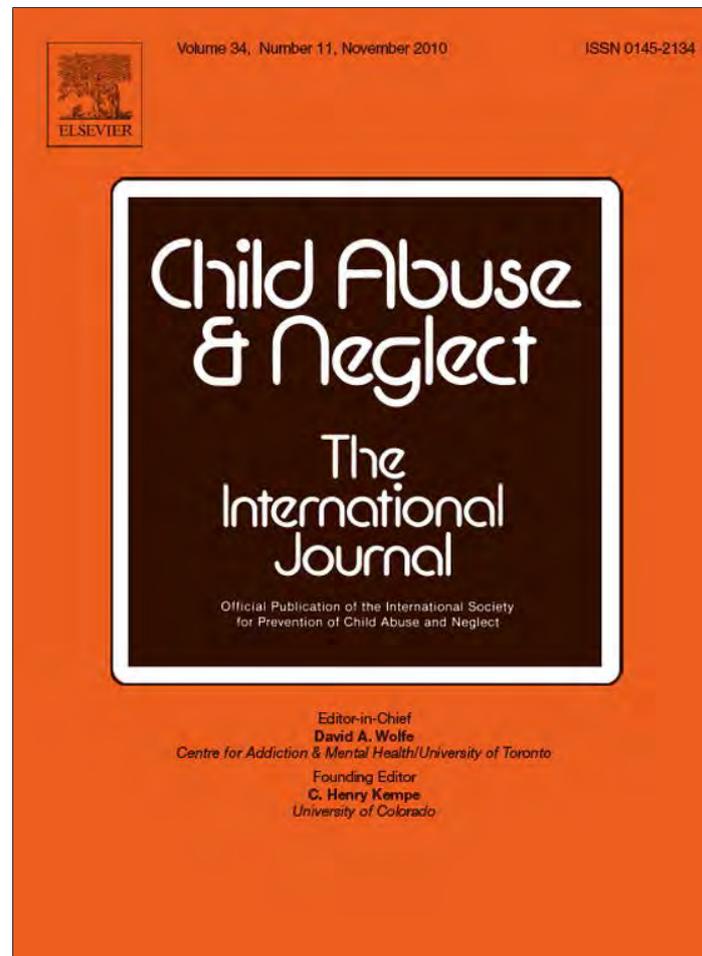


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Child Abuse & Neglect



Associations between childhood adversity and depression, substance abuse and HIV and HSV2 incident infections in rural South African youth[☆]

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ABSTRACT

Objectives: To describe prevalence of childhood experiences of adversity in rural South African youth and their associations with health outcomes.

Methods: We analyzed questionnaires and blood specimens collected during a baseline survey for a cluster randomized controlled trial of a behavioral intervention, and also tested blood HIV and herpes simplex type 2 virus at 12- and 24-month follow up; 1,367 male and 1,415 female volunteers were recruited from 70 rural villages.

Results: Both women and men before 18 had experienced physical punishment (89.3% and 94.4%), physical hardship (65.8% and 46.8%), emotional abuse (54.7% and 56.4%), emotional neglect (41.6% and 39.6%), and sexual abuse (39.1% and 16.7%). Incident HIV infections were more common in women who experienced emotional abuse (IRR 1.96, 95% CI 1.25, 3.06, $p = .003$), sexual abuse (IRR 1.66 95% CI 1.04, 2.63, $p = .03$), and physical punishment (IRR 2.13 95% CI 1.04, 4.37, $p = .04$). Emotional neglect in women was associated with depression (aOR 1.82, 95% CI 1.15, 2.88, $p = .01$), suicidality (aOR 5.07, 95% CI 2.07, 12.45, $p < .0001$), alcohol abuse (aOR 2.17, 95% CI .99, 4.72, $p = .05$), and incident HSV2 infections (IRR 1.62, 95% CI 1.01, 2.59, $p = .04$). In men emotional neglect was associated with depression (aOR 3.41, 95% CI 1.87, 6.20, $p < .0001$) and drug use (aOR 1.98, 95% CI 1.37, 2.88, $p < .0001$). Sexual abuse was associated with alcohol abuse in men (aOR 3.68, 95% CI 2.00, 6.77, $p < .0001$) and depression (aOR 2.16, 95% CI 1.34, 3.48, $p = .002$) and alcohol abuse in women (aOR 3.94, 95% CI 1.90, 8.17, $p < .0001$).

