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Offender types and criminality dimensions in male juveniles convicted of sexual offenses

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Abstract

Previous studies have described juveniles who sexually offended (JSO) as a rather heterogeneous population. In consequence, different typologies of JSO have been proposed for a better understanding of the causes and interventional needs of JSO. Three previously described types have received support in previous studies, namely, the victim age type (JSO offending against children vs. adolescents or adults), the co-offender status type (JSO offending as singles vs. in groups), and the crime history type (JSO with vs. without a previous history of crime). The validity of these types was tested in a consecutive sample of 223 criminal male adolescents, who had been convicted of a sexual offense between 2000 and 2008 in the Canton of Zurich (Switzerland). By analyzing nine offender characteristics, four victim characteristics and six offense characteristics, the best evidence was found for the victim age based type. The co-offender status and the crime history types were less well supported. However, all three types were related to each other and did not provide a comprehensive characterization of JSO. Therefore, an additional principal component analyses was performed searching for basic dimensions of juvenile sexual delinquency and leading to the following factors: “single offender with severe molestation of a related child”, “persistent general delinquent with migrant background”, “older offender with alcohol use and familial constraints”, “multiple and aggressive offender with social adversities” and “offender with unselected and multiple victims”. These five dimensions reflect different relevant factors of sexual offending behavior in male juveniles and may have further impact on forensic and clinical practice.

Key words: Juvenile sex offender, juvenile sexual offending, types, criminality dimensions

Introduction

Considering the growing concern for juveniles who have sexually offended (JSO), a better understanding of these youths is warranted. Previous research has addressed common misperceptions of JSO regarding (1) their specific characteristics compared to other adolescent offenders, (2) their risk of sexual reoffending, and (3) their homogeneity (Chaffin, 2008). JSO were found to be largely comparable to other juvenile offenders in terms of personality and psychosocial circumstances (Butler & Seto, 2002; Freeman, Dexter-Mazza, & Hoffman, 2005; Ronis & Borduin, 2007; van Wijk, Loeber et al., 2005). Furthermore, JSO were found to have rather low recidivism rates for sexual reoffending but to show higher recidivism rates for non-sexual reoffending (see meta-analyses by Caldwell, 2010; Gerhold, Brown, & Beckett, 2007). Finally, JSO were described as rather heterogeneous according to offender characteristics, victim choice, and sexual abusive behaviors (e.g. Hunter, Figueredo, Malamuth, & Becker, 2003; Ryan, Miyoshi, Metzner, Krugman, & Fryer, 1996). Given this heterogeneity, various types of JSO explaining differences in general criminal behaviors and recidivism have been proposed. The present study aimed at testing the validity of some previously suggested types of JSO by analyzing offender, victim, and offense characteristics. In the following, first, the specificity of JSO compared to other juvenile offenders will be reviewed, and, secondly, previous studies on JSO types will be addressed.

Various studies have addressed specific characteristics of JSO compared to criminal versatile offenders. As much as 62 to 94 percent of JSO have also committed non-sexual crimes (Butler & Seto, 2002; Ronis & Borduin, 2007; Ryan et al., 1996) and JSO were more likely to exhibit non-sexual recidivism compared to sexual recidivism (Caldwell, 2007, 2010; Gerhold et al., 2007). Furthermore, some studies found that JSO did not differ from violent or general juvenile offenders according to their early childhood problems, current behavioral adjustment, personality traits, antisocial attitudes and family background characteristics (Butler & Seto, 2002; Freeman et al., 2005; Ronis & Borduin, 2007; van Wijk, Loeber et al., 2005). Because of these findings, some authors concluded that JSO do not need specialized sexual treatment and may profit from intensive family and social interventions as general antisocial youth do (Letourneau et al., 2009; Ronis & Borduin, 2007). However, other studies found differences between JSO and general

juvenile delinquents, especially regarding reduced social functioning and earlier beginning of their criminal careers (Bullens, Van Wijk, & Mali, 2006). The inability to show further differences between JSO and juvenile non-sexual offenders may be partly due to ignoring the inherent variability in JSO. In consequence, it has been recommended for further research to define JSO more precisely according to their sexual behavior (van Wijk et al., 2006).

Furthermore, JSO typologies may be useful in understanding the underlying psychopathological mechanisms in JSO and might help to refine sexual and non-sexual risk assessment and intervention planning (Aebi, Plattner, Steinhausen, & Bessler, in press; Barbaree, 2006; Robertiello & Terry, 2007). Based on theoretical assumption some authors have attempted to categorize JSO in specific typologies (e.g. O'Brian & Bera, 1986). However, the empirical verification of these typologies and their corresponding types as discrete constructs is lacking (Robertiello & Terry, 2007). One of the main reasons for the lack of validity is that the suggested subgroups rarely differ on factors related to treatment needs or recidivism (e.g. Kemper & Kistner, 2007; Parks & Bard, 2006). Moreover, types have to be regarded with caution, because some JSO will not fit into a given classification scheme. Furthermore, in contrast to theoretical assumptions, most types are not found to be mutually exclusive. Apart from other classification systems, three types based on victim age, co-offender status and crime history show some face validity and have been frequently addressed and at least partly supported in previous studies (e.g. Bijleveld & Hendriks, 2003; Butler & Seto, 2002; Hart-Kerkhoffs, Doreleijers, Jansen, van Wijk, & Bullens, 2009; Hunter et al., 2003; Kjellgren, Wassberg, Carlberg, Langstrom, & Svedin, 2006; Parks & Bard, 2006).

The victim's age is one of the most prominent criteria for the classification of sexual offenders. The idea that offenders against children constitute a distinct type has received considerable support from research on adult sexual offenders, showing that child molesters and rapists differ across many domains (e.g. Groth, Longo, & McFadin, 1982; Knight & Prentky, 1990). In consequence, a number of studies have compared JSO with child victims (JSO-C) to JSO with adolescent or adult victims (JSO-A) regarding offense, demographic and personality characteristics, psychopathology and recidivism (Gunby & Woodhams, 2010; Hart-Kerkhoffs et al., 2009; Hendriks & Bijleveld, 2004;

Hunter et al., 2003; Hunter, Hazelwood, & Slesinger, 2000; Kemper & Kistner, 2007; Parks & Bard, 2006; Ronis & Borduin, 2007). The findings are mostly consistent. Compared to JSO-A, JSO-C were found to be younger at the age of offense, more often of native origin, more often related and familiar to the victim, more frequently male, and less frequently using force and weapon. (Hart-Kerkhoffs et al., 2009; Hendriks & Bijleveld, 2004; Hunter et al., 2003; Hunter et al., 2000). A recent meta-analysis shows that JSO-C display less conduct problems than JSO-A (Seto & Lalumière, 2006). Furthermore, JSO-C are more deficient in social functioning (Gunby & Woodhams, 2010; Hendriks & Bijleveld, 2004; Hunter et al., 2003) and show more psychosexual development problems (Hart-Kerkhoffs et al., 2009). From a psychopathological point of view JSO-C suffer considerably more frequently from depression and anxiety symptoms than JSO-A (Gunby & Woodhams, 2010; Hart-Kerkhoffs et al., 2009; Hendriks & Bijleveld, 2004; Hunter et al., 2003). The findings regarding sexual and non-sexual re-offending of JSO-C compared to JSO-A are conflicting and still remain unclear (Hart-Kerkhoffs et al., 2009; Kahn & Chambers, 1991; Nisbet, Wilson, & Smallbone, 2004; Parks & Bard, 2006; Skubic Kemper & Kistner, 2007).

In addition to the victim based type, single (JSO-solo) and group (JSO-group) offenders have been distinguished in JSO (Bijleveld & Hendriks, 2003; Kjellgren et al., 2006). Single offenders committed more sexual offenses, and were older, more impulsive, neurotic, unsociable and more frequently abused siblings than JSO-group, who more frequently committed offenses against acquaintances (Bijleveld & Hendriks, 2003; Kjellgren et al., 2006). However, no differences regarding age, urbanization, ethnicity and presence of male victims and hands-on vs. hands-off offenses were observed (Kjellgren et al., 2006). Finally, group offenders were found to be more violent than single offenders if child molesters were excluded from the analysis (Hart-Kerkhoffs et al., 2009). Overall, the findings on the co-offender status type remain scarce and more research is warranted.

