Prevalence of Parental Death Among Young People in South Africa and Risk for HIV Infection

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Objectives: This study estimated the prevalence and sociodemographic characteristics of young people in South Africa who have experienced parental death and examined associations between parental death and young people's HIV status and sexual behaviors.

Design and Methods: Data were from a cross-sectional nationally representative household survey of 11,904 15- to 24-year-old South Africans. Surveys included items on sexual behavior and family composition, and oral fluid samples were collected to test for HIV status.

Results: The prevalence of parental death was 27.3% overall: 22.4% reported a father deceased, 7.9% reported a mother deceased, and 3.0% reported both parents deceased. Parental death was disproportionately associated with black ethnicity, impoverished household living conditions, lack of an adult guardian in the home, and not completing compulsory education levels. Controlling for sociodemographic factors, parental death among female participants was significantly associated with HIV-positive status (odds ratio [OR] = 1.25, 95% confidence interval [CI]: 1.08 to 1.44), ever having had oral sex (OR = 1.23, 95% CI: 1.02 to 1.49), ever having had vaginal sex (OR = 1.38, 95% CI: 1.19 to 1.60), and having more than 1 sex partner during the past year (OR = 1.33, 95% CI: 1.07 to 1.64). Among male participants, parental death was significantly associated with ever having had vaginal sex (OR = 1.19, 95% CI: 1.04 to 1.36) and having unprotected sex at the last sexual episode (OR = 1.23, 95% CI: 1.07 to 1.42).

Conclusions: More than one quarter of young South Africans have experienced parental death. Death of a parent is associated with young female South Africans' HIV status and sexual behaviors among young female and male South Africans. HIV prevention interventions are necessary to address the specific needs of young South Africans who have experienced parental death.

Key Words: HIV, parental death, sexual behavior, South Africa, young people

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South Africa remains one of the nations most severely affected by the HIV/AIDS epidemic.[1–3] As of 2003, 22% of all South Africans were estimated to be living with HIV.[2] HIV incidence in South Africa is highest among young people between the ages of 15 and 24 years.[4] Research has identified multiple HIV risk factors for young South Africans, such as high levels of sexual risk behavior, sexual crime, female disempowerment, and stigma-related barriers to prevention.[5,6] Robust gender differences in HIV prevalence in South Africa have been reported, including a study showing that 15.5% of female South Africans and 4.8% of male South Africans between the ages of 15 and 24 years tested positive for HIV.[7] In addition to gender, HIV-positive status was associated with being black, residing in an urban setting, having not completed high school, and having had multiple lifetime sex partners.

An additional hypothesized HIV risk factor for many young South Africans is parental death. Estimated life expectancy in South Africa has declined significantly over the past 2 decades, with adults more frequently dying during their reproductive and parenting years.[8] As of 2001, more than 1.5 million children in South Africa were orphans; this estimate is expected to rise to 2.3 million orphans by 2010.[8] Approximately half of all parental deaths in South Africa during the past decade have been attributed to AIDS,[9–12] but precise estimates are difficult to make because of reporting biases, stigma, and low levels of testing.[2,13] These findings suggest that, regardless of the cause of parental mortality, a significant proportion of young people who have lost their parents during adolescence or childhood might now be entering early adulthood.

Because adolescence and young adulthood are crucial developmental periods for establishing intimate relationships, initiating sexual activity, and considering future goals, young people who have experienced parental death might be vulnerable for adverse outcomes such as sexually transmitted infections (STIs), unplanned pregnancies, and health risk behaviors.[14,15] The death of a parent is among the most difficult issues that young people might confront and is associated with a range of psychosocial consequences, including emotional distress and behavioral problems.[16,17] In US studies, parental death attributable to AIDS has been shown to contribute to

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young people's risk for depression and passive problem solving immediately after the death and to sustained levels of increased sexual behavior at longer term follow-up.[18] In sub-Saharan African studies, parental death has been linked with lower levels of school enrollment and educational achievement among children and younger adolescents.[19,20]

To improve our understanding of parental death as a potential HIV risk factor among young people in South Africa, we examined data from a 2003 cross-sectional nationally representative household survey of South Africans aged 15 to 24 years. This is among the largest HIV prevalence and social epidemiologic surveys of young people to date in South Africa. The aims of this report were to (1) estimate the prevalence of parental death among 15- to 24-year-olds in South Africa, including death attributable to the loss of a father, a mother, or both parents; (2) describe sociodemographic characteristics associated with parental death among young people; (3) examine associations between parental death and young people's HIV status and sexual behaviors; and (4) examine whether associations between parental death and young people's HIV status and sexual behaviors vary according to gender.

