Research article

Testing the sexually abused-sexual abuser hypothesis: A prospective longitudinal birth cohort study

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A B S T R A C T

The sexually abused-sexual abuser hypothesis posits that persons, especially males, who are sexually abused as children are at particular risk of sexually abusing others later in life. We tested this hypothesis by prospectively examining associations between maltreatment and offending in a birth cohort of 38,282 males with a maltreatment history and/or at least one finalized offense. We examined these associations within the context of the wider birth population. Proportionally few boys were the subject of official notifications for sexual abuse (14.8% of maltreated boys, and 1.4% of the birth population); proportionally very few of these sexually abused boys (3%) went on to become sexual offenders; and, contrary to findings typically reported in retrospective clinical studies, proportionally few sexual offenders (4%) had a confirmed history of sexual abuse. Poly-victimization (exposure to multiple types of maltreatment) was significantly associated with sexual offending, violent offending, and general (nonsexual, nonviolent) offending. We found no specific association between sexual abuse and sexual offending, and nor did we find any association between sexual abuse and sexual offending specifically within the poly-victimized group. The total number of sexual abuse notifications did make a small unique contribution to the variance in sexual offending compared to other offending. Implications concerning maltreated boys and male sexual offenders are discussed.

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Introduction

The sexually abused-sexual abuser hypothesis posits that persons, especially males, who are sexually abused as children are at particular risk of sexually abusing others later in life (Garland & Dougher, 1990; Glasser et al., 2001; Lanyon, 1986). Evidence supporting this hypothesized link between sexual victimization and sexually abusive behavior has been reported in both retrospective (see Jespersen, Lalumiere, & Seto, 2009; Seto & Lalumiere, 2010) and prospective studies (Ogloff, Cutajar, Mann, & Mullen, 2012; Salter et al., 2003); however, it has been difficult to draw definitive conclusions because of a range of methodological problems associated with both approaches.

Retrospective studies consistently report a high prevalence of childhood sexual abuse in the developmental backgrounds of both adolescent and adult sexual offenders. Particularly high rates of sexual abuse – up to 70% or more – are found in clinical studies, where adjudicated sexual offenders disclose childhood maltreatment histories, usually to their therapists, and often in prison settings (e.g. Dhawan & Marshall, 1996; Ford & Linney, 1995; Levenson, Willis, & Prescott, 2014; Worling, 1995). Prospective studies examining offending outcomes among groups of maltreated children also suggest a link between sexual abuse and sexual offending, albeit rather weaker and in the context of a more general association between maltreatment and

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offending (Ogloff et al., 2012; Salter et al., 2003; Widom & Ames, 1994). Some researchers have concluded that childhood sexual abuse is a specific risk factor for committing sexual offenses in adolescence and adulthood (Burton, 2003; Ogloff et al., 2012; Veneziano, Veneziano, & LeGrand, 2000). Others have suggested a more general link whereby all types of maltreatment, including sexual abuse, increase the risk of all types of offending, including sexual offending (e.g. Hanson & Slater, 1988; Vander Mey, 1988; Widom & Ames, 1994).

The present study aimed to examine links between sexual abuse and sexual offending using a prospective longitudinal birth cohort design. In doing so, we aimed to overcome several important limitations of previous studies by (a) avoiding the many potential biases associated with retrospective clinical self-report designs, (b) examining abuse-offending links specifically for males (who comprise the overwhelming majority of convicted sexual offenders), (c) considering the prevalence of sexual abuse and sexual offending, and the links between the two, within the context of the wider birth cohort population, and (d) controlling for the potential effects of abuse age and poly-victimization.

Specificity, Generality, or Both?

Two recent meta-analytic reviews of (mainly) retrospective clinical studies examined associations between sexual abuse and sexual offending. Seto and Lalumiere (2010) reviewed 59 studies that had examined similarities and differences between adolescent sexual offenders and adolescent nonsexual offenders, including 31 studies that examined associations specifically between sexual abuse histories and offending. Jespersen et al. (2009) reviewed 17 studies that had examined the prevalence of sexual and other abuse among adult sexual and nonsexual offenders. Both reviews concluded that sexual offenders were more likely than nonsexual offenders to have been sexually abused, and that sexual offenders were more likely to have been exposed to sexual abuse than to other kinds of maltreatment. The authors of these reviews listed numerous serious limitations in the original studies, and therefore in their meta-analyses, including sampling, recall, and other potential biases. Findings may also be affected by expectancy biases, whereby clinicians treating sexual offenders may be particularly inclined to ask about sexual abuse and to note its presumed significance. Offenders themselves may see advantages in either under-reporting or over-reporting sexual abuse. In any case, a strong retrospective association does not equate to a strong prospective association – even if a very high proportion of sexual offenders have been sexually abused, it is possible that very few sexual abuse victims go on to commit sexual offenses.