The findings on non-sexual crime and conduct problems in JSO led to the assumption that antisocial characteristics may account for two distinct subtypes of JSO. Based on a developmental model for sexual offending (Seto & Barbaree, 1997), Butler and Seto (2002) distinguished between

JSO without (JSO-H-) and those with (JSO-H+) a history of non-sexual crime. JSO-H- had fewer behavioral problems, more pro-social attitudes and a lower expected risk for future delinquency. On the other hand, JSO-H+ resembled to a greater extent criminal versatile offenders. With the exception of victim relation, no differences in offense characteristics were found. However, some methodological limitations should be noted: namely, small sample size and a partly tautological research strategy by using similar variables for defining the types [prior nonsexual offenses] and for their validation [antisocial behaviors]. Despite of these limitations, the findings partly support the assumption that JSO-H+ vs. JSO-H- reflects a valid type of JSO. In agreement with these findings, a recent meta-analysis found that antisocial lifestyle characteristics play a major role in sexual reoffending in adults and adolescents (Hanson & Morton-Bourgon, 2005). However, it remains unclear how antisocial attitudes are associated with other developmental factors like egoistical masculinity and social skills deficits in JSO (Daversa & Knight, 2007; Hunter et al., 2003).

In conclusion, previous studies on JSO subgroups address important aspects of juvenile sexual offending and provide some support of specific JSO types. However, none of the previous studies has assessed the validity of different types in order to gain a comprehensive classification system. Thus, the present study was designed to test the validity of three dichotomous types of JSO, namely, a first type based on a child victim, a second type characterized by co-offender status, and a third type defined by previous history of non-sexual crime in a consecutive sample of JSO using offense and offender specific data from criminal files. It was assumed that a valid type shows a specific profile of offender, victim, and offense characteristics that reflect underlying psychological processes in JSO and are relevant to etiology, maintenance, treatment and recidivism. In the present study, the validity of the three types was analyzed by use of a set of previously described relevant variables (e.g. Bijleveld & Hendriks, 2003; Butler & Seto, 2002; Hart-Kerkhoffs et al., 2009; Hunter et al., 2003; Kjellgren et al., 2006) that were available from criminal files. Variables related to general criminal outcomes (e.g. social adversities, general recidivism) as well as to specific sexual offending behaviors (e.g. victim choice, sexual offense severity) were considered for the analyses. In addition, previously supported risk factors for sexual reoffending such as offending against a strange victim, offending against multiple victims, offending against a male victim,

interpersonal aggression and antisocial attitudes (Långström & Grann, 2000), and treatment-related variables (e.g. own sexual victimization) were included. However, information on other important psychological measures such as deviant interests, social isolation, and victim empathy was not available in the files. In addition to these analyses, the relation and independence of the three types was analyzed for developing a more comprehensive empirical classification model.

Given the large number of potential influences and interactions of sexual offending characteristics JSO may be better described by use of dimensional measures rather than assigning them to specific types. Most JSO are not adequately described by membership to a specific type and show characteristics of multiple types simultaneously. Comparable to the development of dimensional personality concepts (e.g. 16 PF; Cattell, 1957) underlying factors of sexual offending behavior in juveniles should be identified. Thus, alternatively to the type-oriented approach, an exploratory principal component analysis (PCA) was performed to identify relevant patterns of sexual offending characteristics. Compared to previous studies, the present analyses were not based on preselected clinical samples. As noted by some researchers, findings on representative criminal samples are scarce and may add significant knowledge on juvenile sexual offending (Finkelhor, Ormrod, & Chaffin, 2009; Kjellgren, Priebe, Svedin, & Langstrom, 2010; Kjellgren et al., 2006).

Methods

Participants

The original sample included all children and adolescents aged between 10 and 18 years who had been convicted of a sexual assault against children (victims under 12 years and at least 3 years younger than the offender), coercive sexual behavior, rape, exhibitionism, sexual harassment, porn distribution or illegal pornography possession (e.g. child or violent pornography) in the Canton of Zurich (Switzerland) between 2000 and 2008. Thus, the initial sample included the complete population of JSO in the area and time period. A total number of 419 JSO had been reported. However, 40 (9.5%) of the youngsters were not found to be guilty by a superior court. In the present study, juveniles exclusively convicted of porn distribution or the possession of illegal pornography were excluded from further analyses ($n = 119$; 28.4%). Although differences between

male and female JSO seem likely (Fehrenbach & Monastersky, 1988), female JSO had to be excluded because the number of females ($n = 9$, 2.1%) was too small for statistical analyses. From the remaining 251 subjects, 28 (11.2%) files were not available, mostly due to official elimination of archive files ($n = 22$, 8.8%). Attrition analyses showed that the 28 cases with missing file information did not differ from the 223 youngsters in the final sample in terms of recidivism rate (sexual recidivism [10.7 % vs. 3.1%, $\chi^2 = 3.73$, $df = 1$, $p > .05$], non-sexual violent recidivism [10.7% vs. 16.6%, $\chi^2 = .64$, $df = 1$, $p > .05$], and general recidivism [64.3 % vs. 44.8%, $\chi^2 = 3.78$, $df = 1$, $p > .05$]). However, the 28 cases with missing file information were significantly younger than the final sample of 223 participants (14.50 vs. 15.64 years, $t = -2.37$, $df = 32.68$, $p < .05$). The study was designed in cooperation with the justice department of the Canton of Zurich and approved by the local medical ethic committee.

Procedures

A retrospective analysis of police reports, prosecutors' documents, court protocols, mental health assessment reports and social workers' reports was performed to identify 21 descriptive and behavioral variables that were found all relevant in previous studies of JSO (Bijleveld & Hendriks, 2003; Butler & Seto, 2002; Fehrenbach, Smith, Monastersky, & Deisher, 1986; Finkelhor et al., 2009; Gunby & Woodhams, 2010; Hart-Kerkhoffs et al., 2009; Hendriks & Bijleveld, 2004; Hunter et al., 2003; Hunter et al., 2000; Kjellgren et al., 2006). Three variables represent the three dichotomous JSO types described earlier in this article, i.e. JSO-C vs. JSO-A, JSO-solo vs. JSO-group, and JSO-H+ vs. JSO-H-. In addition, nine offender variables (age, nationality, socio-economic status (SES), broken home, outplacement, previous sexual victimization, general recidivism, non-sexual violent recidivism, sexual recidivism), four victim characteristics (male, multiple, related and unknown victim), and six offense characteristics (sexual severity, number of sexual offenses, alcohol/drug influence, verbal and physical aggression, weapon use) were coded from the files using a modified and adolescent adapted version of the Forensic Psychiatric Documentation System (Nedopil & Grass, 1988). Data extraction was accomplished by one experienced forensic expert and two Master students in Psychology (see below for reliability of ratings).

Types of JSO

The first type was based on victim age. Juveniles were classified as JSO-C if they offended against at least one victim that was both under the age of 12 and at least three years younger than the offender himself. This definition of JSO-C is in line with previous studies limiting the age of the victim to 12 years (Hart-Kerkhoffs et al., 2009; Hendriks & Bijleveld, 2004; Hunter et al., 2003) as well as with the Swiss penal code that allows exemption from punishment only if the age difference does not exceed three years. The alternative code (JSO-A) was used when the victims were peers or adults.

The second type was based on co-offender status. In agreement with previous studies, juveniles who assaulted at least once as single offenders were classified as JSO-solo (Bijleveld & Hendriks, 2003; Kjellgren et al., 2006). All juveniles who solely offended in groups were labeled JSO-group. The third type was based on the crime history of the offender. Juveniles found guilty of a non-sexual crime before or during the trial in which they were convicted of the sexual offense were classified as JSO-H+ type (Butler & Seto, 2002), whereas those with a negative crime history were labelled JSO-H- type.