METHODS

Sample and Procedure

A full description of the survey methodology can be found elsewhere.[7] Briefly, participants were recruited using a 3-stage, stratified, disproportionate systematic sampling of the 9 provinces of South Africa. The sampling frame was based on the 2001 National Census, with census enumeration areas as the primary sampling units. Within each sampled enumeration area, households were enumerated and 1 young person aged 15 to 24 years per household was invited to participate in the survey interview. In total, 11,904 interviews were completed so that 77.2% of enumerated and eligible youth completed an interview.

Interviews were conducted between March and August 2003. The questionnaire was developed based on a review of other South African and international surveys addressing similar issues.[4] Interviewers aged 18 to 35 years received 1 week of intensive training and were matched with participants by gender, language, and race. Face-to-face interviews included questions on sociodemographic characteristics, family and household composition, sexual behaviors, symptoms of STIs, attitudes and norms toward HIV/AIDS, and awareness of and exposure to HIV prevention and education messages. The survey interview was translated from English into 8 indigenous South African languages (Sotho, Zulu, Tswana, Xhosa, Pedi, Venda, Tsonga, and Afrikaans) and back-translated to ensure comparability.

Participants provided oral fluid samples using the Orasure HIV-1 Oral Specimen Collection Device (Orasure Technologies, Bethlehem, PA), and testing for HIV-1/2 antibodies was conducted using the Vironostika Uni-Form II HIV1/2 plus O MicroElisa System (Biomerieux, Durham, NC). HIV testing was anonymous, and results were linked by a unique identification number. Participants were informed that they would not receive their test results and were referred to the nearest clinic for voluntary HIV counseling and testing if they wished.

All participants provided informed consent, and additional consent from an adult caregiver was obtained for participants aged 15 to 17 years. Study procedures were approved by the Committee for the Protection of Human Subjects, University of the Witwatersrand, South Africa.

Statistical Analysis

Weighting of the final sample considered differential sampling probabilities and the distribution of young people aged 15 to 24 years in South Africa according to the 2001 National Census, taking specific consideration of gender, age, race, province, and rural or urban representativeness. Analyses were conducted in STATA 8.0 (Stata Corporation, College Station, TX) using *svy* methods and were adjusted for sample strata, primary sampling units, and population weights.

We examined prevalence of parental death (any parent deceased, father deceased, mother deceased, or both parents deceased) and descriptive associations between parental death and sociodemographic characteristics (Table 1). Bivariate and multivariate logistic regression analyses were used to assess whether parental death was associated with HIV status and with specific sexual behaviors. Multivariate analyses controlled for potential sociodemographic variable confounders previously shown to be associated with HIV status and sexual behavior. Because of strong gender differences in HIV status and risk behaviors among South African youth reported elsewhere,[7] separate multivariate models for female and male participants were also conducted (Table 2).

RESULTS

Prevalence of Parental Death

Weighted prevalence of any parental death was 27.3% overall: 22.4% reported their father deceased, 7.9% reported their mother deceased, and 3.0% reported both parents deceased. For those paternally bereaved individuals, their fathers died, on average, 8.6 years ago (median = 6.0 years, SD = 6.8) when the participants were, on average, 10.7 years old (median = 12.0 years old, SD = 7.0). For those maternally bereaved individuals, their mothers died, on average, 6.6 years ago (median = 6.0 years, SD = 5.70) when participants were 12.6 years old (median = 13.0 years old, SD = 5.7).

Characteristics Associated With Parental Death

Table 1 shows descriptive associations between sociodemographic characteristics and parental death. Compared with those with both parents living, young people who experienced any parental death disproportionately were older than 18 years of age; black; lived in KwaZulu-Natal, Eastern Cape, and Free State provinces; inhabited rural informal areas; lived in dwellings made of traditional material, such as mud, or in shacks; lacked electricity; lived without any adult caretaker; and had not completed the ninth grade compulsory education level. Sociodemographic correlates of paternal death and dual parental death were identical to the patterns observed for any parental death (see Table 1). Sociodemographic correlates of

TABLE 1. Overall Weighted Prevalence of Parental Death and Univariate Associations With Sociodemographic Characteristics

