Publication: Bulletin of the World Health Organization; Type: Research
Article ID: BLT.10.079608

Risk factors associated with violence towards girls in Swaziland

Matthew J Breiding,[a] Avid Reza,[b] Jama Gulaid,[c] Curtis Blanton,[b] James A Mercy,[a] Linda L Dahlberg,[a] Nonhlanhla Dlamini[d] & Sapna Bamrah[e]

[a] National Center for Injury Prevention and Control, Centers for Disease Control and Prevention, 4770 Buford Highway, NE, MS-F64, Atlanta, GA, 30341, United States of America (USA).

[b] National Center for Environmental Health, Centers for Disease Control and Prevention, Atlanta, USA.

[c] United Nations Children's Fund, Mbabane, Swaziland.

[d] Swaziland Parliament, Lobamba, Swaziland.

[e] National Center for HIV/AIDS, Viral Hepatitis, STD, and TB Prevention, Centers for Disease Control and Prevention, Atlanta, USA.

Correspondence to Matthew J Breiding (e-mail: dvi8@cdc.gov).

(Submitted: 12 May 2010 – Revised version received: 12 November 2010 – Accepted: 19 November 2010 – Published online: 5 January 2011)

ABSTRACT

Objective To explore risk factors for sexual violence in childhood in a nationally representative sample of females aged 13 to 24 years in Swaziland.

Methods During a household survey respondents were asked to report any experiences of sexual violence before the age of 18 years. The association between childhood sexual violence and several potential demographic and social risk factors was explored through bivariate and multivariate logistic regression.

Findings Participants totalled 1244. Compared with respondents who had been close to their biological mothers as children, those who had not been close to her had higher odds of having experienced sexual violence (crude odds ratio, COR: 1.89; 95% CI: 1.14–3.14), as did those who had had no relationship with her at all (COR: 1.93; 95% CI: 1.34–2.80). In addition, greater odds of childhood sexual violence were noted among respondents who were not attending school when the violence occurred (COR: 2.26; 95% CI: 1.70–3.01); who were emotionally abused as children (COR: 2.04; 95% CI: 1.50–2.79); and who knew of another child who had been sexually assaulted (COR: 1.77; 95% CI: 1.31–2.40) or was having sex with a teacher (COR: 2.07; 95% CI: 1.59–2.69). Childhood sexual violence was positively associated with the number of people the respondent had lived with at any one time (COR: 1.03; 95% CI: 1.01–1.06).

Conclusion Inadequate supervision or guidance and an unstable environment put girls at risk of sexual violence. Greater educational opportunities and an improved mother-daughter relationship could help prevent it.

Introduction

Sexual violence during childhood is a public health problem of concern throughout the world, including sub-Saharan Africa.[1–3] In a study from South Africa, 1.6% of females were found to have experienced forced or coerced intercourse before the age of 15 years.[4] Sexual violence, whether in childhood or adulthood, has serious consequences. Studies have shown that it is associated with poor mental health, suicide, unwanted pregnancy, gynaecological complications and an increased risk of human immunodeficiency virus (HIV) infection and other sexually transmitted infections.[2] In Swaziland, sexual violence in girls has been associated with suicidal thoughts, unwanted pregnancy, complications during pregnancy and sexually transmitted infections.[5] Girls who have experienced sexual violence have also been found to be at greater risk for sexual victimization as adults.[6,7]

Demographic and environmental risk factors

Several demographic characteristics have been positively associated with sexual violence in childhood. Children who are older, female or from poor communities or lower-income families are at greater risk.[8–11] In the Central African Republic, women with little education or from urban areas were more likely to report having been “raped” or “forced by a teacher” as their first sexual experience than women with better education or from rural areas.[12]

According to one conceptual framework, children who lack safe, stable and nurturing relationships and environments are at greater risk.[13] Sexual violence in childhood has been associated with family composition factors such as living with fewer than two biological parents or with a stepfather.[8,9,14–17] Among university students in South Africa, sexual violence in childhood has been associated with having lived away from their biological mothers until the age of 16 years.[15] Among Nigerian students, it has been associated with not living with either parent.[18]

