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## Gender Equality and Education: Increasing the Uptake of HIV Testing among Married Women in Kenya, Zambia and Zimbabwe

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### Abstract

Gender equality and education are being promoted as strategies to combat the HIV epidemic in Africa, but few studies have looked at the role of gender equality and education in the uptake of a vital service - HIV testing. This study looks at associations between education (a key input needed for gender equality) and key gender equality measures (financial decision-making and attitudes towards violence) with ever tested for HIV and tested for HIV in the past year. The study focused on currently married women ages 15–24 and 25–34 in three countries - Kenya, Zambia and Zimbabwe. The data came from the Demographic and Health Surveys (DHS). Logistic regression was used to study the role of gender equality and education on the HIV testing outcomes after controlling for both social and biological factors. Results indicated that education had a consistent positive relationship with testing for both age groups, and the associations were always significant for young women 15–24 ( $p < 0.01$ ). The belief that gender-based violence is unacceptable was positively associated with testing for women 25–34 in all three countries though the associations were only significant in Kenya (among women reporting ever being tested: OR 1.58,  $p < 0.00$ ; among women reporting being tested in the past year: OR 1.34,  $p < 0.05$ ) and Zambia (among women reporting ever being tested: OR 1.24,  $p < 0.10$ ; among women reporting being tested in the past year: OR 1.29,  $p < 0.05$ ). High financial decision-making was associated with testing for women 25–34 in Zimbabwe only (among women reporting ever being tested: OR 1.66,  $p < 0.01$ ). Overall the findings indicate that education and the promotion of gender equality are important strategies for increasing uptake of a vital HIV service, and thus are important tools for protecting girls and young women against HIV.

### Keywords

empowerment; financial decision-making; gender equality; gender-based violence; HIV; voluntary counseling and test (VCT)

### Introduction

Seventy-six percent of women and girls living with HIV are in sub-Saharan Africa. Young women aged 15–24 are at particularly high risk with a HIV prevalence of 3.4% compared to 1.4% for young men in the same age group (UNAIDS, 2010). In addition in the context of generalized epidemics in sub-Saharan Africa young married women can also be considered an at-risk group (Clark 2004; Clark, Bruce & Dude 2006). While women do have a

biological vulnerability to HIV, gender inequality can add to their risk through gender-based violence, an inability to negotiate safer sex and an inability to access needed prevention and treatment services (Greg, Peacock, Jewkes & Msimang, 2008; Jewkes, R. Dunkle, K., Nduna, M. & Shai, N, 2010; Kim, Pronyk, Barnett & Watts, 2008; Piot, Greener & Russell, 2007).

An essential step in both HIV prevention and treatment is getting individuals tested and aware of their status. According to the WHO (2011), the promotion of universal testing is needed to see substantial progress in HIV prevention and treatment. Yet in sub-Saharan Africa where HIV prevalence is so high, rates of HIV testing, though increasing, still remain low. For example in the three countries under study for this paper the percent of women aged 15–49 reporting that they have been ever tested for HIV has increased from 14.2% in 1998 to 58.4% in 2008/2009 in Kenya, 9.4% in 2001 to 39.5% in 2007 in Zambia and 11.8% in 1999 to 25.8% in 2005/2006 in Zimbabwe (CSO, MOH, TDRC, University of Zambia & Macro International Inc, 2009; CSO Zimbabwe & Macro International Inc, 2007; KNBS & ICF Macro, 2010).

Much of the existing research examining HIV testing choices has looked at models of behavior change and personal motivation (Berendes & Rimal, 2011; Creel & Rimal, 2011; Kabiru, Beguy, Crichton, & Zulul, 2011). Only recently have researchers begun to point to structural barriers as the limiting factor for low testing rates among women. Studies among women in sub-Saharan Africa show that fear of a partner's negative reaction, including abandonment, violence, rejection, loss of economic support and defaming were the most commonly reported barriers to HIV testing and disclosure of HIV status (Adams et al. 2011; de Bruyn & Paxton 2005; Rujumba et al. 2012). Thus HIV testing programs which aim to change an individual's knowledge or motivations without also addressing the root causes for a woman's hesitation in learning her status are likely to prove ineffective. Gender inequality creates a situation where women lack autonomy, resulting in their inability to negotiate prevention practices and access services including HIV testing (Wolff, Blanc, & Gage 2000).

