

JUVENILE SEXUAL OFFENDERS

Correlates of Onset, Variety, and Desistance of Criminal Behavior

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The aim of the study was to identify the factors associated with age of onset of sexual aggression, and variety and desistance of criminal activity, among adolescent sexual aggressors. The sample consisted of 351 adolescents (M age = 15.8 years, $SD = 1.8$) who were assessed in an outpatient psychiatric clinic between 1992 and 2002. Recidivism data were collected after a mean follow-up period of 8 years. Hierarchical logistic regression analyses demonstrated that some variables related to childhood and adolescent development discriminated among participants who went on to follow different criminal activity trajectories. Indices of early antisocial behaviors (aggressive behavior, antisocial traits) were associated with early activation of a pattern of sexual offending as well as a polymorphic criminal career in adolescence. Findings supported previous research indicating that most adolescent sexual offenders who persist in a criminal career commit a variety of offenses and do not specialize in sexual crimes.

Keywords: adolescent sexual offenders; criminal activity; developmental criminology; onset; variety; desistance

In recent years, recidivism has been a major focus of research on the criminal careers of adolescent sexual aggressors. This research has established that few adolescent sexual aggressors persist in a career of sexual criminality and that most adolescent recidivists engage in nonsexual criminal careers in adulthood. To identify the adolescents most at risk of pursuing a chronic criminal career as adults, some authors have identified risk factors for sexual, violent, and overall recidivism (for a review see Carpentier & Proulx, in press; McCann & Lussier, 2008; Nisbet, Wilson, & Smallbone, 2004; Worling & Långström, 2003, 2006).

One of the tenets of developmental criminology is that analyses of individual criminal careers should not be limited to correlates of recidivism but should extend to factors related to other parameters, such as the activation and development of, and desistance from, offending (Leblanc & Loeber, 1998). Developmental criminology has been useful in

AUTHORS' NOTE: *This study was supported by a grant from the Social Science and Humanities Research Council of Canada awarded to Jean Proulx. The authors would like to thank the anonymous reviewers, the editor, and Jesse Cale for their helpful comments on an earlier draft of this article. Correspondence concerning this article should be addressed to Julie Carpentier, Department of Psychoeducation, Université du Québec à Trois-Rivières, 3351 boul. des Forges, C.P. 500, Trois-Rivières, Québec, Canada, G9A 5H7; email: julie.carpentier@uqtr.ca.*

CRIMINAL JUSTICE AND BEHAVIOR, Vol. 38 No. 8, August 2011 854-873

DOI: 10.1177/0093854811407730

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identifying risk and protective factors associated with qualitative and quantitative patterns of change in offending over time (Farrington, 2005; Leblanc & Loeber, 1998; Lussier & Healey, 2010). *Age of onset* is defined as the age at which an individual commits his or her first offense. Several authors consider this variable to be the keystone of the study of criminal careers, particularly because the early onset of antisocial behavior is a predictor of chronic offending, that is, frequent, persistent, and varied criminal activity (e.g., Chung, Hill, Hawkins, Gilchrist, & Nagin, 2002; Fergusson, Horwood, & Nagin, 2000; Jeglum-Bartusch, Lynam, Moffitt, & Silva, 1997; Lalumière, Harris, Quinsey, & Rice, 2005; Nagin, Farrington, & Moffitt, 1995; Patterson, Forgatch, Yoerger, & Stoolmiller, 1998; Woodward & Fergusson, 2000). *Variety* is a descriptive parameter that corresponds to the diversity of life-course offending behavior. According to some authors, adolescents tend to experiment with a wide variety of crimes, and few specialize in any single category (Fréchette & Leblanc, 1987; Leblanc & Loeber, 1998). Specialization is in fact observed more commonly among adult criminals and is considered to be an indicator of desistance (Leblanc & Loeber, 1998). *Desistance* refers to processes that lead to cessation of deviant behavior, either total or partial (Leblanc & Loeber, 1998). Desistance can be measured not only by specialization, but also by the tendency to reduce frequency (deceleration) or seriousness of delinquency (de-escalation), or to maintain a particular level of seriousness without escalation to more serious criminal activities (i.e., reaching a ceiling). These criminal career parameters have been minimally investigated in studies of adolescent sexual aggressors.

AGE OF ONSET OF SEXUAL AGGRESSION IN ADOLESCENCE

Seto and Barbaree (1997) suggested studying the criminal career of sexual aggressors of women with a dual-pathway developmental model based on age of onset of antisocial behavior. This model was developed on the basis of work by Moffitt (1993), who suggested that the early onset of antisocial behavior in childhood is the key to understanding chronic criminal careers that persist into adulthood. In terms of sexual aggressors, Seto and Barbaree hypothesized two pathways. The first pathway, which is called the “persistently antisocial” pathway, is characterized by the early onset of behavioral problems and conduct disorder in childhood. Among sexual aggressors on this pathway, antisocial behavior persists throughout the course of development and may take several forms, including substance abuse, crimes against property, and crimes against persons. These aggressors are also hypothesized to be characterized by: the early onset of sexual activity; the quest for multiple sexual partners; the satisfaction of their immediate needs through a variety of strategies, including manipulation and violence; and proviolent attitudes. Sexual aggressors on the second pathway, labeled the “adolescence-limited” pathway, are hypothesized to exhibit primarily opportunistic sexual aggression, limited to adolescence and early adulthood, and have relatively few indicators of an antisocial life course. Therefore, these opportunistic sexual aggressors would primarily choose previously known female victims during organized social occasions (e.g., dates, parties) and sometimes act with coaggressors. In addition, these aggressors achieve their goals through the use of verbal coercion, insincere charm, manipulation, or the administration of intoxicants rather than through the use of physical violence or weapons. In addition, situational factors (e.g., consumption of alcohol or drugs, feelings of anger) are hypothesized to act in a disinhibitory fashion in these aggressors. Seto and Barbaree pointed out that offenders in both groups may or may not

exhibit sexual deviance and that the presence of such deviance is likely associated with a higher risk of sexual recidivism. Finally, persistently antisocial sexual aggressors who also exhibit sexual deviance commit the most severe assaults and have the highest risk of sexual recidivism. Although this dual-pathway developmental model was specifically developed for a sample of sexual aggressors of women, we believe that it is a promising approach to the study of the criminal career of sexual aggressors of children, adolescents, or adults.