Other studies have examined the role of family dynamics. Children whose parents suffered sexual violence in childhood appear to be at greater risk of sexual violence themselves than the children of parents who never suffered sexual violence.[9] A greater risk of sexual violence in childhood has also been found among South African students

who have witnessed some form of violence at home[16] and among women who had been physically abused as children.[19] Mothers who reported being dissatisfied with their marriages or battered by their husbands were more likely to have children who had experienced sexual violence than mothers who reported a satisfactory marriage and no physical abuse.[20] Children who reported a poor relationship with their parents were more likely to report having been victims of sexual violence than those who reported a good relationship.[8] Similarly, a distant mother–daughter relationship was associated with a greater likelihood of experiencing childhood sexual violence.[20] Finally, children of parents who reported leaving their children at home without adequate supervision were more likely to experience sexual violence than those whose parents did not report this.[9]

The problem in Swaziland

According to previously published data from the current study, in Swaziland roughly one-third of females have experienced some form of sexual violence, including unwanted sexual touching, before the age of 18 years. Approximately 5% have experienced forced sex.[5] The perpetrators of the sexual violence tend to be men or boys from the victim's neighbourhood, boyfriends or husbands and strangers, and the violent episode most often takes place in the girl's home, in a public area or in the house of a friend, relative or neighbour.[5] Roughly 43% of the girls affected have experienced not just one, but multiple incidents of sexual violence.[5]

In sub-Saharan Africa, few national studies addressing potential risk factors for childhood sexual violence have been conducted. To explore such factors among females in Swaziland was the objective of the present study.

Methods

Study setting

Swaziland, a land-locked country in southern Africa, had approximately 1.2 million inhabitants in 2007; 78% of them lived in rural areas and 44% were less than 15 years of age.[21,22] Between 1992 and 2007 life expectancy at birth declined from 60.6 to 45.3 years,[21] largely owing to the high prevalence of HIV infection, which in 2007 was 25.9% among residents aged 15 to 49 years.[22] Only 22% of children under 18 years of

age lived with both of their parents and about 33% lived with neither parent.[22] Recurrent droughts and external economic shocks have aggravated food insecurity and unemployment problems.[23]

Data were collected in Swaziland from a nationally-representative sample of females ranging in age from 13 to 24 years. The sampling frame, compiled by the Central Statistics Office of Swaziland, was based on the 1997 population census, which was the most recent source of population estimates available at the time of the survey.

We used a two-stage cluster survey design to collect the sample. In the first stage we selected 40 enumeration areas from a total of 1758, the probability of selection being proportional to size. In the second stage we picked a random starting point in each enumeration area and selected a systematic sample of 48 households in all areas but three that had fewer than 48 households (i.e. 47, 47 and 29 households). We defined a household as the individual or group of people occupying a given dwelling and sharing meals.[24]

Of the 1899 households visited, 1292 (68%) had an eligible female. Information was collected from 1244 of the 1292 eligible females for an overall response rate of 96%. Non-response was primarily occasioned by the inability to locate the eligible female. Only 14 (1%) of the selected females refused to participate. Respondent characteristics are presented in Table 1.

The interviewer explained to the head of each household that the study was intended to explore the health needs of female children but made no reference to the issue of sexual violence. In each household, all females between the ages of 13 and 24 years were identified as potential participants. If a household had more than one eligible participant, the interviewer randomly selected only one using the Kish method.[25] After three unsuccessful attempts to contact the selected female, the household was skipped and not replaced, even if another eligible female lived in it. In a private location away from the home and after obtaining her consent, the interviewer informed the participant of the nature of the questions that she would be asked and reassured her that she could drop out of the study whenever she wished and decline answering any uncomfortable questions. At the end of the survey all participants received a list of organizations in

Swaziland providing services to children and women who had been abused. Interviewers received extensive training on procedures for maintaining privacy and confidentiality and for engaging with participants in a sensitive manner.

The survey was administered in SiSwati, the main language in Swaziland. The questionnaire was developed using standardized and previously-tested survey instruments, including the ones used for the Demographic and Health Survey, the HIV/AIDS/STD Behavioural Surveillance Surveys, the Youth Risk Behaviour Survey and the Longitudinal Studies of Child Abuse and Neglect.[26–29] Survey questions were further modified on the basis of interviews with key informants and of findings from a pilot study conducted in a randomly-selected enumeration area not included in the survey. Modifications were made to reflect culturally-specific attitudes, behaviours and terminology in Swaziland.

