commit a SVSP offence. The reason the slope estimates ( $B$ ) are not of the same magnitude between the two models is that they are not purely opposite of each other. This is because Model 4 in Figure 2 below is not the complete opposite as Model 3. A real opposite would have the failure success completely reversed, however, that is not the case (Figure 3). For example, Table 8 (see Chapter 5) shows the slope estimate ( $B$ ) for the best model for the predictor Aboriginal ethnicity is +1.20 for SVSP offences, which indicates that Aboriginals are *more likely* to commit a SVSP offence, while in Table 9 (see Chapter 5) the slope estimate for Aboriginal ethnicity is  $-0.32$  for no-SVSP offences. Notice this estimate is opposite in direction between these two models. A slope estimate ( $B$ ) of  $-0.32$  indicates that Aboriginals are *less likely* to commit a no-SVSP offence. The conclusions from looking at either model are the same, just a different way of wording the same thing.

**Figure 2. Four Response Models**

	<b>Serious Violent</b>	<b>Serious Property</b>
Model 1	✓	✗
Model 2	✗	✓
Model 3	✓	✓
Model 4	✗	✗

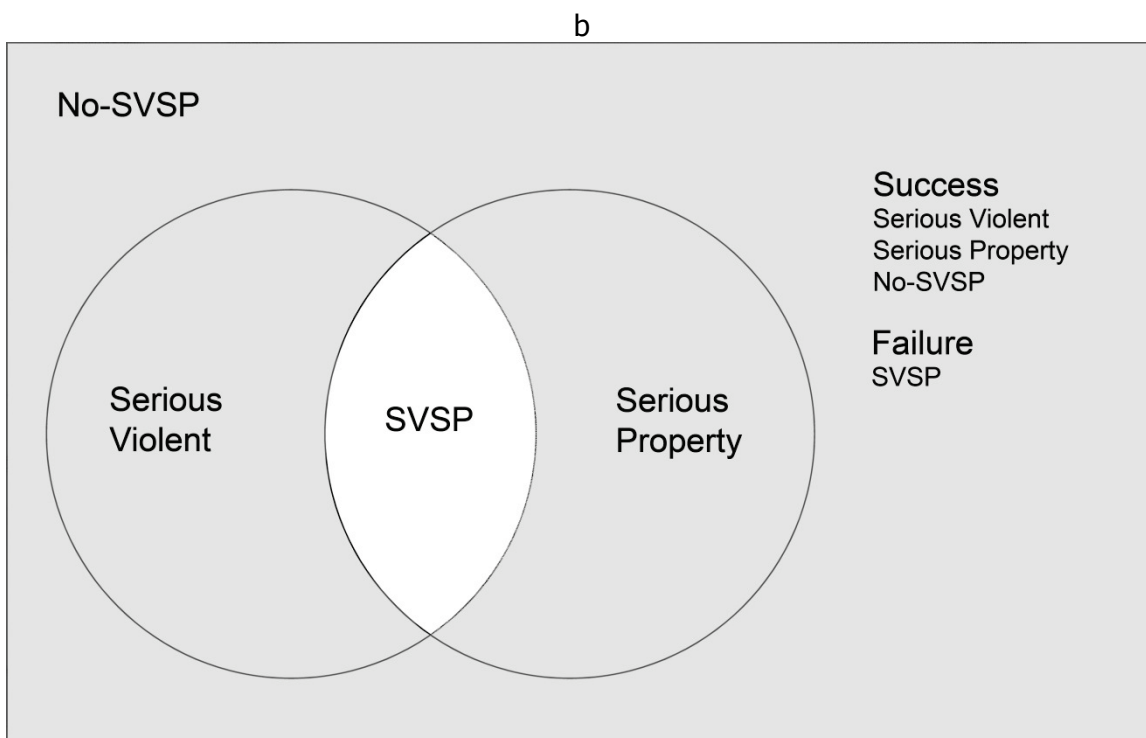
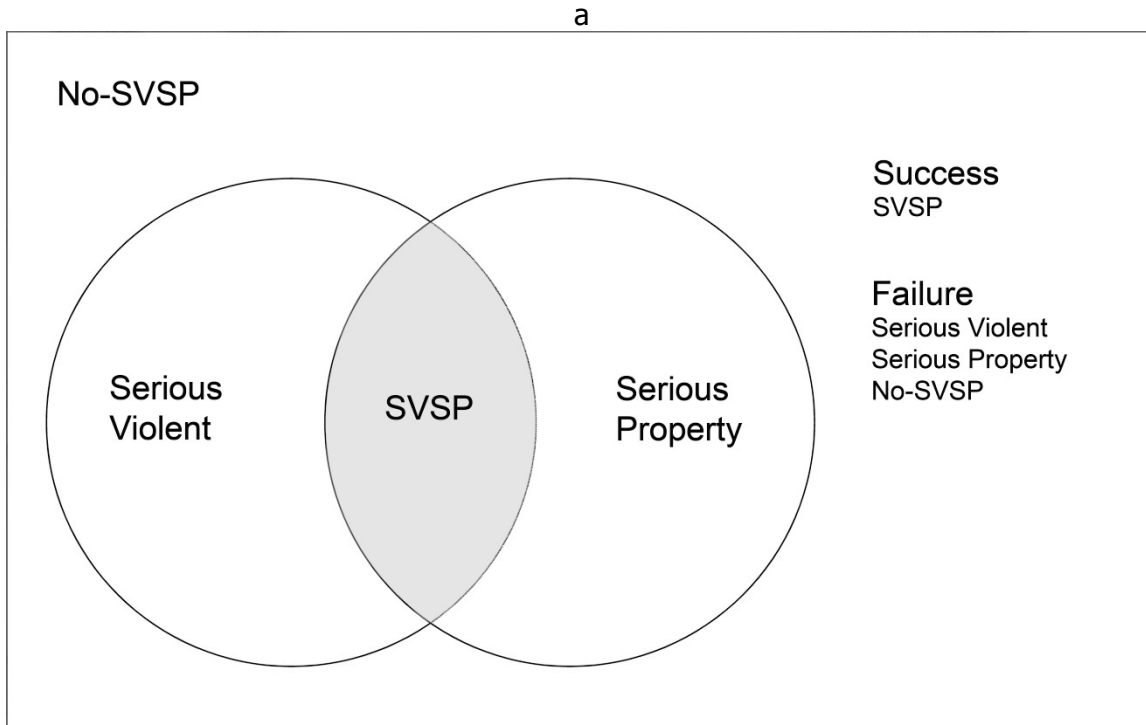
Again, the reason the slope estimates ( $B$ ) are not the same magnitude is that the two models are not purely opposite of each other. Note that Aboriginal ethnicity was

not found to be a statistically significant predictor of either SVSP or no-SVSP offences. Aboriginal ethnicity is given as an example to illustrate the findings.

A Venn Diagram (Figure 3 and Appendix C) shows that the four models are all connected and intertwined. For example, if the slope estimate ( $B$ ) for age is increasing for SVSP offences, then the slope estimate for age would tend to be decreasing for all other models (serious violent offences, serious property offences, and no-SVSP offences). The diagram shows that the inverse (compliment) of SVSP offences is not exclusively no-SVSP offences. For example, for the response variable SVSP offences, a "failure" includes the following three possible scenarios: (1) serious violent offences, (2) serious property offences, or (3) no-SVSP offences. For the response variable no-SVSP offences, a "failure" includes the following three possible scenarios: (1) serious violent offences, (2) serious property offences, or (3) SVSP offences.

Figure 3 model is an example in logistic regression to show what is a success in order to interpret the coefficients. Figure 3 model shows the opposite of SVSP offences, and that the opposite of SVSP offences is not exclusively no-SVSP offences on its own. The slope estimates ( $B$ ) in Figure 3a model should be the same magnitude as Figure 3b model except that the direction of the slopes are opposite in direction (positive versus negative). In other words, the parameters estimates should be opposite signs.

Figure 3. Four Logistic Regression Models of Offences



## Chapter 5.

### Results

Before assessing the hypotheses, the univariate descriptions of the variables will be presented. Again, the study analysis sample consists of 404 youth.

#### Univariate Analysis of Variables

Beginning with demographics, the mean age is 16.2 ( $SD = 1.29$ ) years old. The genders divide into approximately three quarters (73%) male ( $n = 296$ ) and slightly more than one quarter (27%) female ( $n = 108$ ). The ethnicity profile is as follows; nearly two thirds are Caucasian (61%), approximately one quarter Aboriginal (22%), and far fewer are either Asiatic (6%), Other (5%), Black (3%), or South Asian Indian ethnicity (2%).

Regarding current offences the sample young offenders have committed, closer to one half are classified as serious violent offences (42%) and more than one third have no-SVSP offences (39%) categories. Approximately one quarter (24%) of the sample have committed serious property offences while only one twentieth (5%) have committed SVSP offences.

The mental health, drug, and abuse profiles indicate that nearly two thirds (62%) of the sample report previous psychiatric contact, slightly more than one fifth



(21%) have experienced sexual abuse, and more than two thirds (69%) have engaged in serious current drug use. With regard to family risk factors, more than three quarters (79%) of subjects had “ever left home” and half have reported a family member who was physically abused.

Not surprising, for the key school risk factors, virtually most (91%) of the sample have skipped class (truancy) while far fewer (11%) have been “in trouble at school for property crime.” Examples of types of property crime at school that emerged from the interview include: theft, damage to property, possession of stolen property, motor vehicle theft (i.e., grand theft auto), extortion, and mischief. Examples of theft reported in an open-ended interview question include “taking money from teacher,” “stealing teachers’ purses,” and “breaking into lockers.” Participants report the following examples of damage to property: breaking a window, graffiti, vandalism, arson (e.g., attempting to set fire to the school), and breaking lockers/breaking into lockers. In three cases, motor vehicle theft includes stealing their teacher’s vehicle. One youth reports, “moving a teacher’s car” and another admitted to theft of a motorcycle (i.e., off-road “dirt bike” motorcycle) at school. In one case, damage to property include a teacher’s vehicle being described, in the youth’s words, as “beat a teacher’s car.”

## **Bivariate Relationships**

*T*-tests compare the mean age at disposition between gender types and the four dependent variables (Appendix B). There is a slight statistically significant ( $p$ -value < .001) gender difference in mean ages at disposition, males (16.3) and females (15.8), and an even smaller statistically significant difference ( $p$ -value = 0.03) in the mean age

of offenders charged with serious violent offences (16.3) and the mean age of offenders not charged with serious violent offences (16.1). There is no difference in the mean age (16.2) of offenders charged with serious property offences and the mean age of offenders not charged with serious property offences. Again, there is slight and significant difference ( $p$ -value = 0.04) in the mean age of offenders charged with SVSP offences (16.8) and the mean age of offenders not charged with SVSP offences (16.1). A similarly small and marginally significant ( $p$ -value = 0.10) difference is evident for offenders charged with no-SVSP offences (16.0) and those not charged with no-SVSP offences is (16.3).