Vizard, Hickey, and McCrory (2007) conducted a retrospective study of 280 children and adolescents (5 to 21 years old) who were assessed and treated in a London outpatient clinic for sexually abusive youth. This study provides an indirect validation of Seto and Barbaree's (1997) model. Specifically, Vizard and colleagues compared participants who had committed their first abuse prior to age 11 (early-onset abusers) and at age 11 or older (late-onset abusers). Early-onset abusers exhibited antisocial and aggressive behaviors early in childhood, and these behaviors worsened with age. Early-onset abusers were also more likely than late-onset abusers to have been the victims of childhood trauma—such as neglect and sexual, physical, or psychological abuse—and to exhibit an insecure attachment style. The majority of the early-onset abusers came from dysfunctional and chaotic families characterized by a lack of supervision, the absence of adequate educational models, and multiple changes of residence. Late-onset abusers were characterized by a less pathological early-childhood profile and greater consumption of alcohol and drugs. However, there were no significant differences in the sexual, violent, and overall recidivism rates of the two groups after a mean follow-up period of 8 years.

To our knowledge, no other studies have examined the model proposed by Seto and Barbaree (1997). However, the study by Prentky and Knight (1993) produced noteworthy results with regard to age of onset. Prentky and Knight investigated the relationship between age of onset and the development of delinquency. Their sample of 131 adult sexual aggressors (of children or of women) was separated into three groups on the basis of age at first sexual assault (age of onset): younger than 15 years, 15 to 18 years, and older than 18 years. No significant differences were observed in the social, academic, and professional skills; impulsivity; antisocial and delinquent behavior; and physical aggressiveness of participants whose age of onset was younger than 15 years and those whose age of onset was between 15 and 18 years. However, among participants who had been sexually victimized, those whose age of onset was younger than 15 years had been victimized at a younger age and more severely (in terms of genitalization) than had those whose age of onset was older than 18 years. The authors suggest that the absence of significant differences between the two groups of sexual aggressors whose age of onset was in adolescence could be attributable to their choice of 15 years as the cutoff point for the youngest group. In fact, there is no consensus on what age is the best criterion of early onset of deviant sexual behavior. Some authors propose 15 years (Prentky & Knight, 1993; Wieckowski, Hartsoe, Mayer, & Shortz, 1998); others, 12 years (Burton, 2000); and yet others, 11 years (Vizard et al., 2007).

VARIETY OF OFFENSES COMMITTED BY ADOLESCENT SEXUAL AGGRESSORS

Several studies of recidivism indicate that a majority of adolescent sexual aggressors do not limit themselves to a single type of crime and therefore also commit nonsexual offenses. To determine whether there were differences between adolescent sexual aggressors who specialized in sexual criminality and those who were polymorphic, Butler and Seto (2002)

conducted a study of 114 adolescents referred for mental health assessment by the Youth Court of Toronto (Canada) between 1994 and 1997. More specifically, they compared a group of sexual aggressors who had committed sexual offenses only (sex-only aggressors); a group of sexual aggressors who had committed both sexual and nonsexual offenses (sex-plus aggressors); a group of “versatile” offenders who had committed both aggressive and nonaggressive, but not sexual, offenses; and a group who had committed only nonaggressive, nonsexual offenses. All four groups exhibited conduct disorder, behavior problems, and antisocial values. In contrast, the risk of overall recidivism was lower among sex-only aggressors. The sex-only aggressors exhibited fewer behavior problems, better social coping skills, more prosocial values, and a lower overall risk of delinquency than did the other groups. Sex-plus aggressors were rather similar to the versatile delinquents: both were more likely than sex-only aggressors to exhibit conduct disorder and antisocial values and to present a higher risk of recidivism.

DESISTANCE FROM CRIMINALITY AMONG ADOLESCENT SEXUAL AGGRESSORS

Van Wijk, Mali, and Bullens (2007) recently applied Butler and Seto’s (2002) typology (sex-only vs. sex-plus aggressors) in a comparative study of 4,430 adolescents who had committed at least one sexual offense between the age of 12 and 18. Using official criminality data, they classified adolescents on the basis of age of onset, variety, and aggravation of offending. Sex-plus offenders exhibited an earlier age of onset of delinquency, a longer criminal career, and a greater number of offenses than did sex-only offenders. In fact, a very low percentage (20%) of sex-only offenders had committed a second sexual offense, and the number of participants who reoffended in this group diminished considerably in parallel with their experience with the legal system. In almost half the cases, the first offense committed by sex-plus offenders was sexual. As these offenders’ criminal careers progressed, the prevalence of sexual offenses diminished considerably, and the rate of crimes against property increased. In light of these results, the authors suggested that the majority of adolescent sexual aggressors tend to exhibit de-escalation (in terms of severity) or desistance from criminality.

CURRENT STUDY

The majority of studies of the criminal careers of adolescent sexual aggressors have focused on recidivism, with little attention paid to other criminal career parameters that are crucial to a better understanding of the criminal activity of these offenders. Specifically, age of onset, variety, and desistance have received little empirical attention. Most studies that have explored these issues have been descriptive, have been based on a limited number of participants, and have minimally investigated risk factors associated with criminal career parameters. Also, these parameters have rarely been studied concurrently in a single study. Consequently, the aims of the current study were to replicate and extend previous studies of criminal career parameters of adolescents who have sexually offended and to identify the factors associated with age of onset of sexual aggression, and variety and desistance of criminal activity in a large sample of adolescent sexual aggressors. The results of such analyses would shed light on the correlates of various criminal career parameters among juvenile sexual aggressors, an important but largely underinvestigated topic.

