Mass media and HIV/AIDS stigma among women in urban and rural areas: Findings from the 2008/09 Kenya Demographic and Health Survey

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Abstract

HIV/AIDS stigma directly or indirectly continues to play a major role towards the spread of HIV in Kenya. This study seeks to examine the association between media and HIV/AIDS stigma. Retrospective cross-sectional data from Kenya Demographic and Health Survey (KDHS) 2008/09 were used, adjusting for weights and strata to account for survey complex design. The study sample comprised of women aged 15-49 (n = 8,359). HIV/AIDS stigma as it relates to direct contact among women who did not read newspapers and magazines at all compared to those who indicated that they read newspapers and magazines almost every day was 29% vs. 1%, $p<0.001$. For HIV/AIDS stigma for teaching about condom use and shame, this was 23% vs. 1%, $p<0.05$ and 27% vs. 3%, $p<0.05$ respectively. For women who resided in rural areas; as it relates to HIV/AIDS stigma (direct contact), those who read newspapers/magazines sometime, at least once a week, and almost every day were 32%, $p <0.001$); 22%, $p <0.01$) and 26%, $p <0.001$) less likely to have stigma compared to those who did not read newspapers/magazines at all. For HIV/AIDS stigma (teaching about condom use), those who read newspapers/magazines at least once a week were 11%, $p <0.05$ less likely to have stigma compared to those who did not read newspapers/magazines at all. As it relates to HIV/AIDS stigma (shame), those who read newspapers/magazines sometime and at least once a week were 21%, $p <0.05$) and 14%, $p <0.01$) less likely to have stigma compared to those who did not read newspapers/magazines at all. All media particularly reading newspaper/magazines seem to be effective towards reducing various forms of HIV/AIDS stigma. Hence, all forms of media need to be scaled-up towards efforts to curb HIV/AIDS stigma in rural areas in Kenya.

KEYWORDS HIV/AIDS, Kenya, Media, Stigma, Women

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Research evidence suggests that 34 million people living with HIV globally, of which (69%, 1 in every 20 adults) are residents of Sub-Saharan Africa (UNAIDS, 2012). In Kenya the HIV/AIDS pandemic spans over thirty years more than three decades putting more Kenyans are at high risk of acquiring HIV despite the media campaigns to fight the disease. Kenya continues to experience a high prevalence of HIV (7%), and there are ongoing programs that seek to increase media campaigns and awareness (Grabbe et al., 2010; Kalichman & Simbayi, 2003; Marum, Morgan, Hightower, Ngare, & Taegtmeyer, 2008; Vidanapathirana, Abramson, Forbes, & Fairley, 2005), on the risks of acquiring HIV.

Different populations in Kenya obtain media information from different channels of communication; therefore, having a better understanding the role of media in programs geared toward "scaling-up" HIV/AIDS testing is very crucial. For instance, different types of mass media have been used in Africa to create awareness among people on issues around HIV. In Ghana, narratives and stories have been used which are infused with local culture and social factors to deliver preventive HIV messages (Panford, Nyaney, Amoah, & Aidoo, 2001). Since the 1990s scholars have been able to identify that the mass media is useful in motivating people to act and behave safe (Liskin, 1990). Research evidence also does suggest that there is association of mass media and HIV related stigma. In a study in the Eastern Cape in South Africa Hutchinson, Mahlalela and Yukich (2007) found positive effects of the exposure to mass media and the presence of informal social networks on changes in knowledge and stigma, which eventually lead to behavior change. We come to this study with the realization that different types of media impact people living with HIV in different and distinct ways. Moreover, media

may have an impact or reduce the impact of stigma among the population. We seek to answer the following question: Which mass media type is effective for HIV related stigma among women and men in urban and rural areas in Kenya?

Methods

Data

The study is based on the cross-sectional data from the Kenya Demographic and Health Surveys, 2008/09. Study sample was limited to women aged 15-49 who responded to questions related to stigma (n=8,359). All data were weighted; hence, the analyses are based on the individual-level information (StataCorp, 2009).

Outcome, exposure, and confounding

Stigma: Participants' were asked various questions that measured stigma. The following questions were asked to evaluate stigma with a responses recoded with a yes - "1" for presence of stigma or no - "0" for absence of stigma. Women were asked: 1) Would you buy fresh vegetables from a shopkeeper or vendor if you knew that this person had AIDS virus? 2) If a member of your family got infected with the AIDS virus, would you want it to remain a secret or not? 3) If a member of your family became sick with AIDS, would you be willing to take care for her or him in your own household? 4) In your opinion, if a female teacher has the AIDS virus, but is not sick, should she be allowed to continue teaching in the school?, and 5) Should children age 12-14 years be taught about using condoms to avoid getting AIDS?

