



Research article

Discriminant factors for adolescent sexual offending: On the usefulness of considering both victim age and sibling incest[☆]



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ABSTRACT

Understanding the pathways and circumstances of juvenile sexual offending is of utmost importance. However, juvenile sexual offenders (JSO) represent an especially diverse group of individuals, and several categorizations have been proposed to obtain more homogeneous subgroups. Victim age-based and family relation-based categorizations are particularly promising because they seem theoretically and clinically relevant. Empirical results however are still inconsistent, and most studies have not considered these two dimensions jointly. The first goal of this study was to further examine the value of subgrouping JSO according to the age of their victim. A second goal was to determine the supplementary value, if any, of considering sibling incest. Based on a sample of 351 male JSO, it was first confirmed that sexual abuse of children was more strongly related to antisociality (social skill deficits) than sexual abuse of peers, the latter being more closely associated with antisociality (general delinquency). The relevance of considering mixed-type JSO (with both child and peer victims) separately was also confirmed. More importantly, multivariate statistical analyses demonstrated that adding sibling incest to the equation was useful. JSO of intra-familial child were significantly more likely to have been victimized during their own childhood compared to JSO with extra-familial victims. Nevertheless, adolescents who had committed sibling incest obtained middle ground results on most variables (except for crime severity), suggesting that they constitute a distinct but not extreme, subgroup. This study confirmed the utility of using both the age and the family relation with the victim in characterizing juvenile sexual offending.

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Introduction

Approximately 10% of boys and 20% of girls around the world will be sexually abused before they reach majority (Finkelhor, 1994; Pereda, Guilera, Forns, & Gomez-Benito, 2009; Stoltenborgh, van Ijzendoorn, Euser, & Bakermans-Kranenburg, 2011). Given the potentially severe consequences of child sexual victimization, and the fact that approximately 50% of child sexual abuse is committed by adolescents (Barbaree & Marshall, 2006), a growing number of studies have attempted to better understand juvenile sex offending. Several etiological and risk factors have been identified, including childhood

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maltreatment, deviant family environment, early exposure to sexuality, poor childhood attachment, poor social skills, atypical sexual development and sexual interests, psychopathology, cognitive impairments, general criminality, substance use and abuse, and antisocial acquaintances (Knight & Prentky, 1993; Seto & Lalumière, 2010). None of these factors is necessary or sufficient to commit a sexual offense, none apply to all juvenile sexual offenders (JSO), and no JSO present all of them. Still, certain risk factors are more likely to occur together, in combination, such as those first suggested by Becker and Kaplan (1988): (1) the antisocial (e.g., victimization from physical abuse, general delinquency, conduct disorders, substance abuse, impulsivity, learning deficits), (2) the asocial (e.g., low social skills, sexual immaturity, high anxiety, cognitive impairments, poor parental attachment, poor cognitive functions), and (3) the sexually deviant (e.g., sexualized family environment, early exposure to sexuality, atypical sexual interests, and sexual abuse victimization). Identifying the combination(s) of factors presented by a single individual is central to better understand his pathway and his specific treatment needs. Interestingly, certain variables associated with the victims might help further discriminate between JSO subgroups that share similar combinations of risk factors and sexual offending pathways. Two of these victim-related variables seem to possess good discriminant value: age (Leroux, Pullman, Motayne, & Seto, 2014) and family relation with the offender (Latzman, Viljoen, Scalora, & Ullman, 2011). The main goal of this study was to further investigate the clinical and theoretical relevance of these two potentially discriminant variables.

Distinctions Based on the Age of the Victim

The distinction based on the victim's age is the most studied way to categorize JSO because it is congruent with numerous theories (Knight & Prentky, 1993; Seto & Lalumière, 2010). Recent studies from Aebi, Vogt, Plattner, Steinhäuser, and Bessler (2012) and Leroux et al. (2014) independently suggest that the victim age distinction is valid, more than other types of categorizations (e.g., having a criminal history or not; having co-offenders or not). The victim age variable is especially helpful to discriminate between antisocial and asocial profiles among JSO, as those with peer/adult victims present, on average, longer and more versatile criminality history, higher rates of conduct disorders, and more substance use and abuse (all factors related with general delinquency) than JSO with child victims (Aebi et al., 2012; Awad & Saunders, 1991; Fanniff & Kolko, 2012; Glowacz & Born, 2013; Gunby & Woodhams, 2010; Leroux et al., 2014; Seto & Lalumière, 2010; Richardson, Kelly, Bhate, & Graham, 1997). It should be noted, however, that the opposite is not necessarily true, as antisocial JSO might also have child victims (Pullman, Leroux, Motayne, & Seto, 2014; Worling, 2001). As for JSO of children, they are more likely to have abused a male and to suffer from internalized problems (e.g., anxiety) than JSO of peers or adults (Aebi et al., 2012; Fanniff & Kolko, 2012; Glowacz & Born, 2013; Gunby & Woodhams, 2010; Richardson et al., 1997).

The problem with the victim age dichotomy (children vs. peers/adults) is that more similarities than differences are found between the two subgroups of JSO besides the ubiquitous higher prevalence of antisocial behaviors in JSO with peer/adult victims (Fanniff & Kolko, 2012; Leroux et al., 2014; Parks & Bard, 2006; Zeng, Chu, Koh, & Teoh, 2015). Although JSO of children are hypothesized to be characterized by higher rates of childhood sexual abuse, lower social skills, earlier exposure to sex, more atypical sexual interests, and more severe psychiatric and cognitive disorders than JSO of peers/adults (Seto & Lalumière, 2010), results are inconsistent across studies (Keelan & Fremouw, 2013). For instance, several recent studies failed to find differences in rates of childhood sexual abuse between JSO of children and JSO of peers/adults (Aebi et al., 2012; Fanniff & Kolko, 2012; Hendriks & Bijleveld, 2004; Leroux et al., 2014; Zeng et al., 2015). Social competence is sometimes found to be lower in JSO of children than JSO of peers/adults (Gunby & Woodhams, 2010; Hendriks & Bijleveld, 2004; Hunter, Figueredo, Malamuth, & Becker, 2003), but sometimes not (Fanniff & Kolko, 2012; Leroux et al., 2014; Zeng et al., 2015). In this case, more specific measures such as lack of appropriate aged friends (Gunby & Woodhams, 2010) and lack of peer socialization (Leroux et al., 2014) might be more useful. Similarly, assessments of atypical sexual interests between JSO of children and JSO of peers/adults has yielded both positive (Hart-Kerkhoffs, Doreleijers, Jansen, van Wijk, & Bullens, 2009) and negative results (Leroux et al., 2014). Early exposure to sexuality might better discriminate between these groups (Seto & Lalumière, 2010). In any case, the victim age dichotomy needs to be further investigated (see Keelan & Fremouw, 2013 for a review).

