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Sexually Coercive Behavior in Male Youth: Population Survey of General and Specific Risk Factors

Cecilia Kjellgren · Gisela Priebe · Carl Göran Svedin · Niklas Långström

Abstract Little is known about risk/protective factors for sexually coercive behavior in general population youth. We used a Swedish school-based population survey of sexual attitudes and experiences (response rate 77%) and investigated literature-based variables across sexually coercive (SEX), non-sexual conduct problem (CP), and normal control (NC) participants to identify general and specific risk/protective factors for sexual coercion. Among 1,933 male youth, 101 (5.2%) reported sexual coercion (ever talked or forced somebody into genital, oral, or anal sex) (SEX), 132 (6.8%) were classified as CP, and the remaining 1,700 (87.9%) as NC. Of 29 tested variables, 25 were more common in both SEX and CP compared to NC youth, including minority ethnicity, separated parents, vocational study program, risk-taking, aggressiveness, depressive symptoms, substance abuse, sexual victimization, extensive sexual experiences, and sexual preoccupation. When compared to CP youth only, SEX youth more often followed academic study programs, used less drugs and were less risk-taking. Further, SEX more frequently than CP youth reported gender stereotypic and pro-rape attitudes, sexual preoccupation, prostitution, and friends using violent porn. Finally, in a multivariate logistic regression, academic study program, pro-rape attitudes, sexual preoccupation,

and less risk-taking independently remained more strongly associated with SEX compared to CP offending. In conclusion, several sociodemographic, family, and individual risk/protective factors were common to non-sexual and sexually coercive antisocial behavior in late adolescence. However, pro-rape cognitions, and sexual preoccupation, were sexuality-related, specific risk factors. The findings could inform preventive efforts and the assessment and treatment of sexually coercive male youth.

Keywords Sexual violence · Conduct problems · Sexual behavior · Pornography · Population survey · Male youth

Introduction

The prevention of sexual violence is a substantial public health challenge (Krug, Mercy, Dahlberg, & Zwi, 2002) and the *World Report on Violence and Health* (World Health Organization, 2002) calls for more research on risk factors for sexually abusive behavior. Young people commit a considerable portion of all sexual offenses (Barbaree & Marshall, 2005) and up to 90% of these might remain unreported (Kolivas & Gross, 2007; National Council for Crime Prevention, 2007). Consequently, clinical studies are particularly vulnerable to selection biases that effect both generalizability and the possibility to infer causality from different rates of putative risk factors in adolescent sexual offenders compared to control groups. Nevertheless, most studies of risk/protective factors among young sexual offenders were based on samples of adjudicated or incarcerated individuals (reviewed by van Wijk et al., 2006). A meta-analysis of 57 clinical or forensic studies (Seto & Lalumière, 2009) compared adolescent sex offenders ($n = 3,155$) with adolescent non-sex offenders ($n = 9,678$). Exposure to sexual abuse and violence, sexual experience, pornography use, atypical sexual interests, social incompetence, and mood problems were

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significantly more common among young sexual offenders than non-sex offenders. However, data from clinical or forensic samples need complementing with population-based information to improve the knowledge on causal mechanisms behind sexual offending.

Previous U.S. studies of lifetime sexual violence perpetration among adolescent and young men in the general population reported prevalence rates of 2.8–7.7% (Borowsky, Hogan, & Ireland, 1997; Koss & Dinero, 1988; Koss, Gidycz, & Wisniewski, 1987; Lodico, Gruber, & DiClemente, 1996). Two of these, however, only addressed sexual abuse of peers (Koss & Dinero, 1988; Koss et al., 1987). Suggested risk factors include witnessing intrafamilial abuse, substance abuse, gang membership, and suicidal behavior (Borowsky et al., 1997), early debut of sexual activity (Koss & Dinero, 1988), sexual victimization (Borowsky et al., 1997; Koss et al., 1987; Lodico et al., 1996), and pornography use (Bonino, Ciairano, Rabaglietti, & Cattelino, 2006).