The importance of education cannot be overlooked. Education is a key enabling factor for the empowerment process (i.e. Dixon-Mueller 1978; Kabeer 1999; Kishor 2000; Mason 1986). Education gives women knowledge and can increase their status and possibilities for paid employment. Evidence indicates that education is also an essential strategy in protecting women and girls from risky sexual behavior (Cho et al 2011; Hallfors et al. 2011; Pettifor et al. 2007). However, studies in Africa that have examined the role of education on the uptake of testing have found conflicting results (ie. Fabiani et al. 2007; Holmes, Preko, Bolds; Baidoo and Jolly 2008; Kowalczyk et al. 2002; MacPhail, Pettifor, Moyo & Rees 2009; Okonkwo, Reich, Alabi, Umeike & Nachman 2007). This study is unique in simultaneously studying the roles of education and gender equality.

We use secondary data to determine whether elements of gender equality are associated with HIV testing among married women in Kenya, Zambia and Zimbabwe. The gender measures studied have particular relevance to HIV as they include measures of financial decision-making and individual attitudes regarding gender-based violence. Because HIV is a sexually transmitted disease, a couple's dynamics including women's negotiating power are particularly important (Piot, Greener, & Russell, 2007). With the complex interplay of poverty and gender inequality, poverty reduction is being promoted as a strategy to combat HIV (Baird, Garfein, McIntosh & Ozler 2012; Handa, Halpern, Pettifor, & Thirumurthy 2012; Kim, Pronyk, Barnett & Watts, 2008; Krishnan et al. 2008; Lagarde, Haines & Palmer 2007; Pronyk et al. 2008; UNAIDS 2010). While understanding the effect of poverty reduction on risky sexual behavior and HIV is crucial, so is studying the role of household-

level financial empowerment or decision-making. Namely, are women with more say on how resources are spent, more empowered to prevent HIV and get tested?

Gender-based violence including intimate partner violence (IPV) has been shown to be an important risk factor for HIV. IPV hinders women from stating the terms of the sexual encounter, resulting in more frequent sex acts and less consistent condom use (Dunkle et al, 2004; Dunkle et al. 2006; Maman, Campbell, Sweat & Gielen 2000; Jewkes, Dunkle, Nduna & Shai, 2010; Pettifor, Measham, Rees & Padian, 2004; van der Straten et al. 1998). Fear of condom negotiation has been associated with both a failure to seek HIV testing and IPV (Pipitan, et al., 2012). Studies in Africa have shown that women with more controlling partners are at greater risk for violence (Antai 2011; Mandal and Hindin 2012), although there is not a direct link for how this partner control spills over into one's autonomous ability to seek HIV testing. Findings from this study will provide evidence for the role that important constructs of gender equality have on access to a key service in the fight against HIV.

## Methods

### Data

The data used in this paper are from Demographic and Health Surveys (DHS) conducted in Kenya (2008–2009), Zambia (2007) and Zimbabwe (2005–2006). The DHS are nationally representative household surveys that collect information on a wide range of health, nutrition and socioeconomic indicators. These three countries were selected because of their high HIV prevalence (6% in Kenya, 14% in Zambia, and 18% in Zimbabwe) and because they had data available within the last 6 years which included questions on both the gender equality measures of interest and the control variables of interest. For this study, only married or cohabiting females aged 15–34 years were included because of the nature of the gender measures available in the DHS (some of which were only asked to married women) and because of the focus on young women. The analyses were stratified by age groups (15–24 and 25–34) because the effect of the gender measures on HIV testing may differ by age. The weighted sample sizes were 1170 (Kenya), 1169 (Zambia) and 1648 (Zimbabwe) among age group 15–24 and 2051 (Kenya), 1880 (Zambia) and 2058 (Zimbabwe) among age group 25–34.

### Measures

**HIV testing**—Two outcome measures for HIV testing were studied as follows: (1) ever tested for HIV and (2) tested for HIV in the past year.

**Gender measures**—The key independent variables included two gender measures on financial decision-making and attitudes towards gender-based violence. The financial decision-making measure was based on the question: “Who usually decides how your husband's/partner's earnings will be used?” Response categories for this question were you, your husband/partner, you and your husband/partner jointly, or someone else. Women who made the decision either alone or jointly were categorized as having high financial decision-making authority. Those who were not involved in making decisions were categorized as having low decision-making authority.