The bivariate relationships between the independent variables and the dependent variable serious violent offences are presented in Table 2. Of the 10 independent variables in this study, six are statistically significant including age, previous psychiatric contact, history of sexual abuse, currently use drugs, trouble at school for property crime, and ever left home. Only gender, ethnicity, the school risk factor—skipped classes, and “family member was physically abused” are not significant predictors of serious violent offending.

**Table 2. Bivariate Results Predicting Serious Violent Offences**

	Serious Violent (n=169) m (sd) / % (n)	No Serious Violent (n=235) m (sd) / % (n)	$\chi^2$ / t, p
Demographics			
Gender	—	—	$\chi^2(1) = 1.39, p = .24$
Female	37.0 (40)	63.0 (68)	—
Male	43.6 (129)	56.4 (167)	—
Ethnicity	—	—	$\chi^2(5) = 6.53, p = .26$
Aboriginal	39.5 (34)	60.5 (52)	—
Asiatic	47.8 (11)	52.2 (12)	—
Black	61.5 (8)	38.5 (5)	—
Caucasian	39.5 (94)	60.5 (144)	—
Indian	62.5 (5)	37.5 (3)	—
Other	57.1 (12)	42.9 (9)	—
Age	16.3 (1.3)	16.1 (1.3)	$t_{1,401} = -2.23, p = .03^*$
Mental health risk factors			
Previous psychiatric contact	37.3 (91)	62.7 (153)	$\chi^2(1) = 4.21, p = .04^*$
History of sexual abuse	26.3 (21)	73.8 (59)	$\chi^2(1) = 9.38, p = .002^{**}$
Substance use risk factor			
Currently use drugs	35.1 (97)	64.9 (179)	$\chi^2(1) = 16.59, p = <.0001^{***}$
School problem risk factors			
Trouble at school for property crime	24.4 (10)	75.6 (31)	$\chi^2(1) = 5.78, p = .02^*$
Skipped class	40.8 (148)	59.2 (215)	$\chi^2(1) = 1.99, p = .16$
Family problem risk factors			
Ever left home	36.7 (116)	63.3 (200)	$\chi^2(1) = 15.72, p = <.0001^{**}$
Family member was physically abused	39.9 (77)	60.1 (116)	$\chi^2(1) = .31, p = .58$

\* $p \leq .05$ ; \*\* $p \leq .01$ ; \*\*\* $p \leq .001$ ; † $p \leq .1$ 

The probability of having previous psychiatric contact, a history of sexual abuse, current drug use, having been in “trouble at school for property crime,” or having “ever left home” is higher for offenders who have not been charged with serious violent offences (Table 2). Regarding these relationships, more specifically and beginning with

the mental health risk factor, more than one third (37.3%) of the young offenders who have previous psychiatric contact are charged with serious violent offences compared to nearly two thirds (62.7%) who are not charged with serious violent offences. There is an even larger percentage difference (48%) for offenders who have a history of self reported sexual abuse and are charged with serious violent offences (26.3%) and those who are not charged with serious violent offences (73.8%). Approximately one third (35.1%) of the offenders who "currently use drugs" are charged with serious violent offences compared to approximately two-thirds (64.9%) who are not charged with serious violent offences. Of the offenders who have been in trouble at school for property crime, more than triple (75.6%) are not charged with serious violent offences compared to those who are charged with serious violent offences (24.4%). Regarding the family problem risk factor, approximately one third (36.7%) of young offenders who have "ever left home" are charged with serious violent offences compared to nearly two thirds (63.3%) who are not charged with serious violent offences.

Bivariate relationships between each of the independent variables serious property offences are presented in Table 3. Only 2 of the 10 independent variables are significantly associated with serious property offences: gender and history of sexual abuse. The percentage of male young offenders who have committed serious property offences is more than double the rate compared to females (28.7% and 11.1%, respectively). The probability of having a history of sexual abuse is higher for offenders who have not been charged with serious property offences. Of the offenders who have a history of sexual abuse, the percentage rate of those not charged with serious property offences is more than 6 times higher (86.3%) compared to those charged with

serious property offences (13.8%). Again, age, ethnicity, previous psychiatric contact, current drug use, having been in trouble at school for property crime, skipped class (truancy), having ever left home, and having a family member who was physically abused are not statistically significantly associated with serious property offences.

**Table 3. Bivariate Results Predicting Serious Property Offences**

	Serious Property (n=97) % (n)	No Serious Property (n=307) % (n)	$\chi^2$   t, p
<b>Demographics</b>			
Gender	—	—	$\chi^2(1) = 13.44, p = .0002^{***}$
Female	11.1 (12)	88.9 (96)	—
Male	28.7 (85)	71.3 (211)	—
Ethnicity	—	—	$\chi^2(5) = 7.01, p = .22$
Aboriginal	27.9 (24)	72.1 (62)	—
Asiatic	17.4 (4)	82.6 (19)	—
Black	7.7 (1)	92.3 (12)	—
Caucasian	25.2 (60)	74.8 (178)	—
Indian	0.0 (0)	100.0 (8)	—
Other	14.3 (3)	85.7 (18)	—
Age	—	—	$t_{1,401} = -.32, p = .75$
<b>Mental health risk factors</b>			
Previous psychiatric contact	24.2 (59)	75.8 (185)	$\chi^2(1) = .00, p = 1.0$
History of sexual abuse	13.8 (11)	86.3 (69)	$\chi^2(1) = 5.65, p = .02^*$
<b>Substance use risk factor</b>			
Currently use drugs	25.7 (71)	74.3 (205)	$\chi^2(1) = 1.75, p = .19$
<b>School problem risk factors</b>			
Trouble at school for property crime	24.4 (10)	75.6 (31)	$\chi^2(1) = .003, p = .96$
Skipped class	23.4 (85)	76.6 (278)	$\chi^2(1) = 1.25, p = .26$
<b>Family problem risk factors</b>			
Ever left home	23.1 (73)	76.9 (243)	$\chi^2(1) = .67, p = .41$
Family member was physically abused	20.7 (40)	79.3 (153)	$\chi^2(1) = 2.49, p = .11$

\* $p \leq .05$ ; \*\* $p \leq .01$ ; \*\*\* $p \leq .001$ ; † $p \leq .1$

Bivariate relationships between each of the independent variables and Serious Violent/Serious Property Offences (SVSP) are presented in Table 4.

**Table 4. Bivariate Results Predicting Serious Violent and Serious Property Offences (SVSP)**

	SVSP (n=19) % (n)	No SVSP (n=385) % (n)	$\chi^2$   t, p
Demographics			
Gender	—	—	$\chi^2(1) = 2.67, p = .10^\dagger$
Female	1.85 (2)	98.2 (106)	—
Male	5.7 (17)	94.3 (279)	—
Ethnicity	—	—	$\chi^2(5) = 2.20, p = .82$
Aboriginal	7.0 (6)	93.0 (80)	—
Asiatic	4.4 (1)	95.7 (22)	—
Black	0.0 (0)	100.0 (13)	—
Caucasian	4.2 (10)	95.8 (228)	—
Indian	0.0 (0)	100.0 (8)	—
Other	4.8 (1)	95.2 (20)	—
Age	—	—	$t_{1,401} -2.05, p = .04^*$
Mental health risk factors			
Previous psychiatric contact	5.3 (13)	94.7 (231)	$\chi^2(1) = .41, p = .52$
History of sexual abuse	2.5 (2)	97.5 (78)	$\chi^2(1) = .83, p = .36$
Substance use risk factor			
Currently use drugs	2.9 (8)	97.1 (268)	$\chi^2(1) = 6.43, p = .01^{**}$
School problem risk factors			
Trouble at school for property crime	4.9 (2)	95.1 (39)	$\chi^2(1) = .01, p = .93$
Skipped class	3.6 (13)	96.4 (350)	$\chi^2(1) = 11.36, p = .001^{***}$
Family problem risk factors			
Ever left home	4.8 (15)	95.3 (301)	$\chi^2(1) = .00, p = 1.0$
Family member was physically abused	5.7 (11)	94.3 (182)	$\chi^2(1) = .48, p = .49$

\* $p \leq .05$ ; \*\* $p \leq .01$ ; \*\*\* $p \leq .001$ ; † $p \leq .1$

Again, only 3 (age, currently use drugs, and skipped class) of the 10 independent variables are statistically significantly associated with SVSP offences. Gender, though, is marginally significant (0.10 level). The percentage of male young offenders who have committed SVSP offences is triple the rate compared to females (5.7% and 1.85%, respectively).

The probability for having skipped class and current drug use is higher for offenders who are not charged with SVSP offences. Nearly all (97.1%) of the offenders who currently use drugs are not charged with SVSP offences compared to less than one twentieth (2.9%) who are charged with SVSP offences. Similarly, nearly all (96.4%) of the offenders who have skipped class are not charged with SVSP offences compared to less than one twentieth (3.6%) who are charged with SVSP offences. Ethnicity, previous psychiatric contact, history of sexual abuse, trouble at school for property crime, ever left home, and family member was physically abused are not significantly associated with SVSP offences.

Bivariate relationships between each of the independent variables and no-SVSP offences are presented in Table 5. The majority of independent variables are significantly related to no-SVSP offences; gender, previous psychiatric contact, history of sexual abuse, trouble at school for property crime, ever left home, and family member was physically abused. In addition, age and current drug use is marginally significant (0.10 level).

Slightly more than half (53.7%) of female young offenders have committed no-SVSP offences compared to approximately one third of male young offenders (33.5%).

**Table 5. Bivariate Results Predicting No Serious Violent and No Serious Property Offences (No-SVSP)**

	No-SVSP (n=157) % (n)	Non-No-SVSP (n=247) % (n)	$\chi^2$   t, p
<b>Demographics</b>			
Gender	—	—	$\chi^2(1) = 13.67, p = .0002^{***}$
Female	53.7 (58)	46.3 (50)	—
Male	33.5 (99)	66.6 (197)	—
Ethnicity	—	—	$\chi^2(5) = .69, p = .98$
Aboriginal	39.5 (34)	60.5 (52)	—
Asiatic	39.1 (9)	60.9 (14)	—
Black	30.8 (4)	69.2 (9)	—
Caucasian	39.5 (94)	60.5 (144)	—
Indian	37.5 (3)	62.5 (5)	—
Other	33.3 (7)	66.7 (14)	—
Age	—	—	$t_{1,401} = 1.66, p = .10^\dagger$
<b>Mental health risk factors</b>			
Previous psychiatric contact	43.9 (107)	56.2 (137)	$\chi^2(1) = 5.51, p = .02^*$
History of sexual abuse	62.5 (50)	37.5 (30)	$\chi^2(1) = 22.86, p = <.0001^{***}$
<b>Substance use risk factor</b>			
Currently use drugs	42.0 (116)	58.0 (160)	$\chi^2(1) = 3.47, p = .06^\dagger$
<b>School problem risk factors</b>			
Trouble at school for property crime	56.1 (23)	44.0 (18)	$\chi^2(1) = 6.38, p = .01^{**}$
Skipped class	39.4 (143)	60.6 (220)	$\chi^2(1) = .89, p = .35$
<b>Family problem risk factors</b>			
Ever left home	44.9 (142)	55.1 (174)	$\chi^2(1) = 22.29, p = <.0001^{***}$
Family member was physically abused	45.1 (87)	54.9 (106)	$\chi^2(1) = 5.07, p = .02^*$

\* $p \leq .05$ ; \*\* $p \leq .01$ ; \*\*\* $p \leq .001$ ; † $p \leq .1$

The probability of having a history of sexual abuse and being in trouble at school for property crime is higher for offenders who are charged with no-SVSP offences compared to those not charged with no-SVSP offences (Table 5). The probability of having



previous psychiatric contact, current drug use, having ever left home, and having a family member who was physically abused is higher for those offenders not charged with no-SVSP offences compared to those charged with no-SVSP offences.