Practice implications: Childhood exposure to adversity is very common and influences the health of women and men. All forms of adversity, emotional, physical and sexual, enhance the risk of adverse health outcomes in men and women. Prevention of child abuse need to be included as part of the HIV prevention agenda in sub-Saharan Africa. Interventions are needed to prevent emotional, sexual, and physical abuse and responses from health and social systems in Africa to psychologically support exposed children must be strengthened.

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Introduction

Exposure to adversity in childhood violates children's basic human rights and has significant implications for their health and social development. Research on adverse experiences in childhood, including child abuse, has been a substantially neglected area, especially in Africa. Yet this is critical for building a global climate of respect for human rights, and understanding what child protection is needed, why it is important and the policy responses required.

Sexual violence against girls has been described in a number of studies, with the prevalence reported varying depending on the definition used. Research with women in 3 sites in Tanzania and Namibia has found between 9.5% and 21% of women reporting unwanted sexual contact before age 15 and a third of young women in Swaziland reported sexual abuse before 18 (Garcia-Moreno, Jansen, Ellsberg, Heise, & Watts, 2005; Reza et al., 2009). Schools are a particularly common context for sexual and physical abuse in Africa (Human Rights Watch, 2001; Jewkes, Levin, Bradshaw, & Mbananga, 2002). In South Africa corporal punishment in schools has been illegal since 1996 but the government has not managed to enforce the law (Morrell, 2001a, 2001b). Research from Uganda and Zambia has also pointed to the ubiquity of the use of physical punishment in homes (Naker, 2005; Slonim-Nevo & Mukuka, 2007). While highly prevalent sexual and physical abuse of children in sub-Saharan has been documented, there has been little attempt to conceptualize or ascertain the prevalence of neglect or emotional abuse and even less work on abuse of boys.

Research mostly in developed countries has shown that children who have been physically or sexually abused have a greater risk of depression, suicidality, post-traumatic stress disorder, unwanted pregnancy, and sexually transmitted infections (Felitti et al., 1998; Jewkes et al., 2006a; Runyan, Wattam, Ikeda, Hassan, & Ramiro, 2002; Slonim-Nevo & Mukuka, 2007; Turner, Finkelhor, & Ormrod, 2006). In research with Native American tribes, women exposed to emotional, physical, and sexual abuse were more likely to develop alcohol dependency, as were men exposed to sexual and physical abuse (Koss et al., 2003). Exposure to abuse and neglect negatively affects the development of a child's brain, with consequent cognitive, psychological, and social impairment (Perry, 2001), as well as a risk of developing anti-social and violent behavior (Caspi et al., 2002; Perry, 2001), including rape perpetration (Jewkes, Dunkle, et al., 2006; Knight & Sims-Knight, 2003; Malamuth, 2003).

We used data collected in South Africa during a research project evaluating an HIV prevention intervention (Jewkes, Nduna, et al., 2006; Jewkes et al., 2008) to describe here the prevalence of exposure to childhood adversity and test hypotheses that such exposures were associated with prevalent depressive symptomatology, suicidality, and substance abuse, as well as incident herpes simplex type 2 virus infection (HSV2) and HIV infections over 2 years of follow up.

Methods

Between 2002 and 2003 we recruited 1367 men and 1415 women aged 15–26 years into a cluster randomized controlled trial undertaken to evaluate the HIV prevention behavioral intervention Stepping Stones. They were volunteers from 70 study clusters (64 villages and 6 townships) in the rural Eastern Cape province of South Africa near the town of Mthatha. Eligible participants were aged 16–23 years, normally resident in the area where they schooled and mature enough to understand the study and consent process. There was a difference between the actual (15–26 years) and intended age of participants which is discussed in detail elsewhere (Jewkes, Nduna, et al., 2006). Most were recruited from schools, where between 15 and 25 youth of each sex per village were enrolled in the study.

