

Université de Montréal

**Maltreatment and Juvenile Delinquency  
Among Crossover Youth**

par

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## Résumé

**Objectif.** Les jeunes *crossover* sont définis comme des adolescents qui sont à la fois victimes de maltraitance et délinquants juvéniles. L'objectif de ce mémoire est d'examiner les relations entre les paramètres de la maltraitance (ex., récurrence, sous-types et variété) et les paramètres de la délinquance juvénile (ex., précocité, volume, variété, gravité moyenne et présence de sous-types) vécus par les jeunes *crossover*.

**Méthodes.** La source des données est constituée de rapports officiels pour tous les adolescents et adolescentes québécois qui ont plaidé coupables ou ont été reconnus coupables d'un crime entre le 1<sup>e</sup> janvier 2005 et le 31 décembre 2010. D'abord, un portrait des jeunes *crossover* québécois est dressé à l'aide de statistiques descriptives. Ensuite, des analyses multivariées sont utilisées pour déterminer si les paramètres de la maltraitance prédisent les différentes dimensions de la délinquance et pour examiner les différences selon le sexe.

**Résultats.** La délinquance des jeunes *crossover* est plus importante que celle des délinquants non-maltraités. Les expériences différentielles de la maltraitance sont liées à des paramètres hétérogènes de la délinquance juvénile. La récurrence de la maltraitance est un prédicteur important des paramètres de la délinquance ultérieure. De plus, la maltraitance est particulièrement influente sur la délinquance des garçons.

**Implications.** Les interventions au sein des systèmes de la protection de la jeunesse et de la justice juvénile doivent être adaptées afin d'identifier les jeunes à risque de délinquance grave, de cibler les dimensions spécifiques de la maltraitance et d'entraver leurs liens à la délinquance ultérieure. L'intervention doit être privilégiée pour les victimes de multiples incidents de maltraitance et pour les garçons victimes de maltraitance.

**Mots-clés :** Jeunes *crossover*, maltraitance, récurrence de la maltraitance, négligence, délinquance juvénile, Loi sur la protection de la jeunesse, Loi sur le système de justice pénale pour adolescents



## **Abstract**

**Objective.** Crossover youth are defined as youth who are both victims of maltreatment and juvenile offenders. The objective of this thesis is to shed light on the associations between the parameters of maltreatment (i.e., recurrence, subtypes and variety) and the parameters of juvenile delinquency (i.e., precocity, volume, variety, average severity and presence of subtypes) experienced by crossover youth.

**Methods.** The data source is comprised of official records for the population of Quebec male and female adolescents that pled guilty or were convicted of a crime between January 1<sup>st</sup> 2005 and December 31<sup>st</sup> 2010. First, descriptive statistics are utilized to draw a portrait of crossover youth in Quebec. Second, multivariable analyses are used to determine whether the parameters of maltreatment predict different dimensions of delinquency and to examine possible sex differences.

**Findings.** Crossover youth demonstrate more serious delinquency than non-maltreated offenders and differential exposure to maltreatment is linked to heterogeneous parameters of juvenile delinquency. The recurrence of maltreatment emerges as an important predictor of the parameters of subsequent offending. Moreover, maltreated boys demonstrated more problematic indicators of juvenile delinquency than maltreated girls.

**Implications.** Interventions within the youth protection and juvenile justice systems should be tailored in order to identify youth at-risk for serious delinquency, to target specific dimensions of maltreatment and to potentially hamper their link to subsequent offending. Intervention should be privileged for victims of multiple incidents of maltreatment and for maltreated boys.

**Keywords:** Crossover youth, maltreatment, recurrence of maltreatment, neglect, juvenile delinquency, Youth Protection Act, Youth Criminal Justice Act



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*There are far, far better things ahead than any we leave behind.*

*- C.S. Lewis*



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## **Chapter 1**

# **LITERATURE REVIEW**



## **1.1 A portrait of juvenile delinquency and crossover youth**

### **1.1.1 A statistical portrait of juvenile delinquency**

**Canada.** Since the *Juvenile Delinquents Act* of 1908, the Canadian youth justice system has functioned independently from that of adults, acknowledging that the principles that apply to the adult justice system are not necessarily appropriate for youth. The more recent version of this act, the *Youth Criminal Justice Act (YCJA)* adopted in 2003, applies to minors aged 12 to 17 years old and stresses “the protection of society, crime prevention, rehabilitation and reintegration, meaningful consequences and timely interventions” (Dauvergne, 2013).

According to the Integrated Criminal Court Survey (ICCS), administered by the Canadian Centre for Justice Statistics in partnership with provincial and territorial departments in charge of criminal courts, Canada’s youth courts completed over 48,000 cases representing approximately 166,000 infractions to the *Criminal Code* or to other federal statutes in the 2011-2012 fiscal year (Dauvergne, 2013). In Quebec, 7,554 cases were processed through the youth courts during the same fiscal year. In Canada and in Quebec, 57% and 62% of completed youth court cases, respectively, resulted in a guilty verdict. Youth offenders represent approximately 13% of all persons charged with violations under the Criminal Code in Canada (National Crime Prevention Center, 2012), with the most common offences being property crimes and crimes against the person (38% and 26% respectively in 2008-2009; Milligan, 2010).

In 2009, boys accounted for about three-quarters of youth accused by police of having committed a *Criminal Code* offence. In general, male and female youth accused of criminal behavior tend to commit similar types of crimes, with theft under \$5,000, physical assault and mischief as common offences for both sexes (Hotton Mahony, 2011).

In 2011-2012, the most severe sentence, that of custody disposition, which requires a youth to be detained in a correctional facility or Youth Center, was administered in 15% of guilty youth court cases in Canada and 11% in Quebec. As the YCJA reserves this sentence for the most severe offences, a custody sentence was most

often imposed for attempted murder (75%), followed by being unlawfully at large (67%) and homicide (53%; Dauvergne, 2013).

**United States.** According to the Office of Juvenile Justice and Delinquency Prevention, law enforcement agencies in the United States made over 1.3 million arrests of persons under 18 years of age in 2012 (Puzzanchera, 2014). Male juveniles accounted for 71% of these arrests. However, as arrests of female juveniles are decreasing at a slower pace than male juvenile arrests in several offense categories (e.g., aggravated and simple assault, larceny-theft, vandalism, liquor law violations, and disorderly conduct), the proportion of female arrests is increasing.

An estimated 61,070 youth under the age of 18 were arrested for a violent crime in 2012. The most common offence in this category was aggravated assault, representing 36,300 arrests. Furthermore, property crime represented 295,400 juvenile arrests in the same year, 76% of which fell into the category of larceny theft. In regards to weapons offences, over 24,700 juvenile arrests were made (Puzzanchera, 2014).

In 2012, 22% of arrests involving youth who were eligible for processing in the juvenile justice system were handled within police agencies and the youth were released. Another 68% were referred to juvenile court, and 8% were referred directly to adult criminal court. The remaining youth were referred to a child welfare agency or to another police agency (Puzzanchera, 2014).

Although the number of youth court cases is decreasing steadily in Canada and in the United States, many cases continue to be processed through the courts. The high volume of cases is problematic as juvenile delinquency is associated with a wide array of individual and societal consequences in terms of justice, health and social services (Craig, Petrunka, & Khan, 2011). In addition, involvement with the juvenile justice system may have an iatrogenic effect on the odds of adult criminality, with this negative impact increasing as the type of intervention becomes more intense and constrictive (Gatti, Tremblay, & Vitaro, 2009).

### **1.1.2 What we know about crossover youth**

Research has suggested that youth in contact with the justice system have experienced more traumatic experiences, and more intense traumas, than adolescents in

the general population (Brosky & Lally, 2004; Coleman, 2005). For example, findings reveal that the prevalence of physical and sexual abuse histories among incarcerated youth is higher than among youth in the general population (Coleman, 2005; Dembo et al., 2000). Thus, the high prevalence of maltreatment among youth offenders has sparked an interest in studying these youth who are both engaged in juvenile delinquency and have a history of maltreatment.

In accordance with Herz & Ryan (2008), the present thesis will refer to youth who were victims of maltreatment and who also committed an offence as *crossover youth*. Throughout the literature, these youth are also commonly referred to as dual-jurisdiction youth, dually involved youth or dually adjudicated youth. Typically, becoming a crossover youth occurs one of three ways. One way is by entering the youth protection system because of allegations of maltreatment and then committing an offence that causes entry into the delinquency system while still under the care of youth protection services. A second way is when a youth with a prior, but not current, contact in youth protection commits an offence and enters the delinquency system. A third possible way is when a youth enters the delinquency system and is subsequently referred to the youth protection system for investigation of maltreatment (Herz & Ryan, 2008).

The prevalence of crossover youth is difficult to assess because youth involved in both systems are typically challenging to identify across agency information databases. This difficulty stems from the fact that the youth protection and juvenile justice information systems are rarely integrated, namely in the United States. Hence, crossover youth represent a hidden population who has been the subject of very little research regarding its prevalence and characteristics (Herz, Krinsky, & Ryan, 2006; Herz, Ryan, & Bilchik, 2010). Yet, it is essential to study and intervene with maltreated youth in contact with the juvenile justice system, as they are overrepresented in this system. An in-depth understanding of the characteristics and outcomes of crossover youth, as well as differences they may present from other youth offenders, is crucial to improving our response to the needs of these youth. Particularly, such information is needed to guide responses at the earliest points possible and to sharpen our focus in specific areas of concern (Halemba & Siegel, 2011).

To our knowledge, descriptive research of the juvenile delinquency characteristics of crossover youth consists of five studies (Halemba & Siegel, 2011; Halemba, Siegel, Lord, & Zawacki, 2004; Herz & Ryan, 2008; Kelley, Thornberry, & Smith, 1997; Ryan, Herz, Hernandez, & Marshall, 2007). In a study of the population of 4,475 youth referred to the King County Juvenile Court in the state of Washington for offender matters in 2006, 16% of the youth had a history of Children's Administration legal activity or placement with regards to allegations of maltreatment (Halemba & Siegel, 2011). Petitions regarding maltreatment typically preceded the youth's first offender referral; the reverse was true in only 16% of the cases (Halemba & Siegel, 2011).

In regards to sex, the percentage of girls among crossover youth seemed to range from 31% (Halemba et al., 2004) to 40% (Halemba & Siegel, 2011). The percentage of female crossover youth was higher compared to the percentage of non-crossover female offenders (Halemba & Siegel, 2011; Herz & Ryan, 2008; Ryan et al., 2007). For example, the King County study found that girls constituted 27% of the population of youth with no Children's Administration history in comparison to 40% of juveniles with a history of legal activity or placement through this system (Halemba & Siegel, 2011).

Regarding the offences committed by crossover youth, a study of the 581 youth in Los Angeles County who originally entered the court as victims of maltreatment and were then charged with an offence between April 1 and December 31 2004 found that 40% of youth were charged with a violent offence and 28% were charged with a property offence (Herz & Ryan, 2008). In contrast, a study examining the court history of all 3,689 juveniles with an active dependency, delinquency or status referral/petition in selected Arizona counties between July 2001 and June 2002 found that 28% were charged with a violent offence, 37% with a property offence, and 11% with a drug offence (Halemba et al., 2004). Compared to non-maltreated youth offenders, Ryan and colleagues (2007) found that crossover youth were more likely to be arrested for sexual and violent crimes. Furthermore, findings have suggested that crossover youth are referred on offender charges at an earlier age than delinquency-only youth (Halemba & Siegel, 2011; Ryan et al., 2007). For example, the King County study found that youth with no Children's Administration involvement were, on average, first referred on an offender matter at 15.8 years of age in comparison to 14.4 years of age for youth with a history of Children's

Administration legal activity or placement (Halemba & Siegel, 2011). In addition, youth with a history of Children's Administration legal activity or placement were almost three times more frequently referred on offender charges, with an average of 5.8 times compared to 2.1 times (Halemba & Siegel, 2011). These results were in line with previous findings from Arizona and Rochester (Halemba et al., 2004; Kelley et al., 1997). There was also some evidence to suggest that crossover youth committed more severe forms of offences than delinquency-only youth. Forty-six percent of youth with a history of Children's Administration legal activity or placement were at some point adjudicated on a felony matter in comparison to 12% of youth with no contact with this system (Halemba & Siegel, 2011). Thus, although limited in number, studies examining crossover youth provide a solid baseline for discussion and growth of the literature (Herz et al., 2010).

## **1.2 Maltreatment as a predictor of juvenile delinquency**

In 1989, research conducted by Cathy Spatz Widom found that, in comparison to a non-maltreated control group, abused and neglected children were more likely to be arrested as juveniles, had a larger mean number of arrests, and were more likely to have committed a violent crime. Since then, a thorough body of research has established that maltreatment is a factor that predisposes youth to becoming juvenile delinquents (e.g., Ireland, Smith, & Thornberry, 2002; Lemmon, 1999; Maschi, Bradley, & Morken, 2008; Stewart, Livingston, & Dennison, 2008). Heck & Walsh (2000) even suggested that maltreatment is the most powerful predictor of overall delinquency, with a greater impact than factors such as family structure, socioeconomic status, verbal IQ, family size, or birth order. Given the literature linking maltreatment to juvenile delinquency, recent studies have attempted to specify this relationship by examining whether specific parameters of maltreatment predict youth offending.

### **1.2.1 Parameters of maltreatment as they relate to juvenile delinquency**

**Recurrence of maltreatment.** The recurrence of maltreatment incidents appears to be related to subsequent delinquency, although this parameter is rarely examined explicitly. For example, prior results have suggested that maltreatment recurrence was a significant factor in explaining increases in chronic and violent juvenile offending (Lemmon, 2006). In addition, minors in the chronically victimized groups of the maltreatment typology put forth by Stewart and her colleagues (2008) were more likely to offend than children in other groups. Specifically, over 50% of minors whose chronic maltreatment peaked at the age of 12 went on to commit a crime, and 36% of children who experienced chronic maltreatment peaking during the transition to primary school subsequently offended. In their study with male juvenile delinquents, Evans and Burton (2013) found similar results suggesting that the more frequently a minor experiences maltreatment, the more frequently he will commit delinquent acts. The frequency of maltreatment accounted for 12% to 35% of the frequency of offending. Thus, the impact of continuous maltreatment may be more extensive than short-term maltreatment. According to Ireland, Smith and Thornberry (2002), long-term maltreatment may be related to other difficulties, such as poverty, parental mental illness or domestic violence. Another explanation is that little opportunity for resilience and coping exists for children experiencing continuous maltreatment (Ireland et al., 2002). In any case, further research is needed in order to understand the links between maltreatment recurrence and the extent of juvenile offending.

**Subtypes of maltreatment.** Specific subtypes of maltreatment seem to be significantly linked to juvenile delinquency, although research findings are often contradictory. First, in contrast with more dated literature (Gutierrez & Reich, 1981; Widom & Ames, 1994), recent research has found that children who were victims of physical abuse are significantly more likely to engage in violent and nonviolent offending than youth who were not (Egeland, Yates, Appleyard, & van Dulmen, 2002; Lansford, Miller-Johnson, Berlin, Dodge, Bates, & Pettit, 2007; Mersky & Reynolds, 2007). For example, in a study conducted by Egeland and his colleagues (2002), physical abuse in early childhood led to alienation in preschool, which then predicted externalizing problems during elementary school, ultimately resulting in delinquent and aggressive

behavior as well as conduct disorders during adolescence. Alternatively, it has been suggested that cognitive mechanisms may mediate the association between physical abuse and juvenile delinquency (Dodge, Pettit, Bates, & Valente, 1995). In this vein, children who are physically abused may be more likely to develop biased patterns of processing social information and to behave accordingly. For instance, they may tend to make hostile attributions, to respond in a retaliatory and aggressive manner, and to perceive aggression as morally acceptable. These cognitive patterns may therefore partially mediate the impact of physical abuse on delinquency (Dodge et al., 1995).

In addition to physical abuse, Dembo and his colleagues (2007) found that many youth in contact with the juvenile justice system have experienced sexual abuse. In the same vein, Kim, Kim and Samuels-Dennis (2012) compared delinquent and non-delinquent adolescents and found that the likelihood of committing delinquent behavior was influenced by the presence of sexual abuse antecedents. According to one study by Zingraff and his colleagues (1993), sexually abused children committed significantly more status offences than children who were not sexually abused. It has been suggested that being exposed to sexual abuse is associated with feelings of both anger and depressed mood among adolescents and that anger is a strong predictor of delinquency (Sigfusdottir, Asgeirsdottir, Gudjonsson, & Sigurdsson, 2008). However, one study found that children who suffered from sexual abuse have a decreased likelihood of being arrested for property offences (Maschi, 2006), while yet another reported that sexual abuse does not impact rates of violent crime (Widom & Maxfield, 1996). Thus, further research is required in order to clarify the relation between sexual abuse and delinquency.

Furthermore, parental neglect has emerged as an important predictor of youth offending (Evans & Burton, 2013; Lemmon, 1999; Mersky & Reynolds, 2007; Widom & Ames, 1994; Widom & Maxfield, 1996; Zingraff, Leiter, Myers, & Johnson, 1993) and has remained relatively unchallenged in the literature. One study found that, in comparison to other forms of maltreatment, physical neglect had the most significant effect on violent crime, nonviolent crime, status offence and property crime, as well as on total delinquency (Evans & Burton, 2013). In contrast to previous research that found that neglect and physical abuse were equally significant predictors of delinquency (Mersky & Reynolds, 2007; Widom & Maxfield, 1996), this last result indicates that neglect may be

more influential (Evans & Burton, 2013). In the same vein, Lemmon (1999) found a significant association between the joint occurrence of abuse and neglect as well as neglect only, but not abuse only, and the presence of delinquency. Certain hypotheses have been emitted in the literature in order to attempt to explain the association between neglect and youth offending. For example, long-term lack of parental supervision and monitoring and a disorganized, chaotic family may be crucial factors that link the concept of neglect to criminal activity (Agnew, 2001; Evans & Burton, 2013; Maughan & Moore, 2010; Ryan, Williams, & Courtney, 2013). Another possibility is that neglect that occurs alone or in combination with physical or sexual abuse results in low academic achievement (Eckenrode, Laird, & Doris, 1993) and that these educational limitations may hinder the decision-making abilities of neglected youth, thus rendering them more likely to engage in criminal activity (Evans & Burton, 2013).

Next, the impact of psychological maltreatment, or emotional abuse, is understudied (Yates & Wekerle, 2009) namely as it relates to subsequent juvenile delinquency (Evans & Burton, 2013). Plattner and colleagues (2007) found that emotional abuse was positively related to offspring negative emotions, especially anger. It is plausible that negative emotions could lead to juvenile offending (Evans & Burton, 2013; Hollist, Hughes, & Schaible, 2009). In one study, the maltreatment trajectory most associated with juvenile delinquency was in part characterized by a higher likelihood of physical abuse as well as emotional abuse (Stewart et al., 2008).

Finally, to our knowledge, there has been no research specifically examining the presence of child abandonment and its effects on subsequent juvenile delinquency. Such research is therefore needed in order to complement the maltreatment-delinquency literature. Overall, findings regarding the links between specific subtypes of maltreatment and juvenile delinquency merit further investigation and clarification.

**Variety of maltreatment.** Very few studies have examined the specific links between the variety of maltreatment, that is, the experience of different subtypes of maltreatment, and juvenile delinquency. In general, studies have demonstrated that youth who experience two types of violence exhibit more behavioral problems than youth who experience none or only one type of violence (e.g., Grych, Jouriles, Swank, McDonald, & Norwood, 2000; Henning, Leitenberg, Coffey, Turner, & Bennett, 1996; Rossman, 1998).

One study found that the link between maltreatment and the frequency of delinquency was stronger as the variety of maltreatment increased (Kelley et al., 1997). Another study found that the number of types of maltreatment experienced by youth had a significant positive impact on the lifetime likelihood and rate of threatening others with guns and other weapons (Casiano, Mota, Afifi, Enns, & Sareen, 2009). It is possible that possession of and threats with weapons are used by individuals who have experienced multiple types of maltreatment as a way of counteracting the fear of being abused again (Casiano et al., 2009; Lewis et al., 2007). Beyond these limited results, there is evidently a gap that needs to be filled in terms of the literature linking the variety of maltreatment to juvenile delinquency.

### **1.3 Limitations of the literature**

A number of issues arise when examining previous research regarding the links between maltreatment and youth offending. First, a great portion of the literature is plagued by methodological limitations and biases. The overwhelming use of retrospective self-report questionnaires in order to quantify maltreatment and/or juvenile delinquency (e.g., Egeland et al., 2002; Evans & Burton, 2013; Ford, Grasso, Hawke, & Chapman, 2013; Ireland et al., 2002; Kelley et al., 1997; Maschi et al., 2008; Maughan & Moore, 2010; Sigfusdottir et al., 2008) calls into question the accuracy of the obtained information. Voluntary or involuntary error as well as social desirability may lead to underreporting or overreporting (Kirk, 2006). Indeed, it is possible that certain participants are not completely truthful when filling out their questionnaires or simply have difficulty accurately remembering past experiences (Evans & Burton, 2013). Particularly problematic is the issue of telescoping, which is linked to difficulties recalling the timing of events within the time-limited window addressed in the questionnaire (Kirk, 2006). In addition, delicate subject matters such as a history of physical abuse or sexual victimization may also lead to the unwillingness of certain respondents to report such events (Dembo, Schmeidler, & Childs, 2007) or may provoke an experience of secondary victimization. Possible discomfort related with the self-report

of maltreatment includes embarrassment caused by the sensitive nature of certain questions, distress related to exposure to new material concerning abuse, and distressing memories or even flashbacks related to past experiences of maltreatment (Knight et al., 2000).

