Household HIV/AIDS status and sexual debut among adolescents in Kenya

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Extended Abstract

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Abstract:

Adolescents in households affected by HIV/AIDS may be at an increased risk of poorer reproductive health than other adolescents due to the impoverishing effects of AIDS in households or lack of parental guidance. In this paper, we examine the effect of parents' HIV status on adolescent sexual and reproductive health, focusing on early sexual debut among adolescents in Kenya. The analysis places particular emphasis on comparisons of the relative disadvantage of different groups of adolescents aged 15-17 years, with particular reference to those living in households where an adult is infected with HIV. The data come from the 2003 and 2008 Kenya Demographic and Health Surveys (KDHS). The results suggest increased vulnerability among adolescent boys and girls living in households where an adult is infected with HIV, especially when other household factors are controlled for. On average, adolescent boys and girls living in households where at least one adult is infected with HIV have about 50% higher odds of having initiated sexual activity compared to their counterparts of similar age and gender in households where no adult is HIV positive. The odds are more than 60% higher when household characteristics and circumstances relating to wealth, household head and living arrangements are controlled for. Further analysis reveals that the observed vulnerability among adolescents living in households with HIV infected adults is partly explained by background factors relating to region of residence and ethnicity and to a lesser extent by school non-attendance and mass media exposure.

Key words: adolescent sexual debut; adolescents affected by HIV/AIDS; Kenya; Demographic and Health Surveys; logistic regression models

INTRODUCTION

The devastating impact of the HIV/AIDS pandemic in sub-Saharan Africa is most profoundly reflected in the lives of children, the most vulnerable members of families andcommunities. The scale of the AIDS orphans crisis is masked by the time lag between infection and death, implying that the crisis will continue to grow for many years, even in countries where HIV prevalence has started to decline. Orphans and vulnerable children are not necessarily young children and problems caused by orphaning extend well beyond age 15, with available data suggesting that adolescents make up the majority of orphans in all countries (UNAIDS, UNICEF and USAID, 2004). The numbers of orphans reflect only a fraction of the number of children whose lives will have been radically affected by the impact of AIDS. Millions of other children are subjected to psychological distress, economic pressures and responsibilities of caring for ailing parents and siblings when the HIV-infected parents are still alive. HIV/AIDS poses a significant threat to adolescents' health and life prospects in sub-Saharan Africa where AIDS has become the single largest cause of disease/death (UNAIDS and WHO, 2009). Early adolescent sexual onset is of public health importance because it contributes to ill sexual and reproductive health by elevating the risk of unintended pregnancies and sexually transmitted diseases (STDs). Early sexual debut increases young peoples' risk for infection with HIV and other STIs because youth who initiate sexual activity early are likely to have multiple sex partners (Mott et al., 1996) and less likely to use condoms (Enaik et al., 2002).

HIV/AIDS can have devastating effects on households and, subsequently, on the lives of children and adolescents across the continent. The mechanisms through which the pandemic affects adolescents' prospects are multiple and complex, ranging from the effects of orphanhood to those of residence in a household impoverished by AIDS-related illnesses and/or opportunistic infections. When parents fall sick, particularly in poor families, most children end up in income-generating activities after dropping out of school. Many children orphaned by AIDS lose their childhood and are forced by circumstances to become producers of income or food, or caregivers for sick family members. In many cases, such children become increasingly vulnerable to malnutrition, abuse, exploitation, and ill-health, including early initiation of sexual activity (Mmari, 2010).

Adolescents in households affected by HIV/AIDS may be at an increased risk of poorer sexual and reproductive health outcomes than other adolescents due to the impoverishing effects of AIDS in households or lack of parental guidance. Findings from a recent qualitative research in Tanzania revealed three important caregiving roles that contributed to adolescent health: the provision of basic needs, advising and monitoring adolescent behaviors, and assigning household chores. Adolescent participants believed that when these roles are compromised, female orphans' sexual behaviors are impacted (Mmari, 2010). A US study on young adolescents from ethnic minority low income families living in inter-city communities observed no difference in risk behaviours between youth with and without HIV infected mothers. However, among youth with HIV positive mothers, those who knew their mothers status had more thought problems and reported more frequent alcohol use (Mellins et al., 2005).