Clusters were randomly allocated to the 2 study arms. The Stepping Stones intervention uses participatory learning approaches, including critical reflection, role play, and drama and draws the everyday reality of participants' lives into the sessions. It is delivered to single sex groups, which are run in parallel, and has 13 3-hour long sessions that are complemented by 3 meetings of male and female peer groups, and a final community meeting. The program spanned about 50 hours and ran for 6–8 weeks. The control intervention was a single 3-hour session on HIV, safer sex, and condoms. The content was taken from Stepping Stones. Both interventions were delivered by facilitators employed by the project.

We administered questionnaires and collected blood samples before the intervention (baseline) and after about 1 and 2 years. Participants were located for the follow up interviews using details collected at enrolment; 1,121 men and 1,100 women were successfully traced and provided data for the HIV and HSV2 incidence analyses. Age and sex-matched interviewers conducted face to face interviews with participants in isiXhosa (their first language). A trained nurse counselor provided counseling before HIV testing to groups of 8–10 people after they had enrolled for the study, signed consent for the interview, and completed the baseline questionnaire. Participants with positive results were told their CD4 counts and screened for medical problems. They were also referred to local health services and HIV support groups according to a referral algorithm. For the first years of the study anti-retroviral medication was not available in the public sector in the study area. The Medical Research Council paid for lunch, transport, and consultation fees for HIV positive participants accessing health services. The study nurses supported participants with social problems and HIV related problems throughout the course of the study, referring to social workers or health facilities as appropriate. Further description of the trial methods is published elsewhere (Jewkes, Nduna, et al., 2006).

Access and ethics

In each cluster, recruitment started with general community mobilization, and the study was explained to key local figures. In most villages the chief (or his representative) called a monthly community meeting. Typically a staff member

attended and made a brief presentation and then took questions from the community, including from parents of potential participants. After the community meeting project staff went to the school to raise interest in the study and invited possible participants to a meeting. Here they explained the study to a group of about 60 young men and women in the targeted age group. Names were taken and the group was asked to decide on the 40 people who were most likely to be able to participate in the study. The presenter read aloud the study's consent form to the 40 and gave an opportunity for questions. The form explained the procedures that would occur in some detail. After the group presentation we asked for confirmation that there was still general interest in participation and asked the young people to talk with their families before committing themselves. Each potential participant received a Xhosa language leaflet describing the study in terms understandable to a lay audience. Those who decided to participate were asked to report at an assigned time anywhere from 2 to 7 days later. At that time, they provided and signed formal informed consent and study recruitment was finalized. All participants were given 20 rand (about \$2.50) after each interview. Written informed consent was provided by all participants for each round of data collection. We had an active community advisory board and data safety and monitoring board. Ethical approval for the study was given by the University of Pretoria.

Defining and measuring adverse childhood experiences

Adverse childhood experiences at baseline were measured on a modified version of the short form of the Childhood Trauma Questionnaire (Bernstein et al., 1994). We assessed 5 dimensions of adversity: emotional neglect, emotional abuse, physical neglect/hardship, physical abuse, and sexual abuse (Cronbach's alpha for scale .77 in women, .75 in men). The items used are shown in Table 2. We adapted the scale for local use with Xhosa youth through lengthy discussion with newly recruited project staff, who were men and women of the same age as the participants, and who had mostly grown up in the study area. Discussions covered cultural relevance, wording and meaning, with a group consensus achieved on the most accurate and appropriate Xhosa translation for each item.

Participants were asked whether before the age of 18 they had experienced each act never, sometimes, often, or very often. Each dimension of adversity was then categorized as a 3 level variable: the "never" exposure category required no exposure to any item in the dimension, the "some" exposure category was used when a participant responded "sometimes" to 1 item only, and a "often" exposure category, signified as response of "sometimes" to more than 1 item or any response of "often" or "very often."

Psychosocial outcomes

We measured current and past year alcohol use using the 12-item AUDIT scale (Saunders, Aasland, Babor, de la Fuente, & Grant, 1993). We used a cut point of 8 for "problem drinking." We measured drug use by asking about ever use of dagga (marijuana), benzene, mandrax, injected drugs, or other drugs and dichotomized respondents into ever and never users.

Depressive symptomatology was measured with the Centre for Epidemiologic Studies Depression Scale (CES-D) ascertaining symptoms in the past week. The term 'depression' here refers to a CES-D score over 21, which is regarded as indicating a high probability of clinical depression. We also asked about suicidal thoughts in the past month.

