

# Sexual violence against children in South Africa: a nationally representative cross-sectional study of prevalence and correlates



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## Summary

**Background** We aimed to complete a nationally representative study of sexual violence against children in South Africa, and its correlates, since we could identify no other such study.

**Methods** For this nationally representative, cross-sectional study in South Africa, households were selected by use of a multistage sampling frame, stratified by province, urban or rural setting, and race group, and schools were selected on the basis that they were closest to the area in which households were selected. Interviews and self-administered questionnaires in each location inquired into lifetime and last-year prevalence of sexual abuse, and its correlates among children aged 15–17 years, whose parents gave informed consent and they themselves gave informed assent.

**Findings** The final household sample was 5631 (94.6% participation rate). 9.99% (95% CI 8.65–11.47) of boys and 14.61% (95% CI 12.83–16.56) of girls reported some lifetime sexual victimisation. Physical abuse, emotional abuse, neglect, family violence, and other victimisations were all strongly associated with sexual victimisation. The following were associated with greater risk of sexual abuse (adjusted odds ratio [OR]); school enrolment (OR 2.12, 95% CI 1.29–3.48); rural dwelling (0.59; 0.43–0.80); having a flush toilet (1.43, 1.04–1.96); parental substance misuse (2.37, 1.67–3.36); being disabled (1.42, 1.10–1.82); female (but not male) caregivers' poor knowledge of the child's whereabouts, friends, and activities (1.07, 0.75–1.53) and poor quality of the relationship with the child (ie, poor acceptance; 1.20, 0.55–2.60). The child's own substance misuse (4.72, 3.73–5.98) and high-risk sexual behaviour (3.71, 2.99–4.61) were the behaviours most frequently associated with sexual abuse, with mental health conditions found to be less prevalent than these factors but still strongly associated with sexual victimisation (post-traumatic stress disorder 2.81, 1.65–4.78; depression 3.43, 2.26–5.19; anxiety 2.48, 1.61–3.81).

**Interpretation** Sexual violence is widespread among both girls and boys, and is associated with serious health problems. Associated factors require multisectoral responses to prevent sexual violence or mitigate consequences.

**Funding** UBS Optimus Foundation.

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## Introduction

Child sexual abuse and other forms of maltreatment have serious health consequences that can persist into adulthood, including mental health problems, injuries, increased risk for HIV infection, and other consequences associated with poor health behaviours (eg, obesity).<sup>1,2</sup> In settings such as South Africa, where child-protection services are both fragmented and overburdened,<sup>3</sup> and with high prevalences of potentially related problems such as HIV,<sup>2</sup> representative data on the sexual abuse of children are essential for effective service provision.

Violence against children has long been thought to be prevalent in South Africa,<sup>3</sup> but estimates vary depending on the methods and location of studies. For instance, one national study<sup>4</sup> found a prevalence of 1.6% for rape before age 15 years, whereas another study<sup>2</sup> in a rural area and using a broader definition of sexual abuse found prevalences of 39.1% for women and 16.7% for men.<sup>2</sup>

We could not identify any previous representative study of child sexual abuse that explored the full range of possible abuses (including contact abuse [ie, physical contact between the child and the abuser], exposure abuse [eg, exposure to pornography], and sexual harassment) in South Africa. The Optimus Study South Africa (following on from the Optimus Studies in Switzerland<sup>5</sup> and China<sup>6</sup>) thus aimed to provide this information.

## Methods

### Study design and participants

We did a nationally representative cross-sectional study of sexual abuse of children aged 15–17 years in South Africa. We recruited participants via two mechanisms: a nationally representative household survey and a school survey. We included both locations because the Optimus Study protocol requires participants

*Lancet Glob Health* 2018;  
6: e460–68

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### Research in context

#### Evidence before this study

We searched Academic Search Premier, Africa-Wide Information, CINAHL, the Education Resources Information Centre (ERIC), MEDLINE, PsycARTICLES, PsycINFO, SocINDEX, and Google Scholar for papers on child maltreatment (child abuse and neglect), and related terms (physical abuse, corporal punishment, emotional abuse, psychological abuse, sexual abuse) in South Africa. Searches were restricted to publications in English because any relevant literature from South Africa would have been published in English. Inclusion criteria were that the paper should report a quantitative study, some form of child maltreatment, and that it be based in South Africa. We used no other inclusion or exclusion criteria. We did our initial search between April 4, and June 24, 2011, with no start date restrictions, when we were proposing our work to the UBS Optimus Foundation. The search was repeated and updated in June, 2017. Our goal was to assess whether any other nationally representative study had been done in South Africa, and none had (in fact, in no other study was representative sampling used). Previous studies thus all had a high risk of bias.

#### Added value of this study

This study reports findings from the first (and only) nationally representative study of sexual abuse of children in South Africa. It also reports the correlates of sexual abuse, including other forms of child maltreatment.

#### Implications of the available evidence

Prevalences reported in this Article will be useful to practitioners in terms of estimating the burden for which services should be prepared. Findings with regard to correlates suggest avenues for prevention. Findings with regard to methods have implications for the methods future studies should use. In brief, we found that sexual violence against children is widespread among both boys and girls in South Africa, and has severe health consequences. Risk and protective factors identified require a multisectoral response to prevent sexual violence, and future studies should focus on samples selected from schools, to maximise the disclosure of abuse, and allow children to complete the questionnaire themselves in a confidential format.

to be aged 15–17 years (for cross-national comparability) and data suggested that many South Africans of this age no longer attend school.<sup>7</sup> Also, data could be subject to different forms of bias, depending on location—eg, household data could be biased by abusive parents' refusal to consent to their child's participation, and school data because schools are often sites of violence.<sup>8</sup> This approach also allowed us to test whether different approaches to data collection gave different results; however, we caution that only the household survey is nationally representative, and therefore we present those results in this Article.