In order to avoid the possible shortcomings of self-report questionnaires, the present thesis will utilize official records as the data source for information regarding both maltreatment and juvenile delinquency. As data will be collected from informational databases at the disposal of Quebec's Youth Centers, human error with regards to the accuracy of information, whether voluntary or involuntary, will be kept at a minimum. In fact, one important advantage of official data is the fact that substantiations and verdicts are accurately recorded at specific points in time, as opposed to self-report surveys that are subject to recall bias and telescoping (Kazemian & Farrington 2005). An additional advantage of the use of official data is the extensive length of the time period covered in comparison to self-report questionnaires that are usually limited to a 12-month window (Kirk, 2006). These two advantages highlight the importance of using official records in the study of criminal career parameters, as such records allow for events to be recorded in an accurate temporal order within a lengthy time period (Farrington et al., 2003; Kirk, 2006). In addition, secondary victimization linked to the self-report of maltreatment will be avoided, as the use of official records does not require youth to come into contact with the research process.

Second, issues related to sample selection also limit the generalizability of previous findings. Throughout the maltreatment and delinquency literature, the samples are not generalizable in terms of the sex of the youth, as a large proportion of studies focus exclusively on boys (e.g., Evans & Burton, 2013; Heck & Walsh, 2000; Maschi et al., 2008; Maughan & Moore, 2010; Ward et al., 2010; Williams, Van Dorn, Bright, Jonson-Reid, & Nebbitt, 2010). Exclusively selecting male participants prevents the exploration of sex similarities and/or distinctions in terms of the link between maltreatment and delinquency (Topitzes, Mersky, & Reynolds, 2012). Even those studies that included girls in their samples were largely unable to explore sex differences due to small sample sizes (Fagan, 2001; Topitzes et al., 2012). Yet, in order to be able to adequately intervene for juvenile delinquency, it is important to distinguish possible sex-

specific links between different types of victimization and subsequent offending (Asscher, Van der Put, & Stams, 2015). In addition, the choice of selecting low-income participants in certain studies limits the representativity of the samples (e.g., Lemmon, 1999; Mersky & Reynolds, 2007; Mersky, Topitzes, & Reynolds, 2012; Shaffer, Yates, & Egeland, 2009; Williams et al., 2010). Although selecting low-income youth helps to explore the nature of the maltreatment–delinquency link within a high-risk subgroup (Topitzes et al., 2012; Williams et al., 2010), doing so also limits the generalizability of obtained results to the wider population. Moreover, while certain descriptive crossover youth studies have utilized populations limited to certain counties (Halemba & Siegel, 2011; Halemba et al., 2004; Herz & Ryan, 2008; Herz et al., 2010), these restricted populations did not allow for the inclusion of youth from both rural and urban areas and hindered the potential comparison to other offender populations.

Avoiding the deficiencies of sample selection, the present thesis will include the population of Quebec adolescents that pled guilty or were convicted of a crime between 2005 and 2010. Optimizing generalizability, this judicial population includes youth of both sexes and does not discriminate on the basis of socioeconomic status or level of urbanisation. Examining the population of offenders within the Quebec juvenile justice system not only allows for more valid findings, but also permits for the potential comparison to other offender judicial populations. In addition, the inclusion of both male and female youth offenders allows for sex-based analyses in terms of the nature of and links between their maltreatment and delinquency, which in turn may inform adequately targeted prevention and intervention efforts to minimize offending.

Third, theoretical limitations are present in the maltreatment and delinquency literature. The predominant theoretical frameworks utilized in this line of research do not comprehensively address the parameters of maltreatment and juvenile delinquency, as they frequently fail to distinguish between differential exposure to risk factors and different types of criminal careers (Schmallegger & Volk, 2011). Although seminal and wide-ranging theories such as strain theory (Agnew, 1992; Cloward & Ohlin, 1960), social disorganization theory (Shaw & McKay, 1969), differential association theory (Sutherland & Cressey, 1974), social control theory (Hirschi, 1969), labeling theory (Lemert, 1972) and social learning theory (Akers, 1998) attempt to explain the emergence

of juvenile delinquency, little attention is paid to the nature and degree of exposure to risk factors as it relates to the nature and extent of subsequent offending. For example, according to strain theory, life stressors increase the presence of negative emotions, which may account for the fact that maltreated children become delinquent (Agnew, 1992). However, there is no discussion regarding the degree of exposure to life stressors and the extent of the negative outcome. In other words, traditional criminological theories typically consider the presence of delinquency as the outcome in question, without taking into account how specific parameters of risk factors lead to differential parameters of offending. As a result, empirical studies examining the links between maltreatment and juvenile delinquency have often lacked specificity. According to Evans and Burton (2013), many studies have only assessed one or two types of maltreatment or one or two types of crime in their samples. The dichotomous measure of the presence of maltreatment ignores the fact that maltreatment can vary along diverse dimensions, such as frequency and variety (Kelley et al., 1997) and is a major limitation of studies examining the characteristics of crossover youth (Halemba & Siegel, 2011; Halemba et al., 2004; Herz & Ryan, 2008; Herz et al., 2010). Similarly, Topitzes and colleagues (2012) call attention to the fact that indicators of offending have typically been operationally defined with only one or two criterion variables, preventing insight into the varying manifestations of criminality with which maltreatment might be associated (e.g., Halemba et al., 2004; Heck & Walsh, 2000; Herz & Ryan, 2008; Herz et al., 2010; Kelley et al., 1997; Maschi et al., 2008; Sigfusdottir et al., 2008; Williams et al., 2010). Therefore, the present thesis proposes the developmental and life-course criminology perspective as a potential solution to this lack of specificity in the theoretical explanation of juvenile delinquency.

## **1.4 Theoretical framework**

### **1.4.1 A developmental and life-course (DLC) criminology perspective**

Developmental and life-course (DLC; Farrington, 2005) criminology will serve as

the theoretical framework of this thesis, as it involves the study of specific risk factors for offending as well as of the heterogeneity of criminal careers (Lahey & Waldman, 2005). In fact, DLC criminology is in many ways an expansion upon the traditional criminal career paradigm that became prominent in the 1980s (Blumstein, Cohen, Roth, & Visher, 1986), by adding in the crucial study of risk factors, life events and protective factors (Farrington, 2005). In brief, the DLC theoretical perspective incorporates four influential paradigms, the criminal career paradigm, the risk factor prevention paradigm (Farrington, 2000; Hawkins & Catalano, 1992; Loeber & Farrington, 1998), the developmental criminology paradigm (Leblanc & Loeber, 1998; Loeber & Leblanc, 1990) and the life-course criminology paradigm (Sampson & Laub, 1993) in an effort to document the development of offending and to measure the features of criminal careers. In addition, DLC criminology seeks to identify the key life events, risk factors and protective factors related to offending and to implement prevention methods to tackle these risk factors and to enhance protective factors (Farrington, 2005). Therefore, A DLC perspective can potentially inform the development of early intervention and prevention programs aimed at reducing the impact of risk factors among high-risk youth, particularly those risk factors associated with long-term and high-rate criminality (Day et al., 2011).

DLC criminology views the onset and maintenance of antisocial and criminal behavior as products of development. In other words, this behavior is perceived as the result of interactions between developmental processes and risk factors across various life domains (i.e., individual, family, peer, school, community) that unfold over childhood and adolescence (Day et al., 2011). This perspective emerged following a number of seminal longitudinal investigations of criminal activity, including the Pittsburgh Youth Study (Loeber, Farrington, Stouthamer-Loeber, & Van Kammen, 1998) and the Montreal Longitudinal Experimental Study (Nagin & Tremblay, 1999; Tremblay, 2001), which shed light on the role of different intrapersonal, interpersonal, environmental, and biological risk factors on the onset, persistence, and desistance of criminality within a developmental context. For example, it has been suggested that a history of maltreatment may disrupt normative developmental processes and set into motion a series of negative events leading to involvement in criminal behavior (Coleman & Stewart, 2010).

### **1.4.2 Lahey & Waldman's developmental model of the propensity to offend**

Benjamin Lahey and Irwin Waldman's developmental model of the propensity to offend (2005) integrates the most useful constructs from previous causal models into a developmental framework. In fact, this model is in many ways a developmental extension of traditional social learning theory (Akers, 1998) and posits that social learning plays the key role for youth on all developmental trajectories, but in ways that mirror the individual characteristics of the child (Lahey & Waldman, 2005). Adopting the term "antisocial propensity" from Gottfredson and Hirschi's self-control theory (1990), this model defines it as individual differences in youth's predisposition to offend that derive from the transactions between their personal characteristics and social influences over developmental time. In other words, it is posited that throughout development, the interchangeable dimensions of temperament evolve into complex behaviors, including antisocial behaviors, through transactions with the environment. At birth, children's individual differences in terms of temperamental characteristics and cognitive capacities are the product of genetic and prenatal environmental influences. Through transactions with the environment, the non-specific behaviors that constitute temperament are sometimes literally shaped into conduct problems while in other cases, individual differences in temperament alter the social learning environment of the child and influence the child's reaction to it, thus influencing the risk of conduct problems (Lahey & Waldman, 2005). Put simply, Lahey and Waldman attempt to explain the predisposition to commit crimes through the reciprocal interactions or "transactions" between the child's temperament and his or her social context. These transactions shape the minor's abilities and behaviors, both adaptive and maladaptive (Lahey & Waldman, 2005).

This transactional developmental model will frame the present thesis regarding maltreatment and juvenile delinquency, as it places the parents at the heart of the development of conduct problems in their offspring (Lahey & Waldman, 2005). Specifically, Lahey and Waldman perceive the transactions between the child's temperament and parental reinforcement, modeling, persuasion and other forms of social learning as the core of the causal processes of conduct problems, as parents typically

provide the overwhelming majority of social influences in a child's environment (Lahey & Waldman, 2005). Because the family is the primary socializing agent, the importance of studying the parameters of maltreatment and their differential impact on the parameters of juvenile delinquency is highlighted.

### **1.4.3 The cumulative risk model**

Throughout the past few decades, researchers have increasingly acknowledged the need to examine the ecological context in which maltreatment takes place and how risk factors co-occur and lead to negative outcomes (Belsky, 1980; Cicchetti & Lynch, 1993; Mersky & Reynolds, 2007). Thus, in order to further specify the links between certain parameters of maltreatment and juvenile delinquency, the cumulative risk model will be included in the current thesis. The cumulative risk model represents a gradual developmental and ecological approach to the explanation of juvenile delinquency. In the most general sense, this model posits that the greater the number of stressors or risk factors present, the greater the risk that a negative outcome will ensue. Pushed to the extreme, this model even proposes that under conditions of sufficiently severe stress, positive functioning may not be possible (Jaffee, Caspi, Moffitt, Polo-Tomás, & Taylor, 2007).

The cumulative risk model highlights the fact that stressors tend to accumulate within certain families (Jaffee et al., 2007). Research consistently suggests that families characterized by certain qualities have damaging outcomes for their offspring in terms of mental, physical and behavioral health (Repetti, Taylor, & Seeman, 2002). These characteristics include family conflict, manifested in recurrent episodes of aggression, and deficient nurturing, exhibited through neglectful relationships (Repetti et al., 2002). In addition, there is a cumulative effect of risk factors both within and across time (Craig et al., 2011), in such a way that these stressors may have interactive effects on a horizontal level as well as progressive effects on a vertical level (Greenwald, 2002). In other words, youth are at greater risk for juvenile delinquency if they experience multiple risk factors at a given time (Lerner, 1996) and if the consequences of risk factors progressively accumulate over time (Craig et al., 2011).

As it applies to maltreatment, the cumulative risk model suggests that the risk of children experiencing psychological difficulties is four times stronger with the presence of two or more stressors (Shen, 2009). Therefore, experiencing more than one type of maltreatment may be more detrimental to the child than a single type of aggression due to the cumulative effect of these stressors (Arata, Langhinrichsen-Rohling, Bowers, & O’Farrill-Swails, 2005; Edwards, Holden, Felitti, & Anda, 2003; Finkelhor, Ormrod, & Turner, 2007; Jaffee et al., 2007; Rutter, 1979, 1988; Shen, 2009). For example, studies have demonstrated that minors who experience both child abuse and domestic violence exhibit more behavioral problems than children who experience none or only one type of violence (e.g., Grych et al., 2000; Henning et al., 1996; Rossman, 1998). In the present thesis, stressors will correspond to the number of incidents and subtypes of experienced maltreatment (i.e., recurrence and variety) and the examined outcome will be the parameters of juvenile delinquency, as these are indicative of the extent and seriousness of offending. Thus, the cumulative stressors model will frame the investigation of the links between specific parameters of maltreatment and dimensions of delinquency.

## **1.5 Potential implications**

### **1.5.1 From an empirical and theoretical standpoint**

From an empirical perspective, the present thesis presents many strengths, including the use of official records drawn from a very large judicial population and a theoretical framework allowing for the investigation of specific parameters of maltreatment and juvenile delinquency. Thus, the description of crossover youth and the study of maltreatment as a predictor of juvenile delinquency offered by this thesis can contribute in a significant way to the maltreatment–delinquency literature. Specifically, this thesis represents a major contribution not only regarding the specificity of the links it examines, but also in regard to the extensive time frame it covers, the generalizability of its results and its elevated statistical power.

In addition, from a theoretical standpoint, this thesis stands to contribute to DLC criminology literature, as it involves studying risk factors for differential offending in a more detailed and precise manner than previously conducted (Lahey & Waldman, 2005). Moreover, although the individual characteristics or temperaments of the youth are not examined, the findings of this thesis have implications for Lahey & Waldman's developmental model of the propensity to offend, either corroborating or challenging the central role of parental practices in the differential development of juvenile delinquency. Finally, the examination of the recurrence and variety of maltreatment in relation to the seriousness of offending stands to confirm or infirm the premises of the cumulative risk model.

### **1.5.2 From a practical standpoint**

This thesis could potentially have implications for policy, prevention and intervention efforts that target the challenging cases of youth who experience both maltreatment and delinquency. The findings may therefore be of interest to policymakers and practitioners in a position to prevent or intervene upon maltreatment and youth offending (Kelley et al., 1997).

The results of this thesis may suggest that different parameters of maltreatment are differentially linked to diverse parameters of juvenile delinquency. Taken together, the description of the unique delinquency characteristics of crossover youth and the study of maltreatment as a predictor of juvenile delinquency may have implications for the identification of youth at risk for serious delinquency. According to Herz & Ryan (2008), there is a need to develop or enhance prevention efforts within child welfare agencies to identify as early as possible youth who are at risk for crossing over into serious forms of delinquency. In this vein, Edwards and Lutzker (2008) have suggested that prevention programs should be adequately adapted in order to target youth who have experienced certain dimensions and subtypes of maltreatment, namely those that are linked to serious youth offending that may be detected in this thesis. The early identification of these youth could then be followed up with more appropriate services and stable placements that could reduce their risk or the extent of their offending (Herz & Ryan, 2008).

Similarly, the links between maltreatment and parameters of juvenile delinquency examined in this thesis may inform screening practices within the juvenile justice system. Halemba and colleagues (2004; 2011) suggest that there is a need for revised intake assessment and screening procedures within this system that address maltreatment and crossover involvement. Specifically, they recommend that procedures be modified to ensure that all juveniles referred for a delinquent act are screened for prior or current child welfare contact. This screening should then lead to special handling of these cases, taking into consideration that their risk for recidivism may be different from that of youth with no history of maltreatment (Halemba et al., 2004; Halemba & Siegel, 2011).

## **1.6 Objectives**

### **1.6.1 Objective of the thesis**

The general objective of the present thesis is to shed light on the relationship between maltreatment and juvenile delinquency. More specifically, this thesis seeks to examine the associations between specific parameters of maltreatment (i.e., recurrence, subtypes and variety) and parameters of juvenile delinquency (i.e., precocity, volume, variety, average severity and presence of subtypes) by contributing two articles to the maltreatment–delinquency literature. In order to remedy the problem of self-reported maltreatment and delinquency plaguing a large portion of the literature, this research will utilize substantiated reports of maltreatment as assessed by the Youth Protection Act (YPA) as well as official criminal records from the Youth Criminal Justice Act (YCJA). In addition, in order to maximize generalizability, the population of Quebec male and female adolescents that pled guilty or were convicted of a crime between 2005 and 2010 will be included in the present thesis, and sex differences will be analyzed. Moreover, a DLC framework will allow for a more in depth study of dimensions of maltreatment and delinquency than previously conducted. Thus, this research will serve to fill the gap in the juvenile delinquency literature and contribute to the specificity and efficacy of potential risk-management interventions.

### **1.6.2 Objectives of Article 1**

According to Halemba & Siegel (2011), there is a need for further research describing the characteristics of crossover youth and how they differ from other youth who come into contact with the juvenile justice system and youth courts. An understanding of the characteristics of crossover youth, as well as differences they may present from other youth offenders, is crucial to improving our response to the needs of these youth (Halemba & Siegel, 2011). Thus, the general objective of Article 1 of this thesis is to contribute to this limited descriptive literature through the use of official records, a large judicial population and greater specificity regarding the parameters of maltreatment and the parameters of juvenile delinquency that characterize crossover youth. The specific objectives are:

- (1) To compare the parameters of juvenile delinquency (i.e., precocity, volume, variety, average severity and presence of subtypes) for all non-maltreated youth offenders and for crossover youth (total and sex-specific);
- (2) To describe the parameters of maltreatment (i.e., recurrence, subtypes and variety) for crossover youth (total and sex-specific);
- (3) To describe the parameters of juvenile delinquency according to the parameters of maltreatment of crossover youth (total and sex-specific).

### **1.6.3 Objectives of Article 2**

Attention has been called to the fact that many maltreatment–delinquency studies have only assessed one or two types of maltreatment or one or two dimensions of crime in their samples (Evans & Burton, 2013; Topitzes et al., 2012). Such limited definitions prevent insight into the varying manifestations of criminality with which different parameters of maltreatment might be associated (Topitzes et al., 2012). Thus, the general objective of Article 2 of this thesis is to comprehensively examine the links between the parameters of maltreatment and dimensions of subsequent offending. The specific objectives are:

- (1) To examine whether the parameters of maltreatment (i.e., recurrence and all subtypes) predict certain parameters of juvenile delinquency (i.e., precocity, volume, variety, average severity and presence of subtypes);
- (2) To analyze sex differences.

**Chapter 2**  
**METHODS**



## **2.1 Data source**

### **2.1.1 Overview of the population**

The data source for this thesis is comprised of official records for the population of Quebec male and female adolescents aged between 12 and 17 years old that pled guilty or were convicted of a crime and therefore received a service from the Youth Criminal Justice Act (YCJA) between January 1<sup>st</sup> 2005 and December 31<sup>st</sup> 2010. Data were obtained from the informational databases at the disposal of each of Quebec's Youth Centers (i.e., Bas-Saint-Laurent Youth Center; Saguenay-Lac-Saint-Jean Youth Center; Quebec Youth Center – University Institute; Mauricie and Centre-du-Québec Youth Center; Estrie Youth Center; Montreal Youth Center – University Institute; Outaouais Youth Center; Abitibi-Témiscamingue Youth Center; Côte-Nord Youth Center; Gaspésie/Les Îles Youth Center; Chaudière-Appalaches Youth Center; Laval Youth Center; Lanaudière Youth Center; Laurentides Youth Center; Montérégie Youth Center). Of this judicial population, 81.3% were male. In terms of ethnicity, 87.7% were Caucasian, 4.0% were Black, 2.3% were Aboriginal, and 6.0% belonged to another visible minority. The most observed form of physical custody was sole custody for the mother (30.5%), followed by the parents living together (15.6%) and sole custody for the father (10.4%).

### **2.1.2 Ethical and judicial procedures**

The present thesis utilizes data collected by Lafortune et al. (2014). Because data collection took place in more than four establishments of the Ministère de la santé et services sociaux (MSSS), it had to be evaluated through a multicenter examination process, as defined by the ministry. The research ethics board (REB) of the Philippe-Pinel Institute of Montreal acted as the main REB and channelled and integrated evaluations made by the different Youth Centers involved.

The research project was submitted to the main REB and the various Youth Centers. The latter conducted a suitability test in order to assess whether the project was feasible in their establishment. The Youth Centers that have their own REB (like in Montreal and Quebec) also performed ethics reviews and sent their evaluations to the main REB. The main REB then expressed its own observations and those of the other REBs to the researchers and clarified practical or ethical issues raised by the Youth Centers. Next, a preliminary approval was issued by the main REB, indicating that the study fulfilled all ethical requirements. This evaluation was transmitted to the concerned establishments for negotiations, and a final approval was reached on October 3, 2011.

However, the ethical evaluation was not completed with the obtainment of the final approval alone, since authorization from a judge of the Cour du Québec was necessary. The request was heard on May 1, 2012 and Judge Denis Saulnier permitted Quebec Youth Centers and alternative justice organizations to provide access to all the records of adolescents who received services under the YCJA since 2005. He also authorized all Youth Centers and all alternative justice organizations to communicate to the researchers any needed information contained in these official records in order to carry out the research.

### **2.1.3 Data collection**

Data for this thesis were therefore obtained from the informational databases at the disposal of each of Quebec's Youth Centers. These informational databases are comprised of all the data tables managed by the “Système clientèle jeunesse” of the “Projet d’intégration jeunesse”. An extraction request was made by the research team and then sent to all Quebec Youth Centers. Coordinators were invited to compress the data, secure them with a password and send the CD or DVD by secured mail to the Centre jeunesse de Montréal – Institut universitaire. This Youth Center then identified the youths entering the study and filtered and extracted the relevant data for the research. After removing duplicates, information regarding 47,920 youths remained. Of these, 43,096 pled guilty or were convicted for at least one offence. Among the 4,824 other cases, some youths were acquitted by the court. For others, there was a withdrawal of the charge,

conditional suspension or dismissal of the charge, or a verdict of “not criminally responsible”.

Through the use of these official records, the trajectory of the 43,096 youths that pled guilty or were convicted of a crime was observed from the date of their initial contact with a Youth Center (whether under the Youth Protection Act (YPA) or the YCJA) until December 31, 2010 or their date of majority or their date of death, whichever occurred first. Based on the 29 tables in the Youth Center informational databases, four sets of variables were extracted: a) personal characteristics of the youth; b) characteristics of the offences; c) characteristics of the interventions made under the YPA; d) characteristics of interventions made under the YCJA. Because data were collected as part of a larger study examining the effects of interventions made under the YCJA on recidivism, and that this objective is beyond the scope of the present thesis, information regarding the characteristics of interventions made under the YCJA was not considered.