Biological outcomes

HIV incidence was determined through blood tests at baseline, 12 and 24 months. HIV serostatus at each time point was assessed with 2 rapid tests (World Health Organization, 2004). The Determine (Abbott Diagnostics, Johannesburg) test was used as a screening test and specimens that tested positive were retested with Uni-gold™ (Trinity Biotech, Dublin, Ireland). An HIV-1 screen ELISA (Genscreen) followed by 2 confirmatory ELISAs (Vironostika and Murex 1.2.0 if HIV positive) was performed to clarify any indeterminate results. Two Glycoprotein G-based herpes simplex virus type 2 ELISAs were used to test for herpes infection, Kalon (Kalon Biological Ltd., Aldershot, United Kingdom) and HerpeSelect Immunoblot IgG (Focus Technologies, Cypress, Calif.). An additional test, CAPTIA herpes simplex virus (HSV) IgG type specific ELISAs was used to resolve discrepant results. Participants who tested positive for HIV or HSV2 at baseline were excluded from the incidence analyses for each of these respective outcomes.

Covariates

All analyses were controlled for a range of socio-demographic and study design variables. These include age, education completed (grouped as up to and including grade 10 vs. higher), parental death, and socio-economic status. Socio-economic status was measured on a scale derived for the study, taking into account the overall poverty of the study area. This included household goods ownership (TV, radio, and car), food insufficiency (frequency of hunger and going without meat), and perceived difficulty accessing a modest sum of money for a medical emergency (R100 which is £9). Factor analysis was used to weight the items before use in data analysis.

Table 1
Socio-demographic and health characteristics of the sample.

	Women		Men	
	<i>n</i> = 1415		<i>n</i> = 1367	
	%	95% Confidence interval	%	95% Confidence interval
Age				
16–17	43.7	39.6, 47.7	30.5	26.6, 34.4
18–20	46.9	43.3, 50.4	53.8	50.6, 56.9
21 and over	9.5	7.4, 11.5	15.7	13.0, 18.5
Education				
Up to grade 10	86.1	9.3, 18.4	87.3	83.8, 90.8
Grades 11, 12 or post-school	13.9	9.3, 18.4	12.7	9.2, 16.2
Orphaning				
None	66.8	64.1, 69.4	65.4	63.1, 67.7
Father died	23.4	21.1, 25.7	25.2	22.6, 27.8
Mother died	6.6	5.1, 8.0	6.7	5.3, 7.9
Both parents	3.3	2.3, 4.3	2.9	2.0, 3.7
Depression (CES-D 21+)	10.9	8.9, 12.8	7.2	5.9, 8.6
Suicidality	2.6	1.7, 3.5	.8	.2, 1.4
Alcohol abuse	3.3	2.3, 4.3	25.2	22.1, 28.4
Drug abuse	6.4	4.7, 8.0	38.4	34.7, 42.1
HIV prevalent infection	11.2	9.5, 13.0	1.9	1.1, 2.7
HSV2 prevalent infection	29.2	25.9, 32.6	10.2	8.4, 11.9
HIV new infections	11.6	9.5, 13.8	2.6	1.6, 3.5
HSV2 new infections	11.7	9.2, 14.2	3.2	2.1, 4.3

Statistical analysis

Analyses were carried out using Stata release 10.0. All procedures used in data analysis took into account the study design, viewing the baseline study as a stratified, 2-stage survey with participants clustered within villages. The datasets for men and women were analyzed separately. First descriptive analyses were carried out and the main potential explanatory and outcome variables summarized as percentages with 95% confidence limits. These estimates were carried out using standard methods for estimating confidence intervals from complex multistage sample surveys (Taylor linearization).

To fit multivariable models to investigate the association between outcomes assessed at baseline and the various dimensions of childhood adversity, the following procedure was followed for each exposure and outcome combination: To account for clustering of respondents within villages, generalized linear mixed models (xtlogit) were fitted for each outcome including the relevant dimension of childhood adversity and the designated set of control variables (age, education level, parental death, and socio-economic status) and stratum. After testing which individual dimensions of childhood adversity were associated with the outcome, the model building process was repeated with the factor analyzed scale replacing the 5 dimensions. Suicidality and incident HIV and HSV2 infections in men, and drug use in women could not be modeled due to lack of statistical power.