Importantly, no previous population survey addressed whether risk factors were specific to sexual coercion or common to both sexual and non-sexual antisocial behavior. Prior research contrasted adolescent sex offenders *either* with non-sexual criminal comparison participants *or* with non-criminal population controls. A key problem with the former is that referred criminal comparison participants may be systematically different from youth who offend sexually regarding other aspects than solely type of offending. For example, the threshold for identification or sentencing because of sexually coercive behavior could be lower than for non-sexual criminal behavior. That would inflate the relative clinical severity of the non-sexually coercive sample, and potentially mislead the observer to perceive differences relative to the sexually coercive sample as hallmarks of sexual offending rather than a consequence of differential selection mechanisms. This could, in turn, lead to incorrect inferences about dissimilar causal mechanisms for sexual and non-sexual criminal offending. Finally, comparisons only with non-criminal controls could identify general risk factors for criminal offending of limited specific value regarding the etiology of sexual offending. We aimed at identifying risk/protective factors for sexually coercive behavior among male youth by using a large, population-based survey of sexual attitudes and behavior. We studied 29 factors suggested from etiological theory (Malamuth, 2003), research with clinical populations of adult and young sexual offenders (Hanson & Morton-Bourgon, 2005; Seto & Lalumière, 2009; van Wijk et al., 2006; Whitaker et al., 2008), and the few population surveys of sexual coercion that exist (Bonino et al., 2006; Borowsky et al., 1997; Koss & Dinero, 1988; Lodico et al., 1996). Specifically, to separate risk/protective factors common to various forms of antisocial behavior from those distinctively associated with sexually coercive behavior (Seto & Lalumière, 2009), we compared male youths who self-reported sexually coercive behavior both with non-sexual conduct problem participants and with normal controls without any of these two types of problem behavior.

Method

Participants

We used the Swedish sub-sample of the 2003–2004 Baltic Sea Regional Study on Adolescent Sexuality, a population survey of sexual attitudes and experiences among high school students (Mossige, Ainsaar, & Svedin, 2007). Initial analyses revealed that the prevalence of sexually coercive behavior among young women was only 19% of that in young men. Further, since sexual coercion by female youth might have different etiology from that exhibited by male youth, we focused solely on sexual coercion in young males.

All participants were third-year high school students sampled from five cities. The selection of the five cities was agreed on within the Baltic Sea Regional Study on Adolescent Sexuality and included the capital, one larger harbor city, and three smaller rural cities. In 2003, 91% of the total population of male 18-year-olds in Sweden attended high school, 1% were students at another level of the educational system, and 8% were not students (Statistics Sweden, 2007). The students attended one of 17 different educational programs, academic or vocational. The sampling procedure was designed to ensure proportional representation of all study programs and classes in each city. We selected complete classes of female and male students to cover half (52.3%) of all students attending every present study program in each participating area. Among eligible 17–20 year old male youth in the sampled classes, 1,933 participated (overall response rate = 77.2%). Of these, 193 (10.0%) were 17 years old, 1,328 (68.7%) were 18, 353 (18.3%) were 19, and 59 participants (3.1%) were 20 years old ($M = 18.14$ years, $SD = .62$). Eligible but non-participating students were absent from school on the day of the survey or actively chose not to participate. In 2005, the average proportion of third year high school students in Sweden being absent on a regular school day was 13% (Uppsala kommun, 2005), suggesting that approximately ten percent of eligible students actively chose not to participate.

Participants were divided into sexually coercive youth (with/without other conduct problems), non-sex conduct problem, and control youth. Sexually coercive youth (SEX) endorsed that they had "ever talked someone into, used pressure or forced somebody to masturbate them, to have sexual intercourse, oral sex, or anal sex." Non-sex conduct problems were addressed with six typical indicators of rule-breaking or aggressive behavior. Conduct problem participants (CP) endorsed ≥3 of six items: "ever violent conflict with teacher, ever theft of >160 US$, ever committed burglary, ever stolen car or motorbike, frequently being truant (≥5 times), or ever been away from (their parents') home an entire night without parents knowing where." We used a 3-item cutoff to identify as closely as possible the 10th percentile. The remaining students were classified as normal controls (NC). Risk factors were defined as characteristics associated with higher likelihood of sexually coercive (or non-sexual conduct-disordered) behavior

compared to controls whereas protective factors were conceptualized as factors decreasing the same likelihood (e.g., through direct personal or social controls against the occurrence) (e.g., Jessor, Van den Bos, Vanderryn, Costa, & Turbin, 1995).

Measures

The self-report questionnaire contained 65 items plus follow-up items tapping sociodemographic conditions, sexual victimization, parental and peer relations, conduct problems, depression, substance use, and a set of normative and deviant sexual cognitions, attitudes, and behaviors. Items addressing experiences of sexual victimization and sexually coercive behavior focused on life-time prevalence and were not restricted to certain relations, such as peer or partner abuse (e.g., Koss & Dinero, 1988; Koss et al., 1987). The questionnaire was partly based on a format previously used in Norway (Mossige, 2001).

Parental socioeconomic position was determined with the International Socioeconomic Index (ISEI) (Ganzeboom, de Graaf, & Treiman, 1992), which bases socioeconomic status on occupation (range 0–90). ISEI scores were based on students' responses about parental occupation by choosing the parent with the highest score.