Offender characteristics

In total, nine variables were coded among offender characteristics. (1) "Age" refers to the offender's age at the time he committed his first sexual offense against a victim. (2) "Foreign nationality" was assigned to all offenders who were not Swiss citizens. (3) In agreement with the Swiss Health Survey (Swiss Federal Institute for Statistics, 1992) the "Social Economic Status" (SES) was defined according to parents' educational and professional background ("high" if at least one parent had finished upper secondary education, was self-employed or a manager with extended responsibility, "middle" if at least one parent had completed a vocational training or was employed with at least some managerial responsibility, "low" in all other cases). (4) If the JSO was not living with both parents at the time of the offense, a "broken home" situation was coded. (5) "Outplacement" was coded if the offender was living in a youth institution or in foster care. (6) The criterion of "sexual victimization" was fulfilled if there was a social or mental health assessment report in the files stating that the JSO was sexually abused by an older person or coerced to sexual

activities. (7) Recidivism states were obtained from the cantonal crime registry only after all the other variables were coded. “General recidivism” was evident if the person was charged because of at least one non-violent or one non-sexual crime after he had been convicted of the sexual offense – for example because of theft or violations of drug laws. In the same way, (8) “non-sexual violent recidivism” and (9) “sexual recidivism” were coded dichotomously. Thus, in a single person all three recidivism characteristics might be observed. The mean time for recidivism registration was 4.30 years (SD 2.49) with a range of 9 months to 9.74 years. There were two relevant limitations of recidivism information: It was limited to the area of the Canton of Zurich and based on charges, not convictions.

Victim characteristics

Four variables were considered among victim characteristics. (1) “male victim” was assigned if at least one victim was male, (2) “multiple victims” if the JSO sexually offended against at least two different persons, and (3) “related victim” if all victims were relatives of the offender (including half brothers and half sisters and more distant relatives such as cousins). (4) The criterion for “unknown victim” was fulfilled, if at least one victim was not known to the offender even by sight.

Offense characteristics

Finally, six variables were used to define offense characteristics. (1) “Sexual Offense Severity” (SOS) was assessed by a modified version of the scale developed by Aylwin and colleagues (2000). The six levels are: (a) non-contact (voyeurism obscene phone calls), (b) clothed fondling, (c) off-clothed fondling, digital penetration and masturbation, (d) oral sex, (e) attempted or performed vaginal intercourse, (f) attempted or performed anal intercourse. If more than one offense occurred, the SOS value is based on the most severe offense. (2) The following rule was applied for the definition of the “number of sexual assaults against the victim(s)”: Offenses were separate events if the offender left the victim for at least one hour and then reoffended the victim. (3) “Alcohol and/or drugs” was coded if the offender consumed alcohol or drugs before or during at least one offense. (4) “Verbal aggression” implied that the offender used verbal and/or gestural expressions that seem appropriate to intimidate the victim. (5) In contrast, “physical aggression” refers to the actual use of physical force during at least one offense. (6) “Weapon use” was coded

if knives, fire arms or other potentially dangerous objects (e.g. baseball bats) were present or used during at least one offense.

Interrater reliability

As an indicator of reliability, inter-rater agreement was assessed by calculating the intraclass correlation coefficients for “age”, “number of sexual offenses” and “ number of previous non-sexual crimes”, Kendall’s W for SES and SOS, and Fleiss’ Kappa (κ) for all other variables. Inter-rater reliability was not assessed for recidivism status and the JSO-H+ type because these variables were taken directly from the computer data base of the cantonal crime registry. Perfect agreement was found for the JSO-C and the JSO-solo type ($\kappa = 1.0$). The statistics for the characteristics variables were also quite convincing (ranging from .70 to 1). Only the Kappa coefficients of the variables measuring “verbal aggression” and “physical aggression” were rather low (.48 and .56, respectively), though still sufficient for group comparisons (Landis & Koch, 1977).

Data Analyses

First, group comparisons of the three JSO types based on the nine offender, four victim, and six offense characteristics were performed using t-tests for interval-scaled, Mann Whitney tests for ordinal-scaled, and χ^2 statistics for dichotomous variables. Secondly, variables for that significant differences were found in univariate analyses were used as predictors in stepwise backward multivariate LR analyses (WALD removal criterion = .10) in order to identify a combination of significant predictors of either the victim age based type, the co-offender status type, or the crime history type. Furthermore, Pseudo R^2 and Hosmer Lemeshow statistics were used to compare the goodness of fit of the three models. Multicollinearity diagnostics were applied by analysing variance inflation factors (VIF; Myers, 1990). Finally, dimensions of criminal characteristics were explored by use of principal component analysis (PCA) with subsequent varimax rotation based on the previously defined 19 offender, victim, and offense characteristics. In addition, “child victim” (variable defined for victim age type), “single offending” (variable defined for co-offender status type), and the number of previous non sexual crimes were included. For determining the number of factors, a parallel analysis (a Monte Carlo simulation technique with 200 samples, criteria 95th percentile) was performed using Vista-PARAN (Ledesma & Valera-Mora, 2007). Parallel analyses

were found robust, appropriate and superior compared to other methods (e.g. Kaiser criteria, Cattell's Scree test) to determine the number of factors (Ledesma & Valera-Mora, 2007; Thompson & Daniel, 1996).

Results

Descriptive analyses

Descriptive findings for the three types of JSO and offender, victim, and offense characteristics are shown in Table I. On average, a JSO was 13.93 years ($SD = 1.93$) old at the time of the first reported incidence of sexual offense, whereas mean age at the time of conviction was 15.65 years ($SD = 2.14$ years; on average, 1.72 years [$SD = 1.51$ years] elapsed between first sexual offense and conviction). Although age of conviction was substantially related to the age of first offense ($r = .73$; $p < .001$), it may be influenced by administrative and procedural circumstances. Therefore, "age of conviction" was considered as less a valid measure than "age of first offense" and was not included it in the following analyses. A total of 102 (45.7%) of the JSO were of non-Swiss nationality. 93 (41.1%) of the JSO did not live with both parents ("broken home") and for 14 (6.3%) there was evidence of a previous sexual victimization. A subgroup of 7 (3.1%) JSO reoffended sexually, 37 (16.6%) reoffended non-sexually violently, and 90 (40.4%) reoffended with other crimes. Further descriptive information on victim and offending characteristics of the sample is included in Table I.

Insert Table I about here

The victim age based type consisted of 89 (39.9%) JSO-C and 134 (60.1%) JSO-A, the co-offender status type comprised 116 (52.0%) JSO-solo and 107 (48.0%) JSO-group, and the crime history type consisted of 106 (47.5%) JSO-H+ and 117 JSO-H-. Among the 89 JSO-C, a total of 9 (10.1%) additionally had sexually offended a peer or adult victim, and among the 116 JSO-solo, another 9 (7.8%) subjects additionally had committed a sexual offense in a group. Additional univariate and multivariate analyses excluding these "mixed" offenders did not substantially

influence the following findings (data is available on request). The JSO-H+ committed 1 to 52 previous non-sexual crimes (mean 4.6, $SD = 7.8$).

The frequencies and combinations of the three types is shown in Figure 1. It is apparent that there is some association between these types. A history of non-sexual crime was more prevalent among juveniles who offended against peer or adult victims ($n = 81$; percentage of JSO-H+ type among JSO-A type = 60.5%) than among juveniles who offended against children ($n = 25$; percentage of JSO-H+ type among JSO-C type = 28.1%). Furthermore, the majority of child offenders were lone perpetrators ($n = 62$; percentage of JSO-solo type among JSO-C type = 69.7%), whereas offending in groups seems associated with victimizing an adult or a peer ($n = 80$; percentage of JSO-solo type among JSO-A type = 40.3%). Significant positive Phi correlations were found for the victim age type and the co-offender type ($r = .28, p < .001$), a significant negative correlation was found for the victim age type and the crime history type ($r = -.32, p < .001$), whereas co-offender type and crime history type did not significantly correlate ($r = .02, p > .05$).

Insert Figure 1 about here

Univariate analyses of the JSO types

The two corresponding subtypes of each type were compared concerning offender, victim, and offense characteristics. The results are shown in Table I. The JSO-C type differs significantly from the JSO-A type in 7 of the 19 variables. JSO-C were younger at the time of the first sexual offense, more often of Swiss nationality, had a higher SES, victimized males and related persons more frequently, showed higher sexual offense severity, and used verbal aggression less frequently.

JSO-solo and JSO-group types differed in 3 of the 19 variables. Solo offenders committed more and more severe offenses, and more of them had related victims. The JSO-H+ type differed from the JSO-H- type on 5 of 19 variables. The former were older at time of the first sexual offense, showed general and non-sexual violent recidivism more frequently, consumed alcohol or other drugs in the context of the offense more frequently, and were verbally aggressive more frequently.