As previously mentioned, the present thesis utilizes data collected by Lafortune et al. (2014) in the context of a larger study. Nonetheless, the author of this thesis contributed to the management of the dataset, by synthesizing information and cleansing records, and to the construction of the data, by operationalizing the present variables based on available information.

#### **2.1.4 Data related to the characteristics of the offences**

This set of variables contains all the information regarding guilty offences committed under the YCJA from the date of initial contact with a Youth Center (whether YPA or the YCJA) until December 31, 2010 or the date of maturity or the date of death, whichever occurred first. The YCJA is intended to protect the public by holding minors accountable for their criminal actions through measures that are proportionate to the seriousness of the offence and the degree of responsibility of the minor, including alternative justice options. In addition, a guiding principle of the YCJA is the promotion of rehabilitation and reintegration of offenders as well as the prevention of future crime through the use of community programs addressing underlying issues of delinquency

(YCJA 3.1). Examples of information in this section include the presence of different types of crimes, as well as indicators traditionally used to describe criminal trajectories, such as the precocity, volume, variety and severity of delinquency. In other words, the information contained in the “*Characteristics of the offences*” set of variables pertains to the parameters of juvenile delinquency committed by the youth.

### **2.1.5 Data related to the characteristics of the interventions made under the YPA**

This set of variables contains all the information regarding reports made to the YPA on behalf of the minor, from the date of initial contact with a Youth Center (whether YPA or the YCJA) until December 31, 2010 or the date of maturity or the date of death, whichever occurred first. The YPA applies to any child whose security or development is or may be considered to be in danger (YPA a.2). Thus, any intervention under this act must be designed to put an end to and prevent the recurrence of a situation in which the security or the development of the child is in danger. Examples of information in this section of the data include descriptions of the services rendered by the YPA, descriptions of incident reports of maltreatment and/or serious behavioral disturbance, as well as descriptions of the interventions put in place by the YPA. Thus, all information regarding the presence and parameters of maltreatment were found in this set of variables. In line with the specific objectives of this thesis, only information regarding incident reports was considered. In addition, youths whose only substantiated reports under the YPA were for serious behavioral disturbances were considered as non-maltreated.

## **2.2 Operationalization of variables**

### **2.2.1 Parameters of juvenile delinquency**

**Precocity of juvenile delinquency.** Precocity of juvenile delinquency was defined as the age at which the individual committed his or her first crime for which there was a guilty verdict. These ages ranged from 12 to 17 years old, in accordance with the YCJA.

**Volume of juvenile delinquency.** Volume of delinquency was defined as the total number of crimes committed by a single individual for which there was a guilty verdict from the date of initial contact with a Youth Center (whether YPA or the YCJA) until December 31, 2010 or the date of maturity or the date of death, whichever occurred first. A count variable was therefore created.

**Variety of juvenile delinquency.** Variety of juvenile delinquency was defined as the number of different categories of crimes for which there was a guilty verdict committed by an individual, for a maximum of 25 categories: Sexual assaults; other sexual offences; physical assaults; kidnapping, forcible confinement and hostage taking; homicides; uttering threats and criminal harassment; motor vehicle offences; operation of motor vehicle while impaired; other unspecified crimes against the person; frauds; arsons; breaking and entering; mischief; public mischief; thefts; fraudulent concealment; robberies; weapons offences; drug offences; cruelty to animals; conspiracy and acting as accessory; court order violations; obstruction of justice; unlawfully at large; other unspecified offences.

**Average severity of juvenile delinquency.** The severity of crimes was calculated according to the Crime Severity Index (CSI; Wallace, Turner, Matarazzo, & Babyak, 2009), using weights attributed to each infraction by Statistics Canada based on court rulings. The more serious the average sentence, the higher the weight for that offence. These weights vary between 1 and 7,042, with 1 representing the least severe crime and 7,042 representing murder in the first degree. Average severity was obtained by calculating the mean weight of all crimes for which there was a guilty verdict committed by an individual.

**Presence of subtypes of juvenile delinquency.** A dichotomous variable assessing the presence or absence of a guilty verdict for each subtype of juvenile delinquency was created.

*Crime against the person* refers to the commission of at least one of the following crimes in accordance to Part V (Sexual offences, public morals and disorderly conduct) and Part VIII (Offences against the person and reputation) of the Canadian Criminal Code, for which there was a guilty verdict: Sexual assault (including sexual assault with a weapon, sexual assault with a third party, sexual interference, and incest); other sexual offences (including accessing child pornography, possession of child pornography, distribution of child pornography, indecent acts, exposure, invitation to sexual touching, luring a child, and voyeurism); kidnapping; forcible confinement; hostage taking; homicide (including being an accessory after fact to murder and attempt to commit murder); physical assault (including assault with a weapon or causing bodily harm, aggravated assault, unlawfully causing bodily harm, and assaulting a peace officer); uttering threats; criminal harassment.

*Property crime* refers to the commission of at least one of the following crimes in accordance to Part IX (Offences against rights of property), Part X (Fraudulent transactions relating to contracts and trade), Part XI (Wilful and forbidden acts in respect of certain property) and Part XII (Offences relating to currency) of the Canadian Criminal Code, for which there was a guilty verdict: Fraud (including fraud, use of forged document, making false document, uttering counterfeit money; fraudulently obtaining transportation, fraudulently obtaining food, beverage or accommodation; possession of counterfeit money, unauthorized use of credit card data, unauthorized use of computer, and making counterfeit money); arson (including arson – damage to property, arson – disregard for human life, arson – fraudulent purpose, arson by negligence, arson – own property, and possession of incendiary material); breaking and entering (including breaking and entering with intent to commit offence, possession of break-in instrument, and being unlawfully in dwelling-house); mischief; fraudulent concealment; theft (including theft, taking motor vehicle without consent; theft of credit card, theft from mail, and theft by person required to account); robbery; extortion.

*Weapons offence* refers to the commission of at least one of the following crimes in accordance to Part III (Firearms and other weapons) of the Canadian Criminal Code, for which there was a guilty verdict: Pointing a firearm; contravention of regulations; possession of weapon for dangerous purpose; carrying concealed weapon; possession of prohibited or restricted firearm with ammunition; possession for purpose of weapons trafficking; unauthorized possession of prohibited weapon or restricted weapon; weapons trafficking; using firearm in commission of offence; using imitation firearm in commission of offence; careless use of firearm; unauthorized possession of firearm.

*Drug offence* refers to the commission of at least one of the following crimes in accordance to the Controlled Drugs and Substances Act, for which there was a guilty verdict: Trafficking in substance; possession of substance; possession for purpose of trafficking; production of substance.

### **2.2.2 Parameters of maltreatment**

**Presence of maltreatment.** In Article 1, a dichotomous variable assessing the presence or absence of maltreatment was created. *Maltreated* youths were defined as presenting at least one substantiated incident of maltreatment (i.e. physical abuse, sexual abuse, neglect, psychological maltreatment and abandonment) under the YPA while *non-maltreated* youths were defined as not presenting a substantiated incident of maltreatment under the YPA. In order to adequately gauge the impact of maltreatment on subsequent offending in Article 2, the date of the first substantiated report of maltreatment under the YPA had to precede the date of commission of the first guilty offence under the YCJA. In other words, only minors whose first incident of maltreatment preceded their first guilty offence were considered as *maltreated* in the context of Article 2.

The substantiation of incidents implies that the security or development of the minor is compromised, following a detailed analysis of his or her living conditions. This requires a comprehensive assessment that implies visiting the home, school or day care center, meeting all significant actors in connection with the situation of the child, as well as consulting all sources of relevant information to complete the assessment (e.g., medical records, school records; Roc, 2011).

**Recurrence of maltreatment.** To evaluate the recurrence of maltreatment in Article 1, a dichotomous variable was created for the number of incidents of substantiated maltreatment from the date of initial contact with a Youth Center (whether YPA or the YCJA) until December 31, 2010 or the date of maturity or the date of death, whichever occurred first, with one case coded as *one incident* and two or more cases coded as *multiple incidents*. To evaluate the recurrence of maltreatment in Article 2, a count variable was created for the number of incidents of substantiated maltreatment experienced by a single individual.

**Subtypes of maltreatment.** A dichotomous variable assessing the presence or absence of a substantiated incident for each subtype of maltreatment was created. The motives of the substantiated incidents of maltreatment were registered using the definitions of the Youth Protection Act (YPA) of Quebec.

*“Physical abuse* refers to a situation in which the child is the victim or runs a serious risk of becoming the victim of bodily injury or is subjected to unreasonable methods of upbringing by his parents or another person, and the child’s parents fail to take the necessary steps to put an end to the situation” (YPA a. 38e)).

*“Sexual abuse* refers to a situation in which the child is subjected or runs a serious risk of being subjected to gestures of a sexual nature by the child’s parents or another person, with or without physical contact, and the child’s parents fail to take the necessary steps to put an end to the situation” (YPA a. 38d)).

*“Neglect* refers to a situation in which the child’s parents or the person having custody of the child do not meet or seriously risk not meeting the child’s basic needs, (1) failing to meet the child’s basic physical needs with respect to food, clothing, hygiene or lodging, taking into account their resources; (2) failing to give the child the care required for the child’s physical or mental health, or not allowing the child to receive such care; or (3) failing to provide the child with the appropriate supervision or support, or failing to take the necessary steps to provide the child with schooling” (YPA a. 38b)).

*“Psychological maltreatment* refers to a situation in which a child is seriously or repeatedly subjected to behavior on the part of the child’s parents or another person that could cause harm to the child, and the child’s parents fail to take the necessary steps to put an end to the situation. Such behavior includes in particular indifference, denigration,

emotional rejection, isolation, threats, exploitation, particularly if the child is forced to do work disproportionate to the child's capacity, and exposure to conjugal or domestic violence" (YPA a. 38c)).

"*Abandonment* refers to a situation in which a child's parents are deceased or fail to provide for the child's care, maintenance or education and those responsibilities are not assumed by another person in accordance with the child's needs" (YPA a. 38a)).

**Variety of maltreatment.** A dichotomous variable was created for the number of different subtypes of substantiated maltreatment (i.e. physical abuse, sexual abuse, neglect, psychological maltreatment, and abandonment) experienced by a single individual, with one subtype coded as *one subtype* and two or more subtypes coded as *multiple subtypes*.

### 2.2.3 Control variables

As part of Article 2 of this thesis, which utilizes multivariable analyses, certain variables were controlled for in order to highlight the unique contribution of maltreatment to subsequent juvenile delinquency.

**Custody of the youth.** Given the body of literature linking "broken homes" to juvenile delinquency (e.g. Day et al., 2011; Ward et al., 2010), custody of the child was controlled for in order to highlight the unique influence of maltreatment. A dichotomous variable was created in order to assess the presence of a *nuclear home* (0), defined as a family in which the child lives with both the mother and the father in the same household, or a *non-nuclear home* (1).

**Ethnicity.** Ethnicity was controlled for in the goal of maximizing the generalizability of the findings. To do so, self-reported or parent-reported ethnicity was dichotomized as *Caucasian* (0) or *non-Caucasian* (1).

**Material and social deprivation.** Using the Pampalon Deprivation Index (Pampalon & Raymond, 2000), Article 2 controlled for material and social deprivation as a proxy of socioeconomic status. The Pampalon Deprivation Index is an ecological estimate of the levels of material (e.g., education, employment, revenue and accessibility of goods and services) and social (e.g., marital status and social, familial and community

connections) deprivation of individuals (Pampalon & Raymond, 2003). The index is allocated according to the dissemination area in which the youth resides. The dissemination area is a small, relatively stable geographic unit composed of one or more neighbouring blocks of 400 to 700 inhabitants. It is the smallest standard geographic area for which the Statistics Canada census tabulates information. The version of the Pampalon Deprivation Index utilized in Article 2 stemmed from the 2006 Statistics Canada census. Dissemination areas were linked to specific youth based on the postal code of their last known address.

## **2.3 Statistical analyses**

In Article 1, descriptive statistics and 95% confidence intervals of the means were utilized in order to draw a portrait of (1) the parameters of juvenile delinquency (i.e., precocity, volume, variety, average severity and presence of subtypes) for non-maltreated offenders and for crossover youth, (2) the parameters of maltreatment (i.e., recurrence, subtypes and variety) for crossover youth, and (3) the parameters of juvenile delinquency according to the parameters of maltreatment of crossover youth.

In Article 2, multivariable analyses with prediction models that included the parameters of maltreatment and control measures were conducted for each parameter of juvenile delinquency, accounting for interactions with the sex of the youth. For the precocity and average severity of delinquency, multiple linear regressions were selected as they allow for the prediction of a quantitative interval variable using qualitative dichotomous variables and quantitative interval variables. Negative binomial regressions were employed for the models predicting the volume and variety of delinquency. Negative binomial regression is used when the dependent variable takes on a Poisson-like distribution but its variance exceeds its mean and is thus overdispersed (Wooldridge, 2000). Finally, logistic regressions were utilized in the prediction of the binary presence or absence of subtypes of juvenile delinquency. Because of the elevated number of subjects in the utilized population, the level of statistical significance was set at  $p < .001$ . All analyses were conducted with SPSS 22.

## **Chapter 3**

### **ARTICLE 1**

#### **A portrait of crossover youth in Quebec, Canada: Examining parameters of maltreatment and juvenile delinquency**

Sader, J., Guay, S., Geoffrion, S. & Lafortune, D. (2015). A portrait of crossover youth in Quebec, Canada: Examining parameters of maltreatment and juvenile delinquency. *Youth Crime and Juvenile Justice*, submitted.



### 3.1 Abstract

**Objective.** The objective was to describe the characteristics of crossover youth within a judicial population of youth offenders through the use of official records and with greater specificity regarding their parameters of maltreatment and delinquency than previously examined.

**Methods.** The data source was comprised of official records for the population of Quebec adolescents that pled guilty or were convicted of a crime between 2005 and 2010. Descriptive statistics were used to examine their parameters of maltreatment (i.e., recurrence, subtypes and variety) and delinquency (i.e., precocity, volume, variety, severity and subtypes).

**Results.** Crossover youth presented with more serious indicators of delinquency than non-maltreated offenders. Moreover, the experience of multiple incidents and subtypes of maltreatment was linked to more serious offending. Psychological maltreatment was linked to more precocious delinquency. Youth who experienced abandonment committed a greater number and variety of crimes and were more likely to have committed property crimes.

**Conclusions.** Findings demonstrate that differential exposure to maltreatment is linked to heterogeneous parameters of delinquency. Study limitations include the shortcomings of official records and a population entirely composed of delinquent youth. From a practical standpoint, the findings may inform prevention programs and screening practices within youth protection services and the juvenile justice system.



The high prevalence of traumatic experiences and abuse among youth offenders (Brosky and Lally 2004; Coleman 2005; Dembo et al. 2000) has sparked an interest in studying youth who are both offenders and victims of maltreatment. An understanding of the characteristics of these challenging cases, as well as of differences they may present from other youth offenders, is crucial to improving our response to their needs (Halemba and Siegel 2011). However, the scarce research examining their characteristics is limited by the use of self-reports, restricted generalizability and a lack of specificity concerning the measurement of maltreatment and juvenile delinquency. Therefore, the objective of this study is to describe the characteristics of these youth and how they differ from non-maltreated offenders through the use of official records, a large judicial population and greater specificity regarding the parameters of maltreatment and juvenile delinquency.

### **3.2 A snapshot of juvenile delinquency**

According to the Office of Juvenile Justice and Delinquency Prevention, law enforcement agencies in the United States made over 1.3 million arrests of persons under 18 years of age in 2012, most of which were for property crimes, followed by violent crimes and weapons offences. Male youth accounted for 71% of these arrests although the proportion of female arrests is increasing steadily (Puzzanchera 2014).

In Canada, youth courts completed over 48,000 cases representing approximately 166,000 infractions in the 2011-2012 fiscal year, with 57% of cases resulting in a guilty verdict (Dauvergne 2013). Youth offenders represent approximately 13% of all persons charged with violations under the Criminal Code in Canada (National Crime Prevention Center 2012), with the most common juvenile offences being property crimes and crimes against the person (Milligan 2010). In 2009, boys accounted for about three-quarters of youth accused by police of having committed an offence (Hotton Mahony 2011).

Although the number of juvenile cases is decreasing steadily in both countries, many cases continue to be processed through the courts. The high volume of cases is problematic as juvenile delinquency is associated with a wide array of individual and societal consequences in terms of justice, health and social services (Craig, Petrunka, and Khan 2011).

### **3.3 A review on crossover youth**

A thorough body of research has established that maltreatment is a risk factor that predisposes youth to becoming juvenile delinquents (e.g., Ireland, Smith, and Thornberry 2002; Maschi, Bradley, and Morken 2008; Stewart, Livingston, and Dennison 2008). In parallel, research has suggested that youth in contact with the justice system have experienced more traumatic incidents than adolescents in the general population (Brosky and Lally 2004; Coleman 2005). For instance, the prevalence of physical and sexual abuse histories among incarcerated youth is higher than among youth in the general population (Coleman 2005; Dembo et al. 2000). Thus, these findings have inspired research regarding the characteristics of youth who are both offenders and victims of maltreatment.

In accordance with Herz and Ryan (2008), the present study will refer to youth who were victims of maltreatment and who also committed an offence as crossover youth. Typically, becoming a crossover youth occurs one of three ways. One way is by entering the youth protection system because of allegations of maltreatment and then committing an offence that causes entry into the juvenile justice system while still under the care of youth protection services. A second way is when a youth with a prior, but not current, contact in youth protection enters the juvenile justice system. A third possible way is when a youth enters the juvenile justice system and is subsequently referred to the youth protection system for investigation of maltreatment (Herz and Ryan 2008).

The prevalence of crossover youth is difficult to assess because youth involved in both systems are typically challenging to identify across agency information databases, which are rarely integrated. Hence, crossover youth represent a hidden population who has been the subject of very little research (Herz, Krinsky, and Ryan 2006; Herz, Ryan, and Bilchik 2010). Yet, studying and intervening with maltreated youth in contact with the juvenile justice system is essential, as they are overrepresented in this system. It is necessary to understand the distinctive characteristics and outcomes of crossover youth in order to adequately address their needs (Halemba and Siegel 2011).

### **The characteristics of crossover youth**

To our knowledge, literature explicitly describing the juvenile delinquency characteristics of crossover youth consists of five studies (Halemba and Siegel 2011; Halemba, Siegel, Lord, and Zawacki 2004; Herz and Ryan 2008; Kelley, Thornberry, and Smith 1997; Ryan, Herz, Hernandez, and Marshall 2007). In a study of the population of 4,475 youth referred to the King County Juvenile Court in the state of Washington for offender matters in 2006, 16% of the youth had a history of Children's Administration legal activity or placement with regards to allegations of maltreatment (Halemba and Siegel 2011). In regards to sex, the percentage of girls among crossover youth seemed to range from 31% (Halemba et al. 2004) to 40% (Halemba and Siegel 2011). In addition, the percentage of female crossover youth (37% - 40%) was greater than the percentage of non-crossover female offenders (24% - 27%; Halemba and Siegel 2011; Herz and Ryan 2008; Ryan et al. 2007).

Regarding the offences committed by crossover youth, a study of the 581 youth in Los Angeles County who originally entered the court as victims of maltreatment and were then charged with an offence between April 1 and December 31 2004 found that 40% of youth were charged with a violent offence and 28% were charged with a property offence (Herz and Ryan 2008). In contrast, a study examining the court history of 3,689 juveniles with an active dependency, delinquency or status referral/petition in selected Arizona counties between July 2001 and June 2002 found that 28% were charged with a violent offence, 37% with a property offence, and 11% with a drug offence (Halemba et al. 2004). Compared to non-maltreated youth offenders, Ryan and colleagues (2007) found that crossover youth were more likely to be arrested for sexual and violent crimes. Furthermore, findings suggested that crossover youth were first referred on offender charges at an earlier age than delinquency-only youth (Halemba and Siegel 2011; Ryan et al. 2007). In addition, crossover youth were more frequently referred on offender charges than non-maltreated youth offenders (Halemba and Siegel 2011; Halemba et al. 2004; Herz et al. 2010; Kelley et al. 1997), with an average of 5.8 times compared to 2.1 times in one study (Halemba and Siegel 2011). There was also some evidence to suggest that crossover youth committed more severe forms of offences than delinquency-only youth, as assessed by the likelihood of adjudication on felony matters (Halemba and Siegel

2011). Thus, although limited in number, studies examining crossover youth provide a solid baseline for discussion and growth of the literature (Herz et al. 2010).

### **Limitations of the literature**

A number of issues arise when examining previous research regarding crossover youth. First, the use of self-reports to quantify juvenile delinquency (Kelley et al. 1997) calls into question the accuracy of the obtained information, as social desirability and telescoping may lead to underreporting or overreporting (Evans and Burton 2013; Kirk 2006). In order to avoid these shortcomings, the data source for the present study will be comprised of official records regarding maltreatment and juvenile delinquency. The use of official records is optimal in the study of criminal career parameters, as such records allow for events to be accurately recorded within a lengthy time period (Farrington et al. 2003; Kirk 2006).

Second, the use of samples (Kelley et al. 1997) and populations limited to certain counties (Halemba et al. 2004; Halemba and Siegel 2011; Herz and Ryan 2008; Herz et al. 2010) hinders the generalizability of previous findings. Maximizing the potential for generalization, the present study will include the population of Quebec, Canada male and female adolescents that pled guilty or were convicted of a crime between 2005 and 2010. Examining the judicial population of offenders within a Canadian province allows for the inclusion of youth from both rural and urban areas and permits for the potential comparison to other offender judicial populations. In addition, the inclusion of both male and female youth offenders allows for sex-based comparisons in terms of the nature of their maltreatment and delinquency, which in turn may inform adequately targeted prevention and intervention efforts to minimize offending.