Several prospective studies have also examined purported links between sexual abuse and sexual offending. Widom and Ames (1994) prospectively examined the relationships between child maltreatment and later offending by following a group of 908 children with substantiated abuse or neglect whose cases were dealt with by the juvenile or adult courts in the United States between 1968 and 1971. To avoid problems with the temporal sequencing of abuse and offending, only children under 11 years at the time of their abuse were included in the study. Offending outcomes were examined for the 908 maltreatment cases and a comparison group of 667 matched for age, gender and race. Compared to the non-maltreatment comparison group, children who experienced any type of maltreatment were significantly more likely to be arrested for an offense of any kind. This general effect for maltreatment was found for both juvenile and adult arrests. Sexual abuse was found to have no additional effect on general arrests. Sexually abused children were more likely to be arrested for prostitution, but not for other sexual offenses (rape, sodomy, incest, child molesting or public indecency). In fact physical abuse, and not sexual abuse, was associated with a marginally greater risk of committing violent sexual offenses. Widom and Ames did not examine associations between sexual abuse and sexual offending specifically for males. This is a crucial omission, because males are about half as likely to be sexually abused, and many times more likely than are females to commit sexual offenses (Smallbone, Marshall, & Wortley, 2008).

Salter et al. (2003) examined United Kingdom national records to identify sexually abusive behavior among 224 males who as children had been referred to a London hospital sexual abuse clinic between 1980 and 1992. The boys' mean age at the time of their initial presentation was 11 years, and all were at least 18 years of age at follow-up. The follow-up period ranged from seven to 19 years (median age at follow-up = 22.3 years). Seven of the sexually abused boys (3.1%) had been cautioned for, or convicted of, a sexual offense. An additional 19 (8.5%) were considered to have engaged in sexually abusive behavior subsequent to their own abuse, based on evidence in clinic or social service files. Because this study did not include a control group of non-sexually abused or non-abused males, its findings do not help to answer the question of the specificity versus generality of the abused-abuser link. However its within-group comparisons suggested a number of potential mediators of the link between sexual abuse and sexual offending. Specifically, predictors of later sexually abusive behavior were (1) material neglect (odds ratio [OR] = 3.4); (2) witnessing serious family violence (OR = 3.1); (3) lack of supervision (OR = 3.0); and (4) being sexually abused by a female (OR = 3.0). These findings suggest that the links between sexual abuse and sexual offending may be mediated by other (nonsexual) developmental adversities, including other kinds of maltreatment.

A recent, larger prospective study suggests that a specific link between sexual abuse and sexual offending may exist within the more general association between maltreatment and offending. Ogloff et al. (2012) examined the records of 2759 Australian children who had been medically assessed for suspected sexual abuse between 1965 and 1995, and followed these cases up with police records checks in 2010. Police checks were also conducted for a comparison group of 2677 persons selected from the electoral role and matched with the sexual abuse sample for age and gender. Almost one quarter (23.8%) of the sexually abused sample had at least one recorded offense, compared to just 5.9% of the comparison group. The sexually abused offenders also had more offenses (M = 32.6 vs 19.2), and were more likely to be imprisoned (4% vs 0.05%), than the non-abused offenders.

These findings confirm a general link between sexual abuse and offending. Other findings of the Ogloff et al. (2012) study indicate a more specific link, but only for males. No specific association between sexual abuse and sexual offending was found for females, who accounted for 80% of the sexual abuse cases. However, 5% of the sexually abused males were later convicted for a sexual offense – significantly more than the 0.6% of males from the comparison group. The findings were stronger for boys who were sexually abused after the age of 12 years, with 9.2% of this group having a conviction for a sexual offense.

In summary, the weight of evidence presently points to a likely specific link between sexual abuse and sexual offending for males, but not for females. The link appears much stronger retrospectively than it does prospectively, though the particular methodological problems associated with forensic clinical self-report studies raise serious doubts about the reliability and validity of retrospective findings. To the extent that a specific link exists, it appears to be situated within a more general association between all forms of maltreatment and all forms of offending.