Dependent variables

Respondents were classified as having been victims of sexual violence in childhood if they reported having ever experienced any of the following before the age of 18 years: forced intercourse (unwanted intercourse imposed through physical force); coerced intercourse (unwanted intercourse imposed through non-physical pressure); attempted unwanted intercourse; unwanted sexual touching of the respondent (i.e. touching, kissing, grabbing or fondling of sexual body parts); and forced touching of the perpetrator's sexual body parts. Box 1 shows the questions verbatim and defines all these variables. Any respondent who answered yes to a specific question was asked a follow-up question about her age when the incident occurred.

Risk factors

Participants were asked a series of questions regarding factors that were hypothesized to put children at risk of sexual violence. These factors include:: the death of a parent or the abandonment of the family by either parent when the victim was a child (< 13 years of age); both parents' educational level; the quality of the girl's relationship with each parent; the largest number of people the respondent had ever lived with at any one time as a child; the total number of families the respondent had lived with as a child; and the frequency with which people had visited the respondent's childhood home. In addition,

the following school-related variables were included in the model: school attendance at the time of the survey or anytime before; school attendance at the time of the survey; the girl's level of trust in her teachers; the mode of travel to school; the travel time to school; and the girl's awareness of other students who were having a sexual relationship with a teacher.

We assessed several potential risk factors related to the social support received during childhood: the daily amount of time she had spent with friends; the support she had received from parents, relatives and other adults; and the degree to which she had trusted her neighbours or perceived them as being helpful... We also included in our models whether the girl had witnessed or experienced physical or emotional abuse by an adult before the age of 13 years and whether she had been aware of other children who had been sexually assaulted. Finally, we also included in the models how long the girl usually spent fetching water, fetching firewood or herding animals each day; how comfortable she felt saying no to sex with an adult man; whether she had started drinking alcohol before the age of 13; whether an adult had ever discussed sexual violence with her; and whether she had had sexual intercourse before turning 13 years old.

Sociodemographic variables

We included the respondent's age, her place of residence (rural versus urban) and her socioeconomic status as control variables in the regression models. To assess socioeconomic status we used an index based on type of toilet in the home; presence or absence of household electricity; ownership of household appliances; use of various means of transportation; source of energy used for cooking; number of rooms in the household used for sleeping; type of flooring material; type of wall material; and frequency of hunger among household members.

Statistical analysis

We used SAS version 9.1.3 (SAS Institute, Cary, United States of America) for data management and SUDAAN version 9.01 (RTI International, Research Triangle Park, USA) for data analysis, which had to accommodate sampling weights and a complex sampling design. We double-entered the data from 20% of the completed questionnaires and had a data entry error rate for all fields of only 0.3% (goal: < 1%). We investigated

discrepancies and resolved them by reviewing the questionnaire and correcting any errors in the data entry record. Since the data entry error rate was so low, we did not double-enter the data for all questionnaires. We weighted the data to generate nationally-representative estimates.

Using bivariate logistic regression we examined each risk factor in relation to childhood sexual violence and included in the multivariate regression model all individual risk factors and control variables that were associated with childhood sexual violence at $P < 0.10$ (adjusted Wald χ^2). We then removed individual risk factors using a backward elimination procedure until all remaining risk factors were significantly associated at $P < 0.05$ (adjusted Wald χ^2). We looked for interactions between respondent age and other variables in the final model by using a chunk test, but since none of these variables proved significant, we removed them from the model.

Ethics approval

World Health Organization (WHO) guidelines on ethics and safety in studies dealing with violence against women were strictly followed,[30,31] and the study protocol was approved by the Institutional Review Board of the Centers for Disease Control and Prevention in Atlanta, USA. Swaziland had no institutional review board when the survey was conducted, but key stakeholders in the country provided input into the development of the survey protocol and instrument. These stakeholders included (i) representatives of relevant ministries (education, health and social welfare, justice, etc.; (ii) service providers (e.g. the Swaziland Action Group Against Abuse, Save the Children, the Social Welfare Department, the Royal Swazi Police, etc.; and (iii) other experts on sexual violence, including key informants in Swaziland and researchers in South Africa. Meetings with key stakeholders and key informants and a pilot test conducted in one village resulted in a survey instrument and a research protocol that were culturally appropriate for Swaziland. In addition, the meetings fostered a sense of ownership of the survey and helped build local capacity for addressing the problem of sexual violence.