Most recent studies about the victim age-based categorization stress the importance of considering mixed-type JSO, those with both child and peer/adult victims (Fanniff & Kolko, 2012; Keelan & Fremouw, 2013; Leroux et al., 2014). Combining mixed-type JSO with other subgroups of JSO (Hunter et al., 2003; Zeng et al., 2015) or excluding them from the analyses (Gunby & Woodhams, 2010; Hendriks & Bijleveld, 2004) might have masked significant differences in previous studies. The mixed-type subgroup is sometimes (but not always, Fanniff & Kolko, 2012; Kemper & Kistner, 2007) found to be more clinically impaired (e.g., number of psychiatric hospitalizations, prevalence of ADHD diagnoses, prevalence of learning impairments; Leroux et al., 2014; Richardson et al., 1997), and at higher risks to re-offend (Parks & Bard, 2006) than both JSO of children and JSO of peers/adults. However, data concerning this particular subgroup are still scarce (only 4 studies were found by Keelan & Fremouw, 2013), based on small samples, and there are more results available on psychological than sexological factors (e.g., own sexual victimization, early exposure to sexuality, deviant sexual interests).

Other possible confounding factors in previous victim age-based studies include small sample sizes and low statistical power (e.g., $N=49$, Awad & Saunders, 1991; $N=43$, Gunby & Woodhams, 2010); the use of indirect measures (Fanniff & Kolko, 2012; Zeng et al., 2015), or self-report instruments (Hummel, Thömkke, Oldenbürger, & Specht, 2000) to evaluate sensitive matters such as social skills; and failure to correct for multiple comparisons (e.g., Leroux et al., 2014) or partially

avoid statistical analyses (Richardson et al., 1997). Yet, the exact criterion used to define JSO of children (e.g., 3 vs. 4 years difference between the offender and the victim) does not seem to be crucial, as demonstrated by Kemper and Kistner (2010).

Another, potentially important confounding factor is the family relation between the adolescent offender and the victim, which is interconnected with the victim age variable. Given that both JSO of children (Aebi et al., 2012; Fanniff & Kolko, 2012) and mixed-type JSO (Kemper & Kistner, 2007) are more likely to offend an intra-familial member than JSO of peer/adult, existence of a family relation might itself constitute a pivotal variable (Caffaro, 2013; Wiehe, 1997), both in conjunction with, and separately from, victim age.

Distinctions Based on the Family Relation

A potentially useful addition to the victim age distinction among JSO is the incest variable, more specifically whether the victim is (or isn't) a sibling (Latzman et al., 2011). Although sibling incest is not rare among JSO, especially those with children victims (e.g., 48% of $N=372$ JSO in Beckett, 2006; 37.5% of $N=176$ in Fanniff & Kolko, 2012; 63% of $N=116$ in Leclerc & Felson, 2014), it is vastly understudied (Caffaro, 2013; Krienert & Walsh, 2011). Sibling incest might emerge from a particular combination of etiological factors, perhaps more specific than (or complementary to) the larger criminality-based or victim age-based variables (see Tidefors, Arvidsson, Ingevaldson, & Larsson, 2010 for a review). The degree of relatedness between two individuals is known to be highly correlated with their subjective level of aversion for engaging in sexual activities together (Antfolk, Lieberman, & Santtila, 2012). Hence, sibling incest might represent a special case of adolescent sexual offending. For instance, the most common finding in available data is that sibling incest JSO are more likely to have been sexually victimized than other types of JSO (Latzman et al., 2011; O'Brien, 1991; Smith & Israel, 1987; Tidefors et al., 2010; Worling, 1995). A common suggestion (yet to be demonstrated) is that a majority of sibling incest JSO has been raised in a dysfunctional family environment (Rudd & Herzberger, 1999; Thornton et al., 2008; Tidefors et al., 2010). These environments are hypothesized to be characterized by a lack of boundaries, an exaggerated climate of sexuality, and an early exposure to explicit sexual material (Adler & Schutz, 1995; Smith & Israel, 1987; Worling, 1995). What remains to be seen, however, is the specificity of these factors, that is, to what extent they characterize sibling incest JSO and not other types of JSO. In addition, inconsistent results of comparisons between JSO of children and JSO of peers/adults might partly be due to the presence of sibling incest as a moderating variable.

A problem with the sibling incest distinction, however, is that available data are scarce and mostly based on broader definitions of intra-familial victims, i.e., living in the same residence, including children of a new step-parent or other children in a foster home (Latzman et al., 2011; O'Brien, 1991; Worling, 1995). These intra-familial offenses might differ from genuine sibling incest, i.e., a sexual interaction between individuals who have one or both parents in common (Smith & Israel, 1987), in several respects. Given that most available studies are based on small samples and extended definitions of intra-familial victims, further investigation is warranted to confirm these hypotheses concerning the characteristics of incestuous JSO.

Another intriguing aspect of sibling incest is the severity of sexual abuse. A growing number of studies suggests that severe cases of sexual abuse (e.g., vaginal or anal penetration with use of force) are frequent among siblings, with rates ranging from 40% to 89% (De Jong, 1989; Krienert & Walsh, 2011; O'Brien, 1991). In fact, prevalence of severe sexual abuse appears to be significantly higher among siblings than between fathers and daughters (Cyr, Wright, McDuff, & Perron, 2002) or non-siblings (Latzman et al., 2011; O'Brien, 1991; Tidefors et al., 2010). It remains to be seen if these results would be confirmed with larger groups of participants, including the more antisocial type of peer sexual abuse.

The Current Study

The first goal of this study was to further investigate the pertinence of considering the age of the victim to describe subgroups of JSO, particularly by including the mixed-type category where offenders have both children and peer/adult victims. This study also sought to control for potentially confounding factors found in previous studies, especially in terms of the statistical analyses (e.g., limiting the number of dependent variables in bivariate analyses, controlling for multiple comparisons, determining the statistical power, and calculating effect sizes). A second goal of this study was to determine the added value, if any, of considering the family relation with the victim in addition to the age of the victim as a factor. Finally, a subsidiary goal of this study was to compare the severity of sexual abuse and use of force between sibling, extra-familial child, and extra-familial peer offenders.

