

# The Relationship between Access to Mass Media and HIV/AIDS Related Knowledge, Beliefs and Behaviours in Kenya

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## Abstract

**Aim:** We scrutinized the association between access to mass media and HIV/AIDS related knowledge, beliefs and behaviours in Kenya. **Methods:** Data on a representative sample of Kenyan women between 15 - 30 years of age (n = 3909) was retrieved from the Kenyan demographic and health survey (DHS 2008) and analyzed using Chi-square tests and binary logistic regression. **Results:** Media use was common with over 70% of participants using radio at least once a week. Between 3% - 30% of participants had poor to inadequate knowledge/beliefs about HIV/AIDS, with variations depending on demographic and social factors such as age, education, literacy, wealth and residential area. HIV/AIDS knowledge, beliefs and behaviours were associated with exposure to media, even after control for possible co-variation with social and demographic factor. **Conclusion:** Despite wide exposure to media among young Kenyan women, substantial proportions have poor to inadequate knowledge of the aetiology, risk/protective factors and control measures of HIV/AIDS. Yet, such knowledge was positively associated with media use. Media thus could ideally be used to implement a comprehensive awareness campaign in the general population about the aetiology, risk/protective factors and control measures in HIV/AIDS.

## Keywords

HIV/AIDS, Behavior, Knowledge, Media, Women, Kenya

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## 1. Background

Sexual and reproductive health constitutes one of the biggest health challenges among young women particu-

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larly in low-income settings. Though many of the millennium development goals (MDGs) are on target, relatively lower success has been reported with those MDG's related to sexual and reproductive health namely to improve maternal health, gender equality and combat HIV/AIDS through women's empowerment (UN, 2013). Unprotected sex remains the main cause among young people of ill sexual health especially in regions hit hardest by the HIV/AIDS epidemic. Discussing condom use and other safe sex practices remain taboo among young women in low-income (Malarcher, 2012; Nyamyeya, Sheriff, & Kirya, 2007; Anne, Johnson, & Cassel, 2005). High sexual partner change rates, early marriage, misconceptions about how HIV/AIDS is transmitted, protective factors, adherence to traditional cultural values against unprotected sex and poor utility of scarcely available reproductive health services continue to threaten the effective management of HIV/AIDS transmission among young people most particularly in Sub-Saharan Africa (Kyomuhendo, 2003; KDHS 2010; UBOS, 2011).

The near eradication and control of the HIV epidemic in high-income countries was established through behavioural changes achieved mostly through investments and national commitment to STI control programs, public education and antiretroviral therapy (Anne, Johnson, & Cassel, 2005). In poor countries with constrained resources, poor educational infrastructure, and high illiteracy however, alternative channels to educate inhabitants on sexual and reproductive health are urgently needed. Media can play an important role in changing sexual behaviours, transforming negative beliefs and increasing knowledge (Anne, Johnson, & Cassel, 2005; McQuail, 2010; Johnson, 2013; Bertrand & Anhang, 2006; Bandura, 1977). The increasing availability of and access to information and communication technologies in low income countries (KDHS 2010; UBOS, 2011) thus hold promise for a new era in reproductive and sexual health management in poor countries.

Mass media theories concur that frequent use of media in behavioural presentations can influence perceptions, knowledge and attitudes as well as individual choices to change their behaviours. The social learning theory posits behavioural change through imitation of rewarded behaviour in mass media (Bandura, 1977). In communities where sex education is inaccessible due to poor infrastructural development but media use high (e.g. rural communities), the media can play an important role as a sex educator with a potential to lead to positive behavioural changes. In Sub-Saharan Africa where discussions about sex with authorities and elders is perceived as embarrassing and taboo among youth, young people have indicated the media as a top source of information regarding information about HIV/AIDS (Managing Media Monster, 2008).

In the current study, we scrutinize the association between access to mass media and HIV/AIDS related knowledge, beliefs and behaviours in young adult women in Kenya.