There are several additional factors that may be relevant to the link between sexual abuse and sexual offending. First, it is well known that children who experience one type of abuse often experience other types as well (Finkelhor, Ormrod, & Turner, 2007). Testing the sexually abused-sexual abuser hypothesis therefore requires accounting for the potential effects of poly-victimization. Second, numerous studies have shown that offending outcomes vary according to the age at which a child experiences maltreatment, with maltreatment in adolescence often associated with a greater risk of offending (Courtois, 1979; Stewart, Livingston, & Dennison, 2008; Thornberry, Ireland, & Smith, 2001). In Ogloff et al.'s (2012) study, boys sexually abused after age 12 were at greater risk of sexual offending, an effect possibly related to emerging puberty and sexual identity. Third, as Finkelhor et al. (2007) have argued, the type of abuse may be less important than its extent. It may therefore be important to include a measure of the extent of abuse, for example the total number of separate maltreatment notifications, in tests of the sexually abused-sexual abuser hypothesis. Finally, previous studies have not considered associations between sexual abuse and sexual offending in the context of the prevalence of abuse and offending in the wider population.

Aims of the Present Study

Our aim was to examine associations between sexual abuse and sexual offending in a male birth cohort. We wanted to first establish the context of our analyses by examining the prevalence of abuse and offending in the wider male birth cohort population. We then set out to examine associations between various maltreatment types and various offending outcomes. Finally, we examined abused-abuser associations controlling for abuse age and poly-victimization.

Method

Data Sources

Data for the present study were taken from the Queensland Longitudinal Data (QLD) dataset held at Griffith University. This dataset links individuals across four administrative data systems to develop a longitudinal profile of maltreatment and offending. The linked dataset contains 54,660 individuals (38,282 males; 16,378 females) born between January 1, 1983 and December 31, 1984 who were the subject of: (1) a child protection notification; (2) a police caution; (3) a finalized juvenile court appearance; or (4) a finalized adult court appearance. The data were extracted from three separate government department administrative databases in June 2009 and thus represent a complete record up to age 25.

The original incident based data were linked with SAS Link King software (2004), with each individual given a unique identification number. The linked de-identified database has been used for previous studies, with the processes used for data linkage and cleaning described in detail elsewhere (Allard et al., 2010, 2014).

The present study included males only. We used two population figures – the number of boys born in Queensland in the two years 1983–84 ($N = 42,573$; Australian Bureau of Statistics, 1999, 2000), and the number of males in Queensland aged 22 or 23 years in 2006 ($N = 50,729$; Australian Bureau of Statistics, 2006) – to estimate prevalence of maltreatment and offending respectively.

Variables

Maltreatment. The number of separate notifications for sexual abuse, physical abuse, emotional abuse, and neglect were recorded. Since the main focus of the study was on sexual abuse, and to simplify analyses, emotional abuse and neglect were combined to form a single emotional abuse/neglect category.

Individuals were also assigned to one of four maltreatment categories according to the type of abuse they had experienced – sexual abuse only, physical abuse only, emotional abuse/neglect only or poly-victimized. The sexual abuse category included boys who had a report for sexual abuse only. The physical abuse category included boys who had a report of physical abuse. The emotional abuse/neglect category included boys who had reports only relating to emotional abuse or neglect. The final category included all remaining boys who had reports for more than one type of harm.

There were several variables created for the multivariate analysis. The total number of reports for each harm type was calculated for every individual, this resulted in three variables including total sexual abuse reports, total physical abuse report and total emotional abuse/neglect reports. A variable was also created that summed these three variables and indicated the

total number of reports received across all harm types. The final variable calculated the number of different types of harm reported for each boy. This variable had a minimum of one (for one type of harm reported) and a maximum of three (for all three types of harm reported).

Maltreated boys were also categorized according to whether they were aged under 12 years, or aged 12 or above, at the time of their last maltreatment notification.

Offending. The Australian and New Zealand Standard Offence Classification (ANZSOC) scheme (Australian Bureau of Statistics, 2011) was used to categorize offenses as one of three types: sexual, violent, or nonviolent. The number of offense finalizations for each offense type was recorded. Individuals were also allocated to a primary offense category. The sexual offense category included all individuals who had at least one offense finalization that listed a sexual assault or related offense as the most serious offense. The violent offense category included all individuals who had at least one finalized offense for homicide, abduction, robbery, extortion, acts intended to cause injury, harassment, or other offenses against the person, and no sexual offenses. The nonviolent offense category included all the remaining individuals in the database with at least one offense finalization. A final category was the no offense category, which included all individuals that did not have any offense recorded.

Procedure

Ethical approvals were obtained from child protection, police, and court authorities, and from the relevant University ethics committee. QLD data were provided in two separate data sets, one containing all child protection data and the other containing all offense data. The two datasets were then merged by matching individuals with their unique identification number. Finally the merged data were checked to ensure that the analysis only included males whose first notification for maltreatment preceded their first offense. This procedure identified 311 cases whose maltreatment could not be verified to have preceded their offending, and these were removed from the database for the purposes of the present study.