Hypotheses

The following hypotheses were formulated based on the theoretical background. **H1:** JSO of peers/adults will be more likely to show a general delinquent profile (i.e., having a criminal record, reporting criminal activities with peers, having delinquent peers, using alcohol and drugs, having a diagnosis of conduct disorder) than JSO of children. **H2:** JSO of children will show more evidence of low social skills, a childhood sexual victimization history, and atypical sexual interests than JSO of peers/adults. **H3:** The mixed-type JSO should be more clinically impaired than both JSO of children and JSO of peers/adults, and show more signs of pathological sexuality (own sexual victimization, early exposure to sexuality, deviant sexual interests). **H4:** Significantly higher rates of childhood sexual victimization, familial climate of exaggerated sexuality and, presumably,

sexual deviance will be found among cases of sibling incest than among cases of extra-familial sexual offending (involving either extra-familial child victims or extra-familial peer/adult victims).

Methods

Participants and Data Collection. Data for the current study were obtained by reanalyzing a database described in details in [Carpentier, Leclerc, and Proulx \(2011\)](#). Briefly, retrospective data were collected from the archives of a legal forensic center in Montreal. Information includes collateral inputs from parents, legal guardians, and clinicians. The sample was composed of 351 adolescents who were assessed between 1992 and 2002 relatively to hands-on sexual offenses against children, peers, and/or adults. The number of victims, self-reported by the offender, was 2.25 on average ($SD = 1.9$, range = 1 to 16 victims for a total of 790 different victims prior to initial assessment), but almost half of the participants (47.9%) had assaulted a single victim. Index crimes included the following behaviors (non-exclusive categories, in reverse order of prevalence): Caressing the victim's genitals (87.1%); Ordering the victim to perform oral-genital contacts (32.2%); Ordering the victim to touch offenders' genitals (31.6%); Penile rubbing against victims' genitals or buttock (27.6%); Attempted vaginal penile penetration (25.6%); Ejaculation (23.8%); Performing oral-genital contacts (23.4%); Vaginal penile penetration (15.3%); Vaginal digital penetration (12.9%); Masturbating in front of the victim (12.3%) Anal penile penetration (11.7%); Inflicting non-sexual injuries (10.3%); Masturbating the victim (8.2%); Using physical force more than necessary (7.5%); Anal digital penetration (2.2%); and Vaginal or anal object insertion (1.3%). Only boys aged between 11 and 18 years old at the time of the assessment and without diagnosis of moderate or severe intellectual disability were selected. Almost all participants were born in Canada ($n = 334$; 96%), with a mean age at initial assessment of 15.8 years ($SD = 1.8$ years). Psychiatric reports obtained during initial assessment and reports available on file were examined (psychological assessment, summary report of social services, presentencing report, police report, victim statements, etc.). Data collection was captured using a coding scheme specifically developed for adolescent sexual aggressors ([Carpentier et al., 2011](#)). Inter-rater reliability of the two primary raters (second author and one of two research assistants) was assessed for 20 subjects. The mean coefficient of inter-rater reliability (weighted kappa) was .95 (range: .71–1.00), indicating almost perfect agreement. The coding of a third rater was overseen by the two principal raters.

Subgrouping. Participants were divided in subgroups based on the two independent variables: victim age (child vs. peer or adult), and family relation with the victim (incest vs. extra-familial). The categorization based on victim age generated three subgroups of sex offenders: those with child victims only (i.e., persons aged 11 y.o. or less and three years younger or more than the offender; $n = 208$), those with peer or adult victims only (i.e., persons aged 12 y.o. or more; $n = 85$), and those with victims from both age categories (mixed victims; $n = 27$). The remaining 31 participants (out of 351) did not correspond to any of the three categories (e.g., a 12 y.o. adolescent offender with a 10 y.o. victim). Therefore, analyses based on the victim age categorization included 320 participants. The family relation categorization generated two main subgroups of offenders: those with at least one an incestuous relation (defined as a blood relative, excluding other children of a foster home, step siblings or parents, or any non-biological related victim living in the same household; $n = 142$), and those with extra-familial victims exclusively ($n = 183$). Twenty-six participants did not fit in any category (e.g., step sibling victims), so these analyses were based on 325 JSO. Given the importance of the age of the victim to characterize extra-familial adolescent sexual offenders and our fourth hypothesis (H4), the group of incestuous offenders was further divided in those with a child victim (i.e., sibling incest with a victim aged less than 11 y.o. and three years younger or more than the offender; $n = 86$), those with an adolescent victim (i.e., sibling incest with a victim aged 12 y.o. or more; $n = 24$), and those with both types of victims (mixed, i.e., sibling incest with at least two different victims, one in each age categories; $n = 9$). No case of incest with an adult was recorded in this sample (e.g., with the mother).

Variables. The number of dependent variables was limited to include at least 15 participants per variable and to avoid a long list of bivariate comparisons. The variables were carefully chosen as theoretically and clinically relevant to the field of JSO ([Leroux et al., 2014](#); [Seto & Lalumière, 2010](#)), encompassing seven main themes. These seven main themes and 20 dependent variables were (all dichotomous): (1) Own victimization (*sexual victimization*, or having been the victim of at least one hands-on sexual assault; *violent victimization*, or having been the victim of familial physical violence; *parental neglect*, or having been the victim of either a lack of supervision or physical or sexual protection, medical neglect, physical neglect, or failure to provide care; *exaggerated climate of sexuality and early exposure to explicit sexual material*, i.e., having a parent with multiple partners, a sex worker parent, being exposed to sexual violence at home, exposure by a parent or guardian to pornography in films or on the Internet); (2) Social abilities (*Having much younger friends*, i.e., less than 12 y.o. and at least 3 years younger; *social isolation or rejection* or being withdrawn or isolated from peers); (3) Sexual experience (*having experienced prior consensual sexual intercourse* with a peer, approximately 14% of the sample reported having experienced consensual intercourse with a male peer (exclusively or not), but given that preliminary analyzes revealed no difference according to male vs. female interaction, they were considered together); (4) Atypical sexual interests (*reporting deviant sexual fantasies*), defined as involving violence, a child, or a non-consenting partner; *having a male victim*; *having an unknown victim* (i.e., met less than 24 hours before the sex crime); (5) Neuropsychiatric history (*having received a conduct disorder diagnosis*, as evidenced by hospital records; *taking prescribed psychostimulant medication*; *having a low IQ*, i.e., between

55 and 80); (6) Delinquency indicators (*having a non-sexual criminality history*), i.e., a criminal record for a non-sexual crime under the Young Offenders Act; *having criminal activities with peers*, self-reported; *having delinquent peers*, from files and self-reported; *using alcohol, using illegal drugs*, ever, both from files and self-reported, and; (7) Aggressive behaviors (*evidence of early aggressive behavior*, i.e., the participant exhibited a pattern of repeated verbal or physical violence, violence against objects, or animal cruelty during childhood; *being physically violent toward peers*, i.e., recurrent during adolescence; *animal cruelty*, at least once).