Multivariate analyses of the JSO types

For multivariate prediction of the three types, backward LR (WALD removal criterion = .10) was applied including all significant variables from corresponding univariate analyses. None of the predictors showed multicollinearity ($VIF > 10$; Myers, 1990). For the victim age type, “male victim”, “related victim”, SOS and “verbal aggression” were found to be significant predictors of JSO-C ($\chi^2 = 90.31$, $df = 4$, $p < .001$) (see Table II). A total of 81.6% of the cases were classified correctly as JSO-C or JSO-A type. The pseudo R^2 statistics (Nagelkerke $R^2 = .53$) and the Hosmer Lemeshow test ($\chi^2 = 5.29$, $df = 7$, $p = .62$) indicated an adequate fit of the data.

For the co-offender status type “related victim”, SOS and “number of sexual offenses” were found as significant predictors of JSO-solo ($\chi^2 = 38.39$, $df = 3$, $p < .001$) (see Table II). A total of 63.7% of the cases were classified correctly as JSO-solo or JSO-group, the Nagelkerke R^2 was .21 and the Hosmer Lemeshow test was close to be significant ($\chi^2 = 13.89$, $df = 7$, $p = .053$). In the crime history type analysis, “offender age”, “general recidivism”, “non-sexual violent recidivism”, “alcohol and/ or drug use” and “verbal aggression” were found as significant predictors of JSO-H+ (see Table II). A total of 73.6% of the cases were classified correctly as JSO-H+ and JSO-H-. The chi-square statics was significant ($\chi^2 = 62.57$, $df = 5$, $p < .001$), the Nagelkerke R^2 was .37 and the Hosmer Lemeshow test was not significant ($\chi^2 = 4.52$, $df = 8$, $p = .81$).

Insert Table II about here

Exploratory analyses of criminality dimensions in JSO

Parallel analyses based on PCA of “child victim” (variable defined for victim age type), “single offending” (variable defined for co-offender status type), “number of previous non-sexual crimes” and all 19 variables measuring offender, victim, and offense characteristics (based on $n = 154$ without missings) identified five factors with Eigenvalues higher than the 95th percentile of the distribution of Eigenvalues derived from random data (3.10 vs. 1.75, 2.16 vs. 1.61, 1.75 vs. 1.51, 1.53 vs. 1.43, 1.46 vs. 1.35). The Eigenvalues, the explained variance, and the factor loadings $> .40$ of the PCA based on the rotated five factor solution are shown in Table III. Overall, these five

factors explained 45.5% of the variance in the sample. “Child victim”, “single offending”, “sexual victimization”, “related victim”, and SOS were loading on factor one (12.7% of explained variance). This factor may be called “single offender with severe molestation of a related child”. “Number of previous non-sexual crimes”, “foreign nationality”, “general recidivism” and “non-sexual violent recidivism” loaded on Factor two (9.0% explained variance) which may be labeled “persistent general delinquent with immigrant background”. “Offender age”, “broken home”, “outplacement”, and “alcohol/drug use” loaded on factor three (9.10% of explained variance). This factor may be called “older offender with alcohol use and familial constraints. “Foreign nationality”, SES (negatively), “number of sexual offenses”, “verbal aggression” and “physical aggression” loaded on factor four (7.8% of explained variance). This factor may be named “multiple and aggressive offender with social adversities”. Finally, “multiple victims” and “unknown victims” loaded on factor five (6.9% of explained variance). “Sexual recidivism” also loaded on factor five with a factor loading of 0.39 (i.e. short of 0.40). This factor may be called “offender with unselected and multiple victims”.

Insert Table III about here

Discussion

The validation approach in three JSO types provided the best evidence for the victim age based type. Less support was found for the co-offender status and the crime history based types. More precisely, 7 out of 19 univariate tests differed significantly between the JSO-C and the JSO-A, whereas only 3 out of 19 tests between the JSO-solo and the JSO-group and 5 out of 19 comparisons between the JSO-H+ and the JSO-H- were significant. Furthermore, the explained variance measured by pseudo R^2 statistics from multivariate LR indicates stronger empirical support for the victim age based than for the co-offender status and the crime history based types ($R^2 = .53$ vs. $R^2 = .21$ and $R^2 = .37$, respectively). However, all these three types are related to each other (see Figure 1) and do not provide a comprehensive characterization of JSO.

Previous findings from clinical samples supporting differences between JSO-C and JSO-A were confirmed in the present study. In agreement with previous results, JSO-C were younger at the

time of the offense and were less frequently of foreign nationality than JSO-A (Hart-Kerkhoffs et al., 2009; Hendriks & Bijleveld, 2004). JSO-C more often abused related and male victims and showed less aggression (Hart-Kerkhoffs et al., 2009; Hendriks & Bijleveld, 2004; Hunter et al., 2003). Low SES, which has been suggested as a risk factor for sexual offending (S. Lightfoot & Evans, 2000), was limited to sexual aggressive behavior against peers/adults and was not specific to JSO-C (Gunby & Woodhams, 2010).

In addition to previous findings, our data show that sexual offense severity (SOS) was higher among JSO-C than among JSO-A. Compared to JSO-A, the sexual offenses of JSO-C included more often intrusive behaviors such as touching and masturbation of the victim. This finding may reflect the psychological dependency and the limited possibilities of resistance of child victims. In conclusion, there is some support for regarding the JSO-C type as a separate entity because child sexual abusive and sexual aggressive behaviors may have different origins (Gunby & Woodhams, 2010; Hart-Kerkhoffs et al., 2009; Hunter et al., 2003).

Regarding the co-offender status type, no difference between JSO-solo and JSO-group were found in terms of age and nationality. However, JSO-solo had more related victims and scored higher on the SOS scale than JSO-group. Accordingly, JSO-solo resembled JSO-C regarding victim choice and SOS. In contrast to studies of adult sexual offenders (Ullman, 1999), in the present sample sexual behavior in group offending was less intrusive than in solo offending. Our results indicate that juvenile group offending shows different underlying mechanisms than adult offending. On the one hand, the threshold to be sexually intrusive might be reduced in a group, on the other hand, the group situation might prevent single perpetrators from using extreme forms of violence, as the group might exert some social control. However, considering both univariate and multivariate analyses, the present findings indicate that co-offender status is less appropriate for the definition of two distinct types of JSO.

Finally, JSO-H+ were older at the time of the sexual offense, had higher rates of general and non-sexual violent recidivism, and showed more alcohol and drug use and verbal aggression at the

time of the offense than JSO without a history of previous non-sexual crimes. Thus the JSO-H+ group in the present study showed a versatile, antisocial profile which has been often described in former studies of JSO (Butler & Seto, 2002; Freeman et al., 2005; Ronis & Borduin, 2007; Seto & Barbaree, 1997; van Wijk, Loeber et al., 2005; van Wijk, van Horn, Bullens, Bijleveld, & Doreleijers, 2005; van Wijk et al., 2006). Sexual inadequate behavior of these JSO represents a part of a more comprehensive behavioral problem which also includes general rule breaking behaviors and social deficits. Taken together, these findings add to the validity of the JSO-H+ type. However, the amount of previous non-sexual crimes varies a lot in the JSO-H+ (mean 4.6, *SD* = 7.8). Hence, a dimensional measure of previous non-sexual crimes may be more favorable for explaining the amount of antisocial attitudes in JSO. In consequence, the number of previous non-sexual crimes was considered in the additional PCA.

The limited validity and lacking independence of the three types strongly suggest that a comprehensive typology of JSO based on victim age, co-offender status and crime history is not feasible. Furthermore, the present results suggest that a dimensional approach is more adequate for describing JSO than a comprehensive typology defined by separate and independent entities. Furthermore, both antisocial attitudes and joining hostile masculine offending peers may more strongly reflect general criminogenic factors than specific and independent subtypes of JSO. Hence, the additional exploratory analyses based on a variable-oriented dimensional instead of a person-oriented approach may shed further light on this issue. Five independent factors were identified representing different criminality dimensions in JSO. These dimensions were called “single offender with severe molestation of a related child”, “persistent general delinquent with migrant background”, “older offender with alcohol use and familial constraints”, “multiple and aggressive offender with social adversities” and “offender with unselected and multiple victims”. Consequently, a JSO can score on more than one of these dimensions simultaneously.