Variables	Both Parents Living (Weighted %)	Any Parent Deceased (Weighted %)	*P*	Father Deceased (Weighted %)	*P**	Mother Deceased (Weighted %)	*P*†	Both Parents Deceased (Weighted %)	*P*‡
Overall	72.8	27.3		22.4		7.9		3.0	
Age, years			0.00		0.00		0.00		0.00
15–18	52.3	41.6		41.3		41.3		37.6	
19–24	47.7	58.4		58.7		58.7		62.4	
Race			0.00		0.00		0.00		0.02
Black	80.2	89.3		90.0		88.6		91.7	
Colored	12.7	7.9		7.5		9.1		8.0	
White	4.7	1.5		1.3		1.5		0.0	
Indian	2.5	1.3		1.3		0.8		0.3	
Gender			0.64		0.69		0.91		0.59
Male	48.0	48.5		48.4		47.6		46.7	
Female	52.0	51.6		51.6		52.4		53.3	
Province			0.00		0.00		0.00		0.00
Eastern Cape	13.3	14.9		15.4		12.6		15.1	
Free State	8.4	10.7		10.3		13.7		13.4	
Gauteng	11.3	9.0		9.1		8.7		7.4	
KwaZulu-Natal	15.9	21.6		21.6		21.7		23.4	
Limpopo	13.9	12.9		13.6		9.8		10.5	
Mpumalanga	10.5	1.1		10.7		11.0		11.4	
North West	10.2	9.2		8.7		10.3		9.4	
Northern Cape	4.3	3.9		3.2		6.3		5.4	
Western Cape	12.2	7.5		7.5		6.0		4.0	
Geographic area type			0.00		0.00		0.22		0.00
Rural formal	6.9	7.2		7.0		8.1		8.8	
Rural informal	38.7	44.4		45.3		41.3		45.0	
Urban formal	49.1	42.8		42.0		44.7		38.5	
Urban informal	5.3	5.6		5.8		5.9		7.7	
Main material used for walls of home dwelling			0.00		0.00		0.36	20.5	0.00
Traditional materials (eg, mud brick, dugga)	14.1	19.4		20.3		16.9		6.6	
Temporary shack (eg, plastic, cardboard, plywood)	3.4	3.7		4.1		3.8		10.3	
Permanent shack (eg, corroguated iron, mixed brick)	7.8	9.5		9.9		8.9		62.4	
Permanent house (eg, brick, block)	74.6	67.1		65.6		70.2			
House has electricity			0.00		0.00		0.05		0.06
Yes	81.7	75.5		74.8		77.5		76.2	
No	18.3	24.5		25.2		22.5		23.8	
Has parent or caretaker (older than 18 years) living with him/her			0.00		0.00		0.00		0.00
Yes	91.3	85.2		85.6		80.7		75.5	
No	8.7	14.8		14.4		19.3		24.5	
Completed compulsory education			0.00		0.01		0.00		0.02
Yes	54.0	50.1		51.0		47.3		47.0	
No	46.0	49.5		49.0		52.3		53.0	

Some variables do not sum to 100% because of missing values. *P* values are associated with Pearson χ^2 tests.
*Associated with Pearson χ^2 test with comparison group: father living.
†Associated with Pearson χ^2 test with comparison group: mother living.
‡Associated with Pearson χ^2 test with comparison group: at least 1 parent living.

TABLE 2. Associations Between Parental Death, HIV Status, and Sexual Behaviors Among Young Female and Male South Africans