Statistical Analyses. Two waves of statistical analyses were performed. First, bivariate percentage comparisons (chi-squares) were conducted between subgroups resulting from each independent variable (victim age: JSO with child victims, JSO with peer/adult victims, mixed-type JSO; family relation with the victim: JSO with extra-familial child victims, JSO with extra-familial peer/adult victims, sibling incest JSO) with a limited set of 20 dichotomized (yes-no) dependent variables. This first wave of analyses mainly served to calculate the effect size of each comparison, separately for the victim age and the family relation factors. To control for Type-I statistical error due to multiple comparisons, the critical p level was adjusted with a Bonferroni correction ($.05/20 = .0025$). The primary measure will be effect sizes, assessed with Cramer's V (φ_c). Values of 0–.10, .11–.20, .21–.30, and .31 or more were considered null, small, moderate, and large, respectively (Fox, 2009). The criterion of clinical and statistical relevance was set at .21 (effect of at least moderate size).

The second wave of statistical analyses was conducted with multinomial logistic regressions separately for each factor (victim age and family relation with the victim) to further reduce the number of variables. Multicollinearity was first assessed to exclude redundant (correlated with a coefficient over .25) and irrelevant (not significantly associated) variables (Hosmer & Lemeshow, 2000). Two multinomial logistic regression analyses were run, first for the distinction based on victim age (JSO of children, JSO of peers/adults, and mixed-type JSO), then for the distinction based on family relation (JSO of extra-familial children, JSO of extra-familial peers/adults, and sibling incest JSO).

Statistical Power. Based on the aforementioned definition of a significant (and clinically relevant) effect size (at least .21–.30 or moderate, Fox, 2009), the number of participants (at least $N = 320$), the basic alpha level (.05), and the number of degrees of freedom (3), this study had a statistical power of .90. In other words, it would detect a significant difference between subgroups 9 times out of ten.

Supplementary Analyses. In order to address the subsidiary goal of this study, the nature and severity of the index crimes (listed above), as well as the victim gender, the fact that the victim was dressed or not at the moment of the index crime, and the use of unnecessary force were compared between groups of offenders with sibling victims, extra-familial child victims, and extra-familial peer victims. In cases with multiple sexual offenses, the mean of the last three offenses was computed.

Ethics. This study was approved by the ethical committees of the Philippe-Pinel Institute of Montreal and the University of Quebec at Trois-Rivieres.

Bivariate Comparisons Based on the Victim Age Variable

Own Victimization. Approximately one third of the whole sample was sexually (32.5%) and/or physically (35.3%) abused; more than half was neglected (56.6%); and a fifth was raised in an exaggerated climate of sexuality (20.0%). The victim age factor (exclusively child, exclusively peer/adult, and mixed) failed to significantly differentiate between subgroups on these victimization variables (Table 1). Effect sizes ranged from .02 to .08, suggesting no significant differences between the groups.

Social Abilities. More than a third (37.7%) of the whole sample acknowledged having much younger friends. As expected, this result concerns JSO of children (45.2%) more than JSO of peers or adults (9.4%), with the mixed type in between (33.3%; Table 1). More than half (54.1%) of JSO were socially isolated or rejected by their peers. This characteristic concerned significantly more JSO of children (65.4%) than both JSO of peers or adults (31.8%) and mixed JSO (37.0%; Table 1).

Sexual Experience. Overall, 35.3% of the sample reported having had consensual sexual intercourse with an age-appropriate peer prior to the evaluation for a sex crime. As expected, significantly more JSO of peers or adults (64.3%) had previously experienced consensual sexual intercourse with a peer than both JSO of children (22.9%) and mixed JSO (37.0%) (Table 1).

Atypical Sexual Interests. Approximately half of the whole sample (51.6%) revealed having had deviant sexual fantasies (toward a victim or any other person), 42.8% had a male victim, and 6.3% had an unknown victim. After Bonferroni corrections, JSO of children tended to report more deviant sexual fantasies (57.7%, $p = .01$, $ES = .17$) than JSO of peers or adults (41.3%), and mixed JSO (37.0%) (Table 1). JSO of peers or adults were significantly less likely to target males (14.1%) than JSO of children (51.4%) and mixed JSO (66.7%, $ES = .36$). Finally, a marginally higher proportion of JSO of children knew their victim (97.1%) compared with JSO of peers or adults (87.1%) and mixed JSO (88.9%; $p = .003$, $ES = .19$, Table 1).

Table 1
Comparisons (%) between subgroups of JSO based on victim age (child exclusive vs. peer or adult exclusive vs. mixed) on variables of interest.

	Child victim (n = 208)	Peer/adult victim (n = 85)	Mixed victim (n = 27)	X ²	p	ES
Victimization history						
Sexual victimization	30.8	32.9	44.4	2.05	.36	.08
Physical victimization	35.8	33.7	37.0	.15	.93	.02
Parental neglect	54.3	58.8	66.7	1.72	.42	.07
Early exposure to sexuality	17.9	24.2	23.1	1.36	.51	.07
Social abilities						
Much younger friends ^a	45.2	9.4	33.3	34.12	<.00 [*]	.33
Social isolation/rejection	65.4	31.8	37.0	30.91	<.00 [*]	.31
Sexual experience						
Consensual sexual intercourse with female	22.9	64.3	37.0	44.53	<.00 [*]	.38
Atypical sexual interest						
Deviant sexual fantasies	57.7	41.2	37.0	9.08	.011 ^d	.17
Male victim	51.4	14.1	66.7	41.19	<.00 [*]	.36
Unknown victim	2.9	12.9	11.1	11.6	.003 ^d	.19
Neuropsychiatric history						
Conduct disorder diagnosis	24.5	45.9	22.2	13.96	.001 [*]	.21
ADHD (medication)	20.4	22.6	36.8	2.77	.25	.1
Low IQ ^b	15.9	16.5	7.4	1.44	.49	.07
Delinquency indicators						
Prior criminal history	12.5	32.9	11.1	18.13	<.00 [*]	.24
Criminal activity with peers	14.4	41.2	14.8	26.33	<.00 [*]	.29
Delinquent peers	23.0	44.3	24.0	12.63	.002 [*]	.21
Consumption of alcohol ^c	27.3	60.6	35.0	22.71	<.00 [*]	.31
Consumption of drugs ^c	30.4	62.2	36.4	21.33	<.00 [*]	.29
Aggressive behaviors						
Early aggressive behavior	47.1	42.4	37.0	1.31	.52	.06
Physical aggression t. peers	56.7	57.6	48.1	.81	.67	.05
Animal cruelty	4.3	1.2	3.7	1.81	.4	.08

Note. Variables are dichotomous (yes-no). ES, effect size.

^a Under 12 y.o. and more than 3 years younger than offender.