Kenya is characteristic of many Sub-Saharan African countries, with a largely young (70% below 30 years of age), low educated population (over 50% having no or incomplete primary education) and a literacy rate of about 85%. Yet, almost all Kenyans are estimated to use radio as a source of information and news, more than half are television owners and more than 60% are mobile phone literate mostly using the text message service (KDHS, 2010). The potential of media, information and telecommunication technologies as a sexual and reproductive health educator thus is prominent.

The purpose of this study is to explore the association between access to media and HIV/AIDS related knowledge, beliefs and behaviours in Kenya.

More specifically the following research questions are addressed:

- Is there an association between media exposure and sexual behaviour among young-women age 15 - 30 in Kenya?
- Is there an association between exposure to media and reproductive health literacy (e.g. HIV/AIDS Knowledge/beliefs)?

In addressing these research questions, demographic and social covariates are considered in the analysis.

## 2. Methodology

### 2.1. Demographic and Health Surveys

The demographic and health surveys (DHS) are carried out in several developing countries and receive main funding from the United States Agency for International Development (USAID). The key objective of the DHS is to assist participating countries in monitoring their demographic and health situation on a five-year basis. The participating countries have the main responsibility for its implementation.

The survey procedure (e.g., organization and sampling methods) and instruments used have received ethical approval from the Institutional Review Board of Opinion Research Corporation (ORC) Macro International, In-

corporated.

## 2.2. Sampling in the Kenyan DHS

The survey used a multi-stage stratified sampling design, to sample 3,465 men between 15 - 54 years and 8,444 women ranging between ages 15 - 49 years. For detailed procedure see the KDHS final report (KDHS, 2010). For this study, a sub-set of women aged 15 - 30 years that had engaged in sexual activity ( $n = 3909$ ) was of interest.

## 2.3. Variables

At a broad level, the DHS provide detailed data on fertility, marriage, awareness/utility of family planning methods, nutritional status of women and children, awareness regarding sexually transmitted illnesses including HIV, maternal and child health, and mortality and individual/household demographic and social characteristics. For the current study, the following variables were of interest.

### 2.3.1. Dependent Variables

The reproductive health literacy indicators were the dependent variables in this study. Respondents were required to take a position (yes/no) on whether: i) they had used condom at last intercourse ii) not having sex reduces the risk for AIDS iii) using condoms reduces risk of AIDS iv) mosquito bites can transmit AIDS v) sharing food with person who has AIDS can transmit AIDS vi) a healthy person can have AIDS vii) AIDS can be acquired through witchcraft or supernatural means.

### 2.3.2. Independent Variables

The main independent variable for this study was exposure to media measured as use of radio, television or newspaper at least once a week, with response options yes/no for each media option.

### 2.3.3. Covariates

The demographic and social covariates considered were age, residential area, education, literacy, wealth, marital status, working status as these theoretically may co-vary with both knowledge and media access

## 2.4. Statistical Analysis

Data cleansing: Where deemed necessary, variable transformations were made to allow for meaningful statistical analysis (e.g. merging of categorical data to improve statistical power, but maintaining logical sub-groups). The SPSS statistical program was used in analysis. Chi-square tests were conducted in the bivariate assessment of associations between the independent and dependent factors. To control for potential co-variation, logistic regression modelling was used (i.e. controlling for demographic and social factors) (Nunez, Steyerberg, & Nunez, 2011). Statistical significance was assumed at  $p < 0.05$ .

## 3. Results

### 3.1. Demographic and Social Characteristics of Respondents

As indicated in **Table 1**, majority of the study sample were 25 - 30 years of age, resident in rural settings and with no/primary education. Relatively many participants were illiterate, belonged to poor households and were unemployed.

### 3.2. Access to Media

Many participants used radio (74.1%), television (34.6%) and newspapers (23%) at least once a week.