The Parental Bonding Instrument (PBI) (Parker, Tupling, & Brown, 1979) measures two dimensions of perceived parenting: parental overprotection and parental care. Following exploratory factor analysis, a 9-item version was used for this study (the original version had 25 items). Participants responded on a 6-point Likert-type scale ranging from *I strongly disagree* (1) to *I strongly agree* (6). Four items assessed the participant's view of *parental control/overprotection* (e.g., "they have tried to control everything I have done"). Five items tapped perceived *parental care* (e.g., "they have not helped me as much as I had needed"). Item scores were summarized to a total score (range 4–24 and 5–30, respectively), with higher scores indicating higher perceived level of overprotection and parental care, respectively. Internal consistencies measured by Cronbach's alpha were .74 and .65.

Depression: Six items from the SCL-90 (Derogatis, 1990) were used to assess depressive symptoms during the preceding week (e.g., "feeling unhappy, low, and depressed"). Response alternatives were on a 4-point Likert-type scale from *I strongly disagree* (1) to *I strongly agree* (4). Following exploratory factor analysis revealing a one-factor structure, scores were summarized to a total score (range 6–24), with higher scores indicating more depressive symptomatology. Cronbach's alpha was .83.

Gender stereotypic attitudes: Following exploratory factor analysis suggesting a one-factor structure, six items from Burt (1980) (e.g., "a woman should be a virgin when she marries") were used to assess participants' endorsement of stereotypic attitudes towards gender roles. The participants responded on a 7-point Likert type scale, ranging from *I strongly disagree* (1) to *I strongly agree* (7). Item scores were summarized to a total

score (range 6–42) with higher scores indicating more stereotypic attitudes. Cronbach's alpha was .75.

Rape myths: Five items addressed the acceptance of "rape myths" or empirically unfounded cognitions related to rape. Three items suggested by Burt (1980) (e.g., "a girl who follows a guy home after a first date implies that she is willing to have sex") were added to "many guys have an unconscious wish to rape girls" and "many guys think sex is more exciting if the girl resists his advances." Participants responded on a 7-point Likert-type scale, ranging from *I strongly disagree* (1) to *I strongly agree* (7). Item scores were summarized to a total score (range 5–35) so that higher scores indicated more rape myths. Exploratory factor analysis revealed a one-factor structure and Cronbach's alpha was .73.

Additional details about tested variables are provided as footnotes to Tables 1 and 2.

Procedure

All students in sampled classes completed the anonymous, self-report questionnaire during school hours. Informed consent to participate was obtained after students had been explicitly informed that they were free to deny or terminate their participation at any time without explanation. To ensure that participants did not influence each other, they completed the questionnaires individually at the same time. This took 30–60 min depending on reading level. If the classroom was too small to guarantee confidentiality, a larger room (e.g., an assembly hall) was chosen instead. A research assistant supervised the data collection and participants' anonymity was emphasized orally and in writing. Questionnaires were handed out and returned in unmarked envelopes individually sealed by each participant. The students were not financially compensated for participating (with the exception of one sampled city, where participants completed an additional five questionnaires and therefore received a movie ticket). Finally, participants were given oral and written information about local counseling opportunities if their participation had elicited feelings of distress.

The Human Research Ethics Committee at the Medical Faculty, Lund University, Sweden, approved the study.

Statistical Analysis

Differences between groups were examined with χ^2-tests (discrete variables) and one-way ANOVAs with Scheffe's post hoc testing (continuous variables). Additionally, odds ratios with 95% confidence intervals (95% CI) expressed the strength of the association of risk/protective factors with sexually coercive or non-sexual conduct problem groups, respectively, compared to the normal controls, and between sexually coercive and non-sexual conduct problem groups. Unconditional multivariate logistic regression modeling was used to test the independent association of identified risk/protective factors with sexually coercive behavior compared to non-sexual conduct problem behavior. SPSS

Table 1 Potential risk/protective factors compared across normal control, sexually coercive, and non-sex conduct problem individuals in a representative Swedish national sample of 1,933 young males