Third and most importantly, studies examining the maltreatment and juvenile delinquency characteristics of crossover youth have often lacked specificity. The dichotomous measure of the presence of maltreatment ignores the fact that maltreatment can vary along diverse dimensions and is a major limitation of studies examining the characteristics of crossover youth (Halemba and Siegel 2011; Halemba et al. 2004; Herz and Ryan 2008; Ryan et al. 2007). Similarly, defining delinquency with only one or two criterion variables prevents insight into the varying manifestations of criminality with

which maltreatment might be associated (Halemba et al. 2004; Herz and Ryan 2008; Kelley et al. 1997). Therefore, this study proposes the developmental and life-course criminology perspective in order to allow for greater specificity regarding the links between different parameters of maltreatment and juvenile delinquency.

### **3.4 Theoretical framework**

Developmental and life-course (DLC; Farrington 2005) criminology will serve as the theoretical framework of this study, as it involves the study of specific risk factors for offending as well as of the heterogeneity of criminal careers (Lahey and Waldman 2005). This perspective allows for the examination of differential exposure to risk factors in relation to different types of criminal careers that vary along parameters of offending. In brief, the DLC perspective incorporates the criminal career (Blumstein et al. 1986), risk factor prevention (Farrington 2000; Hawkins and Catalano 1992; Loeber and Farrington 1998), developmental criminology (Leblanc and Loeber 1998; Loeber and Leblanc 1990) and life-course criminology (Sampson and Laub 1993) paradigms in an effort to document the development of offending, measure the differential features of criminal careers, and identify life events, risk factors and protective factors related to offending (Farrington 2005).

Within the DLC perspective, Lahey and Waldman's developmental model of the propensity to offend (2005) will frame this study, as it places the parents at the heart of the development of conduct problems in their offspring (Lahey and Waldman 2005). Specifically, Lahey and Waldman perceive the transactions between the child's temperament and parental reinforcement, modeling, persuasion and other forms of social learning as the core of the causal processes of conduct problems, as parents typically provide the overwhelming majority of social influences in a child's environment (Lahey and Waldman 2005). Because the family is the primary socializing agent, the importance of studying the parameters of maltreatment and their differential impact on the parameters of juvenile delinquency is highlighted.

Throughout the past few decades, researchers have increasingly acknowledged the need to examine the ecological context in which maltreatment takes place and how risk

factors co-occur and lead to negative outcomes (Belsky 1980; Cicchetti and Lynch 1993; Mersky and Reynolds 2007). Thus, the cumulative risk model will also be incorporated in this study. The cumulative risk model represents a gradual developmental and ecological approach to the explanation of delinquency. In a general sense, this model posits that the greater the number of stressors present, the greater the risk that a negative outcome will ensue. Thus, experiencing more than one incident or type of maltreatment may be more detrimental to the child than a single aggression due to a cumulative effect (Arata et al., 2005; Edwards et al., 2003; Finkelhor et al., 2007; Jaffee et al., 2007; Rutter, 1979, 1988; Shen, 2009). In this study, stressors will correspond to the number of incidents and subtypes of experienced maltreatment (i.e., recurrence and variety) and the examined outcome will be the parameters of juvenile delinquency, as these are indicative of the extent and seriousness of offending.

### **3.5 Objectives**

According to Halemba and Siegel (2011), there is a need for further research examining the characteristics of crossover youth and how they differ from other youth who come into contact with the juvenile justice system. Thus, the general objective of this study is to address this need through the description of official records, a large judicial population and greater specificity regarding the parameters of maltreatment and juvenile delinquency that characterize crossover youth. In addition, this study has implications for policy, prevention and intervention efforts to target the crossover youth most at-risk for serious delinquency.

Inspired by research concerning maltreatment as a predictor of delinquency (e.g., Casiano, Mota, Afifi, Enns, and Sareen 2009; Evans and Burton 2013; Grych, Jouriles, Swank, McDonald, and Norwood 2000; Ireland et al. 2002; Kim, Kim and Samuels-Dennis 2012; Lemmon 2006; Maschi 2006; Mersky and Reynolds 2007), this study examines the recurrence, subtypes and variety of maltreatment in crossover youth. On the other hand, the assessed parameters of juvenile delinquency (i.e., precocity, volume, variety, average severity and presence of subtypes) stem from the traditional dimensions

of criminal trajectories examined in criminological research (e.g., see Leblanc 1985). The specific objectives are:

- (1) To compare the parameters of juvenile delinquency for all non-maltreated youth offenders and for crossover youth (total and sex-specific);
- (2) To describe the parameters of maltreatment for crossover youth (total and sex-specific);
- (3) To describe the parameters of juvenile delinquency according to the parameters of maltreatment of crossover youth (total and sex-specific).

## **3.6 Methods**

### **Data source**

#### *Overview of the population*

The data source for this study is comprised of official records for the population of Quebec male and female adolescents aged between 12 and 17 years old that pled guilty or were convicted of a crime and therefore received a service from the Youth Criminal Justice Act (YCJA) between January 1st 2005 and December 31st 2010. Of this judicial population, 81.3% were male. In terms of ethnicity, 87.7% were Caucasian, 4.0% were Black, 2.3% were Aboriginal, and 6.0% belonged to another visible minority. The most observed form of physical custody was sole custody for the mother (30.5%), followed by the parents living together (15.6%) and sole custody for the father (10.4%).

### **Data collection**

The present study utilizes data collected by Lafortune et al. (2014). The research ethics board of the Philippe-Pinel Institute of Montreal and a judge of the Court of Quebec granted approval for data collection. Data for this study were therefore obtained from the informational databases at the disposal of each of Quebec's Youth Centers. Through the use of these official records, the trajectory of the 43,096 youth that pled guilty or were convicted of a crime was observed from the date of their initial contact with a Youth Center (whether under the Youth Protection Act (YPA) or the YCJA) until

December 31, 2010 or their date of majority or their date of death, whichever occurred first. Based on information in the Youth Center databases, variables concerning personal characteristics of the youth, the characteristics of the offences and the characteristics of the decisions made under the YPA were extracted.

### **Operationalization of variables**

#### *Parameters of juvenile delinquency*

**Precocity of juvenile delinquency.** Precocity of delinquency was defined as the age at which the individual committed his or her first crime for which there was a guilty verdict. These ages ranged from 12 to 17 years old, in accordance with the YCJA.

**Volume of juvenile delinquency.** Volume of delinquency was defined as the total number of crimes committed by a single individual for which there was a guilty verdict from the date of their initial contact with a Youth Center (whether under the YPA or the YCJA) until December 31, 2010 or their date of majority or their date of death, whichever occurred first. A count variable was therefore created.

**Variety of juvenile delinquency.** Variety of juvenile delinquency was defined as the number of different categories of crimes for which there was a guilty verdict committed by an individual, for a maximum of 25 categories: Sexual assaults; other sexual offences; physical assaults; kidnapping, forcible confinement and hostage taking; homicides; uttering threats and criminal harassment; motor vehicle offences; operation of motor vehicle while impaired; other unspecified crimes against the person; frauds; arsons; breaking and entering; mischief; public mischief; thefts; fraudulent concealment; robberies; weapons offences; drug offences; cruelty to animals; conspiracy and acting as accessory; court order violations; obstruction of justice; unlawfully at large; other unspecified offences.

**Average severity of juvenile delinquency.** The severity of crimes was calculated according to the Crime Severity Index (CSI), using weights attributed to each infraction by Statistics Canada based on court rulings. The more serious the average sentence, the higher the weight for that offence. Average severity was obtained by calculating the mean weight of all crimes for which there was a guilty verdict committed by an individual.

**Presence of subtypes of juvenile delinquency.** The presence or absence of a guilty verdict for each subtype of juvenile delinquency was assessed with a dichotomous variable.

*Crime against the person* refers to a guilty verdict for at least one of the following crimes: Sexual assault; other sexual offences; kidnapping; forcible confinement; hostage taking; homicide; physical assault; uttering threats; criminal harassment.

*Property crime* refers to a guilty verdict for at least one of the following crimes: Fraud; arson; breaking and entering; mischief; fraudulent concealment; theft; robbery; extortion.

*Weapons offence* refers to a guilty verdict for at least one of the following crimes: Pointing a firearm; contravention of regulations; possession of weapon for dangerous purpose; carrying concealed weapon; possession of prohibited or restricted firearm with ammunition; possession for purpose of weapons trafficking; unauthorized possession of prohibited weapon or restricted weapon; weapons trafficking; using firearm in commission of offence; using imitation firearm in commission of offence; careless use of firearm; unauthorized possession of firearm.

*Drug offence* refers to a guilty verdict for at least one of the following crimes: Trafficking in substance; possession of substance; possession for purpose of trafficking; production of substance.

#### *Parameters of maltreatment*

**Presence of maltreatment.** A dichotomous variable assessing the presence or absence of maltreatment was created. Maltreated youth were defined as presenting at least one substantiated incident of maltreatment (i.e. physical abuse, sexual abuse, neglect, psychological maltreatment and abandonment) under the YPA while non-maltreated youth were defined as not presenting such an incident. The substantiation of incidents implies that the security or development of the minor is compromised, following a detailed analysis of his or her living conditions (Roc 2011).

**Recurrence of maltreatment.** Based on the literature regarding the cumulative risk model (Arata et al, 2005; Edwards et al, 2003; Finkelhor et al, 2007; Jaffee et al, 2007; Rutter, 1979, 1988; Shen, 2009), a dichotomous variable was created for the

number of incidents of substantiated maltreatment experienced by a single individual, with one case coded as one incident and two or more cases coded as multiple incidents.

**Presence of subtypes of maltreatment.** A dichotomous variable assessing the presence or absence of a substantiated incident for each subtype of maltreatment was created. The motives of the substantiated incidents of maltreatment were registered using the definitions of the YPA for physical abuse (YPA a. 38e)), sexual abuse (YPA a. 38d)), neglect (YPA a. 38b)), psychological maltreatment (YPA a. 38c)) and abandonment (YPA a. 38a)).

**Variety of maltreatment.** Based on the literature regarding the cumulative risk model (Arata et al, 2005; Edwards et al, 2003; Finkelhor et al, 2007; Jaffee et al, 2007; Rutter, 1979, 1988; Shen, 2009), a dichotomous variable was created for the number of different subtypes of substantiated maltreatment (i.e. physical abuse, sexual abuse, neglect, psychological maltreatment, and abandonment) experienced by a single individual, with one subtype coded as one subtype and two or more subtypes coded as multiple subtypes.

### **Statistical analyses**

Descriptive statistics and 95% confidence intervals of the means were utilized in order to draw a portrait of (1) the parameters of juvenile delinquency (i.e., precocity, volume, variety, average severity and presence of subtypes) for non-maltreated offenders and for crossover youth, (2) the parameters of maltreatment (i.e., recurrence, subtypes and variety) for crossover youth, and (3) the parameters of delinquency according to the parameters of maltreatment of crossover youth. All analyses were conducted with SPSS 22.

## **3.7 Results**

Of our judicial population of Quebec youth involved in juvenile delinquency, 32.3% were crossover youth. In terms of sex, 84.8% of non-maltreated youth offenders were male in comparison to 73.8% of crossover youth. One-time offenders represented 42.2% of non-maltreated youth offenders as compared to 28.8% of crossover youth.

Results pertaining to the first objective, which was to compare the parameters of juvenile delinquency for non-maltreated youth offenders and for crossover youth, are presented in Table I both overall and with sex-specific comparisons. Overall, findings revealed that crossover youth presented with a delinquency that was significantly more precocious, recurrent and varied than non-maltreated offenders, but their offences were of lesser average severity on the CSI. In terms of the presence of subtypes of juvenile delinquency, crossover youth were more likely to have committed crimes against the person, property crimes and weapons offences than non-maltreated youth offenders but were less likely to have committed drug offences. Finally, among crossover youth and across all parameters of juvenile delinquency, male juveniles presented with more serious indicators than female juveniles.

Results relating to the second objective, which was to describe the parameters of maltreatment for crossover youth, both overall and sex-specific, are presented in Table II. The majority of these youth experienced multiple incidents of maltreatment. In regards to the subtypes of maltreatment, 85.98% of crossover youth experienced neglect and boys were 1.4 times more likely to have been victims than girls. Next, 34.58% were victims of physical abuse and girls were 1.2 times more likely to have been victimized than boys. In addition, 21.27% experienced sexual abuse, and girls were 4.3 times more likely to have been victims in comparison to boys. Over 15% were victims of psychological maltreatment, with female youth 1.4 times more likely to be victimized. Finally, 11.29% were victims of abandonment, with male youth 1.3 times more likely to have such histories. In terms of the variety of maltreatment, the majority of male crossover youth experienced one subtype of maltreatment while most female crossover youth were victims of multiple subtypes.

Table 1. The parameters of juvenile delinquency for non-maltreated youth offenders and for crossover youth

Parameters of juvenile delinquency	Total			Male			Female		
	Non-maltreated youth N=29,145	Crossover youth N=13,929	$\eta$	Non-maltreated youth N=24,714	Crossover youth N=10,286	$\eta$	Non-maltreated youth N=4,431	Crossover youth N=3,643	$\eta$
Precocity	15.33 [15.31-15.34]	14.48 [14.46-14.51]	.267	15.35 [15.33-15.36]	14.44 [14.41-14.47]	.278	15.21 [15.17-15.26]	14.60 [14.56-14.65]	.210
Volume	3.38 [3.32-3.44]	5.88 [5.74-6.03]	.178	3.59 [3.53-3.66]	6.85 [6.66-7.03]	.210	2.18 [2.10-2.26]	3.15 [3.01-3.29]	.137
Variety	1.93 [1.91-1.95]	2.65 [2.62-2.69]	.202	2.00 [1.98-2.02]	2.95 [2.90-2.99]	.243	1.53 [1.51-1.56]	1.83 [1.79-1.87]	.143
Average severity	74.58 [73.08-76.09]	70.61 [68.54-72.68]	.014	77.53 [75.89-79.17]	76.58 [73.87-79.29]	.003	58.14 [54.43-61.85]	53.74 [51.83-55.65]	.022
Subtypes	N=29,159	N=13,937	OR	N=24,727	N=10,291	OR	N=4,432	N=3,646	OR
Person	37.57% [37.02-38.13]	56.34% [55.52-57.16]	2.144 [2.06 – 2.23]	37.41% [36.81-38.01]	57.27% [56.32-58.23]	2.243 [2.14 – 2.35]	38.49% [37.06-39.93]	53.70% [52.08-55.32]	1.853 [1.70 – 2.03]
Property	55.49% [54.92-56.06]	61.09% [60.28-61.90]	1.259 [1.21 – 1.31]	56.07% [55.45-56.69]	65.72% [64.80-66.63]	1.502 [1.43 – 1.58]	52.26% [50.79-53.73]	48.03% [46.40-49.65]	.844 [.773 – .922]
Weapons	4.24% [4.01-4.47]	5.43% [5.06-5.81]	1.296 [1.18 – 1.42]	4.82% [4.56-5.09]	6.80% [6.32-7.29]	1.440 [1.31 – 1.59]	0.99% [0.70-1.28]	1.56% [1.16-1.97]	1.584 [1.07 – 2.35]
Drug	30.62% [30.09-31.15]	28.69% [27.94-29.44]	.912 [.87 – .95]	32.47% [31.89-33.05]	31.37% [30.47-32.26]	.950 [.91 – 1.00]	20.28% [19.10-21.47]	21.12% [19.79-22.44]	1.052 [.94 – 1.17]

Table 2. The parameters of maltreatment for crossover youth

Parameters of maltreatment	Crossover youth			OR
	Total	Male	Female	
Reccurence	N=12,926	N=9,533	N=3,393	
One incident	46.60%	46.58%	46.68%	
Multiple incidents	53.40% [52.54-54.26]	53.42% [52.42-54.43]	53.32% [51.64-55.00]	.996 [.920 – 1.077]
Presence of subtypes	N=13,937	N=10,291	N=3,646	
Physical abuse	34.58% [33.79-35.37]	33.67% [32.76-34.58]	37.14% [35.57-38.71]	1.164 [1.076 – 1.259]
Sexual abuse	21.27% [20.59-21.95]	14.17% [13.49-14.84]	41.31% [39.71-42.90]	4.263 [3.912 – 4.647]
Neglect	85.98% [85.40-86.56]	87.19% [86.55-87.84]	82.56% [81.32-83.79]	.695 [.627 – .771]
Psychological maltreatment	15.10% [14.50-15.69]	14.01% [13.34-14.68]	18.16% [16.91-19.41]	1.361 [1.231 – 1.506]
Abandonment	11.29% [10.76-11.81]	11.91% [11.29-12.54]	9.52% [8.56-10.47]	.778 [.686 – .882]
Variety	N=13,937	N=10,291	N=3,646	
One subtype	52.22%	55.75%	42.27%	
Multiple subtypes	47.78% [46.95-48.61]	44.25% [43.29-45.21]	57.73% [56.13-59.34]	1.721 [1.594 – 1.857]

In accordance to the third objective, a description of the parameters of juvenile delinquency according to the parameters of maltreatment of crossover youth is presented in Table III. Crossover youth who experienced multiple incidents of maltreatment presented with offending that was more precocious ( $\eta = .097$ ), recurrent ( $\eta = .091$ ) and varied ( $\eta = .108$ ) than that of youth who experienced one incident and were more likely to have committed crimes against the person (OR= 1.422), property crimes (OR= 1.182) and weapons offences (OR= 1.255). The same pattern was maintained when disaggregated by sex, except that boys displayed no significant differences for weapons offences (one incident 6.26% [5.55-6.97]; multiple incidents 7.46% [6.74-8.18]) while

girls presented no differences for property crime (one incident 46.84% [44.38-49.30]; multiple incidents 48.98% [46.67-51.28]) and weapons offences (one incident 1.07% [0.57-1.58]; multiple incidents 2.16% [1.49-2.83]).

In terms of subtypes of maltreatment, youth who experienced psychological maltreatment committed their first offence more precociously ( $\eta = .082$ ) than victims of other subtypes. In addition, youth who were victims of abandonment committed a greater number ( $\eta = .046$ ) and variety of crimes ( $\eta = .041$ ) and were more likely to have committed property crimes (OR= 1.233) than victims of other subtypes. When disaggregated by sex, no such differences were observed between subtypes of maltreatment regarding parameters of delinquency.

Finally, in terms of the variety of maltreatment, crossover youth who were victims of multiple subtypes of maltreatment committed their first guilty offence at a younger age ( $\eta = .090$ ) on average than youth who experienced one subtype. Moreover, a greater proportion of these youth committed crimes against the person (OR= 1.318), but a lesser proportion committed drug offences (OR= .816). Among male crossover youth, those who experienced multiple subtypes of maltreatment presented with more precocious (one subtype 14.57 [14.53-14.61]; multiple subtypes 14.27 [14.23-14.32];  $\eta = .099$ ), recurrent (one subtype 6.47 [6.23-6.72]; multiple subtypes 7.32 [7.04-7.61];  $\eta = .044$ ) and varied delinquency (one subtype 2.86 [2.81-2.91]; multiple subtypes 3.05 [2.99-3.12];  $\eta = .045$ ) and were more likely to commit a crime against the person (one subtype 53.84% [52.55-55.13]; multiple subtypes 61.59% [60.18-63.01]; OR= 1.375). However, they were less likely to commit drug offences (one subtype 33.03% [31.81-34.25]; multiple subtypes 29.27% [27.95-30.59]; OR= .839). Among female crossover youth, those who experienced multiple subtypes of maltreatment presented with more precocious (one subtype 14.75 [14.68-14.82]; multiple subtypes 14.49 [14.43-14.56];  $\eta = .088$ ) and recurrent delinquency (one subtype 2.86 [2.68-3.04]; multiple subtypes 3.36 [3.16-3.57];  $\eta = .057$ ) and were more likely to commit a crime against the person (one subtype 50.36% [47.86-52.86]; multiple subtypes 56.15% [54.03-58.27]; OR= 1.262).

Table 3. The parameters of delinquency according to the parameters of maltreatment of crossover youth

Parameters of juvenile delinquency	Recurrence		Presence of subtypes					Variety	
	One incident N=6,022	Multiple incidents N=6,897	PA N=4,815	SA N=2,961	N N=11,979	PM N=2,104	A N=1,572	One subtype N=7,272	Multiple subtypes N=6,657
Precocity	14.62 [14.58-14.65]	14.33 [14.29-14.36]	14.43 [14.39-14.47]	14.35 [14.29-14.40]	14.43 [14.41-14.46]	14.19 [14.13-14.25]	14.54 [14.47-14.62]	14.61 [14.57-14.64]	14.34 [14.31-14.38]
Volume	5.19 [4.98-5.39]	6.81 [6.59-7.04]	6.01 [5.77-6.26]	5.52 [5.22-5.83]	6.00 [5.84-6.15]	5.34 [5.01-5.67]	7.01 [6.49-7.53]	5.71 [5.51-5.91]	6.07 [5.86-6.28]
Variety	2.46 [2.42-2.51]	2.91 [2.86-2.96]	2.70 [2.64-2.76]	2.45 [2.38-2.52]	2.69 [2.65-2.73]	2.47 [2.39-2.55]	2.89 [2.78-2.99]	2.63 [2.58-2.67]	2.68 [2.63-2.73]
Average severity	72.16 [68.47-75.84]	69.35 [66.77-71.94]	72.69 [68.17-77.21]	63.43 [61.23-65.63]	69.53 [67.49-71.57]	64.82 [62.03-67.61]	73.37 [63.95-82.80]	71.76 [69.23-74.30]	69.34 [66.01-72.67]
Presence of subtypes	N=6,024	N=6,902	N=4,819	N=2,964	N=11,983	N=2,104	N=1,573	N=7,278	N=6,659
Person	52.46% [51.20-53.72]	61.07% [59.92-62.22]	61.22% [59.84-62.59]	60.32% [58.56-62.09]	56.47% [55.58-57.36]	56.08% [53.96-58.21]	58.61% [56.18-61.05]	53.11% [51.96-54.25]	59.87% [58.70-61.05]
Property	59.40% [58.16-60.64]	63.36% [62.22-64.50]	59.47% [58.09-60.86]	56.65% [54.86-58.43]	61.83 [60.96-62.70]	60.69% [58.61-62.78]	65.42% [63.06-67.77]	61.42% [60.30-62.54]	60.73% [59.56-61.90]
Weapons	4.90% [4.35-5.44]	6.07% [5.51-6.63]	5.17% [4.54-5.79]	3.61% [2.94-4.28]	5.55% [5.14-5.96]	4.71% [3.80-5.61]	5.09% [4.00-6.17]	5.84% [5.30-6.38]	4.99% [4.46-5.51]
Drug	28.64% [27.49-29.78]	29.47% [28.39-30.55]	26.04% [24.80-27.28]	23.79% [22.25-25.32]	29.07% [28.25-29.88]	26.81% [24.91-28.70]	28.10% [25.88-30.32]	30.67% [29.61-31.73]	26.52% [25.46-27.58]

Note. PA = Physical abuse; SA= Sexual abuse; N=Neglect; PM= Psychological maltreatment; A= Abandonment.