Of the offenders who have been in trouble at school for property crime, more than half (56.1%) have been charged with no-SVSP offences compared to less than half (44.0%) of those who have not been charged with no-SVSP offences. There is a much larger percentage difference (25%) for offenders who have a history of sexual abuse and are charged with no-SVSP offences (62.5%) and those who are not charged with no-SVSP offences (37.5%). Less than half (43.9%) of the young offenders who have previous psychiatric contact are charged with no-SVSP offences compared to more than half (56.2%) of those who are not charged with no-SVSP offences.

A similar pattern is found for offenders who currently use drugs, have ever left home, and have a family member who was physically abused. Less than half (42.0%) of the young offenders who currently use drugs are charged with no-SVSP offences compared to more than half (58.0%) who are not charged with no-SVSP offences. Less than half (44.9%) of the offenders who have ever left home are charged with no-SVSP offences compared to more than half (55.1%) who are not charged with no-SVSP offences. Less than half (45.1%) of the offenders who have a family member who was physically abused are charged with no-SVSP offences compared to more than half (54.9%) who are not charged with no-SVSP offences. Ethnicity and skipped class (truancy) are not statistically significantly associated with no-SVSP offences.

As mentioned in the Risk and Theory chapters (Chapters 2 and 3), while the risk factors or independent variables examined in this study each have been hypothesized to be associated with the dependent variables in this study, they also have been hypothesized to be part of more complex multivariate models utilized to explain each dependent variable as well. Only the statistically significant independent variables, though, are examined in the logistic regression analysis in the next section.

## **Logistic Regression Models of Statistically Significant Independent and Dependent Variables**

The logistic regression models of relationships between the statistically significant independent variables and the four dependent variables (i.e., serious violent offences, serious property offences, SVSP offences, and no-SVSP offences) are presented in Tables 6 to 9.

### **Models Predicting Serious Violent Offences**

The baseline model (Model 1) predicting serious violent offences is statistically significant ( $\chi^2 = 31.3, p = .001$ ). The statistically significant predictors of serious violent offences are age of subject at disposition ( $B = .17, p \leq .05$ ), history of sexual abuse ( $B = -.76, p \leq .01$ ), and "currently use drugs" ( $B = -.84, p \leq .001$ ) (Table 6). The negative slope estimates ( $B$ ) for history of sexual abuse and "currently use drugs" indicate that offenders who have a history of sexual abuse and currently use drugs are less likely to commit serious violent offences.

**Table 6. Logistic Regression Predicting Serious Violent Offences**

	<b>Baseline Model 1 B (SE)</b>	<b>School Model 2 B (SE)</b>	<b>Family Model 3 B (SE)</b>	<b>Best Model 4 B (SE)</b>
Gender (Female)	-.06 (.28)	.06 (.30)	.1 (.30)	.12 (.30)
Ethnicity (Aboriginal <sup>a</sup> )	-.42 (.58)	-.38 (.60)	-.58 (.60)	-.50 (.60)
Age of subject at disposition	.17 (.09)*	.17 (.09)†	.18 (.09)*	.18 (.09)†
Previous psychiatric contact	-.26 (.24)	-.26 (.24)	-.30 (.24)	-.16 (.26)
History of sexual abuse	-.76 (.32)**	-.84 (.34)**	-.88 (.34)**	-.72 (.34)*
Currently use drugs	-.84 (.24)***	-.78 (.26)**	-.76 (.26)**	-.76 (.26)**
Trouble at school for property crime	—	-.82 (.44)†	—	-.66 (.22)
Skipped class	—	-.54 (.40)	—	—
Ever left home	—	—	-.90 (.28)***	-.80 (.28)**
Family member was physically abused	—	—	.24 (.24)	—
Constant	-3.03 (1.46)*	-3.13 (1.54)*	-3.02 (1.50)*	-3.09 (1.55)*
Overall % predicted	65.4	67.3	69.3	68.6
$\chi^2$ ( $p$ )	31.30 (.001)***	32.73 (.001)***	43.15 (<.0001)***	39.93 (<.0001)***
Cox & Snell pseudo- $R^2$	.06	.07	.09	.09

\* $p \leq .05$ ; \*\* $p \leq .01$ ; \*\*\* $p \leq .001$ ; † $p \leq .1$

<sup>a</sup> coefficients for other ethnicities not shown.

Very importantly for this study focused on school risk factors, the school model (Model 2) predicting serious violent offences is statistically significant ( $\chi^2 = 32.7$ ,  $p = .001$ ). However, while history of sexual abuse ( $B = -.84$ ,  $p \leq .01$ ) and “currently use drugs” ( $B = -.78$ ,  $p \leq .01$ ) are highly significant, “trouble at school for property crime” ( $B = -.82$ ,  $p \leq .1$ ) and age of subject at disposition ( $B = .17$ ,  $p \leq .1$ ) are only marginally significant predictors of serious violent offences. The slope estimates ( $B$ ) for history of sexual abuse and “currently use drugs” are negative in sign indicating that offenders who have a history of sexual abuse and currently use drugs are less likely to commit serious violent offences. The negative slope estimate ( $B$ ) for “trouble at school for

property crime" indicates that offenders who have been in trouble at school for property crime are less likely to commit serious violent offences at a marginally significant level.

The family model (Model 3) predicting serious violent offences is statistically significant ( $\chi^2 = 43.2, p = < .0001$ ). Age of subject at disposition ( $B = .18, p \leq .05$ ), history of sexual abuse ( $B = -.88, p \leq .01$ ), "currently use drugs" ( $B = -.76, p \leq .01$ ), and "ever left home" ( $B = -.90, p \leq .001$ ) are statistically significant predictors of serious violent offences. The slope estimate ( $B$ ) for history of sexual abuse, "currently use drugs," and "ever left home" is negative in sign indicating that offenders who have experienced any of these risk factors are less likely to commit serious violent offences.

The best model (Model 4) predicting serious violent offences is statistically significant ( $\chi^2 = 39.9, p = < .0001$ ). The statistically significant predictors of serious violent offences are history of sexual abuse ( $B = -.72, p \leq .05$ ), "currently use drugs" ( $B = -.76, p \leq .01$ ), and "ever left home" ( $B = -.80, p \leq .01$ ). The variable, age of subject at disposition, is a marginally significant predictor ( $B = .18, p \leq .1$ ). The slope estimate ( $B$ ) for history of sexual abuse, "currently use drugs," and "ever left home" is negative in sign indicating that offenders who have experienced any of these risk factors are less likely to commit serious violent offences.

### **Models Predicting Serious Property Offences**

The baseline model (Model 1) predicting serious property offences is statistically significant ( $\chi^2 = 21.8, p = .02$ ) (Table 7). The gender variable ( $p \leq .01$ ), female gender coefficient ( $B = -1.02, p \leq .01$ ), and Aboriginal ethnicity coefficient ( $B = 1.56, p \leq .05$ )

are statistically significant predictors of serious property offences. The slope estimate ( $B$ ) for the female gender coefficient is negative in sign indicating that female offenders are less likely to commit serious property offences. The slope estimate ( $B$ ) for the Aboriginal ethnicity coefficient is positive in sign indicating that Aboriginal offenders are more likely to commit serious property offences. However, the school model (Model 2) predicting serious property offences is marginally significant ( $\chi^2 = 20.3, p = .06$ ).

**Table 7. Logistic Regression Predicting Serious Property Offences**

	<b>Baseline Model 1 B (SE)</b>	<b>School Model 2 B (SE)</b>	<b>Family Model 3 B (SE)</b>	<b>Best Model 4 B (SE)</b>
Gender (Female)	-1.02 (.38)**	-.92 (.40)*	-1.08 (.40)**	-1.10 (.40)**
Ethnicity (Aboriginal <sup>a</sup> )	1.56 (.80)*	1.52 (.82)†	1.84 (.82)*	1.84 (.82)*
Age of subject at disposition	-.01 (.10)	.01 (.10)	-.004 (.10)	-.01 (.10)
Previous psychiatric contact	.18 (.26)	.06 (.28)	.26 (.28)	.22 (.28)
History of sexual abuse	-.46 (.38)	-.62 (.40)	-.38 (.40)	-.44 (.40)
Currently use drugs	.32 (.30)	.28 (.30)	.38 (.30)	.36 (.30)
Trouble at school for property crime	—	-.48 (.44)	—	—
Skipped class	—	-.24 (.44)	—	—
Ever left home	—	—	-.24 (.30)	—
Family member was physically abused	—	—	-.44 (.26)†	-.46 (.26)†
Constant	-2.05 (1.63)	-2.48 (1.69)	-2.09 (1.65)	-2.15 (1.65)
Overall % predicted	63.1	64.9	67.4	66.5
$\chi^2 (p)$	21.84 (.02)*	20.34 (.06)†	27.0 (.01)**	26.57 (.01)**
Cox & Snell pseudo- $R^2$	.06	.06	.08	.08

\* $p \leq .05$ ; \*\* $p \leq .01$ ; \*\*\* $p \leq .001$ ; † $p \leq .1$

<sup>a</sup> coefficients for other ethnicities not shown.

The gender variable ( $p \leq .05$ ) is the only statistically significant predictor of serious property offences. The female gender coefficient ( $B = -.92, p \leq .05$ ) is a statistically significant predictor while the Aboriginal ethnicity coefficient is a marginally significant

predictor of serious property offences ( $B = 1.52, p \leq .1$ ). The slope estimate ( $B$ ) for the female gender coefficient is negative in sign indicating that female offenders are less likely to commit serious property offences. The positive slope estimate ( $B$ ) for the Aboriginal ethnicity coefficient indicates that Aboriginal offenders are more likely to commit serious property offences at a marginally significant level.

The family model (Model 3) too is a statistically significant ( $\chi^2 = 27.0, p = .01$ ) predictor of serious property offences. The gender variable ( $p \leq .01$ ), female gender coefficient ( $B = -1.08, p \leq .01$ ), and Aboriginal ethnicity coefficient ( $B = 1.84, p \leq .05$ ) are statistically significant predictors of this dependent variable, and "family member was physically abused" variable is a marginally significant predictor ( $B = -.44, p \leq .1$ ). The slope estimate ( $B$ ) for the female gender coefficient is negative in sign indicating that females are less likely to commit serious property offences. The positive slope estimate ( $B$ ) for the Aboriginal ethnicity coefficient indicates that Aboriginals are more likely to commit serious property offences. The negative slope estimate ( $B$ ) for "family member was physically abused" indicates that offenders who have this risk factor are less likely to commit serious property offences at a marginally significant level.