Variable		Subgroup of male youth						F or χ^2,c	Scheffe's post hoc test	Odds ratio[d] (95% CI)
		Normal control (NC) (N=1,700, 87.9%)	Sexually coercive (SEX) (N=101, 5.2%)	Odds ratio[a] (95% CI)	Conduct problem (CP) (N=132, 6.8%)	Odds ratio[b] (95% CI)				
Age	M (SD)	18.11 (.58)	18.33 (.81)	—	18.46 (.81)	—	25.23***	CP, SEX > NC	—
Non-majority ethnicity[e]	%	31.2 (n=528)	55.4 (n=56)	2.74 (1.83–4.11)	48.1 (n=62)	2.04 (1.42–2.92)	37.96***	n/a	—
Parental socioeconomic position[f]	M (SD)	56.51 (16.66)	52.52 (19.92)	—	51.15 (18.44)	—	6.96**	NC>CP	—
Vocational study program[g]	%	30.5 (n=518)	45.5 (n=46)	1.91 (1.27–2.86)	68.9 (n=91)	5.07 (3.45–7.43)	87.38***	n/a	.38 (.22–65)
Not living together with two parents	%	26.5 (n=450)	39.0 (n=39)	1.77 (1.17–2.68)	48.1 (n=63)	2.56 (1.79–3.67)	33.12***	n/a	—
Parental overprotection[h]	M (SD)	11.58 (4.18)	13.38 (4.58)	—	12.21 (4.50)	—	9.46***	SEX>NC	1.06 (1.00–1.12)
Parental care[i]	M (SD)	23.85 (4.46)	20.68 (4.98)	—	22.46 (5.06)	—	27.21***	NC>CP>SEX	.93 (.88–98)
Daily smoker	%	11.8 (n=197)	22.2 (n=22)	2.13 (1.30–3.51)	29.0 (n=28)	3.05 (2.03–4.58)	37.41***	n/a	—
Age 1st drinking alcohol[j]	M (SD)	14.72 (1.85)	13.76 (2.27)	—	13.00 (2.04)	—	57.05***	CP<SEX<NC	1.19 (1.04–1.36)
Alcohol consumption ≥twice weekly[k]	%	6.8 (n=105)	19.8 (n=18)	3.36 (1.94–5.84)	17.5 (n=22)	2.89 (1.75–4.76)	34.13***	n/a	—
Ever used cannabis	%	21.3 (n=361)	51.5 (n=51)	3.93 (2.61–5.93)	68.2 (n=90)	7.92 (5.40–11.64)	174.94***	n/a	.50 (.29–85)
Ever used hard drugs[l]	%	3.7 (n=62)	22.4 (n=22)	7.63 (4.46–13.07)	35.6 (n=47)	14.57 (9.41–22.57)	237.10***	n/a	.52 (.29–95)
Aggressive[m]	M (SD)	2.52 (1.35)	3.59 (1.63)	—	3.84 (1.42)	—	80.73***	CP, SEX > NC	—
Risk-taking[n]	M (SD)	4.43 (1.14)	4.81 (1.29)	—	5.27 (.96)	—	36.67***	CP>SEX>NC	.69 (.54–88)
Current depressive symptoms[o]	M (SD)	12.74 (4.39)	15.21 (4.79)	—	14.92 (4.66)	—	27.36***	SEX, CP>NC	—
Embraces gender stereotypes[p]	M (SD)	15.05 (7.28)	22.89 (8.90)	—	19.24 (8.08)	—	67.58***	SEX>CP>NC	1.05 (1.02–1.09)
Endorses rape myths[q]	M (SD)	13.18 (5.83)	20.25 (7.36)	—	15.19 (6.16)	—	69.17***	SEX>CP>NC	1.12 (1.07–1.17)
Age 1st sexual intercourse[r]	M (SD)	15.75 (1.48)	14.82 (1.82)	—	14.74 (1.70)	—	37.17***	CP, SEX < NC	—
Sexual intercourse with 6+ partners[s]	%	18.2 (n=204)	48.5 (n=47)	4.23 (2.76–6.47)	43.4 (n=53)	3.45 (2.34–5.09)	79.56***	n/a	—
Sexual lust almost all the time[t]	%	12.7 (n=212)	45.5 (n=46)	5.77 (3.80–8.75)	30.5 (n=39)	3.02 (2.02–4.52)	101.20***	n/a	1.91 (1.11–3.29)
Ever victim of penetrative sexual abuse[u]	%	3.8 (n=65)	20.8 (n=21)	6.60 (3.85–11.34)	11.4 (n=15)	3.23 (1.78–5.83)	66.21***	n/a	2.05 (1.00–4.21)
Ever sold sex	%	1.0 (n=17)	12.9 (n=13)	14.63 (6.89–31.06)	3.8 (n=5)	3.90 (1.42–10.74)	41.69***	n/a	3.75 (1.29–10.90)
Uses porn almost daily[v]	%	9.3 (n=146)	27.7 (n=26)	3.73 (2.30–6.05)	16.9 (n=21)	1.99 (1.21–3.28)	36.27***	n/a	1.88 (.98–3.60)
Ever watched violent porn	%	10.1 (n=172)	29.7 (n=30)	3.75 (2.38–5.92)	24.2 (n=32)	2.84 (1.85–4.36)	53.98***	n/a	—
Friends care about each other[w]	M (SD)	4.26 (.83)	4.15 (1.03)	—	4.32 (.88)	—	1.16 ns	—	—
Friends value honesty[w]	M (SD)	4.01 (.95)	4.03 (1.10)	—	4.03 (1.10)	—	.04 ns	—	—