In the household survey, active parental (ie, informed) consent was obtained. In the school survey, after discussion with school governing bodies and principals, and with the permission of the National Department of Basic Education, we used passive parental consent to minimise bias. Active adolescent assent was required in both surveys. The study was approved by the Human Research Ethics Committees of both the Faculty of Health Sciences and of Humanities at the University of Cape Town, Cape Town, South Africa. The ethics protocol complied with national sexual offences and child protection legislation; reports of child maltreatment were made to relevant child care and protection agencies when necessary.

#### Sampling

A multistage stratified sampling frame (based on that in the 2001 South African census<sup>9</sup> and updated by use of modern sampling frames) was designed for this survey, stratified by province, urban versus rural area, and race group (under apartheid, the South African Government recognised four race groups: black African, coloured,

Asian or Indian, and white; because access to many resources [eg, health interventions] is still structured around the apartheid categorisations,<sup>10</sup> we included race as a stratification variable; however, we do not endorse these racialised categories). This method gave a total of 80787 census enumerator areas, of which 725 were randomly selected. We oversampled smaller strata to ensure their representation in the survey. In each enumerator area, five to ten households were randomly selected, with replacement if they refused to participate or if there was no child in the required age group; therefore, five to ten interviews were done in each enumerator area. When a given household had more than one child in the required age group, one of the children was randomly selected with the Kish Grid or by choosing the child whose birthdate was earliest in the year.

We approached the school either in or geographically closest to the enumerator area for permission to recruit learners (ie, students). All the learners whose parents provided consent constituted the sampling frame for the school sample. We used a random number table to select ten learners each from grades 10, 11, and 12 (ie, aged 15–17 years) to be interviewed.

We estimated the sample size needed across school and household surveys together as 5800. This estimation assumed a design effect of 3·0, item completion and an overall response rate of 90%, and a conservative estimated prevalence of sexual abuse to lie between 5–15% of the population, which would provide a 95% CI of 1–3%.

Given the sensitivity of the subject of our research, we worked with a small team of well trained and closely supervised interviewers rather than a dispersed team that might have collected data faster. This precaution

**Panel: Measures of correlates of sexual victimisation****Demographic information**

- Sex
- School enrolment
- Number of biological parents in the household
- Physical characteristics of their homes (eg, formal housing, presence of flush toilet, and piped water in the house)
- Number of people with whom they shared a room at night (for analyses, this factor was categorised as 0 or 1 vs 2 or more)

**Prolonged illness or hospital admittance and length of stay of a caregiver**

- Questions were from previous studies in South Africa<sup>12</sup>

**Parental substance misuse**

- Assessed by use of the Children of Alcoholics Screening Test,<sup>13</sup> short form, adapted to include alcohol and substances other than alcohol; by use of a cutoff of three (ie, if a score of three or more was achieved, the parent was scored as probably having misused substances)
- This measure was categorised as yes or no

**Respondents' disability status**

- Assessed by use of the Washington Group Short Set of Questions on Disability, with an additional question (ie, are you disabled? Yes or no)<sup>14</sup>
- Measures were categorised as no disability if all responses were no; otherwise the response was recorded as disabled

**Male and female caregivers' knowledge of the respondent's activities**

- Questions were sourced from the Cross-National Adolescence Project<sup>15</sup>
- For analyses, these scores were divided into three groups (low, medium, high) by examining the frequency distribution,

because the frequency of distribution of scores had a non-linear relationship with sexual abuse that would otherwise have made interpretation difficult

**Experience of other forms of violence against children**

- Including physical and emotional abuse, neglect, family violence (including violence between parents or from parents to siblings), and direct and indirect victimisation through crime
- Questions were from the Juvenile Victimization Questionnaire<sup>11</sup>
- Measures were categorised in analyses as any experience of a particular form of violence vs no experience

**Respondents' symptoms of anxiety, depression, and post-traumatic stress disorder**

- Assessed by use of the Trauma Symptom Checklist for Young Children<sup>16</sup> using the cutoff scores provided
- For analyses, measures were categorised as yes or no

**Respondents' risky sexual behaviour**

- Questions were from previous studies in South Africa<sup>17</sup>
- Scores were categorised as none or one or more

**Respondents' substance misuse**

- Measured using the CRAFFT screening tool
- For analyses, scores were categorised into none or one or more<sup>18</sup>

**If the respondent disclosed sexual abuse, the following questions from the Juvenile Victimization Questionnaire<sup>11</sup> were asked:**

- Were you injured in the incident? Had you missed days of school or been unable to complete schoolwork afterwards?

carries the risk that some event during the study could increase the salience of sexual violence for the children being interviewed, but we cannot identify any such events during data collection. This Article reports the data obtained in households, since this sample can be weighted to obtain national estimates.

**Procedures**

We used the Juvenile Victimization Questionnaire<sup>11</sup> to assess lifetime and previous-year prevalence of sexual abuse, with minor modifications to reflect the South African legislative environment, such as aligning the definitions of rape and sexual assault. Following South African law, we coded an act as non-consensual when the respondent judged an act as consensual but was under the age of 12 years, or was aged 12–16 years and his or her partner was more than 2 years older. These questions and the other measures we used are shown in the appendix (p 40).

The questionnaire was translated from English into four of South Africa's 11 official languages (Afrikaans,

isiXhosa, isiZulu, and SeSotho). Together with English, these languages are spoken sufficiently well by the multilingual South African population to have allowed for successful completion of other nationally representative surveys of victimisation.<sup>8</sup> Translations were checked by backtranslation, by consensus with the multilingual fieldwork team, and in a pilot-test in four schools in May, 2013.