### **3.8 Discussion**

The general aim of this study was to examine the characteristics of crossover youth through the description of official records within a judicial population of youth offenders and with greater specificity regarding their parameters of maltreatment and of juvenile delinquency than previously examined. Generally, results show that crossover youth demonstrate more problematic delinquency than non-maltreated offenders as assessed by their parameters of offending. Male crossover youth also present with more serious indicators across all parameters of juvenile delinquency in comparison to female crossover youth. In addition, the findings demonstrate that differential exposure to maltreatment is linked to heterogeneous parameters of juvenile delinquency.

Of the delinquent population examined in this study, 32.3% were crossover youth. This proportion is in line with previous research that found that between 26% and 60% of court-involved adolescents have maltreatment histories (Bender 2010; Ford, Chapman, Hawke, and Albert 2007; Mallett and Stoddard-Dare 2009; Sedlak and McPherson 2010; Stouthamer-Loeber, Wei, Homish, and Loeber 2002; Tuell 2002) but is considerably higher than the 16% reported by Halemba and Siegel (2011). This discrepancy may stem from that fact that the latter study assessed youth who had a history of youth protection legal activity or placement (Halemba and Siegel 2011) while the present study examined substantiated reports of maltreatment regardless of youth protection interventions. In the current study, 15.2% of non-maltreated offenders were female in comparison to 26.2% of crossover youth. This is in line with research that found that the percentage of female crossover youth was higher than that of non-crossover female offenders (Halemba and Siegel 2011; Herz and Ryan 2008; Ryan et al. 2007). However, the percentage of girls among crossover youth in this study (26.2%) was lower than in previous research (31%-40%; Halemba and Siegel 2011; Halemba et al. 2004). This may be due to differing definitions of maltreatment and delinquency, as the present study examined substantiated maltreatment as well as guilty offences while previous crossover youth studies assessed offender referrals or police contact (Halemba and Siegel 2011; Halemba et al. 2004; Kelley et al. 1997; Ryan et al. 2007) and maltreatment reports (Halemba et al. 2004; Ryan et al. 2007), regardless of the outcome. In addition, the elevated proportion of male crossover youth in this study (73.8%) diverges from research among the general

adolescent population, which found that male and female youth are equally at risk of maltreatment (Administration for Children and Families 2010, 2011). This suggests that male victims of maltreatment may be more likely to offend than female victims and are therefore overrepresented in the juvenile justice system, although such an assertion cannot be examined in the present study. In this vein, research has suggested that male victims of maltreatment are more likely to develop externalized conduct problems in comparison to female victims (Berzenski and Yates 2011). Alternatively, certain authors have suggested that the judicial decision making process may be subject to sex-based bias, thus making girls less likely to be criminally charged for their offences (Trépanier and Quevillon 2002; Zahn 2009).

### **Parameters of delinquency for non-maltreated and for crossover youth offenders**

The first objective of this study was to compare the parameters of juvenile delinquency for non-maltreated and crossover youth offenders through the use of populational official records. Results revealed that crossover youth committed their first guilty offence more precociously than did non-maltreated youth offenders. This finding is in line with Widom (1989), who found that maltreated youth offenders were more likely to be arrested a year earlier than non-maltreated youth offenders, and with other research regarding the precocity of delinquency in crossover youth (Halemba and Siegel 2011; Ryan et al. 2007). In terms of the volume of juvenile delinquency, crossover youth committed a greater number of guilty offences on average compared to their non-maltreated counterparts, a result that was coherent with previous findings (Halemba and Siegel 2011; Halemba et al. 2004; Kelley et al. 1997). Crossover youth were also responsible for more polymorphic delinquency than non-maltreated youth offenders, a finding that appears to be novel in the literature. In contrast, the offences committed by crossover youth were of lesser average severity than those of non-maltreated offenders, although this was not observable when disaggregated by sex. This result is somewhat in contradiction to previous reports from the United States suggesting that crossover youth committed more severe forms of offences, as these youth were more likely to be adjudicated on a felony matter in comparison to non-maltreated offenders (Halemba and Siegel 2011). However, evaluating offending severity through the likelihood of felony convictions is problematic, as the decision to try certain matters as misdemeanors or felonies

is often at the discretion of the judge and depends on circumstances such as criminal antecedents.

In terms of the forms of delinquency, more crossover youth committed crimes against the person compared to non-maltreated youth offenders, which is in line with Ryan and colleagues (2007) who found that crossover youth were more likely to be arrested for sexual and violent crimes. In addition, male crossover youth were more likely to have committed property crimes while female crossover youth were less likely to have committed such crimes in comparison to their non-maltreated counterparts. Next, male crossover youth were more likely to have committed weapons offences than male non-maltreated youth offenders. Finally, in overall but not in sex-specific comparisons, crossover youth were less likely to have committed drug offences than non-maltreated offenders. Globally, the likelihood of crimes against the person, property crimes and drug offences among crossover youth in this study is higher than in previous research conducted in the United States (Halemba et al. 2004; Herz and Ryan 2008). This may be due to the fact that juvenile delinquency research from the United States also includes “status offences”, which involve violations of the law only because of the youth's status as a minor (e.g., underage drinking, truancy, running away), which in Canada are generally treated as conduct problems and are handled by youth protection services (Bala and Anand 2009). Interestingly, across all parameters of juvenile delinquency, male crossover youth presented with more serious indicators than female crossover youth.

From a theoretical perspective, the present findings have implications for Lahey & Waldman's developmental model of the propensity to offend (2005), as youth who have experienced maltreatment generally presented with more serious indicators of delinquency than non-maltreated offenders. Therefore, the role of parental practices in the differential development of juvenile delinquency is corroborated, as the parents of these crossover youth either perpetrated the maltreatment themselves or failed to take the necessary steps to end this victimization. It is possible that certain underlying parental deficits may be the driving force behind the maltreatment – delinquency link, such as low affective ties and involvement with the child, explosive physical disciplinary styles, frequent irritable exchanges, poor teaching and problem-solving strategies, inconsistent standard setting (Thornberry & Krohn, 2005), low levels of parental supervision, the combination of erratic, threatening, and harsh discipline, and weak parental attachment (Sampson & Laub, 2005). However, future studies should also

investigate the individual characteristics and temperaments of youth in order to comprehensively understand the transactions in play.

### **Parameters of maltreatment for crossover youth**

The second objective of this study was to describe the parameters of maltreatment experienced by crossover youth. This explicit and comprehensive description is novel in the maltreatment-delinquency literature and contributes toward a more specific understanding of the victimization experiences of these youth offenders. In terms of recurrence, the majority of crossover youth experienced multiple incidents of maltreatment as opposed to a single instance. In regards to the presence of subtypes of maltreatment, 85.98% of crossover youth in this judicial population were victims of neglect, followed by physical abuse (34.58%), sexual abuse (21.27%), psychological maltreatment (15.10%) and abandonment (11.29%). According to the Administration for Children and Families in the United States (2010, 2011), 50-80% of reported and substantiated incidents of maltreatment among youth in the general population are instances of neglect, followed by physical abuse (17-27%), sexual abuse (9-17%), and psychological abuse (4-7%). Thus, the rank order of subtypes of maltreatment found in the present study is in line with findings within the general youth population, but the prevalences are greater, highlighting the overrepresentation of maltreated youth within the delinquent population. Furthermore, female crossover youth in this study were more likely to have histories of physical abuse, sexual abuse and psychological maltreatment than male crossover youth, while the latter were more likely to have experienced neglect and abandonment than their female counterparts. These findings both corroborate and contradict previous research among juvenile court populations, which found that girls were more likely than boys to have been victims of sexual abuse but were equally likely to have experienced physical abuse (Hennessey, Ford, Mahoney, Ko, and Siegfried 2004; Shelton 2004). Finally, in terms of the variety of maltreatment, most male crossover youth experienced one subtype of maltreatment, while female crossover youth mostly experienced multiple subtypes.

## **Parameters of juvenile delinquency according to the parameters of maltreatment of crossover youth**

The third objective was to describe the parameters of juvenile delinquency according to the parameters of maltreatment experienced by crossover youth. These results portray the characteristics of crossover youth with a greater specificity than previously examined in the literature and yield potential implications for interventions targeting these youth. Overall, crossover youth who experienced multiple incidents of maltreatment presented with a delinquency that was more precocious, recurrent and varied than that of youth who were victims of one incident, and were more likely to have committed crimes against the person, property crimes and weapons offences. This link between the recurrence of maltreatment and almost all parameters of offending supports the notion that continuous maltreatment may lead to more detrimental outcomes than short-lived incidents (Ireland et al. 2002). In this vein, some authors have suggested that for youth experiencing recurrent maltreatment, little opportunity for resilience and coping exists throughout their development, exacerbating their delinquent outcomes (Ireland et al. 2002). As for the variety of maltreatment, crossover youth who were victims of multiple subtypes of maltreatment committed their first guilty offence more precociously than youth who experienced one subtype and were more likely to have committed crimes against the person, but less likely to have committed drug offences. The present examination of the recurrence and variety of maltreatment in relation to the seriousness of offending partially supports the premises of the cumulative risk model. Indeed, crossover youth who experienced multiple instances and types of maltreatment presented with more detrimental outcomes, as evidenced by higher indicators on many parameters of juvenile delinquency.

Crossover youth who experienced psychological maltreatment committed their first offence more precociously than victims of other subtypes of maltreatment. Although it has been hypothesized that negative emotions such as anger (Plattner et al. 2007) and shame (Feiring 2005) may lead psychologically maltreated youth to commit offences, our finding regarding age of onset is a contribution to the literature. On the other hand, victims of abandonment in this study committed a greater number and variety of crimes than victims of other subtypes of maltreatment and were more likely to have committed property crimes.

These findings seem to be novel in the literature, as child abandonment is scarcely studied in terms of its links to negative outcomes. A potential explanation for the present results may derive from Lahey and Waldman's model of the propensity to offend (2005), which posits that throughout development, the interchangeable dimensions of a child's temperament evolve into complex adaptive and maladaptive behaviors through transactions with the environment. Transactions with parental reinforcement, modeling and other forms of social learning are perceived as especially important in the development of the youth (Lahey and Waldman 2005). As the environment of an abandoned youth is likely to be deprived of positive social learning opportunities, namely as they relate to parenting, negative outcomes may be exacerbated. Indeed, abandoned youth demonstrated greater recidivism and polymorphism than other maltreated youth in the present study. In addition, it may be hypothesized that the link between abandonment and property crimes is one of survival; these youth may be thieving and robbing in order to meet their basic needs. Future research is needed to shed light upon this hypothesis.

These present findings regarding the links between specific parameters of maltreatment and juvenile delinquency align themselves with the founding paradigms of DLC criminology, as they demonstrate that differential exposure to maltreatment victimization is associated to heterogeneous parameters of criminality. The importance of going beyond assessing the mere presence of maltreatment and offending is therefore highlighted and underscores the usefulness of the DLC perspective. However, future studies comprehensively examining DLC criminology should also consider the presence of protective factors.

### **Limitations and implications**

The findings of this study must be considered in light of their limitations. First, although official records present with many strengths, their use has limitations nonetheless. Official records may underestimate the true volume of crime and maltreatment depending on reporting and detection rates. In addition, some detected crimes do not lead to arrests by the police just as some real incidents of maltreatment do not lead to substantiations, and may therefore be excluded from official records (Kirk 2006). Second, the use of a judicial population entirely composed of youth that committed a crime to which they plead guilty or were convicted is a limitation of the present study. The availability of a maltreated but non-

delinquent group would have permitted further inquiry into the parameters of maltreatment and the likelihood of offending, as only a small portion of all victims of maltreatment become delinquent (e.g., Asscher et al., 2015; Stith et al. 2000). Third, due to a lack of information in the databases, important parameters of maltreatment, such as severity and timing, could not be examined. Despite these limitations, this judicial populational study contributes to the description of the characteristics of crossover youth with a greater specificity regarding their parameters of maltreatment and of juvenile delinquency than previously examined.

From a practical perspective, the results of this study suggest that different parameters of maltreatment are differentially linked to parameters of delinquency and have implications for the identification of youth at risk for serious offending. The findings may inform prevention programs within youth protection services in order to adequately target youth who have experienced certain dimensions of maltreatment that are linked to more problematic delinquency, such as multiple incidents and subtypes of maltreatment as well as being male. Importantly, attention should be paid to the possible unintended effects of certain youth protection interventions on future delinquency. For example, male maltreated youth placed in residential care seem to be at greater risk of offending than minors placed in foster care (Ryan, Marshall, Herz, & Hernandez, 2008).

Similarly, this study could inform screening practices and special handling of cases within the juvenile justice system (Halemba and Siegel 2011; Halemba et al. 2004). Screening for male youth who have experienced multiple incidents and subtypes of maltreatment, as well as the specific subtype of abandonment should be taken into consideration, as their risk for recidivism may be more elevated than that of other crossover youth or non-maltreated youth offenders. Here again, consideration should be placed on the type of intervention provided by the juvenile justice system, as certain measures may increase the likelihood of future criminality (Gatti, Tremblay, & Vitaro, 2009; Huizinga, Schumann, Ehret, & Elliott, 2001; McCord, Widom, & Crowell, 2001), namely interventions that confine young offenders together in institutions and separate them from the rest of society (Gatti et al., 2009).

Crossover youth are of special concern because of the particular obstacles in rehabilitating them and effectively minimizing negative outcomes (Mallett 2014). As such, these youth pose significant challenges to the youth protection and juvenile justice systems, which are generally individually designed to address a narrow set of issues (Spain and Waugh

2005). According to Mallett (2014), improved coordination across systems is therefore essential to improving outcomes and diverting maltreated youth from ongoing offending.



## **Chapter 4**

### **ARTICLE 2**

#### **Parameters of maltreatment as predictors of parameters of subsequent juvenile delinquency**

Sader, J., Guay, S., Geoffrion, S. & Lafortune, D. (2015). Parameters of maltreatment as predictors of parameters of subsequent juvenile delinquency. *Criminology*, submitted.



## **4.1 Abstract**

The goals of the current study were to examine whether specific parameters of maltreatment (i.e., recurrence and subtypes) predict certain parameters of juvenile delinquency (i.e., precocity, volume, variety, severity and subtypes) and to analyze sex differences. Multivariable analyses were run on the Quebec, Canada population of youth offenders who received a Youth Criminal Justice Act service between 2005 and 2010. Overall, the recurrence of maltreatment emerged as an important predictor of the parameters of subsequent offending. Moreover, maltreated boys demonstrated more problematic indicators of juvenile delinquency than maltreated girls. Findings point to the need for social and clinical interventions for young victims of maltreatment to be tailored to target their specific experiences in order to potentially hamper subsequent offending.



Among the many factors that predispose youth to becoming juvenile offenders, maltreatment has been well established (e.g., Ireland, Smith, & Thornberry, 2002; Lemmon, 1999; Maschi, Bradley, & Morken, 2008; Stewart, Livingston, & Dennison, 2008). It was suggested to be the most powerful predictor of overall delinquency, with a greater impact than factors such as family structure, socioeconomic status, verbal IQ, family size, or birth order (Heck & Walsh, 2000). In light of these consistent findings linking maltreatment to juvenile delinquency, recent studies have attempted to shed light on this relationship by examining whether certain parameters of maltreatment predict dimensions of youth offending. However, in addition to utilizing samples and self-report, many of these studies have lacked specificity, only assessing one or two types of maltreatment or one or two dimensions of crime (Evans & Burton, 2013; Topitzes, Mersky, & Reynolds, 2012).

Thus, the current judicial populational study seeks to exhaustively examine whether the parameters of maltreatment (i.e., recurrence and all subtypes) predict an array of parameters of subsequent juvenile delinquency (i.e., precocity, volume, variety, average severity and presence of subtypes). Before discussing the findings of this study, previous literature regarding important parameters of maltreatment in the prediction of delinquency is presented.

## **4.2 Dimensions of maltreatment as predictors of juvenile delinquency**

### **Recurrence of maltreatment**

The number of maltreatment incidents experienced by youth appears to be related to subsequent delinquency, although this dimension is rarely examined explicitly. For example, results have suggested that maltreatment recurrence is a significant factor in explaining increases in chronic and violent juvenile offending (Lemmon, 2006). In their study with male juvenile delinquents, Evans and Burton (2013) found similar results suggesting that the more frequently a youth experiences maltreatment, the more frequently he is likely to commit delinquent acts. The number of maltreatment incidents accounted for 12% to 35% of the frequency of offending. These findings, although scarce, suggest that the impact of continuous maltreatment may be more extensive than short-term maltreatment.

## **Subtypes of maltreatment**

Generally, maltreatment is conceptualized into five subtypes: physical abuse, sexual abuse, neglect, psychological maltreatment (Butchart, Phinney, Mian, & Fūrmiss, 2006; Quebec Ministry of Health and Social Services, 2010) and abandonment (Quebec Ministry of Health and Social Services, 2010). Throughout the literature, specific subtypes of maltreatment have been linked to juvenile delinquency, although findings are often contradictory. First, in contrast with more dated literature (Gutierrez & Reich, 1981; Widom & Ames, 1994), recent research has found that minors who experienced physical abuse are significantly more likely to commit violent and nonviolent crimes than youth who did not (Egeland, Yates, Appleyard, & van Dulmen, 2002; Lansford, Miller-Johnson, Berlin, Dodge, Bates, & Pettit, 2007; Mersky & Reynolds, 2007). In addition to physical abuse, Dembo and his colleagues (2007) found that many youths in contact with the juvenile justice system have experienced sexual abuse. However, one study found that children who suffered from sexual abuse have a decreased likelihood of being arrested for property offences (Maschi, 2006), while yet another reported that sexual abuse does not impact rates of violent crime (Widom & Maxfield, 1996). Next, the impact of psychological maltreatment, or emotional abuse, is understudied (Yates & Wekerle, 2009) namely as it relates to subsequent juvenile delinquency (Evans & Burton, 2013). In one study, the maltreatment trajectory most associated with juvenile delinquency was in part characterized by a higher likelihood of physical abuse as well as emotional abuse (Stewart et al., 2008). Parental neglect has also emerged as an important predictor of juvenile offending (Evans & Burton, 2013; Lemmon, 1999; Mersky & Reynolds, 2007) and has remained relatively unchallenged. In fact, one study found that physical neglect had the most significant effect on violent crime, nonviolent crime, status offense and property crime, as well as on total delinquency (Evans & Burton, 2013). Moreover, Lemmon (1999) found a significant association between the joint occurrence of abuse and neglect as well as neglect only, but not abuse only, and the presence of delinquency. According to Maughan and Moore (2010), lack of parental supervision and a disorganized, chaotic family may be crucial factors that link the concept of neglect to criminal activity. Finally, to our knowledge, there has been no research examining the presence of abandonment and its effects on youth offending. Overall, studies have failed to systematically consider the effects of all subtypes of

maltreatment on juvenile delinquency and a more comprehensive investigation is merited.

### **Limitations of the literature**

Certain limitations exist in previous research on maltreatment and youth offending. First, a great portion of this literature is plagued by methodological limitations. The common use of retrospective self-reports in order to measure maltreatment and delinquency (e.g., Egeland et al., 2002; Evans & Burton, 2013; Ford, Grasso, Hawke, & Chapman, 2013; Heck & Walsh, 2000; Ireland et al., 2002; Maschi et al., 2008; Maughan & Moore, 2010; Sigfusdottir, Asgeirsdottir, Gudjonsson, & Sigurdsson, 2008) calls into question the accuracy of the data. Voluntary or involuntary error, including social desirability and the unwillingness to report delicate subject matters, may lead to overreporting or underreporting (Evans & Burton, 2013; Dembo et al., 2007; Kirk, 2006). Thus, the present study will utilize official records regarding both maltreatment and juvenile delinquency. The use of such records allows for events to be recorded in an accurate temporal order within a lengthy time period and is thus ideal for the study of criminal career parameters (Farrington et al., 2003; Kirk, 2006).

Second, issues related to sample selection limit the generalizability of previous findings, as a large proportion of studies focuses exclusively on low-income youth (e.g., Lemmon, 1999; Mersky & Reynolds, 2007; Mersky, Topitzes, & Reynolds, 2012; Shaffer, Yates, & Egeland, 2009; Williams et al., 2010) and on boys (e.g., Evans & Burton, 2013; Heck & Walsh, 2000; Maschi et al., 2008; Maughan & Moore, 2010; Ward et al., 2010; Williams, Van Dorn, Bright, Jonson-Reid, & Nebbitt, 2010). Indeed, the differential effect of maltreatment for male and female victims has been a neglected topic in the literature. Yet, in order to be able to adequately intervene for juvenile delinquency, it is important to distinguish possible sex-specific links between different types of victimization and subsequent offending (Asscher, Van der Put, & Stams, 2015). Thus, in order to address this limitation and maximize generalizability, the present study will include the population of Quebec (Canada) male and female adolescents that pled guilty or were convicted of a crime between 2005 and 2010. In addition, possible sex-based differences in the maltreatment – delinquency links will be analyzed.