^b I.Q. >55 and <80, based on clinical files.

^c Occasionally or regularly lifetime consumption.

^d Trend toward significance (i.e. ES between .17 and .20).

^{*} Significant after Bonferroni correction (.05/20 = .0025).

Neuropsychiatric History. Overall, 30% of the sample had a diagnosis of conduct disorder, 22% had received psychostimulant medication for ADHD, and 15% were considered as having a low IQ. As expected, significantly more JSO of peers or adults had a diagnosis of conduct disorder (45.9%) than JSO of children (24.5%). No other differences emerged between the groups for the neuropsychiatric history.

Delinquency Indicators. JSO of peers or adults (Table 1) were significantly more likely than all other subgroups to show delinquency indicators, including prior criminal history, criminal activity with peers, having delinquent peers, and using alcohol and drugs (medium mean ES of .30).

Aggressive Behaviors. Overall rates of early interpersonal violence (45%) and current physical aggression toward peers (56.3%) were high. No significant difference emerged between the groups for these behaviors (nor for animal cruelty), with all null effect sizes (Table 1).

Bivariate Comparisons Based on the Family Relation Variable

First, subgroups based on victim age were compared on the same 20 variables for cases of sibling incest (child sibling versus adolescent/adult sibling versus mixed-type; in fact, no case of mixed-type or adult sibling offense was present, leaving only two subgroups). Even without controlling for multiple comparisons, only one result out of these 20 chi-square analyses was statistically significant between the two subgroups: Having a male victim ($X^2(2) = 9.0, p = .01$; data not shown). Whereas nearly half of child victims from sibling incest JSO were brothers (45%), this was the case for only 16% of the adolescent sibling victims (the vast majority of adolescent sibling incest involved a sister of the offender, as expected). Therefore, the remaining analyses were conducted with sibling incest JSO as a unique group, without further consideration for the age of their victims.

Table 2

Comparisons (%) between subgroups of JSO based on the familial relation with the victim (blood relative vs. extra-familial child vs. extra-familial peer or adult) on variables of interest.

	Blood relative (n = 61)	Extra-familial child (n = 122)	Extra-familial peer/adult (n = 142)	X ²	p	ES
Victimization history						
Sexual victimization	39.4	23.8	27.9	7.91	.02	.16
Physical victimization	45.4	27.7	28.8	10.27	.006 ^d	.18
Parental neglect	59.2	52.5	60.7	1.63	.44	.07
Early exposure to sexuality	22.7	14.6	24.4	2.87	.24	.1
Social abilities						
Involvement with much younger children ^b	26.1	55.7	4.9	53.19	<.00 [*]	.41
Social isolation/rejection	49.3	73.0	24.6	40.06	<.00 [*]	.35
Sexual experience						
Consensual sexual intercourse with female	30.9	21.2	73.3	49.43	<.00 [*]	.4
Atypical sexual interest						
Deviant sexual fantasies	54.2	59.8	36.1	9.39	.009 ^d	.17
Male victim	39.4	55.7	13.1	30.77	<.00 [*]	.31
Unknown victim	0.0	4.9	18.0	28.03	<.00 [*]	.29
Neuropsychiatric history						
Conduct disorder diagnosis	35.2	16.4	52.5	26.28	<.00 [*]	.28
ADHD (medication)	25.5	16.4	23.0	3.28	.19	.1
Low IQ ^c	13.4	18.0	16.4	1.10	.58	.06
Delinquency indicators						
Prior criminal history	14.8	12.3	36.1	17.28	<.00 [*]	.23
Criminal activity with peers	19.0	10.7	44.3	28.46	<.00 [*]	.3
Delinquent peers	26.9	16.8	50.0	20.75	<.00 [*]	.26
Consumption of alcohol ^a	39.0	21.3	63.5	25.63	<.00 [*]	.32
Consumption of drugs ^a	40.4	24.2	70.4	30.41	<.00 [*]	.34
Aggressive behaviors						
Early aggressive behavior	47.9	43.4	44.3	.57	.75	.04
Physical aggression toward peers	56.3	54.9	57.4	.11	.95	.02
Animal cruelty	2.8	4.9	1.6	1.59	.45	.07

Note. n = 325; Variables are dichotomous (yes-no). ES, effect size.

^a Occasionally or regularly lifetime consumption.

^b Children (under 12 y.o.) and more than 3 years younger.

^c I.Q. >55 and <80, based on clinical files.

^d Trend toward significance (ES between .17 and .20).

^{*} Significant after Bonferroni correction (.05/20 = .0025).

Own Victimization. After Bonferonni corrections, trends for higher sexual victimization (39.4%, $p = .02$, ES = .16) and physical victimization (45.4%, $p = .006$, ES = .18) were observed in the sibling incest group compared to both JSO with extra-familial child (23.8% and 27.7%, respectively) and JSO with extra-familial peer/adult (27.9% and 28.8%, respectively) victims (Table 2).

Social Abilities. Considering the family relation with the victim generated even sharper distinctions between groups in terms of having younger friends than comparing groups as a function of the victim's age: JSO with extra-familial child victims were the most likely to have younger friends (55.7%), followed by sibling offenders (26.1%), and extra-familial peer/adult offenders (4.9%, all differences significant). Similarly for social isolation, the family relation factor generated sharper distinctions than the age of the victim, with extra-familial child offenders (73.0%) being significantly more likely to be socially isolated than sibling incest offenders (49.3%) who, in turn, were significantly more isolated or rejected than offenders of extra-familial peers or adults (24.6%, Table 2).

Sexual Experience. JSO with extra-familial peer or adult victims (73.0%) had significantly more consensual sexual experience with an adolescent girl than the two other subgroups (JSO with extra-familial child victims, 21.2%; JSO with a blood relative victim, 30.9%, no significant difference between these groups; Table 2).

Atypical Sexual Interests. Again, the family relation factor generated sharper distinctions than the victim age factor for this variable, with JSO of extra-familial peer/adult being significantly more likely to have an unknown victim (18%, ES = .29), significantly less likely to have had a male victim (13.1%, ES = .31), and marginally less likely to report deviant sexual fantasies (36.1%, $p = .009$, ES = .17) than both extra-familial child JSO (4.9%, 55.7%, and 59.8%, respectively) and sibling incest JSO (0%, 39.4%, and 54.2%, respectively, Table 2).

Neuropsychiatric History. When only extra-familial victims are considered, the rate of conduct disorder diagnosis for JSO of peers or adult is even higher, at 52.5%. This rate is significantly higher than that of the other two subgroups, although sibling

Table 3
Multinomial logistic regressions based on the victim age distinction.