To minimise bias, female respondents were only interviewed by women, and male respondents by either a man or a woman. Interviews took place in private locations, and interviewers were trained to establish rapport with respondents to encourage disclosure. In addition to the questionnaire administered by interviewers, each participant was invited to complete a brief, self-administered questionnaire, which addressed the 17 most important forms of violence exposure. Participants were thus given the opportunity to report their experiences confidentially. This procedure also allowed us to compare different approaches to data collection (household vs school, and interview vs self-administered). The appendix

See Online for appendix

Participants recruited (%; n=5631)	
KwaZulu-Natal	1076 (19%)
Gauteng	978 (17%)
Eastern Cape	846 (15%)
Mpumalanga	616 (10%)
Limpopo	562 (10%)
Free State	478 (8%)
Western Cape	450 (8%)
Northern Cape	192 (3%)
Data are n (%).	

**Table 1: Number of participants recruited from each province of South Africa**

identifies which questions were asked in the interviewer-administered and self-administered questionnaires.

### Statistical methods

Associations between sexual abuse and potential correlates were assessed in logistic regression models, in which correlates were grouped according to their theoretically probable association with sexual abuse, correlates included: other forms of violence exposure; risk and protective factors; and consequences of sexual abuse (panel). Sex was controlled in each model.

For each correlate, the unadjusted odds ratio (OR) was estimated from a model including only that correlate, whereas the adjusted OR was estimated by modelling the simultaneous effect of all correlates considered. Early data exploration showed that no significant interactions existed between the sex of the participant and any other factor in the adjusted models, and thus we did not include interactions. 95% CIs and p values are based on Wald-type intervals and tests for regression model parameters, and nested models were compared by use of weighted deviance differences. We assumed that data were missing completely at random for the prevalence models, and missing at random for the other models. Missing values were handled by listwise deletion, resulting in 4919–5631 observations per regression model. Male or female caregiver knowledge was categorised as follows, on the basis of the distribution of scores: scores of 11–18 were considered to be low, 19–26 medium, and 27–33 high; and for male or female caregiver acceptance, scores of 5–9 were low, 10–14 medium, and 15 high.

We checked data entry via double entry into Epi Info software. We did analyses in R 3.1.3 using weights for prevalence to represent the population.

### Role of the funding source

The sponsor of the study required the young people recruited into the study to be aged 15–17 years, and the use of certain specific measures,<sup>11,15</sup> but had no other role in the study design, data collection, data analysis, data interpretation, or writing of the report. The corresponding author had full access to all the data in

the study and had final responsibility for the decision to submit for publication.

### Results

We collected data between Sept 2, 2013, and Feb 27, 2015. In the household survey 5631 (3137; 55.7% male) young people were interviewed, and in the school survey 4092 (2113; 51.7% male) young people were interviewed (for baseline characteristics of sample see appendix p 81). The participation rate for households was 94.8%, and for schools was 96.1%. The household survey participants were 75.0% black African, 13.7% coloured, 7.4% white, and 3.9% Indian; 5440 (96.6%) were attending school; and 3852 (68.4%) lived in an urban area. Table 1 provides the sample size by province.

12.04% (95% CI 10.91–13.25) of all participants interviewed in the household survey reported that they had experienced some form of sexual abuse in their lifetime (table 2). The most prevalent form of sexual abuse for boys was exposure (ie, non-contact) abuse, such as exposure to pornography, while girls frequently reported contact sexual abuse by a known adult, an attempt to force them into sexual intercourse (acts of penetration), other non-consensual acts with an adult, or emotional abuse (table 2). Similar patterns were observed for sexual abuse in the past year. More girls reported sexual abuse than boys (table 2).

However, patterns of response differed, depending on whether children were answering questions posed by an interviewer or via a confidential self-completed questionnaire; and whether they were recruited at the school or home. In general (particularly for boys), disclosure of sexual abuse was greater in the confidential school questionnaire, followed by the interviewer-administered school questionnaire, followed by the confidential household questionnaire, with the interviewer-administered household questionnaire recording the least disclosure. For instance, our question about whether anyone had ever attempted to force the child to have sexual intercourse yielded the following pattern of yes responses: for the household interviewer-administered questionnaire, 1.1% of boys and 3.5% of girls; household self-administered questionnaire, 4.7% of boys and 9.0% of girls; school interviewer-administered questionnaire, 1.6% of boys and 4.9% of girls; and school self-administered questionnaire, 9.1% of boys and 14.5% of girls.

Emotional abuse and neglect were also reported as having prevalences around 12% (table 3). The most common forms of exposure to violence were direct victimisation through crime, followed by witnessing violent crimes (ie, indirect victimisation), exposure to family violence, and physical violence; sexual abuse was the least common form of victimisation. Exposure to each of these forms of violence was significantly associated with the children having reported any form of sexual abuse during their lifetime (table 3).