Common factor analysis as a technique was used to identify patterns from the five questions measuring stigma. Weights and correlations between each variable (factor loading) was determined at <0.3 (UCLA, n.d). The retained factors that mostly explained a certain theme which was renamed for the same. The retained factors which explained most of the total variance

were used to generate dichotomous variables which were used for the final analyses. Three main themes for stigma were identified as: 1) direct contact, 2) condom use and 3) shame. A sample selection of the main outcome - stigma (direct contact [n=8,359], condom use [n=8,358], and shame [n=8,355]), allowed for the estimation of the association between media (reading magazine, listening to radio, and watching television) and stigma with further analysis stratified by urban and rural residence.

Media: The exposure variables, reading magazine, listening to radio, and watching television are categorical and seek to measure an individual's source of information and frequency of use. All exposure variables responses were "not at all," "sometime," "at least once a week," and "almost every day." The exposure variables were included in separate multivariate logistic regression models.

Confounder: Confounding was controlled in this study, stepwise logistic regression analysis was used in determining the covariates used as controls in the study. They included, age, education, religion, marital status, ethnicity, wealth, occupation, circumcision, and voluntary counseling and testing (HIV testing).

Data analysis

Statistical software STATA version 13 is used for all data analyses. Descriptive, bivariate, univariate, and multivariate analyses were performed. Bivariate analyses were used in the estimation of prevalence of stigma (direct contact, condom use, and shame) by the exposure and study confounding variables. While a stepwise logistic regression analysis was performed to determine variable inclusion in the model; bivariate analyses with Chi–Square tests for significance was also used to reassess the variables. Univariate logistic regression analyses were used in the identification of the association between stigma and independent variables. Lastly,

multivariate logistic regression analyses were conducted by including identified confounders through forward stepwise regression method. Bothe unadjusted and adjusted analyses were stratified by urban and rural residence and reported odds ratios (ORs) and 95% confidence intervals, with study significance set at $p<0.05$.

Results

Descriptive analysis

For stigma, 44% (n=3,675) of women portrayed stigma associated with direct contact with individuals infected with HIV/AIDS, 40% (n=3,373) of women had stigma associated with condom use teaching in schools, and 47% (n=3,914) of women had stigma associated with shame of individuals infected with HIV/AIDS. Among women those who read newspapers and magazines, only 17% indicated that that they read at least once a week and 7% read almost every day. For women who listened to radio, 16% indicated that that they listened at least once a week and 58% listened almost every day. Among women who watched television, 9% indicated that that they watched at least once a week and 26% watched almost every day (see Table 1).

Bivariate analysis

Stigma as it relates to direct contact was prevalent among women who indicated that they did not read newspapers and magazines at all compared to those who indicated that they read newspapers and magazines almost every day (29% vs. 1% $F2.4, 919.3 = 70.9$; $p<0.001$). For television, this was (27% vs. 6% $F2.7, 1046.8 = 54$; $p<0.001$) among women who indicated that they did not watch television at all compared to those who watch television almost every day. However, this was the opposite for those who listened to radio indicating that they did not listen to radio at all compared to those who indicated that they listened to radio almost every day (9% vs. 22% $F2.6, 992 = 51$; $p<0.001$).

Stigma as it relates to condom use teaching in schools was prevalent among women who indicated that they did not read newspapers and magazines at all compared to those who indicated that read newspapers and magazines almost every day (23% vs. 1% F2.4, 925.3 = 3.9; $p<0.05$). For television, this was (23% vs. 9% F2.9, 1124 = 9.8; $p<0.001$) among women who indicated that they did not watch television at all compared to those who watch television almost every day. However, this was the opposite for those who listened to radio indicating that they did not listen to radio at all compared to those who indicated that they listened to radio almost every day (7% vs. 22% F2.8, 1069.7 = 16; $p<0.001$).

Stigma as it relates to shame was prevalent among women who indicated that they did not read newspapers and magazines at all compared to those who indicated that read newspapers and magazines almost every day (27% vs. 3% F2.9, 1113.4 = 3.1; $p<0.05$). There was no significance for watching television and listened to radio – table not shown.