The best model (Model 4) predicting serious property offences is statistically significant ( $\chi^2 = 26.6, p = .01$ ). The gender variable ( $p \leq .01$ ), female gender coefficient ( $B = -1.10, p \leq .01$ ), and Aboriginal ethnicity coefficient ( $B = 1.84, p \leq .05$ ) are statistically significant predictors of serious property offences while "family member was physically abused" is marginally significant ( $B = -.46, p \leq .1$ ). The slope estimate ( $B$ ) for the female gender coefficient is negative in sign indicating that females are less

likely to commit serious property offences. The positive slope estimate ( $B$ ) for the Aboriginal ethnicity coefficient indicates that Aboriginal offenders are more likely to commit serious property offences. The negative slope estimate ( $B$ ) for “family member was physically abused” indicates that offenders who have this risk factor are less likely to commit serious property offences at a marginally significant level.

### **Models Predicting Serious Violent and Serious Property Offences**

The baseline model (Model 1) predicting SVSP offences is not statistically significant ( $\chi^2 = 15.1, p = .13$ ) (Table 8) but it is close to the marginal significance level. Previous psychiatric contact ( $B = 1.46, p \leq .05$ ) is the only statistically significant predictor of SVSP offences, and age of subject at disposition is a marginal predictor of SVSP offences ( $B = .40, p \leq .1$ ). The slope estimate ( $B$ ) for previous psychiatric contact is positive in sign indicating that offenders with previous psychiatric contact are more likely to commit SVSP offences.

The school model (Model 2) predicting SVSP offences is not statistically significant ( $\chi^2 = 17.8, p = .12$ ), however, previous psychiatric contact ( $B = 1.36, p \leq .05$ ) and skipped class ( $B = -1.30, p \leq .05$ ) are. The slope estimate ( $B$ ) for previous psychiatric contact is positive in sign indicating that offenders with previous psychiatric contact are more likely to commit SVSP offences. The negative slope estimate ( $B$ ) for skipped class indicates that offenders who have experienced this risk factor are less likely to commit SVSP offences. Age of subject at disposition is a marginally significant predictor of SVSP offences ( $B = .41, p \leq .1$ ).

**Table 8. Logistic Regression Predicting Serious Violent and Serious Property Offences (SVSP)**

	Baseline Model 1 B (SE)	School Model 2 B (SE)	Family Model 3 B (SE)	Best Model 4 B (SE)
Gender (Female)	-1.08 (.82)	-.98 (.82)	-1.10 (.80)	-1.10 (.82)
Ethnicity (Aboriginal <sup>a</sup> )	1.08 (1.16)	.96 (1.20)	1.00 (1.16)	1.20 (1.16)
Age of subject at disposition	.40 (.22)†	.41 (.22)†	.37 (.21)†	.42 (.22)*
Previous psychiatric contact	1.46 (.66)*	1.36 (.66)*	1.40 (.64)*	1.42 (.66)*
History of sexual abuse	-.38 (.70)	-.76 (.82)	-.36 (.70)	-.30 (.70)
Currently use drugs	-.76 (.50)	-.80 (.52)	-.68 (.50)	-.66 (.50)
Trouble at school for property crime	—	-1.50 (1.36)	—	—
Skipped class	—	-1.30 (.68)*	—	-1.12 (.64)†
Ever left home	—	—	-.26 (.56)	—
Family member was physically abused	—	—	.20 (.50)	—
Constant	-10.06 (3.71)**	-10.42 (3.76)**	-9.39 (3.57)**	-10.04 (3.66)**
Overall % predicted	79.8	84	81.5	82.1
$\chi^2$ ( $p$ )	15.07 (.13)	17.75 (.12)	14.87 (.25)	17.27 (.10)†
Cox & Snell pseudo- $R^2$	.14	.19	.15	.16

\* $p \leq .05$ ; \*\* $p \leq .01$ ; \*\*\* $p \leq .001$ ; † $p \leq .1$

<sup>a</sup> coefficients for other ethnicities not shown.

The family model (Model 3) predicting SVSP offences is not statistically significant ( $\chi^2 = 14.9$ ,  $p = .25$ ) and only previous psychiatric contact ( $B = 1.40$ ,  $p \leq .05$ ) is. The positive slope estimate ( $B$ ) for previous psychiatric contact indicates that offenders with previous psychiatric contact are more likely to commit SVSP offences. Again, age of subject at disposition is a marginally significant predictor of SVSP offences ( $B = .37$ ,  $p \leq .1$ ).

The best model (Model 4) predicting SVSP offences, though, is marginally significant ( $\chi^2 = 17.3$ ,  $p = .1$ ) while age of subject at disposition ( $B = .42$ ,  $p \leq .05$ ) and



previous psychiatric contact ( $B = 1.42, p \leq .05$ ) are statistically significant predictors. The slope estimate ( $B$ ) for previous psychiatric contact is positive in sign indicating that offenders with previous psychiatric contact are more likely to commit SVSP offences. Skipped class is a marginally significant predictor of SVSP offences ( $B = -1.12, p \leq .1$ ). The negative slope estimate ( $B$ ) for skipped class indicates that offenders who have experienced this risk factor are less likely to commit SVSP offences.

### **Models Predicting No Serious Violent and No Serious Property Offences**

The baseline model (Model 1) predicting no-SVSP offences is highly and statistically significant ( $\chi^2 = 32.6, p = .0003$ ) (Table 9). The gender variable ( $p \leq .05$ ), the female gender coefficient ( $B = .56, p \leq .05$ ), and history of sexual abuse ( $B = .94, p \leq .001$ ) are statistically significant predictors of no-SVSP offences while "currently use drugs" is marginally significant ( $B = .48, p \leq .1$ ). The slope estimate ( $B$ ) for the female gender coefficient is positive in sign indicating that females are more likely to commit no-SVSP offences. The positive slope estimate ( $B$ ) for history of sexual abuse indicate that offenders who have a history of sexual abuse are more likely to commit no-SVSP offences. The positive slope estimate ( $B$ ) for "currently use drugs" indicate that offenders who currently use drugs are more likely to commit no-SVSP offences at a marginally significant level.

**Table 9. Logistic Regression Predicting No Serious Violent and No Serious Property Offences (No-SVSP)**

	Baseline Model 1 B (SE)	School Model 2 B (SE)	Family Model 3 B (SE)	Best Model 4 B (SE)
Gender (Female)	.56 (.28)*	.42 (.30)	.42 (.30)	.34 (.30)
Ethnicity (Aboriginal <sup>a</sup> )	-.30 (.58)	-.42 (.62)	-.40 (.62)	-.32 (.62)
Age of subject at disposition	-.09 (.09)	-.11 (.09)	-.11 (.09)	-.12 (.10)
Previous psychiatric contact	.36 (.24)	.46 (.26)†	.34 (.26)	.34 (.26)
History of sexual abuse	.94 (.30)***	1.08 (.32)***	.96 (.32)**	.94 (.32)**
Currently use drugs	.48 (.26)†	.40 (.28)	.34 (.26)	.36 (.28)
Trouble at school for property crime	—	.90 (.38)*	—	.72 (.38)†
Skipped class	—	.40 (.42)	—	—
Ever left home	—	—	1.26 (.34)***	1.12 (.34)***
Family member was physically abused	—	—	.18 (.24)	—
Constant	1.45 (1.44)	1.85 (1.53)	1.36 (1.53)	1.72 (1.58)
Overall % predicted	64.7	66.4	70.9	70.6
$\chi^2(p)$	32.58 (.0003)***	36.07 (.0003)***	52.72 (<.0001)***	46.93 (<.0001)***
Cox & Snell pseudo- $R^2$	.07	.08	.11	.10

\* $p \leq .05$ ; \*\* $p \leq .01$ ; \*\*\* $p \leq .001$ ; † $p \leq .1$

<sup>a</sup> coefficients for other ethnicities not shown.

Again, very importantly, the school model (Model 2) predicting no-SVSP offences is statistically significant ( $\chi^2 = 36.1, p = .0003$ ). History of sexual abuse ( $B = 1.08, p \leq .001$ ) and “trouble at school for property crime” ( $B = .90, p \leq .05$ ) are statistically significant predictors of no-SVSP offences, and “previous psychiatric contact” is a marginally significant predictor of no-SVSP offences ( $B = .46, p \leq .1$ ). The positive slope estimate ( $B$ ) for history of sexual abuse and “trouble at school for property crime” indicate that offenders who have been in trouble at school for property crime or have a history of sexual abuse are more likely to commit no-SVSP offences. The positive slope estimate ( $B$ ) for previous psychiatric contact indicates that offenders with previous

psychiatric contact are more likely to commit no-SVSP offences at a marginally significant level.

The family model (Model 3) predicting no-SVSP offences is statistically significant ( $\chi^2 = 52.7, p = < .0001$ ). History of sexual abuse ( $B = .96, p \leq .01$ ) and "ever left home" ( $B = 1.26, p \leq .001$ ) are as well. The positive slope estimate ( $B$ ) for history of sexual abuse and "ever left home" indicate that offenders with a history of sexual abuse or having ever left home are more likely to commit no-SVSP offences.

The best model (Model 4) predicting no-SVSP offences is statistically significant ( $\chi^2 = 46.9, p = < .0001$ ). Again, history of sexual abuse ( $B = .94, p \leq .01$ ) and "ever left home" ( $B = 1.12, p \leq .001$ ) are statistically significant predictors of no-SVSP offences, and "trouble at school for property crime" emerged as a marginally significant predictor of no-SVSP offences ( $B = .72, p \leq .1$ ). The positive slope estimate ( $B$ ) for history of sexual abuse and "ever left home" indicate that offenders who have a history of sexual abuse or have ever left home are more likely to commit no-SVSP offences. The positive slope estimate ( $B$ ) for "trouble at school for property crime" indicates that offenders who have been in trouble at school for property crime are more likely to commit no-SVSP offences.

## **Summary of Bivariate and Logistic Regression Results**

At the bivariate level, both school and family problem variables are statistically significantly associated with the dependent variables serious violent offences and no-SVSP offences. For example, variables for school problems ("trouble at school for

property crime" variable) and family problems ("ever left home" variable) are statistically significantly associated with serious violent offences and no-SVSP offences. The other school problem variable, "skipped class," is statistically significantly associated with SVSP offences. Family problem variables are not statistically significantly associated with serious property offences or SVSP offences. The bivariate analysis shows a statistically significant association between the family problem variable, family member was physically abused, and no-SVSP offences. School problem and family problem variables are not statistically significantly associated with serious property offences.

At the bivariate level, the following control variables emerged as statistically significant predictors of the dependent variable serious violent offences: age of subject at disposition, mental health issues (previous psychiatric contact variable and history of sexual abuse variables), and substance use issues ("currently use drugs" variable). The only control variables statistically significantly associated with serious property offences are gender and mental health issues (history of sexual abuse variable). Gender and the mental health issue variables (previous psychiatric contact and history of sexual abuse) are statistically significantly associated with no-SVSP offences. Gender has a marginally significant association to SVSP offences. Substance use issues ("currently use drugs" variable) has a statistically significant association with SVSP offences and a marginally significant association with no-SVSP offences. Ethnicity is not statistically significantly associated with any of the dependent variables at the bivariate level.