	Boys (n=3134)		Girls (n=2497)		All children (n=5631)	
	Lifetime	Previous year	Lifetime	Previous year	Lifetime	Previous year
Contact sexual abuse, perpetrated by known adult	0.90% (0.57–1.42)	0.56% (0.31–0.95)	3.59% (2.72–4.73)	1.56% (1.04–2.26)	2.10% (1.66–2.66)	1.01% (0.72–1.37)
Contact sexual abuse, perpetrated by unknown adult	0.40% (0.23–0.69)	0.23% (0.10–0.45)	0.94% (0.57–1.55)	0.36% (0.15–0.74)	0.64% (0.44–0.94)	0.29% (0.16–0.49)
Contact sexual abuse, perpetrated by other child	2.22% (1.63–3.02)	1.34% (0.87–1.94)	2.17% (1.56–3.02)	1.31% (0.83–1.95)	2.20% (1.75–2.76)	1.33% (0.97–1.75)
Attempt to force child to have sexual intercourse	1.12% (0.77–1.62)	0.46% (0.24–0.78)	3.51% (2.78–4.42)	1.89% (1.34–2.57)	2.18% (1.79–2.67)	1.10% (0.82–1.44)
Exposure abuse	4.51% (3.71–5.48)	2.98% (2.29–3.78)	1.69% (1.19–2.39)	1.10% (0.69–1.65)	3.25% (2.73–3.87)	2.15% (1.71–2.65)
Emotional abuse using sexual material	1.09% (0.74–1.62)	0.46% (0.25–0.78)	3.52% (2.64–4.67)	2.54% (1.83–3.45)	2.17% (1.71–2.75)	1.39% (1.04–1.82)
Other sexual experience with an adult, including consensual acts	4.45% (3.60–5.48)	3.75% (2.94–4.69)	8.57% (7.23–10.14)	8.08% (6.74–9.57)	6.29% (5.47–7.22)	5.68% (4.88–6.56)
Other sexual experience with an adult, only confirmed non-consensual	2.44% (1.79–3.22)	..	3.84% (2.91–4.94)	..	3.05% (2.47–3.71)	..
Any sexual abuse, including consensual acts	11.72% (10.30–13.31)	8.46% (7.22–9.80)	18.19% (16.21–20.36)	14.07% (12.28–15.98)	14.61% (13.38–15.93)	10.96% (9.88–12.10)
Any sexual abuse, only confirmed non-consensual (n=5547)	9.99% (8.65–11.47)	..	14.61% (12.83–16.56)	..	12.04% (10.91–13.25)	..

Data are percentages with 95% CIs in parentheses and compiled from household surveys.

**Table 2: Prevalence of sexual abuse of children aged 15–17 years within their lifetime and the previous year, by sex**

	Comparison (reference category)	Prevalence % (95% CI)	Unadjusted OR (95% CI)*†	Adjusted OR (95% CI)*	p value
Sex (n=5631)	Female (male)	..	1.58 (1.26–1.97)	1.41 (1.10–1.82)	0.007
Physical abuse (n=5628)	Yes (no)	18.04% (16.54–19.65)	2.81 (2.20–3.60)	1.62 (1.25–2.11)	<0.001
Emotional abuse (n=5545)	Yes (no)	12.56% (11.42–13.80)	3.42 (2.68–4.36)	1.93 (1.46–2.54)	<0.001
Neglect (n=5578)	Yes (no)	12.18% (11.00–13.46)	2.75 (2.11–3.58)	1.54 (1.17–2.04)	0.002
Family violence (n=5540)	Yes (no)	24.58% (22.70–26.57)	2.70 (2.14–3.40)	1.44 (1.12–1.85)	0.004
Other direct victimisation (n=5545)	Yes (no)	58.26% (55.93–60.55)	6.49 (4.87–8.63)	3.99 (2.89–5.52)	<0.001
Other indirect victimisation (n=5592)	Yes (no)	52.14% (49.88–54.39)	3.16 (2.50–3.99)	1.33 (1.01–1.73)	0.039

Prevalence shown as a percentage. OR=odds ratio. \*OR for the association between the sex and non-sexual victimisation and sexual victimisation. †All p values were <0.001.

**Table 3: Sex and other forms of violence as correlates of sexual violence**

School enrolment was consistently associated in both unadjusted and adjusted models with greater lifetime risk of sexual abuse (table 4), and other associated factors were: living in an urban area; having a flush toilet; having a parent who misuses substances; being disabled; poorer female (not male) caregivers' knowledge of the child's whereabouts, friends, and activities; and poorer quality of the child's relationship with their female caregiver (ie, caregiver acceptance; table 4). Unadjusted ORs suggested an increased risk of abuse when the child has fewer biological parents in the house; piped water in the house; a parent who has been admitted to and stayed in hospital for a long period; or poorer relationship with the male caregiver, but these relationships became non-significant when other possible covariates were controlled (table 4). Living in a formal house (ie, not a shack), sharing a bedroom with more than one person, and having only one caregiver in the house were not significantly associated with lifetime experience of sexual abuse in

either model, although sharing a bedroom was approaching significance (table 4).

The respondent's own substance misuse and high-risk sexual behaviour were the most frequently reported correlates of sexual abuse, and respondents who were assessed as likely diagnosable with a mental health condition (ie, depression, anxiety, or post-traumatic stress disorder) via the questionnaire were fewer than those who reported high-risk sexual behaviour (table 5). However, all of these correlates were strongly associated with sexual abuse, except possibly for post-traumatic stress disorder in girls. No real difference was found between male and female participants, except possibly for substance misuse. Children reported nearly five times as much personal substance misuse, nearly four times as much high-risk sexual behaviour, and around three times as many mental health problems if they also reported sexual abuse (table 5).

Of those who reported sexual abuse (table 6), nearly 12% reported that they had been injured during the incident.