Third, theoretical limitations are present in the maltreatment and delinquency literature. Although traditional criminological theories such as strain theory (Agnew, 1992; Cloward &

Ohlin, 1960), social disorganization theory (Shaw & McKay, 1969), differential association theory (Sutherland & Cressey, 1974) and social control theory (Hirschi, 1969) attempt to explain the emergence of juvenile delinquency, little attention is paid to the nature and degree of exposure to risk factors as it relates to the nature and extent of subsequent offending. As a result, empirical studies examining the links between maltreatment and juvenile delinquency have often lacked specificity. Even those that have examined these two realities beyond their mere presence have generally assessed only one or two types of maltreatment (Evans & Burton, 2013) or one or two indicators of offending (Evans & Burton, 2013; Topitzes et al., 2012). Yet, maltreatment can vary along diverse dimensions (Kelley, Thornberry, & Smith, 1997) and criminality has many manifestations (Topitzes et al., 2012). Therefore, the present study suggests the developmental and life-course criminology perspective as an answer to this lack of precision.

### **4.3 Theoretical framework**

Developmental and life-course (DLC; Farrington, 2005) criminology will serve as the theoretical framework of this study, as it involves the study of specific risk factors for offending as well as of the heterogeneity of criminal careers (Lahey & Waldman, 2005). In fact, DLC criminology is in many ways an expansion upon the traditional criminal career paradigm (Blumstein, Cohen, Roth, & Visher, 1986), by adding in the crucial study of risk factors and life events (Farrington, 2005). In brief, the DLC perspective seeks to document the development of offending and to measure the features of criminal careers all while identifying the key life events, risk factors and protective factors related to offending (Farrington, 2005). A DLC perspective can potentially inform the development of intervention and prevention programs aimed at reducing the impact of risk factors associated with long-term and high-rate criminality (Day et al., 2011).

Within the DLC perspective, Benjamin Lahey and Irwin Waldman's developmental model of the propensity to offend (2005) integrates the most useful constructs from previous causal models into a developmental framework. In fact, this model is in many ways a developmental extension of traditional social learning theory (Akers, 1998) and posits that

social learning plays a key role for youth in development, but in ways that mirror the individual characteristics of the child (Lahey & Waldman, 2005). Put simply, Lahey and Waldman attempt to explain the predisposition to commit crimes through the reciprocal interactions or “transactions” between the child’s temperament and his or her social context (Lahey & Waldman, 2005). This transactional developmental model will frame the present study, as it places the parents at the heart of the development of conduct problems in their offspring (Lahey & Waldman, 2005). Specifically, Lahey and Waldman perceive the transactions between the child’s temperament and parental reinforcement, modeling, persuasion and other forms of social learning as the core of the causal processes of conduct problems, as parents typically provide the majority of social influences in a child’s environment (Lahey & Waldman, 2005). Because the family is the primary socializing agent, the importance of studying the parameters of maltreatment and their impact on the parameters of juvenile delinquency is highlighted.

In addition, there is a need to examine the ecological context in which maltreatment takes place and how risk factors co-occur and lead to negative outcomes (Belsky, 1980; Cicchetti & Lynch, 1993; Mersky & Reynolds, 2007). Thus, the cumulative risk model, a gradual developmental and ecological approach to the explanation of juvenile delinquency, will be included in the current study. In the most general sense, this model posits that the greater the number of stressors or risk factors present, the greater the risk that a negative outcome will ensue. In addition, there is a cumulative effect of risk factors both within and across time (Craig et al., 2011; Greenwald, 2002). In the present study, stressors will correspond to the number of incidents of experienced maltreatment (i.e., recurrence) and the examined negative outcome will be the extent and nature of offending as measured by the parameters of juvenile delinquency. Based on the cumulative risk model, it is hypothesized that an elevated number of incidents of maltreatment will be associated with more extensive offending as measured by the dimensions of delinquency.

## 4.4 Objectives

Attention has been called to the fact that many maltreatment–delinquency studies have only assessed one or two types of maltreatment or one or two dimensions of crime in their samples (Evans & Burton, 2013; Topitzes et al., 2012). Such limited definitions prevent insight into the varying manifestations of criminality with which different parameters of maltreatment might be associated (Topitzes et al., 2012). Thus, the general objective of this study is to comprehensively examine the links between the parameters of maltreatment and dimensions of subsequent offending. Moreover, this study has implications for policy, prevention and intervention efforts that target the challenging cases of youth who experience both maltreatment and delinquency. The findings should therefore be of interest to policymakers and practitioners in a position to prevent or intervene upon maltreatment and youth offending.

The specific objectives are:

- (1) To examine whether the parameters of maltreatment (i.e., recurrence and all subtypes) predict certain parameters of juvenile delinquency (i.e., precocity, volume, variety, average severity and presence of subtypes);
- (2) To analyze sex differences.

## 4.5 Methods

### Data source

#### *Overview of the population*

The data source was comprised of official records for the population of Quebec, Canada male and female adolescents aged between 12 and 17 years old that pled guilty or were convicted of a crime and therefore received a service from the Youth Criminal Justice Act (YCJA) between January 1<sup>st</sup> 2005 and December 31<sup>st</sup> 2010. Of this judicial population, 81.3% were male. Caucasians represented 87.7%, 4.0% were Black, 2.3% were Aboriginal, and 6.0% belonged to another visible minority. The most common form of physical custody

was sole custody for the mother (30.5%), followed by the parents living together (15.6%) and sole custody for the father (10.4%).

### **Data collection**

The present study utilized data collected by Lafortune et al. (2014). The research ethics board of the Philippe-Pinel Institute of Montreal and a judge of the Court of Quebec granted approval for data collection. Data were therefore obtained from the informational databases at the disposal of each of Quebec's Youth Centers. Through the use of these official records, the trajectory of the 43,096 youths that pled guilty or were convicted of a crime was observed from the date of their initial contact with a Youth Center (whether under the Youth Protection Act (YPA) or the YCJA) until December 31, 2010 or their date of majority or their date of death, whichever occurred first. Three sets of variables were extracted from these databases: personal characteristics of the youth, characteristics of the offences and characteristics of the decisions made under the YPA.

In order to adequately examine parameters of maltreatment as predictors of subsequent offending, youth whose first guilty offence preceded their first substantiated incident of maltreatment were excluded from this study. Following these exclusions, a population of 34,200 youth remained.

### **Operationalization of variables**

#### *Parameters of juvenile delinquency*

**Precocity of juvenile delinquency.** Precocity of delinquency was defined as the age at which the individual committed his or her first crime for which there was a guilty verdict. These ages ranged from 12 to 17 years old, in accordance with the YCJA.

**Volume of juvenile delinquency.** Volume of delinquency was defined as the total number of crimes committed by a single individual for which there was a guilty verdict from the date of initial contact with a Youth Center (whether YPA or the YCJA) until December 31, 2010 or the date of maturity or the date of death, whichever occurred first. A count variable was therefore created.

**Variety of juvenile delinquency.** Variety of delinquency was defined as the number of different categories of crimes for which there was a guilty verdict committed by an

individual, for a maximum of 25 categories: Sexual assaults; other sexual offences; physical assaults; kidnapping, forcible confinement and hostage taking; homicides; uttering threats and criminal harassment; motor vehicle offences; operation of motor vehicle while impaired; other unspecified crimes against the person; frauds; arsons; breaking and entering; mischief; public mischief; thefts; fraudulent concealment; robberies; weapons offences; drug offences; cruelty to animals; conspiracy and acting as accessory; obstruction of justice; unlawfully at large; court order violations; other unspecified offences.

**Average severity of juvenile delinquency.** The severity of crimes was calculated according to the Crime Severity Index (CSI; Wallace, Turner, Matarazzo, & Babyak, 2009), using weights attributed to each infraction by Statistics Canada based on court rulings. The more serious the average sentence, the higher the weight for that offence. These weights vary between 1 and 7042, with 1 representing the least severe crime and 7042 representing murder in the first degree. Average severity was obtained by calculating the mean weight of all crimes for which there was a guilty verdict committed by an individual.

**Presence of subtypes of juvenile delinquency.** A dichotomous variable assessing the presence or absence of a guilty verdict for each subtype of juvenile delinquency was created.

*Crime against the person* refers to a guilty verdict for at least one of the following crimes: Sexual assault; other sexual offences; kidnapping; forcible confinement; hostage taking; homicide; physical assault; uttering threats; criminal harassment.

*Property crime* refers to a guilty verdict for at least one of the following crimes: Fraud; arson; breaking and entering; mischief; fraudulent concealment; theft; robbery; extortion.

*Weapons offence* refers to a guilty verdict for at least one of the following crimes: Pointing a firearm; contravention of regulations; possession of weapon for dangerous purpose; carrying concealed weapon; possession of prohibited or restricted firearm with ammunition; possession for purpose of weapons trafficking; unauthorized possession of prohibited weapon or restricted weapon; weapons trafficking; using firearm in commission of offence; using imitation firearm in commission of offence; careless use of firearm; unauthorized possession of firearm.

*Drug offence* refers to a guilty verdict for at least one of the following crimes: Trafficking in substance; possession of substance; possession for purpose of trafficking; production of substance.

### *Parameters of maltreatment*

**Presence of maltreatment.** A dichotomous variable assessing the presence or absence of maltreatment was created in order to include only maltreated youths in the multivariable analyses. Maltreated youths were defined as having experienced at least one substantiated incident of maltreatment (i.e., physical abuse, sexual abuse, neglect, psychological maltreatment and abandonment) in accordance with the YPA. The substantiation of incidents implies that the security or development of the minor is compromised, following a detailed analysis of his or her living conditions (Roc, 2011). As previously mentioned, in order to gauge the impact of maltreatment on subsequent offending in the correct temporal order, the date of the first substantiated report of maltreatment preceded the date of commission of the first guilty offence.

**Recurrence of maltreatment.** To evaluate the recurrence of maltreatment, a count variable was created for the number of incidents of substantiated maltreatment from the date of initial contact with a Youth Center (whether YPA or the YCJA) until December 31, 2010 or the date of maturity or the date of death, whichever occurred first.

**Presence of subtypes of maltreatment.** A dichotomous variable assessing the presence or absence of a substantiated incident of *physical abuse*, *sexual abuse*, *neglect*, *psychological maltreatment* and *abandonment* was created. The motives of the substantiated incidents of maltreatment were registered using the definitions of the Youth Protection Act (YPA) of Quebec.

### *Control variables*

**Custody of the youth.** Given the body of literature linking “broken homes” to juvenile delinquency (e.g., Day et al., 2011; Ward et al., 2010), custody of the child was controlled for to highlight the unique influence of maltreatment. A dichotomous variable assessed the presence of a *nuclear home* (0), defined as a family in which the child lives with both the mother and the father in the same household, or a *non-nuclear home* (1).

**Ethnicity.** Ethnicity was controlled in the goal of maximizing the generalizability of the findings. Self-reported or parent-reported ethnicity was dichotomized as *Caucasian* (0) or *non-Caucasian* (1).

**Material and social deprivation.** Using the Pampalon Deprivation Index (Pampalon & Raymond, 2000), this study controlled for material and social deprivation as a proxy of socioeconomic status. The Pampalon Deprivation Index is an ecological estimate of the levels of material (e.g., education, employment, revenue and accessibility of goods and services) and social (e.g., marital status and social, familial and community connections) deprivation of individuals (Pampalon & Raymond, 2003). The index is allocated according to the dissemination area in which the youth resides. The dissemination area is a small, relatively stable geographic unit composed of one or more neighbouring blocks of 400 to 700 inhabitants. It is the smallest standard geographic area for which the Statistics Canada census tabulates information. The version of the Pampalon Deprivation Index utilized in this study stemmed from the 2006 Statistics Canada census. Dissemination areas were linked to specific youth based on the postal code of their last known address.

**Sex.** The sex of the youth was assessed and coded as *female* (0) or *male* (1).

### **Statistical analyses**

Multivariable analyses with prediction models that included the parameters of maltreatment and control measures were conducted for each parameter of juvenile delinquency, accounting for interactions with the sex of the youth. For the precocity and average severity of delinquency, multiple linear regressions were selected as they allow for the prediction of a quantitative interval variable using qualitative dichotomous variables (i.e., subtypes of maltreatment) and quantitative interval variables (i.e., recurrence of maltreatment). Negative binomial regressions were employed for the models predicting the volume and variety of delinquency. Negative binomial regression is used when the dependent variable takes on a Poisson-like distribution but its variance exceeds its mean and is thus overdispersed (Wooldridge, 2000). Finally, logistic regressions were utilized in the prediction of the binary presence or absence of subtypes of juvenile delinquency. Because of the elevated number of subjects in the utilized population, the level of statistical significance was set at  $p < .001$ . All analyses were conducted with SPSS 22.

## 4.6 Results

Within this judicial population of 34,200 youth offenders, the average age at the first guilty offence was 15.18 years. They each committed an average of 3.59 crimes within a mean of 1.98 categories of offences. Forty percent of youth perpetrated crimes against the person, 56% committed property crimes, 4% committed weapons offences, and 29% were responsible for drug offences. Of this population of juvenile offenders, 8,674 youth (25.4%) had histories of substantiated maltreatment under the YPA, 73.8% of which were boys. Among maltreated youth, 41.1% were victims of physical abuse, 23.5% of sexual abuse, 88.4% of neglect, 15.4% of psychological maltreatment and 12.8% of abandonment. On average, maltreated youth experienced 1.95 incidents of substantiated maltreatment.

Bivariate analyses (Spearman and Chi-square) were conducted on the parameters of maltreatment and subsequent juvenile delinquency and are presented in Table 1. Numerous small but statistically significant correlations were found between these parameters, ranging from .018 to .235 (Cohen, 1988).

Next, all multivariable analyses were conducted with only maltreated youth offenders (N= 8,674). First, multiple linear regressions predicting the precocity of juvenile delinquency were conducted and are presented in Table 2. The model demonstrated an adjusted  $R^2$  of .039 ( $p = .000$ ), indicating that the proportion of variance explained by the independent variables was weak but statistically significant. In descending order of effect size, the recurrence of maltreatment, psychological maltreatment, neglect, being male, sexual abuse and being from a non-nuclear family were significantly negatively associated with the outcome. Sex differences did not moderate the association between parameters of maltreatment and the precocity of juvenile delinquency (not shown in table).

Second, negative binomial regressions predicting the volume of delinquency were conducted and are presented in Table 3. Each unit of social deprivation, neglect, being non-Caucasian, being male and each incident of maltreatment increased the logs of expected counts of volume. Sex differences did not moderate the association between parameters of maltreatment and the volume of offending.

Table 1. Bivariate associations between parameters of maltreatment and subsequent juvenile delinquency (N= 34,200)

Parameters of maltreatment	Parameters of juvenile delinquency							
	Precocity	Volume	Variety	Severity	Subtypes			
					Person	Property	Weapons	Drugs
Recurrence	-.230*	.195*	.195*	.026*	.185*	.053*	.033*	-.026*
Subtypes								
Physical abuse	-.145*	.131*	.130*	.019*	.139*	.023*	.018*	-.029*
Sexual abuse	-.127*	.071*	.060*	-.011	.101*	.001	-.005	-.033*
Neglect	-.235*	.180*	.181*	.018*	.170*	.051*	.029*	-.024*
Psychological maltreatment	-.127*	.059*	.055*	-.010	.068*	.019*	.000	-.014
Abandonment	-.077*	.087*	.083*	.010	.067*	.031*	.006	-.008

\* $p < .001$

Table 2. Multiple linear regression model for the precocity of juvenile delinquency

$R^2 = .039^*$	B	$\beta$	$p$
Custody	-.171	-.042	.000
Ethnicity	.145	.035	.003
Material deprivation	-.742	-.022	.057
Social deprivation	.347	.010	.393
Sex	-.250	-.073	.000
Recurrence	-.100	-.096	.000
Subtypes			
Physical abuse	-.066	-.022	.072
Sexual abuse	-.186	-.053	.000
Neglect	-.353	-.073	.000
Psychological maltreatment	-.314	-.078	.000
Abandonment	.087	.019	.094

\* $p < .001$

Third, negative binomial regressions predicting the variety of delinquency were conducted and are presented in Table 4. The model revealed that each unit of social deprivation, being non-Caucasian, being male and each additional incident of maltreatment increased the logs of expected counts of variety. Sex differences did not moderate the association between parameters of maltreatment and the variety of delinquent acts.

Fourth, average severity was recoded into its rank ordering from smallest to largest.

The multiple linear regression model predicting the ranked average severity of delinquency is presented in Table 5. No parameters of maltreatment significantly predicted the outcome variable. In addition, sex differences did not moderate the association between parameters of maltreatment and the average severity of juvenile delinquency.

Table 3. Negative binomial regression model for the volume of juvenile delinquency

McFadden Pseudo $R^2 = .4686$	B	SE	<i>p</i>
Custody	.105	.0362	.004
Ethnicity	.368	.0356	.000
Material deprivation	-.111	.2920	.705
Social deprivation	1.953	.3061	.000
Sex	.769	.0314	.000
Recurrence	.115	.0101	.000
Subtypes			
Physical abuse	.078	.0272	.004
Sexual abuse	.080	.0322	.012
Neglect	.170	.0449	.000
Psychological maltreatment	-.114	.0354	.001
Abandonment	.051	.0382	.180

Fifth, logistic regressions predicting the presence of subtypes of juvenile delinquency were conducted. The model predicting crimes against the person model is presented in Table 6. In descending order, social deprivation (8.07 times), being non-Caucasian (1.56 times), the presence of physical abuse (1.30 times), being male (1.24 times) and each additional incident of maltreatment (1.11 times) increased the likelihood of such crimes. Sex differences were not found to moderate the association between parameters of maltreatment and the commission of crimes against the person.

In the property crime model (Table 7), being male increased the risk of commission by 1.94 times while each additional incident of maltreatment increased the likelihood by 1.08 times. Sex differences were not found to moderate the association between parameters of maltreatment and the commission of property crimes.

Table 4. Negative binomial regression model for the variety of juvenile delinquency

McFadden Pseudo R <sup>2</sup> = .4786	B	SE	<i>p</i>
Custody	.033	.0389	.401
Ethnicity	.199	.0383	.000
Material deprivation	-.008	.3134	.979
Social deprivation	1.200	.3279	.000
Sex	.459	.0339	.000
Recurrence	.071	.0108	.000
Subtypes			
Physical abuse	.052	.0296	.080
Sexual abuse	-.001	.0349	.988
Neglect	.091	.0484	.061
Psychological maltreatment	-.070	.0382	.067
Abandonment	.019	.0413	.640

Table 5. Multiple linear regression model for the ranked average severity of juvenile delinquency

R <sup>2</sup> = .001	B	$\beta$	<i>p</i>
Custody	274.050	.008	.507
Ethnicity	-526.242	-.015	.208
Material deprivation	-2006.130	-.007	.551
Social deprivation	-5228.524	-.018	.136
Sex	-137.421	-.005	.695
Recurrence	-274.639	-.031	.016
Subtypes			
Physical abuse	331.791	.013	.295
Sexual abuse	-255.570	-.009	.490
Neglect	-598.683	-.015	.240
Psychological maltreatment	-294.700	-.009	.466
Abandonment	-536.639	-.014	.226

\**p* < .001

Next, in the weapons offences model (Table 8), being male and non-Caucasian increased the risk of commission by 5.60 and 2.73 times. Once again, sex differences did not moderate the association between parameters of maltreatment and the commission of weapons offences.

Table 6. Logistic regression model for the presence of crimes against the person

Nagelkerke= .034*	<i>B</i>	<i>SE</i>	<i>Exp(B)</i>	<i>95% C.I.</i>
Custody	.096	.066	1.101	[.967 – 1.254]
Ethnicity	.447	.069	1.563*	[1.365 – 1.789]
Material deprivation	1.367	.546	3.925	[1.347 – 11.436]
Social deprivation	2.088	.564	8.066*	[2.670 – 24.363]
Sex	.214	.056	1.239*	[1.109 – 1.383]
Recurrence	.104	.019	1.110*	[1.070 – 1.151]
Subtypes				
Physical abuse	.265	.051	1.304*	[1.180 – 1.441]
Sexual abuse	.196	.060	1.217	[1.081 – 1.369]
Neglect	.008	.082	1.008	[.859 – 1.183]
Psychological maltreatment	-.040	.065	.961	[.846 – 1.092]
Abandonment	-.011	.072	.989	[.859 – 1.139]

\**p* < .001

Table 7. Logistic regression model for the presence of property crimes

Nagelkerke= .036*	<i>B</i>	<i>SE</i>	<i>Exp(B)</i>	<i>95% C.I.</i>
Custody	.034	.067	1.034	[.907 – 1.179]
Ethnicity	.040	.068	1.040	[.910 – 1.189]
Material deprivation	-.369	.547	.691	[.236 – 2.021]
Social deprivation	.806	.571	2.238	[.731 – 6.852]
Sex	.663	.056	1.942*	[1.739 – 2.167]
Recurrence	.078	.019	1.082*	[1.042 – 1.123]
Subtypes				
Physical abuse	-.058	.052	.944	[.853 – 1.045]
Sexual abuse	-.076	.060	.927	[.824 – 1.043]
Neglect	.152	.082	1.165	[.992 – 1.367]
Psychological maltreatment	.023	.066	1.024	[.899 – 1.165]
Abandonment	.095	.074	1.099	[.952 – 1.270]

\**p* < .001

In the drug offences model (Table 9), material deprivation and being non-Caucasian decreased the risk of offences by 13.33 and 1.64 times while being male and each incident of maltreatment increased the risk by 1.50 and 1.08 times. Sex differences did not moderate the link between parameters of maltreatment and the commission of drug offences.