### 3.3. HIV/AIDS Behaviour, Knowledge and Beliefs by Demographic/Social Characteristics

As shown in **Table 1**, the use of condoms in latest intercourse occurred least frequently among older participants in rural areas, with no/primary education, illiterates, most poverty stricken and never married participants. The belief that abstinence reduced risk for AIDS was lowest among younger, un-educated, illiterate and divorced

**Table 1.** Associations between demographic/social variables and HIV/AIDS behaviour and knowledge/beliefs.

Demographic variables	Didn't use condom at last intercourse		Reduced risk of AIDS through abstinence		Reduced chances of AIDS by condom use		Reduced chances of AIDS by one sex partner		Healthy person can have AIDS		Can get AIDS from mosquito bites		Can get AIDS from witchcraft		Can get Aids from sharing food	
	n	% of n	n	% of n	n	% of n	n	% of n	n	% of n	n	% of n	n	% of n	n	% of n
Age																
15 - 19	496	78.8***	630	87.3*	580	81.9	621	92.8	623	89.6*	585	20.9	619	7.1	607	8.6
20 - 24	1329	87.7	1489	90.7	1378	83.7	1480	92.9	1464	92.9	1337	20.3	1449	6.6	1428	10.4
25 - 30	1518	92.8	1695	89.0	1549	84.8	1689	93.0	1675	91.0	1541	19.7	1670	6.2	1646	11.2
Residential																
Urban	1182	83.6***	1343	88.2	1282	86.8***	1337	94.6**	1336	94.8***	1240	13.2***	1316	5.4*	1325	6.7***
Rural	2221	91.5	2471	90.0	2226	82.2	2453	92.0	2426	89.7	2217	24.0	2422	7.1	2356	12.5
Education																
Non	518	98.8***	506	85.0**	334	60.8***	492	84.1***	478	70.1***	414	41.8***	482	14.1***	446	30.5***
Primary	1851	91.1	2076	89.5	1956	85.5	2064	93.2	2047	92.9	1862	21.7	2033	6.3	2004	9.3
Secondary	748	83.6	909	90.8	895	86.5	911	95.8	912	97.4	874	12.4	901	3.8	907	5.4
Higher	286	68.9	323	91.6	323	90.7	323	96.3	325	97.5	313	3.8	322	4.0	324	9.0
Literacy																
Cannot read	654	97.6***	662	86.3***	476	67.4***	645	85.1***	632	73.7***	543	39.8***	637	14.4***	589	28.5***
Can read some parts	385	93.2	428	85.3	407	83.0	423	90.8	418	91.9	374	22.5	418	6.5	413	8.7
Can read	2347	85.5	2710	90.9	2611	87.1	2709	95.2	2699	95.6	2533	15.4	2671	4.6	2666	6.7
Wealth																
Poorest	730	96.4***	752	87.9	604	73.2***	751	88.1***	736	77.9***	661	34.3***	732	10.9***	695	23.0***
Poorer	486	88.7	543	90.1	498	83.1	532	91.4	530	93.2	485	19.8	537	6.1	513	9.2
Middle	511	91.6	595	91.8	550	86.0	591	95.1	580	96.0	540	20.2	580	6.2	576	9.0
Richer	603	88.6	698	90.1	661	85.2	691	93.3	692	93.4	631	20.9	687	5.4	680	7.5
Richest	1073	82.4	1226	88.4	1195	87.9	1225	95.2	1224	95.8	1146	11.6	1202	4.7	1217	6.1
Marital																
Never been married	611	59.4***	953	91.1*	926	88.2***	953	94.3*	955	93.6***	907	15.0***	949	5.8	948	6.0***
Married	2402	96.8	2374	88.4	2134	81.6	2356	92.3	2330	90.9	2128	21.7	2324	6.3	2272	11.8
only living together	188	94.7	188	89.9	175	85.1	187	93.6	182	91.8	163	22.1	171	6.4	176	12.5
Widowed	35	65.7	55	94.5	51	92.2	55	94.5	53	94.3	50	16.0	56	7.1	54	13.0
Divorced	26	89.5	54	81.5	42	69.0	52	82.7	52	71.2	46	26.1	53	13.2	47	19.1
Not living together	141	78.0	190	93.7	180	88.9	187	95.2	190	92.6	169	26.0	185	10.3	184	12.0
Working																
No	1642	89.2	1834	89.3	1636	81.0***	1827	91.9*	1819	89.4***	1665	21.1	1789	5.4	1766	11.3
Yes	1752	88.4	1467	89.6	1861	86.5	1951	93.9	1931	93.5	1786	19.1	1936	7.5	1903	9.5