Results

Table 1 shows the respondents' demographic characteristics stratified by whether or not they reported childhood sexual violence. When the survey was conducted, approximately 9.7% of the respondents were married and 36.0% fulfilled the definition of an orphan in Swaziland (i.e. had at least one deceased parent before age 18).

In bivariate logistic regression models, several factors were associated with the experience of sexual violence in childhood (not shown in tables). Specifically, respondents aged 17–18 years were significantly more likely than those in all other age groups to report having experienced sexual violence before the age of 18 years. Also, respondents who lived in a rural environment were significantly less likely than those in an urban environment to report having experienced sexual violence before the age of 18. The risk of experiencing sexual violence in childhood was significantly higher among respondents who reported having had no relationship with their biological mothers as children or who reported having had a somewhat close or not very close relationship with her, in comparison with those who described the relationship with their biological mothers as close. Childhood sexual violence was positively associated with the number of people the respondent had lived with at any one time as a child. Also, respondents who reported having lived with three or more families as children were significantly more likely to have experienced sexual violence before the age of 18 years than those who had only lived with one family.

Several factors related to school attendance and the child's sources of social support were associated with childhood sexual violence. Respondents who were not attending school when the survey was conducted and those who were aware of a sexual relationship between a student and a teacher while growing up were significantly more likely to have experienced sexual violence as children than those who were attending school at the time of the survey or who were unaware of any such relationship.

Of the violence-related risk factors studied, those significantly associated with sexual violence in childhood were having been physically or emotionally abused by an adult before the age of 13 and knowing of another child who had been sexually assaulted.

All risk factors associated with childhood sexual violence in individual models were included in the full model, along with control variables (Table 2). After non-

significant risk factors were removed from the full model, several factors remained in the reduced model. Specifically, respondents who had no relationship with their biological mothers and those whose relationship with their mothers had been “somewhat” close or “not very” close were more likely to have experienced sexual violence as children than those whose relationship with their biological mothers had been close. In addition, the risk of childhood sexual violence was greater among respondents who reported having lived with a larger number of people at any single point in childhood; those who were not attending school at the time of the survey; those who had experienced emotional abuse before the age of 13; and those who knew of another child who had been sexually assaulted.

Discussion

In the present study, the finding of a higher risk of childhood sexual violence among girls whose relationship with their biological mothers had not been close suggests that a strong mother-daughter relationship may protect a girl from experiencing sexual violence. This corroborates the findings from several North American studies.[8,18,32]

Although improper relationships between teachers and students are of some concern in African countries,[2] in our study school attendance was associated with a lower risk of sexual violence. However, girls who have experienced sexual violence may tend to drop out of school more often than those who have not. The cross-sectional nature of this study makes it impossible to establish how sexual violence and school attendance are temporally related.

The importance of a girl’s relationship with her biological mother and of her attendance at school as factors influencing her risk of sexual violence suggests that adequate supervision and guidance may be protective. A policy encouraging parents to keep girls in school may help by placing girls in an environment where they can be properly supervised, but only if accompanied by efforts to reduce sexual violence by teachers and other school staff members. Alternatively, simply providing a structured environment for children who do not attend school may reduce the incidence of sexual violence also. Girls who are without a mother, whose mother is too ill to care for them, or whose relationship with their mother is not close may benefit from mentoring

programmes designed to help them form meaningful relationships with other adults. These programmes may be particularly important in Swaziland, where so many children are orphans or have at least one parent infected with HIV. Finally, finding ways to strengthen support for girls with a sick or deceased parent may help reduce their risk of suffering sexual violence.

For girls with two living parents, prevention programmes should focus on improving parental communication skills to strengthen the child–parent bond. Adequate parental monitoring and secure parental attachment, which lays the blueprint for a child's future relationships, have been shown to reduce the risk of sexual abuse in childhood and to favour a range of positive physical and mental health outcomes.[33–35] Parents Matter!, a programme focused on sexual risk prevention and on teaching parents to better communicate with their children, has been shown to reduce preadolescent girls' sexual risk.[36,37] Parents Matter! is currently being implemented in seven African countries and could be adapted to help caregivers of all types protect children against sexual violence.