Respondents were asked about their views on attitudes towards wife-beating, a form of IPV. The specific question was: “Sometimes a husband is annoyed or angered by things that his wife does. In your opinion is a husband justified in hitting or beating his wife in the following situations: (a) If she goes out without telling him? (b) If she neglects the children? (c) If she argues with him? (d) If she refuses to have sex with him? (e) If she burns the

food?” Respondents who indicated that a husband is not justified in beating his wife for any reason were categorized as believing wife beating is not acceptable. Those who indicated that wife beating is justified for at least one item were classified as believing wife beating is acceptable.

**Education**—Respondents were classified as having either primary or less education versus secondary or more.

**Other covariates**—The control variables encompassed both social and biological factors and included age, wealth quintile, residence (rural vs. urban), working status, perception of risk, any sexually transmitted disease (STD) or STD symptoms in the last 12 months, total number of lifetime partners, and working status. For the ever tested for HIV dependent variable, ever given birth was included as a control variable. However for the tested for HIV in the past year dependent variable, given birth in the past year was included.

### Statistical analyses

Logistic regression was employed for the analysis using STATA version 10.1 (College Station, TX). The *svy* command for complex survey data were used for all analyses to control for sampling design and weighting. Findings are presented with weighted percentages and weighted sample sizes.

### Results

Table 1 presents the summary statistics for the three countries. Current marriage among the 15–24 age group ranged between 34% in Kenya to 40% in Zambia and Zimbabwe. Current marriage was more common among the 25–34 age group at 77–78% in the three countries. Among those currently married, there was little within country difference between age groups in those who had ever tested for HIV and tested for HIV in the past year. However, differences in testing were present between countries with testing being highest in Kenya and lowest in Zimbabwe.

Women in Zimbabwe were the most likely to report high financial decision-making at 83% for women aged 15–24 and 84% of women aged 25–34. In contrast reporting of high financial decision-making was around 60% for women in Kenya and Zambia. Women in Zimbabwe (in both age groups) were more likely to indicate that wife beating is never acceptable compared to those in Kenya and Zambia.

### Ever Tested for HIV

Tables 2 and 3 present the multivariable logistic regressions (odds ratios and p values) for the 15–24 and 25–35 age groups, respectively. Among those in the 15–24 age group, women who had ever given birth and who were wealthier had a higher odds of having ever tested for HIV in all three countries. In terms of residence, women in rural areas in Zambia had a lower odds of having ever tested for HIV. While women with a STD in the past year in Kenya had a higher odds of ever testing for HIV, those in Zambia had a lower odds. In addition having two or more lifetime partners was associated with testing in Kenya. There were no significant associations for the gender measures (though they largely were in the expected direction). However, education was strongly and significantly associated with ever tested in all three countries with Odds Ratios of 3.4 ( $p<0.01$ ) for Kenya, 2.0 ( $p<0.00$ ) for Zambia and 1.9 ( $p<0.00$ ) for Zimbabwe.

Among those in the 25–34 age group, ever given birth was positively and significantly associated with ever tested in Kenya and Zambia but not Zimbabwe. In all three countries,

women in the higher wealth quintiles had a higher odds of having ever tested for HIV. Among the gender variables, women who reported high financial decision-making authority in Zimbabwe (OR=1.66,  $p<0.01$ ) and those who believed wife beating was never acceptable in Kenya (OR=1.58,  $p<0.05$ ) and Zambia (OR=1.24,  $p<0.10$ ) had a higher odds of having ever tested for HIV. High financial decision-making was positively, but not significantly, associated with the testing outcome in Kenya, and the belief that wife beating is unacceptable was positively but not significantly associated with ever tested in Zimbabwe. Though education was positively associated with ever tested for all three countries, the finding was only significant in Zimbabwe (OR=1.46,  $p<0.01$ )

### Tested for HIV in the past year

Tables 4 and 5 present the findings for the analysis for tested in the past year. For women 15–24 those who had given birth in the past year in Kenya and Zambia had a higher odds of having tested for HIV in the past year. Wealth and having two or more lifetime sexual partners were positively associated with testing for HIV in the past year in Zambia. Having two or more partners was also significantly associated with testing in the past year in Zimbabwe. Also in Zimbabwe, women who perceived a low or medium risk for HIV and those who did not know their risk had a lower odds of having tested for HIV. None of the gender measures were significantly associated with having tested for HIV in the past year, though all the associations were in the expected direction. Education had strong and significant associations with testing in the past year for all three countries with Odds Ratios of 1.85 ( $p<0.00$ ) in Kenya, 1.79 ( $p<0.00$ ) in Zambia and 3.33 ( $p<0.01$ ) in Zimbabwe.