Table 1 continued

Variable	Subgroup of male youth					F or χ^2[c]	Scheffé's post hoc test	Odds ratio[d] (95% CI)
	Normal control (NC) (N = 1,700, 87.9%)	Sexually coercive (SEX) (N = 101, 5.2%)		Conduct problem (CP) (N = 132, 6.8%)				
	M (SD)	M (SD)	Odds ratio[a] (95% CI)	M (SD)	Odds ratio[b] (95% CI)			
Some friends watch porn often[x]	3.67 (1.33)	4.46 (.95)	–	4.32 (1.01)	–	30.71***	SEX, CP > NC	–
Some friends like to watch violent porn[x]	1.95 (1.27)	2.95 (1.57)	–	2.48 (1.41)	–	35.96***	SEX > CP > NC	1.24 (1.03–1.48)
Some friends watch child porn on the Internet[x]	1.23 (.67)	1.63 (1.12)	–	1.38 (.90)	–	16.34***	SEX > CP, NC	1.27 (.98–1.66)

95% Confidence Intervals (95% CI) that do not include 1.00 indicate that the risk/protective factor differs significantly between compared groups

n/a not applicable

* $p < .05$; ** $p < .01$; *** $p < .001$

[a] Odds ratio expresses the prevalence of a categorical risk/protective factor among sexually coercive (SEX) compared to normal control (NC) males

[b] Odds ratio expresses the prevalence of a categorical risk/protective factor among non-sexual conduct problem (CP) compared to normal control (NC) males

[c] Figures either express *F*-values for one-way ANOVAs of potential differences in continuous variables across the three subgroups of male youth (with the associated Scheffé's post hoc test result in the column next to the right), or Pearson values from χ^2-tests of potential differences in categorical variables across the three subgroups

[d] Odds ratio expresses the prevalence of a (categorical or continuous) risk/protective factor among sexually coercive (SEX) compared to non-sexual conduct problem (CP) males. Odds ratios are presented for variables that differed between SEX and CP groups, significantly and/or with at least moderate effect size, or were theoretically particularly interesting

[e] Non-majority ethnicity was defined as adolescent or at least one parent being born outside Sweden

[f] Classified with the International Socioeconomic Index, with higher scores indicating higher socio-economic position. Information was missing for 192 subjects across the three categories

[g] Study programs were classified as vocational or academic

[h] Score on a 4-item subscale of the Parental Bonding Instrument (Parker et al., 1979), measuring perceived parental overprotection (range 4–24). Higher scores indicate more perceived overprotection

[i] Score on a 5-item subscale of the Parental Bonding Instrument (Parker et al., 1979) tapping perceived parental care (range 5–30). Higher scores indicate more perceived parental care

[j] Information was missing for 141 subjects across the three categories

[k] Information was missing for 179 subjects across the three categories

[l] Hard drugs were defined as cocaine, heroin, amphetamine, or "party drugs" such as ecstasy

[m] Self-reported on a 6-point Likert scale with higher scores indicating more aggression

[n] Self-reported on a 6-point Likert scale with higher scores indicating more risk-taking

[o] Score on a 6-item current depression subscale from the SCL-90 (Derogatis, 1990) (range 6–24). Higher scores indicate more depression

[p] Measured on a 6-item scale derived from Burt (1980) (range 6–42). Higher scores indicate more gender stereotypic attitudes. Information was missing for 55 subjects across categories

[q] Measured on a 5-item scale derived from Burt (1980) (range 5–35). Higher scores indicate more rape myths. Information was missing for 91 subjects across the three categories

[r] Five hundred participants reported no experience of penetrative sex. Information was missing for 93 subjects across the three categories

[s] When no penetrative sex was reported (n = 500), this item was not applicable. In addition, information was missing for 89 subjects across the three categories

[t] Rated on 5-point ordinal scale with response alternatives from *never to almost all the time*

[u] Defined as having been exposed to anal or oral sexual penetration or intercourse against one's own will

[v] Rated on 6-point scale with response alternatives from *never to almost daily*. Information was missing for 149 subjects across the three categories

[w] Rated on 5-point Likert-type scale from *I strongly disagree* (1) to *I strongly agree* (5)

[x] Rated on 5-point Likert-type scale from *not true at all* (1) to *completely true* (5)

15.0 was used for all calculations. For items with >2% of non-responding, missing numbers are given as footnotes to tables.

