

**THE ANTISOCIAL TRAJECTORIES IN YOUTH OF  
ADULT SEXUAL AGGRESSORS OF WOMEN: A  
DEVELOPMENTAL FRAMEWORK FOR EXAMINING  
OFFENDING, MOTIVATION, AND RISK OF RECIDIVISM  
IN ADULTHOOD**

by

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DISSERTATION SUBMITTED IN PARTIAL FULFILLMENT OF  
THE REQUIREMENTS FOR THE DEGREE OF

DOCTOR OF PHILOSOPHY

In the  
School of Criminology

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SIMON FRASER UNIVERSITY  
Summer 2010

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# APPROVAL

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**Degree:** Doctor of Philosophy  
**Title of Thesis:** The Antisocial Trajectories in Youth of Adult Sexual Aggressors of Women: A Developmental Framework for Examining Offending, Motivation and Risk of Recidivism in Adulthood

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## **ABSTRACT**

Distinct typologies of sexual aggressors of women have been established over the years to explain the heterogeneity these offenders exhibit. To date, typologies have typically distinguished these offenders based on differences in victim and offence characteristics, the motivation for the offence, and, the level of risk of reoffending posed by the offender. These distinct typologies have often emerged parallel to policies changing the way these offenders are dealt with in the criminal justice system. The current dissertation departs from previous classification strategies by exploring the utility of a developmental framework for classifying sexual aggressors of women. To this end, it is organized into three separate but related empirical studies. The first study examined the presence of antisocial trajectories in youth using a dynamic classification procedure and uncovered, contrary to current theoretical propositions, that the antisocial development of sexual aggressors of women in youth was characterized by much heterogeneity. More specifically, two meta-trajectories were uncovered, an early- and a late-onset trajectory, the former composed of three pathways, and the latter composed of two. Furthermore, the trajectories discovered were differentially related to several dimensions of general, violent, and sexual offending in adulthood. In the second study, the two meta-trajectories were examined in terms of mating effort and sexual drive, and while a high level of mating effort characterized the late-onset trajectory, the early-onset trajectory was characterized by both high mating effort and high sexual drive. In addition, sexual drive and mating effort were also related to an early-onset and higher frequency of sexual offending in adulthood suggesting that these measures may be associated with the

motivation to sexually offend. In the third study, the two meta-trajectories were assessed in terms of their association with violent/sexual reoffending in adulthood. The results indicated that an early-onset antisocial trajectory, characterized by a pattern of escalation in youth, predicted violent/sexual reoffending in adulthood. In addition, the predictive aspect of these measures was demonstrated independently, and in conjunction with current measures that are typically included in many current actuarial risk assessment instruments. Taken together, the results of these three studies challenge current classification strategies, and, developmental conceptualizations, of sexual aggressors of women.

Keywords: Sexual aggression; sexual assault; rape; antisocial trajectories; onset; persistence; escalation; rapists; dynamic classification; age of onset; developmental theory; antisocial sexuality; Cox regression; risk assessment; survival analysis; criminal career; sexual recidivism.

## EXECUTIVE SUMMARY

Currently, there still remains much debate concerning the origins of the propensity of some males to commit acts of sexual aggression against females. While much research has examined individual differences related to this propensity, few analyses have considered the developmental origins of it. The current dissertation represents an intersection of six key issues that have recently emerged in the literature pertaining to this research problem and how to best approach it: (1) the need to approach sexual offending from a criminological perspective considering that the behaviors we seek to explain are first and foremost crimes; (2) the utility of applying theories, concepts, and methodologies from developmental criminology to study more specific forms of behavior, such as sexual offending, to improve our understanding of this phenomenon from a developmental perspective, (3) the importance of explaining the heterogeneity of sexual aggressors of women to inform policy makers, program managers, clinicians, and practitioners about possible avenues to provide more individualized responses and interventions to offenders (Hudson & Ward, 2000); (4) the need for a theoretical framework that provides a foundation for the understanding of both the general and sexual offending behavior of sexual aggressors of women, something that has yet to be addressed; (5) the importance of recognizing the antisociality of sexual aggressors of women and its role in the motivation to commit sexual crimes (Lussier & Cortoni, 2008; Lussier, LeBlanc, & Proulx, 2005; Lussier, Proulx, & LeBlanc, 2005); and, (6) the need to link past and future behaviors of adult sexual aggressors of women to better understand the developmental course of their antisocial behavior to inform prevention and intervention programs (Lussier, Leclerc, Cale, & Proulx, 2007).

To address these six issues related to adult sexual aggressors of women, the current dissertation consisted of three distinct, yet related, empirical studies. The first examined the utility of a developmental perspective to understand antisocial development in sexual aggressors of women. While the antisociality of sexual aggressors of women has been recognized for some time (e.g., Gebhard, Gagnon, Pomeroy, & Christenson, 1965), only recently has it been conceptualized from a longitudinal perspective (e.g., Lussier, Proulx, et al., 2005). From this approach, sexual aggression has been hypothesized to represent the outcome of a single antisocial trajectory, characterized by a homogeneous group of early-onset, persistent, serious, and versatile offenders (i.e., the life-course persistent antisocial trajectory; Moffitt, Caspi, Harrington, & Milne, 2002). Therefore, the aims of the first study were to:

- a) Investigate the characteristics of antisocial trajectories in youth of adult sexual aggressors of women;
- b) Examine whether antisocial trajectories in youth were related to offending in adulthood; and,
- c) Determine how antisocial trajectories in youth were related to different forms of offending (e.g., general, violent, and sexual offending) in adulthood.

The second study examined whether the developmental approach to sexual aggression was congruent with recent theoretical developments in evolutionary psychology. More specifically, several recent studies have conceptualized the role of mating effort in sexual aggressors of women from a developmental perspective (e.g., Lalumière, Harris, Quinsey, & Rice, 2005; Seto & Barbaree, 1997). Therefore, the aims of the second study were to:



- a) Examine whether offenders in different antisocial trajectories differed according to their level of mating effort;
- b) Examine the link between mating effort and sexual offending in adulthood; and,
- c) Examine the relationship between antisocial trajectories, mating effort, and sexual crimes in adulthood.

Finally, the third study examined whether taking into consideration antisocial behavior beginning in childhood, and through adolescence, enhanced the understanding of sexual criminal activity in adulthood. More specifically, the goal was to assess the utility of developmental and criminal career approaches in the prediction of violent/sexual recidivism in adulthood. Therefore, the aims of the third study were to:

- a) Determine whether antisocial trajectories in youth were related to violent/sexual recidivism in adulthood; and,
- b) To assess the relative contributions of antisocial trajectories in youth and criminal career variables in adulthood to violent/sexual recidivism.

These three studies were based on a sample of 209 sexual aggressors of women who had committed a sexual offense against an adult female at least 16 years of age. This involved all adult males convicted of such a sexual offense who received a prison sentence of at least 2 years between April 1994 and June 2000 in the province of Quebec, Canada. At the time of data collection, all participants were incarcerated at the Regional Reception Centre of Ste-Anne-des-Plaines, a maximum-security institution operated by the Correctional Service of Canada, and were 18 years of age or older. All offenders included in this sample were serving a federal sentence (i.e., a prison sentence more than 2 years). Therefore, this sample includes sex offenders having committed a serious sexual

offense and/or having an extensive adult criminal history (see Lussier, LeBlanc, & Proulx, 2005). The main findings from the three empirical studies are presented according to five themes described below.

(I) Heterogeneous antisocial trajectories characterized the antisocial development, in youth, of adult sexual aggressors of women.

The first study uncovered the presence of two meta-trajectories (i.e., early- and late-onset antisocial trajectories) that characterized the antisocial development in youth of the sample. On the one hand, the first meta-trajectory identified (i.e., the early-onset antisocial trajectory) was in line with the hypothesis that sexual aggressors of women are characterized by an antisocial trajectory beginning in childhood, that persists, escalates, and diversifies through adolescence and up to adulthood. However, this meta-trajectory consisted of just over half of the sample of sexual aggressors (approximately 55% of the sample). The second meta-trajectory, on the other hand, was characterized by the onset of delinquency in adolescence (i.e., the late-onset trajectory) and minimal to no evidence of antisocial behavior prior to this time in the offenders' histories, contrary to current developmental conceptualizations of the antisociality of sexual aggressors of women.

(II) The antisocial trajectories of adult sexual aggressors of women differed according to the timing of onset (i.e., onset described above), and also, developmental course (i.e., abstention, initiation, persistence, escalation, and aggravation) of antisocial behavior in youth.

The complexity of the antisocial trajectories was not limited to the timing of onset in youth. Within the two meta-trajectories (i.e., early- versus late-onset) there was also evidence of dynamic patterns of antisocial development. In terms of the early-onset meta-

trajectory, three patterns were uncovered. The first was an antisocial trajectory characterized by the persistence of non-serious delinquency beginning in childhood and continuing through adolescence (approximately 15% of the sample). The second was an antisocial trajectory characterized by a pattern of escalation in the severity of delinquency from childhood to adolescence (approximately 28% of the sample). Finally, the third was characterized by the persistence of serious and violent delinquency beginning in childhood and continuing through adolescence (approximately 10% of the sample). In terms of the late-onset meta-trajectory, two patterns were uncovered. The first was an antisocial trajectory characterized by the virtual absence of delinquency in childhood and adolescence (approximately 7% of the sample). The second, in contrast, was characterized by the initiation of delinquency in adolescence (approximately 40% of the sample).

(III) Antisocial trajectories in youth of adult sexual aggressors of women were differentially related to parameters of general, violent, and sexual offending in adulthood.

The antisocial trajectories uncovered were differentially related to parameters of criminal activity in adulthood. In this regard, the patterns of persistence and escalation of antisocial behavior in youth were the two most important dynamic aspects associated with the unfolding of the criminal activity of sexual aggressors of women in adulthood. These antisocial trajectories were related to an earlier activation of their offending, a more extensive criminal history, and a more diversified criminal repertoire in adulthood. In contrast, the initiation of antisocial behavior in adolescence was related to higher specialization in sexual crimes in adulthood; which was attributable to the overall limited

involvement in criminal activity as a whole among individuals characterized by this antisocial trajectory.

(IV) Antisocial trajectories in youth distinguished the non-criminal sexual activity, and, adult sexual criminal activity, of adult sexual aggressors of women.

Overall, the findings supported the notion that sexual aggressors of women are characterized by excesses in the sexual domain (e.g., high sexual drive, and a tendency to pursue multiple partners and short term sexual encounters). However, these aspects of their sexuality varied significantly between the two meta-trajectories of antisocial behavior. More specifically, early-starters exhibited a higher sexual drive, and, spent more time and energy in the pursuit of sexual opportunities and conquests in adolescence and adulthood, than late-starters. Furthermore, these combined differences were related to the earlier activation and repetition of sexual crimes, in adulthood, of early-starters. The findings suggest the overlap of antisocial and sexual development in these offenders contributes to their sexual offending patterns in adulthood.

(V) The onset and developmental course of antisocial trajectories in youth, in addition to criminal activity markers in adulthood, contributed to the prediction of violent/sexual recidivism in adulthood.

Childhood antisocial behavior was related to the risk of violent/sexual recidivism in adulthood. The overall violent/sexual recidivism rate over a four and a half year follow-up period for the sample of sexual aggressors of women was 20.3%, in line with meta-analyses concerning the recidivism rates of these offenders (e.g., Hanson & Bussiere, 1998). However, this rate significantly differed between early-starters (29.7%) and late-starters (10.2%). Furthermore, the recidivism rate was even more pronounced for

individuals characterized by an escalation (34.7%) and persistent (30.8%) antisocial trajectory in youth. These developmental measures in youth, combined with general criminal career parameters in adulthood (i.e., age at first charges, and frequency of offending), further enhanced the overall prediction of violent/sexual reoffending in adulthood. These findings provided support for: a) the consideration of risk markers in actuarial assessment prior to the period of adulthood; and, (b) the consideration of within-individual changes in offending patterns, for risk assessment, that are related to the likelihood of violent/sexual recidivism.

Taken together, the results of these three empirical studies carry important theoretical, conceptual, and practical implications for the study of sexual aggressors of women. From a theoretical perspective, the findings highlight the utility of a developmental framework for interpreting the developmental course of sexual aggression in adults. Furthermore, the findings provide a baseline conceptual framework for measuring antisocial trajectories in youth, and, in addition, elaborate on the relationship between antisocial trajectories and offending patterns in adulthood. Finally, the heterogeneity uncovered in terms of antisocial trajectories provided further evidence for the differential application of interventions for specific offender types, contrary to current criminal justice based treatment and interventions that continually tend to deem these offenders as a homogeneous group.

## **DEDICATION**

I would like to dedicate this dissertation to my beautiful family, who have inspired me through their hard work and sacrifices, and supported me unconditionally to pursue my aspirations and dreams.

## ACKNOWLEDGEMENTS

I would like to extend my deep thanks to my supervisory committee for all of their time, support, guidance, and critical input into the studies of this dissertation. I would also like to express my thanks to the external examiners, Dr. Stephen Hart, and Dr. Matt DeLisi, for their valuable time and consideration of the dissertation. I was truly fortunate to have such a remarkable Ph.D. committee.

During my graduate studies I have been fortunate to meet some extraordinary individuals. Dr. Raymond Corrado, my former M.A. supervisor, has supported me personally and professionally throughout my graduate career, and for his dedication and friendship I am forever grateful. Similarly, to my professional colleague and close personal friend, Dr. Irwin Cohen, my thanks for your support and friendship. To Ms. Jesse Ross, my thanks and love for your support over the past three and a half years. To all of my close personal friends who I have met along the way, thank you for all of your support and encouragement over the years, you are all such amazing people.

To my entire family, I love you and I thank you. Words cannot describe the love in my heart for you, and my gratefulness for your support and encouragement. And mother, you are the light of my life.

Last but not least, Dr. Patrick Lussier. Over the years you have become so much more than a supervisor to me. You have my ever-lasting gratitude and commitment for your guidance and patience professionally, but even more importantly, for your friendship and support. It has truly been a great five years working with you, and I'm sure there will be many more. I truly look forward to the years to come. Thank you Patrick.

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## **CHAPTER 1: INTRODUCTION**

### **1.1 The Developmental Approach to Classification of Sexual Aggressors of Women: The Evolution of Taxonomies and Future Directions**

Currently, criminal justice initiatives pertaining to sexual aggressors of women are applied in a manner that would suggest these offenders represent a relatively homogeneous population. For example, in the United States, public notifications practices, sex offender registries, home residence restrictions, and truth in sentencing laws are applied to sexual offenders indiscriminately. Similarly, this trend is also evident in Canada in terms of sex offender registries, and extensions of mandatory minimum prison sentences, for example. This state of affairs largely stems from the assumption that these offenders specialize in sexual crimes (Simon, 1997; Simon, 2000), and represent a distinct homogeneous class of offenders. This state of policy affairs, however, stands in stark contrast to much research pertaining to this offender population.

There is general agreement among scholars that sexual aggressors of women do not constitute a homogeneous group. In fact, the heterogeneity characterizing them has been recognized for some time, and extensively documented in terms of their clinical features (e.g., Gebhard, Gagnon, Pomeroy, & Christenson, 1965; Groth, Burgess, & Holstrom, 1977; Knight & Prentky, 1990), modus operandi (e.g., Beauregard & Proulx, 2002; Knight, Warren, Reboussin, & Soley, 1998; Hazelwood, 1987), and relative risk of recidivism (e.g., Epperson et al., 1998; Hanson & Thornton, 2000; Quinsey, Harris, Rice, & Cormier, 1998). Furthermore, several distinct typologies have been proposed along these lines to make sense of this heterogeneity. The differences in the focus of

classification are presented in the current chapter as three successive generations of distinct typologies that are unique not only in the aims of classification, but also the methodological approaches applied, degree of theoretical input, and subsequently, related policy. Initial qualitative typologies (i.e., clinical) based on victim characteristics and the motivations for the sexual offence were developed with the primary aim of the assessment and treatment of the offender. Next, empirical typologies eventually followed that were developed to explicate differences in the motivation, and, modus operandi of sexual aggressors of women, typically to assist in the investigation of these crimes (i.e., criminal profiling). Finally, typologies based on the relative risk of recidivism have been concerned with risk prediction, and have been typically utilized to guide sentencing of offenders, including parole decisions and monitoring in the community, for example.

The first generation of typologies emerged from observations of sexual aggressors of women made by clinical researchers. The aim and purpose was to provide a common template for psychiatrists and psychologists working with a sex offender population. More specifically, the goal of the first-generation typologies was to assist in the assessment and treatment of this population (Knight, Rosenberg, & Schneider, 1985). In other words, these typologies strictly served the purpose of assisting clinical judgments of clinicians and practitioners in determining the motivation of the offenders, and, helping to identify possible treatment targets, screen offenders exhibiting sexual deviance, and adjusting interventions accordingly. Therefore, first-generation typologies reflected the rehabilitation ideal that characterized one of the first specific criminal justice responses to the issue sex offenders in the fifties, sixties, and seventies (Lieb, Quinsey, & Berliner, 1998; Petrunik, 2002; 2003). Clearly, these models were not created for primary or

secondary prevention purposes, nor were they intended for risk assessment or risk prediction.

Second-generation typologies were primarily characterized by a shift in the analytic strategy used to create them. This set of typologies was marked by the introduction of multivariate statistical analyses to construct them (Knight et al., 1985). Compared to first-generation typologies that were constructed using an inductive approach, the construction of second-generation was more deductive in nature, aiming to assist criminal justice practitioners and law enforcement agencies dealing with this offender population. More specifically, the rehabilitation ideal of sentencing experienced a shift toward a more punitive and deterrence-based approaches (Lieb et al., 1998; Petrunik, 2002; 2003). While initial second-generation typologies aimed to determine the validity of the first-generation classification schemes (e.g., Knight & Prentky, 1987; Prentky & Knight, 1986; Rosenberg & Knight, 1988), a gradual shift occurred in the purpose and goals of classification. In fact, the early behavioral-based typologies of the second-generation were also adapted to examine crime-scene behaviors and help police investigators in sex crime cases (e.g., Beauregard & Proulx, 2002). In effect, the hunting patterns, modus operandi, situational context, and victim characteristics eventually also became the focus of classification.

The new penology (Feely & Simon, 1992) marked an important shift in correctional practices. This shift was characterized by a sudden concern with risk assessment, and risk prediction. Behavioral modification was no longer considered the primary goal of correctional practices; rather, it was gradually replaced by legal and penal dispositions aiming to increase community protection (Lieb et al., 1998; Petrunik, 2002; 2003). This



shift was particularly significant for dangerous populations, such as sex offenders (Simon, 1998). Concerns over community protection resulted in the proliferation of risk assessment tools designed to classify offenders according to their risk level of recidivism (Petrunik, 2002). Therefore, these tools were not primarily concerned by the motivation underlying sex crimes, crime-scene behaviors, aspects of the modus operandi, or hunting patterns. While some included certain aspects related to victim characteristics (e.g., age, gender) and crime-scene behaviors (e.g., level of violence), classification provided by actuarial tools was primarily designed to provide an assessment of the likelihood of sexual recidivism after prison release, and therefore was not concerned with goals such as primary or secondary prevention.

Importantly, while at times these distinctive typologies shared some overlapping characteristics (e.g., the emphasis on motivation), they certainly have not shared a common theoretical framework. Quite to the contrary, typologies over three generations have been characterized by limited to virtually no theoretical input in typological construction. In addition, and not surprisingly therefore, assessments of reliability and validity over the years have been mixed. For example, there were virtually no attempts to empirically validate the earliest clinical typologies (i.e., those based on qualitative differences in the motivation for the offence) primarily because of the inductive and exploratory nature of classification in this early stage. However, the second-generation of typologies consisted of rigorous empirical assessments of many first-generation clinically derived types. More specifically, these typologies were assessed in terms of categorical configurations between offender characteristics, motivation, and criminal event variables, usually, employing techniques such as clustering methods to establish the concurrent

validity of types. In contrast, third-generation typologies that were based on risk prediction were characterized by extensive reliability, and, predictive validity assessments. These multivariate models were based strictly on empirically derived risk factor variables related to the relative risk of recidivism among offenders. Therefore, multivariate techniques such as Ordinary Least Squares, Logistic Regression, Cox-Regression, and Survival Analysis became central to this task. Put another way, predictive validity has been the central focus of quantitative typologies based on the relative risk of recidivism, contrary to the main emphasis on establishing concurrent validity of types in qualitative second-generation typologies. Importantly, these shifts in the focus and method of classification have paralleled shifts in policies dealing with these offenders over the years.

The important differences described above, across three generations of typologies, can also be understood in terms of a lack of cumulative typological development over the generations, and importantly, the lack of an integrated theoretical explanation of the heterogeneity of sexual aggressors of women. As mentioned, the differences described have likely had an impact on ad hoc, and, often conflicting, policies concerning the assessment, management, treatment, and rehabilitation of sexual aggressors of women. These shortcomings may also be attributed, at least in part, to the paucity of empirically validated, integrated propositions concerning the etiology of sexual aggression.

### **1.1.1 First-Generation Typologies of Sexual Aggressors of Women**

Historically, initial descriptive studies of sexual aggressors confirmed the existence of substantial heterogeneity in terms of their individual and offence characteristics. For example, early studies utilizing criminal samples of sexual aggressors documented

differences between victim, offender, and offence characteristics. More specifically, key differentiating indicators included the age and gender of the victim (e.g., Apfelberg, Sugar, & Pfeffer, 1944; Mohr, Turner, & Jerry, 1964), the relationship of the offender to the victim (e.g., familial, non-familial) (e.g., Amir, 1971), the nature and extent of the criminal history of offenders (e.g., Amir, 1971), and, different characteristics of the offence (e.g., level of planning, level of violence) (e.g., Amir, 1971; Apfelberg et al., 1944; Ellis & Brancale, 1956). Early clinical studies also confirmed many of the above characteristics related to offenders and identified additional potentially discriminatory variables such as those based on psychometric measures including MMPI profiles (e.g., Anderson, Kuncze, & Rich, 1979; Rader, 1977), the level of social competence of the offender (e.g., Anderson et al., 1979), and deviant sexual arousal (e.g., Abel, Becker, Blanchard, & Djenderejian, 1977). In terms of comprehensive taxonomic systems, the pioneering work of Gebhard et al. (1965) classified sexual offenders based on clinical observations of qualitative differences in victim, offender, and offence characteristics. Furthermore, subsequent typologies shifted the focus of classification to the motivation for the sexual crime based on psychodynamic variables (i.e., Cohen et al., 1971, Groth et al., 1977).

Descriptive and Clinical Typologies. The goal of initial taxonomies of sexual offenders was to assist clinicians in diagnosis and treatment of the offender. In effect, the aim of ascertaining type distinctions of this offender population was to enhance the application of treatment to specific types of offenders. To accomplish this goal, clinicians employed subjective observations of offenders given that no systematically derived typologies existed at this early stage. The first comprehensive typology of Gebhard et al.

(1965), therefore, was characterized by an inductive approach based on observations of differences among sexual offenders in several samples. At the same time, several theoretical frameworks were also evident in Gebhard's taxonomic approach including sociological, psychological, legal, and behavioral, and physiological elements. For example, this comprehensive descriptive typology categorized sexual offenders according to the age of the victim (i.e., child, adolescent, adult), gender (male, female), the use of violence (i.e., offenders versus aggressors), and the relationship to the victim (i.e., incest versus non-incest offenders).

These initial typological differentiations put forth by Gebhard et al. (1965), have had important implications for the development of taxonomies and etiological explanations of sexual offending. More specifically, the sexual aggressor of women versus children dichotomy has been recognized as the preliminary discriminator in most subsequent taxonomic systems based on the motivation for the offence (Knight et al., 1985). While the utility of taxonomic differentiation according to this dichotomy has been debated (e.g., see Bard et al., 1987), the heterogeneity observed in early descriptive and taxonomic studies within these two sexual offender groups has prompted researchers to identify more homogeneous subgroups within them (Bard et al., 1987). Some of the most consistent differences observed between these two groups pertain to their behavioral problems, personality features, and antisocial histories (e.g., Gebhard et al., 1965; Groth et al., 1977; Knight & Prentky, 1990; Lussier, LeBlanc, & Proulx, 2005; Lussier, Leclerc, Cale, & Proulx, 2007; Marshall, Christie, & Lanthier, 1977). In effect, substantial evidence supports this distinction, at minimum concerning typologies that incorporate

behavioral distinctions. Hence, the focus of the current dissertation pertains to the classification of sexual aggressors of women.

In terms of sexual aggressors of women, the typology of Gebhard et al., (1965) made an initial differentiation between offenders and aggressors (i.e., based on the presence of violence in the offence). Offenders were adult males convicted of sexual contact, without the use of force or threat, against a female age 16 or older who was not related to them. In effect, here Gebhard et al., (1965) were describing cases of 'statutory rape' and contraventions of laws related to extramarital sexual activity. To the contrary, they summarized the central descriptive theme of their aggressors of women in the following manner: "The majority of aggressors versus adults may be succinctly described as criminally inclined men who take what they want, whether money, material, or women, and their sex offences are by-products of their general criminality" (p. 205). These individuals, therefore, represented "males convicted of sexual contact, accompanied by the use of force or threat, with females aged sixteen or over who were not their daughters" (p.177). They proposed seven types of these offenders, where the quality of aggression in the offence differentiated most types. Furthermore, these differences were discussed in the context of offender characteristics such as the extent of offenders' criminal background, their levels of aggression and hostility, and the presence of sadistic tendencies.

The five central types of sexual aggressors of women described by Gebhard et al., (1965) included the: (1) Assaultive offenders (approximately 30%); (2) Amoral delinquents (approximately 15%); (3) Drunken offenders (approximately 15%); (4) Explosive offenders (approximately 15%); and, (5) Double standard offenders

(approximately 10%). They also identified two additional unclassifiable groups, one characterized by mental disorders hypothesized to be related to the offence, and the other that represented mixed characteristics of the types above and therefore not considered to be a homogeneous class (combined reflecting approximately one third of their sample). The assaultive type reflected offenders with a history of violence, driven by sadistic tendencies, who demonstrated a high level of planning and violence in the offence. The amoral delinquents reflected more opportunistic offenders, with diverse criminal histories, and who did not exhibit extensive planning to execute their offence. Drunken offenders closely resembled the latter type; however alcohol was described as the key-precipitating feature of the offence. The explosive type did not have an extensive criminal or violent history, but rather, their offence, that was marked by a high level of violence, and not necessarily accompanied by elaborate planning, seemed driven by feelings of rage toward women. Finally, the double standard type were described as a subset of male offenders who tended to objectify certain women, where the offence reflected their sense of entitlement and therefore was typically not characterized by violence except in cases where the victim resisted their advances. While motivation for the offence was not a central theme in the descriptive typology established by Gebhard et al., (1965), it was clearly implied as can be seen in the description of types, and therefore, subsequently provided an initial basis for clinical typologies that linked these offender and offence characteristics to motivation and personality styles of the offenders.

In contrast to early descriptive typologies (e.g., Gebhard et al., 1965), clinical typologies of sexual aggressors of women that emerged in the 1970s were based on the central meaning of the aggressive and sexual components of the offence. Cohen et al.

(1971), and Groth et al. (1977) developed the two most predominant typologies that distinguished the role of aggression in the offence as either serving to the end of gaining victim compliance (i.e., instrumental aggression), or, as an end in itself (i.e., expressive aggression). However, the typologies differed in terms of how motivations were operationalized. For example, both asserted the primacy of psychodynamic variables, and for offenders whose aggression was instrumental, the motivation for the offence was viewed as primarily sexual. On the one hand, Groth et al. (1977) conceptualized the motivation for these offenders as either a test of their sexual competence (i.e., power-reassurance type), or, a deep-rooted tendency to express dominance and submission over the victim (i.e., power-assertive type). On the other hand, Cohen et al., (1971) identified these offenders as either employing aggression to obtain sexual conquests because conventional opportunities were restricted (i.e., compensatory-type), or, as the result of a general predatory, successful, sexual lifestyle, where in the face of rejection, such offenders employ coercion and aggression to achieve sexual encounters (i.e., impulsive-type) (Cohen et al., 1971).

In terms of expressive aggression, Groth et al. (1977) classified these offenders according to those who vented rage toward women (i.e., anger-retaliatory type), compared to those who obtained sexual gratification from the humiliation and degradation of women (i.e., sadistic-type). Cohen et al., (1971), in contrast, viewed the sexual acts of these offenders as an expression of generalized (i.e., not specific to women) aggression (i.e., displaced-aggression type), or, as the result of a synergistic relationship between their sexuality and aggression (i.e., sex aggression-defusion type). In effect, for both typologies, the offence represented a pseudo-sexual act, in other words,

the sexual expression of anger, power, dominance, and/or aggression. This was a marked shift from earlier typologies given the focus on the meaning of the sexual aspect of the offence. Furthermore, compared to earlier descriptive analyses (e.g., Gebhard et al., 1965), these clinical typologies moved away from the notion that sexual aggression was a facet of a larger tendency to act in an impulsive/antisocial manner by focusing on the meaning, or, motivation for the offence. At the same time, these typologies (e.g., Groth et al., 1977; Cohen et al., 1971) also recognized this motivation (i.e., opportunistic/impulsive) as a distinct offender subtype.

**Table 1: Strengths and Weaknesses of First-Generation Typologies of Sexual Aggressors of Women**

<b>Strengths</b>	<b>Weaknesses</b>
<ul style="list-style-type: none"> <li>-Established an early foundation for understanding the diversity characterizing sexual aggressors</li> <li>- Findings carry substantial implications for treatment</li> <li>-Informative for interventions and planning of treatment programs</li> <li>-Informative for assessment purposes, for example, by considering that the motivations for sexually aggressive behavior are different (e.g., opportunity vs. deviant sexuality)</li> <li>-Introduced a common vernacular to practitioners working with sexual aggressors</li> </ul>	<ul style="list-style-type: none"> <li>-Atheoretical</li> <li>-Non-developmental</li> <li>-Based on subjective clinical observation</li> <li>-Based on various distinct samples</li> <li>-Not subject to empirical validation</li> <li>-Reliability of type assignment was not assessed</li> </ul>

Limitations. The clinical focus of classification in the first-generation of typologies of sexual aggressors of women relied on extensive observation and theoretical speculation with virtually no attempts to empirically assess the validity of types. At the same time, the clinical focus on the motivation for the offence was considered to justify their use for treatment and rehabilitation purposes. Yet, the lack of a systematic approach to the collection of data (e.g., correctional versus psychiatric settings) and subsequent clinical observations resulted in similar yet competing taxonomies with no basis for assessing their validity. This limitation was also undoubtedly reflected in the absence of a coherent theoretical framework in the construction of these taxonomies. Knight and his colleagues



extensively detailed these limitations of first-generation typologies in the 1980s (see Knight, Rosenberg, & Schneider, 1985) (also see Table 1). At the same time, they also pointed out that clinicians and researchers had been using distinct and diverse samples, and, several theoretical frameworks, that ultimately resulted in comparable typologies throughout the first-generation. Therefore, the second-generation of typologies of sexual aggressors of women moved beyond the focus of motivation by relating it to other key variables such as offender characteristics, offence features, and, subsequently, modus operandi. More specifically, the Massachusetts Treatment Center Taxonomic Program was central to the establishment of second-generation clinical and investigative taxonomies of sexual aggressors of women.

### **1.1.2 Second-Generation Typologies of Sexual Aggressors of Women**

Empirical Typologies Based on the Motivation for the Offence. Critically, the descriptive nature of first-generation typologies did not allow for the exploration of relationships between victim, offender, and offence characteristics hypothesized to be related to the motivation for the offence. At the time, the specification of a theoretical model underlying combinations of such variables was absent, and, taken together, these limitations undoubtedly drew into question the utility of first-generation taxonomies to assist and inform clinical judgment (Knight et al., 1985). The key challenge of second-generation taxonomies, therefore, was to identify internally consistent (i.e., homogeneous) classes of offenders, with minimal overlap between identified groups. Furthermore, this also involved assessing the relationship of clinically hypothesized etiological variables (e.g., impulsivity and social competence) to the motivation for the offence, in addition to offence related variables (i.e., nature of aggression). In effect,

second-generation typologies were primarily characterized by an empirical approach to classification, based on the motivation for the offence, which delineated hierarchical relations between distinct variables (i.e., offender characteristics, motivation, offence characteristics) (Knight & Prentky, 1990). Furthermore, these empirical analyses eventually led to preliminary formulations of dimensional models that elaborated on hypotheses pertaining to the etiology of sexually aggressive behavior (e.g., Knight, 1999; Knight & Sims-Knight, 2003).

The Massachusetts Treatment Center (MTC) Taxonomic Program provided the foundation for second-generation taxonomies of sexual aggressors of women that were empirically based. The central aim was to establish a reliable and valid taxonomy based on the motivation for the offence, building on clinical observations in first-generation typologies. Therefore, in the initial stage of second-generation classification, types were deduced from their observed repetition across first-generation taxonomies (Knight, et al., 1985). Across the first-generation, at least four salient types were evident: a) compensatory offenders; (b) exploitive offenders; (c) anger offenders; and (d) sadistic offenders (i.e., MTC: R1) (Knight et al., 1985). The revised typology (i.e., MTC:R2) employed hierarchical assignment to types (i.e., top-down approach) based on: (1) the meaning of aggression in the offence (i.e., instrumental versus expressive); (2) the sexual motivation (i.e., compensatory, exploitive, displaced anger, sadistic); and, (3) impulsivity of the offender (Prentky, Cohen, & Seghorn, 1985).

Subsequent empirical assessments of the reliability and validity of the MTC:R2 produced mixed results (e.g., Knight & Prentky, 1987; Prentky & Knight, 1986; Rosenberg & Knight, 1988). On the one hand, these analyses demonstrated some support

for the validity of distinctions based on motivation, yet at the same time, disconfirmed many earlier clinical hypotheses of related offender and offence characteristics (Knight & Prentky, 1987). These limitations were attributed, in part, to the rigidity of hierarchical classification procedures, and, the absence of other important discriminatory variables (e.g., social competence) (Knight & Prentky, 1990). To address these issues, the MTC:R3 (Knight & Prentky, 1990), subsequently adopted a data driven descriptive approach to classification. First, the taxonomy was restructured according to four main motivation types (i.e., opportunistic, pervasive anger, sexual, and vindictive). The level of social competence (i.e., high/moderate/low) distinguished groups within the opportunistic, vindictive, and non-sadistic sexual types. Sadistic sexually motivated offenders were differentiated by the presence of protracted (i.e., overt) versus muted (i.e., not acted out) deviant sexual fantasies. Furthermore, differential behavioral patterns in adolescence and adulthood further distinguished between motivation types (Knight & Prentky, 1990) providing some support for the validity of the taxonomy.

The revised MTC:R3, therefore, classified sexual aggressors of women into nine types, distinguished first by the motivation for the offence, second, by the level of social competence of the offender, and, third, the presence of deviant sexuality. The sexual offences of the opportunistic types are influenced primarily by impulsivity and context, similar to their non-sexual offences. Their sexual offences are therefore typically unplanned, and do not involve high levels of violence. The level of social competence distinguishes between two subtypes of opportunistic offenders; low social competence offenders (type 1) exhibit higher impulsivity and criminality in adolescence compared to high social competence offenders (type 2) who exhibit lifestyle impulsivity in adulthood.

The pervasively angry type (type 3) represents offenders with extensive violent and criminal histories; high levels of violence typically characterize their offences, and the motivation reflects global and undifferentiated anger (i.e., not specifically towards women). Two types of sadistic offenders, overt (type 4) and muted (type 5) both exhibit sadistic sexual fantasies that are hypothesized to represent the combination of sexual arousal with violence. However, they are distinguishable in that these fantasies are expressed in the violent aspect of offences of the overt type. In other words, overt sadistic offenders act out their sadistic fantasies in the offence whereas muted sadistic offenders do not. For non-sadistic offenders, the sexual motivation and the aggression in the offence are not directly linked (i.e., in terms of arousal to violence); their aggression is a means to achieve sexual gratification. Therefore, the level of violence employed in the offence is typically minimal for these types, with the exception of instances where the victim resists. Non-sadistic offenders are also differentiated based on high social competence (type 6) and low social competence (type 7). Finally, the vindictive types are characterized by rage exclusively focused toward women. They are typically not characterized by extensive and violent criminal histories (i.e., compared to the pervasive anger type), however, their offences are characterized by a high degree of violence and intended to severely injure, degrade, and humiliate the victim. Again, offenders in this type are distinguished by high social competence (type 8) and low social competence (type 9).