\* $p < 0.05$ , \*\* $p < 0.01$ , \*\*\* $p < 0.001$ , (a) ability to read a sentence.

participants. The belief that condom use reduced chances of AIDS was less common among rural, un-educated, illiterate, poorest, divorced and unemployed participants. The belief that having one sex partner reduced the risk of AIDS was most common among urban, higher educated, literate, richest, “not living together” and employed participants. No other contrast appearing in **Table 1** reached statistical significance at the  $p < 0.05$  level.

As indicated in **Table 1**, the belief that healthy persons can have AIDS was lowest in younger, rural, uneducated, illiterate, poorest, divorced and unemployed participants. The belief that mosquito bites can transmit AIDS was lowest among rural, uneducated, illiterate, poorest, never married participants. That one can get AIDS from witchcraft was most commonly believed among rural, uneducated, illiterate and poorest participants. A similar trend was observed with regard to the belief that one can get AIDS from sharing food.

### 3.4. HIV/AIDS Behaviour, Knowledge and Beliefs by Media Exposure

As exhibited in **Table 2**, the use of condoms in latest intercourse was more pronounced among frequent users of radio, television and newspapers. The belief that abstinence, use of condoms and single partnership reduced risk of AIDS was most common among users/readers of radio and newspapers. In addition, television users were more prone than non-users to believe that use of condoms and single partnership reduced risk of AIDS.

As indicated in **Table 3**, radio, television and newspaper users were consistently more prone to believe that healthy persons can have AIDS and less prone to believe mosquitoes can transmit AIDS, AIDS can be got through witchcraft and sharing food.

**Table 2.** Associations between Media exposure and condom use and HIV/AIDS knowledge/beliefs.

Independent variables	Didn't use condom at last intercourse		Reduced risk of AIDS by no sex		Reduced chances of AIDS by condom use		Reduced chances of AIDS by one sex partner	
	(n)	% of n	(n)	% of n	(n)	% of n	(n)	% of n
Radio use								
No/less than once/w	(896)	94.4***	(950)	86.4**	(773)	74.8***	(941)	89.2***
Yes > once/w	(2505)	86.7	(2861)	90.4	(2732)	86.5	(2846)	94.1
Newspaper use								
No/less than once/w	(2650)	91.5***	(2921)	88.7*	(2626)	81.5***	(2895)	92.1***
Yes > once/w	(750)	78.9	(890)	91.7	(879)	91.0	(892)	95.6
Television use								
No/less than once/w	(2262)	91.9***	(2474)	88.8	(2209)	81.3***	(2458)	91.5***
Yes > once/w	(1141)	82.6	(1340)	90.4	(1299)	88.4	(1332)	95.6

\* $p < 0.05$ , \*\* $p < 0.01$ , \*\*\* $p < 0.001$ .