In summary, logistic regression analysis found that school problems are a statistically significant predictor of SVSP offences and no-SVSP offences and marginally

significant predictor of serious violent offences. However, school problems are not a significant predictor of serious property offences. Family problems are a statistically significant predictor of serious violent offences and no-SVSP offences and marginally significant predictor of serious property offences. Family problems are not a significant predictor of SVSP offences. Mental health problems are a statistically significant predictor of violent offences, SVSP offences, and no-SVSP offences, but not property offences. Substance use problems are a statistically significant predictor of violent offences and marginally significant predictor of no-SVSP offences. However, substance use problems are not a significant predictor of serious property offences or SVSP offences. Demographic based risk factors are statistically significant predictors of serious violent, serious property, SVSP offences, and no-SVSP offences. The Aboriginal ethnicity coefficient is a statistically significant predictor of serious property offences.

Logistic regression analysis found that both school and family problems are strong predictors of serious violent offences and no-SVSP offences (Tables 6 and 9). Family problems are important predictors of serious property offences, however, school problems are not (Table 7). Conversely, school problems are statistically significant predictors of SVSP offences, however, family problems are not (Table 8). The negative slope estimate ( $B$ ) for the school and family problem variables ("trouble at school for property crime" and "ever left home") for serious violent offences indicate that offenders who have been in trouble at school for property crime or ever left home are less likely to commit serious violent offences. Note that "trouble at school for property crime" is only a marginally significant predictor of serious violent offences. The positive slope estimate ( $B$ ) for the school and family problem variables ("trouble at school for property crime"

and “ever left home”) for no-SVSP offences indicate that offenders who have been in trouble at school for property crime or have ever left home are more likely to commit no-SVSP offences. Family problems are also important predictors of serious property offences, especially having a family member who was physically abused (Table 7). The negative slope estimate ( $B$ ) for “family member was physically abused” indicates that offenders who have that family problem are less likely to commit serious property offences at a marginally significant level. School problems are a statistically significant predictor of SVSP offences, especially skipping class (Table 8). The negative slope estimate ( $B$ ) for “skipped class” indicates that offenders who skip class are less likely to commit SVSP offences.

Logistic regression analysis found that the Aboriginal ethnicity coefficient is a statistically significant predictor of serious property offences (Table 7). As mentioned above, the positive slope estimate ( $B$ ) for the Aboriginal ethnicity coefficient indicates that Aboriginal offenders are more likely to commit serious property offences. Gender is also a statistically significant predictor of serious property offences. As mentioned above, the negative slope estimate ( $B$ ) for the female gender coefficient indicates that female offenders are less likely to commit serious property offences.

Logistic regression analysis found that the mental health risk factor (history of sexual abuse), substance use risk factor (current drug use), and demographic based risk factor (age of subject at disposition) are statistically significant predictors of serious violent offences. The negative slope estimate ( $B$ ) for history of sexual abuse and current drug use indicates that offenders who currently use drugs and have a history of sexual abuse are less likely to commit serious violent offences.

Logistic regression analysis found that previous psychiatric contact and age of subject at disposition are statistically significant predictors of SVSP offences. The positive slope estimate ( $B$ ) for previous psychiatric contact indicates that offenders with previous psychiatric contact are more likely to commit SVSP offences.

Logistic regression analysis found that history of sexual abuse, gender, and the female gender coefficient are statistically significant predictors of no-SVSP offences. Previous psychiatric contact and "currently use drugs" are marginally significant predictors of no-SVSP offences. As mentioned above, the positive slope estimate ( $B$ ) for history of sexual abuse indicates that offenders with a history of sexual abuse are more likely to commit no-SVSP offences. The positive slope estimate ( $B$ ) for the female gender coefficient indicates that female offenders are more likely to commit no-SVSP offences. The positive slope estimate ( $B$ ) for "previous psychiatric contact" indicates that offenders with previous psychiatric contact are more likely to commit no-SVSP offences at a marginally significant level. Similarly, the positive slope estimate ( $B$ ) for "currently use drugs" indicates that offenders who currently use drugs are more likely to commit no-SVSP offences at a marginally significant level.

The best logistic regression model for predicting serious violent offences is having ever left home, age of subject at disposition, history of sexual abuse, and current drug use (Table 6). As mentioned previously, the negative slope estimate ( $B$ ) for "ever left home," "history of sexual abuse," and "currently use drugs" indicates that offenders who have experienced any of these risk factors are less likely to commit serious violent offences.

The best logistic regression model for predicting serious property offences is the Aboriginal ethnicity coefficient, having a family member who was physically abused, and gender (female gender coefficient) (Table 7). The positive slope estimate ( $B$ ) for the Aboriginal ethnicity coefficient indicates that Aboriginal offenders are more likely to commit serious property offences. The negative slope estimate ( $B$ ) for the female gender coefficient indicates that female offenders are less likely to commit serious property offences. Similarly, the negative slope estimate ( $B$ ) for "family member was physically abused" indicates that offenders who have this risk factor are less likely to commit serious property offences.

The best logistic regression model (best model) for predicting SVSP offences is skipping class, age of subject at disposition, and previous psychiatric contact (Table 8). As mentioned previously, the positive slope estimate ( $B$ ) for previous psychiatric contact indicates that offenders who have previous psychiatric contact are more likely to commit SVSP offences. The negative slope estimate ( $B$ ) for "skipped class" indicates that offenders who have experienced this risk factor are less likely to commit SVSP offences.

The best logistic regression model (best model) for predicting no-SVSP offences is "trouble at school for property crime," "ever left home," and history of sexual abuse (Table 9). As mentioned previously, the slope estimates ( $B$ ) are positive in sign, indicating that offenders who have experienced any of these three risk factors are more likely to commit no-SVSP offences.



## **Chapter 6.**

### **Discussion**

This study's sample includes primarily serious and violent offenders often with extensive and offence diverse prior criminal records that allowed for sufficient subsamples based on the four types of offending or the four dependent variables examined. There is also considerable age variability, a large proportion of female incarcerated young offenders, a substantial and disproportionate number of Aboriginal young offenders, several of the key family related problems/risk factors, two very important mental health related risk factors, and, very importantly, two important school related problems/risk factors. Clearly, these specific variables constitute only a small number of the numerous risk factors for serious and violent offending discussed in Chapter 2. Nonetheless, they are, at a minimum and arguably, representative of the general category of similar risk factors. However, as is discussed in the concluding chapter, the limited number of risk factors used, even within categories of similar risk factors, is a major limitation of this study.

It is very likely, though, that the absence of more specific psychological risk predictors, most importantly anger and personality disorders such as psychopathy, and group level predictors such as gang involvement explain why many of the bivariate and related multivariate predicted directions of the independent variables, as stipulated in

the four major hypotheses introduced in Chapter 1, are not evident when these relationships are significant. Most importantly, many of the expected relationships between the education risk factors and the dependent variables are not significant and not in the predicted direction when significant. Regarding the "skipping classes" variable and the dependent variable category, Serious Violent and Serious Property Offences (SVSP), the bivariate and multivariate analyses indicate significant relationships with the models; however, there is only a marginally significant relationship for the best-fit model (Tables 4 and 8). Although the bivariate analysis found a statistically significant association between "skipped class" and the response variable SVSP offences, the probability of having skipped class is higher for offenders who are not charged with SVSP offences (Table 4). Consistent with the results of the bivariate analysis, in the logistic regression model predicting SVSP offences the negative slope estimate ( $B$ ) for "skipped class" indicates that offenders who have skipped class are less likely to commit SVSP offences. The negative slope estimate shows an unexpected direction regarding the current study's hypothesis, which hypothesizes that school problems are a strong predictor of SVSP offences.

In the bivariate analysis, the other indicator, "trouble at school for property crime," is significantly associated with serious violent offences (Table 2) and no-SVSP offences (Table 5). The logistic regression analysis indicates that this school variable is a statistically significant predictor of no-SVSP offences (Model 2) (Table 9). But, it is a marginally significant predictor of serious violent offences (Model 2) (Table 6) and no-SVSP offences (best Model 4) (Table 9). Although the bivariate analysis found a statistically significant association between "trouble at school for property crime" and the

response variable serious violent offences, the probability of having been in trouble at school for property crime is higher for offenders who are not charged with serious violent offences (Table 2). Consistent with the results of the bivariate analysis, in the logistic regression model predicting serious violent offences the negative slope estimate ( $B$ ) for "trouble at school for property crime" indicates that offenders who have been in trouble at school for property crime are less likely to commit serious violent offences at a marginally significant level (Model 2) (Table 6). This negative slope estimate ( $B$ ) shows an unexpected direction regarding the current study's hypothesis, which hypothesizes that school problems are a strong predictor of serious violent offences.

In the logistic regression model predicting no-SVSP offences, the positive slope estimate ( $B$ ) for "trouble at school for property crime" indicates that offenders who have been in trouble at school for property crime are more likely to commit no-SVSP offences (Table 9). This positive slope estimate ( $B$ ) confirms the expected direction regarding the current study's hypothesis, which hypothesizes that school problems are a strong predictor of no-SVSP offences. Consistent with the results of the logistic regression analysis, the bivariate analysis found that the probability of having been in trouble at school for property crime is higher for offenders who are charged with no-SVSP offences (Table 5).

The education related variables, therefore, appear to be related to serious delinquency but not the serious property and violent offending dependent variables. All the theories discussed in Chapter 3 emphasized that, while education problems were important in understanding the most serious combination of offending, it was not

necessarily a primary risk factor or the most predictive variable. It typically was included as common to a multi-risk problem profile for serious offending generally, yet as illustrated in description of those adolescents and young adults who joined gangs, especially several adult/youth gangs in the Greater Vancouver metropolitan region, key gang members, even leaders, did not have extensive school problem profiles (Langton, 2013). However, a more comprehensive index measure of school risk factors that provides a more conceptually complex representation likely might have established a statistically significant relationship in the best-fit model. Yet, the findings in this study suggest that even such a comprehensive index or profile of education problems likely is important in the explanation of non-serious offending rather than serious and/or violent offending. This is consistent with the longer established research literature on general delinquency evident in the original cohort such as Glueck and Glueck (1950), Farrington and West (1981), and West and Farrington (1973) and the subsequent cohort studies such as LeBlanc (1994) and LeBlanc and Fréchette (1989). In contrast, the logistic regression models for the dependent measures of serious offending suggest that the education risk factors are not proximate. Possibly, education factors simply are part of a more general profile of risk factors that predispose youth to the next stage in the development of serious and violent criminal offending but they are neither necessary nor sufficient in explaining these phenomena.