The course of revisions in the MTC Taxonomic Program described above (i.e., version one to three) was primarily characterized by the interplay between deductive and inductive approaches in attempt to identify empirically relevant discriminatory variables

related to the motivation for the offence (Knight, 1999). In addition, through the subsequent reconfigurations of hierarchically oriented variables and decision making classification procedures, the concurrent validity of the MTC:R3 has been assessed in terms of specific variables in the offenders history (e.g., Knight, 1999), as well as measures of their sexuality (e.g., deviant sexual fantasies, sexual preoccupation) based on the Multidimensional Assessment of Sex and Aggression (MASA), an instrument specifically designed to measure aspects of the sexuality of sexual aggressors (Knight & Cerce, 1999). Other studies have provided tentative support that certain MTC:R3 types (e.g., types characterized by high antisocial backgrounds) exhibit concurrent validity with measures of antisocial personality disorder/psychopathy (e.g., Brown & Forth, 1997; Harris, Rice, & Quinsey, 1994). On the one hand, although subject to extensive empirical assessments, the inability to consistently replicate the taxonomy across various samples (e.g., Barbaree & Serin, 1993; Barbaree, Seto, Serin, Amos, & Preston, 1994) has likely contributed to its ongoing evaluation, and the fact it has not been widely implemented in terms of aiding clinical practice concerning these offenders (Gannon, Collie, Ward, & Thakker, 2008). The latter has also been attributed to the complexity of assignment to types. On the other hand, classification schemes of sexual aggressors of women based on the motivation for the offence have been employed, to a greater extent, as predictive targets, typically by investigators of sexual crimes concerned with profiling these offenders.

Empirical Typologies Based on Criminal Event Characteristics. The classification of sexual aggressors of women according to their modus operandi is based on four critical assumptions about criminal profiling: (a) that the crime scene reflects the personality of

the offender; (b) that the modus operandi is consistent across crimes; (c) that the signature will remain the same; and (d) that the offender's personality is stable (Holmes & Holmes, 1996). The basis for this approach can also be traced back to first-generation taxonomies; the behavior during an offence (e.g., the amount of violence employed) has been a common criteria hypothesized to be related to the motivation of sexual aggressors of women (Cohen et al., 1971; Gebhard et al., 1965; Groth et al., 1977; Knight & Prentky, 1987). However, investigative typologies elaborated on this theoretically defining feature to identify collective patterns of behaviors that characterize acts of sexual aggression (i.e., modus operandi). More specifically, these typologies were based on characteristics of the criminal event (e.g., level of planning, relationship to the victim, use of a weapon, emotional state of the offender, pre-offence alcohol use, pre-offence pornography use) to infer offender characteristics (e.g., personality, motivation, physical characteristics, routine activities, and, criminal antecedents), and enhance investigation and apprehension efforts (e.g., Douglas, Ressler, Burgess, & Hartman, 1986; Knight, Warren, Reboussin, & Soley, 1998; Hazelwood & Burgess, 1987). Importantly, the application of such taxonomies has proliferated since the 1990s, despite a lack of clear empirical evidence supporting the validity of the key assumptions explained above (Knight et al., 1998; Kocsis, Irwin, & Hayes, 1998; Mokros & Alison, 2002).

The initial foundation for investigative taxonomies can be traced back to Hazelwood's (1987) application of the first-generation taxonomy of Groth et al., (1977) as a method of assessing crime scene features. For example, it was hypothesized that different motivation types were characterized by identifiable patterns in terms of the relationship between the victim and offender, victim characteristics, and, the tactics

employed to gain victim compliance (Hazelwood, 1987). Along these lines, the relative success of the Massachusetts Treatment Center Taxonomic Program (Knight, 1999; Knight & Prentky, 1990; Prentky & Knight, 1991), insofar as restructuring key discriminators (i.e., impulsivity, motivation, and social competence of the offender) to enhance the validity of the MTC:R3, also led to a growing interest in the empirical explanation of crime scene behaviors of sexual aggressors of women. Considering that the MTC:R3 represented similar, but further empirically validated classes of offenders compared to earlier typologies (e.g., Groth et al. (1977), criminal investigative analysis (i.e., criminal profiling) in the 1990s was characterized by a merger between clinical and investigative aims of empirical classification (Knight et al., 1998). Several empirical studies have provided mixed support for links between criminal event and offender characteristics (i.e., personality, criminal motivation, physical characteristics, routine activities and criminal antecedents) (e.g., Beauregard & Proulx, 2002; Knight et al., 1998). In this regard, Knight et al., (1998) explain that this may be due to at least three key factors including: (a) the different approaches applied by clinical and investigative classification; (b) the lack of standardization and operationalization of crime scene variables; and, (c) the lack of empirical assessments of clinical typologies that have been adapted to the investigative context (e.g., Groth et al., 1977).

**Table 2: Strengths and Weaknesses of Second-Generation Typologies of Sexual Aggressors of Women**

Strengths	Weaknesses
<ul style="list-style-type: none"> <li>-Established a degree of validity for type distinctions based on motivation</li> <li>-Identified offender characteristics correlated with motivation</li> <li>- Findings carry substantial implications for treatment</li> <li>-Informative for interventions and planning of treatment programs</li> <li>-Informative for assessment purposes, for example,</li> </ul>	<ul style="list-style-type: none"> <li>-Atheoretical</li> <li>-Non-developmental</li> <li>-Based on situational and contextual factors</li> <li>-Inconsistent/incomplete file data</li> <li>-Studies examining taxonomies based on motivation have not demonstrated stability across the profiles over time</li> <li>-Evidence of instability in victim characteristics pose challenges to such typologies</li> </ul>

<p>by considering that the motivations for sexually aggressive behavior are different (e.g., opportunity vs. deviant sexuality)</p> <p>-Informative for follow-up in the community (i.e., supervision – these typologies have helped to identify key precursors such as alcohol/anger/opportunity/deviant fantasies)</p>	<p>-Failure to consider opportunity factors related to offenders' modus operandi</p> <p>-Few studies have examined the predictive value of these classification systems</p>
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Limitations. As described above, the second-generation of classifying sexual aggressors of women was characterized by extensive empirical assessments of the reliability and validity of proposed types. At the forefront of these efforts was the Massachusetts Treatment Center Taxonomic Program initiated by Knight and his colleagues. Undoubtedly, they substantially advanced typological analysis of sexual aggressors over the course of two decades and have made important progress in terms of etiological understanding, and the assessment and treatment of these offenders. At the same time, their extensive analyses highlight the complexity of this particular offender population. Furthermore, much of this complexity is not captured by taxonomies discussed above (see Table 2). For example, while empirical motivation based taxonomies have classified sexual aggressors of women according to behavioral, motivational, and cognitive features of the offender, they frequently have combined these characteristics without differentiating among them (McCabe & Wauchope, 2005). Furthermore, they largely neglect developmental factors related to sexual aggression and instead focus on underlying personality correlates (Gannon, et al., 2008). Undoubtedly, the lack of an overall guiding theoretical framework has likely contributed to this key limitation, and subsequent mixed empirical findings. Furthermore, the assumption of stability of type characteristics such as motivation, and, modus operandi, from crime to crime remains a contentious point of debate. This was something recognized by Abel et



al., (1988) who found that, based on offender self-report data, certain sex offenders exhibit stability in their choice of victims, with respect to sex and age, for example, while others are characterized by multiple paraphilia. More recently, empirical evidence has emerged pointing to a subgroup of offenders characterized by sexual polymorphism (i.e., crime switching patterns according to victim age, gender, relationship to the offender, and the nature of the acts committed by the offender) (Lussier, Leclerc, Healey, & Proulx, 2007). Finally, a related limitation of clinical/empirical typologies, and, to a lesser extent, investigative taxonomies, is the neglect to account for contextual and situational aspects of criminal events (i.e., they have not accounted for variations in the opportunity structure of offending) (Beauregard, Lussier, & Proulx, 2006). Indeed, these shortcomings likely also explain, to a certain extent, the discrepant results pertaining to the validity of these taxonomies, particularly in terms of their ability to predict subsequent reoffending. Critically, however, the assumption of sexual offence exclusiveness and stability has also been a central focus of third-generation typologies based on risk assessment classification (e.g., Simon, 1997)

### **1.1.3 Third-Generation Typologies of Sexual Aggressors of Women**

Risk-Based Taxonomies. At the same time that empirical motivation and criminal event typologies were emerging, by the 1990s, there was also another marked shift in the aim of classification of sexual aggressors of women toward risk-based typologies. In other words this shift entailed a move from descriptive classification to predictive classification. The key differences between these two approaches is that the latter is not intended to describe a domain realistically, nor is it aimed at developing causal or explanatory insight into particular phenomenon (Brennan, 1987). Rather, it relies on

actuarial variables, such as prior behavior, in order to predict the likelihood of future behavior. Therefore, rather than considering different types according to configurations between victim characteristics, motivation, and criminal event characteristics, for example, these typologies were concerned with classifying sexual aggressors of women based on the risk they posed for reoffending (e.g., low/medium/high), and, the identification of risk factors empirically associated with sexually abusive behavior in the histories of sexual aggressors of women. Several actuarial tools emerged in the 1990s along these lines, such as the Rapid Risk Assessment for Sex Offence Recidivism (RRASOR) (Hanson, 1997), the Sexual Offender Risk Appraisal Guide (SORAG) (Quinsey, Harris, Rice, & Cormier, 1998), the Minnesota Sex Offender Screening Tool–Revised (MnSOST-R) (Epperson et al., 1998), and the Static-99 (Hanson & Thornton, 2000).

Two key types of risk factor variables have formed the basis of this approach to classification in the third-generation. These classifications are based on static, and, to a lesser extent, dynamic risk factors that are empirically related to sexual reoffending and recidivism (Proulx et al., 1997). Static risk factors refer to those variables in an offender's history that are not amenable to change and account for most items in commonly utilized actuarial tools. For example, the RRASOR contains only four items, all of which are static risk factors (e.g., prior sexual offences; age of the offender; ever targeted male victims; and, whether any victims were unrelated to the offender). The Static-99 includes the four items found in the RRASOR, in addition to six more static risk factors (i.e., never married; non-contact sex offences; stranger victims; current non-sexual violence; prior non-sexual violence; four or more prior sentencing dates). The SORAG is

composed of 14 items, 13 of which represent static risk factor variables (e.g., lived with biological parents to age 16; elementary school maladjustment; history of alcohol problems; evidence of sustained intimate relationships; non-violent criminal history; violent criminal history; prior convictions for sexual crime; prior convictions for sexual crime with a female victim under 14 only; failure on conditional release; age at the time of the offence; personality disorder; schizophrenia; and psychopathy). Similarly, the MnSOST-R contains a total of 16 items, 12 of which are static risk factors (i.e., number of prior sexual convictions; length of sexual offending history; under supervision at the time of the offence; any sexual offences committed in public; use of force or threat in any prior offences; multiple sexual acts within the same offence; age range of prior victims; age in relation to the victim; relationship to the victim; antisocial behavior in adolescence; drug and alcohol abuse, and employment history). The other four items represent dynamic risk factors, which refer to offender characteristics that are amenable to change. In the MnSOST-R these include behavior while in custody, whether they received, and how they performed in, treatment while in custody (i.e., substance abuse and sex offender treatment), and the age of the offender at the time of release, and, deviant sexual preferences, assessed using phallometry.

Static, and to a lesser extent, dynamic risk factor items are included in the various risk assessment scales based on their empirical relationship to the likelihood of reoffending (Proulx et al., 1997). In effect, predominately using retrospective data pertaining to repeat sexual offenders, the risk scales described above have been developed and are scored to reflect the empirical relationship of the presence and quantity of risk factors variables related to an increased likelihood of reoffending. In other words, the weighting and

combination of risk factors are used to classify offenders into risk categories. This quantitative emphasis of third-generation risk-based typologies represents a substantial departure from those taxonomies based on the motivation for the offence especially considering that they do not distinguish between sexual aggressors of women and sexual aggressors of children. For example, as mentioned earlier, victim age has been a key discriminatory variable in first-and second-generation taxonomies; however, Hanson and Thornton (2000) have argued that the Static-99 is predictive of sexual reoffending in both types of sexual aggressors. Furthermore, this strict empirical approach to classification has garnered substantially more practical utility, compared to previous taxonomies, in the context of risk management. These instruments are routinely used to guide judicial decision-making regarding sentencing, parole, and community supervision, and reflect an emphasis on the protection of society.

Despite their widespread use in this context, contrary to typologies based on victim characteristics, the offender motivation, and offence characteristics, risk-based typologies are far less informative for investigation, case management and planning, and treatment purposes. In effect, the atheoretical selection of risk factors in actuarial instruments somewhat precludes the possibility of the exploration into the etiology of sexually aggressive behavior. At the same time, the risk assessment approach to classification is unique given that the emphasis on prior behavior, in classification, is central to assess the likelihood of the future behavior of the offender (i.e., recidivism). In this regard, two key domains of risk factors have been identified in factor analytic studies of actuarial predictors related to the risk of recidivism: deviant sexuality and an antisocial orientation.

Importantly, these are also two key domains that have also been heavily emphasized in both etiological, and, taxonomic models of sexual aggressors of women.

Given the empirical emphasis of risk-based classification, and in addition, the purpose of classification along these lines (i.e., risk management), it is not necessarily surprising that this generation of typologies has been subject to substantial empirical scrutiny. Furthermore, the numerous risk-based classification schemes that have been developed have also demonstrated substantial improvements in the reliability and validity of types compared to typologies of previous generations, although typically, their predictive validity has achieved moderate levels of accuracy (e.g., Hanson & Bussiere, 1998). In other words, the various risk assessment instruments have demonstrated the ability to predict the likelihood of reoffending over and above previous typologies. In addition, the actuarial instruments that have been developed are easily administered by practitioners and have achieved widespread use in the criminal justice system.

**Table 3: Strengths and Weaknesses of Third-Generation Typologies of Sexual Aggressors of Women**

Strengths	Weaknesses
<ul style="list-style-type: none"> <li>-Evidence-based</li> <li>-Validity and reliability has been established contrary to prior classification schemes</li> <li>-Weigh risk factors according to their relationship with recidivism</li> <li>-Combine multiple risk factors</li> <li>-Take into consideration the base rate of recidivism</li> <li>-Ease of administration</li> <li>-Ability to identify the likelihood of reoffending over and above previous typologies</li> <li>-High consistency in application</li> <li>-Wide-spread use in North America and the United Kingdom</li> </ul>	<ul style="list-style-type: none"> <li>-Certainty of predictive accuracy</li> <li>-Individual offender qualities are lost in aggregated analysis</li> <li>-Limited scope of risk factor variables (e.g., restricted to the period of adulthood)</li> <li>-Do not account for dynamic/changeable variables</li> <li>-Do not account for mental disorders</li> <li>-Predict official not total recidivism</li> <li>-Do not consider interactions among risk factors</li> <li>-Offending patterns (i.e., pathways/trajectories) are not considered: rather, only the likelihood of reoffending</li> <li>-Non-developmental.</li> </ul>

Limitations. Despite the relative success of risk-based classification in terms of predictive validity, this approach to the classification of sexual aggressors of women is

not without several important limitations (See Table 3). First, although the several classification instruments have demonstrated substantially higher predictive validity compared to the previous typologies described above, the levels of predictive accuracy demonstrated are typically in the modest range. This is likely due, at least in part, to the fact that that these instruments assume that static between-individual differences characterize the risk status of offenders. In other words, this reflects the assumption that offenders classified as high risk remain consistently more likely to reoffend than offenders in lower risk categories. Furthermore, the presence and quantity of the key risk factor variables are assessed in terms of their linear relationship to the likelihood of reoffending. Second the selection of risk factors is limited in scope; for example, these instruments have been criticized for not taking into consideration, to a greater extent, dynamic/changeable risk factors, the effects of treatment, or the presence of mental health disorders on the likelihood of reoffending. Third, the time-restricted selection of risk factor variables to the period of adulthood precludes the possibility that static, historical risk factors prior to adulthood are relevant for the prediction of adult recidivism. This is in spite of substantial evidence that childhood antisocial behavior is an important risk marker for adult violent offending (e.g., Moffitt, 1993). Fourth, between-individual differences in risk factors are scored independently from the passage of time. Such instruments do not take into consideration aging and altered corresponding opportunity structures that decrease the likelihood of offending later in life (e.g., see Sampson & Laub, 2003). Therefore, the method for scoring risk on actuarial instruments only allows for the risk of reoffending to either remain stable or increase, but not to decrease, and, is independent of age-graded factors. This latter limitation also reflects the critical

assumption of actuarial instruments that the risk structure for a sexual crime is also static (i.e., the risk structure in young adulthood is the same later in life). Finally, actuarial instruments do not take into consideration different combinations of risk factors, but rather strictly their presence and quantity. This latter limitation reflects the stark contrast between risk-based taxonomies and clinical taxonomies given the latter were primarily concerned with combinations and configurations of victim, offender, and offence characteristics.

Given the emphasis of third-generation risk-based taxonomies on the prediction of future behavior, it is also somewhat surprising that this approach has not been conceptualized from a longitudinal perspective. The restriction of risk factors to the period of adulthood, the linear method of scoring the respective level of risk, and, not considering non-linear combinations of variables, precludes the possibility for the identification of different offending patterns that might shed light on the increased risk that certain offenders pose for sexually reoffending. For example, the failure to account for different offending patterns will possibly result in the over-estimation of the likelihood of reoffending for some offenders (e.g., those whose offending is in a process of desistance), and under-estimate it for others (e.g., those whose offending pattern began later in life and is characterized by acceleration) (Lussier, Tzoumakis, Cale, & Amirault, 2010). Given these considerations, a pertinent issue for future taxonomic research is whether a developmental approach is suited for the classification of sexual aggressors of women, insofar as the extent to which it can provide remedies to current taxonomic shortcomings.

**Table 4: Summary of Key Types and Characteristics of Sexual Aggressors of Women Over Three Generations of Classification**

<b>First-Generation Types (Motivation)</b>		
<b>Opportunistic</b>	<b>Sadistic</b>	<b>Rage</b>
<u>Labels</u> -Aggressive/ Amoral delinquents/Impulsive/Double standard/Power reassurance/Power assertive/Sexual aim/Compensatory <u>Offence</u> -Low planning -Low violence <u>Offender</u> -Low social functioning -Impulsive -Cognitive distortions, (i.e., victim blame) -Low-confidence/feelings of inadequacy -Low/moderate levels of criminal behavior	<u>Labels</u> -Sadistic/Sex-aggression/defusion/Assaultive/ Anger excitation <u>Offence</u> -High planning -High violence/Torture/Humiliation -Synergy between violence and sexual arousal <u>Offender</u> -Extensive criminal histories -Extensive violence histories, not specifically in relation to women -Deviant sexuality	<u>Labels</u> -Explosive/ Anger/Retaliatory/ Aggressive aim/Displaced anger <u>Offence</u> -Excessive violence/non-sadistic -Low planning <u>Offender</u> -History of violence/anger toward women -Minimal general criminal history

<b>Second-Generation Types (Motivation)</b>				
<b>Antisocial</b>	<b>Anger</b>	<b>Sadistic</b>	<b>Sexual</b>	<b>Rage/Vindictive</b>
<u>Labels</u> -Opportunistic <u>Offence</u> -Impulsive/predatory -Low planning -Low violence <u>Offender</u> -High or low social functioning -High impulsivity	<u>Labels</u> -Pervasively angry <u>Offence</u> -High victim injury -High planning <u>Offender</u> -Violence toward both men and women -Diversified violent/criminal histories	<u>Labels</u> -Overt sadistic/Muted sadistic <u>Offence</u> -Extensive physical harm to the victim -High planning <u>Offender</u> -Sadistic sexual fantasies -Arousal to violence	<u>Labels</u> -N/A <u>Offence</u> -Low levels of aggression <u>Offender</u> -High or low social competence -Sexual preoccupation -Dominance needs/Feelings of inadequacy -Minimal aggression in histories -Cognitive distortions about women	<u>Labels</u> -N/A <u>Offence</u> -High violence -Degradation and humiliation of the victim <u>Offender</u> -Minimal aggression in histories -Low impulsivity



**Table 4: Summary of key types and characteristics of sexual aggressors of women over three generations of classification (continued)**

<b>Third-Generation Types (Sexual Recidivism Risk)</b>		
<b>Low-risk</b>	<b>Medium-risk</b>	<b>High-risk</b>
-Age of the offender (+)	-Age of the offender (+/-)	-Age of the offender (-)
-Prior general, sexual, and/or violent offences (-)	-Prior general, sexual, and/or violent offences (+/-)	-Prior general, sexual, and/or violent offences (+)
-Nature and extent of prior sexual offences (-)	-Nature and extent of prior sexual offences (+/-)	-Nature and extent of prior sexual offences (+)
-Length of sexual offending history (-)	-Length of sexual offending history (+/-)	-Length of sexual offending history (+)
-Failure under supervision (-)	-Failure under supervision (+/-)	-Failure under supervision (+)
-Antisocial behavior in adolescence (-)	-Antisocial behavior in adolescence (+/-)	-Antisocial behavior in adolescence (+)
-Prior relationships (+)	-Prior relationships (-/+)	-Prior relationships (-)
-Employment history (+)	-Employment history (-/+)	-Employment history (-)
-Drug and alcohol problems (-)	-Drug and alcohol problems (-/+)	-Drug and alcohol problems (+)
-Personality/mental health disorders (-)	-Personality/mental health disorders (-/+)	-Personality/mental health disorders (+)
-Deviant sexuality (-)	-Deviant sexuality (-/+)	-Deviant sexuality (+)
-Successful treatment in custody (+)	-Successful treatment in custody (+/-)	-Successful treatment in custody (-)
-Victim age (+)	-Victim age (+/-)	-Victim age (-)

Note: (+) and (-) represent the nature and extent of the respective variable. For example, they represent either the quality (e.g., present vs. absent, good vs. poor, for nominal indicators) or quantity (i.e., increase vs. decrease for continuous indicators) of the variable in relation to being classified in the respective risk category.

#### **1.1.4 New Directions for the Classification of Sexual Aggressors of Women**

Three generations of taxonomies of sexual aggressors of women have undoubtedly advanced our understanding regarding the characteristics of offenders who commit these crimes, the basis for their motivation and planning, and, the characteristics of the relatively small proportion of these offenders who persist in this type of crime (see Table 4). At the same time, however, extant taxonomies provide limited insight into the developmental origins of sexually aggressive behavior. This is not necessarily surprising considering that: a) they have not been based on longitudinal frameworks; b) they do not consider developmental factors; and, c) they are limited in the extent to which they assess the link between past and future behavior. Furthermore, recent taxonomies (i.e., risk-based taxonomies) have arguably moved even further away from this goal considering they do not distinguish between sexual aggressors of women and children despite the extensive theoretical and empirical evidence of the distinct etiologies of these two types of sexual aggression. Perhaps even more surprisingly, it has not been until recently that criminologists have studied the sexual offender as a distinct type of criminal. Furthermore, even fewer criminologists have approached the problem using a developmental framework (Lussier, 2005).

The Developmental Approach. The developmental approach is concerned with patterns of stability and change in antisocial behavior over time, and, the risk factors associated with these behavioral patterns (LeBlanc & Loeber, 1998). More specifically, central to this approach is explicating the processes of initiation, persistence, and desistence of antisocial behavior that are related to the longevity and severity of offending. For example, the timing of onset of delinquency and antisocial behavior has

been a central focus of developmental models; early-onset (i.e., childhood-onset) is related to the persistence of serious and violent offending over the life course (e.g., Moffitt, 1993; Patterson & Yoerger, 1993). In addition to onset, the developmental approach is also concerned with different developmental sequences in antisocial behavior over time. These refer to patterns in the manifestation of different types of delinquent behaviors (LeBlanc & Loeber, 1998); not all early-onset offenders engage in a stable pattern of serious and violent offending into old age. Finally, desistance refers to the process by which the frequency and diversity of antisocial behaviors decrease later on in the life-course, and factors associated with such patterns. One way in which these central processes have been conceptualized in the literature is in terms of developmental, or, antisocial trajectories, which refer to systematic developmental changes that involve combinations of the latter processes (LeBlanc & Loeber, 1998). Importantly, developmental models have also emphasized different explanatory risk factors for offending according to distinct antisocial trajectories (e.g., Moffitt, 1993; Odgers et al., 2008; Patterson & Yoerger, 1993).

One of the initial, and perhaps most prominent, developmental models of antisocial behavior that has been elaborated on is Moffitt's (1993) dual taxonomy that differentiates between early-onset (i.e., life-course persistent) and late-onset (i.e., adolescent-limited) offenders. Early-onset offenders (between approximately 5% and 10% of males in the general population) are characterized by the initiation of antisocial behavior in childhood, and its persistence, diversification, and escalation to more serious forms of antisocial behavior with age. The risk factors operating for this antisocial trajectory involve neuropsychological (e.g., verbal skills, attention deficits) and psychosocial deficits (e.g.,

poor parenting), and, environmental adversities (e.g., low SES) (LeBlanc, 2005; Moffitt, 1993; Piquero & Moffitt, 2005; Thornberry, 2005). In effect, the early and successive interactions between risk factors across these domains cascade into subsequent developmental periods, resulting in a state of cumulative disadvantage that contributes to the persistence of antisocial behavior and offending for these individuals (Moffitt, 1993). Furthermore, offenders in this antisocial trajectory are disproportionately responsible for incidents of serious and violent offending throughout youth and in adulthood (e.g., Moffitt et al., 2002).

Late-onset offenders (approximately 45% of the general population of males), on the other hand, are characterized by the onset of antisocial behavior in adolescence and its desistance by early adulthood. The risk factors operating for individuals in this antisocial trajectory are more contextual in nature and reflect the gap between biological maturity and the adoption of adult-roles and behaviors (LeBlanc, 2005; Moffitt, 1993). For example, the role of peer influence and delinquency are central to the offending behavior of individuals in the late-onset trajectory. The offending of individuals in the late-onset trajectory is typically group-oriented and less serious in nature, although it can at times reflect the variety and frequency of offending characterized by the early-onset trajectory. The key feature that distinguishes the late-onset trajectory in terms of developmental course is that it is typically followed by the termination of antisocial behavior in young adulthood, a time when the gap between adult status and the means to achieve related prosocial goals narrows. In other words, most individuals in this antisocial trajectory typically desist from antisocial behavior. However, while prospective longitudinal studies have demonstrated that desistance is the norm for these individuals, they have also shown

that a minority may persist, especially in cases where the effects of their adolescent delinquency had long-lasting negative implications on their prosocial readjustment (e.g., a criminal record, drug addiction) leading to maladaptive outcomes in adulthood (e.g., substance abuse, and financial problems). The early- and late-onset antisocial trajectories have more recently been theoretically explored in the specific context of sexual aggressors of women.

The Developmental Approach and Sexual Aggressors of Women. From a developmental perspective, a key question pertaining to sexual aggressors of women is how different life stages, beginning in childhood, impact the initiation and continuity of sexually aggressive behavior. In this regard, sexual aggression has been incorporated into more general developmental models of antisocial behavior. For example, according to Moffitt (1993), it was presumed that rape was simply another manifestation of the life-course persistent syndrome. Over the life course, the risk factors associated with this antisocial trajectory are hypothesized to accumulate and cascade into subsequent developmental periods, increasing the risk for serious and violent offending (Moffitt et al., 2002), and, sexual aggression (Ehrensaft et al., 2003; Lussier, Farrington, & Moffitt, 2009; Madgol, Moffitt, Caspi, & Silva, 1998; Mazerolle & Maahs, 2002; Woodward, Fergusson, & Horwood, 2002).

Seto and Barbaree (1997) and Lalumière et al. (2005), introduced the evolutionary psychological concept of mating effort to theoretically explain how different antisocial trajectories manifest in the form of sexual aggression. Mating effort refers to the behavioral strategies employed to acquire sexual opportunities and maintain sexual relationships (Thornhill & Palmer, 2000). Building on Moffitt's (1003) developmental

framework, they hypothesized that for life-course persistent-type antisocial males, the accumulation of early risk factors would make these individuals unlikely to succeed in competition for desirable partners later in life. For example, the accumulation of individual and environmental risk factors, and, their adverse consequences, on outcomes in adulthood such as prosocial stable employment, wealth, and status, would restrict the success of some of these individuals to acquire and maintain sexual encounters, and stable relationships. Subsequently, compared to individuals with a higher 'mate value' (e.g., employment, wealth, and status), these individuals would be in a state of competitive disadvantage, and therefore, find themselves more likely to revert to employing coercive and aggressive tactics to acquire sexual relations.

At the same time, Lalumière et al. (2005) hypothesized that for some individuals characterized by aspects of the life-course persistent syndrome (i.e., a pattern of early-onset, persistent, and versatile offending), sexual aggression represents a different subset of causal factors. In effect, compared to the inability to legitimately procure prosocial sexual opportunities as a result of the accumulation of early deficits, some individuals purposely employ tactics such as deceit, manipulation, grandiosity, coercion and aggression to initiate sexual opportunities and increase the frequency of their sexual experiences. Lalumière et al. (2005) therefore hypothesized that these individuals are characterized by psychopathic traits, and therefore, their sexual aggression represents the manifestation an alternative strategy to acquire multiple sexual partners, rather than competitive disadvantage, for these individuals.

In the original formulations of Moffitt's (1993) developmental model, sexual aggression was not a hypothesized outcome of the adolescent-limited syndrome (i.e., late-

onset antisocial trajectory). From an evolutionary perspective, however, Seto and Barbaree (1997), and Lalumière et al. (2005) hypothesized that sexual aggression was a theoretical outcome for some of these individuals in adolescence as well. More specifically, in line with Moffitt's (1993) rationale for the basis and nature for their antisocial behavior, they hypothesized that the young male syndrome, can explain the sexual aggression of these offenders in the context of adolescent competition for reproductively relevant goals such as status, resources, and mates (Wilson & Daly, 1985). More specifically, they argued that the prevalence of 'date-rape' in the adolescent and young adulthood years could be explained by the male desire to adopt adult sexual roles in the face of social maturational barriers to do so. They further developed this hypothesis by suggesting as the intensity of competition is eventually replaced with positive future prospects (i.e., given the majority of these individuals desist from antisocial behavior), such as employment, wealth, and status, the likelihood of employing coercive and aggressive tactics would decline. This specific hypothesis pertaining to adolescent-limited, or late-onset offenders and sexual aggression, however, was not elaborated on concerning sexual aggression following the period following adolescence. At the same time, studies with male college-undergraduate students (i.e., unlikely to include early-starters) have garnered evidence that sexually coercive college males tended to exhibit higher levels of delinquency in youth than their non-coercive counterparts (e.g., Malamuth, Sockloskie, Koss, & Tanaka, 1991). In addition, more recent evidence has also emerged suggesting that these individuals are also at risk of violence against women later in life (Lussier, et al., 2009; Woodward et al., 2002). Given these key theoretical propositions and empirical evidence pertaining to sexual coercion and aggression among

late-starters, there is clearly a need to further empirically investigate sexual aggression among this antisocial trajectory as well. Given the current state of the literature pertaining to the antisocial trajectories of sexual aggressors of women, therefore, it would be expected that at least three distinct antisocial trajectories would emerge in their developmental backgrounds: two early-onset groups (i.e., one characterized by the life-course persistent syndrome, and one characterized by psychopathic traits), and a late-onset group. Current developmental models of sexual aggressors of women, however, have emphasized the central role of an early-onset antisocial propensity on sexual aggression in adulthood.

Developmental Models of Sexual Aggressors of Women. Only recently have criminological investigations of sexual aggressors of women adopted a developmental framework (Lussier & Cortoni, 2008; Lussier, LeBlanc, & Proulx, 2005; Lussier, Proulx, et al., 2005). These studies have been centrally concerned with the role of an antisocial propensity, and, its development, on sexual aggression in adulthood (Lussier, LeBlanc, et al., 2005). They have provided evidence that sexual aggression occurs behind a much larger repertoire of versatile offending behavior, and therefore can be explained as an alternative manifestation of the more general tendency to act in an antisocial manner (e.g., Lussier, Proulx, et al., 2005; Tedeschi & Felson, 1994). For serious and violent offenders in general (e.g., LeBlanc & Bouthillier, 1989; LeBlanc & Loeber, 1998), as discussed previously, and, sexual aggressors of women more specifically (Lussier, LeBlanc, et al., 2005), the initial evidence of this tendency is observed early in childhood and adolescence in the form of enduring behavioral problems, that manifest later in life in various forms of antisocial behavior, criminality, and for some, sexual aggression.



Therefore, the current empirical evidence tends to suggest that sexual aggression represents the unfolding of an early-onset antisocial trajectory, characterized by a general pattern of serious and violent antisocial behavior and offending over the life course.

While developmental models of antisocial behavior in general, and sexual aggression more specifically, suggest that sexual aggression can be best understood as an outcome of the unfolding of an early-onset antisocial trajectory, no empirical investigations have examined the hypothesis that different antisocial trajectories characterize the developmental backgrounds of sexual aggressors of women. More specifically, no developmental models of sexual aggression have examined within-individual changes in antisocial development over time, and, how these changes are related to the unfolding of criminal activity, in adulthood, of adult sexual aggressors of women. Furthermore, while heterogeneous antisocial trajectories have been hypothesized (e.g., Lalumière et al., 2005; Seto & Barbaree, 1997), their relationship to the sexual activity, and, sexual criminal activity of sexual aggressors of women also remains unclear. Empirical insight to these key hypotheses, therefore, carries the potential to elucidate the development of offending patterns of sexual aggressors of women over the life course. In addition, enhancing the understanding of the developmental course of offending in sexual aggressors of women, and, factors related to offending patterns, undoubtedly, will provide important insight into the assessment, management, and treatment of these offenders.

**Table 5: Substantive, Theoretical, Methodological, and Policy Related Summary of Typologies of Sexual Aggressors of Women**

<b>FIRST-GENERATION TYPOLOGIES</b>	<b>SECOND-GENERATION TYPOLOGIES</b>	<b>THIRD-GENERATION TYPOLOGIES</b>	<b>DEVELOPMENTAL TYPOLOGIES</b>
<b>KEY FOCUS AND CLASSES</b>			
-Victim type (i.e., children vs. Adults) -Motivation of the offender -Rage -Sadistic -Opportunistic	-Motivation of the offender -Antisocial -Anger -Sadistic -Sexual -Rage -Criminal event characteristics	-Strict risk and recidivism focus -Number of types based on measurement of specific risk scales (i.e., low/medium/high risk)	-Two-three key types. -LCP, Adolescent-limited, and psychopathy -Based on qualitative and quantitative patterns of behavioral change
<b>THEORETICAL APPROACH</b>			
-Atheoretical -Taxonomies informed by several theoretical approaches -Discriminatory variables not assessed on the basis of a consistent theory	-Atheoretical: -Taxonomies informed by several theoretical approaches -Discriminatory variables not assessed on the basis of a consistent theory	-Atheoretical: -Taxonomies are based on the quantitative differences in the risk of reoffending	-Theoretically driven -Developmental approach
<b>METHODOLOGICAL APPROACH</b>			
-Inductive approach -Based on cross-sectional data -Interview and file-based -Descriptive empirical analyses	-Interplay between inductive and deductive approaches -Based on cross-sectional data -Interview and file-based -Bivariate analyses -Cluster analyses -Multidimensional scaling	-Inductive approach -Based on cross-sectional data -File-based designs -OLS regression -Logistic regression -Cox regression -Survival analysis	-Identification of antisocial trajectories. -Deductive approach -Dynamic classification -Latent growth curve modeling -Semi-parametric group-based modeling
<b>POLICY AIM</b>			
-Treatment focus -Tertiary intervention	-Treatment focus -Tertiary intervention	-Risk assessment -Prevention: designed for secondary and tertiary/ intervention	-Determination of risk factors associated with the initiation and developmental course of sexually aggressive behavior -Primary and secondary intervention focus -Prevention focus

## **1.2 Aims of the Dissertation**

Given the current state of the developmental literature pertaining to sexual aggressors of women, the aim of the current dissertation was to empirically explore the utility of the developmental approach to the classification of sexual aggressors of women. Table five provides a side-by-side overview of the taxonomic, theoretical, methodological, and policy-related aspects of extant typologies of sexual aggressors of women. In terms of classes, as discussed in the previous section, while no developmental studies have assessed antisocial trajectories specifically in adult sexual aggressors of women, given the current state of the developmental theoretical literature pertaining to these offenders, it is hypothesized that at least three key antisocial trajectories would differentiate this subgroup of offenders; the life-course persistent, psychopathic, and adolescent limited types. The key differentiating aspect of a developmental typology of sexual aggressors of women, therefore, is that it is theoretically derived, and employs a deductive strategy to determine the presence of distinct types, based on antisocial trajectories. Furthermore, given the prospective emphasis of the developmental approach, the need for longitudinal data is a necessity to achieve this goal. Finally, and perhaps most importantly, a reliable and valid developmental typology of sexual aggressors of women, therefore, should be well-suited to provide initial insight into the key the policy issues of primary and secondary prevention, in addition to tertiary intervention.