**Table 3.** Associations between Media exposure and HIV/AIDS knowledge/beliefs.

Independent variables	Healthy person can have AIDS		Can get AIDS from mosquito bites		Can get AIDS from witchcraft		Can get Aids from sharing food	
	(n)	% of n	(n)	% of n	(n)	% of n	(n)	% of n
Radio use								
No/less than once/w	(923)	80.5***	(826)	28.0***	(930)	9.1***	(886)	18.8***
Yes > once/w	(2836)	95.1	(2634)	17.7	(2805)	5.6	(2792)	7.7
Newspaper use								
No/less than once/w	(2867)	89.6***	(2605)	23.5***	(2856)	7.0*	(2792)	12.3***
Yes > once/w	(892)	97.4	(855)	9.7	(879)	4.8	(886)	4.6
Television use								
No/less than once/w	(2424)	89.1***	(2207)	23.3***	(2425)	7.4**	(2347)	12.7***
Yes > once/w	(1338)	95.8	(1256)	14.6	(1313)	4.9	(1334)	6.4

### 3.5. HIV/AIDS Behaviour, Knowledge and Beliefs by Media Exposure: Adjusting for Demographic and Social Covariate

After adjusting for potential demographic and social covariates, radio use increased the likelihood of using condom in latest intercourse (**Table 4**), believing that condom use reduces chances of AIDS (**Table 4**) and believing that healthy persons can have AIDS (**Table 5**). Newspaper use increased the likelihood of believing that condom use reduces chances of AIDS (**Table 4**) but reduced the likelihood of believing that mosquito bites can transmit AIDS (**Table 5**). All other adjusted associations exhibited in **Table 4**, **Table 5** were not statistically significant at  $p < 0.05$  as indicated by the confidence intervals which include 1.

**Table 4.** Logistic regression demonstrating the association between media exposure condom use and HIV/AIDS knowledge/beliefs.

Independent variables	Use condom at last intercourse			Reduced chances of AIDS by condom use			Reduced risk of AIDS by no sex			Reduced chances of AIDS by one sex partner		
	OR	Crude CI	Adjusted CI*	OR	Crude CI	Adjusted CI*	OR	Crude CI	Adjusted CI*	OR	Crude CI	Adjusted CI*
Radio use												
Yes	1.00			1.00			1.00			1.00		
No	0.387	0.284 - 0.526	0.440 - 0.914	0.464	0.382 - 0.565	0.612 - 0.984	0.677	0.541 - 0.846	0.588 - 1.002	0.513	0.396 - 0.664	0.647 - 1.227
Newspaper use												
Yes	1.00			1.00			1.00			1.00		
no	0.346	0.277 - 0.432	0.640 - 1.199	0.436	0.339 - 0.560	0.452 - 0.813	0.710	0.545 - 0.924	0.540 - 1.022	0.530	0.374 - 0.750	0.664 - 1.546
Television use												
Yes	1.00			1.00			1.00			1.00		
No	0.417	0.336 - 0.517	0.771 - 1.455	0.570	0.567 - 0.697	0.661 - 1.103	0.848	0.680 - 1.058	0.617 - 1.089	0.496	0.369 - 0.668	0.523 - 1.124

\*Adjusted for age, residential area, education, literacy, wealth index, marital status and work.

**Table 5.** Logistic regression demonstrating the association between media exposure and HIV/AIDS knowledge/beliefs.

Independent variables	Healthy person can have AIDS			Can get AIDS from mosquito bites			Can get AIDS from witchcraft			Can get Aids from sharing food		
	OR	Crude CI	Adjusted CI*	OR	Crude CI	Adjusted CI*	OR	Crude CI	Adjusted CI*	OR	Crude CI	Adjusted CI*
Radio use												
No	0.214	0.169 - 0.271	0.411 - 0.738	1.00			1.00			1.00		
Yes	1.00			0.552	0.460 - 0.662	0.846 - 1.342	0.593	0.451 - 0.781	0.741 - 1.464	0.361	0.290 - 0.449	0.627 - 1.098
Newspaper use												
No	0.229	0.149 - 0.352	0.376 - 1.036	1.00			1.00			1.00		
Yes	1.00			0.562	0.467 - 0.676	0.958 - 1.549	0.643	0.479 - 0.862	0.687 - 1.482	0.466	0.363 - 0.599	0.749 - 1.448
Television use												
No	0.357	0.266 - 0.481	0.593 - 1.288	1.00			1.00			1.00		
Yes	1.00			0.349	0.274 - 0.446	0.560 - 0.981	0.660	0.474 - 0.938	0.787 - 1.843	0.346	0.248 - 0.483	0.492 - 1.088

\*Adjusted for age, residential area, education, literacy, wealth index, marital status and work.