Among those in the 25–34 age group, older women (30–34) in Kenya and Zimbabwe had a lower odds of having tested for HIV in the past year than younger women (25–29). Those who had given birth in the past year in Kenya and Zambia had a higher odds of having tested for HIV. Wealth had a positive association in Zambia and Zimbabwe, while rural residence had a negative association in Zambia but a positive association in Zimbabwe. Also in Zimbabwe, women who perceived a low or medium risk for HIV and those who did not know their risk had a lower odds of having tested in the past year. Having two or more lifetime partners was only associated with testing in Kenya. Attitudes to wife beating was significantly associated with tested for HIV in the past year in Kenya (OR=1.34,  $p<0.05$ ) and Zambia (OR=1.29,  $p<0.05$ ) where women who believed that wife beating was never acceptable had a higher odds of having tested. The belief that wife beating is unacceptable was positively but not significantly associated with testing in Zimbabwe. Associations with high financial decision-making were not significant, though they were in the expected direction in both Kenya and Zimbabwe. Though there were positive associations between education and testing in the past year, the finding was significant in Kenya alone (OR=1.46,  $p<0.05$ ).

### Discussion

Recently a global research and programmatic focus has emerged on the need to address gender norms and promote gender equality as a means to protect women and girls from HIV (Krishnan et al. 2007). Gender-power inequalities are key factors in the HIV epidemic (Greg, Peacock, Jewkes & Msimang, 2008; Jewkes, R. Dunkle, K., Nduna, M. & Shai, N, 2010; Kim, Pronyk, Barnett & Watts, 2008; Piot, Greener & Russell, 2007). There are different constructs of gender equality which are particularly relevant to HIV prevention for married women including, financial decision-making and attitudes regarding norms on gender-based violence. Education is also an important factor to consider because it is a key enabling factor for gender equality (i.e. Dixon-Mueller 1978; Kabeer 1999; Kishor 2000; Mason 1986), and the promotion of education has been shown to be a potential means to

reduce HIV infection among adolescents and young women (Cho et al 2011; Hallfors et al. 2011; Pettifor et al. 2007).

Knowledge of HIV status is a first step in getting women access to appropriate services for themselves and for their children. It enables the prevention of future infections through strategies such as prevention of mother to child transmission (PMTCT) and utilization of condoms with sexual partners. Women 25–34 who believed wife-beating is unacceptable were more likely to be tested for HIV in all three countries, though the finding only obtained statistical significance for women in Kenya (ever tested: OR 1.58,  $p < 0.00$ ; tested in the past year: OR 1.34,  $p < 0.05$ ) and Zambia (tested in the past year: OR 1.29,  $p < 0.04$ ). High financial decision-making was associated with ever tested for HIV in Zimbabwe (women 25–34: OR 1.66,  $p < 0.01$ ), where women were more likely to report high financial decision-making overall. Although associations between high financial decision-making and the testing outcomes were not significant in Kenya and Zambia, they were always in the expected direction in Kenya and in the expected direction for young women 15–24 in Zambia. Education was associated with testing particularly for young women 15–24, which adds to the evidence base of the promotion of education as a means to combat HIV among young women.

A key limitation of this analysis is that the data used in this study are cross-sectional and do not allow for an understanding of the casual pathway of gender equality and HIV testing. Only current decision-making and current attitudes regarding gender norms were known. It is possible that some women may have had different attitudes prior to having been tested. Despite the limitation, this analysis adds to the evidence that the promotion of gender equality can be an important strategy in the fight against HIV. Knowing one's status is the foundation of future prevention and treatment for a woman, for her children, and for her larger community. Programs and policies with a focus on girls education, empowering individual women and addressing gender-based violence have a pivotal role in increasing the ability of women to access a fundamental service in the fight against HIV – testing.