While developmental models of antisociality have suggested sexual aggression is an outcome of the life-course persistent syndrome (e.g., Moffitt et al., 2002), and, criminological investigations of sexual aggressors of women have produced analogous evidence in line with these findings (e.g., Lussier, Proulx, et al., 2005), the general aim of

the current dissertation is to apply a developmental methodology to investigate the presence and structure of antisocial trajectories in sexual aggressors of women in line with recent theoretical propositions from evolutionary psychology (e.g., Lalumière et al., 2005; Seto & Barbaree, 1997). Therefore, three exploratory studies were conducted based on a sample of adult males convicted of a sexual offence against a female who was 16 years of age or above between April 1994 and June 2000. Furthermore, self-reported retrospective indicators of delinquency in childhood and adolescence were utilized to facilitate the longitudinal construction of antisocial trajectories. The specific aims of the three studies are elaborated on in detail below.

While recent theoretical studies have hypothesized sexual aggressors of women might be characterized by more than one antisocial trajectory (Lalumière, et al., 2005; Seto & Barbaree, 1997), virtually no empirical studies have specifically tested this hypothesis. Therefore, the theoretical aim of the first study of the dissertation was to explore whether a single, or multiple antisocial trajectories, in youth, characterized incarcerated adult sexual aggressors of women. This study explored the methods used in developmental criminology to assess the level of quantitative and qualitative change in the development of antisocial behavior in youth, as a way to classify adult sexual aggressors of women. More specifically, using a retrospective longitudinal design, self-reported, repeated measures of antisocial behavior in childhood and adolescence were examined, using a dynamic classification approach for linking these behavioral developmental periods.

Conceptually, therefore, in order to assess the continuity of antisocial behavioral manifestations in youth and the adult criminal activity of sexual aggressors of women, the first study of the dissertation also explored the relationship between antisocial trajectories

in youth and parameters of general, violent, and sexual offending in adulthood. In effect, in addition to introducing concepts from developmental criminology (i.e., antisocial trajectories) to better understand the life-course of development of sexual aggression in adults, this study also utilized these developmental concepts to understand both the sexual, and non-sexual criminal behavior of adult sexual aggressors of women.

Importantly, this provided an initial basis from which to determine whether developmental criminology, as a theoretical framework, methodologically allows for the measurement of the link between early antisocial behavior and criminal behavior in adulthood of adult sexual aggressors of women. This conceptual approach was also extended to the non-criminal sexual behavior of the sample in the second study of the dissertation.

The second study of the dissertation elaborated on the hypotheses proposed by evolutionary psychologists that sexual lifestyle differentiates sexual aggressors of women, and, is also related to sexual coercion and violence. More specifically, this study conceptually examined whether developmental types of adult sexual aggressors of women (i.e., early- versus late-onset antisocial trajectories) differ in terms of mating effort, and, how antisocial development and sexual lifestyles are related to sexual criminal activity in adulthood. Furthermore, considering that many intervention strategies pertaining to sexual aggressors of women have targeted aspects of their sexual development (i.e., deviant sexual arousal/preferences, cognitions supportive of rape, sexual self-regulation, intimacy deficits, lack of empathy) (Beech & Ward, 2004; Hanson & Harris, 2001; Thakker, Collie, Gannon, & Ward, 2008), a related policy aim of the second study was to determine whether the additional consideration of their antisocial

development, might allow for treatment to target corresponding aspects of their sexuality. Finally, given the examination of the relationship between sexual and antisocial lifestyles, an empirical aim that characterized the second study was to also assess the concurrent validity of developmental types proposed. In contrast, the empirical aim of the third study of the dissertation was to assess the predictive validity of the developmental types proposed.

The third study of the dissertation empirically assessed the predictive validity of developmental types by assessing their relationship to the likelihood of violent/sexual reoffending in adulthood. Currently, actuarial assessments designed to predict the likelihood of violent/sexual recidivism place a substantial emphasis on parameters of the adulthood criminal activity of sexual aggressors. Importantly, these variables have typically achieved moderate levels of predictive validity in terms of violent/sexual recidivism. Therefore, this study assessed the relative utility of considering developmental variables, and, whether violent/sexual recidivism rates significantly differed according to antisocial trajectories in youth. Additionally, from a policy perspective, it is currently unclear whether the consideration of developmental variables (i.e., antisocial trajectories) can add to the prediction of the likelihood of sexual reoffending.

Taken together, these three studies were designed to provide an initial, baseline exploration of the utility of the developmental approach in: a) providing further insight into the etiology of sexually aggressive behavior towards women; b) classifying sexual aggressors of women; and, c) tailoring more effective policy and intervention pertaining to these offenders.

**CHAPTER 2:**  
**HETEROGENEITY IN ANTISOCIAL TRAJECTORIES IN YOUTH**  
**OF ADULT SEXUAL AGGRESSORS OF WOMEN: AN**  
**EXAMINATION OF INITIATION, PERSISTENCE, ESCALATION,**  
**AND AGGRAVATION**

**2.1 Abstract**

Recent explanatory models of sexual aggression of women have emphasized the role of an antisocial tendency in explaining sexual aggression. If these models do agree about the importance of an antisocial propensity, they disagree about the presence of a single, or, multiple pathways leading to sexual aggression. Currently, no empirical studies have examined within-individuals changes of antisocial behavior in youth of adult sexual aggressors of women, and, whether those changes are related to the unfolding of the sexual and nonsexual criminal activity in adulthood. This paper examines the presence of antisocial trajectories in childhood and adolescence using a sample of 209 convicted adult sexual aggressors of women. A dynamic classification procedure using cluster analyses yielded five distinct antisocial trajectories, which were then compared using analyses of covariance on various parameters of criminal activity in adulthood. The results highlighted the heterogeneity of antisocial development in youth of adult sexual aggressors of women. Patterns of initiation, persistence and escalation in youth were related to the general, violent and sexual offending in adulthood.

## **2.2 Introduction**

This study explores the complex issue of the classification of sexual aggressors of women, using a developmental approach. Clinical and descriptive taxonomies have highlighted the substantial heterogeneity that exists among sexual aggressors of women (e.g., Knight & Prentky, 1990; Knight, Rosenberg, & Schneider, 1985). These taxonomies distinguish such characteristics as victim type, motivation, and, type of physical harm (i.e., Gebhard, Gagnon, Pomeroy, & Christenson, 1965; Cohen, Garofalo, Boucher, & Seghorn, 1971; Groth, 1979; Knight, 1999). These taxonomies, however, largely neglect the developmental courses of such behaviors despite the distinct developmental processes associated with antisocial behavior in general, and, more specifically, to the understanding of sexual aggressors. For example, there is evidence for the hypothesis that sexual aggression is part of a larger general deviance construct (Lussier, Proulx, et al., 2005). Equally important, risk factors for sexual aggression overlap significantly with those for general deviance (van Wijk, Loeber, Vermeiren, Pardini, Bullens, & Doreleijers, 2005). Therefore, the aim of this study is to investigate whether there are distinct developmental trajectories of antisociality in adult sexual aggressors of women, and, if separate trajectories exist, whether they are related to the unfolding of both sexual and nonsexual criminal activity in adulthood.

### **2.2.1 Typological Approaches to Antisocial Behavior**

There is considerable empirical evidence to support the underlying hypothesis that sexual aggressors of women are generally antisocial. Recent studies utilizing official criminal histories, self-reported offending histories, and rates of re-offending all confirm that the criminal activity of sexual aggressors is predominately versatile with sex crimes



representing only a small proportion of their total criminal activity (Simon, 1997; DeLisi, 2001; Lussier, 2005). Even individuals who specialize in sex crimes were, previously, criminally versatile (Miethe, Olson, & Mitchell, 2006). In effect, sexual crimes can be seen as the continuity of early manifestations of antisocial behavior (Knight & Sims-Knight, 2003; Lussier et al., 2005; Malamuth, 1998). Using retrospective data, Lussier, Leclerc, Cale, and Proulx (2007) found that an early persistent antisocial trajectory characterized by an early persistent manifestation of being dishonest and deceitful, aggressive and violent, reckless and defiant at home and at school, was one of the main behavioral trajectories associated with sexual criminal activity. Furthermore, Lussier, Proulx et al. (2005) indicated that an early persistent antisocial tendency was more strongly related to the onset and frequency of sexual criminal activity in adulthood in sexual aggressors of women when compared to the presence of deviant sexual interests. While these findings suggest that sexual aggression is primarily associated with life-course persistent type offenders, no studies of sexual aggressors have attempted to verify the heterogeneity of the antisocial trajectories in sexual aggressors of women. Indeed, if such trajectories do exist with respect to sexual aggressors of women, then a critical question also remains, that is, the extent to which antisocial trajectories have an impact on patterns of offending in adulthood.

### **2.2.2 Non-Developmental Models**

Classification Models of Criminal Behavior. Since the 1960s, three distinct classification strategies regarding criminal behavior have been developed. First, early taxonomies focused on nominal categories such as property and violent offender types (Gibbons & Garrity, 1962). Theoretically, these simple and obvious categories were

likely to be explained by different sets of etiological factors (Gibbons, 1971). Very quickly, however, cohort and major cross sectional research revealed first, that simple classification systems did not adequately account for the fundamental variations within categories; both property and violent crimes varied substantially in degree of seriousness and frequency. Second, there were few offenders who exclusively engaged in one type of criminal behavior. Third, that, where one type of offending was more evident, it could only be identified throughout the lifespan of offending, i.e., childhood through late adulthood (Moore & Gibbons, 1970). Fourth, while sexual aggressors of women (or rapists) were recognized as a distinct category of offenders, many researchers observed that they did not limit themselves to sex crimes (e.g., Adler, 1984) raising doubts about the importance of making such nominal distinctions. Finally, the regrouping of all rapists into one category contradicted clinical studies highlighting the heterogeneity of these offenders (Gebhard et al., 1965; Hudson & Ward, 1997; Knight & Prentky, 1990; Proulx & Lafortune, 2003).

The Criminal Career Paradigm. While tenets of the first generation recognized rapists as a distinct sub-group of offenders, the second generation did not address the nature of crime committed specifically. In effect, the next generation of typologies, stemming from the criminal career paradigm, emphasized the longitudinal sequence of offending over time (Blumstein, Farrington, & Moitra, 1985). Typically, second generation models included the onset of criminal behaviors as the initial defining characteristic, followed by frequency of different types of offending, and then desistance. Of critical importance was the prospective identification of chronic offenders who were most likely to escalate their criminal behavior to more serious forms of crimes such as violence and sexual assault. In

effect, these models tested the hypothesis that offending patterns could be reduced if such individuals were incapacitated (Piquero, Farrington & Blumstein, 2003). With respect to sexual aggressors, the goal was to determine whether chronic, persistent offenders escalated to sexual aggression over time (Blumstein, Cohen, Das, & Moitra, 1988; Stander, Farrington, Hill & Altman, 1989; Britt, 1996). In fact, prospective studies support the hypothesis that chronic offenders are at risk of escalating to sexual aggression. Tracy, Wolfgang, and Figlio (1990) indicated that approximately 5% of the offenders in the classic Philadelphia birth cohort were responsible for approximately 80% of the total arrests for rape up to age 18. This connection appears to emerge as part of the escalation process of delinquency and antisocial behavior of chronic offenders. Elliott (1994) also revealed that sexual assault almost always was preceded by non sexual assault, drug use, and robbery. In order to prevent chronic offending from emerging and escalating to more serious forms of offending, therefore, developmental theorists emphasized the investigation of the development of antisocial behavior from its onset in early childhood rather than in adolescence.

### **2.2.3 Developmental Classification Models**

The Dual Taxonomy. The progression of typologies highlighted above set the stage for the third generation of typologies, which focused on the incorporation of developmental stages (Paternoster & Brame, 1997). Similar to the previous generation of classification models, therefore, the relationship between onset, frequency, and persistence of offending continued to be important in both the new conceptualizations and theoretical propositions regarding the development of antisocial behavior. The most prominent model is Moffitt's (1993) dual taxonomy – the “life-course persistent” and

“adolescent-limited” offenders. The former type is characterized by the early onset of antisocial behavior in childhood, its persistence throughout adolescence and adulthood, and, diversification of, and escalation to more serious forms of antisocial behavior with age. According to Moffitt (1993), it was presumed that rape was simply just another manifestation of the life-course persistent (LCP) syndrome. In that regard, based on data collected as part of the Dunedin Birth Cohort Study, Moffitt et al. (2002) indicated that LCP offenders (10% of the birth cohort) were responsible for 62% of all convictions for sexual and physical violence against women up to age 26. “Adolescent-limited” offenders, on the other hand, are characterized by the onset of antisocial behavior in adolescence and desistance by early adulthood. Offending patterns in these individuals reflect those of “life-course persistent” offenders in terms of the variety and frequency of offending during adolescence. They do differ, however, in terms of the qualitative aspects of their offending as they are less likely to initiate victim-oriented offences such as violence and fraud (Moffitt, 1993; Piquero & Moffitt, 2005). In emerging adulthood, most of them eventually desist while others become ensnared as a result of their involvement in antisocial behavior (e.g., criminal record, incarceration, drug addiction, school dropout) and may continue behaving in an antisocial manner in early adulthood (e.g., Moffitt, Caspi, Harrington, & Milne, 2002).

The Dual Taxonomy and Sexual Aggressors of Women. Seto and Barbaree (1997), and more recently, Lalumière, Harris, Quinsey and Rice (2005), reformulated and extended the assumptions of Moffitt’s dual taxonomy to make specific predictions about the developmental pathways of sexual aggressors of women. Similar to Moffitt’s (1993) adolescent-limited type, Lalumière et al. (2005) identified the young male syndrome, a

contextually dependent phenomenon where adolescents compete for reproductively relevant goals such as status, resources, and mates. Risky tactics (e.g., coercion, charm, false promise) are specifically utilized during adolescence and young adulthood in order to find a mate and obtain sexual relationships. According to this hypothesis, however, as the intensity of competition eventually diminishes and is replaced by the more positive perception of future prospects, the use of coercive tactics also declines. Similarly, Seto and Barbaree (1997) hypothesized that date rape is more likely characterized by this phenomenon.

On the other hand, Lalumière et al. (2005) argued that the life-course persistent syndrome is characterized by the greatest risk for maladaptive outcomes throughout life. Therefore, in terms of sexual aggressors, the accumulation of early deficits makes these individuals unlikely to succeed in competition for desirable partners, therefore, the likelihood of acquiring sexual relationships through coercive tactics increases, especially, since the long-term prospects for these men are poor. Additionally, in these individuals, antisocial sexuality also begins at an early age. Lalumière et al. (2005) expanded on Moffitt's dual taxonomy by proposing the presence of a third pathway that is characterized by psychopathy. This sub-group of men uses deceit, manipulation, grandiosity, and coercive tactics to "create sexual opportunities and increase their number of sexual partners" (p. 103). In other words, for these individuals, sexual coercion is not the result of competitive disadvantage for mates, but rather, represents a strategy to acquire multiple sexual partners and encounters. Like life-course persistent offenders, Lalumière et al. (2005) describe psychopathic offenders as early-onset, persistent, and versatile. Therefore, in the model put forth by Lalumière et al. (2005), as a group, sexual

aggressors of women should be characterized by three antisocial trajectories. The LCP and the psychopathy trajectories are distinguishable in that the latter group exhibits a higher frequency of violent offending, engages commonly in both instrumental and reactive aggression, and recidivates more quickly than LCP offenders. In addition, in terms of psychopathology, psychopaths exhibit substantially higher degrees of arrogant and deceitful interpersonal behavior and lower affective responses.

#### **2.2.4 Zigzag Antisocial Trajectories**

In a series of articles, Sampson and Laub (2003; 2005; see also Laub & Sampson, 2003) argued against the use of developmentally-oriented classification models as these schemes tend not to recognize the dynamic complexities of human life. They challenged Moffitt's (1993) taxonomy by pointing out that a large number of criminal offenders are characterized by onset and desistence patterns not captured by the dual taxonomy. In that regard, Thornberry (2005) also criticized such classification schemes that are based solely on age of onset because it tends to be normally distributed in youth (and not bimodal). Furthermore, Sampson and Laub have argued that the dual taxonomy is too restrictive to account for the heterogeneity of trajectories throughout the life-course. This observation is consistent with numerous criminological studies that have employed a multitude of analytical strategies. Indeed, empirical studies based on representative samples of youth have typically identified eight types of antisocial trajectories (LeBlanc, 2002; Thornberry, 2005). In effect, using her extended classification scheme including the dual taxonomy, Moffitt successfully classified only approximately 50 % of her sample using the Dunedin birth cohort (Moffitt et al., 2002). Furthermore, Sampson and Laub criticized the developmental classification scheme for not taking into account the whole life-course by

emphasizing early formative years while diminishing the importance of successive periods, particularly in adulthood. They stipulated that there is too much heterogeneity in later-life outcomes to consider the deterministic role of early risk factors. In that regard, Laub and Sampson (2003) have presented both quantitative and qualitative evidence for much more dynamic patterns of offending throughout the life-course, and especially in adulthood. As such, they argued that human trajectories are mainly the succession of random processes and events and therefore, long-term predictions of antisocial behavior can not be made effectively. Of key importance is their reliance on the concept of human agency (see also Elder, 1985), the purposeful execution of choice and will, to suggest that feelings of injustice and alienation, as well as the of rewards of crime, may significantly influence the course of events and how individuals construct their own lives.

Contrary to developmental models proposed (ie., Moffitt, 1993; Seto and Barbaree, 1997; and Lalumière et al., 2005), the argument presented by Sampson and Laub has many implications for the understanding of the development of sexual aggression. First, by considering that the development of antisocial behavior is dynamic, characterized by a succession of random processes, it should be expected that there exist more than a single route leading to sexual aggression. As such, sexual aggressors of women should be characterized by a multitude of developmental trajectories. Given that random processes are also critical, the absence of a clear pattern in the antisocial trajectories of these men should be evident. In other words, one should not expect to find a high prevalence of early-onset, life-course persistent offenders as predicted by Moffitt. Contrary to the model presented by Lalumière et al. (2005), we should not expect to find two clearly distinct developmental patterns of antisocial trajectories. Second, given the dynamic

nature of human life, we should not expect to find strong effects emerging from the role of early behavioral markers on the unfolding of the criminal activity of sexual aggressors in adulthood. Considering that human agency and free will are central in the construction of human lives, destiny, therefore, should not play a part in the development of criminal activity. More precisely, individuals with an early onset, persistent, and aggravation pattern of the development of deviance in youth should not be those with a more extensive criminal history in adulthood.

### **2.3 Aims of the Study**

As highlighted above, theoretical models of criminal behavior have been a component of specific hypotheses regarding the antisocial background of sexual aggressors of women. Currently, however, no empirical studies have investigated the presence of either one or multiple antisocial trajectories in sexual aggressors of women. The aim of the present study is to investigate the presence of within-individual changes, of sexual aggressors of women, in deviance over the course of development by using repeated measures of deviance in childhood and adolescence, and offending in adulthood. Hierarchical cluster analyses were employed to identify delinquent sub-groups in childhood and adolescence, and turnover tables were constructed to create a dynamic classification of antisocial trajectories through childhood and adolescence. Indeed, if such trajectories do exist with respect to sexual aggressors of women, then a critical question also remains; to what extent antisocial trajectories have an impact on patterns of offending in adulthood. Therefore, these developmental trajectories were compared to various parameters of general, violent, and sexual offending in adulthood to determine the developmental course of offending. Of key importance, the current study empirically



tests whether a pattern of initiation, persistence, escalation, and aggravation are indicative of the unfolding of the criminal activity in adulthood of sexual aggressors of women.

## **2.4 Methodology**

### **2.4.1 Sample**

In the present study, all adult males convicted of a sexual offence who received a prison sentence of at least two years were selected for a survey between April 1994 and June 2000 in the province of Quebec, Canada. Ninety three percent of the individuals ( $n=553$ ) agreed to participate with the interview. In total, 209 of these individuals that had committed a sexual offence against an adult female at least sixteen years old were included in this study. At the time of the survey, all subjects were incarcerated at the Regional Reception Centre of Ste-Anne-des-Plaines, a maximum-security institution run by the Correctional Service of Canada. The average stay in this institution is about six weeks, permitting completion of correctional assessment procedures prior to the individual's transfer to an institution suited to his risk level and treatment needs. The majority of subjects included in this study were Caucasian (82.8%). The average age of individuals in the sample was 33.5 years old ( $SD=9.0$ ), and they were serving a mean prison sentence of 4.7 years ( $SD=3.4$ ). The offences for which they were incarcerated at the time were: sexual assault (66.0%), armed sexual assault (27.8%), sexual assault causing injuries (9.1%) and aggravated sexual assault (4.3%). On average, these individuals were convicted of offences on 5.4 occasions ( $SD=4.3$ ; range= 1-22). In addition, the majority of the sample were recidivists, as 79.9% had received a prior sentence.

### **2.4.2 Procedures**

Data used to create scales measuring behavioral antecedents were collected in a semi-structured interview with each subject. Each subject was interviewed only once by a member of the research team and were unaware of the research questions and hypotheses. Subjects included in this study signed a consent form indicating that the information gathered was to be used for research purposes only. Interviewers were all graduate students in criminology and psychology trained by a licensed forensic psychologist to conduct semi-structured interviews using a computerized questionnaire. The information was then compared to that found in the offender's correctional files and police reports. When disagreements were found between information gathered during the semi-structured interview and those collected from official files, official data were used. Inter-rater reliability was not assessed for the variables used in the present study. On the other hand, the scales used all had an adequate internal consistency.

### **2.4.3 Measures**

Behavioral Indicators of Antisociality in Childhood and Adolescence. In order to examine the presence of different antisocial trajectories, behavioral manifestations of antisociality were assessed based on self-reported data in childhood (0 to 12 years old) and adolescence (13 to 17 years old). The indicators selected have been conceptually and empirically related to the general deviance construct or antisociality (Farrington, 2005; LeBlanc & Bouthillier, 2003). Three types of antisocial indicators were examined in the present study reflecting the variety as well as the seriousness of antisociality in childhood and adolescence: (1) behavioral problems; (2) non-violent delinquency; and, (3) violent delinquency. The content validity and the predictive validity of these retrospective

measures have been demonstrated in previous studies (Lussier, Proulx, et al., 2005; Lussier, Leclerc, Cale, & Proulx, 2007). Behavioral problems included the following forms of deviance: frequent lying; being rebellious; problems controlling one's temper; running away or being truant; and, risky behaviors that endanger others or one's self (e.g., walking on the edge a bridge). Non-violent delinquency included different acts of property and non-violent delinquency: minor and major theft; robbery, break and enter; drug trafficking; fire setting; and, property destruction. Violent delinquency, on the other hand, included serious forms of aggressive and violent crimes: homicide; threats and intimidation; armed robbery; use of a weapon; nonsexual assault; and, sexual assault. For the purpose of the study, each of these indicators was coded as either present or absent in the two periods.

Taking into account these three types of antisocial manifestations for the two time periods, the present study included six behavioral indicators of antisociality. During the childhood period, 50% of the total sample reported at least one indicator of behavioral problems, 13% reported at least one indicator of non-violent delinquency and 5% reported at least one manifestation of violent delinquency. On the other hand, 67% of the sample reported at least one indicator of behavioral problems in adolescence, 47% reported at least one act of nonviolent juvenile delinquency while 24% reported at least one violent act in adolescence.

Criminal Activity of Sexual Aggressors of Women in Adulthood. Considering the use of self-reported data for the establishment of the antisocial trajectories, and, to avoid problems associated with the use of one source of information for both the independent and dependent variables, official data of the criminal activity of offenders in adulthood

were used. First, general offending, including any criminal charges in adulthood was examined in terms of: (1) age of onset of the first criminal charge in adulthood; (2) frequency of general offending (number of charges); and, (3) degree of versatility of offending in adulthood (i.e., the average number of different crime types in the offence history). The scale of versatility includes the following seventeen items: mischief; theft; car theft; break and enter; fire-setting; homicide; assault; kidnapping; robbery; sexual assault; aggravated sexual assault; exhibitionism; fraud; crimes related to driving a vehicle; drug-related offences; crimes related to the administration of justice; and, a category for any other crime types. The scores of the criminal versatility vary between one and seventeen, the higher the score the higher the criminal versatility. As a group, the average age of onset for general offending in adulthood was 24.1 ( $SD= 8.0$ ) years old, the mean number of charges was 19.5 ( $SD= 22.1$ ), and the mean level of criminal diversity was 5.8 ( $SD= 3.0$ ).

The parameters of nonsexual violent offending in adulthood that were examined in the present study included: (1) age of onset of the first nonsexual violent offence charge in adulthood; (2) frequency of nonsexual violent offending; and, (3) degree of specialization in nonsexual violent offending in adulthood (i.e., ratio of the number of charges for a violent crime to the total number of charges). In total, 85% of the sample had at least one charge for a nonsexual violent crime. As a group, the average age of onset for violence was 27.0 ( $SD= 8.4$ ) years old, the mean number of charges for violent crimes was 5.1 ( $SD= 7.5$ ), and the mean level of specialization in nonsexual violence was 46.5% ( $SD= 31.0$ ).

The same three indicators were used to determine the official sexual criminal activity in adulthood. The theoretical importance of these measures has been established in several previous studies (Knight & Prentky, 1993; Lussier, Proulx, et al., 2005; Lussier, 2005), and they have not been previously assessed by any study in terms of their relationship to antisocial trajectories in sexual aggressors of women. As a group, the offenders had an official adult age of onset of 30.8 ( $SD= 9.1$ ) years old for a sexual crime, had an average of 2.3 ( $SD= 2.2$ ) charges for a sexual crime, and a specialization level of 17.2% ( $SD= 14.4$ ). In other words, as a group, sexual aggressors of women tended to start their violent criminal activity earlier than their sexual criminal activity, had more violent than sexual crimes in their criminal repertoire, and had a higher level of specialization in violent crimes than compared to sex crimes.

#### **2.4.5 Analytic Strategy**

Identification of the Cluster Solution. The first step in the dynamic classification strategy was to identify qualitatively (i.e., seriousness) and quantitatively (i.e., variety) different groups in each time period (i.e., childhood and adolescence). First, hierarchical cluster analysis was conducted using Ward's method and squared Euclidean distance to identify nested group of individuals (Finch, 2005). Simulation studies have shown that this combination yields the most satisfactory results (Carter, Morris, & Blashfield, 1989). Separate statistical analyses were conducted for the childhood and the adolescent indicators. In effect, cases are joined based on their proximity to one another over successive iterations forming progressively larger groups until one single super-ordinate group is created. At this point, a decision is made based on the number of groups that best characterize the data. Based on the criminological literature, it was hypothesized a-priori

that the minimum number of groups should be two and the maximum eight (LeBlanc, 2002). Therefore, the criteria were set for cluster extraction, and a two to eight group solution was delineated for the number of clusters allowable within the data. This approach particularly suits an exploratory design when there are no presumptions as to how many groups may characterize the data (Beauchaine & Beauchaine III, 2002). This exploratory approach was also taken given that this is the first study examining antisocial trajectories in youth of adult sexual aggressors of women.

In the present study, scree plots were used to analyze the point at which the increments of the proximity coefficients produced by the agglomeration schedule indicated that the variance within clusters was resulting in heterogeneity within the groups. In the agglomeration schedule, when an inconsistent increase in the dissimilarity measure is observed, this indicates that clusters have been joined that were in fact heterogeneous (Clatworthy, Buick, Hankins, Weinman, & Horne, 2005). A popular method used as a stopping rule to identify the number of clusters in the data as been proposed by Mojena (1977). The stopping rule can identify where a significant increase in the agglomeration of the clusters is observed when:

$$\text{(Equation 1) } X_{j+1} > X + KS_z$$

where  $X_{j+1}$  refers to the value of the fusion coefficient at stage  $j+1$  of the clustering process,  $K$  is a constant,  $X$  is the mean of the fusion coefficients and  $S_z$ , is its standard deviation. Milligan and Cooper (1985), using Monte Carlo simulations, have noted that this procedure has some limitations, more specifically when only two clusters are present in the data. They also noted that Mojena's technique yielded best results when  $K$  was set to 1.25, contrary to Mojena's observation that the algorithm worked best when  $K$  was set

to 2.75. Therefore, in keeping with Milligan and Cooper (1985), the value of K was set to 1.25.

Dynamic Classification Model. Following the work of several developmental criminologists, a dynamic classification model was created (Ayers, Williams, Hawkins, Peterson, Catalano, and Abbott, 1999; LeBlanc and Kaspary, 1998; Loeber, Stouthamer-Loeber, Van Kammen & Farrington, 1991). Dynamic classification models are usually created by using a turnover table of frequency distributions (Davis, 1963; Huizinga, 1979) using the cluster solutions found for the two developmental periods. Such a classification model helps in discovering the level of heterogeneity in antisocial behavior over time. Earlier studies have found evidence for up to eight possible antisocial patterns; (1) non-delinquents; (2) desistors; (3) initiators (or late-starters); (4) escalators; (5) de-escalators; (6) stable lows; (7) stable moderates; and, (8) stable highs. The three most prevalent patterns found have generally been the escalators (about 20%), the non-delinquents (between 15% and 20%) and the stable moderates (about 15%) (Ayers et al., 1999; Loeber et al., 1991). Research has shown however that these distributions can vary according to the subjects' age and whether they are based on representative samples of adjudicated youth (see Loeber et al., 1991). Furthermore, as pointed out by LeBlanc and Kaspary (1998), one of the limitations of this approach is the fact that such a classification strategy does not allow one to consider certain dimensions of offending, such as frequency for example. In the present study, the aim of classification was to capture the transition and the within-individual changes in antisocial behavior, more specifically the behavioral progression, over two developmental periods. Consequently, after the identification of the appropriate number of groups in childhood and adolescence, the

cluster solution of antisocial activity in childhood was crosstabulated with that solution found for antisocial activity in adolescence.

Group Comparisons of Criminal Activity Parameters. First, analysis of covariance (ANCOVA) was used to explore the possibility that antisocial trajectories statistically differed in terms of the official age of onset and the frequency of charges for general, non-sexual violent and sexual offending in adulthood. Second, the trajectories were examined in terms of whether they differed according to overall levels of criminal versatility and specialization in non-sexual violent and sexual crimes. Therefore, for each of the criminal activity parameters, analyses of covariance (ANCOVA) and post-hoc analyses correcting for the number of comparisons were analyzed. Given the average length of prison sentences for these individuals of 4.7 years ( $SD= 3.4$ ), while it was most important to account for the effect of age, it was also critical to account for the time an individual was actually at risk for committing an offence in adulthood. In other words, the effect of age was controlled for while taking into consideration the time that an individual spent in custody after the age of 18. Skewed dependent variables were log transformed for the purpose of analyses. For highly skewed variables where assumptions of homogeneity of variance could not be met, the procedure suggested by Conover and Iman (1982) to replace the scores of dependent variables by their rank was followed.

## **2.5 Results**

### **2.5.1 Hierarchical Cluster Analyses**

Based on the analysis of the variance distribution of the proximity coefficients, a four-cluster solution emerged from the antisocial behavior in childhood (0-12 years old). The four-cluster solution consisted of the following groups: (1) abstainers (45.5%), which



included individuals who reported no antisocial behavior during childhood; (2) behavioral problems (40.2%), where only minor forms of antisocial acts were reported such as frequent lying, rebelliousness, truancy, risk taking or temper tantrums but no forms of delinquency; (3) nonviolent delinquency (9.6%), where behavioral problems and non-violent delinquency were present; and, (4) versatile-violent delinquency (4.5%), where behavioral problems, non-violent delinquency and violent delinquency were all reported during childhood. Although the findings supported the presence of four groups, the small size of the versatile-violent group (less than 5% of the sample) raised some concerns. When forcing a three-factor solution, individuals included in that group joined those in the non-violent delinquency group, thus forming a more heterogeneous child-delinquent group. It was decided, following recommendations by Everitt, Landau and Leese (2001), to keep the solution yielding the highest numbers of groups.

The same procedures were conducted with data for the adolescence (13-17) period. A four-cluster solution also emerged from the agglomeration schedule in which the groups were characterized by the following behaviors: (1) behavioral problems (23.9%), which consisted of only minor forms of deviance such as lying, rebelliousness, running away, risk taking, and temper tantrums, but no moderate or serious forms of antisocial behavior; (2) low-level delinquency (33.0%), which did not include behavioral problems, but did include some involvement in non-violent delinquency but not in violent delinquency; (3) versatile non-violent delinquency (20.6%), which included the presence of behavioral problems, non-violent delinquency but no violent delinquency; and, (4) versatile-violent delinquency (22.5%) which consisted of the presence of behavioral problems, non-violent and violent delinquency.

### **2.5.2 Internal Validity of the Cluster Solutions**

Following the recommendations of Aldenderfer and Blashfield (1984), and Everitt et al. (2001), an important component of the use of cluster analysis is to investigate the internal validity of the cluster solution using a combination of procedures. Therefore, two techniques were used to investigate the internal validity of the clustering solution. First, multivariate analysis of variance was conducted on the variables used to create the clusters. It has been recommended not to use such techniques as the clustering technique is designed to maximize the between-cluster differences on these variables (Aldenderfer & Blashfield, 1984; Everitt et al., 2001). This validation strategy, however, was composed of two steps. First, the cluster analyses were re-run using another measure of proximity specifically designed to examine dichotomous data (i.e., Russell - Rao) (see Finch, 2005). The results were crosstabulated with those found in the original solution and Kappa measures of agreement were computed. For the childhood data and the adolescence data, very high stability characterized the two cluster solutions, with kappa measures were observed between .93 and .90 respectively, and percentages of correct classifications higher than 90% in both cases.

The second method used to investigate the internal validity of the cluster solution was a split-sample validation technique. In this instance, the entire sample was randomly divided into two subsets equal in size. Next, the cluster analysis was performed on each of the random samples separately. The two sets of results were then crosstabulated with the original solution. For both the childhood (Kappa, range= .93-.98) and the adolescence (Kappa, range= .91-1.00) solutions, high kappa measures were found suggesting again some stability in the results.