TABLE 1: General Characteristics of Participants

<i>Variable</i>	<i>Number</i>	<i>Percentage</i>
Origin		
Canada	334	96
United States	1	0.3
Central America	8	2.3
Africa	5	1.4
Unknown	3	
Age at initial assessment (in years)		
Mean	15.8	
Standard deviation	1.8	
Range	11-18	
Age at first sexual offense (in years)		
Mean	13	
Standard deviation	2.28	
Range	6-17	
Number of sexual victims (self-reported)		
Mean	2.25	
Standard deviation	1.9	
Range	1-16	
Type of sexual victims		
Children	208	59.3
Peers/adults	85	24.2
Mixed	27	7.7
Unclassifiable	31	8.8

METHOD

PARTICIPANTS

Our sample was composed of 351 adolescents who had been assessed at the Centre de psychiatrie légale de Montréal between 1992 and 2002 in connection with hands-on sexual offenses against children, peers, or adults. Only males who were between 11 and 18 years old at the time of the assessment and who had not been diagnosed with moderate or severe intellectual disability were selected. At initial assessment, 208 participants satisfied the definition of sexual aggressor against children (a victim younger than 12 years old and an aggressor at least 12 years old and at least 3 years older than the victim), and 85 participants satisfied the definition of aggressor of peers or adults (both victim and aggressor at least 12 years old). The remaining participants either could have been classified in both groups (mixed assaults, $n = 27$) or exhibited an offense profile that did not correspond to the aforementioned categories ($n = 31$; e.g., an adolescent of 12 years who had abused a victim of 10 years). As Table 1 indicates, almost all ($n = 334$; 96%) the participants had been born in Canada. Information on the origins of 3 participants was missing. The mean age of the youths at initial assessment was 15.8 years ($SD = 1.8$ years), and their average age at first sexual assault was 13 years ($SD = 2.28$ years, age range = 6 to 17 years). Initial assessment revealed that almost half the participants (47.9%) had assaulted a single victim; the mean self-reported number of victims was 2.25 ($SD = 1.9$, range = 1 to 16 victims). In all, the participants had victimized 790 individuals prior to initial assessment.

MATERIALS AND PROCEDURE

In the first stage of data collection, retrospective data were collected from the archives of the Centre de psychiatrie légale de Montréal, the outpatient clinic of the Institut Philippe-Pinel, a maximum security psychiatric institution. Psychiatric reports produced during the initial assessment of the adolescent, as well as all reports already on file (psychological assessment, summary report of social services, presentencing report, police report, victim statements, etc.), were examined. Information on more than 100 variables was captured using a coding scheme specifically developed for adolescent sexual aggressors. Correlates identified in previous studies of criminal career parameters in adolescent sexual aggressors were analyzed. In addition, other variables identified as correlates in developmental studies of delinquency were selected for exploratory analyses. For example, "school failure" and "delinquent peers" were selected because current studies on delinquent trajectories have demonstrated that school and delinquent peers factors were associated with activation, aggravation, and desistance of criminal behavior (Ayers et al., 1999; Chung et al., 2002). Some other developmental variables (for example, "sexually victimized parent" and "parent a sexual aggressor") were also included because of their clinical relevance. Developmental variables were grouped into two categories: (a) developmental variables related to participants' childhood (prior to age 12) and (b) developmental variables related to the participants' adolescence (from 12 years old onward). The principal author and two research assistants conducted the first phase of data collection. Interrater reliability of the two primary raters (principal author and one of the two research assistants) was assessed for 20 participants. The mean coefficient of interrater reliability (weighted kappa) was .95 (range = 0.71 to 1.00), indicating almost perfect agreement. The coding of the third rater was overseen by the two principal raters.

In the second stage of data collection, official data on the participants' criminal activity in adolescence and adulthood were collected, with June 1, 2005, selected as the cutoff date. Data on juvenile recidivism were collected from the archives of the youth courts that refer offenders to the Centre de psychiatrie légale de Montréal (the Montréal, Montérégie, and Laurentides Youth Courts). Information on adult recidivism was collected from the following three sources: the Royal Canadian Mounted Police's Fingerprint Service (national files), the DACCOR files of the Quebec criminal court (provincial files), and files from the Montréal municipal court (municipal files). If participants committed criminal acts subsequent to the initial assessment, information on the nature of the new charges (sexual; violent; or nonsexual, nonviolent offense), the number of offenses, and the characteristics of the victims of sexual offenses were collected. The mean follow-up period was 96.8 months and ranged from 21 to 162 months ($SD = 33.3$ months).

OPERATIONAL DEFINITIONS OF CRIMINAL CAREER PARAMETERS

The three criminal career parameters that were explored in this study were age of onset of sexual aggression and variety and desistance of criminal activity. In light of the research results presented in our literature review, we formed subgroups of offenders for each of these parameters. For age of onset of sexual aggression, participants who had committed their first sexual assault prior to age 12 were considered *early starters* ($n = 69$), and those who committed their first sexual assault at a later age were considered *late starters* ($n = 282$). The age of 12 was chosen as the dividing line in this study, as it is the threshold for criminal

responsibility set out in Canada's Youth Criminal Justice Act (YCJA), and it is the average age of puberty among boys (Sun et al., 2002). Variety was estimated from official information on participants' criminal career (adolescence and adulthood, including criminal record prior to initial assessment). On the basis of this information, two groups of sexual aggressors were formed: (a) sexual offenders (*sex-only* aggressors; $n = 184$), who had committed at least one sexual offense but no officially recorded nonsexual offense, and (b) versatile sexual offenders (*sex-plus* aggressors; $n = 167$), who had official records of both sexual and nonsexual offenses.

Finally, desistance of delinquency was estimated from official information on participants' criminal career for the period following the initial psychiatric assessment. Three groups were formed: (a) participants who, following initial assessment, had been charged with other offenses, at least one of which was sexual and/or violent (*stable highs*; $n = 104$); (b) participants who, following initial assessment, had been charged with other offenses that were neither sexual nor violent (*de-escalators*; $n = 54$); and (c) participants who had not been charged with any new offense following initial assessment (*desisters*; $n = 193$).¹

STATISTICAL ANALYSES

Bivariate analyses (chi-square) were conducted to determine differences in developmental variables for each of the criminal career parameters investigated in this study (age of onset, variety, and desistance; see Appendix for variable definitions). For the analysis of desistance, desisters were compared to stable highs and de-escalators, and stable highs were compared to de-escalators. Developmental variables related to childhood and adolescence were analyzed separately for the three study parameters to determine the effect of life experiences during these two developmental periods on criminal career. Information on developmental variables related to adolescence was missing for 2 participants, as they were 11 years old at the time of initial assessment. Only variables exhibiting a statistical significance of .25 or less were selected for logistic regression analyses, as recommended by Hosmer and Lemeshow (2000). The use of a larger p value permits assessment of the possibility that nonsignificant variables become significant when combined with other variables.