## Conclusion

HIV testing is a pivotal tool in efforts to prevent future HIV infections and to get HIV infected individuals onto treatment. This analysis studied whether education (a key input for women's empowerment) and measures of gender equality are associated with ever tested and testing in the past year. Two gender measures particularly relevant to HIV prevention efforts were studied - financial decision-making and attitudes towards gender-based violence. There were a consistent positive association between education and testing with findings always significant for the young women in the three countries. Overall the associations between the gender measures and the HIV testing outcomes were generally in the expected direction and obtained significance in many of the statistical models. Thus the findings indicate that the promotion of education and gender equality have a role to play in the HIV epidemic by enabling women to access a vital service. Efforts must be taken not just to increase educational opportunities and to address poverty but to ensure women have a voice in how family resources are used at the household level. In addition community-level efforts to address norms surrounding the acceptability of violence against women is another structural strategy that can play a crucial role in efforts to protect women and girls from HIV.

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Table 1

Summary statistics for the three countries by age group.

	Kenya		Zambia		Zimbabwe	
	Ages 15–24	Ages 25–34	Ages 15–24	Ages 25–34	Ages 15–24	Ages 25–34
Currently married (yes)	34% (1170)	77% (2051)	40% (1169)	78% (1880)	40% (1648)	77% (2058)
<b>AMONG THOSE CURRENTLY MARRIED</b>						
<b>OUTCOME/DEPENDENT VARIABLES</b>						
Ever tested (yes)	79% (912)	78% (1578)	47% (545)	46% (865)	37% (599)	34% (692)
Tested in past year	43% (496)	40% (816)	25% (289)	25% (460)	11% (138)	9% (154)
<b>SOCIOECONOMIC VARIABLES</b>						
<b>Age</b>						
15–19	18% (212)		24% (280)		27% (448)	
20–24	82% (958)		76% (889)		73% (1200)	
25–29		53% (1088)		56% (1053)		55% (1125)
30–34		47% (962)		44% (827)		45% (933)
<b>Education</b>						
Secondary or more (yes=1)	22% (257)	33% (675)	28% (333)	28% (533)	65% (1077)	66% (1350)
<b>Child bearing</b>						
Ever given birth (yes=1)	85% (999)	97% (1993)	86% (1007)	97% (1832)	79% (1297)	98% (2010)
Gave birth in past year (yes=1)	34% (402)	24% (485)	36% (419)	33% (618)	29% (481)	20% (409)
<b>Wealth index</b>						
Poorest	21% (247)	17% (357)	21% (243)	20% (376)	21% (339)	19% (399)
Poorer	19% (217)	18% (363)	21% (243)	19% (365)	21% (351)	19% (396)
Middle	17% (198)	17% (359)	23% (266)	19% (361)	19% (311)	16% (325)
Richer	20% (239)	19% (394)	22% (261)	21% (394)	25% (411)	23% (483)
Richest	23% (269)	28% (578)	13% (157)	20% (384)	14% (236)	22% (456)
<b>Residence</b>						
Rural (yes)	75% (882)	745 (1523)	68% (792)	64% (1195)	68% (1127)	64% (1319)
<b>Employment status</b>						
Working (yes)	52% (608)	69% (1410)	51% (591)	61% (1140)	38% (635)	47% (958)

	Kenya		Zambia		Zimbabwe	
	Ages 15–24	Ages 25–34	Ages 15–24	Ages 25–34	Ages 15–24	Ages 25–34
<b>RISK BEHAVIORS/SEXUAL RISK</b>						
Had STI/STI symptoms in past year (yes)	6% (71)	5% (108)	4% (44)	6% (108)	11% (182)	10% (206)
<b>Lifetime number of sexual partners</b>						
1	44% (517)	44% (911)	58% (675)	48% (900)	77% (1262)	71% (1455)
2 and above	56% (653)	56% (1140)	42% (491)	52% (974)	23% (385)	29% (604)
<b>PERCEPTION OF RISK</b>						
No risk	9% (102)	7% (133)	33% (383)	25% (468)	30% (472)	21% (435)
Low risk	39% (454)	35% (715)	21% (243)	20% (369)	29% (457)	32% (646)
Medium risk	37% (428)	40% (815)	15% (175)	20% (362)	20% (323)	22% (455)
High risk	14% (166)	18% (371)	14% (162)	19% (351)	8% (121)	10% (204)
Don't know risk	n/a	n/a	16% (183)	16% (297)	14% (223)	14% (287)
<b>GENDER EQUALITY MEASURES</b>						
<b>Financial decision-making (Decision on husband's earnings)</b>						
High	59% (665)	62% (1240)	57% (635)	60% (1078)	83% (1191)	84% (1470)
Low	41% (466)	38% (757)	43% (485)	40% (726)	17% (238)	16% (285)
<b>Attitudes towards wife beating</b>						
Never Acceptable	42% (480)	49% (996)	35% (403)	39% (729)	48% (787)	59% (1205)
Acceptable	58% (673)	51% (1023)	65% (750)	61% (1138)	52% (848)	41% (846)

Table 2

Logistic regressions for the outcome variable ever tested for HIV for age group 15–24.