The first dimension labeled “single offender with severe molestation of a related child” explained most of the variance in the sample and may reflect a specific pattern of offender and victim characteristics in JSO. Accordingly, the availability of younger and related victims may constitute

an opportunity for JSO to commit sexual offenses. Because of familiarity with the victim, who might show limited resistance and may trust the offender (Ryan et al., 1996), the opportunistic single offender has no need to use verbal and physical aggression. The intimate relationship and the low resistance of the victim may allow sexual intrusive behaviors like oral, anal, or genital sexual behaviors. The “single offender with severe molestation of a related child” dimension may be relevant for a specific subtype of JSO as represented by the overlap of JSO-C and JSO-solo in the present sample. Further factors, like normal sexual development, increased sexual curiosity (Bancroft, 2006), and an easy access to potential victims (Leclerc, Beauregard, & Proulx, 2008) but also specific social, psychosexual and affective dysfunctions (Hart-Kerkhoffs et al., 2009; Hendriks & Bijleveld, 2004; Hunter et al., 2003; Hunter et al., 2000) play an important role in these juvenile child molesters. Furthermore, exposure to sexual abuse has been found to contribute to later juvenile (Worling, 1995) and adult (Salter et al., 2003) sexual offending which often has been committed against male child victims. The present data partly support this association because sexual victimization and offending against a male victim was found to be weakly but most closely related to the “single offender with severe molestation of a related child” dimension.

Foreign nationality was related to a chronic course of juvenile versatile delinquency on the second dimension. This dimension may refer to antisocial and delinquent attitudes in JSO. In agreement with a general strain theory of crime (Agnew, 1992, 2005), psychosocial adversities like migration and subsequent cultural adjustment can be seen as chronic stressors, which have an impact on the development of general and sexual delinquency (Bauer et al., 2011; Erickson, Crosnoe, & Dornbusch, 2000). Familial problems and alcohol use in older JSO may reflect another dimension of sexual abusive behavior. The use of drugs and alcohol increases the probability of sexual aggression and has a disinhibitory effect on sexual behavior (L. O. Lightfoot & Barbaree, 1993). Consequently, substance use and abuse should represent a target also in the treatment of JSO (Johnson & Knight, 2000).

Instrumental verbal and physical aggression may allow the JSO to commit multiple sexual offenses against a specific victim. In consequence, these characteristics load on the fourth dimension

representing the amount of sexual aggression used by the offender. This might be explained by operant conditioning, i.e. the offender's aggressive behavior is rewarded (reinforced) by social and/or sexual gains. Furthermore, low SES and foreign nationality were associated with aggression during the offense. Previous studies have found that growing up in disadvantaged and low income families is a risk factor of later aggressive behaviors (e.g. Cote, Vaillancourt, LeBlanc, Nagin, & Tremblay, 2006). In addition, culture-specific moderators of sexual aggression and masculinity have been found to be related to sexual aggression in previous studies (e.g. Nagayama Hall, Teten, DeGarmo, Sue, & Stephens, 2005).

Finally, the pattern of characteristics based on the fifth dimension of the PCA includes "multiple victims" and "unknown victims". Furthermore, "sexual recidivism" was most strongly related to this dimension. Sexual crimes against strangers and sexual offending against multiple victims indicate a low threshold of committing sexual offenses and, therefore, are serious risk factors in juvenile and adult sex offenders (Quinsey, Harris, Rice, & Cormier, 2006; Worling & Långström, 2006). Accordingly, JSO scoring high on this dimension may represent potentially dangerous and chronic sex offenders which are in need of comprehensive interventions.

Limitations

Due to the specific sample characteristics the results may be limited to male Caucasian JSO living in urbanized areas. Further limitations are noteworthy. First, all information has been extracted retrospectively based on the available file information that was limited to demographic and offending data. Only limited additional information on personal and familial circumstances was available from the social reports included in the files. In consequence, the test of validity of the various JSO types and criminality dimensions did not include psychosocial and psychopathological variables. Secondly, in many files information on previous victimization was missing or not addressed in the social reports. Therefore, it is possible that the figures of the present study represent an underestimation of the actual sexual victimization rate in the sample. Thirdly, the JSO types defined for the present analysis were not mutually exclusive. For example, it was possible for a JSO-C to have committed also a sexual offense against peers or adults and for a JSO-solo to also have offended sexually in groups. However, the exclusion of these "mixed" offenders did not

significantly influence the present findings.. Fourthly, the evaluation of recidivism was based on local official data and did not include national official data or self reports so that there may be some under-reporting. However, despite these limitations the present study is one of few studies not limited to preselected and clinical samples and, thus, may stimulate further research on JSO. Finally, the five dimensions of criminality as identified in the present study warrant cross-validation in further studies and samples.

Conclusions

The present findings suggest distinct dimensions of criminality implying different pathways that lead to sexual offending in youth. Previous results showing different background themes on JSO were partially confirmed (Almond, Canter, & Salfati, 2006). JSO abusing a familiar child victim and acting on their own represent a specific type of JSO that differs considerably from other types of JSO. The consideration of distinct underlying psychological mechanism in JSO-C and JSO-A may be important for intervention planning. Although peer group processes and general delinquency account for some diversity of the JSO sample, authorities and clinicians should avoid classifying JSO exclusively based on these characteristics and should include additional information when making decisions on treatment and interventions.

Although offender typologies may be useful, in particular the dichotomy of JSO-C and JSO-A, they constitute limited constructs for forensic clinicians. Alternatively, the identification of criminality dimensions in JSO in terms of relevant patterns of sexual offending characteristics may be more useful. In this process, different factors should be carefully addressed in JSO. If the juvenile offended against a younger and familiar child victim, previous sexual victimization, social and emotional problems, and skill deficits should be assessed. Independently from victim relationship and age of the victim, general delinquency and antisocial attitudes in association with cultural adaption should be addressed. Furthermore, in older JSO alcohol and drug use should be examined in relation to sexual offending behavior. Hostile masculinity in JSO should be focused in relation to psychosocial adversities and sexual aggressive behavior. Finally, offenses against multiple and unknown victims have to be considered as risk factors of further sexual re-offending. These findings may add to existent knowledge on the assessment and treatment of JSO (Burton,

Smith-Darden, & Frankel, 2006; Miner et al., 2006; Shaw, 2000). In summary, the findings of the present study emphasize the relevance of offender, victim, and offending characteristics for an adequate assessment and treatment of JSO by forensic mental health experts.

References

- Aebi, M., Plattner, B., Steinhausen, H. C., & Bessler, C. (in press). Predicting sexual and non-sexual recidivism in a consecutive sample of juveniles convicted of sexual offences. *Sexual Abuse: A Journal of Research and Treatment*
- Agnew, R. (1992). Foundation for a general strain theory of crime and delinquency. *Criminology*, 30(1), 47-87
- Agnew, R. (2005). *Pressured Into Crime: An Overview of General Strain Theory*. Oxford: Oxford University Press.
- Almond, L., Canter, D., & Salfati, C. G. (2006). Youth who sexually harm: a multivariate model of characteristics. *Journal of Sexual Aggression*, 12(2), 97-114
- Aylwin, A. S., Clelland, S. R., Kirkby, L., Reddon, J. R., Studer, L. H., & Johnston, J. (2000). Sexual offense severity and victim gender preference: A comparison of adolescent and adult sex offenders. *International Journal of Law and Psychiatry*, 23(2), 113-124
- Bancroft, J. (2006). Normal sexual development. In H. E. Barbaree & W. L. Marshall (Eds.), *The Juvenile Sex Offender*. New York: Guilford Press.
- Barbaree, H. E. (2006). *The juvenile sex offender, second edition*. New York etc.: Guilford Press.
- Bauer, S. M., Steiner, H., Feucht, M., Stompe, T., Karnik, N., Kasper, S., et al. (2011). Psychosocial background in incarcerated adolescents from Austria, Turkey and former Yugoslavia. *Psychiatry Research*, 185(1-2), 193-199 DOI: 10.1016/j.psychres.2010.04.052
- Bijleveld, C., & Hendriks, J. (2003). Juvenile sex offenders: differences between group and solo offenders. *Psychology, Crime & Law*, 9(3), 237-245
- Bullens, R., Van Wijk, A., & Mali, B. (2006). Similarities and differences between the criminal careers of Dutch juvenile sex offenders and non-sex offenders. *Journal of Sexual Aggression*, 12(2), 155-164