	Comparison (reference category)	Unadjusted		Adjusted	
		OR (95% CI)	p value*	OR (95% CI)	p value*
Sex (n=5631)	Female (male)	1.58 (1.26–1.97)	<0.001	1.31 (1.02–1.69)	0.034
School enrolment (n=5631)	Yes (no)	1.95 (1.22–3.14)	0.018	2.12 (1.29–3.48)	0.003
Area (n=5631)	Rural (urban)	0.50 (0.38–0.65)	<0.001	0.59 (0.43–0.80)	0.001
Number of biological parents in home (n=5631)	1 unit increases (range: 0–2)	0.84 (0.73–0.96)	0.036	0.88 (0.73–1.04)	0.143
Formal house (n=5599)	Yes (no)	0.97 (0.72–1.32)	0.969	0.79 (0.56–1.10)	0.165
Piped water (n=5620)	Yes (no)	1.34 (1.07–1.68)	0.021	1.12 (0.84–1.50)	0.445
Flush toilet (n=5611)	Yes (no)	1.71 (1.33–2.20)	<0.001	1.43 (1.04–1.96)	0.029
Shares room (n=5614)	Yes (no)	1.30 (1.04–1.61)	0.056	1.12 (0.89–1.42)	0.333
Parent admitted to and staying in hospital (n=5561)	Yes (no)	1.61 (1.30–2.00)	<0.001	1.22 (0.96–1.56)	0.106
Parental substance misuse (n=5602)	Yes (no)	3.32 (2.45–4.49)	<0.001	2.37 (1.67–3.36)	<0.001
Child disability (n=5595)	Yes (no)	1.84 (1.47–2.31)	<0.001	1.42 (1.10–1.82)	0.007
Male and female caregiver's presence (n=5631)†	Both caregivers (only male caregiver)	1.15 (0.71–1.86)	0.813	0.96 (0.52–1.76)	..
Male and female caregiver's presence (n=5631)†	Both caregivers (only female caregiver)	1.00 (0.80–1.24)	..	1.08 (0.72–1.61)	..
Male caregiver knowledge (n=5457)	Low (medium)	1.54 (1.16–2.05)	<0.001	1.43 (1.02–2.02)	0.081
Male caregiver knowledge (n=5457)	High (medium)	0.57 (0.38–0.86)	..	0.95 (0.60–1.50)	..
Male caregiver acceptance (n=5390)	Low (medium)	1.12 (0.55–2.26)	0.001	0.80 (0.36–1.74)	0.689
Male caregiver acceptance (n=5390)	High (medium)	0.56 (0.42–0.75)	..	0.89 (0.63–1.25)	..
Female caregiver knowledge (n=5513)	Low (medium)	1.40 (1.04–1.87)	<0.001	1.07 (0.75–1.53)	0.021
Female caregiver knowledge (n=5513)	High (medium)	0.54 (0.42–0.69)	..	0.68 (0.50–0.90)	..
Female caregiver acceptance (n=5426)	Low (medium)	2.11 (1.16–3.83)	<0.001	1.20 (0.55–2.60)	<0.001
Female caregiver acceptance (n=5426)	High (medium)	0.48 (0.39–0.60)	..	0.59 (0.46–0.78)	..

Data are comparisons with reference categories. OR=odds ratio. \*A single p value is reported per factor; no p value is reported for caregivers' presence as this variable is required in the regression model for assessing caregiver knowledge and acceptance. †2123 respondents did not have a male caregiver and 238 respondents did not have a female caregiver.

Table 4: ORs for risk and protective factors for any form of sexual abuse (n=4913)

	Not abused	Abused	Total population	OR (95% CI)*†
<b>Anxiety (n=5543)</b>				
Boys	2.79% (2.13–3.66)	6.30% (3.69–10.56)	3.21% (2.54–4.06)	2.34% (1.24–4.42)
Girls	2.97% (2.11–4.17)	7.38% (4.97–10.82)	3.58% (2.73–4.69)	2.60% (1.52–4.45)
Combined	2.87% (2.30–3.57)	6.89% (4.91–9.58)	3.38% (2.80–4.07)	2.48% (1.61–3.81)
<b>Depression (n=5525)</b>				
Boys	2.60% (1.96–3.43)	6.79% (4.46–10.23)	3.13% (2.49–3.93)	2.73% (1.61–4.65)
Girls	1.33% (0.84–2.11)	5.96% (3.63–9.61)	2.03% (1.46–2.81)	4.69% (2.34–9.42)
Combined	2.05% (1.61–2.61)	6.34% (4.56–8.76)	2.64% (2.18–3.19)	3.43% (2.26–5.19)
<b>Post-traumatic stress disorder (n=5519)</b>				
Boys	1.64% (1.18–2.28)	5.79% (3.52–9.37)	2.07% (1.59–2.70)	3.69% (1.96–6.96)
Girls	0.86% (0.53–1.40)	1.13% (0.45–2.80)	1.00% (0.65–1.52)	1.31% (0.46–3.79)
Combined	1.30% (0.99–1.70)	3.25% (2.09–5.03)	1.59% (1.27–1.99)	2.81% (1.65–4.78)
<b>High-risk sexual behaviour (n=5424)</b>				
Boys	15.81% (14.15–17.62)	43.00% (36.28–50.00)	18.97% (17.22–20.84)	4.02% (2.97–5.44)
Girls	9.91% (8.33–11.74)	27.13% (21.63–33.42)	12.76% (11.08–14.65)	3.38% (2.40–4.78)
Combined	13.24% (12.05–14.53)	34.43% (30.26–38.86)	16.19% (14.94–17.52)	3.71% (2.99–4.61)
<b>Substance misuse (n=5533)</b>				
Boys	16.19% (14.49–18.05)	54.21% (47.46–60.80)	19.77% (17.89–21.80)	6.13% (4.61–8.14)
Girls	12.14% (10.39–14.13)	33.30% (26.89–40.39)	15.33% (13.47–17.38)	3.61% (2.54–5.14)
Combined	14.44% (13.10–15.89)	42.72% (37.93–47.66)	17.78% (16.37–19.28)	4.72% (3.73–5.98)

Data are prevalence shown as percentages, unless otherwise stated. 95% CIs are in parentheses. OR=odds ratio. \*OR for consequence, moving from absence to presence of sexual abuse. †All p values ≤0.001.