	Kenya			Zambia			Zimbabwe		
	Odds Ratio	P> t	95% CI	Odds Ratio	P> t	95% CI	Odds Ratio	P> t	95% CI
Age 20–24 (Ref:15–19)	0.86	0.68	0.41, 1.79	1.07	0.72	0.75, 1.51	0.90	0.48	0.67, 1.21
Secondary education or more (Ref: primary or less)	3.38	0.01	1.38, 8.30	2.04	0.00	1.45, 2.88	1.89	0.00	1.28, 2.79
Ever given birth (Ref: no)	2.79	0.00	1.38, 5.64	3.05	0.00	1.90, 4.91	2.30	0.00	1.59, 3.33
<b>Wealth (Ref: poorest)</b>									
Poor	1.43	0.28	0.74, 2.76	1.88	0.02	1.13, 3.13	0.92	0.68	0.62, 1.36
Medium	2.04	0.03	1.08, 3.82	2.22	0.00	1.37, 3.61	1.19	0.44	0.76, 1.86
Rich	2.25	0.02	1.12, 4.52	3.72	0.00	2.02, 6.85	1.43	0.20	0.83, 2.45
Richest	3.67	0.05	1.02, 13.27	3.80	0.00	1.66, 8.72	2.02	0.04	1.04, 3.93
<b>Rural residence (Ref: urban)</b>	0.92	0.88	0.33, 2.63	0.47	0.00	0.29, 0.76	0.87	0.57	0.53, 1.42
<b>Working (Ref: not working)</b>	1.48	0.15	0.87, 2.52	0.83	0.22	0.61, 1.12	1.15	0.29	0.89, 1.48
<b>Had STD in past year (Ref: no)</b>	2.73	0.03	1.10, 6.79	0.45	0.05	0.21, 1.00	0.73	0.20	0.46, 1.18
<b>2 or more lifetime sexual partners (Ref: no)</b>	1.82	0.01	1.15, 2.87	1.24	0.11	0.95, 1.63	1.29	0.15	0.91, 1.83
<b>Perception of HIV risk (Ref: no risk)</b>									
Low risk	1.31	0.47	0.63, 2.74	0.78	0.19	0.53, 1.14	0.53	0.00	0.38, 0.75
Medium	1.20	0.58	0.63, 2.27	0.76	0.26	0.47, 1.22	0.73	0.13	0.49, 1.09
High	1.46	0.38	0.63, 3.38	0.84	0.44	0.54, 1.31	0.56	0.03	0.33, 0.95
Don't know				0.81	0.39	0.50, 1.30	0.47	0.00	0.30, 0.72
<b>GENDER EQUALITY MEASURES</b>									
<b>Financial decision-making (Ref: low)</b>	0.94	0.81	0.58, 1.54	1.17	0.32	0.86, 1.58	1.17	0.43	0.80, 1.70
<b>Attitudes towards wife beating (Ref: acceptable)</b>	1.03	0.91	0.62, 1.72	1.09	0.60	0.79, 1.50	1.14	0.42	0.83, 1.55

Table 3

Logistic regressions for the outcome variable ever tested for HIV for age group 25–34.