In women there were 128 HIV seroconversions in 2,076 person years of follow up, with an HIV incidence of 6.0 per 100 person years. There were 100 HSV2 seroconversions in women in 2,020 person years of follow up, with an HSV2 incidence of 5.0 per 100 person years. For each female participant we calculated the person years of exposure as the time from baseline to the last negative result if the person remained negative, or as the total time between any negative tests as well as half the time between the last negative and first positive test. Random effects Poisson models were built to test the hypothesis that each dimension of childhood adversity predicted HIV incident infections and that each predicted HSV2 incident infections in women. Each model included variables for the study treatment arm, stratum, and person years of exposure. We excluded those who had prevalent infections at baseline. We tested for interactions between all variables in the model, including treatment arm, none were significant. We tested goodness of fit using the Poisson goodness of fit test. We confirmed the findings of associations for each outcome variable, by modeling survival time under observation using a Weibull model, with the same other variables included.

Results

Table 1 shows the distribution of socio-demographic variables and outcomes for the men and women in the sample. The men were a little older than the women, but there was no difference in educational level attained or experience of parental loss. Women reported significantly more depression and suicidality than men, and were very much more likely to have prevalent HIV and HSV2 infections at baseline and develop incident ones over 2 years follow up. Men reported more substance abuse.

The proportion of respondents reporting experience of the different forms of childhood adversity are shown in Tables 2 and 3. By far the most common was physical punishment at home. Most participants had sometimes been beaten every day or every week and implements were often used in the beatings. A quarter of participants said they had sometimes

Table 2
Prevalence of emotional abuse, neglect and physical hardship in rural South African youth.

	Women			Men		
	Never, n (%)	Sometimes, n (%)	Often/v.often, n (%)	Never, n (%)	Sometimes, n (%)	Often/v.often, n (%)
Emotional neglect						
Any form of emotional neglect	825 (58.4%)	317 (22.4%)	272 (19.2%)	825 (60.4%)	330 (24.2%)	211 (15.5%)
I lived in different households at different times	991 (70.0%)	350 (24.7%)	74 (5.2%)	961 (70.4%)	354 (25.9%)	51 (3.7%)
I spent time outside the home and none of the adults at home knew where I was	1219 (86.2%)	138 (9.8%)	57 (4.0%)	1222 (89.4%)	114 (8.3%)	31 (2.3%)
One or both of my parents were too drunk to take care of me	1211 (85.6%)	156 (11.0%)	48 (3.4%)	1193 (87.3%)	129 (9.4%)	45 (3.3%)
Emotional abuse						
Any form of emotional abuse	641 (45.3%)	450 (31.8%)	324 (22.9%)	596 (43.6%)	469 (34.3%)	301 (22.0%)
I saw or heard my mother beaten by her husband or boyfriend	911 (64.4%)	459 (32.4%)	45 (3.2%)	760 (55.6%)	546 (40.0%)	60 (4.4%)
I was told I was lazy or stupid or ugly by someone in my family	1227 (86.7%)	166 (11.7%)	22 (1.6%)	1233 (90.2%)	118 (8.6%)	16 (1.2%)
I was insulted or humiliated by someone in my family in front of other people	982 (69.4%)	365 (25.8%)	68 (4.8%)	1041 (76.2%)	291 (21.3%)	35 (2.5%)
Physical hardship						
Any form of physical hardship	626 (44.2%)	295 (20.8%)	494 (35.0%)	726 (53.2%)	356 (26.0%)	285 (20.8%)
I was not washed	1011 (71.4%)	335 (23.7%)	69 (4.9%)	1153 (84.3%)	180 (13.2%)	32 (2.5%)
My clothes were very dirty	1178 (83.3%)	196 (13.9%)	41 (2.9%)	1276 (93.3%)	81 (6.0%)	10 (.7%)
I was never warm enough	945 (66.8%)	427 (30.2%)	43 (3.0%)	903 (66.1%)	433 (31.7%)	31 (2.2%)
I did not have enough to eat	996 (70.4%)	349 (24.7%)	70 (4.9%)	1127 (82.4%)	206 (15.1%)	34 (2.5%)

Table 3
Prevalence of physical punishment and sexual abuse in rural South African youth.