Data Analysis

Bivariate analyses were conducted to explore the relationship between maltreatment category and offending category. Chi-square analyses were conducted to test whether there was a significant association between the type of maltreatment experienced and the type of offense (including no offense) committed. The standardized residuals were used to identify where cell frequencies were significantly different from the expected rate.

Multivariate analyses were then conducted to determine if the number of sexual abuse notifications could predict sexual offending after controlling for other maltreatment factors. Three hierarchical logistic regressions were conducted to predict between (1) any offending and no offending; (2) sexual offending and any offending; and (3) sexual offending and violent offending. The first step controlled for the number of physical abuse notifications, emotional abuse/neglect notifications and the age of abuse desistance. The number of sexual abuse notifications was entered in the second step. Following this, a post hoc analysis was conducted with three further logistic regressions to explore whether indicators of poly-victimization (total number of notifications and total types of harm) could predict offending outcomes.

Results

Maltreatment

There were 4,153 boys – an estimated 9.8% of the male birth cohort population – with at least one incident of maltreatment notified to child protection authorities. The mean number of notifications for maltreated boys was 2.12 (*SD* = 1.99; range = 1–19). The mean age at the time of first notification was 7.09 years (*SD* = 4.68) and the mean age at last notification was 9.04 years (*SD* = 4.47). The majority of maltreated boys (69.7%) were younger than 12 at the time of the last notification.

There were 615 cases of sexual abuse, representing 1.4% of the birth cohort population and 14.8% of all maltreated boys. There were about three times as many physically abused boys (*n* = 2068), representing 4.9% of the birth cohort and 49.8% of the maltreated boys. Finally there were 2723 cases of emotional abuse/neglect – 6.4% of the birth cohort and 65.6% of the maltreated boys. Note that these percentages do not add to 100 because many of the maltreated boys were subject to more than one type of maltreatment.

Of the 615 cases of sexual abuse, 286 (46.5%) involved notifications for sexual abuse only, and 329 (53.5%) involved additional notifications for other types of maltreatment. Of the 329 sexually abused boys with additional types of maltreatment 209 (63.5%) had been subject to notifications for physical abuse, 257 (78.1%) for emotional abuse or neglect, and 137 (41.6%) for both physical abuse and emotional abuse or neglect.

Table 1 presents the mean number of notifications, and the mean age of the boys at the time of their first and last notification, for each maltreatment category. As we would expect, poly-victimized boys had the highest mean number of total notifications. Physically abused boys had significantly more total notifications than boys in the sexual abuse and emotional abuse/neglect categories. Poly-victimized boys were significantly younger at the time of their first notification,

Table 1

Analysis of variance between mean (*SD*), number of notifications, and age at first and last notification, for maltreatment types.

	Maltreatment category				*F*	*p* value
	Sexual abuse *n* = 286	Physical abuse *n* = 1074	Emotional abuse *n* = 1675	Poly-victimization *n* = 1118	*df* = 3	
Total number of notifications	1.08 (0.33)a	1.27 (0.66)a	1.56 (1.11)b	4.26 (2.71)c	866.76	<.001
Age first notification (years)	7.20 (3.47)a	8.03 (4.49)b	6.97 (4.57)a	4.38 (3.60)c	148.85	<.001
Age last notification (years)	7.35 (3.54)a	8.60 (4.36)b	7.98 (4.50)a	10.02 (4.08)c	60.41	<.001

Subscripts denote significantly different groups based on Ryan–Einot–Gabriel–Welsch range.

and significantly older at the time of their last notification. Physically abused boys were significantly older than boys in the sexual abuse and emotional abuse/neglect categories at the time of their last notification.

Offending

There were 36,028 males with at least one formal police caution or adjudicated juvenile or adult offense. Eighteen percent (18%) of the male birth cohort population (*n* = 8993) received a formal police caution. Sexual offenses (*n* = 128) accounted for 0.8% of all cautioned offenses. Male youth were more than twice as likely to receive a police caution than they were to have a juvenile court finalization (*n* = 3840, or 7.7% of the cohort population). Ninety six sexual offenses were finalized in the juvenile courts, representing 0.7% of all offenses dealt with in these courts.

Nearly half (49%) of all males in this birth cohort (*n* = 25,020) had at least one offense finalized in the adult courts. This remarkably high prevalence is explained to a large extent by the inclusion of minor offenses such as traffic offenses. Indeed traffic and vehicle regulatory offenses (*n* = 29,878) were the most common type of offense, accounting for 26.4% of all recorded offenses. Once again sexual offenses comprised a very small proportion (0.3%, *n* = 221) of all offenses finalized in the adult courts.