	Kenya			Zambia			Zimbabwe		
	Odds Ratio	P> t	95% CI	Odds Ratio	P> t	95% CI	Odds Ratio	P> t	95% CI
Age 30–34 (Ref: 25–29)	0.82	0.22	0.59, 1.13	0.97	0.77	0.78, 1.20	0.81	0.06	0.66, 1.01
Secondary education or more (Ref: primary or less)	1.19	0.39	0.80, 1.77	1.13	0.35	0.87, 1.47	1.46	0.01	1.10, 1.93
Ever given birth (Ref: no)	4.62	0.01	1.83, 11.69	5.31	0.00	2.25, 12.53	1.52	0.24	0.76, 3.06
<b>Wealth (Ref: poorest)</b>									
Poor	1.51	0.11	0.91, 2.49	1.13	0.48	0.80, 1.62	1.47	0.07	0.97, 2.21
Medium	1.54	0.10	0.92, 2.61	1.42	0.05	0.99, 2.03	1.16	0.50	0.75, 1.77
Rich	1.14	0.59	0.71, 1.82	2.95	0.00	1.80, 4.83	2.10	0.00	1.35, 3.27
Richest	2.78	0.00	1.39, 5.58	3.44	0.00	1.93, 6.13	3.20	0.00	1.83, 5.58
<b>Rural residence (Ref: urban)</b>									
Rural residence (Ref: urban)	0.63	0.20	0.32, 1.27	0.78	0.25	0.51, 1.19	1.39	0.15	0.88, 2.18
<b>Working (Ref: not working)</b>									
Working (Ref: not working)	1.19	0.38	0.80, 1.77	0.94	0.64	0.74, 1.21	1.16	0.20	0.92, 1.45
<b>Had STD in past year (Ref: no)</b>									
Had STD in past year (Ref: no)	0.76	0.43	0.38, 1.50	0.76	0.18	0.51, 1.13	1.10	0.66	0.71, 1.71
<b>2 or more lifetime sexual partners (Ref: no)</b>									
2 or more lifetime sexual partners (Ref: no)	1.01	0.95	0.70, 1.47	1.14	0.26	0.91, 1.44	1.01	0.96	0.78, 1.29
<b>Perception of HIV risk (Ref: no risk)</b>									
Low risk	0.49	0.07	0.22, 1.07	1.14	0.44	0.82, 1.58	0.66	0.01	0.47, 0.91
Medium	0.82	0.59	0.41, 1.66	1.04	0.84	0.73, 1.49	0.67	0.02	0.48, 0.94
High	0.66	0.26	0.32, 1.36	1.04	0.83	0.73, 1.47	0.90	0.66	0.56, 1.44
Don't know				0.99	0.95	0.70, 1.39	0.55	0.01	0.36, 0.84
<b>GENDER EQUALITY MEASURES</b>									
<b>Financial decision-making (Ref: low)</b>									
Financial decision-making (Ref: low)	1.30	0.14	0.92, 1.84	0.91	0.40	0.73, 1.14	1.66	0.01	1.16, 2.37
<b>Attitudes towards wife beating (Ref: acceptable)</b>									
Attitudes towards wife beating (Ref: acceptable)	1.58	0.00	1.14, 2.19	1.24	0.07	0.98, 1.57	1.22	0.11	0.95, 1.57

Table 4

Logistic regressions for outcome variable tested for HIV in the past year for age group 15–24.

	Kenya			Zambia			Zimbabwe		
	Odds Ratio	P> t	95% CI	Odds Ratio	P> t	95% CI	Odds Ratio	P> t	95% CI
Age 20–24 (Ref: 15–19)	0.80	0.38	0.49, 1.32	1.15	0.44	0.80, 1.65	0.85	0.55	0.49, 1.45
Secondary education or more (Ref: primary or less)	1.85	0.00	1.22, 2.80	1.79	0.00	1.23, 2.58	3.33	0.01	1.42, 7.80
Ever given birth (Ref: no)	4.49	0.00	3.07, 6.58	3.04	0.00	2.20, 4.22	1.02	0.95	0.51, 2.04
<b>Wealth (Ref: poorest)</b>									
Poor	1.77	0.06	0.97, 3.24	1.15	0.66	0.62, 2.12	0.62	0.41	0.20, 1.95
Medium	1.58	0.12	0.89, 2.83	1.67	0.07	0.96, 2.91	0.79	0.72	0.23, 2.79
Rich	1.33	0.35	0.73, 2.42	2.05	0.04	1.03, 4.08	1.30	0.68	0.37, 4.61
Richest	1.39	0.43	0.61, 3.14	2.25	0.04	1.05, 4.83	2.36	0.22	0.60, 9.30
<b>Rural residence (Ref: urban)</b>									
Working (Ref: not working)	0.68	0.25	0.35, 1.32	0.74	0.28	0.42, 1.28	0.82	0.60	0.39, 1.72
Working (Ref: not working)	1.16	0.44	0.79, 1.70	0.94	0.74	0.66, 1.34	1.27	0.30	0.80, 2.02
Had STD in past year (Ref: no)	1.28	0.43	0.69, 2.36	0.64	0.31	0.28, 1.50	0.51	0.14	0.20, 1.26
2 or more lifetime sexual partners (Ref: no)	1.26	0.26	0.85, 1.88	1.34	0.06	0.98, 1.84	2.00	0.04	1.02, 3.92
<b>Perception of HIV risk (Ref: no risk)</b>									
Low risk	1.33	0.34	0.74, 2.41	1.09	0.67	0.72, 1.65	0.33	0.00	0.16, 0.68
Medium	0.98	0.93	0.56, 1.71	0.73	0.28	0.41, 1.29	0.53	0.04	0.29, 0.96
High	1.42	0.28	0.75, 2.67	0.74	0.26	0.44, 1.25	0.68	0.33	0.32, 1.46
Don't know				0.74	0.30	0.43, 1.30	0.40	0.03	0.18, 0.89
<b>GENDER EQUALITY MEASURES</b>									
Financial decision-making (Ref: low)	1.15	0.44	0.81, 1.62	1.04	0.79	0.77, 1.41	1.35	0.40	0.66, 2.75
Attitudes towards wife beating (Ref: acceptable)	1.10	0.59	0.79, 1.52	1.18	0.40	0.80, 1.75	1.03	0.91	0.60, 1.78