Results

A total of 101 male youth (5.2%) reported any lifetime sexually coercive behavior (SEX) and 132 participants (6.8%) reported no sexually coercive behavior but at least three out of six non-sexual conduct problems (CP). The remaining 1,700 male youth (87.9%) were defined as normal controls (NC) (Table 1). The mean number of conduct problems across groups was .48 ($SD = .63$) for the NC, 1.88 ($SD = 1.88$) for the SEX group, and 3.75 ($SD = .81$) for the CP group. The distribution and prevalence of 29 potential risk/protective factors for sexually coercive behavior was tested across these three subgroups.

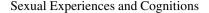### Sociodemographic Characteristics, Family, and Perceived Parenting

SEX and CP male youth were older and more often of non-majority ethnicity than NC youth, and had parents with slightly lower socio-economic position than NC youth (though significantly at $p < .05$ only for CP youth) (Table 1). SEX and CP youth were both more likely to attend a vocational study program than were NC youth. CP youth were even more likely to do so than were SEX youth, judging from the non-overlapping 95% CIs. Both SEX and CP youth were less often living with both parents than NC youth whereas the difference between the two antisocial subgroups was non-significant. Sexually coercive but not CP male youth perceived parents as significantly more overprotective than did normal controls. Sexually coercive male youth also reported less parental care than both CP and NC young men (and CP youth, in turn, less so than NC youth).

Smoking and Substance Use

Male SEX and CP youth both reported more than twice as high rates of daily smoking, more use of alcohol, and an earlier start of alcohol consumption compared to NC youth. CP male youth were even younger at their alcohol debut than were SEX male youth. In addition, SEX and CP youth had more often used cannabis and hard drugs than had controls, CP more so than SEX youth.

Aggression, Risk Taking, and Depressive Symptoms

SEX and CP male youth reported significantly more aggression and risk taking than did NC youth and CP male youth were the most risk-prone of the two antisocial groups. Depressive symptoms were more prevalent among both SEX and CP male youth than NC youth.

Sexual Experiences and Cognitions

SEX youth reported more stereotypical gender-role cognitions and rape myths compared to CP youth, and SEX and CP groups endorsed more of both than did NC individuals. SEX and CP male youth were about one year younger on average at their first sexual intercourse and 3–4 times more likely to have had sexual intercourse with six or more partners compared to NC youth. In addition, both antisocial groups more often reported sexual lust "almost all the time" compared to normal controls and SEX more so than CP youth. Penetrative sexual victimization experiences (anal or oral penetration or intercourse) were more common among sexually coercive and non-sexual conduct problem youth than in normal controls. Having sold sex was more frequent among both SEX and CP male youth compared to NC youth (and SEX again more so than CP group). Frequent use of porn and having watched violent porn was also more common among both SEX and CP compared to NC male youth, whereas no significant differences between SEX and CP groups were identified.

Peer Characteristics

We found no significant differences between SEX, CP, and NC male youth regarding how much friends cared about each other and the importance of honesty among them. With respect to sexual behaviors, SEX and CP groups endorsed more strongly that they had friends that watched porn often or liked to watch violent porn than did NC male youth. In addition, SEX youth reported friends liking violent porn and child porn experiences more often than did CP youth.

Multivariate Logistic Regression

Fifteen variables were entered in a logistic regression model to estimate the independent contribution of risk/protective factors to sexually coercive behavior compared to non-sex conduct problems (see Table 2). Variables were chosen from Table 1 because they differed with respect to prevalence between SEX and CP groups, significantly and/or with least moderate effect size, or were theoretically particularly interesting. Four factors were significantly and independently associated with sexual coercion compared to non-sexual conduct problems: academic study program attendance, pro-rape attitudes, sexual preoccupation, and less risk-taking. Finally, when we tested the same 15-variable model with the subgroup of SEX youth without any concomitant CP symptoms ($n = 69$) and CP youth (data not shown), these four initial risk/protective factors remained significant together with penetrative sexual victimization (adjusted odds ratio = 3.7, 95% CI = 1.02–13.4).