Table 8. Logistic regression model for the presence of weapons offences

Nagelkerke= .080*	<i>B</i>	<i>SE</i>	<i>Exp(B)</i>	95% <i>C.I.</i>
Custody	.220	.157	1.246	[.917 – 1.694]
Ethnicity	1.004	.120	2.730*	[2.156 – 3.457]
Material deprivation	-2.105	1.153	.122	[.013 – 1.166]
Social deprivation	4.213	1.245	67.553	[5.884 – 775.524]
Sex	1.722	.213	5.596*	[3.688 – 8.492]
Recurrence	.117	.038	1.124	[1.043 – 1.212]
Subtypes				
Physical abuse	-.171	.115	.843	[.673 – 1.056]
Sexual abuse	-.104	.145	.901	[.687 – 1.198]
Neglect	-.144	.180	.866	[.608 – 1.233]
Psychological maltreatment	-.143	.154	.867	[.640 – 1.173]
Abandonment	-.315	.165	.730	[.528 – 1.009]

\* $p < .001$

Table 9. Logistic regression model for the presence of drug offences

Nagelkerke= .030*	<i>B</i>	<i>SE</i>	<i>Exp(B)</i>	95% <i>C.I.</i>
Custody	.106	.077	1.112	[.957 – 1.293]
Ethnicity	-.492	.084	.611*	[.519 – .720]
Material deprivation	-2.585	.633	.075*	[.022 – .261]
Social deprivation	-1.211	.639	.298	[.085 – 1.043]
Sex	.407	.067	1.502*	[1.317 – 1.713]
Recurrence	.074	.020	1.076*	[1.034 – 1.120]
Subtypes				
Physical abuse	-.095	.058	.910	[.812 – 1.019]
Sexual abuse	-.202	.069	.817	[.714 – .936]
Neglect	.149	.098	1.161	[.959 – 1.406]
Psychological maltreatment	-.022	.074	.978	[.847 – 1.130]
Abandonment	-.050	.081	.951	[.812 – 1.115]

\* $p < .001$

## 4.7 Discussion

The goals of the current study were to examine whether dimensions of substantiated maltreatment predict certain parameters of juvenile delinquency and to assess possible sex differences. The investigation of a population of 34,200 youth offenders revealed that the

parameters of maltreatment generally predicted a weak but significant proportion of the variance of the parameters of delinquency. Overall, the recurrence of maltreatment was as an important predictor of the parameters of subsequent delinquency. In addition, maltreated boys demonstrated more problematic indicators of juvenile delinquency than maltreated girls.

### **Precocity of juvenile delinquency**

Among the parameters of juvenile delinquency that this study sought to predict was precocity, or the age at which an individual committed his or her first guilty offence. Youth who were neglected, sexually abused, psychologically maltreated or victims of multiple incidents of maltreatment were likely to have an earlier age of onset of delinquency. Although previous research has suggested that maltreated youth demonstrate an earlier onset of delinquency than non-maltreated youth (e.g., Tuell et al., 2002), no known studies have investigated this relationship with specific parameters of maltreatment. Thus, the present findings appear to be novel in the maltreatment – delinquency literature. A potential explanation for these findings may emerge from Moffitt’s (1993) description of life-course persistent antisocial behavior. According to her developmental taxonomy, individuals who exhibit life-course persistent antisocial behavior are characterized by deficits in executive functions and verbal intelligence that interact with negative environments, such as low socioeconomic status or ineffective parenting, to produce an early onset of antisocial or delinquent behavior. The predictors of precocity identified in this study may be indicative of such ineffective parenting.

### **Volume and variety of juvenile delinquency**

The current study also sought to predict the volume of delinquency, or the total number of guilty crimes committed by an individual, from parameters of maltreatment history. First, the number of incidents of maltreatment in a youth’s history was significantly associated with the number of offences committed by this youth. This study therefore supports the cumulative risk model and past research (Evans & Burton, 2013; Ireland et al., 2002; Lemmon, 2006; Maschi et al., 2008; Stewart et al., 2008; Verrecchia, Fetzer, Lemmon, & Austin, 2011) that found that the more frequently a youth suffers maltreatment the more frequently he or she will commit delinquent offences. The recurrence of maltreatment also predicted the variety, or

polymorphism, of subsequent juvenile delinquency. To our knowledge, this finding is novel in the maltreatment – delinquency literature and may be related to the covariation between the volume and variety of juvenile delinquency in the present study ( $r = .795, p < .01$ ). Second, being a victim of neglect was associated with committing a greater number of offences. This is coherent with Evans and Burton's (2013) study that found that neglect predicted the frequency of delinquent acts. Neglect has been linked to low levels of academic achievement in past research (Eckenrode, Laird, & Doris, 1993), which may impair the decision making capacities of victimized youth (Evans & Burton, 2013), rendering them more susceptible to engage in ongoing delinquency. Alternatively, neglect may be indicative of a lack of parental supervision, which may provide youth with opportunities to engage in recurrent criminal activities (Evans & Burton, 2013; Maughan & Moore, 2010).

### **Average severity of juvenile delinquency**

The current study also sought to predict the average severity of juvenile delinquency from the parameters of maltreatment history. Results showed that no specific parameters of maltreatment significantly predicted the average severity of subsequent delinquency. This finding is somewhat in contrast with that of Hoeve and colleagues (2008) who found that neglectful parenting predicted criminal trajectories characterized by an elevated severity of infractions. As previously mentioned, the severity of offending as operationalized in this study relied on Statistics Canada's Crime Severity Index (CSI), which is based on the average sentence handed out by Canadian courts for each infraction. This index is not without its limitations. Sentencing decisions are based on a variety of legal and extralegal factors, such as the presence of antecedents and offender characteristics, and therefore are not directly representative of the committed offence. Alternatively, our non-significant results may stem from the fact that the *average* severity of offending was utilized while youth often demonstrate recurring and polymorphic delinquency whose severity is not adequately portrayed through an average.

### **Presence of subtypes of juvenile delinquency**

Findings revealed that a history of physical abuse was significantly associated with an increased risk of committing crimes against the person. These results are in line with previous

research (Asscher et al., 2015; Lansford et al., 2007; Mersky & Reynolds, 2007), which found that physical abuse predicted subsequent violent delinquency. Children who are physically abused may be more likely to develop biased patterns of processing social information, such as the tendency to infer hostile attributions about others' intentions, to access retaliatory responses, and to view violence as morally acceptable (Lansford et al., 2007). These biased cognitive patterns may in turn mediate the association between physical abuse and subsequent violent behavior (Dodge et al., 1995). In addition, the experience of multiple incidents of maltreatment was linked to an increased risk of committing crimes against the person. This finding corroborates the cumulative risk model and Lemmon's (2006) research, which found that maltreatment recurrence was a significant factor in explaining increases in violent offending.

Once again in line with the cumulative risk model, results demonstrated that the experience of multiple incidents of maltreatment was linked to an increased risk of committing property crimes and drug offences. Although past evidence has shown that the presence of a history of maltreatment is predictive of property (Cronley, Jeong, Davis, & Madden, 2015; Loeber, Farrington, Stouthamer-Loeber, & White, 2008; Mersky, Topitzes, & Reynolds, 2012; Zingraff, Leiter, Johnsen, & Myers, 1993) and drug crime (Mersky et al., 2012), no known studies have examined the impact of the recurrence of this maltreatment. Similarly to what has been hypothesized with homeless youth (Zlotnick, Tam, & Soman, 2012), maltreated youth may be lacking adequate family and social networks and may be particularly vulnerable to relying on survival skills, including criminal behavior such as theft and drug dealing, to meet their needs. Future research should be directed toward illuminating the connection between maltreatment and property and drug crimes, and specifically as they relate to the experience of multiple incidents of abuse or neglect.

### **Revisiting the maltreatment – delinquency link**

The predictive values of social deprivation, which was conceptualized as a proxy for socioeconomic status, as well as ethnicity, are noteworthy. According to Lahey and Waldman's developmental model of the propensity of offend (2005), multiple environmental factors associated with lower socioeconomic status influence the developmental transition from antisocial propensity to conduct problems. These factors include living in

neighbourhoods with high crime rates, attending schools with delinquent peers, and lack of familial economic resources, which affect access to such services as daycare, extracurricular activities and mental health services (Harnish, Dodge, & Valente, 1995; Kilgore, Snyder, & Lentz, 2000). Thus, these environmental circumstances foster the social learning of conduct problems in underprivileged youth (Caspi, Taylor, Moffitt, & Plomin, 2000). It is important, however, to note that most children living in low socioeconomic circumstances do not engage in serious antisocial behavior (Lahey & Waldman, 2005). In addition, as corroborated by the present findings, evidence has suggested that there are ethnic differences in the rates of certain types of crimes, such as weapons offences, even after controlling for sex, income and family structure (Blum et al., 2000). These differences may be attributable to the relatively stronger tendency of non-Caucasian youth to join antisocial gangs in comparison to Caucasian adolescents (Lahey & Waldman, 2005; Lahey, Gordon, Loeber, Stouthamer-Loeber, & Farrington, 1999). There is in fact evidence from longitudinal studies demonstrating that, during the period of gang membership, gang members show marked increases in the frequency certain crimes, such as violent offences (Gordon, Lahey, Kawai, Loeber, Stouthamer-Loeber, & Farrington, 2004).

Despite our prediction models being significant, the parameters of maltreatment examined in this study accounted for only a small fraction of the variance of the parameters of juvenile delinquency. A first explanation for this result is that the population utilized in this study was entirely made up of youth offenders. The inclusion of non-delinquent youth may have increased the variance in the present models. Second, it may be important to include real-life correlates of maltreatment in prediction models in order to comprehensively capture the risk factors that predict juvenile offending. These risk factors, categorized into five life domains (individual, family, peer, school, and community), may include such realities as attention problems, post-traumatic stress disorder symptoms, substance use, parental criminality, poor academic achievement, and delinquent peer association, in addition to maltreatment (Becker & Kerig, 2011; Day et al., 2011). Finally, it should also be noted that a thorough and comprehensive assessment of the links between maltreatment and delinquency should include the impact of protective and resilience factors on the development of adaptive and maladaptive outcomes (Loeber, Farrington, Stouthamer-Loeber, & White, 2008; Löesel & Bender, 2003).

## **Implications**

The present results have a number of theoretical implications. As different parameters of maltreatment were shown to predict differential dimensions of subsequent juvenile delinquency, the importance of utilizing a DLC perspective in maltreatment – delinquency research is bolstered. In fact, in contrast to theoretical models used in the past, DLC criminology allows for the study of the impact of specific risk factors for offending on heterogeneous criminal careers. However, future studies utilizing DLC criminology should consider protective factors as well in order to comprehensively capture the paradigms of this perspective. In terms of Lahey and Waldman’s developmental model of the propensity to offend, the present findings offer partial support to the assertion that transactions between the youth’s temperament and parenting are at the heart of the development of conduct problems. In other words, the role of parental practices in the differential development of juvenile delinquency is corroborated, as the parents of maltreated youth in this study either perpetrated the maltreatment or failed to take the necessary steps to end it. However, future studies examining Lahey and Waldman’s model should also investigate the individual characteristics and temperaments of youth in order to comprehensively understand the transactions in play. Because the parameters of maltreatment accounted for a weak proportion of the variance of parameters of delinquency, other environmental factors influencing social learning may have a role to play. According to Lahey and Waldman (2005), these factors may include neighbourhood criminality, delinquent peer association and lack of access to after-school care. In addition, the present study incorporated an assessment of the cumulative risk model as it pertains to maltreatment and subsequent delinquency. As recurrence emerged as the most important predictor of dimensions of offending among the parameters of maltreatment, the cumulative risk model’s assertion that there exists a positive linear relationship between the number of stressors present (i.e., number of maltreatment incidents) and the risk of negative outcomes (i.e., serious offending) is strongly corroborated.

The findings of the present study suggested that different parameters of maltreatment affect youth differently insofar as the parameters of juvenile delinquency. As such, clinical interventions within youth protection services treating young victims of maltreatment should be adequately tailored in order to target specific dimensions of maltreatment (Edwards &

Lutzker, 2008) and potentially hamper their link to subsequent offending. Policy makers and youth protection workers should be aware that recurrent maltreatment significantly affects later youth offending. Lemmon (2006) has suggested that four substantiated maltreatment incidents were sufficient to place youth on a path toward chronic and violent offending. Early detection and intervention should also be specifically privileged for maltreated boys in order to minimize future delinquency. Importantly, attention should be paid to the possible unintended effects of certain youth protection interventions on future delinquency. For example, male maltreated youth placed in residential care seem to be at greater risk of offending than minors placed in foster care (Ryan, Marshall, Herz, & Hernandez, 2008).

In addition, it is important that juvenile justice workers examine the extent of child maltreatment as part of the intake process and direct needed services to youth in relation to their criminogenic needs. Currently, most risk assessment tools only document the presence of maltreatment without examining its extent and severity among juvenile offenders (Verrecchia et al., 2011). Again, consideration should be placed on the type of service or intervention provided by the juvenile justice system, as certain measures may exacerbate the risk of future criminality, namely interventions that confine young offenders together in institutions and separate them from the rest of society (Gatti, Tremblay, & Vitaro, 2009). To reiterate, the current findings emphasize the importance of adequately screening and intervening in cases of child maltreatment in order to lessen and potentially prevent subsequent delinquency.

### **Limitations**

The results of this study should be considered in light of their limitations. First, the use of cross-sectional data hinders the ability to make causal inferences about the association between maltreatment and delinquency. As discussed by Heck & Walsh (2000), the use of a longitudinal design is privileged in order to collect data at different times regarding a multitude of possible mediating factors associating maltreatment and delinquency. Although the temporal order of maltreatment and offending was established through the use of official records, the present study does not provide evidence for mediating factors or details on the sequence of events leading up to the commission of a crime. Second, this study included a judicial population of youth offenders and evaluated whether or not these youth also presented with a history of substantiated maltreatment. This is a limitation of the present research and

represents a contrast to previous literature examining the differences between maltreated children who eventually manifest offending from those who do not. Indeed, it is possible that the examination of maltreatment within a judicial population may have resulted in an overestimation of the relation between maltreatment and youth offending, as only a small portion of all victims of maltreatment become delinquent (e.g., Asscher et al., 2015; Stith et al. 2000). Therefore, findings cannot be generalized to community youth samples. Third, although the use of official records presents with many strengths, it may underestimate the true volume of offending and maltreatment depending on reporting and detection rates. Moreover, it is subject to error, as some detected crimes do not lead to charges just as some real incidents of maltreatment do not lead to substantiations (Kirk, 2006). Fourth, due to a lack of information in the databases, important parameters of maltreatment, such as severity and timing, could be investigated in relation to subsequent offending. Fifth, this study examined subtypes of maltreatment independently rather than through their phenomenological combinations. As overlapping forms of maltreatment co-occur more often than not, efforts to examine prevalent combinations of multiple subtypes of maltreatment may be more clinically valuable (Berzenski & Yates, 2011).

## **Conclusion**

The objective of the present study was to investigate whether specific parameters of maltreatment predict parameters of subsequent juvenile delinquency, all while taking into consideration sex differences. Utilizing a population of youth offenders, findings demonstrated that the parameters of maltreatment predicted a weak but significant proportion of the variance of the parameters of juvenile delinquency. Overall, the number of incidents of maltreatment experienced by a youth emerged as an important predictor of the parameters of subsequent offending. In addition, maltreated boys demonstrated more problematic indicators of juvenile delinquency than maltreated girls. Clinical interventions for young victims of maltreatment should be tailored to target their specific experiences in order to potentially hamper subsequent offending.



## **Chapter 5**

# **GENERAL DISCUSSION**



## **5.1 A portrait of crossover youth**

Article 1 of the present thesis, entitled “A portrait of crossover youth in Quebec, Canada: Examining parameters of maltreatment and juvenile delinquency” sought to describe the characteristics of crossover youth in Quebec and how they differ from other youth who come into contact with the juvenile justice system. This was accomplished through the use of official records, a large judicial population and greater specificity regarding the parameters of maltreatment and of juvenile delinquency than previously examined. Specifically, using descriptive statistics, the goals were (1) to compare the parameters of juvenile delinquency for non-maltreated youth offenders and for crossover youth; (2) to describe the parameters of maltreatment for crossover youth; (3) to describe the parameters of juvenile delinquency according to the parameters of maltreatment for crossover youth.

Of the examined Quebec delinquent population, 32.3% were crossover youth (73.8% of which were male). Generally, results revealed that crossover youth demonstrated more problematic delinquency than non-maltreated offenders as assessed by their parameters of offending. Male crossover youth also presented with more serious indicators across all parameters of juvenile delinquency in comparison to female crossover youth. In addition, the findings demonstrated that differential exposure to maltreatment was linked to heterogeneous parameters of juvenile delinquency.

### **5.1.1 Comparing the delinquency of non-maltreated offenders and crossover youth**

The first objective of Article 1 was to compare the parameters of juvenile delinquency for non-maltreated offenders and crossover youth through the use of populational official records. In line with previous descriptive research regarding crossover youth (Halemba & Siegel, 2011; Halemba, Siegel, Lord, & Zawacki, 2004; Kelley, Thornberry, & Smith, 1997; Ryan, Herz, Hernandez, & Marshall, 2007), findings revealed these maltreated youth commit their first guilty offence at a younger age than do non-maltreated youth offenders, are

responsible for a greater number of crimes, and are more likely to commit crimes against the person. Crossover youth are also responsible for more polymorphic delinquency than non-maltreated youth offenders and are more likely to commit weapons offences, a novel finding in the literature. In addition, male crossover youth are more likely to have committed property crimes while female crossover youth are less likely to have committed such crimes in comparison to their non-maltreated counterparts. In contrast, findings showed that the offences committed by crossover youth are of lesser average severity than those of non-maltreated offenders, a result that is somewhat in contradiction to previous reports suggesting that crossover are more likely to be adjudicated on a felony matter in comparison to non-maltreated offenders (Halemba & Siegel, 2011). Finally, crossover youth are less likely to have committed drug offences than non-maltreated offenders.

The finding that youth who have experienced maltreatment generally present with more serious indicators of delinquency than non-maltreated offenders corroborates the role of parental practices in the differential development of juvenile delinquency. Previous research has suggested that certain underlying parental deficits may mediate this maltreatment-delinquency link, such as explosive physical disciplinary styles, frequent irritable exchanges, poor teaching and problem-solving strategies, inconsistent standard setting, low levels of parental supervision, and weak parental attachment (Sampson & Laub, 2005; Thornberry & Krohn, 2005).

### **5.1.2 Describing the maltreatment of crossover youth**

The second objective of Article 1 was to describe the parameters of maltreatment experienced by crossover youth. This explicit and comprehensive description was novel in the maltreatment-delinquency literature and contributed toward a more specific understanding of the victimization experiences of these youth offenders. Findings revealed that the majority of crossover youth experience multiple incidents of maltreatment, with most boys experiencing one subtype and most girls experiencing several subtypes. In addition, 85.98% of crossover youth in this Quebec judicial population were victims of neglect, followed by physical abuse (34.58%), sexual abuse (21.27%), psychological maltreatment (15.10%) and abandonment

(11.29%). The elevated prevalence of each subtype of maltreatment in comparison to findings within the general youth population in the United States (Administration for Children and Families, 2010; 2011) highlights the overrepresentation of maltreated youth within the delinquent population. Furthermore, female crossover youth in this thesis are more likely to have histories of physical abuse, sexual abuse and psychological maltreatment than male crossover youth, while the latter are more likely to have experienced neglect and abandonment.

### **5.1.3 Describing the delinquency of crossover youth according to the parameters of their maltreatment**

The third objective of Article 1 was to describe the parameters of juvenile delinquency according to the parameters of maltreatment experienced by crossover youth, which represents a more specific examination of the characteristics of crossover youth than previously conducted. Overall, findings revealed that crossover youth who experienced multiple incidents of maltreatment present with a delinquency that is more precocious, recurrent and varied than that of youth who were victims of one incident, and are more likely to have committed crimes against the person, property crimes and weapons offences. This link revealed between the recurrence of maltreatment and almost all parameters of offending supports the notion that continuous maltreatment leads to more detrimental outcomes than short-lived incidents (Ireland, Smith, & Thornberry, 2002). Next, crossover youth who were victims of multiple subtypes of maltreatment commit their first guilty offence more precociously than youth who experienced one subtype and are more likely to have committed crimes against the person, but less likely to have committed drug offences.

An original result of Article 1 was that crossover youth who experienced psychological maltreatment commit their first offence at an earlier age than victims of other subtypes of maltreatment. Although it has been hypothesized that negative emotions such as anger (Plattner et al., 2007) and shame (Feiring, 2005) may lead psychologically maltreated youth to commit offences, the finding regarding age of onset is a contribution to the literature. Another novel finding is that victims of abandonment commit a greater number and variety of crimes

than victims of other subtypes of maltreatment and are more likely to have committed property crimes. As the environment of an abandoned youth is likely to be deprived of positive social learning opportunities, namely as they relate to parenting, negative outcomes regarding offending may be exacerbated.

## **5.2 Parameters of maltreatment as predictors of parameters of delinquency**

Article 2 of the present thesis, entitled “Parameters of maltreatment as predictors of parameters of subsequent juvenile delinquency” sought to examine whether the parameters of maltreatment (i.e., recurrence and all subtypes) predict certain parameters of juvenile delinquency (i.e., precocity, volume, variety, average severity and subtypes) and to analyze sex differences. Thus, the investigation of the maltreatment – delinquency links was pushed beyond description using multivariable analyses. The results of this paper were expected to yield implications for policy, prevention and intervention efforts that target crossover youth.

The investigation of the Quebec delinquent population revealed that the parameters of maltreatment generally predict a weak but significant proportion of the variance of the parameters of delinquency. Overall, the recurrence of maltreatment is an important predictor of the parameters of subsequent offending. In addition, maltreated boys demonstrate more problematic indicators of juvenile delinquency than maltreated girls.

### **5.2.1 Predicting the parameters of juvenile delinquency**

**Precocity.** Among the parameters of juvenile delinquency that Article 2 sought to predict was precocity, or the age at which an individual committed his or her first guilty offence. Youth who were victims of neglect, sexually abuse, psychological maltreatment and recurrent maltreatment are likely to have an earlier age of onset of delinquency. This original finding may be linked to Moffitt’s developmental taxonomy (1993), which posits that an

interaction between deficits in cognitive functions and negative environments, such as ineffective parenting, produces an early onset of antisocial or delinquent behavior.