Following this, hierarchical logistic regression was performed to identify developmental variables associated with age of onset, variety, and desistance. The variables retained for each regression model were entered by block in the order indicated previously (childhood development variables and adolescence development variables). As it is logically inconsistent to attempt to predict the onset of childhood sexual aggression from adolescence developmental variables (e.g., dropping out of school), some variables were excluded from the age-of-onset regression models. Two multinomial logistic regression analyses of desistance were conducted: The first compared stable highs and de-escalators to desisters, and the second compared de-escalators and desisters to stable highs. To obtain the most parsimonious regression models possible, independent variables that did not significantly contribute to the explanation of the dependent variables were excluded from their block. This procedure allows for the reduction of the number of variables in the model and results in a more generalizable and more statistically stable model (Hosmer & Lemeshow, 2000). After the variables that were not significantly associated with the dependent variables were excluded from each of the blocks, final hierarchical logistic regressions were conducted for each of the three parameters of criminal activity. The interaction effects were determined for each of the models but were not retained in the final analysis, as none were significant.

RESULTS

COMPARATIVE ANALYSES

Early starters versus late starters. Table 2 presents chi-square analyses of the relationship between development variables and criminal career parameters (age of onset, variety, and desistance). Several variables related to childhood development discriminate between participants whose first sexual assault occurred prior to age 12 and participants whose first sexual assault occurred at a later age. First, early starters were more likely to exhibit violent behavior early in childhood, and deviant sexual behavior (e.g., voyeurism, frottage, compulsive masturbation) prior to their first sexual assault. In addition, early starters were more likely to have experienced parental negligence (e.g., absence of supervision or protection, physical negligence) and to have had parents who themselves had been sexually victimized. Mirroring the pattern observed with regard to childhood development, early starters were more prone than late starters to exhibit aggressive behavior during adolescence. Late starters were more likely to drop out of school than were early starters.

Sex-only versus sex-plus aggressors. The results of the comparative analyses of variables related to childhood development indicate that specialized (sex-only) aggressors can be distinguished from versatile (sex-plus) sexual aggressors by their lower rates of conduct disorder and antisocial traits. Sex-only aggressors were also less likely to have experienced traumatic physical and sexual victimization and to have been placed in care at a young age. At school, sex-only aggressors exhibited lower rates of learning difficulties, behavior problems, and school failure. Furthermore, participants in this group were half as likely to have consumed alcohol or drugs prior to age 12. However, they experienced greater social isolation than did sex-plus aggressors. In adolescence, sex-only aggressors were distinguished from sex-plus aggressors by a lower rate of aggressive behavior, lower consumption of alcohol and drugs, and lower truancy and school dropout rates. Socially, sex-only aggressors were much less likely than sex-plus aggressors to be involved with delinquent peers and to participate in structured or group activities. Furthermore, they were less likely to report having had consensual sexual experiences (heterosexual or homosexual) with a peer.

Desisters versus stable highs and de-escalators. Participants who had no official record of recidivism following initial assessment (desisters) could be distinguished from those who persisted in a criminal career (stable highs or de-escalators) by a lower prevalence of antisocial traits and attention-deficit disorder (ADD). In addition, desisters had experienced less parental negligence, physical victimization, and placement in care at a young age and had had less exposure to pornography at a young age than the other two groups. The rate of sexual victimization among desisters was lower than that exhibited by stable highs but almost equivalent to that of de-escalators. Desisters exhibited the lowest rates of learning disabilities, behavior problems, and school failure, and in adolescence had the lowest rate of alcohol and drug consumption and of involvement with delinquent peers. However, desisters had experienced the fewest consensual sexual experiences with a peer.

Stable highs versus de-escalators. Compared to stable highs, de-escalators exhibited a lower frequency of ADD, intrafamilial sexual and physical victimization, and long-term paternal absence. In adolescence, de-escalators had less involvement with delinquent peers

TABLE 2: Comparative Analyses Between Developmental Variables and Subgroups Related to Criminal Career Parameters (in percentages)

Variable	Age of Onset			Variety		Desistance		
	Early Starters	Late Starters		Sex-Plus	Sex-Only	Stable Highs	De-Escalators	Desisters
Childhood developmental variables								
Early aggressive behavior	65.2*	50.0		53.9	52.2	60.6*	46.3	50.8
Conduct disorder	34.8	30.1		37.1*	25.5	35.6*	37.0	26.9
Antisocial traits	11.6	9.9		17.4**	3.8	14.4**	18.5	5.7
Attention-deficit disorder	26.1	26.6		29.9*	23.4	38.5**	24.1	20.7
Low IQ	17.4	15.2		17.4	14.1	21.2*	14.8	13.0
Parental negligence	69.6*	53.9		61.1*	53.3	65.4*	63.0	50.8
Physical victimization	50.7*	39.7		47.3*	37.0	53.8**	44.4	34.7
Sexual victimization	43.5*	30.5		39.5**	27.2	47.1**	29.6	26.4
Witnessing of family violence	29.0	28.4		29.9	27.2	35.6*	25.9	25.4
Exposure to pornography	21.7*	14.9		19.8*	13.0	19.2*	25.9	11.9
Deviant sexual behaviors	53.6**	30.9		33.5	37.0	34.6	38.9	34.7
Placement in care at a young age	31.9*	25.9		32.9**	21.7	33.7*	35.2	21.2
Long-term paternal absence	43.5	39.7		44.9*	36.4	52.9**	29.6	36.8
Criminogenic family environment	42.0	47.2		50.3*	42.4	47.1	53.7	43.5
Parent a sexual aggressor	21.7*	15.6		14.4*	19.0	17.3	11.1	18.1
Parent victim of sexual assault	18.8*	9.2		10.8	11.4	10.6	9.3	11.9
Social isolation	58.0	52.8		47.9*	59.2	52.9	48.1	56.0
Involvement with much younger children	34.8	33.3		31.7	35.3	35.6	37.0	31.6
Learning disabilities	68.1	62.8		69.5*	58.7	70.2*	72.2	58.0
Behavior problems at school	49.3	53.2		61.1**	44.6	63.5**	63.0	43.5
School failure	81.2	81.6		89.2**	74.5	89.4**	88.9	75.1
Consumption of alcohol or drugs	13.0*	8.2		12.6*	6.0	12.5*	13.0	6.2
Adolescent developmental variables								
Aggressive behavior	76.1*	63.5		71.3*	61.0	73.1*	61.1	63.4
Truancy	19.4*	26.2		29.9*	20.3	32.7*	22.2	21.5
Dropping out of school	4.5**	15.2		16.8*	9.9	16.3	13.0	11.5
Consumption of alcohol or drugs	37.3	35.5		50.3**	22.5	47.1**	48.1	26.2
Delinquent peers	20.9	19.9		32.9**	8.2	32.7**	27.8	11.0
Deviant sexual fantasies	58.2*	48.9		48.5	52.7	48.1	50.0	52.4
Consumption of pornography	53.7	51.1		52.7	50.5	53.8	50.0	50.8
Structured or group leisure activities	35.8	39.4		43.7*	34.1	37.5	48.1	36.6
Consensual sexual relations	44.8	42.6		54.5**	32.4	51.9**	53.7	35.1