**Table 6: Dynamic Classification Model of Antisocial Behavior of Sexual Aggressors of Women (n=209)**

		HIGHEST LEVEL ACHIEVED IN ADOLESCENCE (13-17)			
		Behavioral problems	Nonviolent delinquency	Versatile nonviolent	Versatile violent
HIGHEST LEVEL ACHIEVED IN CHILDHOOD (0-12)	Abstainers	Non-delinquents (n=15; 7.2%)	Initiators (n=80; 38.3%)		
	Behavioral Problems	Stable lows (n=31; 14.8%)	Escalators (n=58; 27.8%)		
	Nonviolent delinquency		Stable moderates (n=11; 5.3%)		
	Versatile violent		De-escalators (n=5; 2.4%)	Stable highs (n=9; 4.3%)	

$X^2(9) = 97.2; p < .000; \text{Cramer's } V = .40.$

### 2.5.3 Dynamic Classification of Offenders

After the delinquent groups were established in both childhood and adolescence, the childhood and adolescent groups were crosstabulated with each other. When the groups in childhood were crossed with the groups in adolescence, a turnover table of seven possible antisocial trajectories was created (Table 6). In order to do so, the clusters were organized in order of seriousness (e.g., from abstainers to versatile-violent). The findings highlighted the presence of individuals in seven possible trajectories. The initiator group (39%), the most prevalent group in the sample, reported no antisocial behavior in childhood but showed evidence of behavioral problems in adolescence. In that sense, this group constituted the late-onset group. The escalators (28%) represented the second most prevalent group showing some progression in seriousness of antisocial behavior committed over the two periods. In childhood, their delinquency was characterized by behavioral problems and non-violent delinquency, where in adolescence it included behavioral problems, non-violent, and violent delinquency. The stable-lows (15%) included individuals showing behavior problems in both developmental periods without showing any evidence of non-violent or violent delinquency. The non-delinquent group (7%) exhibited no evidence of antisocial behavior in both the childhood and the adolescence periods, just minor behavioral problems in adolescence. Also, surprisingly, two small groups of child delinquents emerged. The stable-moderates (5%) showed evidence of versatile, non-violent delinquency (behavioral problems and non-violent delinquency) in both periods, while the stable-highs (4%) reported evidence of versatile antisocial violent behaviors (behavioral problems, non-violent, and violent delinquency) in both childhood and adolescence. Considering their similarity and small sample size, it

was decided to combine the last two for further statistical analyses (under the label of stable-moderates) (Table 7). Finally, the de-escalators who were those showing a pattern of seriousness that appeared to be decreasing over time, represented only 2% of the sample. Although this group is undoubtedly of theoretical and empirical importance, considering their small sample, it was decided to delete them from further analysis.

**Table 7: Prevalence of Delinquency Types in Childhood and Adolescence Within Trajectory Groups**

	<b>Behavioral Problems</b>		<b>Non-violent Delinquency</b>		<b>Violent Delinquency</b>	
	(0-12)	(13-17)	(0-12)	(13-17)	(0-12)	(13-17)
<b>Non-delinquents (n=15)</b>	0.0%	100.0%	0.0%	0.0%	0.0%	0.0%
<b>Initiators (n=80)</b>	0.0%	27.5%	0.0%	40.0%	0.0%	15.0%
<b>Stable-lows (n=31)</b>	100.0%	100.0%	0.0%	0.0%	0.0%	0.0%
<b>Escalators (n=58)</b>	100.0%	87.9%	8.6%	81.0%	0.0%	48.3%
<b>Stable-moderates (n=20)</b>	60.0%	80.0%	90.0%	90.0%	45.0%	50.0%

#### 2.5.4 Dynamic Classification and Offending Parameters in Adulthood

Main Effects. The next step of the analytic strategy was to compare the six trajectories on various criminal activity parameters in adulthood. Omnibus F-tests using ANCOVA were performed on nine measures of the criminal activity parameters in adulthood while controlling for the offenders' age (Table 8). Levene's test was used to determine equality of variance while post-hoc comparisons were performed using the Sidak procedure. Of the nine criminal activity parameters analyzed, six were found to be statistically significant suggesting that criminal activity in adulthood differed according to antisocial trajectories in youth. This was especially true for measures of general offending. Indeed, for general offending, the antisocial trajectory had a statistically significant impact on the age of onset, the annual frequency of offending, and the degree of criminal versatility. Post-hoc comparisons showed that only two groups significantly differed on all three analyses, escalators showing an earlier age of onset of offending in adulthood ( $p < .01$ ), a higher annual frequency of general offending ( $p < .01$ ) as well as a more diversified criminal repertoire ( $p < .01$ ) than initiators. A similar pattern emerged for the parameters measuring violent offending in adulthood. More specifically, the antisocial trajectory had a statistically significant impact on the age of onset, the annual frequency of offending but not on specialization in violent crime. Post-hoc analyses were then performed where statistically significant effects were found. Results showed that only two groups significantly differed on the two analyses, escalators showing an earlier age of onset of violent offending in adulthood ( $p < .01$ ) as well as a higher annual frequency of violent offending ( $p < .01$ ) than initiators. Finally, in terms of sexual offending, the antisocial trajectory had a statistically significant effect on only one

criminal activity parameter, the level of specialization. Post-hoc comparisons revealed that initiators tended to exhibit a higher degree of specialization in sex crimes compared to the escalators ( $p < .01$ ). It is also important to note that the significant effect sizes found for the trajectories on the criminal activity parameters were relatively low, ranging from .05 to .09.



**Table 8: Antisocial Trajectories in Youth and Parameters of Criminal Activity in Adulthood using ANCOVA**

	Non-delinquents (ND) (n=15)	Initiators (IN) (n=80)	Escalators (ES) (n=58)	Stable-lows (SL) (n=31)	Stable-mod (SM) (n=20)	Omnibus F test (Trajectory)	Partial $\eta^2$ (Trajectory)
<b>General Crimes</b>							
Age of onset <sup>a</sup>	24.7 (7.1)	27.3 (10.4)	21.2 (4.9)	23.8 (5.7)	20.5 (3.2)	3.98**	.07
Annual frequency <sup>a</sup>	2.2 (6.3)	1.7 (2.7)	3.0 (3.5)	1.6 (1.8)	2.6 (4.1)	4.24**	.08
Versatility	5.7 (2.1)	4.8 (2.8)	6.6 (3.0)	6.4 (3.5)	6.3 (2.8)	4.92**	.09
<b>Violent Crimes</b>							
Age of onset <sup>a</sup>	31.2 (8.2)	30.5 (10.6)	24.2 (5.9)	26.4 (5.7)	23.2 (5.2)	2.90*	.07
Annual frequency <sup>a</sup>	0.2 (0.2)	0.6 (1.8)	0.9 (1.2)	0.4 (0.6)	1.4 (3.6)	4.39**	.08
Specialization	.24 (.21)	.29 (.27)	.32 (.23)	.29 (.22)	.29 (.21)	0.24	.00
<b>Sexual Crimes</b>							
Age of onset <sup>a</sup>	35.9 (7.0)	32.9 (11.3)	27.8 (6.7)	31.1 (7.3)	27.6 (6.0)	2.01+	.04
Annual frequency <sup>a</sup>	0.1 (0.1)	0.2 (0.2)	0.3 (0.4)	0.2 (0.3)	0.3 (0.5)	1.81	.03
Specialization <sup>b</sup>	.23 (.18)	.34 (.32)	.20 (.20)	.22 (.23)	.21 (.22)	2.75*	.05

Note. Analyses were performed adjusting for the effect of age at the time of the interview. Annual frequencies take into account time spent incarcerated.

a. The rank-ordered distribution of the dependent variable was analyzed (Conover & Iman, 1982).

b. Log transformation on the dependent variable was performed in order to conduct the ANCOVA.

+  $p < .10$ , \*  $p < .05$ , \*\*  $p < .01$ , \*\*\*  $p < .001$

Planned Contrasts. ANCOVA with repeated planned contrasts were carried out in order to investigate whether the process of initiation, persistence, escalation and aggravation were related to the offending behavior in adulthood (Table 9). The statistical analyses were carried out while controlling for the effect of age at the time of the interview. First, the process of initiation on the criminal activity in adulthood was tested for by comparing the groups of non-delinquents with the initiators. Both groups had not been involved in antisocial behavior in childhood but the latter group started in adolescence. Of the nine activity parameters that were analyzed, only one (11%) emerged as statistically significant. The non-delinquents had a significantly later age of onset of their sexual criminal activity compared to that of the initiators ( $p < .05$ ). Secondly, persistence was operationalized by comparing the initiators to the escalators. Both groups were involved in delinquency in adolescence but the latter group exhibited antisocial behavior during childhood. Of the nine criminal activity parameters compared, six emerged as statistically significant (67%). Compared to the initiators, the escalators had an earlier age of onset of general ( $p < .01$ ) and violent ( $p < .01$ ) offending, had a higher annual frequency of general ( $p < .001$ ), and violent offending ( $p < .001$ ), had a more diversified criminal repertoire ( $p < .001$ ) and were less specialized in sex crimes ( $p < .001$ ). Thirdly, escalation was tested by comparing the criminal activity of the stable low group with the escalators. Both groups were involved in behavioral problems during childhood but the latter group escalated to more serious forms of delinquency in adolescence. Two of the nine parameters compared emerged as statistically significant (22%). The escalators, compared to the stable lows, had an earlier age of onset of their general offending ( $p < .05$ ) and had a higher annual frequency of sexual offending ( $p <$

.05). Finally, to test for the role of aggravation, the criminal activity of the stables lows was compared to that of the stable moderates/highs, the latter group being child delinquents who persisted in adolescence. In this case, none of the nine criminal activity parameters emerged as statistically significant. These results suggested that the process of persistence, and, to a lesser extent, escalation, had a more significant impact on the unfolding of the criminal activity in adulthood.

**Table 9: Repeated Planned Contrasts of Antisocial Trajectories and Offending Behavior in Adulthood using ANCOVA (controlling for age at the time of interview)**

	Initiation (ND vs IN)	Persistence (IN vs ES)	Escalation (ES vs SL)	Aggravation (SL vs SM)
<b>General Crimes</b>				
Age of onset <sub>a</sub>	-	**	*	-
Annual frequency <sub>a</sub>	-	***	-	-
Versatility	-	***	-	-
<b>Violent Crimes</b>				
Age of onset <sub>a</sub>	-	**	-	-
Annual frequency <sub>a</sub>	-	***	-	-
Specialization	-	-	-	-
<b>Sexual Crimes</b>				
Age of onset <sub>a</sub>	*	-	-	-
Annual frequency <sub>a</sub>	-	-	*	-
Specialization <sub>b</sub>	-	***	-	-

Note. ND=Non-delinquents, IN=Initiators, ES= Escalators, SL=Stable-lows, SM=Stable-moderates/highs

a. The rank-ordered distribution of the dependent variable was analyzed (Conover & Iman, 1982).

b. Log transformation on the dependent variable was performed in order to conduct the ANCOVA.

\* $p < .05$ , \*\* $p < .01$ , \*\*\* $p < .001$

## 2.6 Discussion

The heterogeneity of sexual aggressors of women is a widely accepted fact amongst practitioners and researchers (Hudson & Ward, 1997; Prentky & Burgess, 2000; Proulx & Lafortune, 2003). If the present study makes no exception to this well-known fact, it clearly departs from early clinical classification models of sexual aggression of women. These clinical models, focusing on the motivation to commit the offence (Cohen, Garofalo, Boucher & Seghorn, 1971; Gebhard, Gagnon, Pomeroy, & Christenson, 1965; Groth, 1979; McCaldron, 1967; Rada, 1978) have generally recognized the presence of four types of offenders: (1) power and control; (2) rage and hostility; (3) sadistic; and, (4) antisocial/opportunistic. The results of the current study suggest this configuration might be of limited use when considering the life-course development of these individuals as most of them show an antisocial background. As previous research has proposed that sexual aggression can best be understood as a manifestation of a general antisocial tendency (Lalumière et al., 2005; Lussier et al., 2005; Seto & Barbaree, 1997; Tedeschi & Felson, 1994), the first question posed by the current study was whether one or multiple trajectories was sufficient to describe the development of antisocial behavior in sexual aggressors of women. The results indicate that the development of antisocial behavior in sexual aggressors of women is rather complex. As such, adult sexual aggressors of women cannot all be considered life-course persistent offenders given that much heterogeneity in their antisocial development was observed. Multiple routes to sexual aggression in adulthood appear to be a more plausible model of the development of sexual aggression. The study also demonstrates that, to a limited extent, group membership to a particular antisocial trajectory has some postdictive impact on the

unfolding of the criminal activity in adulthood. These results suggest some continuity in offending over broad developmental periods. The implications of these important findings are reviewed below.

### **2.6.1 Heterogeneity in the Antisocial Trajectories of Sexual Aggressors of Women**

Following in the footsteps of the work of Rolf Loeber and Marc LeBlanc, among others, a dynamic classification approach was used in the present study to examine the antisocial trajectories of sexual aggressors of women. Most sexual aggressors of women included in the study reported some involvement in delinquency, something consistent with longitudinal studies based on general populations (LeBlanc & Loeber, 1998; Piquero, Farrington & Blumstein, 2003). This is also in agreement with clinical studies that have recognized the antisocial background of sexual aggressors of women (Lussier, Proulx, et al., 2005; Lussier, LeBlanc, et al., 2005). Beyond this broad conclusion, however, the findings suggest that there is also much heterogeneity in the timing and the nature of the manifestations of the antisocial behavior of these men. At one extreme, 7% reported no involvement in delinquency by the age 18, while at the other extreme of the continuum, 4% reported being involved in a pattern of versatile and violent delinquency over two periods. Previous studies examining the development of juvenile delinquency have reported somewhat higher levels of non-delinquency (about 15%) and stable-highs (about 10-15%) (Ayers et al., 1999; Loeber et al., 1991). The discrepancies found with regards to the stable-highs, however, might be attributable to the fact that these previous studies have defined the latter group as those involved in serious or violent delinquency, whereas in the present study, it refers to those involved in violent delinquency over the two successive periods. When combining the stable moderates and stables-highs, which

is more in line with conceptualizations used in previous prospective longitudinal studies with at-risk children (see Loeber et al., 1991), a comparable figure emerged (approximately 10%) to those found using samples from the general population. Most of the offenders in the sample fell in between the two extreme positions, with a tendency to cluster in the trajectories of initiation and escalation.

Sexual Aggression and the LCP Syndrome. The results of the present study, however, stand somewhat in contrast with prospective longitudinal studies based on general samples of boys that emphasized the importance of one trajectory of at-risk youth of escalating to sexual assault. According to Moffitt (1993), sexual aggression is one of the manifestations of the LCP syndrome which is characterized by an early onset of antisocial behavior, followed by persistence, escalation and aggravation in the manifestations as the syndrome develops over time. In this sample, individuals reflecting the LCP syndrome characterized by an early onset of delinquency accounted for about 10% of the sample. In other words, sexual aggressors with a trajectory most reflecting the LCP syndrome represent a minority of this sample of incarcerated offenders. On the other hand, if one recognizes the presence of behavior problems as a marker of early-onset, then this prevalence rate would increase to a little more than 50% (i.e., stable low, stable-moderates, stable-highs, escalators) making it much more considerable. Loeber and Farrington (2001) reported that approximately one-quarter to one-half of disruptive children are at risk of escalating to delinquency and that approximately one-third to two-thirds of child delinquents may become serious juvenile offenders. It is thus possible that the analytic strategy in the present study might have been better at capturing this stepping-stone process rather than the LCP syndrome defined by Moffitt (1993).

Loeber and Hay (1994) on the other hand, have favoured a pathway model suggesting that sexual aggression represents the pinnacle of the development of overt aggression, thus suggesting that sexual aggressors would be characterized by a pattern of non-sexual violent offending. This was something recognized by Elliott (1994) showing that assault always precedes sexual assault and not the other way around. This pattern was also observed to a lesser extent in the present data as 15% of the sample reported some involvement in serious violent offending in childhood, increasing to about 25% in adolescence. Clearly, however, a background of serious violent offending over childhood and adolescence does not appear to be the norm in this sample of adult sexual aggressors of women. Another possibility, however, is that that these approaches might be more suitable to juvenile sexual aggression than to sexual aggression in adulthood.

Multiple Pathways to Sexual Aggression. Findings from the dynamic classification approach give some credence to the classification models proposed by Seto and Barbaree (1997) and more recently Lalumière et al. (2005) who recognized the heterogeneity of the antisocial background of sexual aggressors of women. They proposed that sexual aggression can be a manifestation of different syndromes, and, as a corollary, can co-occur with different types of antisocial trajectories. Their emphasis on the young male syndrome (i.e., late-onset) and the life-course persistent trajectories appears to have empirical validity as the current results showed that the initiators (i.e., late-onset) and the stable moderates/highs (i.e., life-course persistent) together represented close to half of the sample. The high prevalence of late-onset offenders (i.e., close to 40%) came as a surprise considering the nature of the current sample which was composed of federally sentenced offenders. Seto and Barbaree (1997) as well as Lalumière et al. (2005) were the



first to hypothesize that individuals following this trajectory might use coercive tactics to obtain sexual gratification given episodic difficulties in finding a sexual partner. Based on the current information analyzed, it was not possible to test further the hypothesis that these men were characterized by a profile that would be congruent with date rape. On the other hand, congruent with Moffitt's original arguments, the late-starters were also those characterized by a late onset, low frequency of general and violent offending, and a low degree of criminal versatility in adulthood. Their involvement in offending appeared to be somewhat limited in sex crimes. Moffitt has recognized the possibility that these men might continue their involvement in antisocial behavior beyond the maturity gap of adolescence if they become ensnared in an antisocial lifestyle (i.e., incarceration, school dropout, drug/alcohol abuse/addiction, etc.) (Moffitt et al., 2002). It is therefore possible that the late-starters might be those individuals for which the involvement in delinquency during adolescence had a long-lasting impact on their lives, and, more specifically, their ability to find a mate.

On the other hand, the dual taxonomy proposed based on the age of onset appears to have some limitations with respect to the findings in the present study given that the antisocial background of this sample of aggressors of women was more complex. Thornberry (2005) has made a good case against the simple use of age of onset of delinquency as a classification marker as it tends to be continuously distributed across the childhood and the adolescence periods thus making it difficult to delineate what constitutes early onset. Furthermore, Loeber and Farrington (2001) have argued that this indicator alone does not provide much information regarding the within-individual changes in the antisocial manifestations over time. In fact, seven antisocial trajectories

with respect to the childhood and adolescent periods were found, all of which have been reported elsewhere using prospective longitudinal research designs with at-risk youth (Ayers et al., 1999; Loeber et al., 1991). In the dynamic classification strategy used in the present study, while considering a long period (childhood and adolescence), it is important to remember that an individual's deviance can vary in between due to the fact that the intervals are so large (Nagin & Tremblay, 2005). In this regard, while continuity and progression were assessed in the present study, the current methodology did not allow for the consideration of the velocity, rate, conservation, or retention of antisocial behavior and development. Indeed, the importance of these factors has been noted by several researchers (e.g., LeBlanc, 2002). Therefore, whether the trajectories found in this study represent methodological decisions and limitations, or empirical realities that should be theoretically explained, could be debated until replication is attempted.

### **2.6.2 Destiny or Zigzags?**

The findings in the present study also suggest that the pattern of within-individual changes in antisocial behavior has some postdictive value. When looking at the processes of initiation, persistence, escalation, and aggravation, two of them emerged as more significant in terms of criminal activity in adulthood. Persistence and escalation were clearly the two most important dynamic aspects associated with the unfolding of the criminal activity in adulthood. Looking back, those individuals reporting a pattern of persistence had an earlier activation of their offending, a more extensive criminal history, and a more diversified criminal repertoire in adulthood. These results are congruent with those found in prospective longitudinal studies emphasizing the important impact of persistence on the continuity of offending in adulthood. For example, Farrington (2005)

argued that persistence might be explained by a combination of long-term factors (i.e., strain, impulsivity and antisocial models) and short-term factors (i.e., emotional states, opportunities, and the subjective expected utility of offending). LeBlanc (2002) explains persistence by stability over time of the parameters explaining offending, that is, a weak bond, an egocentric personality style, the influence of antisocial models, and the absence of external and internal constraints against offending. In other words, similar to Laub and Sampson's (2003) model, the motivating factors of offending are held constant. It is interesting to note that the dynamic development of antisociality was also related, to a lesser extent, to the sexual criminal activity in adulthood. The stronger effect was found for specialization in sex crimes. Clearly, the late-starters were those with a tendency to specialize in sex crimes. This might be attributable to their later and limited involvement in criminal activity as a whole. On average, this group started offending sexually in their thirties and their sex crimes represented about a third of their overall involvement in criminal activities. Thus, even the more specialized group of sexual aggressors were still versatile in their offending, replicating the findings of Miethe et al. (2006). Taken together, the postdictive value of the current findings should be considered very modest at best as the significant effect sizes uncovered varied between .05-.09 after controlling for the effect of time/age. Furthermore, considering the use of retrospective data with incarcerated offenders in the present study, this artificially creates persistence and continuity in offending as desisters are not included in this sample. In this regard, it appears that Laub and Sampson's (2003) comments bear validity considering that looking back over the three periods of development, the current sample of sexual aggressors of women shows some evidence of zigzag involvement in antisocial behavior.

## 2.7 Conclusion

This study discovered that significant heterogeneity characterizes the antisocial development in youth of sexual aggressors of women. Importantly, of the multiple antisocial trajectories identified, three key patterns emerged: (1) the early childhood onset of delinquency characterized by persistence through adolescence; (2) the early childhood onset of delinquency characterized by escalation into adolescence; and, (3) the late adolescent onset of delinquency. As this study was one of the first empirical investigations of the heterogeneity in the antisocial development of sexual aggressors of women these results should be interpreted as exploratory. Furthermore, it suffers from a number of methodological limitations. Given the sample was comprised of federal inmates at a regional treatment facility in the province of Quebec, in Canada, theoretically, the results may only generalize to federal inmates. Despite this possibility, given that all inmates, who had offended against a female who was 16 years of age or older, over a four year period were included in the study, the sample also closely approximates a population. Nonetheless, it is based on retrospective data, which might have been biased by poor memory recall. Antisocial indicators of deviance in childhood and adolescence were assessed using self-reported information collected through interviews. Although anonymity was guaranteed, it is possible that some participants minimized or exaggerated particular aspects of their antisocial history given the setting of the interviews. In addition, in the current study it was not possible to assess the effect social desirability of responses regarding delinquency in childhood and adolescence. Also, criminal activity in adulthood was assessed based on official crime data. Therefore, it is also conceivable that the results may have differed if self-reported data were used in

this regard. In spite of these methodological limitations, it remains obvious that the antisocial background of sexual aggressors of women is more complex and heterogeneous than is currently proposed by theoretical models of sexual aggression. Currently, there are no available data to examine the antisocial developmental sequences of rapists. Most importantly, prospective longitudinal data are required to identify trajectories that are more likely to lead to sexual aggression. This study provides preliminary baseline data to investigate the developmental backgrounds of sexual aggressors of women.

**CHAPTER 3:**  
**TOWARD A DEVELOPMENTAL TAXONOMY OF ADULT**  
**SEXUAL AGGRESSORS OF WOMEN: ANTISOCIAL**  
**TRAJECTORIES IN YOUTH, MATING EFFORT, AND SEXUAL**  
**CRIMINAL ACTIVITY IN ADULTHOOD**

**3.1 Abstract**

Recent studies suggest that sexual aggressors of women are characterized by early- and late-onset antisocial trajectories. However, these studies have not examined the role of mating effort and its role on sexual offending in adulthood. The current study examined differences in the level of mating effort of early-onset and late-onset offenders, and, the association between mating effort and sexual offending in adulthood. Factor analysis identified two latent constructs of sexuality: mating effort and high sexual drive. Early-onset offenders exhibited significantly higher levels of mating effort and sexual drive. Furthermore, high mating effort and high sexual drive were more strongly associated with an earlier onset and a higher frequency of sexual crimes in adulthood than group membership. This study provided empirical evidence that a developmental taxonomy of early- and late-onset distinguishes the sexual activity and sexual criminal activity of adult sexual aggressors. The findings are discussed in light of a developmental taxonomy of sexual aggressors of women.

## 3.2 Introduction

Currently, the effectiveness of treatment programs designed to reduce sexual recidivism remains a contentious point of debate. While several empirical studies have suggested that sex offender treatment programs reduce the rate of sexual recidivism, these studies have demonstrated much heterogeneity regarding the impact of these programs (Lösel & Schmucker, 2005; Hanson et al., 2002). Others based on random assignment to treatment have shown no impact on sexual recidivism (Marques, Weideranders, Day, Nelson, & van Ommeren, 2005), and suggested that attention needs to be paid to specific needs of different sexual aggressors to enhance treatment efficacy. In recent years, many programs have targeted deviant sexual arousal/preferences, cognitions supportive of rape, sexual self-regulation, intimacy deficits, lack of empathy, and anger management issues (Beech & Ward, 2004; Hanson & Harris, 2001; Thakker, Collie, Gannon, & Ward, 2008). Nonetheless, these treatment programs have largely neglected a key aspect related to sexual aggression, that is, the antisocial development of offenders (Lussier & Cortoni, 2008). Recent developmental models of sexual aggression have stressed the role of antisocial behavior in sexual aggressors of women and its importance for treatment (Lalumière, Harris, Quinsey, & Rice, 2005; Lussier, Proulx, & LeBlanc, 2005; Nisbet, Wilson, & Smallbone, 2005; Simon, 2000). Furthermore, antisocial development in sexual aggressors involves at least two meta-trajectories, early- and late-onset, that might have implications for treatment planning and case management (Cale, Lussier, & Proulx, 2009). Therefore, the aim of the current study is to examine the sexual lifestyle of adult sexual aggressors of women following different antisocial pathways and the impact on sexual criminal activity in adulthood.

### **3.2.1 Antisocial Trajectories and Sexual Aggression**

Early- versus Late-Onset. Developmental theories of offending that consider the life-course from birth to later ages have identified groups of offenders characterized by different antisocial trajectories (Farrington, 2003; LeBlanc, 2005; Moffitt, 1993; Patterson & Yoerger, 1993; Thornberry, 2005). Trajectories refer to different patterns of onset<sup>i</sup>, course, and desistance of particular behaviors over time. For example, Moffitt (1993), originally distinguished early-starters or “life-course persistent” (LCP) offenders from late-starters or “adolescent-limited” offenders. Early-starters are characterized by a childhood onset of antisocial behavior that persists, escalates, and diversifies into adulthood. Furthermore, an early onset of antisocial behavior remains one of the strongest predictors of persistent offending throughout the life-course (Delisi, 2001; Moffitt, Caspi, Harrington, & Milne, 2002; Piquero, Brame, & Lynam, 2004; Snyder, 2001). Conversely, late-starters are characterized by an adolescent onset of antisocial behavior typically followed by desistance in early adulthood. However, in some cases, the consequences of prior involvement in antisocial behaviors (e.g., early pregnancy, school dropout, and criminal record) can also lead to maladaptive outcomes in adulthood (e.g., fighting, financial problems, and substance abuse) (Moffitt et al., 2002; Nagin, Farrington, & Moffitt, 1995). This early/late-starter framework has also been used to provide further insight into the understanding of sexual aggression against women.

The Early-Onset Antisocial Trajectory and Sexual Aggression. A small minority of males in the general population (between 5% and 10%) is characterized by an early-onset antisocial trajectory (Moffitt et al., 2002). This group has typically been associated with the presence of individual deficits (i.e., neuropsychological deficits, verbal skills deficits,



attention deficits, low self-control) familial (i.e., poor parenting practices, economic deprivation), and environmental (i.e., low SES) (LeBlanc, 2005; Moffitt, 1993; Piquero & Moffitt, 2005; Thornberry, 2005) adversities. The combination and successive interactions between these risk factors over the life-course have been hypothesized to increase the risk for: a) an early onset (i.e., childhood onset) of antisocial behavior and offending; b) persistence of antisocial and criminal behavior; c) diversification of antisocial/criminal behavior, and; d) serious and violent offending in the Dunedin Birth Cohort. In the follow-up of the Dunedin birth cohort at age 26 (Moffitt et al., 2002) early-onset offenders were disproportionately responsible for overall violent offending (i.e., 43% of convictions), and in particular, violence towards women (i.e., 62% of convictions). Other studies have uncovered similar patterns regarding personal and relationship violence (Ehrensaft et al., 2003; Lussier, Farrington, & Moffitt, 2009; Madgol, Moffitt, Caspi, & Silva, 1998; Mazerolle & Maahs, 2002; Woodward, Fergusson, & Horwood, 2002). Moffitt (1993) also hypothesized that youth following this trajectory would be at-risk of escalating their violence to sexual assault.

This hypothesis was further developed by Seto and Barbaree (1997) and Lalumière et al. (2005) who hypothesized that the accumulation of early deficits makes these individuals unlikely to succeed in competition for desirable partners. Therefore, the likelihood of acquiring intimate relationships through coercive tactics increases, especially, since the long-term prospects for these men are poor. Few studies have examined the link between the early onset of antisociality and sexual aggression in adolescence<sup>ii</sup>. In the Pittsburgh Youth Study, using a prospective longitudinal research design, van Wijk et al. (2005) found that juvenile non-sexual violent offenders and

juvenile sexual offenders were similar in terms of developmental risk factors. Currently, only one empirical study has examined the link between an early-onset antisocial trajectory and sexual aggression in adulthood finding that between 20%-50% of convicted rapists were characterized as early-starters depending on the criteria selected to determine onset (Cale et al., 2009).

The Late-Onset Antisocial Trajectory and Sexual Aggression. Compared to early-starters, late-starters (i.e., adolescent-limited offenders) account for approximately 45% of the general population of males (LeBlanc, 2005; Moffitt, 1993). This group has been associated with risk factors that are more transitory/contextual in nature such as: a) the importance of peer associations; b) the role of peer delinquents on criminal involvement; c) the impact of strain as a result of adolescent status; and, d) tenuous bonding with adult authority (i.e., parents and teachers) (LeBlanc, 2005; Moffitt, 2003; Thornberry, 2005). Their offending has been described as a result of the gap between their biological maturity and their social status as adolescents, therefore likely representing their inability to obtain resources and participate in certain activities through conventional means. Additionally, prospective longitudinal studies have shown that youth involved in high levels of antisocial behavior during adolescence are also at risk of intimate partner violence in adulthood (Lussier, et al., 2009; Woodward et al., 2002).

The young male syndrome was used to describe sexual aggression among late-starters where it represents adolescent competition for reproductively relevant goals such as status, resources, and mates (Wilson & Daly, 1985). In this case, coercion, charm, and false promise, for example, are tactics utilized during adolescence and young adulthood to attract mates and acquire sexual relations. According to this hypothesis, however, as

the intensity of competition eventually diminishes and is replaced by more positive future prospects (i.e., jobs, status and wealth), the use of coercive tactics correspondingly declines. Seto and Barbaree (1997) similarly hypothesized that date rape is more likely characterized by this phenomenon in adolescence/young adulthood. Several empirical studies with college students have shown that during adolescence sexually coercive males tended to be more delinquent (Abbey & McAuslan, 2004; Early & Akram, 1993; Malamuth, Sockloskie, Koss, & Tanaka, 1991; Petty & Dawson, 1989; Sarwer, Kalichman, Johnson, Early, & Akram, 1993), more aggressive (Greendlinger & Byrne, 1987), and have more antisocial peers (Ageton, 1983; DeGue & DiLillo, 2004, Malamuth et al., 1991). However, no prospective studies have examined the link between late-onset antisociality and sexual aggression in adulthood. Using retrospective longitudinal data and a dynamic classification procedure, Cale et al., (2009) found that approximately 40% of adult convicted sexual aggressors of women were characterized by this antisocial trajectory.

### **3.2.2 Mating Effort and Sexual Aggression**

Until recently, sexual development and its role in sexual aggression in early- and late-starters has been virtually ignored in criminological empirical literature. Evolutionary psychologists, on the other hand, have stressed the importance of the construct of mating effort in this regard. Mating effort refers to the energy and time devoted to acquiring sexual interactions with the opposite sex (Lalumière & Quinsey, 1996; Lalumière et al., 2005). For some males a mating strategy characterized by impersonal sex, and the pursuit of multiple short-term sexual encounters, has been hypothesized to represent a strategy designed to maximize the likelihood of reproductive

success (i.e., passing on of genes to subsequent generations) (Thornhill & Palmer, 2000). Mating effort, therefore, is different from the concept of a high sexual drive, which represents the strength of the sexual drive or the total sexual outlet (e.g., being overwhelmed by sexual fantasies, compulsive masturbation, frequent use of pornographic material) (Kafka, 1997; Kalichman & Rompa, 1995; Krueger & Kaplan, 2001; Miner, Coleman, Center, Ross, & Rosser, 2007).

Considering the importance of reproduction, high mating effort in antisocial males has been hypothesized to represent either a conditional or an alternative mating strategy (Figueredo, Sales, Becker, Russel, & Kaplan, 2000; Lalumière & Quinsey, 1996; Rowe, Vazsonyi, & Figueredo, 1997). The former hypothesis suggests that high mating effort in antisocial males is the result of individual differences (e.g., lack of personal and financial resources) that put some men in a state of competitive disadvantage. Therefore, these individuals would revert to high mating effort to increase the likelihood of reproductive success. On the one hand, it has been hypothesized that early-starters characterized by individual deficits (e.g., neuropsychological deficits, impulsivity) may be less likely to acquire and maintain stable and long-term relationships (Lalumière et al., 2005). On the other hand, these individuals have been observed to exhibit an early-onset of sexual intercourse (LeBlanc & Bouthillier, 2003), to have fathered children earlier in life (Stouhamer-Loeber & Wei, 1998), and, to have fathered multiple children (Moffitt et al., 2002)

In contrast to competitive disadvantage, high mating effort in antisocial males has also been hypothesized to represent an alternative mating strategy whereby deceit, manipulation, grandiosity, and coercive tactics reflect a preference for partner diversity in

the pursuit and acquisition of sexual relationships (Rowe et al., 1997). Several empirical studies have established a link between delinquency in adolescence/young adulthood and high mating effort. Considering that: a) the majority of these studies have been typically conducted with samples of college undergraduates; and, b) the fact that such samples are unlikely to include early-starters (see Moffitt et al., 2002), these results can be interpreted as evidence that late-starters are characterized by high mating effort as well. For example, empirical studies with college students indicate that sexually coercive males are more likely to report a more extensive sexual history (Byers & Eno, 1991; Gold & Clegg, 1990), have more sexual partners and higher self-perceived mating success (Lalumière & Quinsey, 1996), exhibit a preference for partner variety, uncommitted sexual relationships, and fewer intimate relationships (Cornett & Shuntich, 1991; Sarwer et al., 1993), are more likely to view dating in terms of sexual possibilities (Craig, Kalichman, & Follingstad, 1989), and, exhibit a preference for a greater amount of sexual activity (Lalumière & Quinsey, 1996). One explanation put forth to interpret these results is that these antisocial males exhibit unique personality characteristics typical in self-centered individuals characterized by a high degree of narcissism and psychopathic traits (Baumeister, Catanese, & Wallace, 2002; Lalumière et al., 2005).

### **3.3 Aims of the study**

While a developmental taxonomy of sexual aggressors of women has been hypothesized, few empirical studies have been conducted to examine its relevance for treatment planning and the case management of adult offenders. More specifically, it is unclear how early- and late-starters differ in terms of mating effort, a key theoretical construct related to sexual coercion and sexual violence. Previous studies have focused

on the role of mating effort on sexual coercion using representative samples of the general population or samples of college male undergraduate students. Therefore, the role and importance of mating effort in convicted adult sexual aggressors of women remains unclear. The main goal of the current study, therefore, was to examine the non-criminal sexual activity of sexual aggressors of women. First, differences were examined between early- and late-onset offenders in terms of their mating effort. Second, the association between mating effort and sexual offending in adulthood was examined. Third, this study examined how mating effort was related to antisocial trajectories and, subsequently, sexual criminal activity in adulthood. To ensure that any effects discovered in regard to high mating effort were not the by-product of a generally high sexual drive, all of the empirical analyses in the current study were conducted while controlling for measures of the strength of the sexual drive, characterized by a general lack of control over sexual urges, fantasies, and behaviors.

### **3.4 Methodology**

#### **3.4.1 Sample**

In the present study, all adult males convicted of a sexual offence who received a prison sentence of at least two years were selected for a survey between April 1994 and June 2000 in the province of Quebec, in Canada. 93% of the individuals (n= 553) agreed to participate with the interview. In total, 209 of these individuals that had committed a sexual offence against an adult female at least 16 years old were included in this study. At the time of the survey, all subjects were incarcerated at the Regional Reception Centre of Ste-Anne-des-Plaines, a maximum-security institution run by the Correctional Service of Canada. The average stay in this institution is about six weeks, permitting completion

of correctional assessment procedures prior to the individual's transfer to an institution suited to his risk level and treatment needs.