	Female South Africans			Male South Africans		
	Weighted %	Unadjusted OR (95% CI)	Adjusted* OR (95% CI)	Weighted %	Unadjusted OR (95% CI)	Adjusted* OR (95% CI)
HIV positive						
Both parents living	12.4	1.00	1.00	4.4	1.00	1.00
One or more parents deceased	18.3	1.57 (1.37–1.82)	1.25 (1.08–1.44)	6.0	1.38 (1.08–1.75)	1.16 (0.90–1.49)
STI past 12 months						
Both parents living	11.2	1.00	1.00	5.5	1.00	1.00
One or more parents deceased	14.5	1.09 (0.91–1.30)	1.01 (0.84–1.21)	6.3	1.00 (0.79–1.28)	0.94 (0.74–1.20)
Ever had oral sex						
Both parents living	8.9	1.00	1.00	10.4	1.00	1.00
One or more parents deceased	11.4	1.31 (1.10–1.58)	1.23 (1.02–1.49)	10.3	0.99 (0.82–1.18)	1.06 (0.87–1.27)
Ever had vaginal sex						
Both parents living	61.9	1.00	1.00	61.4	1.00	1.00
One or more parents deceased	74.9	1.82 (1.62–2.06)	1.38 (1.19–1.60)	70.2	1.48 (1.32–1.67)	1.19 (1.04–1.36)
Ever had anal sex						
Both parents living	3.1	1.00	1.00	3.4	1.00	1.00
One or more parents deceased	3.8	1.21 (0.88–1.68)	0.97 (0.69–1.37)	3.1	0.91 (0.67–1.24)	0.87 (0.64–1.18)
>1 sex partner past 12 months						
Both parents living	11.9	1.00	1.00	43.0	1.00	1.00
One or more parents deceased	14.3	1.24 (1.01–1.52)	1.33 (1.07–1.64)	43.4	1.02 (0.87–1.19)	1.01 (0.87–1.18)
Always used condoms past 12 months						
Both parents living	27.6	1.00	1.00	41.2	1.00	1.00
One or more parents deceased	25.4	0.89 (0.76–1.05)	1.04 (0.88–1.24)	36.9	0.83 (0.71–0.97)	0.91 (0.77–1.08)
Unprotected sex at last sexual episode						
Both parents living	51.0	1.00	1.00	37.0	1.00	1.00
One or more parents deceased	53.9	1.12 (0.98–1.29)	1.02 (0.89–1.18)	44.0	1.34 (1.17–1.54)	1.23 (1.07–1.42)
Ever experienced forced sex						
Both parents living	8.9	1.00	1.00	1.9	1.00	1.00
One or more parents deceased	10.4	1.20 (0.97–1.47)	1.13 (0.92–1.41)	1.8	0.91 (0.56–1.49)	0.88 (0.54–1.42)
Ever engaged in transactional sex						
Both parents living	2.2	1.00	1.00	3.5	1.00	1.00
One or more parents deceased	2.7	1.23 (0.79–1.91)	1.16 (0.74–1.85)	3.0	0.84 (0.56–1.28)	0.82 (0.54–1.23)

*Each model adjusted for age, province, race, geographic area type, dwelling type, household electricity, caregiver status, and education status.

maternal death were slightly different: geographic area type (ie, living in rural informal areas) and dwelling type (ie, living in dwelling made of traditional material or in shacks) were not associated with maternal death.

Parental Death, HIV Status, and Sexual Behaviors

In the overall sample, parental death was significantly associated with HIV-positive status (adjusted odds ratio [AOR] = 1.19, 95% confidence interval [CI]: 1.05 to 1.36), ever having had vaginal sex (AOR = 1.21, 95% CI: 1.09 to 1.34), and unprotected sex at the last sexual episode (AOR = 1.11, 95% CI: 1.00 to 1.22). Parental death was marginally associated with ever having had oral sex (AOR = 1.12, 95% CI: 0.98 to 1.29) and having more than 1 sex partner during the past year (AOR = 1.12, 95% CI: 0.99 to 1.27). There were no observed associations in the overall sample between parental death and STIs during the past year, anal sex, consistent condom use during the past year, forced sex, or transactional sex.

Table 2 shows associations between parental death, HIV status, and sexual behaviors separately for female and male participants. Parental death among female participants was significantly associated with HIV-positive status, ever having had oral sex, ever having had vaginal sex, and having more than 1 sex partner during the past year. Among male participants, parental death was significantly associated with ever having had vaginal sex and having unprotected sex at the last sexual episode.

DISCUSSION

In this nationally representative sample of 15- to 24-year-olds from all 9 provinces of South Africa, more than one fourth of the population had experienced parental death and parental death was associated with HIV status among female participants and with sexual behaviors among female and male participants. The prevalence of parental death in this sample corresponds to prior findings. An analysis of probability samples from 40 sub-Saharan African countries, based on data

from the multiple indicator cluster surveys (MICS) and the demographic and health surveys (DHS), estimated that 9% of children younger than the age of 15 years had experienced the death of a parent and that 1% had experienced the deaths of both parents.[13] The South African DHS subsample, collected in 1998, indicated that 9.7% of children <15 years of age had experienced parental death: 7.6% reported paternal death, 1.4% reported maternal death, and 0.8% reported both parents deceased.[13] Our analyses extended this age range into young adulthood and arrived at a similar patterns of parental loss, with paternal death much more common than maternal death. Parental death prevalence levels were higher in our data, which was partially attributable to the older age range in our sample but may also be attributable to increasing mortality. Another study calculated statistical models based on recent female mortality and maternal fertility rates, however, and estimated that 30% of 15- to 17-year-olds in South Africa had experienced maternal death as of 2001.[22] It is unclear as to why our estimates of maternal death are different, but this might be attributable to the assumptions made about fertility and maternal mortality input into the mathematic models and limitations in our household sampling method, which did not include young people living on the street or in institutions.