- Burton, D., Smith-Darden, J., & Frankel, S. (2006). Research on adolescent sexual abuser treatment programs. In H. E. Barbaree & W. L. Marshall (Eds.), *The Juvenile Sex Offender* (2nd ed., pp. 291-312). New York: Guilford.
- Butler, S. M., & Seto, M. C. (2002). Distinguishing two types of adolescent sex offenders. *Journal of the American Academy of Child and Adolescent Psychiatry*, 41(1), 83-90
- Caldwell, M. F. (2007). Sexual offense adjudication and sexual recidivism among juvenile offenders. *Sexual Abuse: A Journal of Research and Treatment*, 19, 107-113
- Caldwell, M. F. (2010). Study characteristics and recidivism base rates in juvenile sex offender recidivism. *International Journal of Offender Therapy and Comparative Criminology*, 54(2), 197-212
- Cattell, R. B. (1957). *Personality and Motivation Structure and Measurement*. New York: World Book.
- Chaffin, M. (2008). Our minds are made up - don't confuse us with the facts: commentary on policies concerning children with sexual behavior problems and juvenile sex offenders. *Child Maltreatment*, 13(2), 110-121
- Cote, S. M., Vaillancourt, T., LeBlanc, J. C., Nagin, D. S., & Tremblay, R. E. (2006). The development of physical aggression from toddlerhood to pre-adolescence: a nation wide longitudinal study of Canadian children. *Journal of Abnormal Child Psychology*, 34(1), 71-85
- Daversa, M. T., & Knight, R. A. (2007). A structural examination of the predictors of sexual coercion against children in adolescent sexual offenders. *Criminal Justice and Behavior*, 34(10), 1313-1333
- Erickson, K. G., Crosnoe, R., & Dornbusch, S. M. (2000). A social process model of adolescent deviance: combining social control and differential association perspectives. *Journal of Youth and Adolescence*, 29(4), 395-425
- Fehrenbach, P. A., & Monastersky, C. (1988). Characteristics of female adolescent sexual offenders. *American Journal of Orthopsychiatry*, 58(1), 148-151

- Fehrenbach, P. A., Smith, W., Monastersky, C., & Deisher, R. W. (1986). Adolescent sexual offenders: Offender and offense characteristics. *American Journal of Orthopsychiatry*, 56(2), 225-233
- Finkelhor, D., Ormrod, R., & Chaffin, M. (2009). Juveniles who commit sex offenses against minors. *Journal*. Retrieved from www.ojp.usdoj.gov/ojjdp
- Freeman, K. A., Dexter-Mazza, E. T., & Hoffman, K. C. (2005). Comparing personality characteristics of juvenile sex offenders and non-sex offending delinquent peers: a preliminary investigation. *Sexual Abuse: A Journal of Research and Treatment*, 17(1), 3-12
- Gerhold, C. K., Brown, D. B., & Beckett, R. (2007). Predicting recidivism in adolescent sexual offenders. *Aggression and Violent Behavior*, 12, 427-438
- Groth, A., Longo, R., & McFadin, B. (1982). Undetected recidivism among rapists and child molesters. *Crime and Delinquency*, 28(3), 482-485
- Gunby, C., & Woodhams, J. (2010). Sexually deviant juveniles: comparisons between the offender and offence characteristics of 'child abusers' and 'peer abusers'. *Psychology, Crime & Law*, 16(1&2), 47-64
- Hanson, R. K., & Morton-Bourgon, K. E. (2005). The characteristics of persistent sexual offenders: a meta-analysis of recidivism studies. *Journal of Consulting and Clinical Psychology*, 73(6), 1154-1163
- Hart-Kerkhoffs, L. A., Doreleijers, T. A., Jansen, L. M., van Wijk, A. P., & Bullens, R. A. (2009). Offense related characteristics and psychosexual development of juvenile sex offenders. *Child and Adolescent Psychiatry and Mental Health*, 3(1), 19
- Hendriks, J., & Bijleveld, C. C. (2004). Juvenile sexual delinquents: contrasting child abusers with peer abusers. *Criminal Behaviour and Mental Health*, 14(4), 238-250
- Hunter, J. A., Figueredo, A. J., Malamuth, N. M., & Becker, J. V. (2003). Juvenile sex offenders: Toward the development of a typology. *Sexual Abuse: A Journal of Research and Treatment*, 15(1), 27-48
- Hunter, J. A., Hazelwood, R. R., & Slesinger, D. (2000). Juvenile-perpetrated sex crimes: patterns of offending and predictors of violence. *Journal of family violence*, 15(1), 81-93

- Johnson, G. M., & Knight, R. A. (2000). Developmental antecedents of sexual coercion in juvenile sexual offenders. *Sexual Abuse: A Journal of Research and Treatment*, 12(3), 165-178
- Kahn, T., & Chambers, H. (1991). Assessing reoffense risk with juvenile sexual offenders. *Child Welfare*, 70, 333-345
- Kemper, T. S., & Kistner, J. A. (2007). Offense history and recidivism in three victim-age-based groups of juvenile sex offenders. *Sexual Abuse: A Journal of Research and Treatment*, 19(4), 409-424
- Kjellgren, C., Priebe, G., Svedin, C. G., & Langstrom, N. (2010). Sexually Coercive Behavior in Male Youth: Population Survey of General and Specific Risk Factors. *Archive of Sexual Behavior*, 39(5), 1161-1169
- Kjellgren, C., Wassberg, A., Carlberg, M., Langstrom, N., & Svedin, C. G. (2006). Adolescent sexual offenders: A total survey of referrals to Social Services in Sweden and subgroup characteristics. *Sexual Abuse: A Journal of Research and Treatment*, 18(4), 357-372
- Knight, R. A., & Prentky, R. A. (1990). Classifying sexual offenders: The development and corroboration of taxonomic models. In W. L. Marshall, D. R. Laws & H. E. Barbaree (Eds.), *Handbook of sexual assault: Issues, theories and, treatment of the offender*. New York: Plenum.
- Landis, J. R., & Koch, G. G. (1977). The measurement of observer agreement for categorical data. *Biometrics*, 33(1), 159-174
- Långström, N., & Grann, M. (2000). Risk for criminal recidivism among young sex offenders. *Journal of Interpersonal Violence*, 15(8), 855-871
- Leclerc, B., Beauregard, E., & Proulx, J. (2008). Modus Operandi and Situational Aspects in Adolescent Sexual Offenses Against Children: A Further Examination. *International Journal of Offender Therapy and Comparative Criminology*, 52(1), 46-61
- Ledesma, R. D., & Valera-Mora, P. (2007). Determining the number of factors to retain in EFA: an easy-to-use computer program for carrying out parallel analysis. *Journal*, 12(2). Retrieved from <http://pareonline.net/pdf/v12n2.pdf>

- Letourneau, E. J., Henggeler, S. W., Borduin, C. M., Schewe, P. A., McCart, M. R., Chapman, J. E., et al. (2009). Multisystemic therapy for juvenile sexual offenders: 1-year results from a randomized effectiveness trial. *Journal of Family Psychology*, 23(1), 89-102
- Lightfoot, L. O., & Barbaree, H. E. (1993). The relationship between substance use and abuse and sexual offending in adolescents. In H. E. Barbaree, W. L. Marshall & S. M. Hudson (Eds.), *The Juvenile Sex Offender* (1st ed.). New York: Guilford Press.
- Lightfoot, S., & Evans, I. M. (2000). Risk factors for a New Zealand sample of sexually abusive children and adolescents. *Child Abuse and Neglect*, 24(9), 1185-1198
- Miner, M. H., Borduin, C. M., Prescott, D., Bovensmann, H., Schepker, R., Du Bois, R., et al. (2006). Standards of Care for Juvenile Sexual Offenders of the International Association for the Treatment of Sexual Offenders. *Sexual Offender Treatment*, 1(3), 1-7
- Myers, R. (1990). *Classical and modern regression with applications* (Second ed.). Boston MA: Duxbury.
- Nagayama Hall, G. C., Teten, A. L., DeGarmo, D. S., Sue, S., & Stephens, K. A. (2005). Ethnicity, culture, and sexual aggression: risk and protective factors. *Journal of Consulting and Clinical Psychology*, 73(5), 830-840
- Nedopil, N., & Grass, P. (1988). The Forensic Psychiatric Documentation System (Das Forensisch-Psychiatrische Dokumentationssystem FPDS). *Forensia*, 9, 139-147
- Nisbet, I. A., Wilson, P. H., & Smallbone, S. W. (2004). A prospective longitudinal study of sexual recidivism among adolescent sex offenders. *Sexual Abuse: A Journal of Research and Treatment*, 16(3), 223-234
- O'Brian, M., & Bera, W. H. (1986). Adolescent sexual offenders: A descriptive typology. *A Newsletter of the National Family Life Education Network*(1), 2-4
- Parks, G. A., & Bard, D. E. (2006). Risk factors for adolescent sex offender recidivism: evaluation of predictive factors and comparison of three groups based upon victim type. *Sexual Abuse: A Journal of Research and Treatment*, 18(4), 319-342
- Quinsey, V. L., Harris, G. T., Rice, M. E., & Cormier, C. A. (2006). *Violent offenders appraising and managing risk* (2nd ed.). Washington, D.C.: American Psychological Association.