Other predictor variables though appear important in understanding the dependent variables in this study. The family related risk factor "ever left home" is significantly associated, both bivariately and in the logistic regression model, with serious violent offences and no-SVSP offences. Also, the "family member was physically

abused" variable is significantly associated with no-SVSP offences in the bivariate analysis. However, the "family member was physically abused" variable is only a marginally significant predictor of serious property offences in the logistic regression analysis (Table 7). It was expected to be a more significant predictor of serious property offending because, as will be discussed further below, this form of offending has been considered central to the explanation of youth who escape abuse by living on the streets or with friends and surviving financially by engaging in serious property offending. However, this general theoretical theme is evident regarding the predictor "having ever left home" and serious violent offences. Although the bivariate analysis indicates a statistically significant association between "ever left home" and serious violent offences, the significance level is higher between this predictor and young offenders who are not charged with serious violent offences (Table 2). This relationship remained significant in the logistic regression model predicting serious violent offences. In effect, these findings support the Strain theory perspective that leaving home often is associated with a general non-serious criminal life style that, nonetheless, can result in young offenders being sentenced to custody. While not as significant, this independent variable is associated too with serious violent offending possibly because of the general criminal life style exposing these youth to violent contexts involving both instrumental and reactive violence.

Yet, it is important as well that, even among an incarcerated sample of young offenders, there is a diversity of relational outcomes with "having ever left home" and offence types. There is a significant relationship, for example, between this independent variable and no-SVSP offences in the logistic regression model (Table 9). This diversity

is included in Hagan and McCarthy's classic "Mean Streets" theory, however, this study's findings suggest while some youth who leave or are kicked out of abusive family contexts and engage in serious property crime to maintain a subsistence life style, it is not a discriminating predictor. Rather, having ever left home more than abuse may be more of a distal explanatory variable. In other words, once on the streets or engaged in serious property offending, other predictor variables are more important in understanding serious property offending and serious violent within this sample of young offenders.

As discussed in the Theory chapter (Chapter 3), the developmental criminological theoretical perspective focuses on pre-school stages' risk and protective factors such as "cognitive delays/disorders," "personality traits/disorders" and "other mental illnesses" categories, which are considered primary in explaining subsequent criminal trajectory patterns in the various adolescent and adult stages (Corrado, 2002). It was not surprising, therefore, that the bivariate analysis showed a statistically significant association between these risk factors and serious violent offences (Table 2) but it is not expected that, the probability of having those mental health risk factors is higher for offenders who are not charged with serious violent offences (Table 2). In addition, in the logistic regression analysis only previous psychiatric contact is a statistically significant predictor of SVSP offences (Table 8). It may be that this risk factor best exhibits the presentation of developmental based disorders in a manner that resulted in psychiatric contacts independent of the level of the serious offending profiles for young offenders who are incarcerated in British Columbia's youth justice system. Typically, referrals to psychiatrist/psychologist and other mental health professionals occur when

developmental disorders are associated with serious behaviour problems including major childhood delinquencies and/or serious offending in adolescence. Yet, in BC, it is possible that the referral criteria for the integrated services model underlying Ministry of Child and Family Development increases the likelihood that psychiatric referrals also occur for youth whose developmental trajectories indicate an increase potential for a persistent non-serious and non-violent offending pattern. Part of the behavioural problem pattern can involve serious school problems such as aggressive/violent acts and persistent disruptive/undisciplined acts. In other words, there are different pathways to the previous psychiatric contact risk factor as well as to the related serious and violent offending outcomes (Corrado & Freedman, 2011).

Another pathway to these outcomes involves the broad and complex construct of trauma especially associated with sexual abuse. Arguably, while sexual abuse is the least frequently reported form of abuse, generally, it can be considered the most extreme or damaging developmentally. Children and even adolescents typically are more vulnerable to sexual manipulation and subsequent reactions of emotional confusion, guilt, shame, disbelief, and anger. All these emotions are associated with trauma related developmental risk factors (Corrado, 2002). The statistically significant association between history of sexual abuse and the response variables serious violent offences (Tables 2 and 6), serious property offences (Table 3), and no-SVSP offences is not, therefore, unexpected (Tables 5 and 9). Again, though, as is evident above for the previous independent variables, the direction of the relationships is unexpected. In the bivariate analysis, the probability of having a history of sexual abuse is higher for offenders who are not charged with serious violent offences (Table 2) and higher for

those not charged with serious property offences (Table 3). Similarly, in the logistic regression model predicting serious violent offences the negative slope estimate ( $B$ ) for history of sexual abuse indicates that offenders with a history of sexual abuse are less likely to commit serious violent offences (Table 6). In contrast, the probability of having a history of sexual abuse is higher for offenders who are charged with no-SVSP offences (Table 5), and in the logistic regression model predicting no-SVSP offences, offenders with a history of sexual abuse are more likely to commit no-SVSP offences (see the positive slope estimate ( $B$ ) for history of sexual abuse).

For a sample of incarcerated young offenders as compared to more general populations of youth, it is possible that simple bivariate relationships involving sexual abuse, and, even multivariate models with limited risk predictor variables and sample sizes (such as in this study), require a much more complex theoretical perspective to understand the relationship between sexual abuse and patterns of young offending.

Finally, all theories of serious and violent offending identified major substance use as a predictor and important risk factor, generally, either as an indicator of risk taking behaviour or as an expression of self-medicating behaviour in reaction to serious trauma and/or the above discussed psychiatric disorders. Regarding the former motivation, major substance use typically is explained in terms of a broader array of risk taking behaviours that result in increased likelihood of both internalizing self-harm and externalizing aggression towards others (Corrado, 2002). By now, it is not surprising that although there is a statistically significant association between current drug use and serious violent offences (Table 2) and SVSP offences (Table 4), respectively, as well as a marginally statistically significant association between current drug use and no-SVSP



offences (Table 5), the probability of current drug use is higher for offenders who are not charged with either serious violent offences, SVSP offences, or no-SVSP offences (Tables 2, 4, and 5). Similarly, in the logistic regression model predicting serious violent offences, young offenders who “currently use drugs” are less likely to commit serious violent offences (Table 6). In contrast, in the logistic regression model predicting no-SVSP offences, the positive slope estimate ( $B$ ) for current drug use indicates that offenders who currently use drugs are more likely to commit no-SVSP offences at a marginally significant level. In order to possibly understand why the hypotheses in this study generally are not supported in terms of their expected directionality, especially the education variables, regarding serious and violent offending types, it is important to revisit the key theories utilized in this study. Importantly, though, the expected direction of the study’s hypotheses appears evident for the no-SVOs. This raises the possibility that most of the theories included in this thesis have greater utility for these offences and, at best, limited contributions in explaining the other more serious offence categories.

Agnew’s (1985) original version of strain theory identified school problems and home problems as two key potentially aversive environments that are central to explain serious delinquency and crime. According to this theory, skipping class (truancy), and “often late for class and school” are indicators of escaping emotionally negative school environments. Agnew (1985) emphasized property crime as important in gaining financial independence from parents. Within this perspective, it is possible to argue that “having committed theft at school” can be considered an indicator of property crime for this motivation. Of course, this indicator can also be interpreted as an indicator of other

theoretical perspectives as well such risk taking behaviours independent of escaping parental financial control. Again, the purpose for utilizing Agnew's revised Strain theory was not to undertake any assessment of it but rather to utilize to interpret the related predictors associated with school context predictor variables from this study of SVOs and Non-SVOs. This theme also applies to the other theories discussed in Chapter 3.

The Baron (2003) and Baron and Hartnagel (1997, 1998) applied Strain theory based study of street youth in Edmonton, Alberta emphasized that strain also involved family and other environments that included physical and sexual abuse victimization as a major part of the explanation of why youth moved to a "street life-style" that included property crime and violent behaviour. In this thesis study, BC's Ministry of Child and Family Development had removed more than half of the sample from their parents often because of various forms of abuse including sexual abuse. As well, nearly half of the sample had been involved in some form of street life style including "couch surfing" with friends (Corrado & Freedman, 2011). It is possible that the Strain theory perspective in Canadian contexts is predictive of non-serious offences associated with street oriented life styles but does not provide similar insights into the most violent offences i.e., even modified Strain simply is insufficient to explain the latter offending pattern. Given the relatively low base rate of the most serious offenders, it is likely that the Strain predictor variables are inadequate in distinguishing them from youth who engage in more general but less serious offences.

Similarly, the current study supports several propositions from Hagan and McCarthy's (1997) theory of street life and crime that emphasized the important role of family problems and school problems in explaining street youth crime but not the most

serious offending types. Approximately 79% of offenders in the current study indicated that they had left home at some point. While having ever left home and being homeless are not synonymous, having left home is at least an indicator that the youth likely experienced a problem in their family home environment.

Hagan and McCarthy (1997) further proposed that school conflict was linked to street life and crime; student-teacher conflict and student-school authority conflict constituted another motive for leaving school and moving to a street life and crime. As discussed above, this study's "trouble at school for property crime" can be considered part of the conflict with school authority; simply not respecting school or student property. Nearly all of the sample (91%) indicated that they had engaged in truancy.

Very importantly, while the Mean Streets perspective is important in explaining the broader context of street based criminal life styles and the role of school factors, it was not intended to explain the most serious and violent young offender. It did not, for example, explore youth who had joined gangs, which is the most critical organizational level context for persistent serious and violent offending. This study also does not include youth in gangs, therefore, it is a further limitation in understanding this form of offending.

### **The Current Study Findings and Previous Empirical Research: Family and School Factors**

As discussed in the above sections of this chapter and more extensively in Chapter 3, family factors and school factors have dominated the theoretical literature on

serious and violent offending. In turn, the former factors have also been primary in explaining school problems and the relationship to serious and violent offending.

### **Family Factors**

Unlike Lipsey and Derzon's (1998) finding that family problems was a key factor for predicting serious violent delinquency, the current study found that "having ever left home" is negatively associated with serious violent offences, and not a significant predictor of serious property offences. Possibly, the absence of this relationship reflects sampling differences; the rate of "having ever left home" (79%) in the current study is nearly twice as high as other studies of incarcerated youth. As also mentioned above, the current study included males and females while Newman's (1996) study of only males found that 46% of the male youth had a history of running away from home and Lederman et al.'s (2004) study of only females reported that approximately 44% of incarcerated female youth reported running away from home. In effect, for this sample of serious and violent offenders, the far higher prevalence of this risk factor is reflective of a comprehensive criminal life style mentioned in all the above theories discussed above.

An important theoretical theme involves the witnessing of family abuse by youth and whether these experiences were related to serious and violent offending and other risk factors such as school problems too. Lederman et al.'s (2004) female study found that one third of incarcerated youth reported a family member who had been a victim of abuse (physical abuse, sexual abuse, or child neglect were combined under a single abuse category). Again, a much higher prevalence is evident in the current study since

half of the sample reports having a family member who had been physically abused. The current study though distinguished physical abuse, sexual abuse, and neglect of the youth's family member. In effect, the combined prevalence of all forms of abuse in this study indicates the ubiquitous presence of this risk factor. This supports Widom's (1989a, 1989b) key proposition that witnessing violence is an important risk factor for serious and violent offending. In the Mulder et al. (2010) study of serious juvenile offenders in custody, the youths' family background typically consisted of physical abuse by parents (45%) and witnessing domestic violence (39%).