Since all children whose lives are affected by HIV/AIDS are not vulnerable to miserable life and ill-health, it is important to understand the factors that place adolescents at risk of ill sexual and reproductive health. In this study, we use information from population-based sample surveys conducted in a typical sub-Saharan African setting, Kenya, to identify HIV/AIDS factors that make adolescents vulnerable to early sexual debut in such settings. An analysis of the determinants of early adolescent sexual onset in a setting adversely affected by the HIV/AIDS pandemic is set to be of benefit to public health practice

because it provides the possibility of understanding the extent to which the devastating impact of the pandemic is reflected in poor and unfavorable adolescent sexual outcomes. In this paper, we examine the effect of HIV status of adult household members on adolescent sexual debut. The specific objectives are:

- examine the link between HIV status of adult household members and early sexual debut among adolescents in Kenya; and

- establish the role of background socio-economic, demographic and cultural factors in explaining the observed associations between household HIV status and early sexual debut among adolescents.

Data and methods

The data used in this study come from the 2003 and 2008 Kenya Demographic and Health Surveys (KDHS). The analysis links the individual/household survey data with the HIV testing data. The analysis focuses on never married adolescents aged 15-17 years. In each of the surveys, the sample of adolescent boys and girls is about 800, providing sufficient samples for analysis of the determinants of sexual debut.

The analysis is based on logistic regression models. The dependent variable measures early initiation of sexual intercourse among adolescents. It is included in the analysis as a dichotomous variable coded "1" if an adolescent aged 15-17 years has ever had sexual intercourse and "0" otherwise. We focus on early sexual onset because research has consistently identified an association between early age at first sex and involvement in several kinds of socially unacceptable activities such as school absenteeism, premarital sexual activity, fighting and use of controlled substances (Mott et al., 1996). Early sexual debut increases young people's risk for infection with HIV and other STIs because people who begin having intercourse at younger ages are expected to be more likely to engage in unprotected sexual intercourse with casual partners and to have multiple and concurrent partnerships. Condom use can be effective in casual relationships when the age gap between partners is relatively small, but may be extremely challenging in cross-generational and transactional relationships.

The key explanatory variables used as an indicator for household HIV/AIDS status is HIV status of adult household members. Covariates controlled for in the analyses include: individual demographic, socio-economic and cultural factors (e.g. age, school enrolment, educational attainment, media exposure, urban/rural residence, religion); and household factors, including socio-economic status (wealth index), gender of household head, and living arrangements. These covariates are introduced to the models in successive stages to establish potential pathways of the determinants, starting with the household HIV/AIDS while controlling for age and sex, followed with other household factors, before introducing the individual socio-economic and cultural characteristics. We postulate that the covariates included in the model can help explain the sexual risk associated with presence of HIV infected adults in households.

Bivariate analysis

The analysis starts with an examination of the bivariate distribution of the proportion of never–married adolescent boys and girls aged 15-17 who have ever had sex by whether or not they live in households where an adult is infected with HIV and other background characteristics based on 2003 and 2008 KDHS data (Table 1).

Table 1 The proportion of never-married 15-17 year old girls and boys who have ever had sex by household HIV status and background characteristics from 2003 and 2008 KDHS.