	β	SE(β)	<i>p</i>	OR	95% CI
JSO of children vs. JSO of peers					
Younger friends	1.590	.428	.000	4.9	2.1–11.4
Social isolation/rejection	.711	.314	.024	2.0	1.1–3.8
Boy victim	1.504	.370	.000	4.5	2.2–9.3
Unknown victim	–1.631	.691	.018	5.1	1.3–12.0
Delinquent peers	–1.230	.353	.000	3.4	1.7–6.9
JSO of children vs. mixed age					
Younger friends	.382	.470	.417	1.5	.58–3.7
Social isolation/rejection	1.256	.458	.006	3.5	1.4–8.6
Boy victim	–.854	.453	.059	2.4	.97–5.7
Unknown victim	–1.648	.774	.033	5.2	1.1–2.4
Delinquent peers	.188	.598	.754	1.2	374–3.9
JSO of peers/adults vs. mixed age					
Younger friends	1.208	.600	.044	3.4	1.03–10.9
Social isolation/rejection	–.546	.519	.293	1.7	.63–4.8
Boy victim	2.358	.533	.000	10.6	3.7–30.0
Unknown victim	.017	.801	.983	1.02	.21–4.9
Delinquent peers	–1.418	.625	.023	4.1	1.2–1.4

Note. **Bold:** significant differences between subgroups. β =beta coefficient; SE=standard error of coefficient; OR=Adjusted Odds Ratio; CI=Confidence intervals. Confidence intervals not including the value 1 indicate statistical significance; negative β values indicate inverse direction of association; OR and CI values associated with negative β values were reversed [$1/OR$ and $1/CI$] to maintain the same direction of association.

incest JSO are situated in between (35.2%, and 16.4% for JSO with extra-familial child victims; Table 2). No other differences emerged between the groups for the neuropsychiatric history.

Delinquency Indicators. Again, the magnitude of difference between subgroups of JSO for delinquency indicators is higher when not only the age of the victim (peer or adult), but also the family relation between the victim and the offender (extra-familial) are considered (Table 2).

Aggressive Behaviors. No significant difference emerged between the groups for these behaviors (Table 2).

Multinomial Regressions Based on the Victim Age Variable

Out of the 20 variables previously selected for bivariate comparisons, five contributed significantly to the multinomial model (i.e., low redundancy and significant impact on the variance) to predict the victim age: Having much younger friends, being socially isolated or rejected, having a boy victim (significantly associated with having a child victim), having an unknown victim, and having delinquent peers (significantly associated with having a peer victim; Final model: $\chi^2(10, N=320)=109.6; p<.001$; Table 3).

Interestingly, mixed-type JSO were situated between JSO of children and JSO of peers/adults on most variables. On one hand, mixed-type JSO were significantly less likely than JSO of children to be socially isolated or rejected by peers, and significantly more likely to have an unknown victim (Table 3). A trend toward significance was also observed for odds of girl victimization (as opposed to boy victim) compared with JSO of children ($p=.059$; CI=.97–5.7). On the other hand, mixed-type JSO were significantly more likely to have much younger friends and to victimize a boy than JSO of peers/adults, who were significantly more likely to have delinquent peers than mixed-type JSO (Table 3).

Multinomial Regressions Based on the Family Relation Variable

With the family relation factor, seven variables from the original 20 contributed significantly to the multinomial model (plus the known vs. unknown victim variable, which was excluded from the model because all sibling incest cases knew their victim): Having been sexually abused during childhood, having been physically abused during childhood, having much younger friends, being socially isolated or rejected by peers, having had consensual sexual intercourse with a peer, having victimized a boy, and having a diagnosis of conduct disorder (Final model: $\chi^2(14, N=313)=148.3; p<.001$). These variables explained 64% of the variance between the groups. As shown in Table 4, removing incest cases generally strengthens the aforementioned differences between child (extra-familial) and peer (extra-familial) offenders (with significantly more of the former having younger friends, being socially isolated or rejected by peers, and having victimized boys). These comparisons unveiled two new significant differences, however, with extra-familial child JSO being significantly less likely to have experienced a consensual sexual relation with an adolescent girl and to have received a diagnosis of conduct disorder than extra-familial peer/adult JSO. These results suggest that most JSO with child victims who also had past consensual sexual experience and a conduct disorder diagnosis were sibling incest offenders. Importantly, neither sexual nor physical

Table 4
Multinomial logistic regressions based on familial relation distinction.

	β	SE(β)	<i>p</i>	OR	95% CI
Extra-Familial Child victim vs. Extra-Familial Peer/adult					
Sexual victimization	-.617	.461	.180	1.8	.7–5.0
Physical victimization	-.013	.444	.977	1.01	.4–2.4
Younger friends	2.204	.663	.001	9.1	2.5–33.2
Social isolation/rejection	1.469	.432	.001	4.3	1.9–10.1
Peer aged consenting female	-1.539	.434	.000	4.7	2.0–10.9
Boy victim	1.689	.491	.001	5.4	2.1–14.2
Conduct disorder	-1.219	.437	.005	3.4	1.4–8.0
Sibling incest vs. Extra-Familial Child victim					
Sexual victimization	.878	.326	.007	2.4	1.3–4.6
Physical victimization	.802	.304	.008	2.2	1.2–4.1
Younger friends	-1.059	.300	.000	2.9	1.6–5.2
Social isolation/rejection	-.870	.300	.004	2.4	1.3–4.5
Peer aged consenting female	-.116	.336	.729	1.1	.46–1.7
Boy victim	-.819	.304	.007	2.3	1.3–4.1
Conduct disorder	.720	.341	.035	2.1	1.1–4.0
Sibling incest vs. Extra-Familial Peers/adult victim					
Sexual victimization	.261	.393	.507	1.298	.601–2.807
Physical victimization	.789	.382	.039	2.2	1.04–4.7
Younger friends	1.145	.655	.080	3.1	.87–11.4
Social isolation/rejection	.599	.390	.125	1.8	.85–3.9
Peer aged consenting female	-1.655	.377	.000	5.2	2.5–5.2
Boy victim	.870	.457	.057	2.4	.98–5.8
Conduct disorder	-.499	.360	.165	1.6	.81–3.3

Note. **Bold:** significant differences between subgroups. β = beta coefficient; SE = standard error of coefficient; OR = Adjusted Odds Ratio; CI = Confidence intervals. Confidence intervals not including the value 1 indicate statistical significance; negative β values indicate inverse direction of association; OR and CI values associated with negative β values were reversed [1/OR and 1/CI] to maintain the same direction of association.

childhood victimization discriminated between victim age-based subgroups, even when only extra-familial relations are considered (Table 3).