Note. $N = 351$. Variables are dichotomous (yes-no). Chi-square analyses are presented. No multicollinearity was observed. Variables exhibiting a statistical significance (p value) of .25 or less were selected for multivariate analyses.
 * $p \leq .05$ (two tailed). ** $p \leq .01$ (two tailed). + $p < .25$ (two tailed).

TABLE 3: Logistic Regression of Age of Onset

	Wald	df	p	Adjusted OR	95% CI for Adjusted OR	
					Lower	Upper
Block 1						
Aggressive behavior	4.05	1	.044	1.78	1.01	3.11
Deviant sexual behavior	10.47	1	.001	2.46	1.43	4.23
Sexually victimized parent	4.01	1	.045	2.15	1.02	4.44
Constant	69.96	1	.000	0.109		
Final model			$\chi^2(3, N = 351) = 20.15, p = .000$			
Goodness of fit (Hosmer-Lemeshow)			$\chi^2(3, N = 351) = 1.40, p = .706$			
Final cut point				0.50		
AUC				0.65		
Residuals > 3				0		

Note. OR = odds ratio; CI = confidence interval; AUC = area under the receiver operating characteristic curve. The predicted group is early starters.

than did stable highs. They also committed fewer officially recorded offenses during the course of their criminal career than did stable highs.

MULTIVARIATE ANALYSES

Hierarchical logistic regression of age of onset. The logistic regression model of the age of onset of sexual offending is presented in Table 3. As this model is designed to predict behavior (sexual offending) adopted prior to age 12, it includes only childhood developmental variables. All variables exhibiting a statistical significance of .25 or less in bivariate analyses were first entered in multivariate analyses, as suggested by Hosmer and Lemeshow (2000). To obtain the most parsimonious regression model possible, variables that did not significantly contribute to the explanation of the age of onset were excluded from the analyses. The final model was composed of three variables: aggressive behavior at an early age, deviant sexual behavior, and presence of a sexually victimized parent. Results indicate that early aggressive behavior is associated with a higher probability of early onset rather than late onset (odds ratio [OR] = 1.78, $p < .05$). Furthermore, deviant sexual behavior (e.g., exhibitionism, compulsive masturbation) and having a sexually victimized parent increased the odds of committing a first sexual offense prior to age 12 (respectively, OR = 2.46, $p < .01$, and OR = 2.15, $p < .05$). The final model was significant, $\chi^2(3, N = 351) = 20.15$, $p < .001$, although its area under the curve (AUC) was approximately .65 (95% confidence interval [CI] = [.58, .73], $p < .01$), which is relatively low, according to the criteria of Hosmer and Lemeshow.

Hierarchical logistic regression of variety. The hierarchical logistic regression of variety is presented in Table 4. Of the five variables retained for the final model, only four were significant at this stage: antisocial traits, school failure, consumption of alcohol or drugs in adolescence, and involvement with delinquent peers. Despite its marginal significance ($p = .06$), sexual victimization was retained in the final model, as it increased the predictive power of the model and is theoretically relevant to the study of the criminal careers of adolescent sexual aggressors (e.g., Jespersen, Lalumière, & Seto, 2009). Antisocial traits at initial

TABLE 4: Logistic Regression of Variety

Variable	Wald	df	p	Adjusted OR	95% CI for Adjusted OR	
					Lower	Upper
Block 1						
Antisocial traits	9.92	1	.002	5.16	1.86	14.30
Sexual victimization	6.19	1	.013	2.05	1.16	3.59
School failure	12.24	1	.000	3.63	1.76	7.49
Constant	15.55	1	.000	0.120		
$\chi^2(3, N = 349) = 37.22, p = .000$						
Block 2						
Antisocial traits	4.467	1	.035	3.25	1.09	9.71
Sexual victimization	3.443	1	.064	1.75	0.97	3.16
School failure	8.973	1	.003	3.12	1.48	6.58
Consumption of alcohol or drugs	4.893	1	.027	4.45	1.19	16.72
Delinquent peers	6.812	1	.009	2.81	1.29	6.10
Constant	21.169	1	.000	0.023		
$\chi^2(5, N = 349) = 57.39, p = .000$						
Goodness of fit (Hosmer-Lemeshow)						
$\chi^2(6, N = 349) = 9.18, p = .164$						
Final cut point				.50		
AUC				.74		
Residuals > 3				0		

Note. OR = odds ratio; CI = confidence interval; AUC = area under the receiver operating characteristic curve. The predicted group is sex-plus aggressors. Two participants were excluded because of missing data on their adolescence.

assessment (OR = 3.25, $p < .05$) and school failure (OR = 3.12, $p < .01$) increased the odds of being a sex-plus aggressor rather than a sex-only aggressor. Also, participants who consumed alcohol or drugs (OR = 4.45, $p < .05$) and those involved with delinquent peers in adolescence (OR = 2.81, $p < .01$) were much more likely to go on to become sex-plus aggressors than were those who did not. The inclusion of those two variables related to adolescent development (Block 2) significantly increased the predictive power of the model, $\chi^2(2, N = 349) = 20.18, p < .001$. After inclusion of sexual victimization, the model remained significant, $\chi^2(5, N = 349) = 57.39, p < .01$, and exhibited an AUC of .74 (95% CI = [.68, .80], $p < .001$).