The association found here between parental death and HIV status indicates that loss of 1 or both parents may potentially pose an independent risk for HIV infection among young female South Africans. This association could not be entirely accounted for by the adverse socioeconomic indicators or age, because these factors were controlled for statistically. Although it is possible that some of these HIV-positive young South Africans might have been infected through perinatal transmission or infected breast milk,[23] these routes are not likely to explain most cases. Other research has indicated that the median survival age of children infected perinatally is 2 years, and that the median survival age is 6 years for those infected through breast milk;[22] age ranges in our study far exceeded these survival estimates. Moreover, our sample was born in a period during which antiretroviral treatments, if available at all, were accessible to only a few South Africans. Therefore, it is likely that HIV-positive young South Africans who experienced parental death in our sample were infected through sexual transmission. Indeed, we found that young people who experienced parental death were also more likely to have engaged in behaviors that are linked with HIV transmission, including multiple sex partners among female participants and recent unprotected sex among male participants. The specific mechanisms by which parental death contributes to unsafe sexual behaviors and HIV infection remain to be determined.

There are several limitations to this study. First, because of AIDS-related stigma and cultural norms discouraging discussion of sex in South Africa, participants may have underreported sexual behaviors. Second, cause of parental death in this sample is unknown; thus, inferences about levels of parental loss attributed directly to AIDS cannot be made. Third, because of the disruption of nuclear family units in South Africa, which is attributable to migration and forced dislocation, rising mortality, and structural violence, many young South Africans do not know both biologic parents; hence, their reports on parental mortality might actually reference other kin caregivers or foster caregivers. Fourth, because of high rates of the absence of fathers in South Africa, some young people might have misattributed the absence of their father to paternal death. Fifth, because of the cross-sectional nature of the data, statements of causality or temporal order among variables cannot be made. Sixth, because of the household sampling method used, these data excluded young people who lived on the street or in nonhousehold settings such as hospitals or prisons. These groups may be particularly vulnerable. Finally, child-headed homes were not included in the survey, which might contribute to underestimating the prevalence of South African children who lack adult caregivers.

Several strengths of the study should be emphasized. This is the first known study of this size conducted in South Africa to examine associations of parental death with HIV risk. The use of nationally representative sampling minimizes some of the biases associated with convenience- or venue-based sampling approaches. Our inclusion of older adolescents and young adults (15–24 years old) provides an important social epidemiologic risk profile of young people who are commonly excluded from studies on childhood orphans. Focusing on young people between the ages of 15 and 24 years offers important insight into the health, prevention, and treatment needs of the next generation of South African adults. Furthermore, use of serologic testing in this study allows reliable estimates of HIV prevalence in this sample.

Future research is necessary to understand the social and behavioral mechanisms of action through which experience of parental death leads to HIV risk in young people. For example, age at first sex, sex partner characteristics, intimate relationship dynamics, contraception methods, access to health care and reproductive counseling, and other detailed aspects of sexual history may help to explain why young female South Africans who have experienced parental death face more substantial risk for HIV. Moreover, gender effects should be examined further in future studies, including possible gender differences in the social and economic sequelae of parental death, whether loss of a mother or father differentially is associated with risk, and whether maternal versus paternal death affects adolescent boys and girls in different ways.[24,25] In addition, factors that may offer protection against negative health outcomes, such as HIV, for young people who have experienced parental death should also be explored. This may include the role of guardians and alternative parental figures, community support systems, siblings and other family members, and access to educational interventions. Qualitative methods can also be useful in understanding the first-person experiences, including HIV risk and protective factors, of young South Africans who have lost a parent. Guided by further insight into the causal risks for infection among these young people, intervention research can address those specific risks.

The findings presented here reinforce the urgent need for AIDS-related policy and interventions for South African young people. Fundamentally, these data reveal a large proportion of the South African population entering adulthood without living parental figures. Intervening with this group can

potentially have lasting changes on further HIV transmission rates and on the population's general health, mortality, education, and economic outcomes. This group is mostly black, poor, and living in disadvantaged areas, and they face increased risk for being HIV-positive, particularly young female South Africans. These are especially relevant findings in the context of current debate in sub-Saharan Africa concerning the necessity of specific provisions for individuals who have experienced the death of a parent attributable to AIDS-related causes.[26] There is a clear necessity to reduce the magnitude and consequences of parental death attributable to AIDS and other illness for the current and future generations of young South Africans.

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