As for sibling incest JSO, they were significantly more likely to have been sexually victimized, physically victimized, and to have received a diagnosis of conduct disorder than JSO with extra-familial child victims who, in turn, were significantly more likely to have younger friends, to be socially isolated or rejected, and to have victimized a boy than sibling incest JSO (Table 4). No difference emerged between these subgroups for their past experience with a consensual sexual relation with an adolescent, however. Sibling incest offenders were also significantly more likely to have been physically victimized during childhood than JSO with extra-familial peer/adult victims (Table 4). No other difference emerged between sibling incest and JSO of peers, although tendencies (and wide confidence intervals) were observed for having younger friends ($p = .08$; CI: .87–11.4), and having victimized a boy ($p = .057$; CI: .98–5.8) in sibling incest JSO compared with JSO of extra-familial peers (Table 4).

Supplementary Analyses. As shown in Table 5, approximately half of the sexual crimes were committed in similar proportion between the groups (sibling, extra-familial children, and extra-familial peers; no significant difference; all p 's > .05). These acts were, in descending order of prevalence: Caressing the victim's genitals; vaginal or anal digital penetration; masturbating in front of the victim; masturbating the victim, and; vaginal or anal object insertion. As for the rest of indexed sexual behaviors, all considered to be more severe (ordering the victim to touch offenders' genitals; ordering the victim to perform oral-genital contacts; penile rubbing against victims' genitals or buttock; ejaculation; performing oral-genital contacts; vaginal or anal penetration or attempts to do so), significant differences emerged between the groups, mostly between adolescents with a sibling victim (more likely to have committed these behaviors) and adolescents with an extra-familial peer victim (less likely to be involved in these acts; Table 5).

Discussion

By virtue of being both adolescents and offenders, JSO represent an especially heterogeneous group of individuals. Many risk factors have been identified for juvenile sexual offending, generally associated with one of three main constructs: Antisociality (general delinquency), asociality (impaired inter-personal abilities), and sexual deviancy (atypical and/criminal sexual interests; Becker & Kaplan, 1988). Seto and Lalumière (2010) elegantly demonstrated that antisocial factors, although common, are not sufficient to explain all juvenile sexual offending. Seto and colleagues (Leroux et al., 2014) further showed that victim age-based subgrouping of JSO is useful to discriminate between those with a more generalized (or antisocial) pathway (JSO of peers/adults), and those with a more specific (asocial and/or deviant sexuality) pathway (JSO of children). The present study further confirms the usefulness of distinguishing JSO of children versus JSO of peers/adults (Leroux et al., 2014; Pullman et al., 2014). In accordance with our first hypothesis, JSO of peers/adults were significantly more likely to

Table 5Supplementary analyses: Prevalence (%)^a of victim's gender, clothed victims, and sexual behavior committed by JSO with sibling, extra-familial, and peer victims.

	Sibling (n = 142)	Extra-familial child (n = 122)	Peer (n = 61)	X ²	p	ES
No difference between the groups						
Caressing the victim's genitals	88.1	86.3	86.4	.11	>.05	.03
Vaginal or anal digital penetration	18.4	12.9	11.7	1.4	>.05	.07
Masturbating in front of the victim	10.6	16.4	8.1	2.5	>.05	.08
Masturbating the victim	7.6	8.2	9.3	.10	>.05	.03
Vaginal or anal object insertion	1.5	1.6	0	.96	>.05	.05
Differences between the groups						
Ordering to touch genitals	38.8	36.7	12.1	14.4	.001	.21
Ordering to perform oral sex	34.5	21.8	16.4	6.6	.03	.15
Penile rubbing	31.9	30.3	12.1	8.7	.01	.17
Ejaculation	29.9	25.0	6.2	10.6	.005	.20
Performing oral-genital contacts	25.8	28.2	8.1	12.2	.002	.20
Vaginal or anal penile penetration (or attempts)	37.0	17.4	25.0	14.0	.001	.21
Male victim	25.4	49.6	11.5	32.0	<.0001	.31
Victim was dressed at the moment of abuse	30.6	51.0	84.2	34.5	<.0001	.35
Use of unnecessary force or violence	34.8	8.7	56.5	29.2	<.0001	.31

Note. Variables are dichotomous (yes-no). JSO: Juvenile sex offender; ES: Effect size; Bold = significantly from the other extreme comparative subgroup.

^a Based on either the sole sexual crime (48% of cases) or the mean of the last three sexual crimes of JSO.

present an antisocial profile, i.e., to present characteristics related with general delinquency (prior, diverse criminality; criminal activity with peers, having delinquent peers, using alcohol and drugs, diagnosis of conduct disorder), to have more peer-aged friends, to have had previous consensual sex with a peer-aged teen, to have targeted an unknown victim, usually a female (86%), than JSO of children and mixed JSO.

In partial accordance with the second hypothesis, risks factors for JSO of children were more likely associated with low social competence and atypical interests. However, none of the childhood victimization variables discriminated between JSO of children and JSO of peers/adults. These negative results add to an increasing number of studies that fail to find a specific (let alone causal) link between childhood sexual abuse and juvenile sex offending of children (Aebi et al., 2012; Fanniff & Kolko, 2012; Hendriks & Bijleveld, 2004; Leroux et al., 2014; Zeng et al., 2015). In fact, high proportions of JSO were sexually abused during childhood, no matter the age of their victims. It is much more difficult to statistically demonstrate an absence of a difference than its presence, because the former is commonly due to negative results derived from a type-II error and a lack of statistical power. Still, the present study had a statistical power of .90, a level at which it is generally thought that the true effect size at the population level is unlikely to be of practical value when negative results are found (Quertemont, 2011). In addition, the mean effect sizes of comparisons based on the victimization variables were low, all in the null range, for all subgroups. Therefore, it seems safe to suggest that childhood victimization is not related to the age of the victim for subsequent JSO.

Leroux et al. (2014) have also stressed the importance of considering mixed-type JSO in the distinction based on the age of the victim (those with both child and peer/adult victims), concluding that this mixed-type JSO is a genuinely distinct subgroup, associated with both general and specific risk factors. In line with this, we found that both general (antisociality) and specific (social competence and atypical sexual interests) factors were related with the mixed-type JSO. Although Leroux et al. (2014) failed to find differences between the groups in terms of social competence, their sample size was smaller than ours and their effect sizes for the social domain were mostly situated in the borderline zone (.14 to .18). This important aspect deserves further attention. In any case, both Leroux et al. (2014) and our study suggest that the JSO with mixed victim ages is not an extreme subgroup. Therefore, contrary to hypothesis 3, results for mixed-type JSO were usually situated in the middle between those of JSO with child victims only and those with peer/adult victims only (for instance, approximately a third of mixed-type JSO had social difficulties, reported deviant sexual fantasies, used alcohol and drugs, and received psychostimulant medication; see also Fanniff & Kolko, 2012). These results should have important implications at both theoretical and clinical levels, as they suggest the presence of a continuum based on the victim age, with combinations of risk factors changing over the dimension (i.e., from specific factors for exclusive child sexual abuse, to mixed specific and generic factors for both child and peer abuse, to more general, delinquency factors for peer abuse).