- Robertiello, G., & Terry, K. J. (2007). Can we profile sex offenders? A review of sex offender typologies. *Aggression and Violent Behavior, 12*, 508-518
- Ronis, S. T., & Borduin, C. M. (2007). Individual, family, peer, and academic characteristics of male juvenile sexual offenders. *Journal of Abnormal Child Psychology, 35*(2), 153-163
- Ryan, G., Miyoshi, T. J., Metzner, J. L., Krugman, R. D., & Fryer, G. E. (1996). Trends in a national sample of sexually abusive youths. *Journal of the American Academy of Child and Adolescent Psychiatry, 35*(1), 17-25
- Salter, D., McMillan, D., Richards, M., Talbot, T., Hodges, J., Bentovim, A., et al. (2003). Development of sexually abusive behaviour in sexually victimised males: a longitudinal study. *Lancet, 361*(9356), 471-476
- Seto, M. C., & Barbaree, H. E. (1997). Sexual aggression as antisocial behavior: a developmental model. In D. Stoff, J. Breiling & J. D. Maser (Eds.), *Handbook of Antisocial Behavior* (pp. 524-533). New York: Wiley.
- Seto, M. C., & Lalumière, M. L. (2006). Conduct problems and juvenile sexual offending. In H. E. Barbaree & W. L. Marshall (Eds.), *The Juvenile Sex Offender* (2nd ed., pp. 166-188). New York: Guilford Press.
- Shaw, J. A. (2000). Summary of the practice parameters for the assessment and treatment of children and adolescents who are sexually abusive of others. *Journal of the American Academy of Child and Adolescent Psychiatry, 39*(1), 127-130
- Skubic Kemper, T., & Kistner, J. A. (2007). Offense history and recidivism in three victim-age-based groups of juvenile sex offenders. *Sexual Abuse: A Journal of Research and Treatment, 19*, 409-424
- Swiss Federal Institute for Statistics. (1992). Swiss Health Survey (Schweizerische Gesundheitsbefragung). from http://www.bfs.admin.ch/bfs/portal/de/index/infothek/erhebungen_quellen/blank/blank/ess/01.html
- Thompson, B., & Daniel, L. G. (1996). Factor Analytic Evidence for the Construct Validity of Scores: A Historical Overview and Some Guidelines. *Educational and Psychological Measurement, 56*(2), 197-208

- Ullman, S. E. (1999). A comparison of gang and individual rape incidents. *Violence & Victims*, 14, 123-133
- van Wijk, A., Loeber, R., Vermeiren, R., Pardini, D., Bullens, R., & Doreleijers, T. (2005). Violent juvenile sex offenders compared with violent juvenile nonsex offenders: explorative findings from the Pittsburgh Youth Study. *Sexual Abuse: A Journal of Research and Treatment*, 17(3), 333-352
- van Wijk, A., van Horn, J., Bullens, R., Bijleveld, C., & Doreleijers, T. (2005). Juvenile sex offenders: a group on its own? *International Journal of Offender Therapy and Comparative Criminology*, 49(1), 25-36
- van Wijk, A., Vermeiren, R., Loeber, R., t Hart-Kerkhoffs, L., Doreleijers, T., & Bullens, R. (2006). Juvenile sex offenders compared to non-sex offenders: a review of the literature 1995-2005. *Trauma Violence Abuse*, 7(4), 227-243
- Worling, J. R. (1995). Sexual abuse histories of adolescent male sex offenders: differences on the basis of the age and gender of their victims. *Journal of Abnormal Psychology*, 104(4), 610-613
- Worling, J. R., & Långström, N. (2006). Risk of sexual recidivism in adolescents who offend sexually: Correlates and assessment. In H. E. Barbaree & W. L. Marshall (Eds.), *The Juvenile Sexual Offender* (2nd ed., pp. 219-247). New York: Guilford Press.

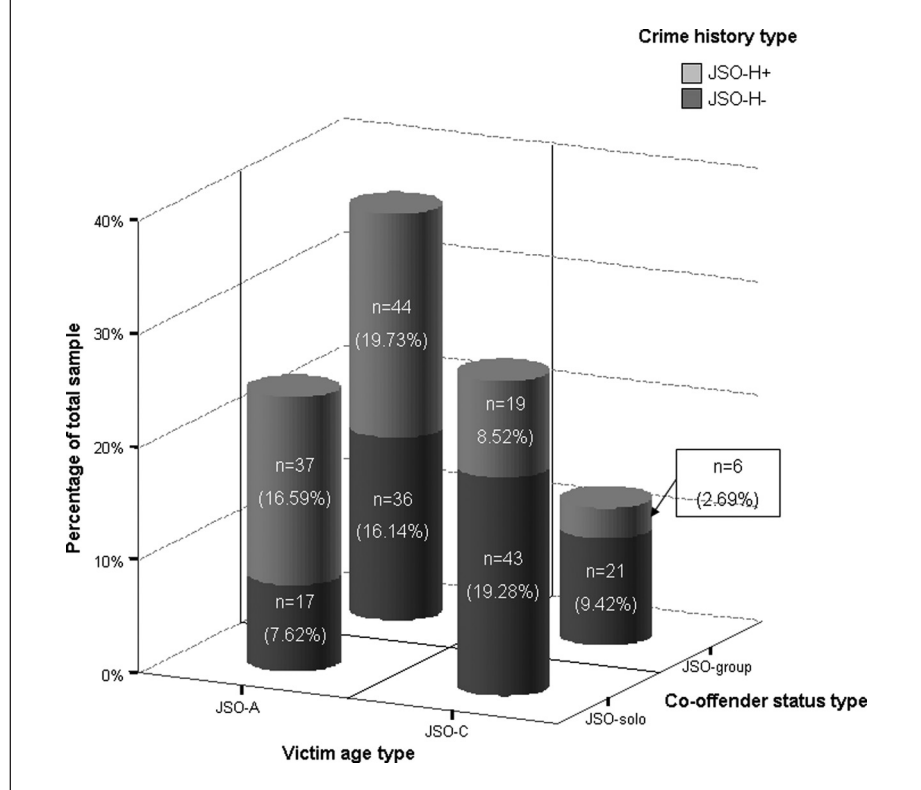


Figure 1. Prevalence of victim age, co-offender status, and crime history types
 Note: $n = 223$. JSO-C = child victim type, JSO-A = adult/peer victim type, JSO-solo = solo offender type, JSO-group = group offender type; JSO-H+ = nonsexual crime history type, JSO-H- = no nonsexual crime history type

Table I: Sample characteristics by JSO types (N = 223)