	Women			Men		
	Never, n (%)	Sometimes, n (%)	Often/v.often, n (%)	Never, n (%)	Sometimes, n (%)	Often/v.often, n (%)
Physical punishment						
Any form of physical abuse	152 (10.7%)	219 (15.5%)	1004 (73.8%)	76 (5.6%)	130 (9.5%)	1161 (84.9%)
I was punished at home by being beaten	201 (14.2%)	1024 (72.4%)	190 (13.4%)	121 (8.9%)	1038 (76.0%)	207 (15.1%)
I was punished at home by being beaten every day or every week	943 (66.6%)	400 (28.3%)	72 (5.1%)	994 (72.7%)	350 (25.6%)	23 (1.7%)
I was beaten at home with a belt or stick or whip or something else which was hard	436 (30.8%)	912 (64.5%)	66 (4.7%)	210 (15.4%)	1091 (79.9%)	65 (4.7%)
I was beaten so hard at home that it left a mark or bruise	1056 (74.7%)	297 (21.0%)	61 (4.3%)	1055 (77.2%)	271 (19.8%)	41 (3.0%)
Sexual abuse						
Any form of sexual abuse	862 (60.9%)	338 (23.9%)	215 (15.2%)	1139 (83.3%)	175 (12.8%)	53 (3.9%)
Someone touched my thighs, buttocks, breasts or genitals when I did not want him to or made me touch his private parts when I did not want to*	1196 (84.5%)	194 (13.7%)	25 (1.8%)	1261 (92.2%)	89 (6.5%)	17 (1.3%)
I had sex with a (wo)man who was more than 5 years older than me	1067 (75.5%)	295 (20.9%)	52 (3.7%)	1238 (90.6%)	114 (8.4%)	14 (1.0%)
I had sex with someone who was not my (girl)boyfriend because I was threatened or frightened or forced	1368 (96.7%)	43 (3.0%)	4 (.3%)	1335 (97.7%)	26 (1.9%)	6 (.4%)
I was forced to have sex against my will by a boyfriend**	1237 (87.4%)	158 (11.2%)	20 (1.4%)	n/a	n/a	n/a

* Wording for males: Someone touched my thighs, buttocks or genitals or made me touch them when I did not want to.

** Only asked for females.

or often been marked or bruised. Men reported more frequent and severe physical punishment than women. Neither emotional abuse nor emotional neglect showed any gender differences. In contrast, women reported substantially more sexual abuse than men. Physical hardship was reported more commonly by women than men, with notable differences in reports of not having enough to eat, and not being washed or having clean clothes.

The adjusted odds ratios for the relationship between the different forms of childhood adversity and mental health, and substance abuse are presented in Table 4 for women and Table 5 for men. For women, the incidence rate ratios for HIV and HSV2 by exposure to childhood adversity are presented in Table 4. There was more depression in women reporting emotional neglect and sexual abuse, but depression was less common among women who had some (rather than no) experience of physical punishment. In men, depression was very strongly associated with emotional neglect. In women, suicidality was very strongly associated with emotional neglect.

Alcohol abuse was more common in women who had experienced emotional neglect and sexual abuse, and in men it was associated with emotional abuse, physical hardship, and sexual abuse. In women no association was found between drug use and any individual dimension of childhood adversity, but the scale as a whole was associated (aOR 1.43 per unit increase in score; 95% CI 1.15, 1.78, $p = .001$). Drug abuse in men was associated with physical hardship.

The incidence of HIV was significantly higher in women experiencing emotional abuse, sexual abuse, and physical abuse. Women reporting emotional neglect had a higher incidence of HSV2 infections over 2 years of follow up.