Table 2 Logistic regression models comparing 15 risk/protective factors in 101 sexually coercive vs. 132 non-sex conduct problem males in a Swedish general population survey

Variable	Crude odds ratio (95% CI)		Adjusted odds ratio (95% CI)	
Vocational study program[a]	.38	.22–.65	**.21**	.09–.48
Parental overprotection[b]	1.06	1.00–1.12	.99	.91–1.09
Parental care[c]	.93	.88–.98	.92	.84–1.00
Age 1st drinking alcohol	1.19	1.04–1.36	1.22	1.00–1.47
Ever used cannabis	.50	.29–.85	.90	.38–2.11
Ever used hard drugs[d]	.52	.29–.95	.64	.26–1.57
Risk-taking[e]	.69	.54–.88	**.63**	.44–.91
Embraces gender stereotypes[f]	1.05	1.02–1.09	1.01	.96–1.06
Endorses rape myths[g]	1.12	1.07–1.17	**1.13**	1.06–1.22
Ever victim of penetrative sexual abuse[h]	2.05	1.00–4.21	2.62	.83–8.23
Sexual lust almost all the time[i]	1.91	1.11–3.29	**2.61**	1.12–6.08
Ever sold sex	3.75	1.29–10.90	2.79	.55–14.15
Uses porn almost daily[j]	1.88	.98–3.60	.83	.32–2.17
Some friends like to watch violent porn[k]	1.24	1.03–1.48	1.16	.89–1.52
Some friends watch child porn on the Internet[k]	1.27	.98–1.66	.71	.42–1.21

Fifteen variables were chosen from Table 1 because they differed with respect to prevalence between sexually coercive (SEX) and non-sex conduct problems (CP) groups, significantly and/or with least moderate effect size (Table 1: rightmost column), or were theoretically particularly interesting. The two leftmost columns express bivariate crude odds ratios with 95% Confidence Intervals (95% CI). 95% CIs that do not include 1.00 indicates that the risk/protective factor differs significantly in prevalence between SEX and CP groups

All 15 variables were entered simultaneously in a multivariate logistic regression model (data in two rightmost columns), the estimates thus express the independent contribution of each risk/protective factor controlling for the effect of all other 14 factors ($p = .30$, $df = 8$ for goodness-of-fit of the full model (Hosmer and Lemeshow test), indicating good fit

Figures in bold indicate significant adjusted odds ratios. Fifty-two subjects (21 SEX and 31 CP) were not included in the multivariate model because of missing data on any of the 15 included variables

[a] Study programs were classified as vocational or academic

[b] Score on a 4-item subscale of the Parental Bonding Instrument (Parker et al., 1979), measuring perceived parental overprotection. Higher scores indicate more perceived overprotection

[c] Score on a 5-item subscale of the Parental Bonding Instrument (Parker et al., 1979), tapping perceived parental care. Higher scores indicate more perceived parental care

[d] Hard drugs were defined as cocaine, heroin, amphetamine, or "party drugs" such as ecstasy

[e] Self-reported on a 6-point Likert scale with higher scores indicating more risk-taking

[f] Measured on a 6-item scale derived from Burt (1980). Higher scores indicate more gender stereotypic attitudes

[g] Score on 5-item scale derived from Burt (1980). Higher scores indicate more rape myths

[h] Defined as having been exposed to anal or oral sexual penetration or intercourse against one's own will

[i] Rated on 5-point ordinal scale from *never* (1) to *almost all the time* (5). Those who reported *almost all the time* were counted

[j] Rated on 6-point ordinal scale from *never* to *almost daily*. Those who reported *almost daily* were counted

[k] Rated on 5-point Likert-type scale from *not true at all* (1) to *completely true* (5)

Discussion

This is the first large population-based study of general and specific correlates to sexually coercive behavior in male youth. The 5.2% lifetime prevalence of sexually coercive behavior among 17–20 year-old male high school students in Sweden agreed well with results from prior U.S. reports. We tested 29 risk/protective factors suggested in etiological theory, the clinical literature on adolescent and adult sexual offending, and the few prior population-based studies. First, the findings suggest that established risk factors for antisocial behavior in general are involved also in sexual coercion by male youth (e.g., minority ethnicity, vocational study program, parental separation and poorer perceived parental care, substance misuse, aggression, risk-taking, and depression). A previous uncontrolled study found low perceived parental care and high overprotection, often conceptualised as an affectionless control parenting style, to be highly prevalent in a clinical sample of adult rapists and child molesters (Craissati, McClurg, & Browne, 2002). This parenting style is characterized by neglectful parental care combined with intrusive, rejecting and abusive control. In the present study, sexually coercive youth were more likely to report this parental experience than non-sex conduct problem youth or NC youth. Second,