In our study, an unstable environment (i.e. one in which some form of abuse was either experienced or witnessed by the respondent early in life) was associated with sexual violence in childhood. This is consistent with findings that a chaotic family environment puts children at greater risk of sexual abuse outside the family.[38] It is also supported by the finding in our bivariate models that having lived with three or more families or having been physically abused by an adult before the age of 13 years was positively associated with childhood sexual violence. Although these factors lacked statistical significance in the multivariate models, they may simply have been superseded in the model by more proximal factors, such as being in school when the violence occurred, and still influence the risk of childhood sexual violence. Prevention efforts should be targeted towards girls in unstable living environments.

Finally, the positive association between childhood sexual violence and urban residence in the bivariate analysis suggests that, where resources are limited, interventions focusing on urban areas may achieve the greatest impact.

This study has several strengths. The sample was nationally-representative and only one other study on childhood sexual violence has ever been conducted in sub-

Saharan Africa. Second, the response rate was exceptionally high despite the large number of students who were enrolled in school at the time of the survey because students were interviewed after school hours.

This study is also subject to several limitations. Reports of childhood sexual violence were retrospective and subject to recall bias. The study focused exclusively on females and did not look at different types of perpetrators or of violent acts. In addition, the risk factors examined apply only to girls who are particularly vulnerable to childhood sexual violence. To make it possible to design interventions aimed at primary prevention, future studies should focus on the perpetrators and on predictive factors. These limitations notwithstanding, the present study succeeded in identifying several factors that potentially influence girls' risk of experiencing sexual violence and the findings will be useful in developing more targeted preventive interventions.

Acknowledgments

We thank the survey participants and the field team members who interviewed them. We also thank Zodwa Mthethwa for her expertise and logistical support in conducting the training and survey; Nonhlanhla Hleta-Nkambule, Tizie Maphalala, Amos Zwane, the Swaziland Central Statistics Office, Mark Anderson, Thomas Simon, Rachel Jewkes, Kathleen Basile, Lynn Jenkins, Michele Lynberg, Xiangming Fang, Susan Settergren, George Bicego, Basia Tomczyk, Diane Hall and Stacy DeJesus for their crucial input. We are also grateful to Yuko Kusamichi and Michael Gerber for their logistical support and to Kristin Becknell for conducting the background literature search. Finally, we thank the Swaziland Action Group Against Abuse and Save the Children for supporting this study.

Competing interests:

None declared.

References

1. Finkelhor D. The international epidemiology of child sexual abuse. *Child Abuse Negl* 1994;18:409-17. doi:10.1016/0145-2134(94)90026-4 PMID:8032971

2. Jewkes R, Sen P, Garcia-Moreno C. Sexual violence. In: Krug EG, Dahlberg LL, Mercy JA, Zwi AB, Lozano R, editors. *World report on violence and health*. Geneva: World Health Organization; 2002. pp. 147–82.

3. Runyan D, Wattam C, Ikeda R, Hassan F, Ramiro L. Child abuse and neglect by parents and other caregivers. In: Krug EG, Dahlberg LL, Mercy JA, Zwi AB, Lozano R, eds. *World report on violence and health*. Geneva: World Health Organization; 2002. pp. 57-86.

4. Jewkes R, Levin J, Mbananga N, Bradshaw D. Rape of girls in South Africa. *Lancet* 2002;359:319-20. doi:10.1016/S0140-6736(02)07530-X PMID:11830201

5. Reza A, Breiding MJ, Gulaid J, Mercy JA, Blanton C, Mthethwa Z, et al. Sexual violence and its health consequences for female children in Swaziland: a cluster survey study. *Lancet* 2009;373:1966-72. doi:10.1016/S0140-6736(09)60247-6 PMID:19428100

6. Dunkle KL, Jewkes RK, Brown HC, Yoshihama M, Gray GE, McIntyre JA, et al. Prevalence and patterns of gender-based violence and revictimization among women attending antenatal clinics in Soweto, South Africa. *Am J Epidemiol* 2004;160:230-9. doi:10.1093/aje/kwh194 PMID:15257996

7. Speizer IS, Goodwin MM, Samandari G, Kim SY, Clyde M. Dimensions of child punishment in two Central American countries: Guatemala and El Salvador. *Rev Panam Salud Publica* 2008;23:247-56. PMID:18505605