While the importance of family factors was consistently supported in this study in that their prevalence levels are overwhelming, the results regarding the key theme of school problems and serious and violent offending and non-serious violent offending are less clear. Again, it is critically important though to reiterate that the research design utilized in this study prevents any definitive assessment of school factors in understanding this theoretically complex relationship. All the theories posited that school problems are intertwined with a broad array of risk and protective factors in explaining the key types of young offending. Nonetheless, this study does provide a partial and tentative assessment of certain bivariate and multivariate relationships for several key variables associated with school problems.

### **School Factors**

The current study found that truancy (skipped class) and having been in trouble at school for property crime play a key role in serious and violent young offending. Lipsey and Derzon (1998) ranked school attitudes and performance as important

predictors of adolescent and early adult violent or serious delinquent behaviour. School attitudes/performance predictor variables included school dropout, low interest in education, low school achievement, poor quality school, and truancy (Lipsey & Derzon, 1998). The current study supports the findings of Lipsey and Derzon regarding school problems as a key risk factor for predicting serious delinquency. For example, results of the bivariate and logistic regression analyses revealed that skipping class is a statistically significant predictor of SVSP offences. However, having skipped class is not a statistically significant predictor of serious violent offences.

Hartstone and Hansen (1984) identify school experiences as an important factor in violent juvenile offending. Of those enrolled, one third reported attending school "about half the time" (Hartstone & Hansen, 1984, p. 97) or less. Hartstone and Hansen concluded that "this portrait of school life" (p. 97) shows that many of the youth lack a commitment to school. Similarly, results of the current study indicate that school factors are important predictors of serious violent offences. For example, at the bivariate level, having been in trouble at school for property crime is statistically significantly associated with serious violent offences. Logistic regression analysis results, however, indicate that having been in trouble at school for property crime is a marginally significant predictor of serious violent offences.

Herrenkohl et al. (2000) found that low school commitment and antisocial behaviour at school predicted serious violence at age 18. The current study supports Herrenkohl et al.'s findings that antisocial behaviour at school is a strong predictor of serious violence. For example, the variable trouble at school for property crime is a significant predictor of serious violent offences. As for Herrenkohl et al.'s finding of low

school commitment, the results of the current study show that having skipped class, an indicator of low school commitment, is a statistically significant predictor of SVSP offences, but not serious violent offences.

The Denver Youth Survey (DYS) found that approximately 68% of serious violent offenders were truant compared to about 54% of serious nonviolent offenders (Huizinga & Jakob-Chien, 1998). The current study found truancy among serious violent and serious property offenders to be more prevalent than Huizinga and Jakob-Chien's (1998) study. For example, approximately 91% of the entire sample of offenders have skipped class. Approximately 88% of offenders who had committed serious violent offences have skipped class. Similarly, approximately 88% of offenders who have committed serious property offences have skipped class. Approximately 68% of offenders who have committed SVSP offences have skipped class. Approximately 92% of offenders who have committed no-SVSP offences have skipped class. Newman (1996) found that 86% of the incarcerated youth had a history of poor school attendance. However, Newman's study is limited to a male sample, as prior mentioned. A valid comparison with the current study is therefore not possible.

Farrington (1989, 1998) found that frequent truancy significantly predicted teenage violence, adult violence, and convictions for violence. The current study found truancy (skipped class) to be a statistically significant predictor of SVSP offences. However, truancy is not a statistically significant predictor of serious violent offences. The current study is an extreme sample of serious and violent offenders unlike other cohort studies.

Farrington et al.'s (2008) and Lacourse et al.'s (2008) studies, based on PYS data, indicated that truancy is an important predictor of serious violence and serious theft. Although the current study did not find truancy (skipped class) to be a significant predictor of serious violent offences or serious property offences, truancy is a statistically significant predictor of SVSP offences.

A study of incarcerated youth in Virginia found that the overwhelming majority of youth had experienced school problems (Gordon & Moore, 2005). For example, 87% of ADHD and 89% of non-ADHD youth had school attendance problems (Gordon & Moore, 2005). Similarly, the current study also found that approximately 91% of the entire sample of offenders have skipped class.

Mulder et al.'s (2010) study of serious juvenile offenders in custody found that approximately 76% of the sample had school attendance problems: 56% of offenders engaged in truancy considered to be "very problematic," 20% experienced "some problems," and 24% had "no problems" (p. 96). Similarly, the results of the current study show that an overwhelming majority of offenders had engaged in truancy: a rate 15% higher compared to Mulder et al.'s (2010) study.

## **Aboriginal Ethnicity**

Ethnicity has been an important predictor of serious and violent offending in most countries because it has been associated with related predictors/risk factors involving historical based poverty, inadequate housing, low education attainment, socially disorganized neighbourhoods, organized crime gangs, and youth gangs. In



Canada, these proximate risk factors have been related distally to European colonialization over 600 years of First Nations and Aboriginal peoples. Other ethnic immigrant groups, depending on the historical periods in Canada, too have had youth disproportionately involved in serious and violent offending. Currently, for example, Haitian youth in Montreal, African Caribbean youth in Toronto, Vietnamese youth in Calgary, and South Asians youth in Greater Vancouver have been associated with primarily adult criminal gangs (Chettleburgh, 2007; Hemmati, 2006; Public Safety Canada, National Crime Prevention Centre, 2007; Royal Canadian Mounted Police, 2006; Totten, 2008; Wortley & Tanner, 2004, 2007, 2008). As discussed above, though, while Adult Aboriginal gangs have increased dramatically in number and size in the Western provinces and northern Ontario, Aboriginal youth have been involved disproportionately in youth crime in absolute numbers and rates far above other ethnic group youth (Corrado & Cohen, 2002). Yet, in this study, while the Aboriginal youth prevalence levels are disproportionate i.e., Aboriginal youth comprise 22% of the custody sample population, 26% of serious property offences, 21% of serious violent offences, 33% of SVSP offences, and 23% of no-SVSP offences, the Aboriginal ethnicity coefficient is only a statistically significant predictor of serious property offences. However, as discussed above, for long standing intergenerational family poverty structural experiences and related risk factors, this finding is not unexpected (Bittle et al., 2002; Calverly et al., 2010; Corrado & Cohen, 2002; Griffiths & Wood, 1995; Latimer & Foss, 2004; Quann & Trevethan, 2000). While there has been external second and even third immigrant youth who continue to engage in serious and violent offending, the typical historical pattern indicated a substantial decline in this offending as external immigrant families

increasingly assimilate into the dominant Canadian society. In contrast, Aboriginal youth, intergenerationally, have experienced internal migration patterns that were fundamentally different than external immigrant youth. For Aboriginal youth, according to CURN theorists, their families have often engaged far more culturally, socially, educationally, housing, and employment disruptiveness because of a recurring pattern of moving among their reserves to other cities and back to their reserves (Beavon & White, 2007; Corrado, Cohen, & Cale, 2004; Maxim & White, 2006; White, Beavon, & Spence, 2004). In effect, Aboriginal intergenerational poverty based risk factors linked to family risk factors and educational risk factors and employment risk factors are hypothesized as the key to explaining Aboriginal serious property crimes. Of course, a more full explanation of this theoretical perspective is beyond the scope of this thesis since it entails complex and intertwined risk factors at the individual level such as trauma and health/mental health which remain controversial and contentious both theoretically and politically.

The current study found the Aboriginal ethnicity coefficient to be a statistically significant predictor of serious property offences. For the logistic regression model predicting serious property offences, the positive slope estimate ( $B$ ) for the Aboriginal ethnicity coefficient indicates that Aboriginal offenders are more likely to commit serious property offences (Table 7). These findings support the research literature that indicated Aboriginal youth crime tend to involve property offences (e.g., Bittle et al., 2002; Calverly et al., 2010; Corrado & Cohen, 2002; Griffiths & Wood, 1995; Latimer & Foss, 2004; Quann & Trevethan, 2000). The implications of this pattern of offending involve the far higher prevalence of the colonial legacy of poverty on Aboriginal family

structures, education, housing, health (physical and mental), and exposure to neighbourhoods/reserves with high concentrations of economic and social disadvantage than non-Aboriginal families who did not experience this distinctive pathway to these risk factors.

## **Chapter 7.**

### **Conclusion and Policy Implications**

The research design limitations of this study (see below) necessarily require that any theoretical and policy implications are tentative and highly qualified. Given the fundamental research design issues involving an extreme sample and very importantly limited number of indicators for all key variables, recommendations cannot be made. The Cracow Instrument with 1100 variables indicates how complex the theories are for SVOs. Therefore, the current study is an exploratory study of these hypotheses in an extreme sample.

At a minimum, though, the very high prevalence rates of risk factors associated with education risk factors for serious delinquency and serious and violent offending types alone lends support to the key hypotheses derived from the theories discussed in this thesis. Again, with few exceptions, most of the risk factors in this study are associated only with serious property offences and not serious and violent offending variables. In other words, all the hypotheses that predicted that the risk factors used in this study are associated with higher levels of the serious offending variables are not supported (see Figure 1 in Chapter 1).

With this caveat in mind, nonetheless, there is sufficient evidence in this study to suggest that programs that target all the risk factors in this study likely are important in

reducing, at least property offending, and possibly the attendant “criminal” life style it entails. Given this focus concerning this study’s risk factors, it is possible to argue that the developmental criminological theory perspective provides a strong basis for program development to reduce these risk factors while increasing the presence and/or strength of protective factors. The central axiom in this perspective is the initial developmental stages beginning with pregnancy/perinatal (see discussion of Cracow instrument) that strongly influence life course criminal trajectories (Farrington & Welsh, 2007). It is therefore crucial to reach at risk children during these early years of development to promote healthy development and prosocial behaviour. Yoshikawa (1994, 1995) asserts that early childhood is a key developmental period for delinquency prevention programs, including chronic delinquency. Loeber and Farrington (1998) state that, “SVJ [serious and/or violent juvenile] offenders tend to start displaying behaviour problems and delinquency early in life, warranting early intervention . . . prevention is never too early” (p. xx). Duncan and Magnuson (2004) elaborated on this key theme when they asserted that the:

Principles of developmental science suggest that although beneficial changes are possible at any point in life, interventions early on may be more effective at promoting well being and competencies compared with interventions undertaken later in life . . . Early childhood may provide an unusual window of opportunity for interventions because young children are uniquely receptive to enriching and supportive environments . . . As individuals age, they gain the independence and ability to shape their environments, rendering intervention efforts more complicated and costly. (pp. 101–103)

Early intervention is particularly crucial for certain specified developmental disorders that can cause offending generally and serious and violent offending. Corrado (2008), for example, maintained that:

There is a need to act in a systematic and coordinated manner to ensure early diagnosis and adequate care during early childhood. If early child care, nutrition, and environment are adequate, a child dealing with the effects of fetal problems can make significant advances in his or her neurological development. In particular, many difficulties associated with youth who have Fetal Alcohol Spectrum Disorder result from a lack of early diagnosis and inadequate care during early childhood. (as cited in Kroes, 2009, p. 7)

Regarding this study's focus on the importance of education based risk factors, there is now overwhelming evidence that validly implemented early school intervention programs especially secondary (children/youth with presence of risk factors) and tertiary (children/youth with presence of offending histories). Early intervention programs such as the pioneering Perry Preschool Project followed by Head Start programs in the US provide an opportunity for screening children in order to detect and respond accordingly to children's special needs such as developmental and/or behavioural problems (Currie, 2001; Duncan & Magnuson, 2004; Farrington & Welsh, 2007; Garces, Thomas, & Currie, 2002; Puma, Bell, Cook, & Heid, 2010; Schweinhart, 2007; Schweinhart et al., 2005). Also, there is an overwhelming consensus among theoreticians from all perspectives that a positive school context is among the most important protective factors regarding serious and violent criminal trajectories. More generally, regarding the other risk factors in this study several meta-analytic studies have confirmed that certain intervention programs have been particularly effective in reducing their negative impacts (see Koehler, Lösel, Akoensi, & Humphreys, 2013; Lösel, 2002; Lösel & Beelman, 2003;

Wong, 2009). In other words, there is considerable evidence that there are programs that can assist the families and their children such as those included in this study.