Hierarchical multinomial logistic regression of desistance. The hierarchical multinomial logistic regression of desistance of criminal career is presented in Table 5. The model discriminates between stable highs and desisters, on the one hand, and de-escalators and desisters, on the other, $\chi^2(8, N = 349) = 52.66, p < .001$. The model's AUC was .70 (95% CI = [.64, .76], $p < .001$) for the desister-stable highs comparison, and .63 (95% CI = [.56, .71], $p < .001$) for the desister-de-escalator comparison. Four variables were associated with increased odds of becoming a stable high rather than a desister: sexual victimization at a young age (OR = 2.32, $p < .01$), long-term paternal absence (OR = 1.87, $p < .05$), school failure (OR = 2.60, $p < .05$), and involvement with delinquent peers in adolescence (OR = 3.60, $p < .001$). Few variables, however, discriminated between de-escalators and desisters. Only school failure and involvement with delinquent peers during adolescence were associated with increased odds of being a de-escalator (respectively, OR = 2.53, $p < .05$, and OR = 3.00, $p < .01$).

TABLE 5: Hierarchical Multinomial Regression of Desistance (Stable Highs vs. Desisters, and De-Escalators vs. Desisters)

Chi-Square			Variable	Stable Highs (n = 104)			De-Escalators (n = 54)		
χ^2	df	p		p	OR	95% CI	p	OR	95% CI
Block 1									
12.06	2	.002	Sexual victimization	.001	2.45	[1.4, 4.1]	.621	1.19	[0.6, 2.3]
9.38	2	.009	Paternal absence	.014	1.85	[1.1, 3.1]	.302	0.716	[0.4, 1.4]
11.82	2	.003	School failure	.005	2.84	[1.4, 5.9]	.036	2.66	[1.1, 6.6]
$\chi^2(6, N = 349) = 34.25, p = .000$									
Block 2									
10.24	2	.006	Sexual victimization	.002	2.32	[1.4, 3.9]	.714	1.14	[0.6, 2.2]
9.16	2	.010	Paternal absence	.016	1.87	[1.1, 3.1]	.329	0.718	[0.4, 1.4]
9.64	2	.008	School failure	.011	2.60	[1.2, 5.4]	.048	2.53	[1.0, 6.3]
18.4	2	.000	Delinquent peers	.000	3.60	[1.9, 6.8]	.004	3.00	[1.4, 6.4]
Final model $\chi^2(8, N = 349) = 52, 66, p = .000$									
Goodness of fit (Pearson) $\chi^2(20, N = 349) = 24, 50, p = .221$									
Final cut point				.50			.50		
Area under the ROC curve (AUC)				.70			.63		
Residuals > 3				0			0		

Note. OR = Adjusted odds ratio; CI = Confidence interval. Two subjects were excluded because of missing data on their adolescence.

A second hierarchical multinomial logistic regression analysis of desistance was performed, to discriminate between de-escalators and desisters, on the one hand, and stable highs, on the other (not presented). De-escalators were less likely than stable highs to have been sexually victimized during childhood (OR = .491, $p < .05$) and to have experienced long-term paternal absence (OR = .383, $p < .01$). However, none of the variables related to adolescent development discriminated between the two groups. Finally, the model's AUC was .63 (95% CI = [.56, .71], $p < .01$).

DISCUSSION

The main objective of this study was to identify the factors associated with three parameters related to the criminal activity of adolescent sexual aggressors: age of onset of sexual aggression, and variety and desistance of criminal activity. Hierarchical logistic regression analyses demonstrated that some variables related to childhood and adolescent development discriminated among participants who go on to follow different criminal activity trajectories.

AGGRESSIVE AND DEVIANT SEXUAL BEHAVIORS AS RISK FACTORS FOR EARLY ONSET OF SEXUAL ABUSE

The results of our study reveal that the presence of deviant sexual behavior in childhood considerably increases the risk of developing a pattern of sexual aggression prior to age 12.

Some authors have found that the presence of deviant sexual behavior at a young age is associated with the commission of sexual offenses (Abel, Osborn, & Twigg, 1993; Burton, 2000; Wieckowski et al., 1998). Consistent with this result, the majority of early starters in our study displayed an escalation of their sexual pattern, starting with deviant sexual behavior in childhood and progressing to hands-on sexual assaults before age 12. Furthermore, the results of our multivariate analyses suggest that participants exhibiting both aggressive and deviant sexual behaviors during childhood were more likely to commit their first sexual assault prior to age 12 (early onset). Lussier and Healey (2010) have recently demonstrated that these two early-onset behaviors co-occur very frequently, suggesting "general behavioral disinhibition" in certain children of preschool age. According to these authors, children who do not learn to inhibit their aggressive behaviors experience difficulty inhibiting their sexualized behaviors. In light of the results of longitudinal studies demonstrating the continuity of antisocial behaviors from childhood into adolescence (Brame, Nagin, & Tremblay, 2001; Broidy et al., 2003), it would appear that early-onset individuals had not learned how to control aggressive and sexual impulses in childhood. These behaviors appear to have persisted and to have culminated in early-onset sexual aggression. Several studies of the development of delinquency have demonstrated the existence of a fundamental link between antisocial behavior in young children and early onset of delinquency (Brame et al., 2001; Broidy et al., 2003; Chung et al., 2002; Jeglum-Bartusch et al., 1997; Loeber, Stouthamer-Loeber, Van Kammen, & Farrington, 1991; Lynam, 1996; Moffitt, 1993; Nagin & Land, 1993; Simons, Wu, Conger, & Lorenz, 1994). The results of our study are more specific and suggest that the co-occurrence of aggressive and sexual deviant behaviors in childhood is associated with a higher likelihood of early-onset sexual criminality.