Altogether, 393 males were either cautioned or dealt with in the juvenile or adult courts in relation to sexual offenses. This represents 1.1% of all offenders, and 0.78% (one in 128) of the birth cohort population. Almost all sexual offenders (92.4%) had a single sexual offense finalization – 29 had two sexual offense finalizations, and one offender had three. Looking at offenses of any type, the 393 sexual offenders were responsible for a total 3,156 offense finalizations. The sexual offenders had a significantly higher mean number of any offense finalizations (*M* = 19.10, *SD* = 27.63) than the nonviolent offenders (*M* = 5.18, *SD* = 10.80, *t*(401.01) = 10.08, *p* < 0.001). Sexual offenders were also significantly younger (*M* = 15.45, *SD* = 3.49) at their first offense finalization than the nonviolent offenders (*M* = 18.23, *SD* = 3.55, *t*(406.87) = −15.85, *p* < 0.001).

Associations Between Maltreatment and Offending

There were 38,282 males in the birth cohort with a maltreatment history and/or an offending history. Of these, 2,264 had at least one maltreatment notification and did not have any offenses. By far the largest number (*n* = 33,842) had an offending history but no history of maltreatment. The remainder (*n* = 2,186) had a record of both maltreatment and offending.

Table 2 presents a cross-tabulation of maltreatment types and offending types. There was a significant association between maltreatment type and offending type. There was no specific association between sexual abuse and sexual offending, nor between sexual abuse and other types of offending. There were strong positive associations between poly-victimization and all types of offending. Examination of the standardized residuals indicated that poly-victimized boys were more likely to be cautioned or adjudicated for sexual offenses, violent offenses, and nonsexual nonviolent offense. More than half of the poly-victimized boys went on to commit at least one offense, with 17.6% committing a violent offense, and 3.9% committing

Table 2

Cross-tabulation of maltreatment type and offending type.

Maltreatment type	Sexual offenses			Violent offenses			Other offenses			No offenses			Total
	n	%	St. res.	*n*	%	St. res.	*n*	%	St. res.	*n*	%	St. res.	
Sexual abuse only	2	0.7	−1.3	25	8.7	−1.2	68	23.8	−2.6*	191	66.8	2.8**	286
Physical abuse only	7	0.7	−2.6*	84	7.8	−3.2**	358	33.3	0.4	625	58.2	1.6	1074
Emotional abuse/neglect only	16	1.0	−2.2*	154	9.2	−2.3*	479	28.6	−2.9**	1026	61.3	3.6***	1675
Poly-victimization	44	3.9	5.9***	197	17.6	6.6***	448	40.1	4.4***	429	38.4	−7.4***	1118
Total	69			460			1353			2271			4153

Chi-square = 220.39, *p* < .001.

   * *p* < .05.

   ** *p* < .01.

   *** *p* < .001.

Table 3
Cross-tabulation of sexual abuse and offense type for poly-victimized boys.

Sexual abuse notification	Sexual offenses only			Violent offenses only			Other offenses			No offense			Total *n*
	n	%	St. res.	*n*	%	St. res.	*n*	%	St. res.	*n*	%	St. res.	
Sexual abuse	17	5.2	1.1	53	16.1	−0.7	144	43.8	1.1	115	35.0	−1.0	329
No sexual abuse	27	3.4	−0.7	144	18.3	0.4	304	38.5	−0.7	314	39.8	0.6	789
Total	44			197			448			429			1118

Chi-square = 5.41, *p* = .144.

a sexual offense. Of the boys who experienced sexual abuse only, 33.2% went on to commit some kind of offense, with just 0.7% committing a sexual offense.

To explore whether there were any specificity effects for sexual abuse within the poly-victimized group, another cross-tabulation was computed for the poly-victimized boys only. This tested for specific associations between sexual abuse and offending type. Poly-victimized boys were categorized based on whether they had at least one report for sexual abuse (*n* = 329) or had never had a report for sexual abuse (*n* = 789). The results presented in Table 3 demonstrate that no significant association was found between sexual abuse and offending type within the poly-victimized group, $\chi^2(3) = 5.41$, *p* = .144.

Multivariate Analyses

We computed three hierarchical logistic regressions to further explore whether sexual abuse had an effect on any offending outcomes. These models explored the effects of sexual abuse while controlling for the number of notifications for each maltreatment types, and abuse age (12 years or older at the time of the last maltreatment notification). Results are presented in Table 4.

The first regression analysis examined the effects of number of maltreatment notifications and age at last notification on any offending (versus no offending). In the first step of the analysis, the number of physical abuse notifications, the number of emotional abuse/neglect notifications, and age at the time of the last maltreatment notification, were all significant predictors of offending. The number of sexual abuse notifications, entered in step two of the analysis, significantly improved the prediction of any offending, with the overall model explaining 6.3% (Cox & Snell, 1989) to 8.5% (Nagelkerke, 1991) of the variance.