	Victim age type			Co-offender status type			Crime history type			
Type	JSO-C	JSO-A	test statistic ¹	JSO-solo	JSO-group	test statistic ¹	JSO-H+	JSO-H-	test statistic ¹	Total
n (percentage)	89 (39.9%)	134 (60.1%)		116 (52.0%)	107 (48.0%)		106 (47.5%)	117 (52.5%)		223 (100%)
Offender characteristics										
Mean age ² (SD)	13.28 (1.89)	14.18 (1.75)	4.21*	13.99 (1.98)	13.86 (1.89)	-0.50	14.57 (1.70)	13.36 (1.96)	-4.95*	13.93 (1.93)
Foreign nationality	26 (29.2%)	76 (56.7%)	16.30*	48 (41.4%)	54 (50.5%)	1.85	54 (50.9%)	48 (41.0%)	2.20	102 (45.7%)
Mean rank of SES ³	108.95	76.64	2426.50*	95.70	83.70	3459.50	81.93	96.38	3312.50	90.00
Broken home	34(38.2%)	59 (44%)	0.75	54 (46.6%)	39 (36.4%)	2.34	53 (50.0%)	40 (34.2%)	5.72	93 (41.1%)
Outplacement	9 (10.1%)	13 (9.7%)	0.01	13 (11.2%)	9 (8.4%)	0.49	16 (15.1%)	6 (5.1%)	6.21	22 (9.9%)
Sexual victimization	8 (9%)	6(4.5%)	1.85	8 (6.9%)	6 (5.6%)	0.16	9 (8.5%)	5 (4.3%)	1.68	14 (6.3%)
General recidivism	29 (32.6%)	61 (45.5%)	3.72	45 (38.8%)	45 (42.1%)	0.25	61 (57.5%)	29.(24.8%)	24.80*	90 (40.4%)
Non-sexual violent recidivism	10 (11.2%)	27 (20.1%)	3.07	18 (15.5%)	19 (17.8%)	0.20	29 (27.4%)	8 (6.8%)	16.92*	37 (16.6%)
Sexual recidivism	5 (5.6%)	2 (1.5%)	2.99	5 (4.3%)	2 (1.9%)	1.09	5 (4.7%)	2 (1.7%)	1.66	7 (3.1%)
Victim characteristics										
Male victim	36 (40.4%)	13 (9.7%)	29.49*	32 (27.6%)	17 (15.9%)	4.44	17 (16.0%)	32 (27.4%)	4.15	49 (22.0%)
Multiple victims	35 (39.3%)	41 (30.6%)	1.81	41 (35.3%)	35 (32.7%)	0.17	35 (33.0%)	41 (35.0%)	0.10	76 (34.1%)
Related victim	21 (23.6%)	3 (2.2%)	25.40*	23 (19.8%)	1 (0.9%)	20.69*	7 (6.6%)	17 (14.5%)	3.64	24 (10.8%)
Unknown victim	17 (19.1%)	28 (29.9%)	0.11	19 (16.4%)	26 (24.3%)	2.17	24 (22.6%)	21 (17.9%)	0.76	45 (20.2%)
Offense characteristics										
Mean rank of SOS	146.21	89.82	2918.50*	125.14	97.75	4681.50*	105.00	118.34	5459.50	112.00
Mean number of sex offenses (SD)	8.04 (20.56)	4.39 (14.31)	-1.86	9.57 (23.04)	2.64 (4.19)	-3.18*	4.50 (7.7)	7.8 (22.5)	1.51	6.25 (1.2)
Alcohol and/or drugs ⁴	2 (2.7%)	17 (14.2%)	6.68	12 (12.4 %)	7 (7.3%)	1.40	16 (17.2%)	3 (3.0%)	10.95*	19 (9.8%)
Verbal aggression	24 (27%)	69 (51.5%)	13.23*	46 (39.7%)	47 (43.9%)	0.42	55 (51.9%)	38 (32.5%)	8.62*	93 (41.7%)
Physical aggression	9 (10.1%)	18 (13.4%)	0.55	18 (15.5%)	9 (8.4%)	2.64	15 (14.2%)	12 (10.3%)	0.79	27 (12.1%)
Weapon use	0 (0%)	3 (2.2%)	2.02	2 (1.7%)	1 (0.9%)	0.26	3 (2.8%)	0 (0%)	3.36	3 (1.3%)

Note: JSO-C = child victim type, JSO-A = adult/peer victim type, JSO-solo = solo offender type, JSO-group = group offender type; JSO-H+ = non-sexual crime history type, JSO-H- = no non-sexual crime history type, ¹Test = t-test for age and number of sex offenses, Mann Witney for SES and SOS, χ^2 for dichotomous variables; ² mean age at time of first offense; ³ Missing n = 44; ⁴ Missing n = 30

SES = Social Economic Status; SOS = Sexual Offense Severity; * = significance (two sided) applying Bonferroni-Holm correction and a familywise error level of .05.

Table II: Results of the stepwise logistic regression analyses in the prediction of victim age, co-offender status and crime history type

Predictors	β	SE	WALD T	df	p	OR	95% CI for OR
Victim age type							
(JSO-C = 1, JSO-A = 0)							
Male victim	1.86	0.53	12.15	1	0.00	6.45	2.26-18.38
Related victim	2.46	0.86	8.12	1	0.00	11.69	2.15-63.44
SOS	0.73	0.15	24.58	1	0.00	2.08	1.56-2.78
Verbal aggression	-1.76	0.47	13.87	1	0.00	0.17	0.07-0.43
co-offender status type (JSO-solo = 1, JSO-group = 0)							
Related victim	2.74	1.05	6.85	1	0.01	15.55	1.99-121.42
SOS	0.17	0.09	3.29	1	0.07	1.18	0.99-1.41
Number of sexual offenses	0.06	0.03	3.61	1	0.06	1.06	1.00-1.12
Crime history type							
(JSO-H+ = 1, JSO-H- = 0)							
Offender age	0.33	0.10	10.42	1	0.00	1.39	1.14-1.69
General recidivism	1.38	0.36	14.35	1	0.00	3.98	1.95-8.12
Non-sexual violent recidivism	1.37	0.50	7.39	1	0.01	3.94	1.47-10.59
Alcohol and/or drug use	1.47	0.73	4.08	1	0.04	4.34	1.05-18.02
Verbal aggression	0.71	0.34	4.21	1	0.04	2.03	1.03-3.98

Note: β = regression coefficient, OR = odds ratio, CI = confidence Interval, JSO-C = child victim type, JSO-A = adult/peer victim type, JSO-solo = solo offender type, JSO-group = group offender type; JSO-H+ = non-sexual crime history type, JSO-H- = no non-sexual crime history type, SOS = Sexual Offense Severity.

Table II: Results of the stepwise logistic regression analyses in the prediction of victim age, co-offender status and crime history type

Predictors	β	SE	WALD T	df	p	OR	95% CI for OR
Victim age type							
(JSO-C = 1, JSO-A = 0)							
Male victim	1.86	0.53	12.15	1	0.00	6.45	2.26-18.38
Related victim	2.46	0.86	8.12	1	0.00	11.69	2.15-63.44
SOS	0.73	0.15	24.58	1	0.00	2.08	1.56-2.78
Verbal aggression	-1.76	0.47	13.87	1	0.00	0.17	0.07-0.43
co-offender status type (JSO-solo = 1, JSO-group = 0)							
Related victim	2.74	1.05	6.85	1	0.01	15.55	1.99-121.42
SOS	0.17	0.09	3.29	1	0.07	1.18	0.99-1.41
Number of sexual offenses	0.06	0.03	3.61	1	0.06	1.06	1.00-1.12
Crime history type							
(JSO-H+ = 1, JSO-H- = 0)							
Offender age	0.33	0.10	10.42	1	0.00	1.39	1.14-1.69
General recidivism	1.38	0.36	14.35	1	0.00	3.98	1.95-8.12
Non-sexual violent recidivism	1.37	0.50	7.39	1	0.01	3.94	1.47-10.59
Alcohol and/or drug use	1.47	0.73	4.08	1	0.04	4.34	1.05-18.02
Verbal aggression	0.71	0.34	4.21	1	0.04	2.03	1.03-3.98

Note: β = regression coefficient, OR = odds ratio, CI = confidence Interval, JSO-C = child victim type, JSO-A = adult/peer victim type, JSO-solo = solo offender type, JSO-group = group offender type; JSO-H+ = non-sexual crime history type, JSO-H- = no non-sexual crime history type, SOS = Sexual Offense Severity.

Table III: Factor structure of criminal characteristics in JSO (n = 154)

	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5
criminal characteristics	("single offender with severe molestation of a related child")	("persistent general delinquent with migrant background")	("older offender with alcohol use and family constraints")	("multiple aggressive offender with social adversities")	("offender with unselected and multiple victims")
Eigenvalue	2.797	1.999	1.984	1.714	1.514
% of explained variance	12.712	9.085	9.019	7.792	6.883
Child victim	.725				
Single Offending	.596				
Number of previous non-sexual crimes		.606			
Offender age			.632		
Foreign nationality		.449		.425	
SES (1 low; 2 moderate, 3 high)				-.496	
Broken home			.606		
Outplacement			.561		
Sexual victimization	.401				
General recidivism		.656			
Non-sexual violent recidivism		.644			
Sexual Recidivism					(.394)
Male Victim	(.356)				
Multiple Victims					.628
Related victim	.604				
Unknown victim					.719
SOS	.764				
Number of sexual offenses				.473	
Alcohol and/or drug use			.632		
Verbal aggression				.632	
Physical aggression				.586	
Weapon use					(-.319)

Note: Only factor loadings >.400 are shown. Exception: If a factor did not show a factor loading >.400 the highest factor loading is shown in brackets); SES = social economic status, SOS = sexual offense severity.