Although the limitations of our study do not allow us to identify the mechanisms underlying these aggressive and sexualized behaviors, the non-negligible prevalence of early starters with a sexually victimized parent suggests, to some extent, intergenerational transmission (see Jespersen et al., 2009). In fact, it may be that in parents, trauma related to childhood abuse result in difficulty adequately fulfilling parental roles. The forms these difficulties may take include abusive behavior and negative attitudes toward, or rejection of, the child (for a summary, see Bernazzani, 2001). The unstable parent-child relational pattern that becomes entrenched may lead to attachment difficulties and, consequently favors aggressive and antisocial behavior at an early age (Smallbone, 2005).

DELINQUENCY AND VARIETY

The results of the analyses of variety suggest that sex-plus aggressors have higher rates than sex-only aggressors of conduct disorder, antisocial traits, academic difficulties (behavior problems, school failure, learning disabilities, truancy, and school dropout), involvement with delinquent peers, and consumption of alcohol or drugs. Many of these differences were also reported by Butler and Seto (2002). Rates of sexual and physical victimization and placement at a young age were higher among sex-plus aggressors than among sex-only aggressors; the higher rate of placement may have contributed to attachment problems in many of the sex-plus aggressors. Moffitt (1993) indicated that individuals with childhood cognitive deficits and neither a reassuring parental figure nor a healthy family environment are likely to engage in an antisocial lifestyle in which they persist as they grow older. Our

results—specifically, the higher rates of sexual and overall recidivism among sex-plus aggressors than among sex-only aggressors—support these findings. Also, our results suggest that sexual aggression may be one of the manifestations of a general pattern of antisocial conduct for some sexual aggressors, as has been suggested by other authors (Butler & Seto, 2002; Lussier, 2005; McCann & Lussier, 2008; Veneziano & Veneziano, 2002).

The logistic regression model suggests that adolescent sexual aggressors who exhibited antisocial traits ran an almost threefold risk of committing both sexual and nonsexual offenses. Other studies of adolescent sexual aggressors have demonstrated a significant association between indices of antisociality and an increased risk of nonsexual (Parks & Bard, 2006; Worling & Curwen, 2000) and overall (Miner, 2002; Waite et al., 2005; Worling, 2001) recidivism. Gottfredson and Hirschi (1990) state that individuals with low self-control have little ability to resist the temptation to adopt offending behavior when the opportunity arises and, furthermore, that this trait is stable over time. Adolescents with poor self-control tend to avoid situations of social control (supervision, discipline) and consequently tend to associate with peers who resemble them and who, like them, are likely to offend. These young people also tend to experience school difficulties (behavioral and learning difficulties), leading to school failure and dropping out of school in favor of less constraining environments. The results of our model of variety indicate that the presence of these factors (antisocial traits, educational delay, and association with delinquent peers) contributed to the increase in the probability of embarking on a polymorphic criminal trajectory. According to Ayers and colleagues (1999), school difficulties weaken attachment to school, which renders the adolescent more vulnerable to the influences of delinquent peers. Affiliation with a group that shares similar antisocial values and increases an adolescent's standing will present him or her with several opportunities to consume psychoactive substances and commit a variety of offenses.

Sexual offending exhibited by sex-plus aggressors in our study consequently appears to be part of a larger picture of delinquency and to have been motivated by antisocial traits or the shared endorsement of the antisocial values of peers. Consequently, the context of sexual aggression may have been similar to that of any other criminal act perpetrated by the adolescent: a drive to fulfill an immediate need, with no regard for others (Seto & Barbaree, 1997).

VARIABLES ASSOCIATED WITH DESISTANCE

Our comparative analyses demonstrate that adolescent sexual aggressors who desisted from delinquency following their initial assessment exhibited fewer cognitive, familial, social, and academic deficits in childhood than did participants who went on to pursue a criminal career. In adolescence, a very low proportion of desisters were involved with delinquent peers or consumed psychoactive substances. Some authors have suggested that attachment to family and school are crucial protective factors that explain desistance from delinquency (Carbonneau, 2003; Leblanc, 1997, 2003; Sampson & Laub, 1993). Although the available retrospective data did not allow us to study the attachment of participants to socialization agents in childhood and adolescence, we consider that the low prevalence of familial and academic problems is an indirect measure of these participants' attachment and affiliation to these institutions as well as of their endorsement of the prosocial values that are promoted there.

Few variables distinguished de-escalators from stable highs. The most obvious differences are related to childhood development, with de-escalators exhibiting lower rates of ADD, aggressive behavior, sexual and physical victimization, and long-term paternal absence. De-escalators exhibited less-chronic deficits in childhood than did stable highs, which appears to protect them from involvement in further violent or sexual criminal activity. It is also possible that legal and therapeutic management had a greater impact on participants with less problematic clinical portraits. Fears of legal, familial, and social reprisals, the development of relapse-prevention tools (e.g., avoidance of high-risk situations, anger management); and therapeutic support could explain why de-escalators' future criminality was less serious and less frequent than that of stable highs.

The multivariate analyses of desistance indicate that sexual victimization and long-term paternal absence at a young age increased the risk of becoming a stable high offender. These results suggest that insecure attachment, in this case, linked to childhood trauma, may lead to the adoption and maintenance of antisocial and violent behaviors (Smallbone, 2005). Loeber et al. (1991) reported that negative caretaker-child relations, as well as single-parent family environments, are associated with the escalation of delinquency from childhood to adolescence among delinquents in general. These authors also found that academic difficulties (low educational achievement, low school motivation, negative attitude to school, school suspension) and positive attitudes toward delinquency explain escalation to delinquency. Similarly, our results indicate a positive association between school failure and involvement with delinquent peers, on the one hand, and future criminality, on the other. The maintenance and learning of criminal activity is favored by weak attachment to school and strong affiliation to a peer group that endorses antisocial values. In these circumstances, sexual aggression could be part of a more general pattern of deviant behavior.

Finally, the regression model that compares stable highs and de-escalators suggests that the severity of the offenses committed by both these groups appears to be more influenced by childhood trauma than by variables related to adolescent development. However, only two variables related to childhood development (sexual victimization and long-term paternal absence) predicted membership in the stable high group rather than the de-escalator group. In some ways, these findings support Moffitt's (1993) contention that individual and familial childhood characteristics are the variables with the strongest association with persistent and chronic antisocial behavior in adolescence and adulthood.