The second regression analysis examined predictors of sexual offending versus other offending. A greater number of physical abuse notifications, but not the number of emotional abuse/neglect notifications nor the age at last notification, significantly predicted sexual offending. The total number of sexual abuse notifications (Step two) significantly improved the prediction of sexual offending, although the overall model explained only 1.1% (Cox & Snell, 1989) to 4.1% (Nagelkerke, 1991) of the variance.

The third regression analysis examined predictors of sexual offending versus violent offending. In this analysis the number of physical abuse notifications, but not the number of emotional abuse/neglect notifications nor the age at last notification, significantly predicted sexual offending. When the total number of sexual abuse notifications was included (Step two), the

Table 4
Results of three hierarchical logistic regressions of maltreatment characteristics on offense type.

Variable	Any offense vs no offense (*n* = 4153)				Sex offense vs other offense (*n* = 1882)				Sex offense vs violent offense (*n* = 529)			
	Step 1		Step 2		Step 1		Step 2		Step 1		Step 2	
	B (SE)	Odds ratio	*B* (SE)	Odds ratio	*B* (SE)	Odds ratio	*B* (SE)	Odds ratio	*B* (SE)	Odds ratio	*B* (SE)	Odds ratio
Intercept	−0.79[***] (0.05)	0.45	−0.84[***] (0.06)	0.43	−3.82[***] (0.20)	0.02	−3.88[***] (0.20)	0.02	−2.29[***] (0.21)	0.10	−2.34[***] (0.22)	0.10
Physical abuse	0.31[***] (0.03)	1.36	0.31[***] (0.03)	1.36	0.19[**] (0.07)	1.21	0.16[*] (0.07)	1.17	0.15[*] (0.07)	1.16	0.13 (0.08)	1.14
Emotional abuse or neglect	0.21[***] (0.02)	1.23	0.22[***] (0.02)	1.25	0.12 (0.06)	1.13	0.11[*] (0.06)	1.12	0.08 (0.06)	1.08	0.08 (0.06)	1.08
Over 12 years	0.38[***] (0.07)	1.46	0.38[***] (0.07)	1.46	0.27 (0.26)	1.31	0.26 (0.26)	1.30	0.09 (0.28)	1.09	.09 (0.28)	1.09
Sexual abuse			0.23[***] (0.08)	1.26			0.40[*] (0.18)	1.49			0.33 (0.20)	1.39
Model *R*^{2}												
Cox & Snell		.061		.063		.009		.011		.014		.019
Nagelkerke		.082		.085		.032		.041		.026		.035
Model χ^2		262.21[***]		272.02[***]		16.49[***]		20.84[***]		7.49		10.12[*]
Model $\Delta \chi^2$				9.81[**]				4.35[*]				2.63

[*] *p* < .05.
[**] *p* < .01.
[***] *p* < .001.

Table 5
Results of logistic regressions of poly-victimization characteristics on offense type.

	Any offense vs no offense			Sex offense vs other offense			Sex offense vs violent offense		
	B (SE)	Odds ratio	p value	B (SE)	Odds ratio	p value	B (SE)	Odds ratio	p value
Intercept	−1.001 (0.09)	0.37	<.001	−4.71 (0.34)	.01	<.001	−3.16 (0.38)	0.04	<.001
Number of matreatment types	0.28 (0.08)	1.32	.001	0.79 (0.23)	2.20	.001	0.73 (0.26)	2.07	.005
Total number of notifications	0.21 (0.03)	1.24	<.001	0.05 (0.05)	1.06	.278	0.02 (0.06)	1.02	.739
Model R^2									
Cox & Snell	.058			.015			.030		
Nagelkerke	.078			.056			.055		
Model χ^2	248.66		<.001	28.53		<.001	16.05		<.001

number of physical abuse notifications was no longer significant. However, nor was the number of sexual abuse notifications predictive of sexual offending. The overall model was significant, however it explained only 1.9% (Cox & Snell, 1989) to 3.5% (Nagelkerke, 1991) of the variance in sexual offending.

Post hoc Analysis

A post hoc logistic regression analysis was conducted to investigate how certain features of poly-victimization may predict offending. Two indicators were explored – the total number of notifications and the total number of different types of abuse. Results are presented in Table 4. This analysis revealed that the number of different types of maltreatment significantly predicted any offending, as well as sexual offending, when compared to both other offenses and violent offenses. The total number of notifications for any type of abuse predicted any offending when compared to no offending, but did not predict sexual offending (Table 5).