The majority of subjects included in this study were Caucasian (82.8%). The average age of individuals in the sample was 33.3 years old ( $SD= 8.8$ ) and the majority (90.3%) had less than a high school education. Approximately two-thirds of the sample was unemployed (62.4%) and also single (67.2%). Offenders in the sample were serving a mean prison sentence of 4.7 years ( $SD= 3.4$ ) and the offences for which they were incarcerated at the time of assessment included: sexual assault (66.0%), armed sexual assault (27.8%), sexual assault causing injuries (9.1%) and aggravated sexual assault (4.3%). On average, these individuals had been previously convicted of offences on 5.4 occasions ( $SD= 4.3$ ; range = 1 - 22), and the majority of the sample were recidivists (i.e., 79.9% had received a prior sentence).

### **3.4.2 Procedures**

Data used in the present study were collected in a semi-structured interview with each subject who was interviewed only once by a member of the research team and were unaware of the research questions and hypotheses. Subjects included in this study signed a consent form indicating that the information gathered was to be used for research purposes only. Interviewers were all graduate students in criminology and psychology trained by a licensed forensic psychologist to conduct semi-structured interviews using a computerized questionnaire. The information was then compared to that found in the offender's correctional files and police reports. When disagreements were found between information gathered during the semi-structured interview and those collected from official files, official data were used. Inter-rater reliability was not assessed for the

variables used in the present study. On the other hand, the scales used all had adequate internal consistency (Cale et al., 2009; Lussier, LeBlanc, & Proulx, 2005; Lussier, Leclerc, Cale, & Proulx, 2007; Lussier, Proulx, & LeBlanc, 2005;). Finally, police records were consulted to determine the parameters of sexual criminal activity in adulthood.

### **3.4.3 Measures**

Early- and Late-Onset Antisocial Trajectories. In order to identify the antisocial trajectories in youth of adult sexual aggressors of women, self-reported retrospective data were used on several indicators of antisocial behavior. These indicators were assessed in two time periods: (a) childhood (i.e., 0-12 years old); and, (b) adolescence (i.e., 13-17 years old). Three forms of self-reported antisocial behaviors were examined in both time periods: (a) behavioral problems; (b) non-violent delinquency; and, (c) violent delinquency. Behavioral problems refer to the following items: frequent lying; being rebellious; temper tantrums; running away or being truant; and, risky behaviors that endanger others or one's self (e.g., walking on the edge of a bridge). Non-violent delinquency included different acts of property and non-violent delinquency such as: minor and major theft; robbery without a weapon; break and enter; drug trafficking; fire setting; and, property destruction. Finally, violent delinquency included serious and violent behaviors such as: homicide; threats and intimidation; armed robbery; use of a weapon; nonsexual assault; and, sexual assault. Each indicator was coded as either present (1) or absent (0) for each time period. The concurrent and predictive validity of these indicators have been presented elsewhere (Lussier, LeBlanc et al., 2005; Lussier et al., 2007; Lussier, Proulx et al., 2005).



Following the work of several developmentalists (e.g., Ayers et al., 1999; LeBlanc & Kaspy, 1998; Loeber, Stouthamer-Loeber, Van Kammen, & Farrington, 1991) a dynamic classification procedure was used to identify antisocial trajectories of the sample. The dynamic classification procedure involved the cross-tabulation of cluster solutions of antisocial behavior measured in the two time periods. Two hierarchical cluster analysis procedures were performed (i.e., in childhood and adolescence) using Ward's method and squared Euclidean distance to identify nested groups of individuals in each time frame. Cases were joined based on their proximity to one another over successive iterations forming progressively larger groups until one single super-ordinate group was created. Scree plots and Mojena's (1977) stopping rule were analyzed to determine when an inconsistent increase in the dissimilarity measure was observed. Following recommendations by Aldenderfer & Blashfield (1984), the internal validity of the cluster solutions were examined using two procedures. First, the analyses were repeated using another measure of proximity specifically designed to examine dichotomous data (i.e., Russell-Rao), and crosstabulating the results with those obtained using Ward's method. Kappa measures of agreement showed high stability of the cluster solutions (kappa= .90-.93). Second, a split sample validation technique was performed by randomly dividing the sample into two equal subsets and re-running the cluster analysis on both samples. The cluster solutions were then crosstabulated with the original solutions, and again, demonstrated high stability (kappa= .91-1.00).

A dynamic classification procedure was then performed by crosstabulating the cluster solutions for childhood and adolescence. This procedure identified seven antisocial trajectories using this dynamic classification procedure: (1) non-delinquents – i.e.,

absence of delinquency in childhood and adolescence (7%); (2) initiators – i.e., onset of delinquency in adolescence (38%); (3) stable-lows - i.e., behavioral problems in childhood and adolescence (15%); (4) escalators - i.e., childhood-onset of behavioral problems followed by delinquency in adolescence (28%); (5) stable-moderates – i.e., serious delinquency in childhood and adolescence (5%); (6) stable-highs – i.e., violent delinquency in childhood and adolescence (4%), and (7) de-escalators (2%) – i.e., childhood onset of violent delinquency followed by non-violent delinquency in adolescence. These results have been presented in more detail elsewhere (see Cale et al., 2009).

For the purposes of the current study, only the two meta-trajectories first identified by Moffitt (1993) and later adapted for sexual aggressors by Lalumière et al., (2005) were retained for statistical analyses<sup>iii</sup>. Therefore, the early-onset antisocial trajectory group (n= 109) reflected the combination of the stable-low, escalator, stable-moderate, and stable-high trajectory groups. The late-onset antisocial trajectory group consisted of the combination of the non-delinquents and initiators (n= 95)<sup>iv</sup>. Due to the small size of the de-escalator group (less than 5%), they were not included in the study. Descriptive data for both groups are presented in Table 10. The two groups (i.e., early- and late-onset) statistically differed in terms of the six indicators of antisocial behaviors in childhood and adolescence. Furthermore, a large effect size was observed regarding the presence of behavioral problems in childhood ( $\phi = .92$ ) suggesting that these measures alone most strongly contributed to the classification of early- and late-onset offenders.

**Table 10: Antisocial Characteristics of Early-and Late-Onset Antisocial Trajectories (n=204)**

	Behavioral Problems		Non-violent Delinquency		Violent Delinquency	
	(0-12)	(13-17)	(0-12)	(13-17)	(0-12)	(13-17)
Early-onset trajectory ( <i>n</i> = 109)	92.7%	89.9%	21.1%	59.6%	8.3%	34.9%
Late-onset trajectory ( <i>n</i> = 95)	0.0%	38.9%	0.0%	33.7%	0.0%	12.6%
$X^2(1)$	174.35	58.89	22.59	13.70	8.25	13.56
<i>p</i> - value	.000	.000	.000	.000	.004	.000
Effect Size ( $\phi$ )	.92	.54	.33	.26	.20	.26

Note: Chi-Square analysis was conducted.

Mating Effort. Eleven items were selected to measure sexual development in youth and adulthood. To ensure construct validity of the measures, included were indicators that have been typically associated with mating effort in prior studies (Lalumière, Chalmers, Quinsey, & Seto, 1996; Lalumière & Quinsey, 1996; Lalumière et al., 2005) as well as indicators that have been associated with a high sexual drive (Kafka, 1997; Kalichman & Rompa, 1995; Krueger & Kaplan, 2001; Miner et al., 2007) (Table 11).

**Table 11: Variables Measuring Sexual Development**

Measure of sexual development	Original variables, measurement, and coding	Descriptive sample statistics (mean, standard deviation, range)
Overwhelmed by sexual fantasies (lifetime)	Deviant and non-deviant sexual fantasizing (0=none, to 4=persistent)	$X=1.33$ , $SD=0.78$ , range=0-4
Compulsive masturbation (adolescence and adulthood) ( $\alpha=.71$ )	Compulsive masturbation in adolescence (0=no, 1=yes) Compulsive masturbation in adulthood (0=no, 1=yes).	$X=0.35$ , $SD=0.67$ , range=0-2
Average monthly masturbation	Average number of times masturbated per month	$X=9.01$ , $SD=29.70$ , range=0-300
Sexual investment in adolescence ( $\alpha=.61$ )	Viewing pornographic films (0=no, 1=yes) Viewing pornographic magazines (0=no, 1=yes) Frequenting exotic bars (i.e., strip clubs) (0=no, 1=yes) The use of erotic toys (0=no, 1=yes) Calling erotic phone lines (0=no, 1=yes) Rendering the services of a prostitute (0=no, 1=yes) Selling sexual services (0=no, 1=yes)	$X=0.87$ , $SD=1.19$ , range=0-5
Sexual investment in adulthood ( $\alpha=.62$ )	Viewing pornographic films (0=no, 1=yes) Viewing pornographic magazines (0=no, 1=yes) Frequenting exotic bars (i.e., strip clubs) (0=no, 1=yes) The use of erotic toys (0=no, 1=yes) Calling erotic phone lines (0=no, 1=yes) Rendering the services of a prostitute (0=no, 1=yes) Selling sexual services (0=no, 1=yes)	$X=2.33$ , $SD=1.62$ , range=0-7
Number of sexual partners <sup>b</sup>	Number of sexual partners prior to assessment	$X=59.09$ , $SD=192.33$ , range=0-2000
Age at first heterosexual intercourse	Age at the time of first heterosexual intercourse with a consenting partner	$X=16.37$ , $SD=3.27$ , range=7-36
Self-perception of sexual competence	1=incompetent, 2=moderately competent, 3=competent, 4=extremely competent	$X=3.01$ , $SD=0.60$ , range=1-4
Age at first heterosexual contact	Age at the time of first heterosexual contact with a consenting partner	$X=14.19$ , $SD=4.08$ , range=4-36
Average weekly sex	Average number of times per week having sex with a consenting partner prior to incarceration	$X=4.95$ , $SD=4.87$ , range=0-31
Number of stable relationships <sup>b</sup>	Number of stable relationships (> one year) prior to assessment	$X=3.25$ , $SD=2.22$ , range=0-20

a. Mean, standard deviation, and range are reported based on the original, non-transformed variables. For multivariate analyses, log transformed data were used.

b. For the purposes of statistical analysis, the number of stable relationships and the number of sexual partners were analyzed controlling for age.

Next, factor analysis (Principal Component Analysis) with varimax rotation was used to examine the factor structure of the eleven measures of sexual development and maximize between-component variance. Initially, the varimax rotation converged and the Kaiser-Meyer-Olkin measure (.73) suggested the presence of a factor structure in the data. An examination of Cattell's (1966) scree plot suggested the retention of only two components. The communalities indicated that 48% of the variance in each item was accounted for by the two components. Table 12 presents the loadings for the two-factor solution. The first factor consisted of five items: the frequency of sexual fantasies; compulsive masturbation; frequency of monthly masturbation; and, sexual investment (i.e., in adolescence and adulthood). These variables were standardized and summed to create a construct reflecting sexual drive ( $\alpha = .66$ ). The second factor consisted of six items including: the number of sexual partners (divided by age); age at first sexual intercourse; self-perception of sexual competence; age at first heterosexual contact; and, the average number of sexual episodes per week. Again, these six variables were standardized and then summed to create a construct reflecting mating effort ( $\alpha = .65$ ).

**Table 12: Loadings from Principal Components Analysis with a Two-Factor Solution**

Measure of Sexual Development	PCA-extracted Component		Component
	1	2	
1. Deviant and non-deviant sexual fantasies	.73	-.06	1
2. Compulsive masturbation	.73	.00	1
3. Average monthly masturbation	.67	-.20	1
4. Sexual investment in adolescence	.65	.20	1
5. Sexual investment in adulthood	.60	.17	1
6. Number of sexual partners	.08	.70	2
7. Age at first heterosexual intercourse	-.34	-.66	2
8. Perception of sexual competence	-.29	.64	2
9. Age at first heterosexual contact	-.39	-.63	2
10. Average weekly sex	.02	.59	2
11. Number of stable relationships	.10	-.49	2

Criminal Activity of Sexual Aggressors of Women in Adulthood. Three parameters of sexual offending in adulthood were examined in the present study: (1) age of onset of sexual crimes; (2) annual frequency of sexual crimes; and, (3) the level of specialization in sexual crimes. These three parameters were measured using CPIC (Canadian Police Information Centre) data collected by the RCMP (Royal Canadian Mounted Police). Age of onset refers to the offender's age at the time of their first sexual offence charge in adulthood<sup>v</sup>. In the present study, the average age at first charge for a sexual crime in adulthood was 30.9 ( $SD= 9.2$ ; range= 17.5-69.1) years old. The annual frequency of sexual offending was determined by dividing the total number of charges for a sexual crime by the amount of time at risk in adulthood, therefore, controlling for periods of incarceration. The average frequency of charges for sex crimes in the sample was 2.3 ( $SD= 2.3$ ; range= 1-14). When controlling for time at risk in adulthood the annual frequency of charges for a sex crime was 0.8 ( $SD= 1.0$ ; range= .03 – 6.0). Finally, specialization refers to the ratio of the number of charges for a sex crime to the total number of charges in adulthood. The level of specialization in sexual crimes was .17 ( $SD= .14$ ; range= .01-.86). In other words, on average, sexual crimes represented approximately 17% of offenders' total number of charges. Additionally, in the present sample, 12% of the offenders had at least 50% of their charges for sexual crimes indicating some specialization in sexual criminal activity in the sample.

#### **3.4.4 Analytic Strategy**

OLS Hierarchical Regression Modeling. A series of hierarchical regression analyses were employed to inspect the predictive validity of the dual taxonomy associated with mating effort. First, three regression models were analyzed using the mating effort scale



as the dependent variable. The first model consisted of control variables including ethnicity, education, marital status, and employment status. In the second model, the variable reflecting early- and late-onset antisocial trajectories was added to the control variables to assess the unique contribution of the dual taxonomy in predicting mating effort. Finally, to control for associations between mating effort and sexual drive, the sexual drive scale was added to the third model. This process was then repeated substituting the mating effort scale with the sexual drive scale for a total of six regression models.

Another series of hierarchical regressions were performed to predict parameters of sexual offending in adulthood including the age at the first charge for a sexual crime, the annual frequency of sexual criminal charges, and, the degree of specialization in sexual offending. For each of these three criminal career parameters hierarchical models consisting of three blocks of predictors (1 - control variables; 2 - the dual taxonomy; 3 - sexual drive and mating effort scales) were used. This procedure allowed for the examination of the relative contribution of the dual taxonomy to parameters of sexual offending in adulthood, and, whether mating effort added to the prediction of these dependent variables.

## **3.5 Results**

### **3.5.1 Mating Effort**

The first step in the analytic strategy was to compare measures of sexual development between early- and late-onset antisocial trajectory groups. T-tests were performed on the eleven measures of sexual development (Table 13). Of the eleven measures of sexual development, all but two were found to be statistically significant between the early- and

late-onset antisocial trajectories. In terms of mating effort measures, individuals exhibiting an early-onset of antisocial behavior reported a significantly higher number of female sexual partners, and a significantly earlier age of onset of sexual contact and intercourse. Not surprisingly, these individuals also reported more frequent sexual encounters (i.e., average number of sexual episodes per week). In contrast, there were no differences between early- and late-starters with regards to their overall self-perception of sexual competence. Similarly, there were no significant differences between early- and late-starters in terms of the number of stable intimate relationships in their histories. Nonetheless, when compared in terms of the mating effort scale, early-starters exhibited significantly higher mating effort than late-starters.

**Table 13: Bivariate Analysis of Early- and Late-Onset Antisocial Trajectories and Measures of Sexual Development**

Measure of Sexual Development	<i>t</i>	Mean ( <i>SD</i> )		Cohen's <i>d</i>
		Early-onset Trajectory ( <i>n</i> = 109)	Late-onset Trajectory ( <i>n</i> = 95)	
1. Compulsive masturbation <sup>a</sup>	-3.27**	.49(.76)	.20(.52)	.45
2. Persistent sexual fantasies <sup>a</sup>	-3.23**	1.49(.81)	1.14(.70)	.46
3. Average monthly masturbation <sup>a</sup>	-2.98**	4.11(5.50)	2.08(3.55)	.44
4. Sexual investment in adolescence	-4.12***	1.17(.12)	.52(.97)	.94
5. Sexual investment in adulthood	-2.09*	2.55(1.7)	2.08(1.52)	.29
6. Number of female sexual partners <sup>a</sup>	-2.04*	60.17(178.76)	57.84(210.84)	.11
7. Age at first heterosexual intercourse <sup>a</sup>	2.29*	15.91(3.14)	16.90(3.36)	-.30
8. Age at first heterosexual contact <sup>a</sup>	2.01*	13.77(4.44)	14.68(3.58)	-.23
9. Perception of sexual competence	-1.16	3.06(.64)	2.96(.57)	.17
10. Average weekly sex <sup>a</sup>	-2.21*	5.20(5.44)	4.10(4.48)	.22
11. Number of stable relationships <sup>a</sup>	-1.57	3.34(2.09)	3.02(1.72)	.17
Sexual Drive Scale (Measures 1-5)	-2.83***	1.13(3.61)***	-1.30(3.29)	.70
Mating Effort Scale (Measures 6-11)	-5.00**	.59 (3.40)**	-.68 (2.91)	.40

\* $p < .05$ , \*\* $p < .01$ , \*\*\* $p < .001$

Note: Means of the original value are reported.

a. A log transformation was performed on the variable for statistical analysis.

b. Outliers were replaced with the rank of the data.

Significant differences were also observed between early- and late-starters on the five measures of sexual drive. Early-starters exhibited higher average monthly masturbation, higher levels of compulsive masturbation, and more persistent sexual fantasies than late-starters. In addition, sexual investment (i.e., viewing pornographic films and magazines, frequenting exotic bars, use of erotic toys, phoning erotic phone lines, rendering the services of a prostitute, selling sexual services) in both adolescence and adulthood was also significantly higher among the early-starters. It was not surprising, therefore, that the early-starters also scored significantly higher on the sexual drive scale than late-starters. Overall, given these significant bivariate differences between early- and late-starters regarding mating effort and sexual drive, it was critical to control for demographic variables, measures of social competence, and, individual differences in sexual drive. Therefore hierarchical regressions controlling for ethnicity, level of education, marital status, employment status, and sexual drive of the offender were conducted to assess the impact of the early- and late-onset antisocial trajectories on mating effort.

### **3.5.2 Early- and Late-onset Antisocial Trajectories and Mating Effort**

Three models examined the validity of the early-/late-starter framework in predicting levels of mating effort and sexual drive (Table 14). The first consisted of the control variables, the second, control variables and the variable reflecting early-/late-onset of antisocial behavior, and the third, control variables, the variable reflecting early-/late-onset of antisocial behavior, and, the sexual drive scale.

**Table 14: Hierarchical Regression Analyses for Variables Predicting Mating Effort and Sexual Drive**

	Mating Effort (n=204)			Sexual Drive (n=204)		
	Model 1	Model 2	Model 3	Model 1	Model 2	Model 3
Ethnicity	.50 (.06)	.36 (.04)	.02 (.00)	1.97** (.21)	1.73** (.18)	1.64** (.17)
Level of Education	1.55* (.14)	1.79* (.16)	1.99* (.18)	-1.44 (-.11)	-1.04 (-.08)	-1.45+ (-.12)
Marital Status	.34 (.05)	.35 (.05)	.34 (.05)	.04 (.00)	.05 (.01)	-.03 (-.00)
Employment Status	-.15 (-.02)	-.11 (-.02)	-.16 (-.02)	.21 (.03)	.28 (.04)	.30 (.04)
Early-onset Antisocial Trajectory		1.35** (.21)	.91+ (.14)		2.27*** (.31)	1.96** (.27)
Sexual Drive			.20** (.22)			
Mating Effort						.23*** (.20)
Constant	-.27	-.91	-.40	-1.54*	-2.60***	-2.40**
F	1.17	2.79*	3.97**	3.05*	7.07***	7.69
R <sup>2</sup>	.02	.07	.11	.06	.15	.19

Note: The first line of data represent unstandardized beta coefficients, the second line represents standardized coefficients. Ethnicity was coded as Caucasian= 1, non-Caucasian= 0. Level of education was coded as high school or above= 1, less than high school= 0. Marital status was coded as not-single= 1, single= 0. Employment status was coded as employed= 1, not employed= 0. On each of the latter variables, less than 5% of cases were missing data. Missing data were replaced with the mode of the data. An early-onset antisocial trajectory was coded as early-onset= 1, late-onset= 0.

+ $p < .10$ , \* $p < .05$ , \*\* $p < .01$ , \*\*\* $p < .001$

The first model consisting of the control variables was not statistically significant. However, the addition of the variable reflecting onset of antisocial behavior made the second model statistically significant [ $R^2 = .07$ ;  $p < .05$ ], although this overall model explained a relatively low proportion of the variance in the mating effort scale (approximately 7%). An early-onset antisocial trajectory ( $p < .01$ ) predicted higher mating effort, contributing approximately 21% to the overall explained variance in the model. To a lesser extent, a higher level of education ( $p < .05$ ) was also predictive of higher mating effort. The addition of sexual drive to the third regression model enhanced the prediction of mating effort ( $p < .01$ ) to a greater extent than the variable reflecting onset of antisocial behavior ( $p < .10$ ).

These analyses were then repeated substituting the mating effort scale with the sexual drive scale. In terms of sexual drive, the first model consisting of the control variables was statistically significant [ $R^2 = .06$ ;  $p < .05$ ]. In this model, ethnicity was related to a higher sexual drive, being Caucasian was the strongest predictor. With the addition of the variable reflecting the onset of antisocial behavior into the second block of the regression model, slightly more than 15% of the variance in sexual drive was explained ( $p < .001$ ). More specifically, an early-onset antisocial trajectory ( $p < .001$ ) contributed 31% to the overall variance in sexual drive explained by the model. Finally, mating effort also predicted high sexual drive ( $p < .01$ ) in the third model, in addition to an early-onset of antisocial behavior ( $p < .01$ ) and Caucasian ethnicity ( $p < .01$ ).

**Table 15: Hierarchical Regression Analyses for Variables Predicting Parameters of Sexual Offending in Adulthood**

	Age at First charges for a sexual crime <sup>a</sup> (n = 203)			Annual Frequency of sex crime <sup>a,b</sup> (n = 204)			Level of specialization in sex crimes (n = 204)		
	Model 1	Model 2	Model 3	Model 1	Model 2	Model 3	Model 1	Model 2	Model 3
Ethnicity	4.03 (.03)	6.83 (.04)	12.27 (.08)	-1.29 (-.01)	-3.19 (-.02)	-11.28 (-.07)	-.10* (-.14)	-.09+ (-.13)	-.09+ (-.12)
Level of Education	5.33 (.03)	.99 (.01)	4.58 (.02)	-.59 (-.00)	2.49 (.01)	-.85 (-.00)	.17** (.19)	.16* (.17)	.18** (.19)
Marital Status	-5.36 (-.04)	-5.29 (-.04)	-4.03 (-.03)	-4.06 (-.03)	-3.95 (-.031)	-5.56 (-.04)	.01 (.02)	.01 (.02)	.01 (.02)
Employment Status	18.56* (.15)	17.68* (.15)	18.02* (.15)	-18.29* (-.15)	-17.75* (-.15)	-18.38* (-.15)	.08* (.14)	.08* (.14)	.07* (.14)
Early-onset Antisocial Trajectory		-24.75** (-.21)	-14.48+ (-.12)		17.63* (.15)	3.37 (.03)		-.10** (-.18)	-.08* (-.16)
Sexual Drive			-2.47* (-.15)			3.85** (.24)			.00 (.01)
Mating Effort			-3.44** (-.19)			4.11** (.23)			-.01+ (-.12)
Constant	87.60***	99.36***	89.77***	107.68***	99.42***	113.16***	.31***	.35***	.34***
F	1.46	3.06*	4.43***	1.21	1.90+	5.40***	4.44**	5.10***	4.10***
R <sup>2</sup>	.03	.07	.14	.02	.05	.16	.08	.11	.13

Note: The first line of data represent unstandardized beta coefficients, the second line represents standardized coefficients. Ethnicity was coded as Caucasian= 1, non-Caucasian= 0. Level of education was coded as high school or above= 1, less than high school= 0. Marital status was coded as not single= 1, single= 0. Employment status was coded as employed= 1, not employed= 0. On each of the latter variables, less than 5% of cases were missing data. Missing data were replaced with the mode of the data. An early-onset antisocial trajectory was coded as early-onset= 1, late-onset= 0. +  $p < .10$ , \* $p < .05$ , \*\* $p < .01$ , \*\*\* $p < .001$

a. The rank-ordered distribution of the dependent variable was analyzed (Conover & Iman, 1982).

b. Controlled for time spent in custody.

### 3.5.3 The Role of Mating Effort

In the final stage of analysis, hierarchical regressions were conducted to examine the link between antisocial trajectories and the three parameters of sexual criminal activity in adulthood while controlling for the role of mating effort and sexual drive. The first series of hierarchical regression models examined the age at first charges for a sexual crime in adulthood (Table 15). The first model consisting of demographic control variables was not statistically significant. In the second model, the addition of the variable reflecting onset of antisocial behavior made the model significant explaining approximately 7% of the overall variance [ $R^2 = .07$ ;  $p < .05$ ]. In this model, an early-onset antisocial trajectory predicted a significantly younger age in adulthood at the first charge for a sexual crime contributing 21% to the overall explained variance. In the third model, the addition of the mating effort and sexual drive scales enhanced the overall prediction of the model explaining nearly twice the variance in the age at first charges for sexual crimes in adulthood than the previous model [ $R^2 = .14$ ;  $p < .001$ ]. In this model, high mating effort ( $p < .01$ ) and high sexual drive ( $p < .05$ ) predicted a significantly younger age at first charges for a sexual crime in adulthood compared to the variable reflecting onset of antisocial behavior ( $p < .10$ ) which became statistical marginal.

The second series of hierarchical regression models examined the annual frequency of sexual crimes (controlling for time spent at risk in adulthood). The first block of the model that included control variables was not statistically significant. In the second block, the addition of the variable reflecting onset of antisocial behavior made the second model approach statistical significance, explaining a modest proportion of the overall variance [ $R^2 = .05$ ;  $p < .10$ ]. In this model, an early-onset antisocial trajectory predicted a



higher annual frequency of sex crimes ( $p < .05$ ), as did being unemployed ( $p < .05$ ), and both variables contributed roughly equally to the overall explained variance by the model (approximately 15%). While being unemployed remained a significant predictor of the annual frequency of sexual crimes in the third block of the model, the addition of the sexual drive and mating effort scales increased the overall explained variance [ $R^2 = .16$ ;  $p < .001$ ]. Importantly, when the sexual drive ( $p < .01$ ) and mating effort ( $p < .01$ ) scales were added to the third block of the model, the predictive effect of an early-onset antisocial trajectory disappeared. In other words, high mating effort and sexual drive best predicted the repetition of sexual crimes in adulthood.

The third series of models examined the level of specialization in sexual crimes in adulthood. In the first model consisting of control variables [ $R^2 = .08$ ;  $p < .01$ ], greater than high school education ( $p < .01$ ), being employed ( $p < .05$ ), and being non-Caucasian respectively predicted a higher level of specialization in sexual crimes. In the second model [ $R^2 = .11$ ;  $p < .001$ ], an early-onset of antisocial behavior predicted lower specialization in sexual crimes ( $p < .01$ ) whereas education ( $p < .05$ ) and employment ( $p < .05$ ) continued to predict higher specialization ( $p < .05$ ). Finally, in the third model [ $R^2 = .13$ ;  $p < .001$ ] an early-onset of antisocial behavior ( $p < .05$ ) predicted less specialization, as did high mating effort ( $p < .10$ ), which was marginally significant. On the other hand, sexual drive did not enhance the prediction of specialization in sexual crimes in adulthood.

### **3.6 Discussion**

The findings from the current study identified three important aspects of the relationship between antisocial development, mating effort, and sexual aggression in

adulthood. First, as a group, sexual aggressors of women were characterized by high mating effort. At the same time, however, heterogeneity was evident in the level of mating effort exhibited by sexual aggressors of women over their life-course. More specifically, compared to late-starters, early-starters spent more time and energy in the pursuit of sexual opportunities and conquests in adolescence and adulthood. Second, the differences observed in the sexual behaviors of early- and late-starters were not limited to mating effort. Early-starters displayed more evidence of a high sexual drive compared to late-starters. These findings suggest that early-starters had more difficulties controlling their sexual thoughts, urges, and behaviors compared to late-starters. In addition, these difficulties experienced by the early-starters might explain, at least in part, their higher level of mating effort.

The current study also provided empirical evidence that mating effort and sexual drive are associated with different dimensions of sexual criminal activity. More specifically, high mating effort and a high sexual drive were associated with an earlier age of onset, and, a higher annual frequency of sexual offending in adulthood. In contrast, however, neither high mating effort nor high sexual drive was related to specialization in sexual crimes in adulthood. One hypothesis is that these three key findings can be interpreted as evidence of an alternative approach to procuring and acquiring sexual opportunities and conquests. This pattern of behavior might best be understood by the concept of antisocial sexuality.

### **3.6.1 Antisocial Sexuality**

Antisocial sexuality may involve the use of overt and covert antisocial behaviors (LeBlanc & Bouthillier, 2003; Loeber & Hay, 1994) to acquire sexual opportunities and

conquests. In effect, this involves a pattern of sexual behavior that is characterized by a preference for easy, short-term, and immediate sexual gratification in contrast to investment in, and commitment to, a stable long-term intimate relationship. Based on the findings from the current study, this pattern of sexual behavior involves at least two key dimensions of sexuality: (1) preference for partner diversity (i.e., high mating effort); and, (2) a general lack of control over sexual urges, thoughts, and behaviors (i.e., high sexual drive). These two dimensions of sexuality were evident to different degrees in the current sample of sexual aggressors: they were sexually active during childhood and adolescence; were successful in terms of their sexual endeavors; and, overall, had an above average self-evaluation of their sexual competence. In contrast to their preference for partner diversity, they exhibited a lesser degree of sexual fantasizing, and invested less time in sexual endeavors (e.g., viewing pornography, frequenting strip bars) and self-directed sexual release behaviors (e.g., frequency of sexual fantasizing, compulsive masturbation). Therefore, as a group, these sexual aggressors of women were not sexually deprived, repressed, or lacking confidence in their sexual abilities. In addition the evidence did not support the notion that they lacked skills to acquire heterosexual contacts. Importantly, this pattern of antisocial sexuality was even more pronounced in early-starters compared to late-starters.

### **3.6.2 Antisocial Trajectories and Antisocial Sexuality**

The degree of antisocial sexuality that characterized sexual aggressors of women varied across antisocial trajectories. Importantly, this was the first study that empirically examined the link between sexuality and antisocial trajectories. Early-starters were more likely to be characterized by behavioral problems and juvenile delinquency in childhood,

which persisted or escalated to serious and violent behaviors in adolescence compared to late-starters. In contrast, late-starters were primarily limited to behavioral problems and non-violent delinquency in adolescence. Importantly, the differential patterns observed in the trajectories for these non-sexual antisocial behaviors paralleled differences with measures of mating effort and sexual drive. These findings were consistent with previous empirical studies that demonstrated significant relationships between antisociality and sexual promiscuous behaviors in community and correctional samples (Lussier et al., 2007; Lussier, Proulx, et al., 2005; Malamuth, 1998; Malamuth et al., 1991).

Early-starters reported an earlier onset of sexual contacts and intercourse, more sexual partners, and a higher frequency of sexual interactions than late-starters. These results appear to reflect a stronger preference for partner diversity among early-starters given that the two groups did not differ regarding their self-perceptions of sexual competence. One explanation for these findings is that early-starters exhibited a higher sexual drive than late-starters as indicated by the formers' general lack of control over sexual thoughts (e.g., overwhelmed by sexual fantasies), urges (e.g., high sexual investment) and sexual release behaviors (e.g., frequent/compulsive masturbation). The findings of this study demonstrated that the impact of an early-onset antisocial trajectory on mating effort disappeared after controlling for a high sexual drive. In other words, it appeared that a high sexual drive might explain the link between early-onset antisociality and mating effort. Therefore, while both early- and late-starters exhibited high mating effort, the lack of control over the sexual drive might explain a stronger inclination for partner diversity in early-starters. These findings might also explain the differential patterns of sexual criminal activity found between early- and late-starters.

### **3.6.3 Sexual Aggression in Adulthood**

These findings are consistent with many empirical studies that have emerged from the developmental life-course criminological literature (e.g., LeBlanc & Bouthillier, 2003; Moffitt et al., 2002; Tracy et al., 1990) which stipulate that an early-onset of antisocial behavior is indicative of the criminal activity and antisocial potential of offenders. More specifically, as the antisocial potential of offenders increases, the more likely it is that these individuals will revert to antisocial strategies to obtain immediate sexual gratification (Cale et al., 2009; Lussier, Proulx, et al., 2005). For example, several covert strategies (i.e., deceit, manipulation, false charm) and overt strategies (i.e., coercion and violence) increase the likelihood of acquiring sexual opportunities and conquests while minimizing the necessity to commit to a stable intimate relationship (Ellis, 1991; Koss & Gidycz, 1985; Lalumière et al., 2005; Lalumière & Quinsey, 1996; Malamuth et al., 1991; Seto & Barbaree, 1997). Sexual aggressors of women might revert to overt strategies (i.e., aggression) when a consenting partner is temporarily not available, non-coercive strategies were unsuccessful, or if they experienced rejection by a potential sexual partner.

The findings also supported such a pattern of behavior considering that sexual aggression did not appear to be the preferred mode of sexual expression. For example, the offenders in the sample reported a substantially higher number of female sexual partners and frequency of sexual activities with a partner than they did acts of sexual aggression. Furthermore, a preference for partner diversity and lack of control over sexual thoughts, urges, and behaviors were unrelated to the level of specialization in sexual criminal activity in adulthood. Rather, the finding that late-starters were more likely to specialize

in sexual crimes might be more reflective of the overall limited criminal involvement that characterizes individuals in this trajectory (Cale et al., 2009). On the other hand, the use of aggressive strategies was more likely to occur earlier and more frequently among individuals characterized by evidence of a preference for partner diversity and lack of control over sexual urges, thoughts and behaviors.

Early- versus late-starters differed in terms of the onset and repetition of sexual criminal activity in adulthood. More specifically, early-starters began sexually offending in adulthood earlier, and repeated sexual crimes more frequently than late-starters. However, a preference for partner diversity, and a high sexual drive was related to the link between antisocial potential (i.e., early-onset of antisocial behavior in childhood) and sexual criminal activity in adulthood. In this regard, the sexuality and offending pattern of early-starters may reflect an alternative lifestyle characterized by diversity in sexual experiences rather than self-perceptions of inadequacy and frustration. Furthermore, a more pronounced pattern of antisocial sexuality in early-starters might explain why they were more likely to revert to sexual aggression compared to late-starters. In effect, for early-starters, sexual aggression may be more likely to occur when less aggressive tactics (i.e., coercion, manipulation, deceit) fail to procure sexual opportunities and conquests.

Nonetheless, there was evidence of a pattern of antisocial sexuality in late-starters as well, albeit, to a lesser extent than early-starters. One explanation for this may be that the impact of adolescent delinquency had long-lasting negative implications for stable and long-term pro-social relationships. For example, the negative consequences of certain adolescent and young adulthood sexual activity (i.e., gaining a reputation as uncommitted, contracting sexually transmitted diseases, fathering multiple children) may

have contributed to problems finding and maintaining stable and long-term relationships later in life. In turn, this may have resulted in the longevity of a mating strategy characterized by the pursuit of multiple sexual opportunities, and an increased necessity for creating sexual conquests. Similar to their zigzag criminal involvement (i.e., unstable and episodic patterns of criminal activity) driven by contextual and situational factors rather than stable individual traits (Laub & Sampson, 2003), life events (i.e., divorce, separation, continual rejection of sexual advances) may have had more of an impact on the development of antisocial sexuality in these individuals. For example, a related hypothesis maintains that the rejection of sexual advances increases the likelihood of an individual to further pursue those sexual opportunities (Baumeister et al., 2003). Continual rejection and episodic difficulties in successfully acquiring sexual opportunities and conquests, therefore, may increase the likelihood of sexual aggression among late-starters in adulthood.