CONCLUSION

Age of onset of sexual aggression and variety and desistance of criminal activity are three important parameters of the criminal activity of adolescent sexual aggressors. Our study identified a number of risk factors associated with these parameters in two crucial periods of development, namely childhood and adolescence. Our principal finding was that indices of early antisocial behaviors (aggressive behavior, antisocial traits) were associated with early activation of a pattern of sexual offending, as well as a varied repertoire of offenses. These results underscore the importance of variables associated with the sexual development of children in explaining the early activation of abuse. Several participants in

our study had become sexualized quite early in childhood and through deviant sexual behaviors. Furthermore, a significant proportion of participants had grown up with a parent who himself or herself had been a victim of sexual abuse. Although impossible to measure in a retrospective study, the attitude of our participants and their family to sexuality (family secrets, unspoken truths, intergenerational transmission, early identification by a parent of a pattern of aggression in his or her child, and sexualization of the mother-son relationship) may be important explanatory factors of the early emergence of a pattern of sexual abuse in some individuals.

Like delinquent adolescents in general, sex-plus and stable-high participants in this study had experienced early trauma that affected their capacity for attachment, as well as their academic course, both of which favored associations with delinquent peers. These results suggest that special attention should be paid to variables related to attachment and socialization among adolescent sexual aggressors, as these two dimensions appear to be critical in understanding the variety and desistance of criminal activity. Finally, our study confirmed the existence of an antisocial proclivity in some of our participants, namely individuals whose aggressive behavior appeared early in childhood and persisted over time. Among these aggressors, sexual aggression appears to be part of a general pathway of violence that encompasses a variety of delinquent behaviors. Therapeutic management of this subgroup of sexual aggressors should take into account this antisocial proclivity and have as its objectives the prevention of both sexual recidivism and criminality in general, as other authors have noted (Butler & Seto, 2002; Carpentier & Proulx, *in press*; Rasmussen, 1999).

Few researchers have studied the criminal career of adolescent sexual aggressors from the point of view of developmental criminology. Most of those who have done so have limited themselves to the study of a few risk factors or to a single parameter of criminal activity, that is, recidivism. Although our study is innovative in this regard, it does have some methodological limitations. First, data were collected from archive files. Consequently, the information available was limited to that contained in each adolescent's file, which precluded assessment of some of the more qualitative variables (e.g., quality of attachment). In addition, as the assessment interview reported in files was conducted in a legal context, participants may have omitted or minimized some information out of fear of reprisals or in a quest for social desirability. Second, our sample was composed of sexual aggressors of children, of peers, and of adults referred to the Centre de psychiatrie légale de Montréal for psychiatric assessment and possible therapy. The decision to refer an adolescent to this specialized outpatient clinic is often the result of multiple consultations with other organizations or of legal sanctions. It is possible that participants referred to this clinic had a sexual problem of higher intensity than the overall population of adolescent sexual aggressors. Third, participants' variety and desistance were classified on the basis of official data on adolescent and adult offending. It is possible that some participants had reoffended without having faced new charges or after the completion of data collection. Such occurrences could have influenced the results of the current study. Finally, given the size of our sample, we were unable to analyze whether the pattern of risk factors for the three criminal career parameters studied differed among different types of sexual aggressors (e.g., of children, of peers, of adults, mixed). Future studies would be useful in shedding light on the criminal career of some groups of sexual aggressors.

APPENDIX

DEFINITION OF STUDY VARIABLES

<i>Study Variable</i>	<i>Definition</i>
Variables related to childhood development	
Early aggressive behavior	The participant exhibits a pattern of repeated verbal or physical violence, violence against objects, or animal cruelty.
Conduct disorder	Psychiatric diagnosis on file
Antisocial traits	Psychiatric diagnosis on file
Attention deficit disorder	Psychiatric diagnosis on file
Low IQ	Psychiatric diagnosis on file
Parental neglect	Participant was a victim of one of the following types of neglect: lack of supervision or of physical or sexual protection, permission for serious behavioral disturbance, medical neglect, physical neglect, and failure to provide care.
Physical victimization	The participant had been a victim of intrafamilial physical violence.
Sexual victimization	The participant had been the victim of hands-on sexual assault (sexual touching, sexual assault with or without violence).
Witness of family violence	The participant had been the witness of verbal, physical, or sexual violence toward another family member.
Exposure to pornography	Exposure, by a parent or guardian, to pornography in films or on the Internet
Deviant sexual behavior	The participant exhibited one of the following behaviors: voyeurism, exhibitionism, fetishism, compulsive masturbation, transsexualism, obscene phone calls, frottage, bestiality, sexual harassment.
Placement at a young age	Record of at least one nonfamilial placement (at least one month)
Long-term paternal absence	Absence (more than one year) of a relationship with the father during childhood
Criminogenic family environment	Parent or stepparent is alcoholic, or substance dependent, or has a criminal record.
Parent committed sexual abuse	Parent or stepparent committed sexual abuse, reported during assessment.
Parent victim of sexual abuse	Parent or stepparent was victim of sexual abuse, reported during assessment.
Social isolation	Participant is withdrawn or isolated from his peers.
Involvement with much younger children	Participant is involved with children significantly (at least 3 years) younger than him.
Learning disabilities	Psychiatric diagnosis on file
Behavior problems (school)	Participant repeatedly acts disruptively and/or aggressively in elementary school.
School failure	Documented in file
Consumption of alcohol or drugs	Any self-reported consumption from to age 12 onwards
Variables related to adolescent development	
Aggressive behavior	The participant exhibits a pattern of repeated verbal or physical violence, violence against objects, or animal cruelty.
Truancy	Repeated absences documented in file
Dropping out of school	Documented in file
Consumption of alcohol or drugs	Any self-reported consumption prior to age 12
Delinquent peers	Participant associates with delinquent or deviant peers.
Deviant sexual fantasies	Participant admits to having had deviant sexual fantasies toward a victim or other person.
Consumption of pornography	Participant regularly or intensively consumes pornography (films or Internet).
Structured or group activities	Participant participates in structured activities (with some degree of supervision) or group activities (structured or not).
Consensual sexual relationships	Participant indicates to having had one or more consensual homosexual or heterosexual relationships with a peer of the same age.

NOTE

1. Although desisters may in fact reoffend after the follow-up period, their classification in this group is appropriate since no recidivism was observed in this study's time frame.

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