An unexpected result was the lack of difference in the rates of inter-personal violence perpetrated by the subgroups with different victim ages. It was hypothesized that JSO of children would be less physically violent than JSO of peers/adults and mixed-type JSO. In fact, levels of interpersonal violence were high and statistically similar across all subgroups (characterizing approximately half of the whole sample). It is plausible that given their disruptive experiences in childhood (sexual and physical abuse, neglect), paired with poor social abilities and intimacy, JSO of children experience maladaptive affect regulation strategies, including isolation and interpersonal aggression (Burton, Cullen, Evans, Alarid, & Dunaway, 1998; Zaremba & Keiley, 2011). This possibility should be further investigated.

Another goal of this study was to assess the relevance of considering the familial relation between the victim and the JSO, in addition to the age of the victim. First, it proved useful to isolate incest cases because the magnitude of differences was generally stronger when JSO of extra-familial children were compared with JSO of extra-familial peers/adults. In opposition,

the victim age factor lost its discriminative value among sibling incest JSO. That is, no significant differences were found on any dependent variables besides victim gender when comparing sibling incest JSO of children and sibling incest JSO of peers (all effect sizes for these comparisons were statistically and clinically null). Second, as previously proposed by Tidefors and colleagues (2010), a consideration for sibling incest proved to be useful by itself. Multivariate analyses confirmed, in line with hypothesis 4, that sibling incest JSO were more likely to have suffered from sexual and physical child abuse than both JSO with extra-familial child victims and JSO with extra-familial peer victims, although the difference for sexual abuse with the latter subgroup was not significant after the Bonferroni corrections ($p = .02$), and the effect size was only approaching significance (.16). Therefore, our study suggests that the offender's own childhood victimization is more strongly related to the family relation factor than the age of the victim. Nearly half of sibling incest JSO were victims of physical and/or sexual childhood abuse.

Still, sibling incest JSO did not appear to be a more extreme subgroup, overall, than JSO of extra-familial children or peers. On one hand, sibling incest JSO were significantly less likely to have much younger friends, and to be socially isolated or rejected by peers, and significantly more likely to have received a diagnosis of conduct disorder than JSO with extra-familial child victims. On the other hand, they were significantly less likely than JSO with extra-familial peer victims to have had a consensual sexual experience with a peer. These results are in line with a recent meta-analytic review conducted by McPhail, Hermann, and Nunes (2013), who reported that extra-familial sexual offenders against children show more emotional congruence with children than intra-familial sexual offenders. The fact that sibling incest JSO were also mildly affected in several domains (social abilities, sexual experience, atypical sexual interest, delinquency) suggests that treatment needs for sibling incest offenders are more varied and complex.

The last, subsidiary goal of this study was to compare the nature and severity of the index crimes between adolescents with sibling victims, extra-familial child victims, and extra-familial peer victims. In accordance with the few existing studies, sibling incest is associated with more severe sexual abuse than non-sibling incest among juvenile who committed a sexual offense (Latzman et al., 2011; O'Brien, 1991; Tidefors et al., 2010). Interestingly, however, differences in this study mostly concerned JSO with extra-familial peers. That is, JSO cases most likely to be associated with antisocial behaviors (against extra-familial peers) committed significantly less severe acts than sibling-incest JSO and, to a lesser extent, JSO with extra-familial children victims. Moreover, significantly more sibling victims than peer victims were undressed at the moment of the index crime. These patterns of sexual abuse might reflect the long term availability of siblings and, to a lesser extent, child friends, as well as the higher probability to be more often alone and naked with a sibling. In any case, these results underline the possible seriousness of sibling incest.

These results also stress the importance of considering subtypes of juvenile sexual offending in treatment plan elaboration. For instance, sibling incest offenders were more likely to have been physically victimized than other subtypes of offenders. In these cases, physical victimization might be a primary focus of intervention. Similarly, sibling incest offenders committed more severe acts, on average, than other types of adolescent sexual offenders, which also should be addressed in the treatments.

Finally, a word on JSO and sexual fantasies. Contrary to expectations, no significant differences were found between any subgroups in the present study for rates of deviant sexual fantasies. This result might seem surprising, especially in regard of the theoretical background concerning JSO of children and sibling incest JSO (both supposed to show higher signs of atypical sexual interests). Still, it should be noted that statistical corrections were severe in this study and that the effect size approached significance (.17 in both cases). More importantly, the definition of deviant sexual fantasies in this study was extended (based on clinical files), including themes commonly seen in the general population (e.g., coercion and male domination; Joyal, Cossette, & Lapierre, 2015). Therefore, future studies should define deviancy of sexual fantasies with more specific psychopathological criteria (e.g., obsessional, rigid, exclusive themes involving minor, non-human, or non-consenting partners). Distinguishing fantasies from wishes and behaviors could also be helpful.

Overall, these results concur with the existence of three main pathways to juvenile sex offending: the antisocial, the asocial, and the sexually deviant (Becker & Kaplan, 1988). Although some JSO might have planned predatory routines (Leclerc & Felson, 2014) and be considered seriously deviant, they certainly do not represent the majority of JSO. The present study suggests that most JSO seem rather impulsive, typically assaulting a known person (sibling, friend, acquaintance), more likely a male when the victim is a child, either because they lack opportunity to experience consensual sexuality with a peer or in a delinquency context (or both in some more complex cases). Given that assessment and treatment of JSO are typically offered without distinction between subgroups (Rich, 2011; Ryan, Leversee, & Lane, 2010), the present study suggests it may be important to consider both the victim age and the family relation between the victim and the offender to obtain a more precise idea of the needs of an individual.

Study Limitations

The first limitation of this study is its reliance on file-based data, which were not collected for research purposes. Therefore, some research questions remain open because of the lack of appropriate or precise information (e.g., deviant sexual interest). In addition, the data were registered between 1992 and 2002, which prevent collecting information related to more recent phenomena (e.g., online deviant pornography searches, material exchange, and child hooking). Second, assessment interviews recorded in our files were conducted in a legal context, implying that participants may have omitted or minimized some information out of fear of reprisals or in a quest for social desirability. Third, this sample of adolescents

was composed of sexual aggressors of children, of peers, and/or 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 usually the result of multiple consultations with other organizations or a consequence of legal sanctions. Therefore, it is possible that our participants had a sexual problem of higher intensity than that of the overall population of JSO.

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