Table 5: Potential health-related correlates of sexual abuse among young people aged 15–17 years, by sex

Girls and boys reported educational consequences of abuse and the greatest number of educational consequences were reported after sexual abuse at the hands of an adult perpetrator. Exposure abuse was the least likely form of abuse to be followed by educational consequences (table 6).

### Discussion

Before this study, we could identify no national figures for the prevalence of sexual and other forms of abuse of children in South Africa. Our work now joins a growing number of such studies in sub-Saharan Africa (eg, studies in Swaziland,<sup>19</sup> Tanzania,<sup>20</sup> and Kenya<sup>21</sup>), and in other continents (eg, Europe<sup>5</sup> and Asia<sup>6</sup>). As in these other countries, our study shows that sexual violence is prevalent in South Africa, that both boys and girls are victims, and that victims of sexual violence are highly likely to have experienced other forms of violence. Sexual violence is also associated with other serious threats to health, including substance misuse and high-risk sexual behaviour. Our study also reveals that disclosure of sexual violence is more likely in confidential self-completed questionnaires administered in schools, than in interviewer-administered questionnaires or those administered in households.

The prevalence of sexual abuse of children identified by our household survey—14.61% for girls and

	Injured			Educational consequences		
	Boys	Girls	Combined	Boys	Girls	Combined
Contact sexual abuse by a known adult	14.15% (5.03–33.91)	23.27% (15.03–34.21)	21.07% (14.02–30.41; n=107)	23.83% (10.80–44.72)	27.43% (17.31–40.56)	26.56% (17.78–37.69; n=107)
Contact sexual abuse by an unknown adult	0 (NA)	19.73% (9.22–37.31)	12.97% (5.82–26.42; n=37)	15.10% (4.54–39.93)	23.09% (10.19–44.27)	20.35% (9.67–37.88; n=37)
Contact sexual abuse by another child	9.34% (3.23–24.12)	10.44% (3.42–27.72)	9.82% (4.54–19.98; n=112)	7.09% (2.53–18.31)	14.99% (6.61–30.52)	10.62% (5.52–19.46; n=110)
Any other attempt to force child to have sexual intercourse	25.37% (11.99–45.90)	26.12% (17.02–37.85)	25.90% (17.83–36.02; n=123)	14.90% (5.46–34.67)	26.58% (16.91–39.17)	23.21% (15.15–33.85; n=123)
Exposure abuse	1.60% (0.47–5.25)	13.95% (6.58–27.17)	4.44% (2.05–9.33; n=185)	4.15% (1.56–10.56)	5.89% (2.03–15.89)	4.55% (2.11–9.55; n=185)
Emotional abuse via sexual material	..	..	..	18.86% (8.90–35.61)	9.39% (4.63–18.10)	11.97% (7.22–19.20; n=116)
Other sexual experience with an adult, only confirmed non-consensual	1.41% (0.30–6.38)	4.34% (1.26–13.92)	3.12% (1.08–8.64; n=130)	6.82% (2.56–16.93)	5.91% (2.32–14.24)	6.29% (3.18–12.05; n=130)
Any sexual abuse, only confirmed non-consensual*	5.86% (3.30–10.20)	17.49% (13.03–23.08)	11.89% (9.20–15.23; n=531)	8.07% (5.34–12.01)	19.18% (14.74–24.58)	14.17% (11.29–17.65; n=601)

Data are percentages with 95% CIs in parentheses. NA=not available, too few cases to produce stable estimates. \*Children who are emotionally abused (only) are not included for the estimation of percentages of children injured.

**Table 6: Injuries and educational consequences of sexual abuse by sex**

9.99% for boys—are lower than those identified by other nationally representative studies of child maltreatment in Africa, such as the UNICEF Violence Against Children studies in Swaziland (37.8% for girls [boys were not studied]),<sup>19</sup> Tanzania (27.9% girls, 13.4% boys),<sup>20</sup> or Kenya (32% girls, 18% boys).<sup>21</sup> Additionally, our findings are higher than those of the UBS Optimus Study in China (6.5% of girls and 9.2% of boys),<sup>6</sup> but lower than the prevalences identified in the Optimus Study in Switzerland (14.6% of children reported contact sexual abuse, and 29.4% reported non-contact abuse).<sup>5</sup> Thus, the prevalence of sexual abuse of children in South Africa, although high, might not be unusually so.

However, our study shows that the choice of methods used is important. The prevalences of sexual abuse of children identified in the school-based interviewer-administered questionnaire (15.6% for girls, 14.3% for boys<sup>9</sup>) are closer to those identified in the UNICEF studies in Africa.<sup>19–21</sup> Given that we had greater disclosure of sexual abuse in schools, particularly among boys, passive consent from guardians and interviewing outside the home appear to have encouraged disclosure of sexual abuse. Additionally, since only 191 (3.4%) of the respondents in the household survey were not in school, and despite South Africa's high dropout rates in high schools, results of a survey done entirely in schools would most likely have had very little bias in this respect. However, our data do show that being at school was significantly associated with sexual abuse, and therefore the higher prevalence of sexual abuse identified using school-based questionnaires could to some extent reflect the higher risk of that location compared with households.

However, this different survey setting is unlikely to account for all the difference between the household and school reporting rates.

The use of confidential questionnaires completed by participants without an interviewer's assistance should also be encouraged in future surveys, since this form of survey seems to facilitate disclosure of victimisation. Our results show that this method can be done successfully even in contexts in which literacy could be a concern.

This survey is one of a few investigating exposure abuse, and we have shown that the prevalence of exposure abuse is particularly high among South African boys (higher than that in the Optimus Studies in China<sup>6</sup> and lower than that in Switzerland<sup>5</sup>).