Univariate logistic regression

Statistical significance between the exposure variables and the main outcome measure were observed.

HIV/AIDS stigma related to direct contact: Women who resided in the rural areas and read newspapers/magazines sometime, at least once a week, and almost every day were 47%, (95% CI: [0.44, 0.65], $p <0.001$); 41%, (95% CI: [0.51, 0.67], $p <0.001$) and 38%, (95% CI: [0.53, 0.74], $p <0.001$) less likely to have stigma compared to those who did not read newspapers/magazines at all. Among those who listened to radio, sometime, at least once a week, and almost every day were 30%, (95% CI: [0.51, 0.96], $p <0.05$); 38%, (95% CI: [0.55, 0.69], $p <0.001$) and 31%, (95% CI: [0.63, 0.75], $p <0.001$) less likely to have stigma compared to those who did not listen to radio at all. Among those who watched television, at least once a

week and almost every day were 21%, (95% CI: [0.69, 0.92], p <0.01) and 30% (95% CI: [0.64, 0.76], p <0.001) less likely to have stigma compared to those who did not watch television at all.

HIV/AIDS stigma related to condom use teaching: Women who resided in the rural areas and read newspapers/magazines sometime were 20%, (95% CI: [0.65, 0.98], p <0.05) less likely to have stigma compared to those who did not read newspapers/magazines at all. Among those who listened to radio, sometime, at least once a week, and almost every day were 42%, (95% CI: [0.44, 0.76], p <0.001); 21%, (95% CI: [0.7, 0.88], p <0.001) and 20%, (95% CI: [0.75, 0.86], p <0.001) less likely to have stigma compared to those who did not listen to radio at all. Among those who watched television, sometime and almost every day were 27%, (95% CI: [0.6, 0.9], p <0.01) and 13% (95% CI: [0.8, 0.93], p <0.001) less likely to have stigma compared to those who did not watch television at all.

HIV/AIDS stigma related to shame: Women who resided in the rural areas and read newspapers/magazines sometime and least once a week were 17%, (95% CI: [0.69, 1], p <0.05) and 10%, (95% CI: [0.82, 0.99], p <0.05) less likely to have stigma compared to those who did not read newspapers/magazines at all.

Multivariate logistic regression

The odds ratios associating media and stigma were slightly attenuated after adjusting for confounding factors.

HIV/AIDS stigma related to direct contact: Women who resided in the rural areas and read newspapers/magazines sometime, at least once a week, and almost every day were 32%, (95% CI: [0.55, 0.83], p <0.001); 22%, (95% CI: [0.67, 0.91], p <0.01) and 26%, (95% CI: [0.63, 0.87], p <0.001) less likely to have stigma compared to those who did not read newspapers/magazines at all. Among those who listened to radio, at least once a week and

almost every day were 21%, (95% CI: [0.69, 0.88], p <0.001) and 16%, (95% CI: [0.77, 0.92], p <0.001) less likely to have stigma compared to those who did not listen to radio at all. Among those who watched television almost every day were 18%, (95% CI: [0.72, 0.92], p <0.001) less likely to have stigma compared to those who did not watch television at all.

HIV/AIDS stigma related to condom use teaching: Women who resided in the rural areas and read newspapers/magazines at least once a week were 11%, (95% CI: [0.79, 1], p <0.05) less likely to have stigma compared to those who did not read newspapers/magazines at all. Among those who listened to radio almost every day were 13%, (95% CI: [0.8, 0.95], p <0.01) less likely to have stigma compared to those who did not listen to radio at all. Among those who watched television sometime and almost every day were 22%, (95% CI: [0.61, 0.98], p <0.05) and 15% (95% CI: [0.77, 0.93], p <0.001) less likely to have stigma compared to those who did not watch television at all.

HIV/AIDS stigma related to shame: Women who resided in the rural areas and read newspapers/magazines sometime and least once a week were 11%, (95% CI: [0.65, 0.97], p <0.05) and 14%, (95% CI: [0.78, 0.96], p <0.01) less likely to have stigma compared to those who did not read newspapers/magazines at all.

Discussion

We sought to identify the association between media and HIV/AIDS stigma among women in Kenyan. We found all forms of media to be crucial in the reduction of all three forms of stigma - direct contact, condom use and shame. After adjusting for confounding, women who read newspaper and magazines seemed to have much lower stigma for all three categories, followed by those who watched television. While those who listened to radio had marginally reduced

stigma, they fared poorly compared to those who read newspaper and magazines or watched television.