Background characteristic	2003 KDHS				2008 KDHS			
	Females		Males		Females		Males	
	Percent	Cases	Percent	Cases	Percent	Cases	Percent	Cases
Household HIV status			*					
No HIV+ adult in hhld	19.0	331	38.3	387	20.1	371	31.8	335
HIV+ adult in hhld	22.4	51	55.8	47	29.7	35	35.0	45
Age in completed years	***				**		*	
15	8.6	139	34.4	142	13.8	129	22.4	110
16	17.8	134	40.2	173	19.2	172	34.5	164
17	37.6	109	45.6	119	30.0	105	38.1	106
Household wealth			*		*			
Poorest	17.4	66	52.3	80	25.3	83	25.7	79
Poorer	22.5	75	42.2	91	15.7	86	36.7	89
Middle	15.7	84	30.3	104	18.7	90	41.7	84
Richer	21.7	78	40.8	91	29.2	93	26.2	86
Richest	21.9	79	35.5	68	8.2	54	26.3	42
Sex of household head							**	
Male	20.7	225	38.3	281	21.6	241	37.2	243
Female	18.4	157	42.1	153	20.0	165	23.4	137
Lives with parents	**				***		*	
No	28.9	134	47.5	102	32.1	136	40.3	121
Yes	14.9	248	37.8	332	15.1	270	28.3	259
School attendance	***		***		***		***	
No	51.9	93	57.5	76	64.6	55	70.4	29
Yes	11.0	289	36.2	358	15.2	351	29.5	351
Exposure to mass media					**			
Low	14.4	99	33.7	75	15.0	166	32.6	123
Moderate	21.6	136	37.6	154	29.9	152	28.7	156
High	21.1	147	44.1	205	16.5	87	36.8	100
Residence								
Urban	22.7	96	33.3	82	15.2	64	28.0	58
Rural	19.1	286	40.9	352	21.5	342	32.7	322
Region	*		***		***		*	
Central	12.3	62	23.7	72	5.3	47	35.1	41
Nairobi	24.0	24	28.6	21	21.1	18	33.3	18
Coast	13.6	39	33.3	37	8.0	57	28.6	52
Eastern	20.3	58	35.2	75	11.5	72	25.7	69
Nyanza	35.1	68	38.6	86	38.7	70	47.4	87
Rift Valley	13.9	53	63.4	73	24.1	79	24.1	50
Western	20.3	78	36.8	70	22.2	63	30.4	63
Ethnic group	***		***		***		**	
Kalenjin	8.9	35	70.3	51	29.6	50	39.5	29
Kamba	14.5	39	37.9	48	12.5	35	15.2	39
Kikuyu	12.3	76	30.6	89	3.4	63	29.6	50
Luhya	25.7	83	33.3	64	24.2	68	25.8	65
Luo	44.2	49	43.1	60	41.5	64	47.3	75
Other	17.1	100	34.5	122	13.7	126	34.2	122
All	19.5	382	39.9	434	21.0	406	32.1	380

The bivariate patterns in Table 1 based on the 2003 and 2008 KDHS suggest that for both boys and girls, the proportion of never-married adolescents aged 15-17 who have initiated sexual activity is generally higher among those living in households where an adult is HIV positive than in households where no adult is infected. However, the association is only significant for males based on the 2003 KDHS, presumably due to the small sample sizes and low statistical power to detect significance. Despite the relatively low statistical power, there is evidence in both surveys of significant variations in sexual debut by school attendance, region of residence and ethnicity for both adolescent boys and girls. In particular, a considerably high proportion of adolescents who are out of school, or living in Nyanza Province or of Luo ethnic background have initiated sexual activity.

The bivariate association between sexual debut and HIV status of adult household members observed in Table 1 is likely to be affected by other factors, associated with both sexual debut and household HIV status. In the next section, we examine the independent association, simultaneously taking into account the effect of other significant factors in a mulrivariate analysis.

Multivariate analysis

Since the association patterns observed in Table 1are relatively consistent by gender and survey, the multivariate analysis combines the data for adolescent boys and girls across the two surveys for increased statistical power. The results of logistic regression analysis of the association between HIV status of adult household members and adolescent sexual debut are presented in Table 2. The first model only controls for survey year and the effect of basic demographic factors relating to gender and age of adolescent (Model 1). This is followed by: a second model taking into account the effect of other household factors relating to wealth, gender of household head and whether the adolescent lives with parents (Model 2); a third model taking into account school attendance and mass media exposure (Model 3); and a fourth and final model taking into account broad background factors relating to area of residence and ethnicity (Model 4).

The multivariate results in Table 2 provide strong evidence for vulnerability of adolescents living in households where at least one adult is living with HIV. On average, adolescents living in households where an adult is HIV-infected are about 50% more likely to have initiated sexual activity compared to their counterparts of similar sex and age who are living in household where no adult is infected with HIV. The higher risk among adolescents living in households with HIV-infected adults increases to over 60% when household factors relating to wealth, gender of household head and whether or not the adolescent lives with parent are controlled for. The fact that richer households are associated with a generally lower risk of sexual debut (see Table 1), but a higher risk of HIV infection (see Table A1 in the Appendix) implies that the independent association between HIV household status and sexual debut becomes more apparent when household wealth is controlled for. The higher risk of sexual debut among adolescents living in households with HIV-infected adults is partly explained by school non-attendance and mass media exposure, factors associated with higher risks of both sexual debut (see Table 2) and HIV prevalence (see Table A1 in Appendix). To a larger extent, part of the higher risk of early sexual debut among adolescents in households with HIV infected adults is explained by broader background characteristics relating to region of residence and ethnicity – the relationship ceases to be significant when these factors are controlled for.