### **3.7 Conclusion**

The findings from the current study hold important implications for the treatment of sexual aggressors. Sex offender treatment programs that have typically targeted factors that are unique to sexual aggressors (e.g., deviant sexual arousal/preferences; cognitive distortions; self-regulation, etc.) and largely disregard the antisocial trajectories of these individuals despite emerging empirical evidence highlighting the importance of this construct in sexual aggression (Cale et al., 2009; Lalumière et al., 2005; Moffitt, 1993; Seto & Barbaree, 1997). Furthermore, considering that antisocial trajectories carry implications in the sexual lifestyle of these individuals, attention should be focused on the overlap of behaviors in antisocial and sexual domains such as sensation seeking,

manipulative, authority defiant, and aggressive attitudes. In this regard, a pattern of antisocial sexuality characterized by the lack of control over sexual urges, thoughts, and behaviors, and, a preference for multiple and short-term sexual conquests, and sexual aggression need to be addressed by treatment modalities. In addition the findings suggest that a pattern of antisocial sexuality has potential for the prediction of sexual recidivism in sexual aggressors of women. Critically, no empirical studies have incorporated elements of antisocial sexuality into the prediction of sexual recidivism. In fact, risk assessment tools designed for sex offenders do not specifically include elements related to antisocial sexuality identified by the current study.

Given this was the first study that examined elements of antisocial sexuality among sexual aggressors of women the results should be interpreted as exploratory. Furthermore, this study suffered from numerous methodological limitations. First, because the sample consisted of federal inmates at a regional treatment facility in the province of Quebec, Canada, the results may only generalize to federal inmates. Despite this possibility, given that all inmates who had offended against a female who was 16 years of age or older over a four-year period were included in the study, the sample also closely approximates a population. Another key limitation is the fact that this study was based on retrospective data. Therefore, the identification of early- and late-onset antisocial trajectories, and the sexual histories of the individuals in the sample may have been biased by poor memory recall in addition to the fact that respondents may have minimized or exaggerated particular aspects of their history of antisocial and sexual behavior. In this regard, another key limitation was that it was not possible to assess the effects of social desirability of the responses related to delinquency in childhood and



adolescence, and sexual behaviors. Finally, sexual criminal activity in adulthood was based on official data and it is therefore possible that the results may have differed if self reported data were used. Nonetheless, the exploratory results garnered by the study warrant further examination into the relationship between antisocial and sexual development in sexual aggressors of women.

**CHAPTER 4:**

**MERGING DEVELOPMENTAL AND CRIMINAL CAREER  
PERSPECTIVES: IMPLICATIONS FOR RISK ASSESSMENT AND  
RISK PREDICTION OF VIOLENT/SEXUAL RECIDIVISM IN  
ADULT SEXUAL AGGRESSORS OF WOMEN**

**4.1 Abstract**

Currently, a majority of actuarial risk assessment tools for sexual recidivism contain static risk factors that measure various aspects of the offender's prior criminal history in adulthood. The goal of the current study was to assess the utility of extending static risk factors, by using developmental and criminal career parameters of offending, in the actuarial assessment of risk of violent/sexual recidivism. The current study was based on a sample of 204 convicted sexual aggressors of women incarcerated in the province of Quebec, Canada between April 1994 and June 2000. Semi-structured interviews were used to gather information on the offender's antisocial history prior to adulthood and police records were used to collect data on the criminal career of these offenders in adulthood. For an average follow-up period of approximately four years, the violent/sexual recidivism rate for the sample was 23.7%. The results provided support for the inclusion of both developmental and criminal career indicators for the prediction of violent/sexual recidivism. More specifically, recidivists were characterized by an early-onset antisocial trajectory and a pattern of escalation of antisocial behavior between childhood and adolescence. The findings suggest that risk assessors should look beyond

broad adult criminal history data to include aspects of antisocial development to improve predictive accuracy.

## **4.2 Introduction**

The fact that childhood antisocial behavior is a risk marker for serious and violent offending in adulthood carries substantial implications for the assessment, prevention, and treatment of violent/sexual offending (Loeber & LeBlanc, 1990; LeBlanc & Loeber, 1998). Developmentalists have argued that in order to more accurately identify individuals at risk for the most serious antisocial behavior in youth and adulthood, it is critical to examine antisocial behavior prior to the period of adolescence, a developmental time frame where manifestations of antisocial behavior (e.g., aggression) tend to be more age-normative (Moffitt, 1993). Therefore, in order to enhance the early and accurate identification of potentially serious and violent offenders, and, in turn, improve the efficacy of preventive efforts, Moffitt (1993) stressed the importance of early childhood antisocial behavior as a key risk factor for practitioners to consider. Several prospective longitudinal studies have demonstrated the strong association between childhood antisocial behavior and various maladaptive outcomes in adolescence and adulthood (e.g., Moffitt, Caspi, Harrington, & Milne, 2002).

These considerations, however, have not been echoed in the more narrow area of research concerning sexual violence. For example, until recently, it was hypothesized that a similar antisocial behavioral background characterized adult sexual aggressors of women with minor variations between offenders. More specifically, sexual aggressors of women have typically been considered to constitute a relatively homogenous group of persistent and versatile offenders (e.g., Simon, 2000). Previous studies that have

examined antisocial background of sexual aggressors of women, however, have typically not elaborated beyond between-individual differences on specific criminal history variables, potentially contributing to such overly broad conclusions about them. More recent empirical studies, however, have provided evidence that: (1) a diversity of antisocial behavioral trajectories in youth lead to sexual aggression in adulthood; (2) antisocial trajectories differ according to several developmental indicators (e.g., onset, persistence, escalation); and, (3) antisocial trajectories are differentially associated with various criminal career parameters in adulthood (e.g., adult age of onset, versatility/specialization in offending, and frequency of offending) (Cale, Lussier, & Proulx, 2009; Cale & Lussier, in press; Lussier, LeClerc, Cale, & Proulx, 2007). Currently, however, it remains unclear whether such findings possess utility for the screening of violent/sexual recidivists.

Typically, risk assessment of violent/sexual reoffending in adult sexual aggressors focuses predominately of risk factors in the period of adulthood (e.g., Epperson, Kaul, Huot, Goldman, & Alexander, 2003; Quinsey, Harris, Rice, & Cormier, 1998; Hanson, 1997; Hanson & Thornton, 2000; 2003). In addition, aspects of the adulthood criminal career of these offenders (e.g., the number of prior convictions for: sexual offences; non-sexual violent offences; and, any offences) constitute an essential component of the predictive accuracy in the most commonly utilized actuarial instruments. Few instruments, however, assess the contribution of risk factor variables pertaining to antisocial behavior prior to the adulthood period in spite of evidence of the association between early childhood antisocial behavior and adulthood serious and violent offending (e.g., Farrington, 2003; LeBlanc, 2005; Moffitt, 1993; Patterson & Yoerger, 1993;

Thornberry, 2005). Therefore, the current study assessed the utility of considering the antisocial developmental history of sexual aggressors of women in youth, and examined how their antisocial development is related to the persistence of sexual offending in adulthood. More specifically, adulthood criminal career parameters were compared with antisocial trajectories in youth of adult sexual aggressors of women to determine the utility of a developmental framework in actuarial risk assessment of violent/sexual recidivism.

#### **4.2.1 Risk Assessment of Sexual Recidivism**

The risk assessment of violent/sexual recidivism in adult sexual aggressors of women has focused substantially on static/historical risk factors (i.e., risk factors that cannot be modified through criminal justice/therapeutic intervention) related to the criminal history of offenders in adulthood (e.g., the number of prior sexual, violent, and property offences, failure on conditional release) (Hall & Proctor, 1987; Proulx et al., 1997; Quinsey, Rice, & Harris, 1995). In addition, several researchers have provided evidence that these indicators are tapping an underlying stable propensity to reoffend over time (Barbaree, Langton, and Peacock, 2006; Doren, 2004; Seto, 2005). This is further exemplified by considering that the items included in actuarial tools such as the Rapid Risk Assessment for Sexual Offence Recidivism (RRASOR) (Hanson, 1997), the Static-99 (Hanson & Thornton, 2000), the Static-2002 (Hanson & Thornton, 2003) the Sexual Offender Risk Appraisal Guide (SORAG) (Quinsey et al., 1998), and the Minnesota Sex Offender Screening Tool-Revised (MnSOST-R) (Epperson et al., 2003), are predominately static predictors of sexual recidivism. These tools have been critical in guiding risk assessors' determination of the risk of reoffending, and include predictors

related to offenders' criminal history such as the number of prior convictions for any crime (Hanson & Thornton, 2000; 2003), the presence of property crimes (Hanson & Thornton, 2000; 2003; Quinsey et al., 1998), the presence and/or the number of prior convictions for violent crime (Hanson & Thornton, 2000; 2003; Quinsey et al., 1998), the presence and/or the number of prior convictions for sexual crimes (Hanson, 1997; Hanson & Thornton, 2000; 2003; Quinsey et al., 1998; Epperson et al., 2003), as well as failure on conditional release (Hanson & Thornton, 2003; Quinsey et al., 1998; Epperson et al., 2003). These indicators comprise a critical component of risk assessment tools because they have demonstrated empirical relationships to sexual recidivism in adult sexual aggressors of women. In effect, as the presence and magnitude of these risk factors increases, so too does the risk of sexual reoffending. The criminal career approach can be used to best understand the link between such static risk factors and the risk of reoffending in adult sexual aggressors of women.

#### **4.2.2 Risk Prediction and the Criminal Career Perspective**

The criminal career approach is concerned with the longitudinal sequence of crimes committed by an offender (Blumstein, Farrington, & Moitra, 1985). In addition, a majority of actuarial tools designed to predict the risk of sexual recidivism in sexual aggressors incorporate static risk factor variables pertaining to aspects of an offender's criminal career (e.g., frequency of previous convictions, length of the criminal history in adulthood). Furthermore, when considering the static risk factors pertaining to offenders' prior criminal history in the most commonly utilized actuarial risk assessment tools, three key themes emerge. The first is that the extent of involvement in prior general offending is predictive of sexual reoffending. In fact, the majority of static predictors included in

actuarial risk assessment instruments do not specifically pertain to aspects of their sexual offending. Furthermore, this is consistent with observations that most sexual aggressors of women are not characterized by specialization in sexual crimes, but rather their sexual offending represents a proclivity to act in an antisocial manner more generally (Lussier, Proulx, & LeBlanc, 2005). Second, the inclusion, in actuarial instruments, of items specific to various other types of crime, such as prior property, violent, or sexual offences, increases the predictive accuracy of these instruments. In effect, this suggests that the risk of sexual reoffending is higher among those sexual aggressors of women characterized by a more diversified criminal history. Several criminologists have argued that a more diversified criminal history is indicative of a higher propensity to reoffend (e.g., Hirschi & Gottfredson, 1995). More specifically, this may be especially pertinent with reference to sexual aggressors of women who have been shown to have a more diversified criminal background compared to other sexual offender types (Harris, Mazerolle, & Knight, 2009). Third, the repetition (i.e., increased frequency) of prior offending is a significant risk predictor of sexual reoffending. This is consistent with previous observations that the frequency of crimes committed by sexual offenders, and, especially by sexual aggressors of women, is substantial, and similar to other groups that constitute ‘extreme career criminals’ (e.g., DeLisi, 2001; Piper, 1985; Tracy, Wolfgang, & Figlio, 1990). In addition to these aspects of the criminal careers of sexual aggressors of women, more recently, other researchers have provided evidence that the age of onset of offending in adulthood should be considered by risk assessors to improve the overall predictive accuracy of sexual recidivism (Harris & Rice, 2007; Lussier & Healey, 2009). Taken together, these observations suggest that sexual aggressors of women most at-risk

of sexual reoffending are early-onset, chronic offenders, who are characterized by a more extensive and diversified criminal history.

### **4.2.3 Should We Look Earlier in Offenders' Histories?**

Risk assessors typically focus on static risk factors that characterize the prior criminal activity of sexual aggressors in adulthood. Indeed, few empirical risk assessment tools take into consideration risk factors that are present in youth, and focus instead, on the period of adulthood. There are however some exceptions to this trend. For example, the SORAG contains one item pertaining to antisocial behavior in youth (i.e., behavioral problems at school). Similarly, the MnSOST-R also contains one item pertaining to antisocial behavior in youth (i.e., adolescent antisocial behavior). Therefore, a key question that has yet to be addressed in the empirical literature pertains to measurement of the propensity to reoffend. In effect, if risk assessment tools are designed to capture the propensity of an offender to reoffend, then a key question centers on whether or not there is some utility in the consideration of offender's antisocial behavior across multiple life stages to improve the assessment of this propensity. Moffitt (1993) made this claim by arguing that in order to identify juvenile offenders who are the most likely to persist into adulthood, assessors and clinicians should consider risk factors that are present in the childhood period. This claim led to the key distinction between early-onset (i.e., childhood onset) and late-onset (i.e., i.e., adolescent onset) offenders, the former group at the greatest risk of maladaptive outcomes in adulthood compared to the latter. In addition, empirical research that has emerged from the developmental perspective, suggests that considering looking earlier in offenders' histories may be useful for the prediction of reoffending (Farrington, 1989; Lipsy & Derzon, 1998). However, while



there has been a commonly held perception that adult sexual aggressors of women are characterized by early-onset and extensive criminal involvement over the life-course, recent retrospective studies have produced conflicting evidence to this claim (Cale et al., 2009; Cale & Lussier, in press). In effect, utilizing a developmental perspective may be fruitful to identify those sexual aggressors of women that are most likely to persist in adulthood. More specifically, looking earlier in the offender's developmental history might unravel further information about a higher-risk group.

#### **4.2.4 The Developmental Perspective and Sexual Aggressors of Women**

If there is utility for risk assessors in looking earlier into the developmental history of sexual aggressors of women, then an obvious and critical question concerns what they should be looking for. Developmental studies of the behavioral manifestations of deviance during childhood and adolescence have shown that antisocial manifestations are associated with a more extensive general and sexual criminal history (Lussier, Proulx, et al., 2005; Lussier LeBlanc, & Proulx, 2005). However, recent studies have provided evidence that the antisocial background of adult sexual aggressors of women is characterized much heterogeneity. Cale et al., (2009) found two meta-trajectories of adult sexual aggressors of women, distinguishing early-onset (55% of the sample) and late-onset (45% of the sample) offender groups. In addition, they also observed that the early-onset group, compared to the late-onset group, exhibited an earlier onset, more extensive, and, diversified criminal history in adulthood. Similar trends were observed for sexual offending more specifically. In other words, the early-onset group was not only characterized by a more extensive general offending history, but also, a more extensive sexual offending history as well. Cale et al., (2009) further distinguished three subgroups

of early-onset offenders by differentiating qualitative aspects of their antisocial behavior in youth. One subgroup of early-onset offenders (15% of the sample) was characterized by a pattern of low-level (i.e., non-serious), chronic antisocial behavior that persisted into adolescence. A second group was characterized by pattern of serious antisocial behavior beginning in childhood that escalated to serious and violent antisocial behavior in adolescence (28% of the sample). A high level of serious and violent antisocial behavior characterized the third group over the periods of childhood and adolescence (10% of the sample). Importantly, early-onset offenders whose antisocial behavior was characterized by a pattern of escalation were the most criminally active group in adulthood in their sample; they exhibited the earliest age of onset and highest frequency of general offending, and were also the most criminally versatile group.

### **4.3 Aims of the Study**

The aim of the current study was to determine the relative utility of developmental and criminal career parameters, and whether early- versus late-onset offenders differed in terms of violent/sexual recidivism rates. Currently, actuarial risk assessment of sexual recidivism relies on static criminal history variables in adulthood to determine the likelihood of sexual reoffending. However, it is currently unclear as to whether considering the antisocial background of offenders prior to the period of adulthood can add to the prediction of the likelihood of sexual reoffending. Therefore, in the current study, trajectories of antisocial behavior in youth were assessed in addition to whether these trajectories were associated with violent/sexual recidivism in adulthood. Next, antisocial trajectories in youth were compared to general criminal career parameters in adulthood (i.e., age at first charges, frequency of general offending, criminal diversity) to

assess the relative contributions of criminal career and developmental variables in the prediction of violent/sexual recidivism.

## **4.4 Methodology**

### **4.4.1 Sample**

For the current study, all adult males who were convicted of a sexual offence against an adult female (i.e., 16 years of age or older) and received a federal sentence (i.e., at least a two years) between April 1994 and June 2000 in the province of Quebec, Canada, were included for analyses ( $n= 209$ ). These offenders were all subject to consecutive admissions in this time period at the Regional Reception Centre of Ste-Annes-des-Plaines, which assesses risk and treatment needs of all individuals in the province who receive a federal sentence. The offences for which the sample were incarcerated for at the time were sexual assault (66%), armed sexual assault (28%), sexual assault causing injuries (9%), and aggravated sexual assault (4%).<sup>vi</sup> The majority of the sample were general recidivists (80% had received a prior sentence), and for approximately 12% of the sample, half of their previous charges were for a sexual crime.

### **4.4.2 Procedures**

The research protocols for the current study were conducted according to the ethical guidelines stipulated by the Research Ethics Board of the University of Montreal during the time period in which data collection took place. The data used to identify scales measuring behavioral antecedents were collected during a single computerized semi-structured interview with each participant, in which they were unaware of the research questions and hypotheses. Each participant signed a consent form after they were made aware that the information gathered was to be used for research purposes only.

Interviewers were all graduate students in criminology and psychology, and were trained by a licensed forensic psychologist to administer the interview. Official sources of information (i.e., police reports, victim statements, psychological assessments, etc.) were also used to corroborate information collected during the interviews. When disagreements were discovered between information garnered during interviews and official sources, official data were used.

#### **4.4.3 Measures**

Antisocial Trajectories. A dynamic model of antisocial development to measure both between- and within-individual changes over time in antisociality was constructed. One method of accomplishing this is through cross-sectional pattern analysis and linking of patterns over time. This approach involves linking the results of cluster analyses in different time periods by cross-tabulating adjoining classifications and testing for significant types of cluster membership combinations (Bergman, 2000). Therefore, self-reported retrospective data of behavioral indicators of deviance in two time periods: (a) childhood (i.e., 0-12 years old), and (b) adolescence (i.e., 13-17 years old) were analyzed. Three forms of self-reported antisocial behaviors were examined in both time periods: (a) behavioral problems; (b) non-violent delinquency; and, (c) violent delinquency. Behavioral problems referred to: frequent lying; being rebellious; temper tantrums; running away or being truant; and, risky behaviors that endanger others or one's self (e.g., walking on the edge a bridge). Non-violent delinquency on the other hand, included property and non-violent delinquency such as: minor and major theft; robbery without a weapon; break and enter; drug trafficking; fire setting; and, property destruction. Finally, violent delinquency included serious and violent behaviors such as: homicide; threats and

intimidation; armed robbery; use of a weapon; nonsexual assault; and, sexual assault. Each indicator was coded as either present (1) or absent (0) for the time period. The concurrent and predictive validity of these indicators have been presented elsewhere (Lussier, LeBlanc, et al., 2005; Lussier et al., 2007; Lussier, Proulx, et al., 2005).

Next, two hierarchical cluster analysis procedures were performed (i.e., childhood and adolescence) using Ward's method and squared Euclidean distance to identify nested groups of individuals in each time frame. Cases were joined based on their proximity to one another over successive iterations forming progressively larger groups until one single super-ordinate group was created. Scree plots and Mojena's (1977) stopping rule were analyzed to determine when an inconsistent increase in the dissimilarity measure was observed. The internal validity of the cluster solutions was examined first by repeating the cluster analysis procedure using a different measure of proximity specifically designed to examine dichotomous data (i.e., Russell-Rao), and then crosstabulating the results with those obtained using Ward's method. Kappa measures of agreement showed high stability of the cluster solutions ( $\kappa = .90-.93$ ). Next, a split sample validation technique was performed by randomly dividing the sample into two equal subsets and re-running the cluster analyses on both samples. The cluster solutions were then crosstabulated with the original solutions and again showed high stability ( $\kappa = .91-1.00$ ). These results have been presented in more detail elsewhere (Cale et al., 2009), and their construct validity have been demonstrated in another study (Cale & Lussier, in press).

For the purposes of the present study, the antisocial trajectories were operationalized in two ways. First, antisocial trajectories were recoded to distinguish childhood onset

(i.e., early-onset) offenders from the rest of the sample on the grounds that this subgroup of individuals has been shown to exhibit the most extensive criminal career profile in adulthood (Cale et al., 2009). Therefore, non-delinquents and initiators were recoded to formulate a reference group for comparison purposes based on the absence of antisocial behavior in childhood, and the stable-low, escalator, and stable-moderate/high groups were recoded into the early-onset group. Next, the three early-onset antisocial trajectories were examined independently to assess qualitative differences in antisociality over childhood and adolescence. These trajectories differed according to criminal activity in adulthood in a previous study (Cale et al., 2009). The stable-low antisocial trajectory was examined to assess '*persistence*' (i.e., only behavior problems in childhood and adolescence), the escalator antisocial trajectory was examined to assess '*escalation*' (i.e., behavioral problems and non-violent delinquency in childhood and non-violent delinquency and violent delinquency in adolescence), and finally, the stable-moderate/high antisocial trajectory was examined to assess the process of '*aggravation*' (i.e., violent delinquency in childhood and violent delinquency in adolescence). Cale et al., (2009) found that the trajectory characterized by escalation was related to an earlier onset, and higher frequency, of general and violent crimes, higher criminal versatility, and lack of specialization in sexual crimes in adulthood.

Control Variables. In the current study, four demographic control variables were included as covariates in the prediction models. They included: (1) level of education (0= less than high school and 1= greater than high school); (2) ethnicity (0= non-Caucasian and 1= Caucasian); (3) employment status (1= employed, 2= on social assistance, and 3= unemployed); and, (4) the age of the offender at the time of release. The overwhelming

majority of the sample was Caucasian (83%), and had achieved less than high school (92%) in terms of education. In addition, nearly two-thirds of the sample was on social assistance (65%), while just over one-fifth (7%) were unemployed. Age at release refers to the age of the offender at the time they were released from custody for their index offence, and marks the beginning of the follow-up period for each individual. The average age at release for the sample was 35.9 years old ( $SD= 9.0$ , range= 20-66). In addition, offenders in the sample spent, on average, 4.1 years incarcerated ( $SD= 2.1$ , range= 2-12) for their index offence.

Parameters of General Offending. Three static criminal career parameters pertaining to general offending in adulthood were assessed in the current study. The first was the age at first charge for any offence in adulthood<sup>vii</sup>. On average, individuals in the sample were 24.1 years old ( $SD= 8.2$ , range= 16.1-65.1) at the time of their first charges. Next, the frequency of general offending (i.e., number of charges) was examined. The mean number of charges for the sample was 19.5 ( $SD= 22.1$ , range= 1-102). Finally, the degree of versatility in offending in adulthood was examined (i.e., the average number of different crime types in the offense history). The versatility scale included the following 17 items: mischief, theft, car theft, breaking and entering, fire setting, homicide, assault, kidnapping, robbery, sexual assault, aggravated sexual assault, exhibitionism, fraud, crime related to driving a vehicle, drug-related offenses, crimes related to the administration of justice, and other. Therefore, the criminal versatility score can vary between 1 and 17: the higher the score the higher the criminal versatility. The mean level of criminal versatility for the sample was 5.8 ( $SD= 3.0$ , range= 1-13).

Follow-Up Period and Recidivism. The follow up period was computed by determining the time between the date of discharge for each of the offenders in the study, and the period at which data collection on recidivism ended. Therefore, this measure was primarily influenced by: (1) the date of admission to custody; (2) length of prison sentence; (3) length of stay in custody; and, (4) whether the offender reoffended prior to the end of the follow-up period. In June 2004, recidivism data were collected for each offender marking the end of the follow-up period. Of the 204 individuals remaining in the sample, 27 had not been released by this date leaving a final sample of 177 offenders. The mean follow-up period for these individuals was 51.4 months ( $SD= 23.0$ , range= 0-80), just under four and a half years. Following the recommendations of Quinsey et al., (1998) among others, we combined violent/sexual recidivism to include all convictions for any violent or sexual crime during the follow-up period. This was done for two primary reasons. First, the exclusive rate of sexual recidivism for the current sample was low (6.2%), and second; some charges for sexual crimes may have resulted in convictions for violent crimes due to plea-bargaining. In total, 20.3% of the sample received a conviction for a violent/sexual crime during the follow-up period.

Table 16 displays the correlation matrix of the covariates for the present analysis. An early-onset antisocial trajectory was significantly related to the three criminal career parameters suggesting this group had an earlier age of onset of their adult criminal career, higher number of criminal charges, and, a more diverse criminal repertoire, in adulthood. However, these relationships appeared to be driven by a pattern of escalation, and to a lesser extent, a pattern of aggravation. Indeed, when looking at qualitative aspects of the antisocial trajectories in the early-onset group, escalation and aggravation were both



related to the three criminal career parameters, however, persistence was not.

Furthermore, two general criminal career parameters were associated with violent/sexual recidivism (i.e., early-onset of general offending in adulthood, and high frequency of offending), in addition to an early-onset antisocial trajectory, and a pattern of escalation.

Finally, a younger age at release was the only demographic covariate significantly correlated with violent/sexual recidivism.

**Table 16: Correlation Matrix of Covariates**

Variables	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.	13.	14.
1. Less than high school	-													
2. Non-Caucasian	-.03	-												
3. On social assistance	-.13	.06	-											
4. Unemployed	.17*	-.01	-.32***	-										
5. Age at Release	.02	-.16*	-.11	-.08	-									
6. Age of onset (gen off)	.12	.11	-.16*	.02	.47***	-								
7. Frequency (gen off)	-.09	-.24**	.17*	-.07	.14	-.44***	-							
8. Criminal versatility	-.13	-.21**	.14	-.01	.16*	-.47***	.87**	-						
9. Early-onset antisocial trajectory	-.13 <sup>+</sup>	-.06	.09	-.05	-.21**	-.30***	.27***	.26**	-					
10. Persistence	-.06	-.12	-.01	-.05	-.01	.00	.06	.09	.40***	-				
11. Escalation	-.09	-.02	.09	.03	-.14	-.24**	.22**	.17*	.60***	-.26**	-			
12. Aggravation	-.02	.06	.03	-.09	-.14	-.15*	.05	.07	.31***	-.13 <sup>+</sup>	-.20**	-		
13. Follow-up period (in months)	.01	.13	.05	-.08	-.18*	.10	-.30***	-.30***	-.12	.05	-.12	-.10	-	
14. Violent /sexual recidivism	.01	-.05	.12	.03	-.23**	-.23**	.19*	.14	.24**	.11	.22**	-.06	.05	-

\* $p < .05$ , \*\*  $p < .01$ , \*\*\*  $p < .001$

#### 4.4.4 Analytic Strategy

Cox Regression. Cox Proportional Hazards was employed to determine whether survival time (i.e., not reoffending) was related to antisocial trajectories while controlling for demographic covariates. Cox regression was preferred over other methods (i.e., logistic regression) because of the ability of this technique to control for censored data (i.e., non-recidivist cases who may reoffend past the end of the follow-up period) (Fox, 2002; Hanson, 2005). Furthermore, several recidivism studies (e.g., Barbaree, Blanchard, & Langton, 2003; Hanson, 1997; Lussier & Healey, 2009; Prentky & Lee, 2007) have employed this technique to control for the length of the follow-up period because failing to do so can create biases when interpreting parameter estimates. To assess the proportionality of hazards assumption to ensure that the effect of the covariates remained constant over time, for each of the covariates Schoenfeld residuals (partial residuals) were plotted (y-axis) against the time of the survival period (Grambsch & Therneau, 1994). A Loess smoothing curve was then analyzed to determine whether the residuals were randomly distributed over the length of the follow-up period. These analyses revealed that the residuals were randomly distributed over the length of the follow-up period, (i.e., close to the reference line or zero on the Y-axis) suggesting proportionality of the covariates. Finally, squared multiple correlations (SMCs) were computed to ensure that the covariates were not too highly correlated, and the results revealed that none of the covariates were redundant (Initial Communalities < .90) ensuring there was no statistical multicollinearity among the variables for the prediction models.

#### 4.4.5 Predictive Accuracy of Models

Two methods were employed to estimate the explained variance of the final Cox-regression models. Given that the models are non-linear, the predictive power of the model was determined first by using Receiver Operating Characteristic (*ROC*) analysis to calculate the area under the curve. The *AUC* coefficient varies from 0.5 (chance discrimination accuracy) to 1.0 (perfect discrimination accuracy). Next, Allison's (1995)  $R^2$  formula also allowed for the examination of how well covariates in the Cox regression models predicted violent/sexual recidivism. Allison (1995) points out that this method should be interpreted as how strongly the covariates are related to the outcome variable as opposed to the overall explained variance. The formula is computed as:

$$\text{(Equation 2) } R^2 = 1 - e^{(-G/n)}$$

where  $e$  is a constant (the base of the natural log),  $-G$  is the difference between the log likelihood chi-square statistic for the smaller model (e.g., without the covariates) and the log likelihood chi-square statistic for the larger model (e.g., including the covariates), and  $n$  is the sample size for the analysis.

#### 4.4.6 Prediction Models

A series of Cox-regression models were run to examine and compare the impact of static (i.e., criminal career parameters in adulthood) and dynamic (i.e., antisocial trajectories in youth) antisocial propensity variables on reoffending. These models were analyzed for violent/sexual recidivism while controlling for the impact of covariates (i.e., low education, ethnicity, social assistance and unemployment, and age at the time of release). For violent/sexual reoffending, three sets of models were assessed: (1) a baseline model consisting of control variables; (2) seven independent models to assess the

individual impact of the developmental variables (i.e., (a) an early-onset antisocial trajectory; (b) persistence; (c) escalation; and, (d) aggravation), and criminal career parameters (i.e., (e) age of onset of general offending in adulthood; (f) the frequency of general offending in adulthood; and (g) criminal versatility in adulthood); and, (3) a series of six models, the first three comparing the relative contribution of static developmental indicators of onset (i.e., early- versus late-onset) to that of the three criminal career parameters in adulthood: onset (i.e., activation), frequency (i.e., repetition), and versatility (i.e., diversification), and the second three comparing the relative contribution of dynamic developmental indicators in youth (i.e., persistence, escalation, and aggravation) to the same three criminal career parameters, in predicting violent/sexual recidivism. In effect, the adulthood criminal career parameters represent processes by which criminal activity in adulthood starts, becomes chronic, and, generalized. Therefore, the current analytic strategy allowed for the identification of the best combination of developmental and criminal career indicators to predict the likelihood of violent/sexual reoffending.

## **4.5 Results**

Chi-square analyses with odds ratios were computed to determine a baseline rate (not controlling for length of the follow-up period) for violent/sexual recidivism according to the different antisocial trajectories to initially explore whether early- versus late-starters differed in terms of the likelihood to commit a subsequent violent/sexual offence. The overall base-rate of violent/sexual recidivism for the early-onset group was 29.7%, and they were over three and a half times more likely [ $OR= 3.61$ ; 95%  $CI= 1.60-8.23$ ] than the late-onset group to have recidivated with a violent/sexual offence [ $X^2(1)= 10.07$ ;  $\phi=$

.24;  $p < .001$ ] (Table 17). In addition, the Mantel-Cox log rank test indicated that, on average, offenders characterized by an early-onset antisocial trajectory recidivated approximately 8 months faster than those in the late-onset antisocial trajectory (68.3 months compared to 75.9 months) [ $X^2(1) = 10.06$ ;  $p < .01$ ].

**Table 17: Violent/Sexual Recidivism Rates According to Developmental Indicators**

Antisocial Trajectories	Violent/sexual recidivism	
	Base Rate	Odds Ratio (95% CI)
Early-onset (n=91)	29.7%	3.61 (1.60-8.23)**
Late-onset (n=86)	10.5%	.28 (.12-.63)**
Antisocial Processes		
Persistence (n=26)	30.8%	1.95 (.77-4.94)
Escalation (n=49)	34.7%	3.05 (1.42-6.54)**
Aggravation (n=16)	12.5%	.53 (.12-2.46)

\*\*  $p < .01$

Note: Not adjusted for time spent at risk.

#### 4.5.1 Cox Regression of Individual Criminal Career and Developmental Variables

Cox regression analysis was used to first examine an initial baseline model predicting violent/sexual recidivism that consisted of only demographic control variables taking into consideration the length of the follow-up period (Table 18). The baseline model consisting of demographic control variables was not significant. Next, seven separate models, controlling for demographic covariates, were examined, one for each independent variable in the study including: (1) an early-onset antisocial trajectory; (2) persistence; (3) escalation; (4) aggravation; (5) age of onset of general offending; (6) frequency of general offending; and, (7) criminal diversity (Table 19). The first model examining an early-onset antisocial trajectory showed a pseudo- $R^2$  of 9.0% with an  $AUC$  of .65 (95%  $CI$ = .57-.74). The likelihood of re-offending for those individuals in the early-onset antisocial trajectory was over three times that of those in the late-onset antisocial trajectory [ $OR$ = 3.38; 95%  $CI$ = 1.5-7.6;  $p$ < .05].

When examining different early-onset antisocial processes, however, escalation was the only antisocial process significantly related to violent/sexual reoffending, showing a pseudo- $R^2$  of 8.1% with an  $AUC$  of .63 (95%  $CI$ = .52-.73). More specifically, those exhibiting a pattern of escalation were nearly three times more likely [ $OR$ = 2.87; 95%  $CI$ = 1.42-5.79;  $p$ < .01] than those without to commit a violent/sexual offence in the follow-up period. On the other hand, all three general criminal career parameters predicted violent/sexual recidivism. First, the model assessing age of onset of general offending showed a pseudo- $R^2$  of 7.6% and an  $AUC$  of .64 (95%  $CI$ = .55-.74). For every one-year decrease in the age of onset of general offending in adulthood, the risk of violent/sexual reoffending increased by approximately 94% [ $OR$ = .06; 95%  $CI$ = .01-.60].



Conversely, for every unit increase in the frequency of general offending, offenders were approximately twice as likely to commit a subsequent violent/sexual offence [ $OR= 2.01$ ; 95%  $CI= 1.38-2.94$ ;  $p < .01$ ]. In addition, the frequency of general offending showed the highest pseudo- $R^2$  of 10.8% and an  $AUC$  of .67 (95%  $CI= .57-.77$ ). Similarly, the more diversified offenders were in their criminal repertoire, the more likely they were to reoffend with a sexual/violent offence. More specifically, the model assessing the impact of criminal diversity on violent/sexual reoffending showed a pseudo- $R^2$  of 8.0% and an  $AUC$  of .64 (95%  $CI= .54-.75$ ). For every one-unit increase in criminal diversity, offenders were 20% more likely to commit a subsequent violent/sexual offence [ $OR= 1.20$ ; 95%  $CI= 1.06-1.36$ ;  $p < .01$ ]. Next, it was necessary to evaluate the relative contributions of antisocial trajectories and criminal career parameters to rule out the possibility that both sets of variables were contributing to the same overall explained variance in violent/sexual recidivism.