Stigma continues to hinder various efforts towards curbing the spread of HIV and care seeking behaviors of most Kenya's infected with the disease. Majority have cited fear of discrimination and stigma especially if they test positive for HIV, inefficiencies in accuracy, safety in the testing process, and distance from testing locations (Family Health International, 2007).

Some limitations associated with this study include the nature of the data of which the findings cannot be generalized to other Sub-Saharan countries; rather, they are only within the context of Kenya. Also, 2008/09 Kenya Demographic and Health Survey is cross-sectional; hence, causal relationships cannot be determined between HIV/AIDS stigma and media. The data lacks on the use of new media such as internet and cell phone information which could have enriched the current research due to the prevalence of use of such new media throughout Kenya.

Conclusion

We found media to be associated with reduced stigma in Kenya. Women in rural areas who read newspapers and magazines sometimes, at least once a week or almost every day, listened to radio at least once a week or almost every day and almost every day, and watched television almost every day, were less likely to be harbor various forms of HIV/AIDS stigma. Preliminary findings point to religion being strongly associated with stigma. This finding is unexpected and worth further investigation. Overall, all media need to be increased towards efforts to curb HIV/AIDS stigma in urban and rural areas, specifically among those who listen to radio who seem to portray more HIV/AIDS stigma compared to the other media forms.

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Table 1. Stigma, number and percentages – KDHS, 2008/09

	Urban		Rural	
	N (2,594)	**%**	**N (5,760)**	**%**
HIV/AIDS Stigma direct contact				
No	1,737	71	2,942	53
Yes	857	29	2,818	47
HIV/AIDS Stigma condom use teaching				
No	1,653	64	3,328	59
Yes	941	36	2,432	41
HIV/AIDS Stigma shame				
No	1,314	52	3,126	55
Yes	1,280	48	2,634	45

Table 2-1. Unadjusted odds ratios (ORs) and 95% confidence intervals (CIs) of HIV/AIDS stigma (direct contact) in a multivariate logistic regression model, KDHS-2008/09

HIV/AIDS Stigma	Urban									Rural								
	Read Newspaper/Magazine			Listen to Radio			Watch Television			Read Newspaper/Magazine			Listen to Radio			Watch Television		
	AOR	95%	CI	AOR	95%	CI	AOR	95%	CI	AOR	95%	CI	AOR	95%	CI	AOR	95%	CI
Media																		
Not at all	**1(Ref)**			**1(Ref)**			**1(Ref)**			**1(Ref)**			**1(Ref)**			**1(Ref)**		
Sometime	0.56	0.31	1.01	0.74	0.47	1.18	0.76	0.46	1.25	0.53***	0.44	0.65	0.7*	051	0.96	0.88	0.7	1.1
At least once a week	0.61***	0.51	0.73	0.84	0.68	1.02	0.78*	0.64	0.96	0.59***	0.51	0.67	0.62***	0.55	0.69	0.79**	0.69	0.92
Almost every day	0.78***	0.7	0.86	0.72***	0.63	0.84	0.78***	0.69	0.87	0.62***	0.53	0.74	0.69***	0.63	0.75	0.7***	0.64	0.76

Table 2-2. Unadjusted odds ratios (ORs) and 95% confidence intervals (CIs) of HIV/AIDS stigma (condom use teaching) in schools in a multivariate logistic regression model, KDHS-2008/09

Media																		
Not at all	**1(Ref)**			**1(Ref)**			**1(Ref)**			**1(Ref)**			**1(Ref)**			**1(Ref)**		
Sometime	1.4	0.71	2.77	0.72	0.44	1.18	0.64*	0.42	0.97	0.8*	0.65	0.98	0.58***	0.44	0.76	0.73**	0.6	0.9
At least once a week	0.89	0.73	1.08	0.92	0.71	1.18	0.9	0.7	1.17	0.91	0.82	1.02	0.79***	0.7	0.88	0.9	0.78	1.05
Almost every day	0.84*	0.74	0.96	0.88	0.78	1	0.91	0.81	1.02	1.01	0.88	1.16	0.8***	0.75	0.86	0.87***	0.8	0.93