Table 2 Logistic regression parameter estimates and odds ratios of sexual debut among never-married 15-17 year olds based on 2003 and 2008 KDHS.

Parameter	Model1		Model2		Model 3		Model 4	
	Estimate	OR	Estimate	OR	Estimate	OR	Estimate	OR
HIV+ adult hhld (no)	0.42(0.176)	1.52*	0.49(0.181)	1.64*	0.43(0.191)	1.54*	0.27(0.208)	1.30
Survey year (2003)	-0.22(0.112)	0.81*	-0.29(0.115)	0.75*	0.05(0.125)	1.05	-0.04(0.129)	0.96
Male (female)	0.81(0.115)	2.25*	0.87(0.118)	2.39*	0.95(0.125)	2.59*	1.03(0.130)	2.79*
Age in completed years	0.45(0.073)	1.57*	0.46(0.075)	1.59*	0.32(0.079)	1.37*	0.38(0.081)	1.46*
Hhold wealth (poorest)								
Poorer			-0.13(0.177)	0.88	-0.24(0.186)	0.79	-0.17(0.196)	0.85
Middle			-0.42(0.177)	0.66*	-0.65(0.191)	0.52*	-0.47(0.205)	0.63*
Richer			-0.32(0.176)	0.72	-0.68(0.197)	0.51*	-0.50(0.209)	0.61*
Richest			-0.72(0.218)	0.49*	-1.45(0.254)	0.24*	-1.17(0.338)	0.31*
Female head(male)			-0.24(0.118)	0.79*	-0.22(0.123)	0.81	-0.12(0.129)	0.89
Lives with parents (no)			-0.74(0.125)	0.48*	-0.59(0.134)	0.56*	-0.54(0.139)	0.58*
Attends school (No)					-1.70(0.173)	0.18*	-1.90(0.185)	0.15*
Media exposure (Low)								
Moderate					0.54(0.159)	1.71*	0.52(0.163)	1.69*
High					0.87(0.180)	2.39*	0.83(0.187)	2.29*
Rural (Urban)							0.18(0.278)	1.20
Region (Central)								
Nairobi							0.89(0.467)	2.43
Coast							0.41(0.441)	1.50
Eastern							1.07(0.387)	2.93*
Nyanza							1.35(0.377)	3.84*
Rift Valley							0.87(0.339)	2.39*
Western							0.86(0.405)	2.37*
Ethnicity (Kalenjin)								
Kamba							-1.22(0.385)	0.29*
Kikuyu							-0.54(0.330)	0.58
Luhya							-0.66(0.322)	0.52*
Luo							-0.25(0.335)	0.78
Other							-0.97(0.281)	0.38*

* - significant at 5% level ($p<0.05$)

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Appendix

Table A1 Distribution of analysis sample by household HIV status.

Background characteristic	Adult in household HIV+	
	Percent	Cases
Year of survey		
2003	11.0	816
2008	9.4	786
Sex of respondent		
Female	10.9	788
Male	9.4	814
Age in completed years		
15	10.8	520
16	9.5	643
17	10.2	439
Household wealth	*	
Poorest	5.3	308
Poorer	10.3	341
Middle	10.6	362
Richer	12.8	348
Richest	10.8	243
Sex of household head		
Male	9.1	990
Female	11.9	612
Lives with parents		
No	9.4	493
Yes	10.5	1109
School attendance		
No	12.4	253
Yes	9.8	1349
Exposure to mass media	*	
Low	8.1	465
Moderate	9.2	598
High	13.0	539
Residence	*	
Urban	13.9	300
Rural	9.5	1302
Region	***	
Central	9.1	222
Nairobi	14.5	81
Coast	6.9	185
Eastern	8.5	274
Nyanza	20.3	311
Rift Valley	3.8	255
Western	9.9	274
Ethnic group	***	
Kalenjin	2.3	165
Kamba	13.9	161
Kikuyu	6.7	278
Luhya	10.1	280
Luo	26.8	248
Other	4.9	470
All	10.2	1602