8. Boney-McCoy S, Finkelhor D. Prior victimization: a risk factor for child sexual abuse and for PTSD-related symptomatology among sexually abused youth. *Child Abuse Negl* 1995;19:1401-21. doi:10.1016/0145-2134(95)00104-9 PMID:8777692

9. Finkelhor D, Moore D, Hamby SL, Straus MA. Sexually abused children in a national survey of parents: methodological issues. *Child Abuse Negl* 1997;21:1-9. doi:10.1016/S0145-2134(96)00127-5 PMID:9023018

10. Sedlak AJ. Risk factors for the occurrence of child abuse and neglect. *J Aggress Maltreat Trauma* 1997;1:149-87. doi:10.1300/J146v01n01_09

11. Drake B, Pandey S. Understanding the relationship between neighborhood poverty and specific types of child maltreatment. *Child Abuse Negl* 1996;20:1003-18. doi:10.1016/0145-2134(96)00091-9 PMID:8958452

12. Chapko MK, Somsé P, Kimball AM, Hawkins RV, Massanga M. Predictors of rape in the Central African Republic. *Health Care Women Int* 1999;20:71-9. doi:10.1080/073993399245971 PMID:10335157

13. *Strategic direction for child maltreatment prevention: preventing child maltreatment through the promotion of safe, stable, and nurturing relationships between children and caregivers.* Atlanta: Centers for Disease Control and Prevention; 2008. Available from: www.cdc.gov/ViolencePrevention/overview/strategicdirections.html [accessed 28 October 2010].

14. King G, Flisher AJ, Noubary F, Reece R, Marais A, Lombard C. Substance abuse and behavioral correlates of sexual assault among South African adolescents. *Child Abuse Negl* 2004;28:683-96. doi:10.1016/j.chiabu.2003.12.003 PMID:15193855

15. Madu SN. The relationship between parental physical availability and child sexual, physical and emotional abuse: a study among a sample of

university students in South Africa. *Scand J Psychol* 2003;44:311-8. doi:10.1111/1467-9450.00350 PMID:12887552

16. Madu SN, Peltzer K. Risk factors and child sexual abuse among secondary school students in the Northern Province (South Africa). *Child Abuse Negl* 2000;24:259-68. doi:10.1016/S0145-2134(99)00128-3 PMID:10695520

17. Brown J, Cohen P, Johnson JG, Salzinger S. A longitudinal analysis of risk factors for child maltreatment: findings of a 17-year prospective study of officially recorded and self-reported child abuse and neglect. *Child Abuse Negl* 1998;22:1065-78. doi:10.1016/S0145-2134(98)00087-8 PMID:9827312

18. Ajuwon AJ, Olaleye A, Faromoju B, Ladipo O. Sexual behavior and experience of sexual coercion among secondary school students in three states in North Eastern Nigeria. *BMC Public Health* 2006;6:310. doi:10.1186/1471-2458-6-310 PMID:17187685

19. Fleming J, Mullen P, Bammer G. A study of potential risk factors for sexual abuse in childhood. *Child Abuse Negl* 1997;21:49-58. doi:10.1016/S0145-2134(96)00126-3 PMID:9023022

20. Paveza GJ. Risk factors in father-daughter child sexual abuse: a case-control study. *J Interpers Violence* 1988;3:290-306. doi:10.1177/088626088003003003

21. World development indicators online [Internet]. Washington: The World Bank; 2007. Available from: http://data.worldbank.org/indicator. [accessed 22 October 2010].

22. *Swaziland Demographic and Health Survey 2006-2007*. Mbabane: Central Statistical Office & Macro International Inc.; 2008.

23. *Crop and food supply assessment mission to Swaziland, report 23 May 2007*. Rome: Food and Agriculture Organization & World Food Programme; 2007. Available from: http://www.fanrpan.org/documents/d00305/FAO-WFP_Report_Swaziland_May2007.pdf [accessed 9 November 2010].

24. *Manual for enumerators: population and household census 2007*. Mbabane: Census Office, Government of Swaziland; 2007.