**Table 18: Baseline Cox Regression Model for Violent/Sexual Reoffending**

	Violent/sexual reoffending
	Odds (95% CI)
Less than high school	1.19 (.28-5.05)
Non Caucasian	.49 (.19-1.30)
Social assistance	1.61 (.71-3.70)
Unemployed	1.60 (.33-7.50)
Age at release	.97 (.93-1.01)
-2 Log ML	304.15
$X^2$ (df), p-value	5.52 (5)
R <sup>2</sup>	.04
AUC (95% CI)	.60 (.50-.70)+

\* $p < .05$ , \*\* $p < .01$ , \*\*\* $p < .001$

**Table 19: Cox Regression Models of Individual Developmental and Criminal Career Indicators Predicting Violent/Sexual Reoffending**

	Odds (95% CI)	-2 Log ML	$X^2$ (df), <i>p</i> -value	R <sup>2</sup>	AUC (95% CI)
Early-onset antisocial trajectory	3.38 (1.5-7.6)**	294.56	15.66 (6)*	.09	.65 (.57-.74)*
Antisocial processes					
Persistence	1.29 (.57-2.92)	304.28	6.56 (6)	.04	.61 (.51-.71)*
Escalation	2.87 (1.42-5.79)**	296.24	16.85 (6)*	.08	.63 (.52-.73)*
Aggravation	.83 (.19-3.60)	304.58	6.34 (6)	.04	.60 (.51-.70) <sup>+</sup>
Parameters of general offending in adulthood					
Age of onset of general offending <sup>a</sup>	.06 (.01-.60)*	297.37	10.30 (6)*	.08	.64 (.55-.74)**
Frequency of general offending <sup>a</sup>	2.01 (1.38-2.94)***	290.91	18.87 (6)**	.11	.67 (.57-.77)**
Criminal Diversity	1.20 (1.06-1.36)**	296.53	14.12 (6)*	.08	.64 (.54-.75)**

<sup>+</sup>*p* < .10, \**p* < .05, \*\**p* < .01, \*\*\**p* < .001

note. Analyses were conducted while controlling for level of education, ethnicity, employment, and age at release.

a. A log transformation was performed.

#### 4.5.2 Developmental Onset Variables versus Static Criminal Career Indicators

The first model compared the relative contributions of an early-onset antisocial trajectory and age of onset of general offending in adulthood to violent/sexual reoffending (Table 20). Importantly, both variables were independently related to violent sexual recidivism in the model [ $R^2 = .11$ ;  $AUC = .67$ ; 95%  $CI = .58-.77$ ]. Those individuals in an early-onset antisocial trajectory, however, were over two and a half times more likely to recidivate than those who were not [ $OR = 2.69$ ; 95%  $CI = 1.18-6.12$ ;  $p < .05$ ]. This is compared to those with an earlier age of onset of general offending in adulthood who for every one year unit increase in age were 87% less likely to commit a subsequent violent/sexual offence [ $OR = .13$ ; 95%  $CI = .01-1.31$ ;  $p < .10$ ]. In other words, an early-onset of antisociality in childhood was a stronger predictor of violent/sexual recidivism than the age of onset of general offending in adulthood, although, both appear important to this relationship.

In the next model, an early-onset antisocial trajectory was compared with the frequency of general offending in adulthood. Again, both variables were related to violent/sexual recidivism in the model [ $R^2 = .14$ ;  $AUC = .69$ ; 95%  $CI = .59-.79$ ]. Those individuals in the early-onset antisocial trajectory were, again, nearly two and a half times more likely [ $OR = 2.48$ ; 95%  $CI = 1.11-2.70$ ;  $p < .05$ ] to commit a subsequent violent/sexual offence. Similarly, a higher frequency of general offending was also predictive of violent/sexual recidivism, for every unit increase in offending frequency (i.e., for every subsequent offence) offenders were nearly twice as likely [ $OR = 1.82$ ; 95%  $CI = 1.22-2.70$ ;  $p < .01$ ] to commit a subsequent violent/sexual offence.

Finally, in the third model, an early-onset antisocial trajectory was compared with the degree of criminal versatility in adulthood. Both variables again were related to violent/sexual recidivism in the model [ $R^2 = .11$ ;  $AUC = .67$ ;  $95\% CI = .57-.77$ ]. Individuals in the early-onset antisocial trajectory were over two and a half times more likely [ $OR = 2.74$ ;  $95\% CI = 1.21-6.17$ ;  $p < .05$ ] to commit a subsequent violent/sexual offence. On the other hand, while criminal versatility in adulthood also predicted a subsequent violent/sexual offence, for each unit increase in the criminal versatility scale, offenders were approximately 15% more likely to commit a subsequent violent/sexual offence [ $OR = 1.15$ ;  $95\% CI = 1.02-1.31$ ;  $p < .05$ ]. Based on these findings, it is apparent that antisocial development, marked by an early onset of antisocial behavior in childhood, exhibits significant predictive validity in terms of violent/sexual reoffending in adulthood, in addition to static general criminal career markers in adulthood. Next, whether qualitative differences in antisociality over childhood and adolescence assisted in the prediction of violent/sexual reoffending was examined.

#### **4.5.3 Developmental Dynamic Variables versus Static Criminal Career Indicators**

In the final three models, we compared the three dynamic antisocial processes of persistence, escalation, and aggravation with static general criminal career predictors to assess their utility in the prediction of violent/sexual reoffending (Table 20). In the first model predicting violent/sexual recidivism, the three antisocial processes were compared to the age of onset of general offending. In this model, the process of escalation, and, to a lesser extent, aggravation, and an early age of onset of general offending all significantly predicted violent/sexual recidivism [ $R^2 = .12$ ;  $AUC = .69$ ;  $95\% CI = .61-.77$ ]. More specifically, those individuals who exhibited a pattern of escalation in their antisocial

behavior from childhood through adolescence were nearly three and a half times more likely [ $OR= 3.44$ ; 95%  $CI= 1.41-8.39$ ;  $p < .01$ ] than late-starters to commit a subsequent violent/sexual offence. The process of aggravation was also marginally related to the risk of reoffending [ $OR= 1.68$ ; 95%  $CI= .33-8.46$ ;  $p < .10$ ], as was an early age of onset of general offending in adulthood [ $OR= .13$ ; 95%  $CI= .01-1.33$ ;  $p < .10$ ].

Next, we compared the three early-onset antisocial trajectories to the frequency of general offending in adulthood. In this model [ $R^2 = .14$ ;  $AUC= .72$ ; 95%  $CI= .64-.80$ ] escalation was the only antisocial trajectory that significantly predicted violent/sexual reoffending [ $OR= 3.02$ ; 95%  $CI= 1.25-7.29$ ;  $p < .05$ ], in addition to the frequency of general offending in adulthood [ $OR= 1.76$ ; 95%  $CI= 1.19-2.62$ ;  $p < .01$ ]. A similar pattern emerged in the final model where the process of escalation, and, the degree of criminal versatility, were both significantly related to violent/sexual recidivism [ $R^2= .12$ ;  $AUC= .68$ ; 95%  $CI= .60-.77$ ]. More specifically, a pattern of escalation significantly predicted a subsequent violent/sexual offence [ $OR= 3.48$ ; 95%  $CI= 1.44-8.41$ ;  $p < .01$ ]. At the same time, for every one-unit increase in the criminal versatility scale, offenders were approximately 15% more likely [ $OR= 1.15$ ; 95%  $CI= 1.01-1.30$ ;  $p < .05$ ] to commit a subsequent violent/sexual offence. Taken together, these findings suggest that an early onset of antisocial behavior in childhood, characterized by pattern of escalation to serious and violent behavior into youth, and chronic offending in adulthood, together, best predicted the likelihood of violent/sexual reoffending in adulthood.

**Table 20: Cox Regression Models Comparing Developmental and Criminal Career Indicators Predicting Violent/Sexual Reoffending**

	Violent/sexual reoffending					
	Model 1 Odds (95% CI)	Model 2 Odds (95% CI)	Model 3 Odds (95% CI)	Model 4 Odds (95% CI)	Model 5 Odds (95% CI)	Model 6 Odds (95% CI)
Early-onset antisocial trajectory	2.69 (1.18-6.12)*	2.48 (1.11-2.70)*	2.74 (1.21-6.17)*	-	-	-
<b>Antisocial processes</b>						
Persistence	-	-	-	2.08 (.76-5.70)	1.99 (.73-5.42)	2.10 (.77-5.75)
Escalation	-	-	-	3.44 (1.41-8.39)**	3.02 (1.25-7.29)*	3.48 (1.44-8.41)**
Aggravation	-	-	-	1.68 (.33-8.46) <sup>+</sup>	1.81 (.37-8.93)	1.83 (.37-9.16)
<b>Criminal Career Markers</b>						
Age of onset of general offending in adulthood <sup>a</sup>	.13 (.01-1.31) <sup>+</sup>	-	-	.13 <sup>+</sup> (.01-1.33)	-	-
Frequency of general offending in adulthood <sup>a</sup>	-	1.82 (1.22-2.70)**	-	-	1.76 (1.19-2.62)**	-
Criminal versatility in adulthood	-	-	1.15 (1.02-1.31)*	-	-	1.15 (1.01-1.30)*
-2 Log ML	291.03	285.40	289.84	289.09	284.27	288.07
X <sup>2</sup> (df), p-value	17.50 (7)**	23.90 (7)**	20.57 (7)**	21.00 (9)*	26.72 (9)**	23.85 (9)**
R <sup>2</sup>	.11	.14	.11	.12	.14	.12
AUC (95% CI)	.67 (.58-.77)**	.69 (.59-.79)**	.67 (.57-.77)**	.69 (.61-.77)***	.72 (.64-.80)***	.68 (.60-.77)

<sup>+</sup>p < .10, \*p < .05, \*\*p < .01, \*\*\*p < .001

note. Analyses were conducted while controlling for level of education, ethnicity, employment, and age at release.

a. A log transformation was performed.

Finally, the survival functions of the models containing developmental onset variables (i.e., early- versus-late onset) and the developmental dynamic variables (i.e., persistence, escalation, and aggravation, where late-starters composed the reference group) were plotted using life-tables to graphically present the impact of developmental variables on violent/sexual recidivism (Figures 1a-1b). Figure 1a represents the plot of the survival function pertaining to early- versus late-onset antisocial trajectories and violent/sexual recidivism (controlling for demographic covariates). Next, considering that the frequency of general offending in adulthood was the strongest criminal career predictor of violent/sexual recidivism, a second survival function was plotted for the model containing the developmental indicator of onset, and, the criminal career indicator of frequency of general offending in adulthood (Figure 1b). These analyses were then repeated; figure 1c represents the survival functions of the model containing developmental dynamic variables (i.e., persistence, escalation, and aggravation) while controlling for demographic covariates, and figure 1d represents the survival function of the model containing developmental dynamic variables and the criminal career indicator of frequency of general offending in adulthood.

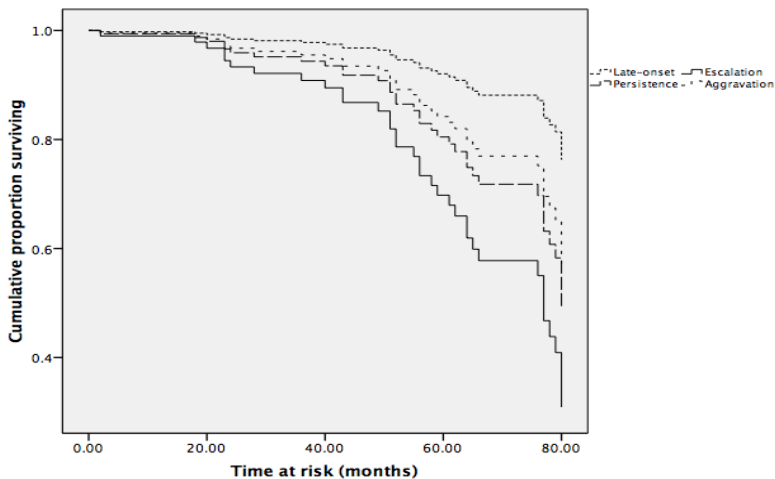
Figures 1a and 1b indicate that approaching the two-year period representing time at risk, early-starters demonstrated the first disproportional increase in the likelihood of recidivism compared to late-starters. Similarly, the same pattern can be observed, albeit to a much greater extent, after four years spent at risk. While similar, a more detailed pattern can be observed in figures 1c and 1d. In this case, escalators recidivated at an increased rate compared to the rest of the sample, following the same proportional declines in survivors (i.e., non-recidivists) at the time periods described



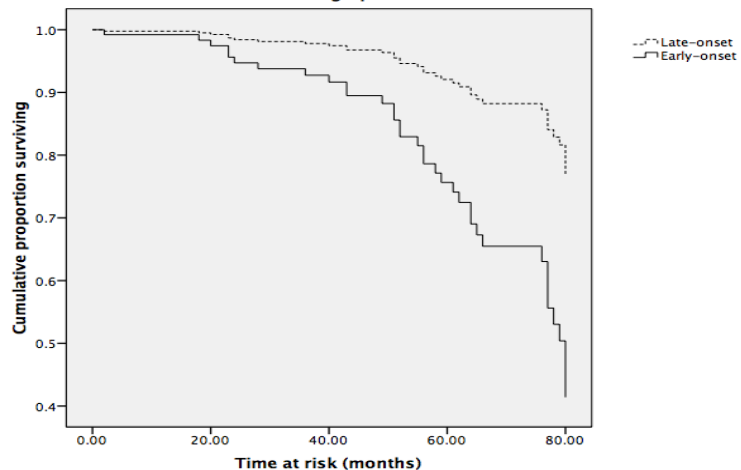
above. Interestingly, however, it is worthy to note the similarities of the proportions of individuals recidivating in the persistence and aggravation trajectories. In effect, these two extreme trajectories exhibited virtually similar proportions of individuals recidivating, with the less severe group (i.e., persisters), surprisingly, doing so more quickly than those in the trajectory characterized by more serious violence.

**Figure 1: Survival Functions of Developmental Variables and Violent/Sexual Recidivism**

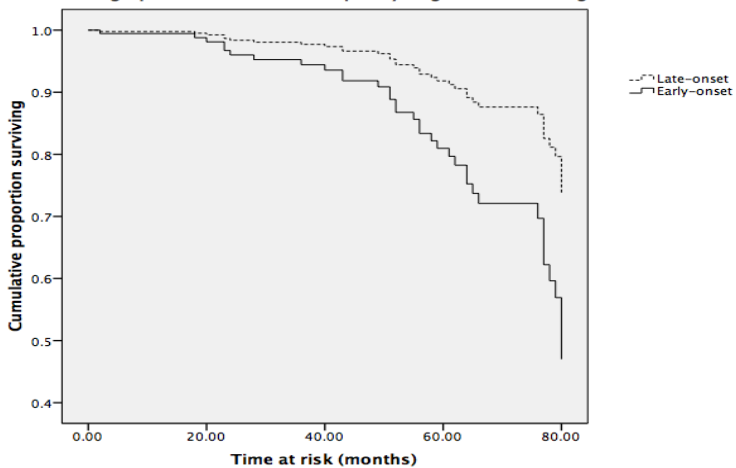
**C. Survival function for late-onset, persistence, escalation, and aggravation adjusting for demographic covariates**



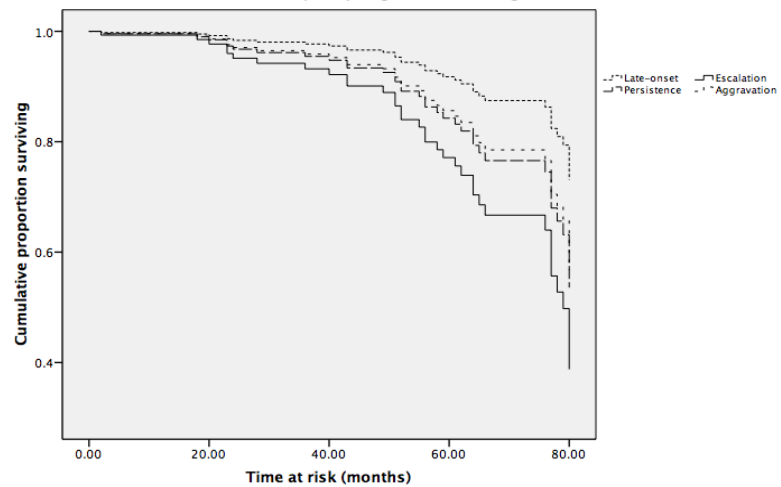
**A. Survival function for early- versus late-onset antisocial trajectories adjusting for demographic covariates**



**B. Survival function for early- versus late-onset antisocial trajectories adjusting for demographic covariates and frequency of general offending in adulthood**



**D. Survival function for persistence, escalation, and aggravation adjusting for demographic covariates and frequency of general offending in adulthood**



## 4.6 Discussion

The aim of the current study was to determine whether the consideration of the developmental period prior to adulthood contributed to the predictive accuracy of violent/sexual reoffending in adult sexual aggressors of women. Most importantly, this study provides evidence for risk assessors that antisocial behavior in youth contributes to the prediction of violent/sexual reoffending in adulthood in conjunction with current actuarial indicators. More specifically, in concordance with Moffitt's (1993) original dual taxonomy, sexual aggressors of women with a childhood onset of antisocial behavior were at a greater risk of violent/sexual reoffending in adulthood than those with an onset pattern placed in adolescent or later. Most importantly, the risk of reoffending between early- and late-onset antisocial trajectories was predicted even after adjusting for criminal career parameters in adulthood.

Another key finding was the observation that the importance of antisocial trajectories in predicting reoffending was not limited to the timing of onset in youth, but also to qualitative changes in antisocial development prior to adulthood. More specifically, sexual aggressors of women with an early onset of antisocial behavior and a pattern of escalation in the seriousness of their antisocial development in youth were the group at the highest risk of violent/sexual reoffending in adulthood. These key findings have important implications for risk assessment of adult sexual aggressors of women. Importantly, the indicators of antisocial behavior in youth were shown to demonstrate an additive effect when considered with current risk predictors of reoffending. On the one hand, the indicators of antisocial behavior in youth were predictive of violent/sexual recidivism even after adjusting for the level of criminal activity of these offenders in

adulthood. On the other hand, the criminal career indicators in adulthood also had an independent effect on recidivism suggesting the importance of considering risk factors across different developmental stages for the more accurate risk assessment of violent/sexual recidivism in adulthood. These important findings are reviewed in light of the scientific literature on risk assessment and prediction of violent/sexual recidivism below.

#### **4.6.1 The Criminal Career and Reoffending**

In the current study, the base rate of violent/sexual reoffending in the sample was relatively small, indicating that only a minority of sexual aggressors of women were reconvicted for such crimes when followed over an average of approximately four years after their prison release. Given that only a small minority of such cases is reconvicted over this limited follow-up period, identifying those specific cases presents a substantial challenge for risk assessors. The approach implemented in the current study suggests that combining developmental and criminal career parameters may be a valuable approach to assist risk assessors in accomplishing such a task. Perhaps most interestingly, the developmental indicators in youth and the criminal career parameters in adulthood assessed by the current study yielded complimentary predictive information. In other words, both frameworks proved to be useful in tapping aspects of the offender's history that were associated with the persistence of serious/violent offending. While the results pertaining to criminal career parameters are not surprising considering they are somewhat in line with indicators included by many current actuarial tools, those related to the developmental framework have not been previously assessed in terms of violent/sexual reoffending. Nonetheless, it is important to note that the predictive accuracy achieved by

these indicators in the current study was relatively modest, and, as such, the ‘unexplained’ variance was relatively high. In other words, there were still several false positives and false negatives in the study given the limited set of predictors included in the models. Therefore, these results should be interpreted as exploratory especially considering that the aim of the study was not to test a predictive model of violent/sexual recidivism for adult sexual aggressors of women, but rather, to evaluate the relative predictive value of a novel set of risk indicators.

#### **4.6.2 Looking Earlier in the Development of Offenders**

Harris and Rice (2007) have been advocating for the use of onset as a key risk predictor to improve the predictive accuracy of actuarial tools. Their recent study demonstrated that age at first offence provided increased predictive accuracy after adjusting for actuarial scores of the Violence Risk Appraisal Guide (VRAG) (Harris, Rice, & Quinsey, 1993) in several samples of adult sexual offenders. Similarly, Lussier and Healey (2009) provided support for this claim by demonstrating that the adult age of onset of general criminal activity was predictive of reoffending in a mixed sample of adult sexual aggressors, after adjusting for scores produced by the Static-99. The findings here provided further empirical support for the consideration of age of onset as a risk predictor of violent/sexual recidivism in adult sexual aggressors of women. In the current study, ‘onset’ was operationalized in two ways. From the criminal career approach, ‘onset’ was operationalized by assessing the adult age of onset for general criminal activity. In contrast, from the developmental approach, ‘onset’ was operationalized by considering the onset of antisocial behavior in youth. When comparing onset from these two perspectives in the current study, the prediction models demonstrated that the

developmental definition of onset (i.e., of antisocial behavior in youth) provided somewhat better predictive accuracy compared to the criminal career definition of onset (i.e., of first criminal charges in adulthood). These findings are in line with theoretical models of persistent offending that emphasize the developmental, rather than the criminal career, conceptualization of age of onset as a key marker of persistent criminality (Moffitt, 1993; Moffitt et al., 2002; Odgers et al., 2008). Distinguishing between early- and late-onset offenders, therefore, is warranted based on the findings from the current study, and, more specifically, the onset of general antisocial behavior in youth. In addition, these findings reinforce the fact that the propensity to sexually reoffend, for adult sexual aggressors of women, can be understood in terms of a more general propensity to act in an antisocial manner (Lussier, Proulx, et al., 2005), and, that this propensity develops early in the lives of offenders (Odgers et al., 2008)

#### **4.6.3 Risk Classification of Sexual Aggressors of Women**

Current risk classification models are based on scores produced by actuarial instruments that are comprised of a series of predominately static risk factors. As such, current classification models categorize offenders according to the level of risk they pose for reoffending. For example, using the Static-99, offenders can be classified as low, medium-low, medium-high, and high risk (Hanson & Thornton, 2000). This general method of risk classification also characterizes several other instruments (e.g., SORAG, Mn-SOST-R, RRASOR). However, the findings from the current study provide preliminary evidence for the benefit of classification other than for the purposes of risk prediction. More specifically, the recognition of the presence of two broad categories of adult sexual aggressors of women might also provide additional beneficial information

for risk assessors. For example, distinguishing between early- and late-onset offenders was observed to provide a level of predictive accuracy that, independently, approximated the accuracy demonstrated by several actuarial tools that include numerous risk factors. Furthermore, three key issues emerge when considering this broad dual classification for adult sexual aggressors of women: (1) contrasting the risk of violent/sexual recidivism between these two groups; (2) prior findings demonstrating marked differences in terms of the prior criminal history between these two groups (Cale et al., 2009), and; (3) the fact that most actuarial tools emphasize, to varying extents, the prior criminal history of offenders. Taken together, it is possible that current actuarial tools, without doing so explicitly, are indirectly tapping indicators that are distinguishing early- and late-onset offenders. While this is not to advocate the use of this broad categorization independently for risk assessment purposes, it may provide a fruitful avenue to further develop risk assessment tools and actuarial instruments.

#### **4.6.4 Recidivism of Early- and Late-Onset Offenders: Future Research Questions**

The current study provided preliminary support for the distinction between early- and late-onset offenders for risk assessment purposes, in adult sexual aggressors of women. One important aspect that needs to be addressed, however, is the basis for reoffending between these two offender groups. In other words, examining the function of reoffending for these two groups of offenders might be beneficial for risk assessment purposes, but also, treatment providers in terms of the identification of differential treatment needs and targets for each of the offender groups. Current theoretical models that distinguish between early- and late-onset offenders suggest that the function of general and sexual offending may differ between the two broad groups (Lalumière,

Harris, Quinsey, & Rice, 2005; Moffitt, 1993; Seto & Barbaree, 1997). In this regard, early-onset offenders have been associated with competitive disadvantage, low self-control, poor self-regulation, and psychopathy, while late-onset offenders have been associated with more situational and contextual strain factors. Few empirical studies, however, have examined motivational/attitudinal factors across the two groups. Using self-report data from a sample of college undergraduates, Voller, Long, & Aosved, (2008) observed that perpetrators of sexual aggression against women demonstrated higher levels of attraction to sexual aggression and criminality compared to non-perpetrators. Cale and Lussier (in press) found that when comparing early- and late-onset sexual aggressors of women, the former group scored high on measures of sexual drive (i.e., urges, thoughts, and fantasies) and mating effort (i.e., acting on urges, thoughts, and fantasies), while the latter group was characterized exclusively by high mating effort in this regard. Sexual reoffending for early-onset offenders might therefore be, at least in part, a function of high sexual drive. In contrast, sexual reoffending for late-onset offenders may be more reflective of mating effort. In other words, it is possible that risk factors might differ between the two groups.

#### **4.7 Conclusion**

Importantly, this study suffered from methodological limitations. First, because the sample consisted of federal inmates at a regional treatment facility in the province of Quebec, Canada, the results may only generalize to federal inmates. Despite this possibility, given that all inmates who had offended against a female who was 16 years of age or older over a four-year period were included in the study, the sample also closely approximates a population. At the same time, current actuarial risk assessment tools were



designed to assess the risk of reoffending for general populations of convicted sexual offenders. Given that the current study was based on a sample of convicted sexual aggressors of women, the extent to which the findings are generalizable to other types of sexual offenders (e.g., child molesters, exhibitionists) remains unclear. Another key limitation is the fact that this study was based on retrospective data. Therefore, the identification of antisocial trajectories in the sample may have been biased by poor memory recall in addition to the fact that respondents may have minimized or exaggerated particular aspects of their history of their antisocial and sexual behavior. In this regard, another key limitation was that it was not possible to assess the effects of social desirability of the responses related to delinquency in childhood and adolescence. Finally, sexual criminal activity in adulthood was based on official data and it is therefore possible that the results may have differed if self reported data were used in this regard.

**CHAPTER 5:**  
**CONCLUSIONS, IMPLICATIONS, AND FUTURE**  
**CONSIDERATIONS**

Extant typologies of sexual aggressors of women have been primarily based on motivational characteristics of the offender at the time of their most recent offence, crime scene characteristics and offending pathways, and more recently the actuarial risk of sexual reoffending. In this regard, the central focus of these typologies has been concerned with aspects of the current and future sexual criminal activity of the offender. In addition, the various types have been investigated using primarily cross sectional data, and to a limited extent, in the case of actuarial classification, longitudinal data from offence to offence in the period of adulthood.

In the current dissertation, the developmental approach was the framework applied to classify sexual aggressors of women by taking into consideration the link between past and future behavior. This approach did not primarily focus on sexual deviance or the motivation for the offence, but rather built on the recognized connection between antisociality and sexual aggression. In addition, while the criminal career approach has been used to describe the whole spectrum of the criminal activity of offenders, not limiting the focus to their sexual offending (i.e., actuarial classification), the studies of the current dissertation are the first to investigate the presence of developmentally informed types of adult sexual aggressors of women.

The findings from the three empirical studies of the current dissertation highlighted important complexities in the antisocial development of sexual aggressors of women, and these complexities were conceptualized as trajectories of antisocial development in

youth. First, between-individual differences were observed based on the timing of onset of antisocial trajectories of adult sexual aggressors of women in youth. Second, antisocial trajectories were also characterized by within-individual differences in qualitative patterns of change in terms of antisocial behavioral development over the course of childhood and adolescence. Third, there was a clear but modest connection between antisocial trajectories in youth, criminal activities, and, criminal career patterns in adulthood. Fourth, antisocial trajectories were related to both non-sexual and sexual criminal activity in adulthood. Fifth, antisocial trajectories demonstrated clear associations with non-criminal sexual behavior in adolescence and adulthood. More specifically, antisocial trajectories were differentially associated with mating effort and high sexual drive that characterized this sample of adult sexual aggressors of women. Finally, the developmental typology proposed based on antisocial trajectories also demonstrated validity for the prediction of length of survival as well as risk of reoffending after prison release. Taken together, the findings of the current dissertation demonstrate that the relationships between the past and future behavior of adult sexual aggressors of women were not limited to antisocial and criminal activities but extended to the domain of non-criminal and criminal sexuality, and, provide support for the developmental approach to analyze the heterogeneity of adult sexual aggressors of women.

## **5.1 Types of Sexual Aggressors of Women**

First- and second-generation typologies of sexual aggressors of women have identified between three and five key types based on the motivation for the offence (e.g., sadistic, rage, vindictive, opportunistic) (e.g., Groth et al., 1977; Knight & Prentky,

1990). Third-generation typologies, in contrast, identified a continuum of types based on the presence and quantity of risk factors for sexual recidivism (e.g., Hanson & Thornton, 2000). In effect, the actuarial instrument determines the number of types (e.g., low/medium/high), or, produces a score that corresponds to the likelihood of reoffending. By examining the antisocial development in youth, of adult sexual aggressors of women, the current dissertation uncovered two types, based on the developmental approach applied, that best describe the heterogeneity of their antisocial development in youth. The two types were referred to as meta-trajectories of antisocial development. The term 'meta' was used to refer to the two broadest categories of developmental trajectories based on the timing of the initiation of antisocial manifestations. While this was the first empirical examination of the presence of developmentally distinct groups of adult sexual aggressors of women, the presence of these two meta-types are consistent with theoretical formulations proposed first by Seto and Barbaree (1997) and more recently by Lalumière et al. (2005).

The two meta-trajectories uncovered were based on the timing of onset of antisocial behavior in youth. The first meta-trajectory was referred to as the early-onset antisocial trajectory (i.e., the childhood onset of antisocial behavior), and the second, the late-onset antisocial trajectory (i.e., adolescent onset of antisocial behavior). The dynamic classification analyses further identified three groups within early-onset meta-trajectory, and two groups within the late-onset meta-trajectory. In terms of the early-onset trajectory, the first was a group that exhibited behavioral problems in childhood that persisted into adolescence. In other words, they were characterized by a pattern of stable, low-level behavioral problems in youth. The second early-onset group was characterized

by behavioral problems and/or minor delinquency in childhood, and serious and violent delinquency in adolescence. The antisocial behavior in youth of these individuals, therefore, was characterized by a pattern of escalation. The third, and final, early-onset group was characterized by serious and violent delinquency in childhood, and, serious and violent delinquency in adolescence. Their antisocial development was referred to as reflecting a pattern of aggravation. In terms of the late-onset antisocial trajectory, the first group uncovered exhibited no evidence of behavioral problems or delinquency in childhood, with minor behavioral problems in adolescence. Given the overall absence of any delinquency, this group was referred to as non-delinquents, or, abstainers. The second late-onset group also did not exhibit any evidence of behavioral problems or delinquency in childhood, but displayed evidence of serious delinquency in adolescence. Therefore, this late-onset group was referred to as initiators, given the initiation of their delinquency in adolescence. The two meta-types and the five specific types uncovered are not atypical phenomenon. Quite to the contrary, these patterns have been described in the criminological scientific literature describing the heterogeneity of criminal trajectories in adolescence and adulthood (Ayers et al., 1999; Loeber et al., 1991; Moffitt, 1993). The current dissertation, therefore, reaffirmed the connection between sexual offending and general criminal careers (Lussier, Proulx et al., 2005), but emphasized that sexual offending may be associated with a range of criminal trajectories (see also, Lussier et al., 2010).

### **5.1.1 The Early-Onset Trajectory of Adult Sexual Aggressors of Women**

In childhood, adult sexual aggressors of women characterized by an early-onset antisocial trajectory were, at a minimum, characterized by conduct disorder type

behaviors (i.e., overt, covert, reckless, and authority conflict behaviors). In addition, some also exhibited more severe behavioral problems in the forms of non-serious delinquency, and, serious and violent delinquency. While the prototypic unfolding of conduct disordered type behavior in childhood to serious and violent delinquency in adolescence (e.g., Loeber & Hay, 1994) was observed to some extent, there were different patterns observed in the unfolding of antisocial behavior within this meta-trajectory. For example, some did not escalate to more serious forms of delinquency into adolescence, and in addition, not all of the serious and violent children exhibited a pattern of aggravation. In effect, while different patterns characterized the developmental course of delinquency into adolescence, the common theme of this meta-trajectory was the initiation of behavioral problems and delinquency in early childhood.

These developmental patterns of behavioral problems in youth have been conceptualized in various ways; Moffitt (1993) coined the term the 'life-course persistent syndrome', Loeber and Farrington (1998) 'serious and violent juvenile offenders', Loeber & Farrington, (2001) 'child delinquents', Corrado, Roesch, Hart, and Gierowski (2002) 'multi-problem violent youth', among others. Importantly, the evidence uncovered in the current studies, in terms of the behavioral similarities within this sexual aggressor type, was in line with these conceptualizations of the development of serious and violent offending. In addition, this antisocial behavioral pattern did not indicate continuity between juvenile sex offending and adult sex offending that has been suggested in the scientific literature (Abel, Osborn, & Twigg, 1993). More specifically, the evidence did not suggest that in youth, these individuals were juvenile sex offenders. Quite to the contrary, a pattern of chronic, serious, and non-sexual violent juvenile offending appears

to more strongly characterize the developmental link with sexual aggression against women in adulthood. In other words, their developmental background did not suggest the continuity of a long-term persistent pattern of sexual offending, but one characterized by a wide range of antisocial, and non sexual-delinquent manifestations, with varying degrees of severity. This finding further reinforced the need to distinguish juvenile sex offending from adult sexual offending, at least in terms of sexual crimes against the same age peer group.

At the same time, this is not to suggest that all early-onset or conduct disordered serious and violent youth will escalate to sexual aggression in adulthood, rather, only that there is a sub-group of this offender type that do. Currently, however, the proportion of juvenile delinquents that do escalate to sexual aggression in adulthood remains unclear because sexual aggression in adulthood has not typically been examined using a prospective longitudinal, developmental framework. Indeed, there are several risk factors associated with the development of sexual aggression in adulthood that were not examined in the current dissertation that might also provide insight into the critical question of why only some early-onset (or childhood-onset) antisocial youth escalate to sexual aggression in adulthood. In the current dissertation, the level of sexual drive and mating effort was examined to provide initial insights into this key question.

In adolescence, the early-onset type was also distinguished by an early-onset, and high frequency of non-criminal sexual behaviors. They initiated sexual intercourse and contacts earlier than the late-onset type, invested more time in pursuing and/or engaging in sexual behaviors with or without a partner, and were characterized by pervasive sexual fantasies. By adulthood, these individuals invested more time in pursuing sexual

activities (e.g., frequenting strip clubs, watching pornography) and sexual fantasizing, and, also reported far more sexual encounters and partners. In other words, by adulthood, these individuals exhibited a high sexual drive, accompanied by high mating effort. Importantly, this sexual behavioral pattern suggested that these individuals were not motivated to commit an act of sexual aggression due to an enduring inability to access consensual partners, or underlying difficulties procuring sexual conquests. Quite to the contrary, they were sexually promiscuous, and displayed a tendency to pursue a wide variety of sexual partners and encounters. This was further reinforced by the fact that the sexual criminal activity of these individuals in adulthood represented a minority of their overall criminal repertoire.

Based on this self-reported data, therefore, sexual aggressors of women characterized by an early-onset trajectory did not exhibit low social and sexual competence, something previously implied by earlier taxonomic research (e.g., Knight & Prentky, 1990). The findings suggested that their sexual crimes were not motivated by long-lasting difficulties finding a sexual partner, but rather a combination of a high sexual drive and a desire for partner diversity (see also, Knight et al., 2003; Lalumière & Quinsey, 1996). One hypothesis is that this may have been the case as a result of their adult antisocial and criminal lifestyles, for example, forcing a young woman into prostitution, repayment of drug debts with sex, or the commission of a rape against a vulnerable women during a break and entry when the initial motive of the crime was not sexual, for example (Lussier, Proulx et al., 2005).

In adulthood, the criminal careers of this sexual aggressor type can best be described overall as chronic, diversified, and violent; they were more likely to specialize in violent



rather than sexual crimes. By early adulthood, they already had extensive contacts with the criminal justice system, typically characterized first by non-violent crimes, followed by violent crimes, and eventually sexual crimes. Therefore, given their extensive contacts with the criminal justice system before the commission of their first sexual crime, and, the overall proportion of sexual crimes committed by these offenders, the findings did not provide any evidence that these individuals specialized in sexual crimes (see Adler, 1984, Simon, 1997; 2000). To the contrary, the findings provide credence to the hypothesis that sexual aggression in adulthood, for these individuals, reflects the continuity of a long lasting pattern of an antisocial manifestation beginning in childhood that persisted and diversified as these individuals aged (Lussier, Proulx, et al., 2005). Again, this was also exemplified by the nature and extent of their criminal activity in adulthood described above, and, is consistent with the most recent developmental models of sexual aggressors of women (Lussier, Proulx, et al., 2005).