## **Limitations**

The current study has limitations that should be considered when interpreting these findings. First, the results from this study have restricted generalizability since the sample of young offenders was drawn from primarily the lower mainland region of Vancouver's main custody centre between 1998–2002. There are two other custody centres in British Columbia, located in Victoria on Vancouver Island and in Prince George in the central interior. In effect, generalizability to other regions in British Columbia and Canada let alone other national jurisdictions such as the US is cautious at best.

Second, another generalizability limitation involves the data collection period and changes in the Canadian federal youth justice law. The sample of subjects for this study represent those who were interviewed up until January 8, 2002, sentenced under the YOA, before the enactment of new youth legislation, the YCJA (Youth Criminal Justice Act), in April 2003. A primary aim of the YCJA is to decrease the use of custody, especially for non-violent offenders.

The YCJA resulted in a massive reduction in the use of custody for young offenders (Brodie, 2005; Calverly, 2006; Kong, 2009). For example, a Statistics Canada report for the years 2003/2004 describes the reduction as the "largest incarceration rate decrease in the last decade" (Calverly, 2006, p. 11). In 2003/2004, admissions to open and secure custody declined 46% and 43%, respectively, compared to 2002/2003

(Calverly, 2006). A sample of incarcerated serious and violent young offenders sentenced under the YCJA would likely yield different results because of a decreased population sample size due to less incarcerated offenders.

The proportion of serious property offenders would likely be smaller because of the objective of the YCJA to decrease the use of custody for non-violent young offenders. According to a recent Statistics Canada report, fewer young offenders convicted of property offences are admitted to sentenced custody: "Between 2003/2004 and 2007/2008, the number of youth entering sentenced custody for property crimes dropped by more than 50%, while the number admitted for violent offences declined by 12%" (Kong, 2009, p. 11). Those findings suggest that a study of incarcerated youth in a custody centre in Canada conducted in 2007/2008 would likely consist of a substantially smaller population of incarcerated property offenders and somewhat less violent offenders compared to a study conducted prior to 2003.

Based on data from the Vancouver *Serious and Violent Incarcerated Young Offenders Study*, a comparison of total offence charges that resulted in custody during the final year of the YOA and first year of the YCJA yielded only a slight reduction (0.54%) in percentage of serious property offence<sup>22</sup> charges (6.46% versus 5.91%, respectively) (Brodie, 2005, pp. 57, 59). However, Brodie notes that his results should be interpreted with caution because the majority of cases under the YOA period had only two or three charges compared to five or six charges under the YCJA timeframe.

<sup>22</sup> Brodie (2005) defines "serious property offence" as Break and Enter/Intent, Theft Over \$5,000, Auto Theft, Arson, Taking a Motor Vehicle Without Consent, and Use Stolen Credit Card (p. 85).



Incarcerated serious property offenders sentenced under the YCJA could theoretically comprise a somewhat more serious group of offenders compared to serious property offenders sentenced under the YOA. The logic of this assumption is that under YCJA legislation judges are mandated to exercise more constraint in their decision making to sentence a youth to custody.

Third, data relied on self-report data for the independent variables, with the exception of the demographic related variables. Self-report bias may have been introduced. It is possible that some participants may have lied about sensitive matters such as history of sexual abuse. Anonymity could not be provided to interview participants due to the nature of the study. Lying is a problem in criminal justice research that asks people about criminal behaviour (Loeber, Farrington, & Waschbusch, 1998; Maxfield & Babbie, 1995; Mosher, Miethe, & Phillips, 2002; Nettler, 1978, 2003). For example, when asked "Do you currently use drugs?" some subjects may not admit to illicit drug use while incarcerated. Although the researchers ensure complete confidentiality for all participating youth as prescribed by law and are given the option to not answer any or all questions, participants may lie if they fear that their response may ultimately be disclosed to prison staff. Even though such fear would be completely unfounded due to guaranteed confidentiality offered to participants, some participants may nonetheless refuse an honest answer.

Fourth, not all the risk factors in the larger study are included for several reasons including these data are unavailable and sample size restrictions does not allow for their inclusion in this sub-study's statistical analyses.

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## Appendix A.

### Serious Offences

Violent	Property
Aggravated Assault	Arson
Aggravated Sexual Assault	Attempted Arson
Armed Robbery	Break & Enter
Assault	Extortion
Assault Causing Bodily Harm	Forgery
Assault of a Police Officer	Fraud
Assault with a Weapon	Grand Theft Auto (Motor Vehicle Theft)
Attempted Armed Robbery	Possession of a Break & Enter Instrument
Attempted Murder	Theft Over \$1,000
Attempted Robbery	Theft Over \$5,000
Criminal Negligence Causing Death	
Impeding Attempt to Save Life	
Intimidation	
Kidnapping	
Manslaughter	
Murder 1 (First Degree Murder)	
Murder 2 (Second Degree Murder)	
Robbery	
Sexual Assault	
Sexual Assault with a Weapon	

## Appendix B.

### Summary Statistics for Age at Disposition

	N	Mean	Median	SD	t-test	p-value
Gender	—	—	—	—	$t_{1,401} = -3.67$	<.001***
Female	107	15.79	16.00	1.20	—	—
Male	296	16.31	17.00	1.29	—	—
Ethnicity						
Aboriginal	85	16.05	16.00	1.28	—	—
Asiatic	23	16.35	16.00	1.19	—	—
Black	13	16.54	16.00	1.27	—	—
Caucasian	238	16.18	16.00	1.27	—	—
Indian	8	16.75	17.50	1.75	—	—
Other	21	16.24	16.00	1.51	—	—
Serious violent offences					$t_{1,401} = -2.23$	.03*
0	235	16.05	16.00	1.26	—	—
1	168	16.34	16.00	1.31	—	—
Serious property offences					$t_{1,401} = -.32$	.75
0	307	16.16	16.00	1.31	—	—
1	96	16.21	16.00	1.21	—	—
Serious violent and serious property offences					$t_{1,401} = -2.05$	.04*
0	385	16.14	16.00	1.30	—	—
1	18	16.78	17.00	0.94	—	—
No serious violent and no serious property offences					$t_{1,401} = 1.66$	.10†
0	246	16.26	16.00	1.29	—	—
1	157	16.04	16.00	1.28	—	—
Overall age at disposition	403	16.17	—	1.29	—	—

\* $p \leq .05$ ; \*\* $p \leq .01$ ; \*\*\* $p \leq .001$ ; † $p \leq .1$

## Appendix C.

### Violent Offences Baseline Models

Parameter		DF	Estimate	Standard Error	Wald Chi-square	Pr > $\chi^2$
<b>Baseline Model</b>						
Intercept		1	-3.0308	1.4620	4.2978	.0382
Gender	Female	1	-.0522	.2832	.0340	.8537
Ethnicity	Aboriginal	1	-.4242	.5712	.5516	.4577
Ethnicity	Asiatic	1	-.7172	.8440	.7223	.3954
Ethnicity	Black	1	1.1956	1.0360	1.3317	.2485
Ethnicity	Caucasian	1	-.5094	.4732	1.1582	.2818
Ethnicity	Indian	1	.0928	1.3102	.0050	.9436
Age of subject at disposition		1	.1722	.0888	3.7623	.0524
Previous psychiatric contact	1	1	-.2626	.2338	1.2612	.2614
History of sexual abuse	1	1	-.7680	.3126	6.0341	.0140
Currently use drugs	1	1	-.8370	.2432	11.8344	.0006
<b>Baseline Model Opposite</b>						
Intercept		1	3.0308	1.4620	4.2978	.0382
Gender	Female	1	.0522	.2832	.0340	.8537
Ethnicity	Aboriginal	1	.4242	.5712	.5516	.4577
Ethnicity	Asiatic	1	.7172	.8440	.7223	.3954
Ethnicity	Black	1	-1.1956	1.0360	1.3317	.2485
Ethnicity	Caucasian	1	.5094	.4732	1.1582	.2818
Ethnicity	Indian	1	-.0928	1.3102	.0050	.9436
Age of subject at disposition		1	-.1722	.0888	3.7623	.0524
Previous psychiatric contact	1	1	.2626	.2338	1.2612	.2614
History of sexual abuse	1	1	.7680	.3126	6.0341	.0140
Currently use drugs	1	1	.8370	.2432	11.8344	.0006

## Appendix D.

### Bivariate and Logistic Regression Results Summary

	Bivariate	Logistic Regression
<b>Predicting Serious Violent Offences</b>		
Gender	✗	✗
Ethnicity	✗	✗
Age	✓	✓, †
Previous psychiatric contact	✓	✗
History of sexual abuse	✓	✓
Currently use drugs	✓	✓
Trouble at school for property crime	✓	†
Skipped class	✗	✗
Ever left home	✓	✓
Family member was physically abused	✗	✗
<b>Predicting Serious Property Offences</b>		
Gender	✓	✓
Ethnicity	✗	✓, †
Age	✗	✗
Previous psychiatric contact	✗	✗
History of sexual abuse	✓	✗
Currently use drugs	✗	✗
Trouble at school for property crime	✗	✗
Skipped class	✗	✗
Ever left home	✗	✗
Family member was physically abused	✗	†

	Bivariate	Logistic Regression
<b>Predicting Serious Violent and Serious Property Offences (SVSP)</b>		
Gender	†	×
Ethnicity	×	×
Age	×	✓, †
Previous psychiatric contact	×	✓
History of sexual abuse	×	×
Currently use drugs	✓	×
Trouble at school for property crime	×	×
Skipped class	✓	✓, †
Ever left home	×	×
Family member was physically abused	×	×
<b>Predicting No Serious Violent and No Serious Property Offences (No-SVSP)</b>		
Gender	✓	✓
Ethnicity	×	×
Age	×	×
Previous psychiatric contact	✓	†
History of sexual abuse	✓	✓
Currently use drugs	†	†
Trouble at school for property crime	✓	✓, †
Skipped class	×	×
Ever left home	✓	✓
Family member was physically abused	✓	×

✓ = significant ( $*p \leq .05$ ;  $**p \leq .01$ ; or  $***p \leq .001$ ); × = not sig.; † = marginal sig. ( $tp \leq .1$ ).