25. Kish L. A procedure for objective respondent selection within the household. *J Am Stat Assoc* 1949;44:380-7. doi:10.2307/2280236

26. *South Africa Demographic and Health Survey 1998: full report*. Pretoria: National Department of Health; 2002. Available from: http://www.doh.gov.za/facts/1998/sadhs98/ [accessed 4 March 2007].

27. Eaton DK, Kann L, Kinchen S, Ross J, Hawkins J, Harris WA, et al. Youth risk behavior surveillance–United States, 2005. *MMWR Surveill Summ* 2006;55:1-108. PMID:16760893

28. *Behavioral surveillance surveys: guidelines for repeated behavioral surveys in populations at risk of HIV*. Durham: Family Health International; 2000.

Available from: http://www.fhi.org/en/HIVAIDS/pub/guide/bssguidelines.htm [accessed 3 March 2009].

29. Knight ED, Smith JS, Martin L, Lewis T. the LONGSCAN Investigators. *Measures for assessment of functioning and outcomes in longitudinal research on child abuse. Vol. 3: Early adolescence (ages 12–14).* Available from: http://www.iprc.unc.edu/longscan/ [accessed 3 March 2009].

30. *Putting women first: ethical and safety recommendations for research on domestic violence against women*. Geneva: World Health Organization; 2001. Available from: http://www.who.int/gender/violence/womenfirtseng.pdf [accessed 29 July 2009].

31. Jansen HAFM. *"Putting women first" ethical and safety recommendations for research on violence against women: training in research in reproducting health/sexual health*. Geneva: World Health Organization; 2006. Available from: http://www.gfmer.ch/Medical_education_En/PGC_RH_2006/pdf/Putting_Women_First_Jansen_2006.pdf [accessed 3 March 2009].

32. Lesniak LP. Penetrating the conspiracy of silence: Identifying the family at risk for incest. *Fam Community Health* 1993;16:66-76.

33. Glaser D. Child sexual abuse. In: Rutter M, Taylor EA, editors. *Child and adolescent psychiatry*. Malden: Blackwell; 2005. pp. 340-58.

34. Wilkinson RB, Walford WA. Attachment and personality in the psychological health of adolescents. *Pers Individ Dif* 2001;31:473-84. doi:10.1016/S0191-8869(00)00151-3

35. Maunder RG, Hunter JJ. Attachment relationships as determinants of physical health. *J Am Acad Psychoanal Dyn Psychiatry* 2008;36:11-32. doi:10.1521/jaap.2008.36.1.11 PMID:18399744

36. Forehand R, Armistead L, Long N, Wyckoff SC, Kotchick BA, Whitaker D, et al. Efficacy of a parent-based sexual-risk prevention program for African American preadolescents: a randomized controlled trial. *Arch Pediatr Adolesc Med* 2007;161:1123-9. doi:10.1001/archpedi.161.12.1123 PMID:18056556

37. Long N, Miller KS, Forehand R, Armistead L, Kotchick B, McNair L, et al. *The Parents Matter! program: promotion of parenting skills to prevent youth HIV*. Presented at the LB oral abstract session, The XV International AIDS Conference, Bangkok, Thailand, 2004 (abstract no. LbOrD33).

38. Allen CM, Lee CM. Family of origin structure and intra/extrafamilial childhood sexual victimization of male and female offenders. *J Child Sex Abuse* 1992;1:31-45. doi:10.1300/J070v01n03_03

Table 1. **Demographic characteristics of female respondents who did or did not experience sexual violence in childhood,[a] Swaziland, 2007**

Characteristic	Sexual violence					
	Yes			No		
Age group (yr)	**No.**	**WTD %**	**95% CI**	**No.**	**WTD %**	**95% CI**
13–14	35	8.2	5.7–11.7	219	25.9	22.4–29.7
5–16	62	14.4	11.6–17.9	136	16.7	13.2–20.8
17–18	127	32.0	28.2–36.2	107	13.3	11.4–15.6
19–20	84	22.1	18.2–26.6	135	18.0	15.1–21.3
21–22	60	13.1	9.9–17.1	118	13.5	10.5–17.1
23–24	50	10.2	7.4–13.9	109	12.7	9.9–16.1
Residence						
Urban	80	18.7	8.8–35.3	121	13.0	6.2–25.4
Rural	338	81.3	64.7–91.2	703	87.0	74.6–93.8
Orphanhood status						
At least one biological parent deceased[b]	164	41.2	36.4–46.2	285	33.5	29.2–38.1
Both biological parents deceased	23	6.5	4.0–10.3	60	8.1	6.0–11.0
Biological mother only deceased	51	12.6	9.6–16.4	74	8.1	6.3–10.3
Biological father only deceased	90	21.6	17.2–26.7	151	16.9	13.9–20.4
Marital status						
Married	49	10.4	6.6–16.1	78	9.3	6.8–12.5
School attendance						
Ever attended school	403	97.6	93.4–99.2	800	97.4	95.4–98.5
Attending school at time of survey	139	35.3	30.0–41.0	442	55.3	48.4–62.0
Violently treated by an adult[c]						
Physically	63	14.1	10.2–19.3	77	8.9	7.0–11.3
Emotionally	82	18.3	14.0–23.6	81	9.9	8.0–12.2