**Volume and variety.** Article 2 of this thesis also sought to predict the volume and variety of delinquency, or the total number and subtypes of guilty crimes committed by an individual, from parameters of maltreatment history. Findings revealed that the volume of offending is predicted by the recurrence of maltreatment and a history of neglect. This paper therefore supports the cumulative risk model and past research (Evans & Burton, 2013; Ireland et al., 2002; Lemmon, 2006; Maschi, Bradley, & Morken, 2008; Stewart, Livingston, & Dennison, 2008; Verrecchia, Fetzer, Lemmon, & Austin, 2011) that found that the more frequently a youth suffers maltreatment the more frequently he or she will commit delinquent offences. The finding linking neglect to an elevated number of crimes is in line with Evans and Burton (2013) and may be explained by the impaired decision making capacities of neglected youth (Evans & Burton, 2013) or an overall lack of parental supervision (Evans & Burton, 2013; Maughan & Moore, 2010). The recurrence of maltreatment also predicted the variety, or polymorphism, of subsequent juvenile delinquency. To our knowledge, this finding is novel in the maltreatment – delinquency literature and may be related to the covariation between the volume and variety of juvenile delinquency in the present thesis.

**Average severity.** Article 2 also sought to predict the average severity of juvenile delinquency from the parameters of maltreatment history. Results showed that no specific parameters of maltreatment predict the severity of subsequent offending, which is somewhat in contradiction to Hoeve and colleagues (2008). However, the offence severity index utilized in this thesis is not without its limitations and may partly explain the results, as discussed in Article 2.

**Subtypes of delinquency.** Findings revealed that the risk of committing crimes against the person is predicted by a history of physical abuse and recurrent maltreatment. The result concerning physical abuse is in line with previous research (Asscher, Van der Put, & Stams, 2015; Lansford, Miller-Johnson, Berlin, Dodge, Bates, & Pettit, 2007; Mersky & Reynolds, 2007) and lends credence to the theory that children who are physically abused are more likely to develop biased patterns of processing social information (Lansford et al., 2007) that may in turn lead to violent behavior (Dodge, Pettit, Bates, & Valente, 1995). The finding regarding

the recurrence of maltreatment corroborates the premise of the cumulative risk model as well as Lemmon's (2006) research.

In addition, once again in line with the cumulative risk model, the experience of multiple incidents of maltreatment is linked to an increased risk of committing property crimes and drug offences. Although evidence has shown that the presence of past maltreatment is predictive of these crimes (Cronley, Jeong, Davis, & Madden, 2015; Loeber, Farrington, Stouthamer-Loeber, & White, 2008; Mersky, Topitzes, & Reynolds, 2012; Zingraff, Leiter, Johnsen, & Myers, 1993), no known studies have examined the impact of the recurrence of this maltreatment. Similarly to homeless youth (Zlotnick, Tam, & Soman, 2012), maltreated youth may be lacking adequate family and social networks and may be particularly vulnerable to relying on survival skills, including criminal behavior such as theft and drug dealing, to meet their needs. Future research should be directed toward illuminating the connection between maltreatment and property and drug crimes, specifically as they relate to the recurrence of maltreatment.

### **5.2.2 The relative importance of maltreatment**

Despite most of the prediction models in Article 2 being significant, the parameters of maltreatment account for only a small portion of the variance of the parameters of juvenile delinquency. It may therefore be important to include real-life correlates of maltreatment in prediction models in order to comprehensively capture the risk factors that predict subsequent offending and to evaluate the relative importance of maltreatment. Categorized into five life domains (individual, family, peer, school, and community), these risk factors may include attention problems, post-traumatic stress disorder symptoms, substance use, parental criminality, poor academic achievement, and delinquent peer association, in addition to maltreatment (Becker & Kerig, 2011; Day et al., 2011).

### **5.3 Addressing the limitations of the literature**

The current thesis represents a contribution to the maltreatment – delinquency literature as it overcomes the limitations of previous research. First, the vast use of retrospective self-report questionnaires in order to quantify maltreatment and/or juvenile delinquency in previous studies (e.g., Egeland, Yates, Appleyard, & van Dulmen, 2002; Evans & Burton, 2013; Ford, Grasso, Hawke, & Chapman, 2013; Ireland et al., 2002; Kelley et al., 1997; Maschi et al., 2008; Maughan & Moore, 2010; Sigfusdottir, Asgeirsdottir, Gudjonsson, & Sigurdsson, 2008) called into question the accuracy of the obtained information. Indeed, involuntary or voluntary error, including social desirability, may have led to underreporting or overreporting of these phenomena in past studies (Kirk, 2006). Particularly problematic is the issue of telescoping, which is linked to difficulties recalling the timing of events within the time-limited window addressed in the questionnaire (Kirk, 2006). In order to avoid these shortcomings, the present thesis utilized official records as the data source for both maltreatment, which was assessed through substantiated reports, and juvenile delinquency, operationalized as guilty verdicts. The use of official data allowed for the substantiations and verdicts to be accurately recorded at specific points in time, as opposed to self-report surveys that are subject to recall bias (Kazemian & Farrington, 2005). In addition, the utilized data covered an extensive period of time in contrast to self-report questionnaires that are usually limited to a 12-month frame (Kirk, 2006).

Second, issues related to the use of samples, as well as populations limited to certain counties for the description of crossover youth (Halemba & Siegel, 2011; Halemba et al., 2004; Herz & Ryan, 2008; Herz, Ryan, & Bilchik, 2010), limited the generalizability of previous findings. Indeed, throughout the maltreatment and delinquency literature, the utilized samples were not generalizable in terms of the socioeconomic status or the sex of the youth, as a large proportion of studies focused exclusively on low-income youth (e.g., Lemmon, 1999; Mersky & Reynolds, 2007; Mersky, Topitzes, & Reynolds, 2012; Shaffer, Yates, & Egeland, 2009; Williams et al., 2010) and on boys (e.g., Evans & Burton, 2013; Heck & Walsh, 2000; Maschi et al., 2008; Maughan & Moore, 2010; Ward, Day, Bevc, Sun, Rosenthal, & Duchesne, 2010; Williams, Van Dorn, Bright, Jonson-Reid, & Nebbitt, 2010). Indeed, the

differential effect of maltreatment for male and female victims has been a neglected topic in the literature. Yet, in order to be able to adequately intervene in juvenile delinquency, it is important to distinguish possible sex-specific links between different types of victimization and subsequent offending (Asscher et al., 2015). Maximizing the potential for generalization, the present thesis included the population of Quebec male and female adolescents that pled guilty or were convicted of a crime between 2005 and 2010. Examining the judicial population of offenders within a Canadian province allowed for the inclusion of youth from both rural and urban areas, regardless of familial income. In addition, the inclusion of both male and female youth offenders allowed for sex-based analyses in terms of the nature of their maltreatment and delinquency.

Third, theoretical limitations hindered the specificity of previous studies in the maltreatment and delinquency literature. In fact, traditional criminological theories such as strain theory (Agnew, 1992; Cloward & Ohlin, 1960), social disorganization theory (Shaw & McKay, 1969), differential association theory (Sutherland & Cressey, 1974), social control theory (Hirschi, 1969), labeling theory (Lemert, 1972) and social learning theory (Akers, 1998) pay little attention to the nature and degree of exposure to risk factors as it relates to the nature and extent of subsequent offending. As a result, empirical studies examining the links between maltreatment and juvenile delinquency have often lacked specificity, only assessing one or two types of maltreatment or one or two types of crime in their samples and preventing insight into the dimensions of the phenomena (Evans & Burton, 2013). Thus, in order to remedy this limitation, the present thesis represented a thorough and comprehensive examination of the links between the parameters of maltreatment (i.e., recurrence, variety and subtypes) and of juvenile delinquency (i.e., precocity, volume, variety, average severity and subtypes). A developmental and life-course criminology perspective set the theoretical stage for this increased specificity and is presented in the next section of this discussion.

## **5.4 Contributing to a developmental and life-course (DLC) criminology perspective**

The present thesis has a number of implications from a theoretical perspective. First, developmental and life-course (DLC; Farrington, 2005) criminology served as the general theoretical framework of this thesis. As explained in the previous section, traditional criminological theories attempt to explain the emergence of juvenile delinquency without factoring in extent of exposure to risk factors as it relates to the extent of subsequent offending, thus ignoring the different manifestations of the phenomena. The DLC perspective, on the other hand, involves the study of specific risk factors for offending as well as of the heterogeneity of criminal careers (Lahey & Waldman, 2005). As different parameters of maltreatment were shown to be associated and to predict differential dimensions of subsequent juvenile delinquency, the importance of utilizing a DLC perspective in maltreatment – delinquency research is bolstered. In other words, the importance of going beyond assessing the mere presence of maltreatment and offending is highlighted and underscores the usefulness of the DLC perspective. It should however be noted that a comprehensive examination of DLC criminology should consider protective factors in addition to risk factors, thus limiting the contribution of this thesis to this theoretical framework.

Within the DLC framework, Benjamin Lahey and Irwin Waldman's developmental model of the propensity to offend (2005) was explored in this thesis. This model is in many ways a developmental extension of social learning theory (Akers, 1998) and posits that social learning plays a key role for youth on all developmental trajectories, but in ways that mirror the individual characteristics of the child (Lahey & Waldman, 2005). It is posited that throughout development, the interchangeable dimensions of temperament evolve into complex behaviors, including antisocial behaviors, through transactions with the environment. In other words, Lahey and Waldman attempt to explain the predisposition to commit crimes through the reciprocal interactions or "transactions" between the child's temperament and his or her social context. This transactional developmental model framed the present thesis regarding maltreatment and juvenile delinquency because it places the parents at the heart of the

development of conduct problems in their offspring (Lahey & Waldman, 2005). Specifically, Lahey and Waldman perceive the transactions between the child's temperament and parental reinforcement, modeling, persuasion and other forms of social learning as being at the core of the development of conduct problems, as parents typically provide the overwhelming majority of social influences in a child's environment (Lahey & Waldman, 2005). The present findings have implications for this theoretical model, as youth who experienced maltreatment generally presented with more serious indicators of delinquency than non-maltreated offenders in Article 1. Therefore, the role of parental practices in the differential development of juvenile delinquency was corroborated, as the parents of maltreated youth in this thesis either perpetrated the maltreatment or failed to take the necessary steps to end this victimization. Article 2, however, offered more nuanced support to the assertion that transactions between the youth's temperament and parenting are at the heart of the development of conduct problems. Because the parameters of maltreatment accounted for a weak proportion of the variance of parameters of delinquency, other environmental factors influencing social learning may have a role to play. According to Lahey and Waldman (2005), these factors may include neighbourhood criminality, delinquent peer association, lack of access to after-school care and antisocial gang entrance. It would be interesting to evaluate the relative impact of such environmental factors in relation to maltreatment on the development of delinquency. Importantly, future studies examining Lahey and Waldman's model should also investigate the individual characteristics and temperaments of youth in order to comprehensively understand the transactions in play.

In addition, the present thesis incorporated an assessment of the cumulative risk model as it pertains to maltreatment and subsequent delinquency. The cumulative risk model is a gradual developmental and ecological approach to the explanation of juvenile delinquency which posits that the greater the number of stressors or risk factors present, the greater the risk that a negative outcome will ensue. This cumulative effect of risk factors applies both within and across time, in such as way that youth are at greater risk for delinquency if they experience multiple risk factors at a given time (Lerner, 1996) or if the consequences of risk factors progressively accumulate over time (Craig, Petrunka, & Khan, 2011). In addition, this model highlights the fact that stressors tend to accumulate within certain families (Jaffee, Caspi, Moffitt, Polo-Tomás, & Taylor, 2007) that are characterized by recurrent episodes of

conflict and deficient nurturing (Repetti, Taylor, & Seeman, 2002). As it applies to maltreatment, the cumulative risk model suggests that experiencing more than one type or incident of maltreatment may be more detrimental to the child. In Article 1 of this thesis, the descriptive examination of the recurrence and variety of maltreatment in relation to the seriousness of offending partially supported the premises of the cumulative risk model. Indeed, crossover youth who experienced multiple instances and subtypes of maltreatment presented with more detrimental outcomes, as evidenced by the precocity, volume and variety of juvenile delinquency and the commission of crimes against the person, property crimes and weapons offences. In Article 2, the recurrence of maltreatment emerged as the most significant predictor of dimensions of offending among the parameters of maltreatment. Therefore, this finding strongly corroborated the cumulative risk model's assertion that there exists a positive linear relationship between the number of risk factors present (i.e., number of maltreatment incidents) and the risk of negative outcomes (i.e., serious offending). Unfortunately, due to elevated intercorrelation between the recurrence and variety of maltreatment ( $r = .790$ ,  $p = .000$ ) and high multicollinearity ( $VIF = 11.04$ ), the variety of maltreatment was not included as a potential predictor in regression models.

## **5.5 Practical implications for policy, prevention and intervention**

The findings of this thesis, which suggest that different parameters of maltreatment affect youth differently insofar as the parameters of juvenile delinquency, have practical implications. In terms of the prevention of delinquency, the youth protection system is an ideal intervention point for decreasing the risk of offending among maltreated youth (Bender, 2010). Generally, priority has been given to placing youth in safe and stable placements, with youths' psychosocial wellbeing receiving little attention (Barth, Landsverk, Chamberlain, Reid, Rolls, Jurlburt, et al., 2005). Thus, the youth protection system should seek to better identify the psychosocial service needs of youth (Burns et al., 2004) and intervene with or refer youth in response to those needs with evidence-based services (Bender, 2010). Establishing services that facilitate positive coping and social support may in fact be critical in

diverting maltreated youth from subsequent offending (Bender, 2010). Thus, clinical interventions treating young victims of maltreatment should be adequately tailored in order to identify youth at-risk for serious delinquency, target specific dimensions of maltreatment (Edwards & Lutzker, 2008) and potentially hamper their link to subsequent offending. Moreover, policy makers and youth protection workers should be aware that recurrent maltreatment significantly affects later youth offending. In fact, Lemmon (2006) has suggested that four substantiated maltreatment incidents were sufficient to place youth on a path toward chronic and violent offending. Early detection and intervention should also be specifically privileged for maltreated boys in order to minimize future delinquency. Importantly, attention should be paid to the possible unintended effects of certain youth protection interventions, as they may exacerbate the risk of subsequent delinquency. For example, male maltreated youth placed in residential care seem to be at a two-and-a-half times greater risk of offending than minors placed in foster care (Ryan, Marshall, Herz, & Hernandez, 2008).

In terms of intervention subsequent to offending, it is important that juvenile justice workers examine the extent of child maltreatment as part of the intake and screening process and direct needed services to youth in relation to their criminogenic needs (Halemba & Siegel, 2011; Halemba et al., 2004). Currently, however, most risk assessment tools only document the presence of maltreatment without examining its extent and severity among juvenile offenders (Verrecchia et al., 2011). As the ultimate goal of criminological intervention is the reduction of the risk for recidivism, screening for and intervening with youth who have experienced recurrent maltreatment as well as neglect should be privileged, as their risk for recidivism may be more elevated than that of other youth offenders, as documented in Article 2. Yet, because parental neglect is not as violent or visible as physical or sexual abuse, it may often be overlooked or underestimated in terms of its consequences (Hildyard & Wolfe, 2002). To reiterate, it is important for the juvenile justice system to screen and intervene in cases of child maltreatment in order to potentially prevent reoffending. Without receiving appropriate rehabilitation interventions addressing maltreatment, many crossover youth may indeed reoffend (Bender, 2010). Here again, however, consideration should be paid to the type of intervention provided by the juvenile justice system, as certain measures may increase the likelihood of future criminality (Gatti, Tremblay, & Vitaro, 2009; Huizinga, Schumann, Ehret,

& Elliott, 2001; McCord, Widom, & Crowell, 2001), namely interventions that confine young offenders together in institutions and separate them from the rest of society (Gatti et al., 2009).

All in all, crossover youth are of special concern because of the particular obstacles in rehabilitating them with regard to the consequences of maltreatment and effectively minimizing negative outcomes in terms of offending (Mallett, 2014). As such, these youth pose significant challenges to the youth protection and juvenile justice systems, which are generally individually designed to address a narrow set of issues (Spain & Waugh, 2005). According to Mallett (2014) and Bender (2010), improved coordination across systems is therefore essential to improving outcomes and diverting maltreated youth from ongoing offending. Suggestions for cross-system collaborations include an integrated information system (Wiig & Tuell, 2004), dual jurisdiction court systems (Herz, Krinsky, & Ryan, 2006), concurrent case planning and sharing of caseloads across sectors (Wiig, Widom, & Tuell, 2003), and increasing contact among professionals in youth protection and juvenile justice systems through cross-system trainings and collaborative teams (Wiig & Tuell, 2004). Yet, a national survey of public juvenile justice agencies in the United States found that less than 10% had created programming designed to address past maltreatment or developed collaborations with agencies that could meet this need (Bender, 2010; Child Welfare League of America, 2002). Additional efforts should therefore be aimed at improved coordination across systems in order to enhance outcomes for crossover youth.

## **5.6 Limitations, strengths and directions for future research**

The findings of this thesis must be considered in light of their limitations. First, although official records present with many strengths, their use has limitations nonetheless. Official records may underestimate the true volume of crime and maltreatment depending on reporting and detection rates. In addition, some detected crimes do not lead to arrests by the police just as some real incidents of maltreatment do not lead to substantiations, and may therefore be excluded from official records. According to Kirk (2006), a sizable number of youth self-report being arrested without having a corresponding arrest record, and an

important proportion of youth with an official arrest record fail to self-report that they had been arrested. Therefore, it is suggested that the integration of both self-report and official data sources is ideal in order to combine their advantages, balance out their disadvantages, and understand the trajectories of crime and offenders (Kirk, 2006). Second, this thesis utilized official records of all Quebec adolescents who received a YCJA service between 2005 and 2010 and evaluated whether or not these youth also presented with a history of substantiated maltreatment. The use of a population entirely composed of youth that committed a crime to which they plead guilty or were convicted is a limitation of the present research and represents a contrast to previous literature examining the differences between maltreated children who eventually manifest offending from those who do not. Indeed, it is possible that the examination of maltreatment within a judicial population may have resulted in an overestimation of the relation between maltreatment and youth offending. Findings cannot, therefore, be generalized to community youth samples. The association between maltreatment and offending may be less present in such samples, as only a small portion of all victims of maltreatment become delinquent (e.g., Asscher et al., 2015; Stith et al. 2000). The availability of a maltreated but non-delinquent group would have therefore complemented the present inquiry into the relationship between maltreatment and subsequent offending. Third, the use of cross-sectional data hinders the ability to make causal inferences about the association between maltreatment and delinquency. As discussed by Heck & Walsh (2000), the use of a longitudinal design is privileged in order to collect data at different times regarding a multitude of possible mediating factors associating maltreatment and delinquency. With that being said, even though the present thesis does not provide evidence for mediating factors or details on the sequence of events leading up to the commission of a crime, the temporal order of maltreatment and offending was established nonetheless through the use of official records for the purpose of prediction models. Fourth, due to a lack of information in the databases, parameters of maltreatment that have proved important in the literature, such as severity and timing, could not be examined in relation to juvenile delinquency. Fifth, some of the indicators of maltreatment in this thesis presented less relative variance or were less common than others. However, the elevated number of subjects in the examined population provided enough statistical power to counteract any significant advantage or disadvantage. Finally, this thesis examined subtypes of maltreatment independently rather than through their phenomenological

combinations. As overlapping forms of maltreatment co-occur more often than not, efforts to examine prevalent combinations of multiple subtypes of maltreatment (e.g., physical abuse and psychological maltreatment) may be more clinically valuable (Berzenski & Yates, 2011).

Despite these limitations, the present thesis possesses many strengths. First, the use of official data allowed for maltreatment incidents and criminal offences to be accurately recorded at specific points in time over an extensive period of time, advantages that are important in the study of criminal career parameters (Farrington, Jolliffe, Hawkins, Catalano, Hill, & Kosterman, 2003; Kirk, 2006). Second, the present thesis avoided the shortcomings of sample selection plaguing previous studies by examining the judicial population of youth offenders in Quebec, Canada, thus maximizing generalizability. Third, addressing the lack of specificity in the maltreatment – delinquency literature, the present thesis included a thorough and comprehensive examination of the links between the parameters of maltreatment and the parameters of juvenile delinquency within a single judicial population. Fourth, few studies have examined the relationships between the different manifestations of maltreatment and delinquency for female and male juvenile offenders, while this may be important to provide treatment that is responsive to criminogenic needs (Asscher et al., 2015). The present thesis, in contrast, consistently assessed the possible sex-based differences in the associations between the dimensions of maltreatment and offending. Although no sex-based differences in the predictive power of specific parameters of maltreatment were uncovered, male victims of maltreatment were shown to engage in more problematic delinquency than maltreated girls as measured by the parameters of offending.

Generally, little remains known about the realities of crossover youth. As outlined by Mallett (2014), these youth who are both maltreated and delinquent are of special concern because of the particular obstacles in rehabilitating them with regard to the consequences of maltreatment and minimizing offending outcomes. Ensuring the provision of therapeutic intervention regarding the impact of maltreatment seems crucial at both the youth protection and juvenile justice stages (Bender, 2010) in order to minimize offending or reoffending. However, the maltreatment – delinquency literature has almost exclusively focused on the risk of offending without investigating how maltreated youth then fare in the juvenile justice system (Ryan et al., 2007). Indeed, it is not clear whether following sentencing, the juvenile justice system is adequately equipped to simultaneously address two complex problems: child

offending behaviors that need to be rehabilitated and safety issues within the family home that need to be minimized (Conger & Ross, 2001; Mallett, 2014; Ryan et al., 2007). Future studies should therefore investigate the sentences handed out to crossover youth – and the psychosocial services they receive in parallel – in order to evaluate the efficacy of judicial decisions and interventions in terms of addressing the dual obstacles of these youth. Generally, pushing crossover youth deeper into the secure facilities within the juvenile justice system seems unlikely to resolve their needs associated with maltreatment and offending (Ryan et al., 2007). In the same vein, future research should seek to understand which interventions work best for specific parameters of maltreatment in relation to preventing or reducing offending.

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