## 4. Discussion

### 4.1. Findings in Contexts of Previous Works and Implications

The general aim of this study was to assess for relationship between media exposure and sexual behaviour/HIV/AIDS knowledge/beliefs. We found Media use, particularly radio, to be common among young women in Kenya. Between 3% - 30% of participants had poor knowledge/beliefs about HIV/AIDS, with variations depending on demographic and social factors such as age, education, literacy, wealth and residential area, consistent with previous findings (Malarcher, 2010; Anne, Johnson, & Cassel, 2005; WHO, 2011), and drumming for urgent interventions particularly among young, poor, low educated women in rural setting. That as many as one in three participants have poor to inadequate knowledge of or subscribe to distorted beliefs about HIV/AIDS is worrying and should trigger urgent intervention with a potential to improve knowledge and attitudinal change.

Consistent with earlier research, media use was positively associated with most measures of HIV/AIDS knowledge, beliefs and behaviours, even after control for possible confounding with social and demographic factor, reverberating previous work in other settings (Anne, Johnson, & Cassel, 2005; Bertrand, & Anhang, 2006; Bertrand, O'Reilly, Denison, Anhang, & Sweat, 2006) about the positive effects of media in health management. Considering the high proportion of users in Kenya, the media could serve in a focussed, systematic and comprehensive awareness campaign in the general population about the aetiology, risk/protective factors and control measures in HIV/AIDS alongside other initiatives.

### 4.2. Methodological Strengths and Weaknesses

The DHS surveys have now been implemented in Kenya every 5 years since 1989, with improvements in data quality over time. The surveys are nationally representative and instruments have been repeatedly validated and used in several studies. Further, the availability of several demographic and social individual and household characteristics provide the opportunity to control for important covariates. A challenge however lies in the increasing probability of incomplete responses as number of variables increase. This could have implications on generalization of findings to the population if non-response is systematic. The data was also collected by various interviewers who had undergone training. However, we cannot rule out the possibility of differences in accuracy between interviewers (i.e. interviewer bias). Recall bias is also known to be prevalent in cross-sectional studies, particularly when events long back in time are in question. Another weakness with cross-sectional data is its inability to establish causality. For example, it is plausible that individuals with poor knowledge about HIV/AIDS have a preference to shut out media exposure and not as we hypothesize that media may have affected individual knowledge. Research of longitudinal nature is needed to ascertain casual links. Thus, we can only assume associations in this study and not causality. These problems notwithstanding, the findings are consistent with previous works.

### 4.3. Further Research

Although media use is high in Kenya, and its use found to be associated with HIV/AIDS knowledge and attitudes, it appears many young Kenyans still bare distorted views about the aetiology, risk factors and control measures for HIV/AIDS, raising concerns about the actual availability, content and intensity of any HIV/AIDS related programmes in Kenyan media. A critical analysis of media content is crucial to inform development of comprehensive educational interventions to address HIV/AIDS in Kenyan media. In addition, research of qualitative nature (e.g. deep interviews) with women may exhibit further factors that may influence their choice to use/not use media beyond those controlled for in this study.

### 4.4. Conclusion

In conclusion, substantial proportions of young Kenyan women (3% - 30%) have poor to inadequate knowledge of the aetiology, risk/protective factors and control measures of HIV/AIDS, despite considerable media exposure. Yet, such knowledge was positively associated with media use. Media thus may have a positive effect on behaviour and knowledge in relation to HIV/AIDS in Kenya and could ideally be used to implement a systematic and comprehensive awareness campaign in the general population about the aetiology, risk/protective factors and control measures in HIV/AIDS. The outreach of such campaigns however should cover the most women (i.e.

young, poor, low educated women in rural settings as found in this study).

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