Additionally, on the basis of prevalence data obtained in the confidential self-completed questionnaire in schools, we found similar prevalences of lifetime experience of sexual abuse for girls and boys. Exposure (non-contact) abuse was found to be much higher for boys than for girls, and contact abuse (penetrative abuse) was much higher for girls than for boys; although both boys and girls reported some form of sexual abuse. These data show that boys need as much protection as girls (albeit that their needs are different), a fact that the advocacy and policy communities are only beginning to recognise. For instance, violence against boys was given scant specific attention in the 2014 World Health Assembly declaration on violence against children,<sup>22</sup> which mostly discussed “the global challenge of violence, in particular against women and girls”. Future studies should explicitly include a focus on boys and on exposure abuse to provide an evidence-based platform for advocacy and relevant policy reform.

Our data suggest that sexual abuse is one of the least prevalent forms of violence against children, but that children who have been sexually abused are at higher risk of other forms of violence, and that children who have experienced violence are at a higher risk of sexual abuse. Violence in families, whether physical abuse of children or violence between other family members, is a particular concern because of both its serious developmental consequences and the possible intergenerational transmission of such violence.<sup>1</sup> Given the association between family violence and the sexual abuse of children, evidence-based programmes that assist caregivers with non-violent approaches to managing children's behaviour, and that aim to reduce intimate partner violence, must be made widely available and investigated for their effect on the sexual abuse of children.

Associations between school enrolment and urban dwelling with sexual abuse point to the need to target schools and urban-dwelling children in prevention efforts. Disabled children are another risk group who could need specific and targeted preventive interventions. The strong association between caregiver's substance misuse and children's risk for sexual abuse indicates that substance abuse interventions should be made widely available and investigated for their capacity to prevent child maltreatment. Similarly, caregivers should be supported to develop warm and caring relationships with their children and monitor them closely, since such changes could protect the child against sexual abuse. These changes appear to be more important than household structure in protecting children. Indicators of socioeconomic status (ie, living in a formal house [not an informal dwelling such as a shack], having piped water in the house and a flush toilet) all point toward high socioeconomic status being associated with an increased likelihood of sexual abuse, but the reasons underlying this association remain unclear. This area needs further investigation, as does the risk associated with sharing bedrooms.

The strong associations between sexual abuse and mental health and substance-misuse disorders also indicate the need for treatment of these conditions to be widely available for children. These disorders can have serious consequences for the child's ability to succeed at school, and hence consequences both for the child's future and the national economy.<sup>23</sup> Although this finding is not new,<sup>1</sup> together with our findings on the educational consequences of sexual abuse in children, these results point to the high numbers of South African children for whom educational problems are associated with sexual abuse. Schools are thus both a key location where children who have been abused could be identified (eg, when they miss school), and where long-term damage resulting from abuse could be ameliorated (eg, through providing educational support).

The strong associations between sexual abuse and substance misuse and high-risk sexual behaviour also indicate that sexual abuse could be a behavioural link to

South Africa's HIV epidemic. Although sexual abuse via penetrative contact could put a child at risk of contracting HIV, a further increase of risk appears to be the possibility that the child will engage in high-risk sexual behaviour (including via intimate partner violence) as a consequence of the abuse, or vice versa.<sup>24</sup> For this reason, the interventions offered to young people who have been abused should address both their legal sexual and reproductive health rights, and prevention programmes for high-risk sexual behaviour should address the risk of abuse.

This study has five key limitations. First, relying on retrospective recall might result in an underestimation of the extent of sexual abuse of children in South Africa, since victimisation could affect memory.<sup>25</sup> Second, the study included only those children who were at home or in school on the day of the interviews, and who gave assent; therefore, the study could have excluded some high-risk groups such as homeless children.<sup>26</sup> Third, the age range was restricted to 15–17 years, and younger or older children could have different prevalences of child maltreatment. Fourth, as has been identified in similar studies,<sup>27</sup> the discrepancies across our different methodological approaches suggest that respondents were, at times, choosing not to disclose information to the interviewers, and that this bias was particularly strong in the household interviews. Therefore, future studies should collect data in schools rather than in households. Finally, this study was cross-sectional and therefore can make no claims about causality; longitudinal studies would benefit the field.

Nonetheless, this study provides the first national estimates of sexual abuse and other forms of violence against children in South Africa. All components had a high response rate, and the study is therefore as representative as is practically possible. Additionally, this study contributes to the field with the finding that children appear to be more comfortable disclosing abuse in a school setting, and clear data that boys are at risk. This study is one of the first to include exposure abuse and sexual harassment among the forms of sexual abuse investigated in children. Thus, we have provided data that are essential for future service planning, policy, and advocacy.

#### Contributors

CLW, LA, PB, and LL participated in the design of the study and oversaw data collection and cleaning. RK designed and implemented the statistical analysis; all authors discussed, contributed to, and agreed to the analyses. All authors contributed to the drafting of the report. All authors gave final approval for submission of the report for consideration for publication, and agreed to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved.

#### Declaration of interests

We declare no competing interests.

#### Acknowledgments

We thank the UBS Optimus Foundation, who initiated and funded the study. We thank our reference group of South African experts who provided an invaluable sounding board throughout the study.



Additionally, we thank the Optimus Study international reference group for their suggestions and Ariane Neethling and Landon Myer for their contributions to the sampling frame. We also thank our fieldwork and data-capture teams, and all the children, educators, and parents who gave their time to support and participate in the study.