Table2-3. Unadjusted odds ratios (ORs) and 95% confidence intervals (CIs) of HIV/AIDS stigma (shame) in schools in a multivariate logistic regression model, KDHS-2008/09

Media																		
Not at all	**1(Ref)**			**1(Ref)**			**1(Ref)**			**1(Ref)**			**1(Ref)**			**1(Ref)**		
Sometime	0.79	0.57	1.09	1.33	0.68	2.6	1.2	0.88	1.65	0.83*	0.69	1	0.93	0.69	1.25	0.93	0.74	1.16
At least once a week	0.82**	0.72	0.93	1.28	0.97	1.68	1.16	0.94	1.42	0.9*	0.82	0.99	1.01	0.9	1.13	1.04	0.93	1.16
Almost every day	0.87*	0.79	1	1.08	0.95	1.24	0.95	0.85	1.07	0.94	0.81	1.09	0.94	0.88	1.02	1	0.93	1.08

* p < .05; **p < .01; ***p < .001 | Ref: Reference category

Table 3-1. Adjusted odds ratios (ORs) and 95% confidence intervals (CIs) of HIV/AIDS stigma (direct contact) in a multivariate logistic regression model, KDHS-2008/09

HIV/AIDS Stigma	Urban[§]									Rural[§]								
	Read Newspaper/Magazine			Listen to Radio			Watch Television			Read Newspaper/Magazine			Listen to Radio			Watch Television		
	AOR	95%	CI	AOR	95%	CI	AOR	95%	CI	AOR	95%	CI	AOR	95%	CI	AOR	95%	CI
Media																		
Not at all	**1(Ref)**			**1(Ref)**			**1(Ref)**			**1(Ref)**			**1(Ref)**			**1(Ref)**		
Sometime	0.83	0.52	1.33	0.83	0.5	1.39	0.85	0.49	1.47	0.68***	0.55	0.83	0.96	0.69	1.33	0.97	0.75	2.25
At least once a week	0.85	0.68	1.07	1.01	0.81	1.27	0.93	0.73	1.18	0.78**	0.67	0.91	0.79***	0.69	0.88	0.94	0.81	1.2
Almost every day	1.1	0.93	1.29	0.84*	0.72	0.98	0.89	0.78	1.01	0.74***	0.63	0.87	0.84***	0.77	0.92	0.82***	0.72	0.92

Table 3-2. Adjusted odds ratios (ORs) and 95% confidence intervals (CIs) of HIV/AIDS stigma (condom use teaching) in schools in a multivariate logistic regression model, KDHS-2008/09

Media																		
Not at all	**1(Ref)**			**1(Ref)**			**1(Ref)**			**1(Ref)**			**1(Ref)**			**1(Ref)**		
Sometime	1.62	0.93	2.84	0.86	0.55	1.33	0.78	0.52	1.17	0.81	0.66	1.00	0.74	0.53	1.01	0.78*	0.61	0.98
At least once a week	1.00	0.81	1.22	0.92	0.71	1.2	0.94	0.72	1.22	0.89*	0.79	1.00	0.89	0.78	1.02	0.91	0.78	1.06
Almost every day	0.91	0.78	1.07	0.93	0.82	1.05	0.92	0.84	1.01	0.94	0.81	1.1	0.87**	0.8	0.95	0.85***	0.77	0.93

Table 3-3. Adjusted odds ratios (ORs) and 95% confidence intervals (CIs) of HIV/AIDS stigma (shame) in schools in a multivariate logistic regression model, KDHS-2008/09

Media																		
Not at all	**1(Ref)**			**1(Ref)**			**1(Ref)**			**1(Ref)**			**1(Ref)**			**1(Ref)**		
Sometime	0.87	0.65	1.17	1.33	0.71	2.5	1.22	0.82	1.81	0.79*	0.65	0.97	0.93	0.66	1.31	0.89	0.68	1.14
At least once a week	0.96	0.81	1.14	1.39*	1.06	1.82	1.26	0.97	1.65	0.86**	0.78	0.96	1.02	0.89	1.17	1.06	0.93	1.2
Almost every day	0.98	0.83	1.16	1.16	0.99	1.36	1.01	0.88	1.16	0.92	0.78	1.08	0.98	0.89	1.07	1.05	0.96	1.14

* p < .05; **p < .01; ***p < .001 | Ref: Reference category

[§] Adjusted for: age, religion, marital status, ethnicity, wealth, occupation, circumcision, and voluntary counseling and testing (tested or not)