Discussion

Our aim in the present study was to examine associations between sexual abuse and sexual offending, using a prospective birth cohort design. This design allowed us to establish the context of the problem by first examining the prevalence of various kinds of abuse and offending in the wider birth cohort population. Within this context we were then able to examine associations between abuse and offending of various kinds, and to analyze associations specifically between sexual abuse and sexual offending while controlling for the potential effects of abuse age and poly-victimization. We did not find a specific association between sexual abuse and sexual offending; rather, we found that poly-victimization was significantly associated with sexual offending, violent offending, and general (non-sexual, non-violent) offending.

Our findings indicate that, for boys, formal notifications for sexual abuse are statistically rare. In the present case, although almost 10% of the male population birth cohort were the subject of a notification for some kind of maltreatment at some point in their childhood, only 1.4% were the subject of a notification for sexual abuse. These findings are undoubtedly affected by under-reporting, and some unknown proportion of nonsexual abuse notifications may have in fact involved sexual abuse. Victimization surveys generally find a much higher lifetime prevalence of sexual abuse, with rates for males generally below 10% but ranging up to 60% (Pereda, Guilera, Forns, & Gomez-Benito, 2009) depending on numerous definitional and methodological issues (Finkelhor, 1994).

Our findings also show that, although formal contact with police was common in the present cohort, this was rarely for sexual offenses. Sexual offenses comprised just 0.8% of all police cautions, 0.7% of matters finalized in the juvenile courts, and 0.3% of matters finalized in the adult courts. Population prevalence rates were also very low, with fewer that 0.8% of the male birth population cohort having been in trouble for a sexual offense up to 25 years of age. Given that many sexual offenders may not commit their first sexual offense until their 30s or later (Marshall, Barbaree, & Eccles, 1991; Mathesius & Lussier, 2014; Lussier, LeBlanc, & Prouix, 2005; Smallbone & Wortley, 2004), this population prevalence may be expected to increase, albeit perhaps modestly, over the life course.

Although the base rates of sexual abuse and sexual offending in the present cohort were very low, the present study was of sufficiently large scale to allow their statistical associations to be reliably examined. The first thing to note here is that proportionally few sexually abused boys – just 3% – were found to have committed any sexual offense. This may go some way to assuaging fears and suspicions, including among adolescent and adult male abuse survivors themselves, that sexually abused boys are likely to sexually abuse others later in life. Our findings suggest that sexually abused boys are in fact very unlikely to commit sexual offenses.

Particularly in light of the high prevalence of childhood sexual abuse among sexual offenders typically found in retrospective clinical studies (Jespersen et al., 2009; Seto & Lalumiere, 2010), we found surprisingly few of the sexual offenders in our birth cohort to have a documented history of sexual abuse. Of the 393 males who had a finalized sexual offense, 82% had no history of maltreatment of any kind, and 96% had no history specifically of sexual abuse. Thus the present findings

suggest that sexual offending typically occurs in the absence of a sexual abuse history. Even if we conclude that retrospective self-report studies greatly overestimate the link between sexual abuse and sexual offending, and that prospective studies using official records greatly underestimate the link, it is difficult to reconcile such a wide gap. Inherent problems with retrospective designs render these designs unlikely to solve the problem. Utilizing prospective designs but with more sensitive measures of abuse and offending may be a more effective way forward.

The present study suggests that any specific link between sexual abuse and sexual offending is secondary to the association between poly-victimization and sexual offending. There appears to be a more general link between maltreatment of various kinds and a range of adverse developmental outcomes, including offending. Within our study cohort (all males with a record of abuse and/or offending) the number of notifications for physical abuse, emotional abuse or neglect, and sexual abuse, were all significant and unique predictors of any offending (see Table 4). In that analysis, abuse of any kind after the age of 12 years was an additional unique predictor. This latter finding is consistent with those of previous studies showing that maltreatment of various kinds in adolescence is associated with offending, as well as with a range of other psychological and behavioral problems, in adolescence and young adulthood (Smith, Ireland, & Thornberry, 2005; Thornberry et al., 2001).

With respect specifically to sexual offending (compared to other kinds of offending), while we did find sexual abuse to be the strongest predictor among the three maltreatment types, both physical abuse and emotional abuse/neglect were also significant unique predictors. In that analysis, age at last maltreatment notification was no longer a significant predictor. These findings suggest that sexual offending in adolescence or young adulthood is associated with childhood maltreatment of various kinds, regardless of the age at which the maltreatment occurs. In this latter respect our findings are at odds with those of Ogloff et al. (2012) who found that, for males, sexual abuse after age 12 almost doubled the risk of sexual offending compared to sexual abuse before age 12. This may be due partly to sampling differences. The boys in our present sample had been referred to child protection services, whose involvement may have been predicated on concerns about problems in the family home, and particularly about the capacity of parents or other guardians to protect the children in their care. Ogloff et al.'s sample were children who had been medically assessed for suspected sexual abuse, and may therefore have included a greater proportion of nonfamilial sexual abuse cases, which in many cases may have occurred in the absence of familial maltreatment. The need for medical assessment may also indicate a greater level of abuse severity. In any event, Ogloff et al.'s data did not allow them to control for the effects of other kinds of maltreatment. Our present findings may therefore reflect the impacts of maltreatment generally, including sexual abuse, more than the impacts of sexual abuse alone.