#### References

- 1 Scott D, Lonne B, Higgins D. Public health models for preventing child maltreatment: applications from the field of injury prevention. *Trauma Violence Abuse* 2016; **17**: 408–19.
- 2 Jewkes RK, Dunkle K, Nduna M, Jama PN, Puren A. Associations between childhood adversity and depression, substance abuse and HIV and HSV2 incident infections in rural South African youth. *Child Abuse Negl* 2010; **34**: 833–41.
- 3 Richter LM, Dawes ARL. Child abuse in South Africa: rights and wrongs. *Child Abuse Rev* 2008; **17**: 79–93.
- 4 Jewkes R, Levin J, Mbananga N, Bradshaw D. Rape of girls in South Africa. *Lancet* 2002; **359**: 319–20.
- 5 Averdijk M, Müller-Johnson K, Eisner M. Sexual victimization of children and adolescents in Switzerland. Final report for the UBS Optimus Foundation November 2011. Zurich: UBS Optimus Foundation, 2011.
- 6 UBS Optimus Foundation. Sexual victimization of children and adolescents in China. Final report of the UBS Optimus Foundation October 2013. Zurich: UBS Optimus Foundation, 2013.
- 7 Statistics South Africa. General household survey 2014. Pretoria: Statistics South Africa, 2015.
- 8 Burton P, Leoschut L. School violence in South Africa. Results of the 2012 National School Violence Study. Cape Town: Centre for Justice and Crime Prevention, 2013.
- 9 Artz L, Burton P, Ward CL, et al. Optimus Study South Africa: technical report. Sexual victimization of children in South Africa: final report of the Optimus Foundation Study: South Africa, May 2016. Zurich: UBS Optimus Foundation, 2016.
- 10 Coovadia H, Jewkes R, Barron P, Sanders D, McIntyre D. The health and health system of South Africa: historical roots of current public health challenges. *Lancet* 2009; **374**: 817–34.
- 11 Finkelhor D, Hamby SL, Ormrod R, Turner H. The juvenile victimization questionnaire: reliability, validity, and national norms. *Child Abuse Negl* 2005; **29**: 383–412.
- 12 Madu SN, Idemudia SE, Jegede AS. Perceived parental disorders as risk factors for child sexual, physical and emotional abuse among high school students in the Mpumalanga Province, South Africa. *J Soc Sci* 2002; **6**: 103–12.
- 13 Hodgins DC, Maticka-Tyndale E, el-Guebaly N, West M. The cast-6: development of a short-form of the children of alcoholics screening test. *Addict Behav* 1993; **18**: 337–45.
- 14 Schneider M, Dasappa P, Khan N, Khan A. Measuring disability in censuses: the case of South Africa. *ALTER—the European Journal of Disability Research* 2009; **3**: 245–65.
- 15 Stoltz HE, Barber BK, Olsen JA, et al. Family and school socialization and adolescent academic achievement. *Marriage Fam Rev* 2004; **36**: 7–33.
- 16 Briere J, Johnson K, Bissada A, et al. The Trauma Symptom Checklist for Young Children (TSCYC): reliability and association with abuse exposure in a multi-site study. *Child Abuse Negl* 2001; **25**: 1001–14.
- 17 Avalos LA, Mertens JR, Ward CL, Flisher AJ, Bresick GF, Weisner CM. Stress, substance use and sexual risk behaviours among primary care patients in Cape Town, South Africa. *AIDS Behav* 2010; **14**: 359–70.
- 18 Knight JR, Shrier LA, Bravender TD, Farrell M, Vander Bilt J, Shaffer HJ. A new brief screen for adolescent substance abuse. *Arch Pediatr Adolesc Med* 1999; **153**: 591–96.
- 19 Reza A, Breiding MJ, Gulaid J, et al. Sexual violence and its health consequences for female children in Swaziland: a cluster survey study. *Lancet* 2009; **373**: 1966–72.
- 20 United Nations Children's Fund, US Centers for Disease Control and Prevention, Muhimbili University of Health and Allied Sciences. Violence against children in Tanzania: findings from a national survey 2009. Dar es Salaam: United Republic of Tanzania, 2011.
- 21 United Nations Children's Fund Kenya Country Office, US Centers for Disease Control and Prevention, Kenya National Bureau of Statistics. Violence against children in Kenya. Findings from a 2010 National Survey. Summary report on the prevalence of sexual, physical and emotional violence, context of sexual violence, and health and behavioral consequences of violence experienced in childhood. Nairobi: United Nations Children's Fund (UNICEF) Kenya County Office, 2012.
- 22 Sixty-seventh World Health Assembly. Agenda item 14.3. Strengthening the role of the health system in addressing violence, in particular against women and girls, and against children. Geneva: World Health Organization, 2014.
- 23 Fang X, Fry DA, Ganz G, Casey T, Ward CL. Violence unwrapped: the economic and social burden of violence against children in South Africa. Pretoria: Save the Children South Africa, 2016.
- 24 Jewkes RK, Dunkle K, Nduna M, Shai N. Intimate partner violence, relationship power inequity, and incidence of HIV infection in young women in South Africa: a cohort study. *Lancet* 2010; **376**: 41–48.
- 25 Williams LM. Recall of childhood trauma: a prospective study of women's memories of child sexual abuse. *J Consult Clin Psychol* 1995; **62**: 1167–76.
- 26 Ward CL, Seager JR. South African street children: a survey and recommendations for services. *Dev Southern Afr* 2010; **27**: 85–100.
- 27 Barr AL, Knight L, França-Junior I, Allen E, Naker D, Devries KM. Methods to increase reporting of childhood sexual abuse in surveys: the sensitivity and specificity of face-to-face interviews versus a sealed envelope method in Ugandan primary school children. *BMC Int Health Hum Rights* 2017; **17**: 4.