Discussion

A high proportion of rural South African youth experience adversity in childhood of a nature that is hurtful, exploitative, or neglectful, and many children experience multiple forms. There has previously been little research on emotional abuse and neglect in Africa, but we have shown them to be highly prevalent and of considerable importance for health of girls and boys. Emotional neglect was associated with 6 of the 8 outcomes studied, and emotional abuse was associated with the other 2 outcomes. Gender stereotypes often depict men and boys as being emotionally and physically resilient, yet our findings show that neither boys nor girls are resilient in the face of emotional neglect and abuse and indeed these forms of adversity have very serious implications for their health. Most notably women who had experienced emotional abuse, as well as sexual and physical abuse were at increased the risk of acquisition of HIV infections and those who had experienced emotional neglect had a 62% higher incidence of HSV2 infections (a co-factor that increases the risk of HIV up to threefold [Freeman et al., 2006]). To date child protection needs are discussed in the context of HIV responses, chiefly in relation to orphans, this research strongly suggests that they should be addressed as part of HIV prevention.

Physical punishment was particularly common, a finding which echoes research from Uganda and Zambia, and also frequently caused visible injury (Naker, 2005; Slonim-Nevo & Mukuka, 2007). Sexual abuse was reported by 39% of women, which is a little higher than the 33% who reported it in a randomly selected sample of women in Swaziland (Reza et al., 2009).

Depression and alcohol abuse were more common in sexually abused women and there was some evidence they were at greater risk of acquiring HIV. These findings are similar to those of Reza et al. (2009) in Swaziland who found sexual abuse associated with depression and suicidal ideation, self-reported sexually transmitted infections, alcohol use, and unwanted pregnancy, and of researchers from North America (Cohen et al., 2000; Hobfoll et al., 2002; NIMH Multisite HIV Prevention Trial Group, 2001; Wingood & DiClemente, 1997a, 1997b). Our definition of sexual abuse included sex with a partner 5 or more years older. Men who had consensual sex with girls aged 16 and 17 and who are 5 or more years older are not defined as raping under South African law, but in such relationships a marked age difference also signals a marked power differential between partners. Since the girls are definitionally children, such sex acts do meet commonly used definitions of sexual abuse (Faller, 1989). Adolescent South African girls having older partners have previously been shown to be associated with risk of prevalent HIV infections in women (Jewkes et al., 2006a; Pettifor et al., 2005). In men, sexual abuse was associated with alcohol abuse. The analysis presented here did not include questions of coerced sex by men, but a previous analysis of questions on this from the dataset has shown that this was associated with prevalent HIV infections in men (Jewkes et al., 2006b).

The study had a number of limitations. To conceptualize childhood adversity, we adapted a well-validated international measure and in so doing we made a choice to focus on experiences that were hurtful, exploitative, abusive or neglectful. There are many other forms of adversity, such as parental death, which may place young people at risk. We chose to control for parental death but not include it in the scale because it was only loosely correlated with other dimensions of child adversity in our data. While physical hardship is generally a feature of life in poverty, it is important not to overlook the potential for physical aspects of child neglect to be found in this context. In order to take into account at least some of the contribution of poverty, all models were adjusted for socio-economic status, including indicators of food availability. Indeed the gender differences in reporting exposure to physical hardship, particularly experience of hunger, need further investigation.

There may have been some under-ascertainment of adversity as some of the sample (19% of men and 44% of women) was under 18 at the time of interview (mostly age 17) and they may have been subject to ongoing experiences of adversity, or were still to have their first incident. The prevalences presented here may thus underestimate adversity prevalence in the population, but given our principal interest in adversity occurring before the outcome, we do not expect this to substantially influence the results. This was a volunteer sample and so caution is required in considering the generalizability of the results. The adverse experiences and mental health outcomes were self-reported and so may be subject to bias. To the extent that

Table 4
Adjusted ORs for the relationship between childhood adversity and depression and suicidality and substance abuse and HIV and HSV2 in women^{a,*,#}.

	Depression		Suicidality		Alcohol abuse		Incident HIV infection		Incident HSV2	
	AOR (95% CI)	p value	AOR (95% CI)	p value	AOR (95% CI)	p value	IRR (95% CI)	p value	IRR (95% CI)	p value
Physical punishment										
None	1.00						1.00			
Some	.33 (.14, .81)	.02					1.51 (.65, 3.54)	.34		
Often	.86 (.48, 1.52)	.60					2.13 (1.04, 4.37)	.04		
Sexual abuse										
None	1.00				1.00		1.00			
Some	1.90 (1.24, 2.91)	.003			.85 (.34, 2.13)	.73	1.32 (.88, 2.00)	.18		
Often	2.16 (1.34, 3.48)	.002			3.94 (1.90, 8.17)	<.0001	1.66 (1.04, 2.63)	.03		
Emotional neglect										
None	1.00				1.00				1.00	
Some	1.22 (.77, 1.93)	.39		.19	2.17 (.99, 4.72)	.05			1.62 (1.01, 2.59)	.04
Often	1.82 (1.15, 2.88)	.01		<.0001	1.82 (.81, 4.11)	.15			1.26 (.73, 2.18)	.41
Emotional abuse										
None									1.00	
Some									1.70 (1.12, 2.57)	.01
Often									1.96 (1.25, 3.06)	.003