In our final analysis we found that the total number of maltreatment types, and not the total number of notifications for any maltreatment type, predicted sexual offending (versus violent and other offending). This suggests that for maltreated boys who went on to commit offenses, it was poly-victimization, and not the extent of individual maltreatment types, that increased the risk of sexual offending. In these analyses, the risk of committing a sexual offense increased by about two times for each additional type of maltreatment.

Of course, none of this can be taken to support a 'hard determinism' conception of developmental pathways to sexual offending. Whether it be sexual abuse, poly-victimization, or other adverse circumstances in childhood or adolescence, developmental risk factors may contribute to individual offense-related vulnerabilities or dispositions but cannot be expected to predict specific behavioral outcomes. Certainly our present findings indicate that neither sexual abuse specifically, nor poly-victimization, are necessary or sufficient conditions for sexual offending to occur. Clearly the way forward is to find ways to empirically investigate how distal developmental factors and proximal factors interact to produce sexual (or other) offenses. For example, future studies may focus on a cohort of poly-victimized individuals to explore proximal factors that may increase the risk of sexual offending.

Limitations

Any empirical analysis of associations between sexual abuse and sexual offending faces challenges with reliable and valid measurement. In the present case, using official child protection and criminal justice data undoubtedly underestimates the true extent of sexual abuse and sexual offending (Australian Bureau of Statistics, 2006). Although the prospective longitudinal design used in the present study has very significant advantages over retrospective designs, we cannot guarantee that our maltreatment data and offending data were drawn from precisely the same cohort population. Population mobility is likely to have resulted in some unknown number of maltreatment cases moving away from the jurisdiction, and a similarly unknown number of offenders having moved into the jurisdiction, over the 25 year period over which the data were originally recorded. Thus some of our maltreated boys may have gone on to commit offenses in another jurisdiction, and some of our offenders may have previously been involved with child protection authorities elsewhere.

Another limitation of the present study is that the data are 'right censored' at age 25. As we have noted, many offenders may not commit or be arrested for sexual offenses until their 30s or later (Marshall et al., 1991; Mathesius & Lussier, 2014; Lussier et al., 2005; Smallbone & Wortley, 2004). Following the present birth cohort for another 10 years or more may result in somewhat stronger associations between maltreatment and offending. Given this, we advise caution in prematurely generalizing the present findings to older offenders.

Implications

Our findings may have important implications concerning both maltreated boys and male sexual offenders. For boys who have been sexually abused, the belief that sexual abuse significantly increases their risk of sexual offending, or worse, that

it directly foreshadows such an outcome, may add to the confusion about their abuse, increase their distress, and perhaps even undermine their confidence about parenting or working with children later in life. Significant others, including family members, professionals and advisers, could compound the problem by expressing their own fears and suspicions in this regard. In fact most of the sexually abused boys in the present study – as many as 97% – did not come to the attention of authorities for sexual offenses. While these findings require replication, they may nevertheless provide some basis for reassurance that sexually abusing others may be a rare outcome of sexual victimization.

As we have noted, it is difficult to reconcile the present findings with those of retrospective clinical forensic self-report studies. It is possible that a strong selection bias exists, such that sexually abused offenders are somehow more likely to be imprisoned or to participate in treatment programs for their offending. In that case it may be possible that the true rates of sexual abuse among clinical sexual offender populations are much higher than the rates we found in the present study. Nonetheless it would seem prudent for clinicians involved in sexual offender treatment and risk management to be aware that sexual offenders have not necessarily been sexually abused, and that sexual abuse is not a sufficient explanation for their offending. Certainly our present findings suggest that the effects of poly-victimization, rather than sexual abuse alone, may be a more appropriate treatment target for sexual offenders.

From a child protection perspective, it seems self evident that preventing maltreatment from occurring in the first place is the most desirable goal. Clearly it is also important when maltreatment does occur not only to ameliorate the immediate harms associated with the maltreatment, but crucially also to prevent further victimization (Smallbone et al., 2008). In the unfortunate circumstances where extensive poly-victimization has already occurred, an additional focus on preventing the emergence of antisocial and violent behavior may be warranted.

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