endorsement of gender stereotypic attitudes and rape myths were more common also in CP compared to NC youth (although significantly less than in SEX youth). Third, penetrative sexual victimization, almost continuous experiencing of sexual lust, frequent use of porn and having watched violent porn, younger age at first sexual intercourse, 6 or more sexual partners, and having sold sex were all more common among both SEX and CP compared to NC youth. The latter two findings agree with earlier U.S. studies reporting more hostility towards women and rape myths among sexually assaultive compared to non-assaultive college men (Abbey & McAuslan, 2004; Abbey, McAuslan, & Ross, 1998; Malamuth, Sockloskie, Koss, & Tanaka, 1991). Fourth, pro-rape cognitions and sexual preoccupation were even more common among SEX compared to CP youth, also in a multivariate logistic regression model. This concurs with the findings from a meta-analysis of studies comparing sexually coercive and non-sexually antisocial male youth from clinical settings (Seto & Lalumière, 2009) and strongly supports the idea that sexuality-related variables are necessary to consider for improved etiological understanding, assessment, and treatment of sexually coercive youth. We interpreted these as specific risk factors for sexual coercion among male youth in contrast to those general risk factors that were more common among both SEX and CP youth compared to population controls (e.g., variables reflecting lower socioeconomic position, parental characteristics [parental separation and poorer parental care], and individual characteristics including substance misuse, aggression, risk-taking, and depression).

Strengths and Limitations

Our study had substantially smaller selection bias (or more similar selection mechanisms) than prior reports comparing highly, and likely differentially, selected clinical samples from specialized clinical settings. The overall response rate was good and the statistical power reasonably high. In contrast to the few prior population surveys, we tapped a variety of variables addressing cognitions, affects, and behaviors related to normative and deviant sexuality. However, it is likely that those absent because of truancy had more of the sociodemographic and individual risk factors and fewer protective factors for antisocial behavior, as found in previous research (e.g., Sundell, El-Khouri, & Månsson, 2005). This suggests that we present a conservative estimate of the actual base rate of sexually coercive behavior among general population male youth. Although the prevalence figure for sexually coercive behavior was indeed quite similar to that found in prior populations studies, follow-up questions regarding sexually coercive behaviors would further have improved validity. On a related note, the sexual coercion variable included persuading or pressuring someone to have sex, and thus would include behavior that is clearly coercive but might not meet legal definitions of sexual crimes in all jurisdictions.

All studies requiring reporting by human participants are subject to recall and other reporting biases, and probably more so when sensitive or detailed reporting is required (e.g., Widom & Morris, 1997). Further, the validity of self-reports could be strongly influenced by the context created in the questionnaire (Schwarz, 1999). Hardt and Rutter (2004) conducted a systematic review of studies with a quantified assessment of the validity of retrospective recall of sexual abuse, physical abuse, physical/emotional neglect, and family discord. Importantly, however, they concluded that bias in retrospective reports was not large enough to invalidate retrospective studies of major adversities. In addition, recall bias and underreporting may not be a problem if the research focuses on the associations between sexual victimization and engaging in sexually coercive behavior. In a prospective population study, Fergusson, Horwood, and Woodward (2000) found that reports of childhood sexual abuse were unstable over time. However, this did not affect the strengths of associations found between childhood sexual abuse and psychiatric problems, only prevalence estimates. Similarly, under- or overreporting of sexually coercive behavior is unlikely to affect the size of associations between risk factors and sexually coercive behavior, unless such bias could be expected to vary with the presence or absence of the specific risk factor (cf. Arseneault, Moffitt, Caspi, Taylor, & Silva, 2000). However, if biases in recall or reporting of risk/protective factors and sexual coercion would co-occur in some participants; this would lead to biased estimates of their true association. Hence, all questionnaires were screened for aberrant response patterns and excluded when identified before any data provided had been entered into the database. Nevertheless, participants inclined to give incorrect reports (e.g. systematically and incorrectly endorsed many behaviors or experiences because of yes-saying or fake-bad impression management) could have been missed in this procedure and inflated the associations we found. The relatively large number of comparisons increased the risk of Type I errors. Further, and similar to all studies using retrospective reports, the exact temporality regarding potential risk/protective factors and non-sexual and sexually coercive antisocial behavior was difficult to determine. Finally, identified associations between risk/protective factors and antisocial behavior might be caused by uncontrolled confounding or underlying factors rather than being directly causal.

Conclusion

Our results question the specificity of suggested risk factors for sexually abusive behavior in adolescents (Borowsky et al., 1997). Consistent with theory related to adult sex offending (Malamuth, 2003; Ward & Beech, 2004), both general criminogenic and sexuality-specific risk factors were associated with sexually coercive behavior also in general population male youth. This suggests substantial caution when generalizing from clinical studies employing only non-sexual antisocial *or* normal controls, with respect to etiological mechanisms for sexual offending. The current findings, based on an unselected, representative population sample, and hence of possible etiological significance, also support current clinical practices for assessment and treatment of

male youth at risk for sexual coercion. Our data suggest that treatment professionals, in addition to general risk factors for antisocial behavior, should continue to address sexuality-related risk factors such as pro-rape cognitions and sexual preoccupation including excessive sexual lust.

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