^a Models for depression, suicidality and alcohol abuse were adjusted for age, education, socio-economic status and parental loss.

^{*} Poisson models for HIV and HSV2 were adjusted for treatment arm and stratum. Age, education, socio-economic status and parental loss were not confounders.

[#] Physical hardship was not associated with any of the outcomes in women.

Table 5Adjusted ORs for the relationship between childhood adversity and depression and substance abuse in men^{*,#,**}.

	Depression		Alcohol abuse		Drug abuse	
	AOR (95% CI)	p value	AOR (95% CI)	p value	AOR (95% CI)	p value
Physical hardship						
None			1.00			
Some			1.16 (.84, 1.61)	.35		
Often			1.48 (1.02, 2.15)	.04		
Sexual abuse						
None			1.00			
Some			1.19 (.81, 1.75)	.38		
Often			3.68 (2.00, 6.77)	<.0001		
Emotional neglect						
None	1.00				1.00	
Some	2.34 (1.39, 3.94)	.001			1.48 (1.11, 1.97)	.007
Often	3.41 (1.87, 6.20)	<.0001			1.98 (1.37, 2.88)	<.0001
Emotional abuse						
None			1.00			
Some			1.53 (1.12, 2.09)	.007		
Often			1.48 (1.02, 2.15)	.04		

* All models were adjusted for age, education, socio-economic status and parental loss.

** Physical punishment was not associated with any of the outcomes in men.

Models for suicidality and incident HIV and HSV2 are not shown due to lack of association with any adversity dimensions, individually or the composite scale.

this data was cross-sectional at the baseline assessment from which we derived our psychosocial outcome measures, there is uncertainty about the temporal relationship between adversity and outcome. A particular strength of this dataset, however, was that we had data on incident HIV and HSV2 infections and so the temporal sequence for those outcomes was established.

Efforts to understand children's exposure to adversity need to be integrated with an agenda for action. We need to generate debate and raise awareness about boundaries between acceptable childrearing and practices which are hurtful or neglectful and have adverse consequences for boy and girl children. There is a need to strengthen both community-level and statutory aspects of child protection systems, starting with identification of vulnerable children in schools and adequate follow up of children who come to the attention of authorities, for example after rape (Vetten et al., 2008). In South Africa stronger social welfare services are needed so that intervention does occur when children are referred. There is an urgent need to better conceptualize and implement appropriate child protection services for developing country settings. Services to meet the psychological needs of children and to assist in recovery from trauma need to be more accessible.

Epidemiological research is needed into the prevalence of and risk factors for abuse in a range of settings. There is also a need for qualitative research to enable a deeper understanding of the social context in which children are exposed to different forms of adversity in childhood and social dynamics that influence abusive practices. There is also a need for intervention research to define what is effective in protecting children from abuse, changing parenting and care-giving practices, strengthening responses from health and social services and criminal justice systems, and identifying what is of benefit to children in low resource settings.

Conclusions

Exposure of children to adverse experiences is very common and has been a highly neglected area of research in Africa. Particularly neglected has been research on emotional abuse and neglect, which we have shown has an adverse impact on the health of young adults. While associations between physical and sexual abuse and risk of depression, suicidality and substance abuse are well recognized in other populations, our findings that exposure to several forms of childhood adversity increase the risk of women acquiring HIV and HSV2 over a period of 2 years of follow up are novel. These demonstrate the importance of interventions to protect children as part of overall efforts to combat the HIV epidemic in Africa. Interventions to prevent neglect and abuse of children and develop services to protect and support those who have been exposed need a much higher profile and priority in sub-Saharan Africa.

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