CI, confidence interval; WTD, weighted.

[a] Sexual violence before the age of 18 years.

[b] Consistent with the definition of an orphan in Swaziland.

[c] Before the age of 13 years.

Table 2. **Association between the experience of sexual violence in childhood[a] among female respondents and potential demographic and social risk factors, Swaziland, 2007**

Characteristic	Model[b]			
	Full[c]		Reduced	
	AOR	95% CI	AOR	95% CI
Relationship with mother				
Extremely/quite close[d]	–	–	–	–
Somewhat/not very close	1.88	1.21–2.92	1.98	1.27–3.10
None	2.34	1.26–4.35	2.26	1.19–4.29
Largest no. of people lived with (at any one time)	1.04	1.01–1.07	1.04	1.01–1.06
Total no. of families lived with				
1[d]	–	–	–	–
2	1.00	0.66–1.52	–	–
≥ 3	1.58	0.99–2.53	–	–
Attending school at time of survey				
Yes[d]	–	–	–	–
No	2.12	1.60–2.82	2.28	1.68–3.08
Aware of sex between student and teacher				
Yes	1.68	1.21–2.34	1.69	1.23–2.33
No[d]	–	–	–	–
Social support				
Average time (h) spent daily with friends				
0	0.81	0.52–1.28	–	–
< 1	0.53	0.30–0.94	–	–
1–2	0.89	0.51–1.54	–	–
3–4	0.71	0.39–1.29	–	–
> 4[d]	–	–	–	–
Physical violence witnessed or Experienced[e]				
Yes	1.59	1.00–2.55	–	–
No[d]	–	–	–	–
Emotional violence witnessed or experienced[e]				
Yes	2.06	1.46–2.91	2.21	1.57–3.11
No[d]	–	–	–	–
Ever told about/witnessed someone being sexually assaulted[e]				
Yes	1.43	1.01–2.02	1.45	1.03–2.03
No[d]	–	–	–	–

AOR, adjusted odds ratio; CI, confidence interval.

[a] Sexual violence before the age of 18 years.

[b] Models controlled for age, socioeconomic status and residence (urban/rural).

[c] Full models included any variables that were significant in individual models (adjusted Wald χ^2 for $P < 0.10$).

[d] Reference category.

[e] Before the age of 13 years.

Box **1**. **Questions about the experience of sexual violence in childhood[a] during a study conducted in Swaziland, 2007**

Forced intercourse

Was there a time when a man or boy physically forced you to have sexual intercourse[b] against your will?

Coerced intercourse

Was there a time when a man or boy persuaded or pressured you to have sexual intercourse against your will? In other words, did you ever give in to sexual intercourse with a man or boy because you felt overwhelmed by continual arguments and pressure?

Attempted unwanted intercourse

Was there a time when a man or boy tried to make you have sex when you did not want to but did not succeed?

Unwanted touching of respondent

Was there a time when a man or boy touched you against your will in a sexual way (i.e. touched, kissed, grabbed or fondled you) but did not try to force you to have sex?

Forced touching of perpetrator

Was there a time when a man or boy forced you to touch his private parts against your will but did not try to force you to have sex?

[a] Sexual violence before the age of 18 years.

[b] The terms “sex” and “sexual intercourse” were defined for the respondent as the act by a man of putting his penis in the respondent’s vagina or anus. Oral sex was not specifically included in the definition, since pilot testing of the survey showed that oral sex was not culturally accepted in Swaziland.