The antisocial background and extensive criminal careers of this sexual aggressor type also placed them at a higher risk of violent and sexual reoffending. More specifically, early-onset offenders were more likely to reoffend, and were also more likely to reoffend in a shorter time frame than the late-onset group. This finding was especially significant for those offenders characterized by a pattern of escalation of antisocial behaviors in youth. This link between prior criminal activity and reoffending is not necessarily surprising considering that commonly utilized risk assessment instruments for sexual recidivism incorporate a substantial proportion of risk factors pertaining to the adult criminal history of offenders such as: the number of prior convictions; prior violent convictions; and, the length of offending history in adulthood,

for example. The use of developmental indicators, however, such as the presence of childhood conduct disorder, in the assessment of risk of violent and sexual reoffending is not currently common practice, and has typically remained unexplored in this regard.

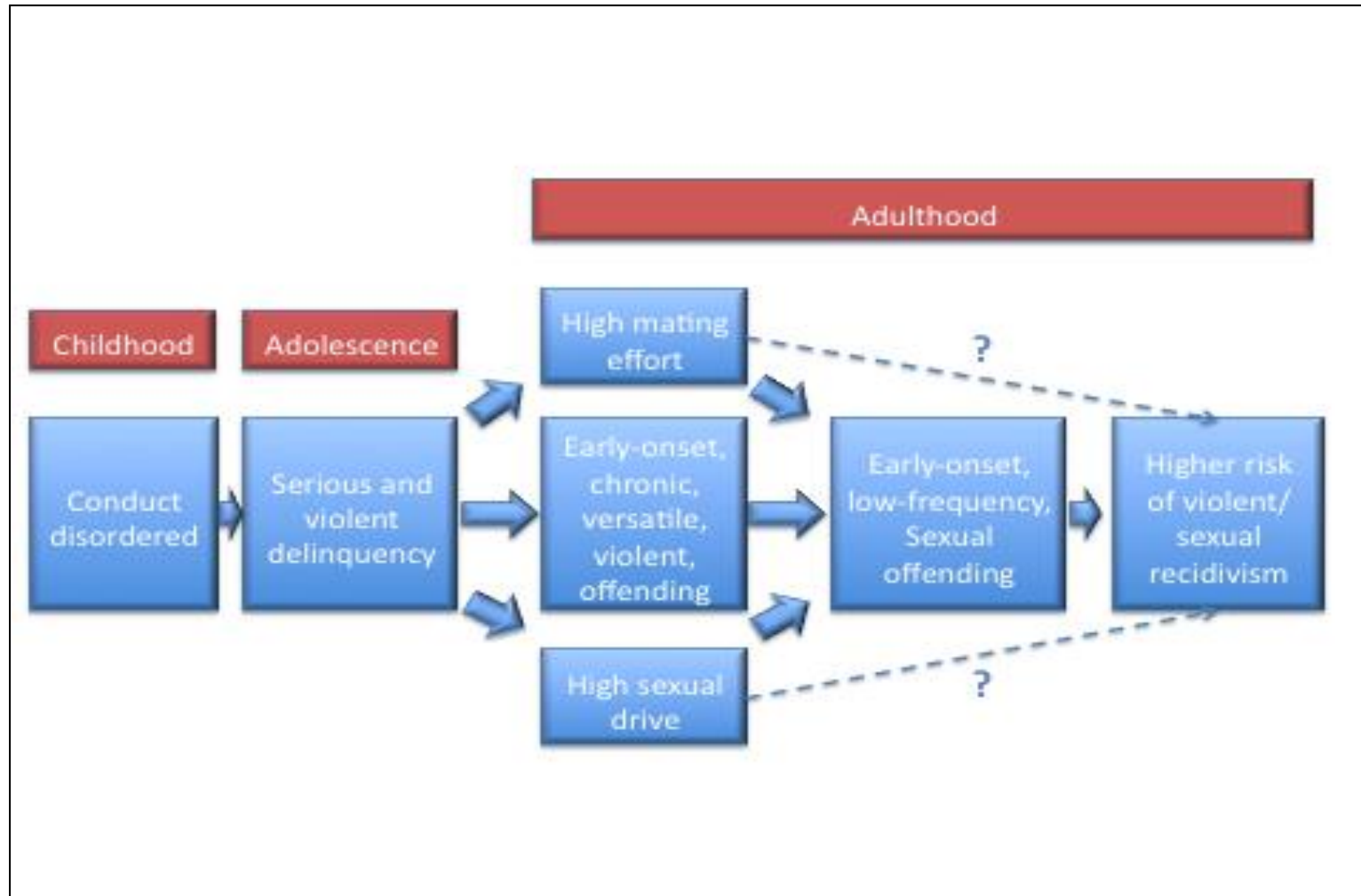
Considering that sexual recidivism is relatively rare (i.e., in comparison to non-violent/violent recidivism), and, that a short follow-up period was examined in the current dissertation (i.e., approximately five years), the risk of sexual reoffending was too low to be statistically analyzed (i.e., approximately 6%), and therefore, any violent/sexual recidivism was examined. On average, these offenders spent approximately four years in the community prior to committing a subsequent offence, and were three times more likely to commit a subsequent violent/sexual offence than the late-onset type. While this type was most likely to include offenders that persisted in sexual crimes, importantly, their risk of violent recidivism was higher than for sexual recidivism. In effect, this sexual aggressor type included a group of violent recidivists, sexual recidivists, and, violent sexual recidivists. Therefore, their future crimes were not typically sexual, but still serious.

Summary. The findings presented above pertaining to the early-onset sexual aggressor type demonstrate the continuity of antisocial manifestations over the life-course in four key ways (see figure 2). First, and foremost, this continuity was demonstrated across time; delinquency and antisocial behavior in youth was related to the criminal behavior of this type in adulthood. Second, their antisociality was generalized to the sexual domain of functioning, demonstrating continuity across settings. Third, continuity across their criminal activities was evident given that their sexual criminal activity in adulthood was embedded in a pattern of early-onset, high frequency, and versatile,

offending pattern, of which sexual crimes represented a small component. Finally, their antisociality also demonstrated prospective continuity, considering these individuals exhibited a higher likelihood of reoffending. In effect, these key findings of the dissertation provide an empirical foundation for the further exploration of the basis of this continuity.

Conceptualizations of the continuity of antisocial manifestations across the life span remain a contentious point of debate in the scientific literature. In addition, the findings from the current dissertation have further highlighted the importance of this debate in the narrower field of research on sexual violence, and more specifically, in terms of sexual aggressor types. In effect, for the early-onset type, the key issue pertains to the extent of evidence suggesting the nature of an underlying trait or propensity at work for these offenders that is stable and persistent, and, that governs their human development (i.e., lifestyles), social adaptation (i.e., criminal activities-violence), and sexual behaviors. Lussier, Proulx, et al., (2005) argued that for sexual aggressors of women in general, this continuity reflected low-self control. Others have hypothesized that different processes may be at work, for example, either neuropsychological deficits (i.e., the life-course persistent syndrome), or, psychopathy (Lalumière et al., 2005). Therefore, three immediate questions emerge: 1) is there a link between low-self control and the early-onset antisocial trajectory; 2) is there a link between neuropsychological deficits and the early-onset trajectory; and, 3) is there a link between psychopathy and the early-onset trajectory.

**Figure 2: The Early-Onset Type of Sexual Aggressors of Women**



Note. ? refers to a relationship that was not tested in the current dissertation

### **5.1.2 The Late-Onset Trajectory of Adult Sexual Aggressors of Women**

In childhood, adult sexual aggressors of women characterized by a late-onset antisocial trajectory displayed some, but more limited, evidence of enduring conduct problems and delinquency. Furthermore, the absence of childhood conduct disorder and childhood delinquency also extended into adolescence for some, who at that point displayed minor, typical behavioral problems, such as difficulties with authority, recklessness, and acting out behaviors. Others, however, became involved in serious non-violent delinquency, and to a lesser extent, violent delinquency as well. Prospective longitudinal studies based on the general population of males have indicated the relatively high prevalence (i.e., approximately 45%) of these delinquent behavioral patterns in youth (e.g., LeBlanc, 2005; Moffitt, 1993). This pattern of delinquent behavior has typically been explained in terms of reflecting the gap between biological maturity and adolescent status, representing the inability to acquire status and resources and participate in adult-oriented activities (Moffitt, 1993). In this regard, delinquent peer associations and contextual risk factors such as tenuous bonding with adult authority have been hypothesized as among the key operating risk factors associated with this pattern of delinquent behavior. Furthermore, in addition to engaging in adolescent status-related offending behavior, they have also been hypothesized to mimic the behaviors of their life-course persistent counterparts in other ways including non-criminal adult-oriented activities, such as engaging in sexual behaviors.

In terms of their non-criminal sexual behaviors, a parallel pattern emerged, in some respects, to that of the early-onset sexual aggressor type. More specifically, while the late-onset type exhibited significantly lower scores according to the measures of sexual

drive and mating effort than the early-onset type, these differences were less pronounced for aspects of their mating effort. For example, the initiation of their sexual encounters in adolescence followed that of the early-onset type by approximately one year. In addition, their self-perceptions of sexual competence and overall number of stable relationships did not differ from those of the early-onset type. Therefore, in terms of their sexual behavioral patterns, it appeared that they tended to follow, and parallel, to a certain extent, those of the early-onset type. To the contrary, they did not share similarities in terms of the innately high sexual drive of their early-onset counterparts. These findings might suggest that like their offending in adolescence, the process of mimicking the behaviors of their early-onset counterparts was also at work in the context of their sexual behavior. Indeed, this expression of sexuality in adolescence coincides with the hypothesis that these individuals sought to adopt adult roles to preemptively resolve gap between their biological maturity and social status (Moffitt, 1993; Moffitt, 2003, Piquero & Moffitt, 2005).

In terms of the continuity of adolescent and adulthood offending, by young adulthood when biological and social maturity coincide, desistance is typically the norm for this group. At the same time, adolescent antisocial involvement for some of these individuals has also been observed to result in the continuity of antisocial behavior when the consequences of their delinquency spill over into adulthood. Therefore, given the fact that this dissertation utilized a sample of federally convicted adult sexual aggressors of women, the high prevalence of individuals in this antisocial trajectory (i.e., approximately 45%) initially came as somewhat of a surprise. At the same time, upon closer inspection of their adult criminal careers, important patterns emerged that might

shed some insight into these findings. First, the late-onset type experienced a substantial lull between their adolescent delinquency and adult criminal careers; they typically initiated their adulthood criminal activity well into their mid-20s. Second, a parallel pattern emerged, albeit to a far lesser extent, regarding onset and the nature of offending as that of the early-onset type; general offending preceded violent offending, which was followed by their sexual offending. In spite of this similarity, their late-onset adulthood criminal careers can be succinctly described as intermittent and non-violent. Furthermore, given this low-level intermittent pattern of criminal activity in adulthood, these individuals were more likely to specialize in sexual crimes compared to the early-onset type.

Therefore, while one explanation of these patterns maintains that these individuals might have continued their involvement in antisocial behavior beyond adolescence if they became ensnared in an antisocial lifestyle (i.e., incarceration, school dropout, drug and alcohol abuse and addiction, etc.; Moffitt et al., 2002), the break in the continuity of their antisocial behavior, its intermittent nature in adulthood, and their involvement in sexual aggression, require further explanation. Seto and Barbaree (1997) and Lalumière et al. (2005) hypothesized that individuals following this trajectory might use coercive tactics to obtain sexual gratification given episodic difficulties in finding a sexual partner. While this hypothesis was based on the period of adolescence, it may also provide some insight into the adulthood period given the findings presented here. Along these lines, this hypothesis might be further extended by considering that an alternative set of risk factors for general offending, and sexual aggression specifically, govern the respective criminal career patterns of this sexual aggressor type in adulthood. For example, given their adult

criminal career patterns, the nature of the differences in their sexual behaviors, compared to the early-onset type, this may suggest that that contextual and circumstantial influences are more important for understanding sexual aggression in adulthood for the late-onset type. In this context, periods of intense negative moods, drug and/or alcohol use, interpersonal conflicts, separation/divorce, might become powerful disinhibitors, for these individuals, in committing violent and sexual crimes (Hanson & Harris, 2000).

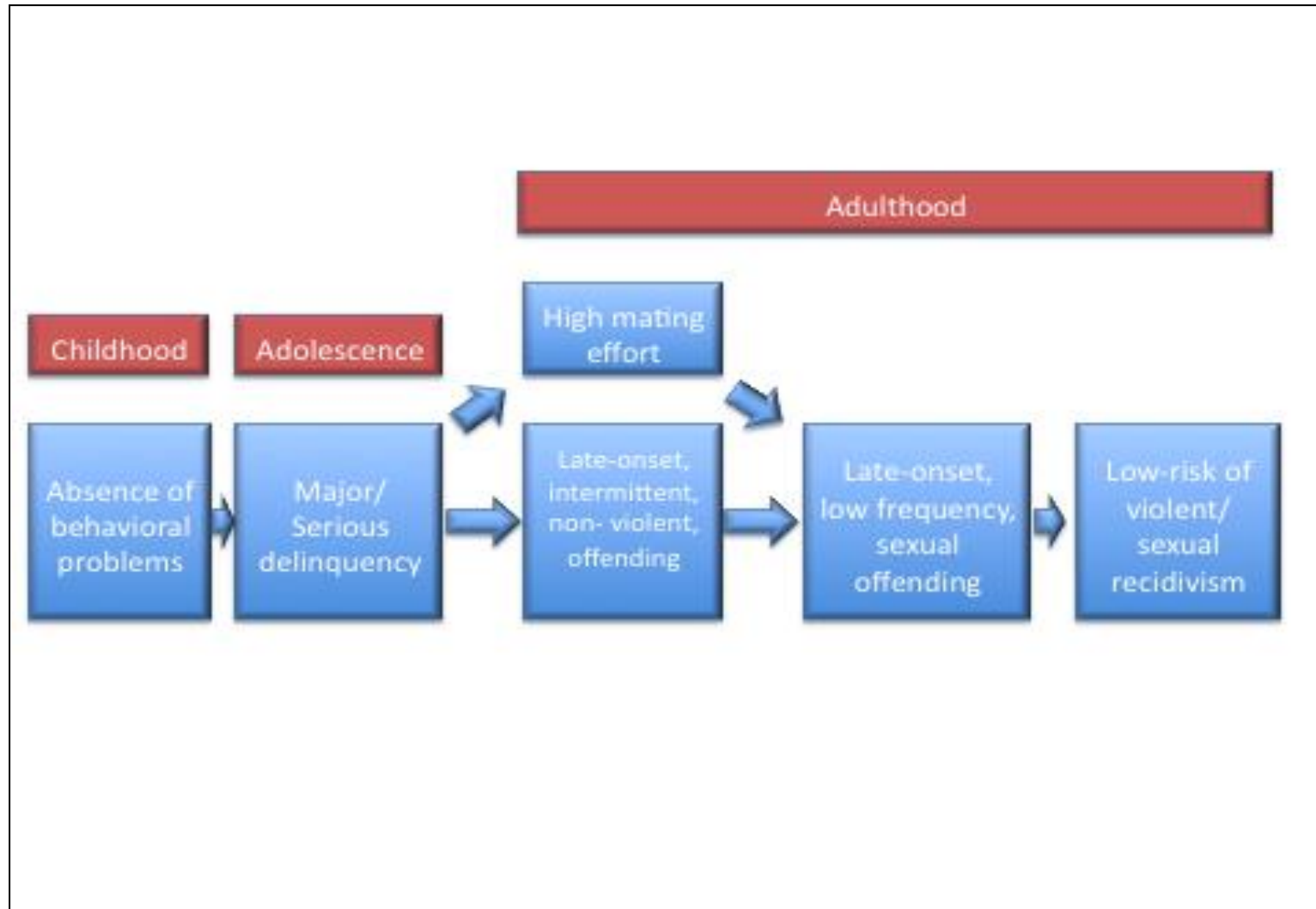
Importantly, answers to these questions may also provide critical insight into the assessment of the risk of reoffending for sexual aggressors of women overall. Not surprisingly, given their limited and intermittent involvement in adulthood offending, the late-onset sexual aggressor type was significantly less likely to reoffend violently or sexually in adulthood. In addition, they were more likely to remain in the community for longer periods without reoffending. In other words, for a relatively short follow-up period, these offenders fared substantially better after their prison release than those in the early-onset group. This suggests that, in spite of the occasional nature of their criminal offending in adulthood, this group apparently coped better with community re-entry and re-integration. Importantly, however, given their adulthood criminal career patterns, it stands to reason that current actuarial methods of assessing risk of sexual reoffending are not well suited to accurately capture the risk that characterizes this specific sub-group of individuals, given the current emphasis on static, criminal history risk factors variables and the absence of consideration for developmentally-informed groups of sexual aggressors of women. In this regard, it would be interesting to determine whether dynamic risk indicators are more helpful to predict the risk of recidivism in late-onset offenders as opposed to early-onset offenders, and, whether the same dynamic



predictors operate for both groups. Indeed, future research is required to further explore this hypothesis.

Summary. Compared to the early-onset sexual aggressor type discussed previously, the late-onset type are not characterized by the same extent of temporal, contextual, criminal activity, and risk-based continuity, possibly suggesting that the processes governing their sexual aggression stand in contrast to their early-onset counterparts (see figure 3). The implications of these findings are even more pronounced considering that this type constituted nearly half of the current sample of federally convicted adult sexual aggressors of women. Given the current state of the developmental literature on sexual aggression, these individuals pose substantial theoretical challenges to current developmental conceptualizations of sexual aggressors of women. The preliminary findings presented here suggest that the basis for the distinctiveness of the late-onset type likely substantially differs from that of the early-onset type. Importantly, therefore, the question as to whether a unique theoretical explanation of this sexual aggressor type is required deserves important attention. In addition, this question also has substantial methodological, and policy-related implications that are discussed below.

**Figure 3: The Late-Onset Type of Sexual Aggressors of Women**



## 5.2 Implications

Theoretical Implications. Theories of sexual aggression have typically been non-developmental (for an exception see Marshall & Barbaree, 1990; and, Ward & Beech, 2006). Sociological, evolutionary, social-cognitive, single factor theories have provided substantial etiological insight into the basis for sexually aggressive behavior (e.g., Brownmiller, 1975; Burt, 1980; Thornhill & Palmer, 2000; Quinsey & Lalumière, 1995; Langton & Marshall, 2001; Ward, Hudson, Johnston & Marshall, 1997). These single factor theories have typically focused on how specific individual traits are causally related to sexual offending, such as cognitive distortions, and deviant sexual preferences, for example. Furthermore, multifactor theories have highlighted the developmental complexity of the behavior by identifying combinations and pathways of risk factors for sexual aggression that integrate propositions from many single factor theories (e.g., Marshall & Barbaree, 1990). Importantly, theories of sexual aggression against women have typically targeted factors related to the sexual aspects or functioning of the behavior. However, these theories have not assessed how these traits, or, combinations of them, develop over time, nor do they make specific predictions about types of sexual aggressors of women.

In this regard, the few theories of sexual aggression that have incorporated a developmental perspective (e.g., Marshall & Barbaree, 1990; Ward & Beech, 2006) have not distinguished types of offenders either. Only the evolutionary theoretical model proposed by Lalumière et al., (2005) made specific hypotheses about types of sexual aggressors of women (i.e., the life-course persistent, psychopathic, and adolescent-limited types). The current dissertation was the first to provide empirical evidence supporting the

distinction of at least two broad developmental types (i.e., early- versus late-onset), and up to five developmental sub-types of adult sexual aggressors of women (i.e., the non-delinquent, initiation, persistent, escalation, and aggravation sub-types). On the one hand, the theoretical implications of these findings are that different underlying factors are associated with the outcome of sexual aggression in adulthood. On the other hand, the domains and nature of risk factors that can differentiate the types remains unclear. For example, the current dissertation did not assess how the two meta-trajectories differed in terms of individual deficits (i.e., neuropsychological deficits, verbal skills deficits, attention deficits, low self-control) familial (i.e., poor parenting practices, economic deprivation), and environmental (i.e., low SES) (LeBlanc, 2005; Moffitt, 1993; Piquero & Moffitt, 2005; Thornberry, 2005) adversities. In addition, it was not possible to explore the concept of de-escalation and desistance, which are also central components to any developmental theory. Therefore, another key research question that remains is why most early- and late-onset offenders (i.e., those identified by prospective longitudinal studies based on males in the general population) do not escalate to sexual aggression in adulthood. In other words, the antisocial trajectories uncovered in the current dissertation have been identified previously in the broader criminological literature, however, it is still currently unclear as to why only a small proportion of the offenders following these paths or trajectories end up committing acts of sexual aggression.

One of the key findings that might begin to shed some insight into the previous question was the differential link between antisocial trajectories and sexual behaviors. Previous empirical studies have shown some degree of association between antisociality and risky sexual behaviors (e.g., unprotected sex) (e.g., Kalichman & Follingstad, 1989)

and mating effort (e.g., Lalumière & Quinsey, 1993). The current dissertation extended this line of research by considering indicators of mating effort, sexual drive, and sexual crimes. The differences observed here in the sexual domain were also tied to the antisocial development of offenders. Therefore it was suggested that an analogous pattern of sexual behavior developed along side of the antisocial behavior of these individuals, which was referred to as antisocial sexuality. While future research is needed to better elucidate this concept of antisocial sexuality that was proposed in the current dissertation, it may implicitly carry important implications for understanding sexual aggression from a developmental perspective. In effect, the analogous differences observed between antisocial and sexual development according to the meta-trajectories may suggest that the same process that governs the development of antisocial behavior applies to other domains of human development and functioning, at least for one developmental type. While this was something proposed much earlier by propensity theorists in criminology (i.e., Gottfredson & Hirschi, 1990), it still remains a contentious point of debate in the literature. Furthermore, the differences that were observed in these patterns, according to the developmental types proposed, equally suggested that alternative processes might also govern the sexual and antisocial development for some offenders.

Earlier classification models of sexual aggressors of women were not developed for the purposes of describing etiological processes, but rather to identify important motivational factors that distinguished these offenders. First-generation classification schemes stressed the presence of the anger type, the sadistic type and the opportunistic type (e.g., Groth et al., 1977). Second-generation typologies built on these schemes to elaborate on similar types, but also introduced a focus towards crime scene behaviors

(e.g., Knight & Prentky, 1990). Therefore, it remains unclear how these earlier types might be related to the developmental classification scheme presented in the current dissertation. Furthermore, third-generation classification systems were developed to highlight differences, according to the risk of reoffending, by combining a series of risk factors empirically associated to sexual recidivism (e.g., Hanson & Thornton, 2000). Importantly, the current dissertation did not examine the association between actuarial scores, risk status, and group membership in the developmental taxonomy.

The findings did suggest, however, that there might be a concentration of higher-risk offenders in the early-onset group, but this hypothesis also has yet to be assessed. Therefore, a central question posed here is whether multiple theories are required to explain the various aspects of sexual aggression. In the context of the current dissertation, this question applies to whether theories should focus on the qualitative or quantitative differences characterizing sexual aggressors of women. On the one hand, from a qualitative standpoint, the key question pertains to whether different etiological factors form the basis for the outcome of sexual aggressors of women according to types of offenders. On the other hand, from a quantitative standpoint, the question is whether or not the same etiological factors are operating for the types, but to different extents. Hence, future empirical studies need to examine the association between risk factors across developmental trajectories to assess the presence of qualitative and quantitative differences in the development of these individuals. This was not examined as part of the current dissertation, however the preliminary findings, especially those pertaining to sexual development, imply that differences may be evident in this regard.

Methodological Implications. The theoretical related findings of the current dissertation, as well as the implications they raise, demonstrate the need for prospective longitudinal data and designs to investigate them. The current studies applied techniques to establish the longitudinal sequence of behaviors based on retrospective self-reported data. While this undoubtedly was accompanied by limitations related to self-reporting and setting of the interviews, it also demonstrated the utility of the dynamic classification procedure to establish developmental types, considering that in all of the studies, the dependent variables analyzed were based on alternate data sources (i.e., official criminal data). In addition, using the classification proposed in the current dissertation (i.e., using self-reported data to predict official data) the individuals that comprised the sample (i.e., sex offenders being assessed for treatment needs and risk at a correctional facility) may be less inclined to minimize their non-sexual antisocial behaviors to correctional officer psychologists and psychiatrists than their sexually deviant behaviors (e.g., sexual crimes, sexual fantasies, masturbation activity, etc.). Therefore, this raises an important point of consideration that pertains to the validity of the findings that was demonstrated across the three independent studies.

Therefore, the methodologies applied here are in contrast to those used in the development of previous classification models discussed that have been based on cross sectional data (e.g., Hanson, 1997; Groth et al., 1997; Knight & Prentky, 1990). At the same time however, several more sophisticated techniques are also available to examine long-term behavioral patterns and trajectories. For example, Nagin and Land (1993) developed the group-based modeling technique to analyze developmental trajectories. This exploratory technique was designed to identify developmental trajectories in

longitudinal data by not assuming the existence of trajectories, but rather by testing to see whether trajectories emerge from the data (Nagin, 2005). Alternatively, latent growth curve modeling is also designed to differentiate processes of stability and change in longitudinal data and evaluate their respective etiologies (Curran & Hussong, 2003). Finally, the combinations of methodologies applied, specifically in terms of trajectory analysis and survival curve functioning also suggest the analytic potential of these techniques for more practical goals, such as enhancing risk assessment and the prediction of future offending. These combined techniques have also been applied in a recent study and uncovered similar patterns in terms of risk of offending when it was analyzed according to offending trajectories in adulthood and victim types (Lussier, Tzoumakis, Cale, & Amirault, 2010).

Policy Implications. Currently, secondary prevention models of sexual aggression have at best been tentative, due mainly to the lack of empirical information available to develop such models (i.e., prospective longitudinal data) (Lussier & Healey, 2010). However, by linking developmental data to types of sexual aggressors of women, this dissertation provided preliminary insight pertaining to characteristics of developmental pathways that can lead to sexual aggression in adulthood. Critically, the methodology employed in the dissertation (i.e., the use of retrospective self-reported data) identified behavioral characteristics that can be easily identified through standard psychological assessments. In this regard, the dissertation also provided a framework for the longitudinal examination of young adult males to be followed over time to more accurately identify those at risk of using coercion and aggression in a sexual context. Currently, there are few longitudinal studies that have considered the outcome of sexual



aggression in adulthood (e.g., Moffitt et al., 2002; Tracy et al., 1990). However, the absence of a focus on sexual aggression in adulthood is likely due to its overall low base rate, and the fact that few studies are characterized by long-term follow-ups into adulthood. In effect, this is also reflective of the notion that sexual aggressors still remain to be considered a unique and distinct offender type, despite much of the more recent empirical evidence to the contrary (see Lussier, 2005).

Therefore while there are no immediate policy implications raised in the current studies in terms of secondary prevention, their contribution to the scientific literature provides baseline data for a program of research based on prospective data to inform policy makers about who is likely to escalate to sexual coercion, and the identification subgroups of individuals likely to escalate to sexual coercion and aggression in adulthood. This is not to suggest tertiary interventions should be abandoned, but that a primary prevention and secondary intervention approach would undoubtedly inform and compliment current policies. In fact, from a tertiary standpoint, the dissertation findings also have more immediate policy implications for the prevention of future sexual violence.

In terms of tertiary prevention, the findings presented here do suggest that past behaviors, and more specifically, those associated with the development of antisocial behavior in youth, can inform risk assessors about the risk of future recidivism. Since the third-generation of classification, qualitative typologies of sexual aggressors of women have in effect been abandoned. These typologies no longer distinguish sexual offender types (i.e., sexual aggressors of women versus children) despite the substantial evidence that exists documenting their unique heterogeneity. The current findings, along with the

preliminary work of Seto and Barbaree (1997) and Lalumière et al., (2005) returns to the notion of classification and heterogeneity within-groups of sexual offenders, in this case sexual aggressors of women. The findings from the current dissertation demonstrated that the two broad meta-trajectories identified provided additional and complimentary information to assist practitioners completing risk assessments of adult sexual aggressors of women. More specifically, even after adjusting for criminal career information in adulthood, looking earlier in the developmental histories of these offenders provided qualitative information that improved the accuracy of prediction. In addition, current risk instruments are typically designed to specifically assess the likelihood of sexual recidivism. Few have been applied to assess the risk of violent/sexual recidivism together (i.e., the VRAG, Quinsey et al., 1998). The findings also suggested that risk assessment might additionally benefit by a wider inclusion of reoffending outcomes, given the low base-rate of sexual recidivism, and not be limited to the likelihood of sexual reoffending.

This is not to suggest that early-onset offenders remain at a high-risk of sexual recidivism over life-course. Quite to the contrary, findings suggest that the risk of recidivism is low when considering a short follow-up period of about five years. They do suggest, however, that predictive accuracy can be increased by adding information from the developmental periods preceding adulthood. It would have been interesting to cross tabulate group membership in the antisocial trajectories and risk status from actuarial tools to obtain a clearer picture of the actuarial risk of these men. Therefore, from a tertiary prevention standpoint and more specifically, in terms of risk assessment, the breakdown of risk levels (i.e., low, medium, high) within the two meta-trajectories remains unclear. In other words, an important question remains as to the prevalence of

high-risk offenders in the early-onset versus late-onset groups. Similarly, the relationship between aging and the passage of time as it relates to risk of reoffending has received increased attention, and the nature of this relationship according to developmental trajectories is also unknown (Lussier & Healey, 2009; Harris & Rice, 2007). It would have also been interesting therefore, to determine the extent to which age, and aging, operates on the risk of recidivism across antisocial trajectories. Finally, it remains unclear whether different risk factors for reoffending are at work between these two meta-trajectories, and, importantly, whether different criminal justice strategies should be developed to deal with these two broad types of sexual aggressors of women.

### **5.3 Limitations**

The data used for the current dissertation involved a sample of all federally sentenced sexual aggressors of women from a regional treatment facility in the province of Quebec, in Canada, between the years of 1994 and 2000. Therefore, the findings should be interpreted with these parameters in mind (e.g., they might only apply to federal inmates, or in other words, relatively serious adult offenders). In addition, although ethnicity and cultural variables were controlled for in the analyses, there are many aspects of Canadian history, culture, and norms that are distinct from other western industrialized nations that should be kept in mind when considering cross-national generalizations. On a more micro level, the use of retrospective self-report data is also accompanied by threats to validity such as poor recall and memory bias, and given the context of the interviews used for the current dissertation (i.e., in a correctional facility), respondents may have minimized or exaggerated certain aspects of their antisocial and sexual histories. In this regard, social

desirability of responses, and, inter-rater test-retest reliability were not assessed for these measures.

In addition, this basis for establishing the developmental trajectories used only two broad developmental periods (i.e., childhood, 0-12 years of age, and adolescence, 13-17 years of age), precluding any analysis of likely differential patterns of behavioral development within these broad time frames. At the same time, however, given the use of retrospective self-report data, it is conceivable that the accuracy of the self-report measures fared better compared to the situation in which respondents were asked to differentiate behaviors from multiple and shorter time frames within the periods of childhood and adolescence. Nonetheless, the use of official criminal data in adulthood and the relationships uncovered in relation to the self-reported data used, provide an important foundation for future research to pursue the study of sexual aggression using developmental frameworks.

#### **5.4 Future Directions**

The current dissertation provided an empirical foundation for a developmental approach to the classification of sexual aggressors of women. The underlying theme was to examine the link between past and future antisocial behavior in adult sexual aggressors of women applying concepts from criminal career research and developmental criminology. Therefore, this approach to the classification of sexual aggressors of women represents a departure from extant taxonomies that have focused on the motivation for sexual crimes, and the risk of reoffending. Importantly, the current dissertation did not assess, validate, or invalidate existing typologies of sexual aggressors of women. Furthermore, it did not involve the comparison of sexual aggressors of women to non-

sexual aggressor and non-offender samples. The studies of this exploratory dissertation provided preliminary support for the utility of the developmental approach to enhance the theoretical understanding of the etiology of sexual aggression, as well as the assessment and management of offenders. Therefore, given the findings presented, several suggestions for continuing to pursue this line of research are evident as well.

One important suggestion for future research along these lines is to examine differences in the motivation, modus operandi, and criminal event characteristics of sexual aggressors of women using a developmental approach. Based on the current dissertation, it remains unclear as to whether antisocial trajectories exhibit utility for the study of these aspects of sexual aggression. Indeed, the developmental approach presented here has shown promise in the areas of theoretical understanding, as well as certain policy approaches in dealing with these offenders. Therefore, expanding and testing developmental models will also provide a more solid foundation for the developmental understanding of sexual violence.

The current dissertation also did not address the related issue of child sexual abuse. This was due, in part, to the fact that many empirical research studies have identified significant differences in the etiology, motivation, and offending characteristics between sexual aggressors of women and children (i.e., Lussier, et al., 2007). Nonetheless, similar to sexual aggressors of women, an overwhelming majority of sexual aggressors of children also have had previous involvement in non-sexual criminal activity prior to the initiation of their sexual contacts with children (Hanson, Scott, & Steffy, 1995). Previous studies suggest that adult child molesters have a heterogeneous developmental background, very distinct from that seen in adult sexual aggressors of women (Lussier,

Beauregard, Proulx & Nicole, 2005). Also, considerable variability has been observed among sexual aggressors of children in terms of the types and extent of their non-sexual offending histories. Some researchers have hypothesized other factors associated with the general criminal activity beyond those factors traditionally identified by clinical researchers (i.e., deviant sexuality) are also important. For example, Smallbone and Wortley (2004) and Ward and Seigert (2002) have hypothesized that different etiological criminogenic pathways characterize sexual aggressors of children. Therefore, given the focus of the current dissertation on antisocial trajectories of sexual aggressors of women, an important line of future research should consider the developmental approach as it applies to sexual aggressors of children.

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<sup>i</sup> Generally, developmental criminologists have been concerned with the age of onset of general offending (e.g., age at first arrest) while developmental psychologists have been concerned with the age of onset of antisocial behaviors (e.g., age at first act of truancy).

<sup>ii</sup> Empirical studies have provided evidence suggesting that chronic offenders are responsible for the vast majority of arrests for rape during adolescence. For example, Tracy, Wolfgang and Figlio (1990) observed that chronic offenders that accounted for approximately 7% of the Philadelphia Birth Cohort were responsible for 70% of all arrests for rape during adolescence.

<sup>iii</sup> The basis for this decision was primarily theoretical. The goal of retaining this distinction was to remain consistent with current literature in order to empirically assess developmental theory (more specifically, the early-onset (i.e., life-course persistent) and late-onset (i.e., adolescent-limited) distinctions) in the context which it has been applied to sexual aggressors of women (e.g., in the context of high mating effort of early starters, Lalumière et al., 2005, & Seto & Barbaree, 1997). The data pertaining to within-group trajectories is to be presented in a follow-up study.

<sup>iv</sup> The current paper was primarily concerned with testing differences that distinguished early-onset offenders in terms of mating effort, sexual drive, and sexual criminal behavior in adulthood. In effect, the combination of the initiator and non-delinquent groups provided a reference group for this analysis. The purpose of combining initiators and non-delinquents was the common ground that they did not exhibit a childhood-onset of antisocial behavior.



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<sup>v</sup> The CPIC database does not include specific data on youth offending (i.e., under 18 years of age) but there are some exceptions to this: youth offences carry an expiry date and once they have expired the charges are removed from the criminal record and cannot be accessed. When an individual has been found guilty of a subsequent crime as an adult, before the end of the expiry date, the youth offences are treated as adult charges.

<sup>vi</sup> Numbers do not total 100% as some offenders were convicted of multiple charges.

<sup>vii</sup> Offences acquired in youth carry an expiry date and when that date has expired (the expiry date varies according to the severity of the offense), the charges are removed from the criminal record and cannot be accessed. When an individual has been found guilty of a subsequent crime as an adult before the end of the expiry date, the youth offenses are treated as adult charges.