**Table 5**  
Logistic regressions for outcome variable tested for HIV in the past year for age group 25–34.

	Kenya			Zambia			Zimbabwe		
	Odds Ratio	P> t	95% CI	Odds Ratio	P> t	95% CI	Odds Ratio	P> t	95% CI
Age 30–34 (Ref: 25–29)	0.72	0.02	0.55, 0.94	1.00	0.99	0.78, 1.29	0.66	0.09	0.41, 1.06
Secondary education or more (Ref: primary or less)	1.48	0.05	0.99, 2.18	1.19	0.25	0.89, 1.58	1.53	0.13	0.88, 2.66
Ever given birth (Ref: no)	5.07	0.00	3.60, 7.14	4.45	0.00	3.38, 5.87	0.98	0.95	0.53, 1.81
<b>Wealth (Ref: poorest)</b>									
Poor	1.16	0.56	0.70, 1.93	1.06	0.82	0.66, 1.69	0.87	0.83	0.25, 3.01
Medium	1.39	0.18	0.86, 2.23	1.35	0.22	0.83, 2.19	1.40	0.53	0.49, 4.00
Rich	1.18	0.50	0.73, 1.90	2.53	0.00	1.46, 4.40	2.53	0.06	0.97, 6.61
Richest	1.46	0.20	0.82, 2.62	2.69	0.00	1.44, 5.02	7.08	0.00	2.35, 21.40
<b>Rural residence (Ref: urban)</b>	0.64	0.17	0.34, 1.22	0.71	0.08	0.48, 1.05	2.62	0.01	1.24, 5.53
<b>Working (Ref: not working)</b>	1.05	0.79	0.74, 1.49	1.09	0.52	0.84, 1.43	0.92	0.73	0.59, 1.44
<b>Had STD in past year (Ref: no)</b>	1.04	0.90	0.59, 1.84	0.75	0.31	0.44, 1.30	1.35	0.47	0.60, 3.06
<b>2 or more lifetime sexual partners (Ref: no)</b>	1.36	0.02	1.05, 1.76	1.09	0.55	0.83, 1.42	1.09	0.72	0.67, 1.76
<b>Perception of HIV risk (Ref: no risk)</b>									
Low risk	0.83	0.53	0.46, 1.49	0.82	0.40	0.53, 1.28	0.44	0.00	0.25, 0.77
Medium	0.80	0.43	0.45, 1.40	0.96	0.82	0.65, 1.41	0.50	0.03	0.27, 0.92
High	0.91	0.78	0.49, 1.71	0.98	0.93	0.65, 1.48	1.62	0.32	0.63, 4.17
Don't know				0.78	0.25	0.51, 1.19	0.43	0.02	0.21, 0.88
<b>GENDER EQUALITY MEASURES</b>									
<b>Financial decision-making (Ref: low)</b>	1.17	0.28	0.88, 1.55	0.93	0.59	0.71, 1.21	1.72	0.13	0.86, 3.42
<b>Attitudes towards wife beating (Ref: acceptable)</b>	1.34	0.05	1.00, 1.80	1.29	0.04	1.02, 1.63	1.46	0.14	0.88, 2.41