

The Mediation of HIV/AIDS Knowledge in the Effect of Media Exposure on Attitude and Practice on the Syndrome: A Cross Sectional Study of Adolescent *Islamiyya* Girls in North- east Nigeria

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ABSTRACT

In the early 2000s adolescents' media exposure in sub-Saharan Africa was reported as very low, but today growth in infrastructure, media technology and program appeal make a case for a reassessment of the situation. Given that communication particularly through the media is considered a major preventive strategy to addressing the spread of the epidemic, this study investigates the media exposure, knowledge, attitude and practice (KAP) status of adolescent *Islamiyya* girls as potential mothers in Northeast Nigeria on HIV/AIDS as a predominantly Muslim society against the backdrop of earlier studies which showed that Muslim communities which were hitherto considered protected, were now witnessing a rapid evidence of an advancing HIV/AIDS epidemic. On the Hierarchy of Effects theory, hypotheses were posed to test relationships between HIV/AIDS media exposure and knowledge, favorable attitudes and safe practice among the girls; mediation effect of HIV/AIDS knowledge was verified. A survey was administered on a sample of 487 *Islamiyya*

girls in Bauchi. The study finds that while mass media exposure is not a significant predictor of HIV/AIDS safe practice and favorable attitude, it is a significant predictor of HIV/AIDS knowledge. While HIV/AIDS knowledge is a significant predictor of both HIV/AIDS favorable attitude and safe practice. There was a significant mediation effect of HIV/AIDS knowledge on the effect of HIV/AIDS media exposure on HIV/AIDS safe practice. It was thus concluded

ARTICLE INFO

Article history:

Received: 29 September 2017

Accepted: 22 March 2018

Published: 24 December 2018

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that media exposure is a necessary but not a sufficient precursor for HIV/AIDS safe practice.

Keywords: Adolescent girls, attitude, HIV/AIDS, knowledge, mass media, practice

INTRODUCTION

The fast spread of the AIDS pandemic has occasioned a vigorous debate about the role of media in fighting it. The reasons adduced, so far, are clear: medical science has been unable to render anything more than ways or methods of turning it from a deadly into a chronic condition, through anti-retroviral therapies. Resources have been deployed as public information related to HIV/AIDS in mass communication media programs. Underscoring the importance of media in disseminating HIV/AIDS preventive messages, the former United Nations Secretary General Kofi Anan said, "... broadcast media have tremendous reach and influence, particularly with young people, who represent the future and who are the key to any successful fight against HIV/AIDS" (as cited in UNAIDS, 2004, p. 4). The complexity of the challenge raised by AIDS has become much more visible and the epidemic is no longer seen as only a health issue. Its ramifications cover all aspects of society from economic and social structures to the psychological makeup of entire communities. The pandemic is recognized as a serious developmental issue for countries with the realization that HIV/AIDS and poverty feed off each other.

Combating HIV/AIDS is the number sixth item on the list of Millennium Development Goals which signals its

relative importance in the global scheme of things. AIDS poses a serious challenge with the potential to devastate whole regions and threaten decades of nation development. As far as posing real challenges to development is concerned, UNAIDS (2006) predicted several consequences of the pandemic before 2025, stating that due to lack of proper nutrition and healthcare in developing countries, a considerable number of people in those countries fell to AIDS. Loss of employment is not the only threat that faces patients, they also require considerable medical care. The increasing number of people dying in sub-Saharan Africa will lead to a smaller skilled population and labor force generally. Any increase in time taken off from work to look after sick family members or in sick leave also cuts productivity. By killing mainly young people, AIDS invariably seriously weakens the most productive portion of the population, thereby reducing revenue and resources available for public expenditure, such as on education and on health services. At the household level, AIDS results in increased expenditure on healthcare and loss of income. The effects of this situation on income leads to spending reduction as much as a substitution effect away from education and towards healthcare and spending on funeral services (UNAIDS, 2006 in Ugande, 2007).

Gender Dimension of HIV/AIDS Spread

The social forces driving the HIV/AIDS epidemic are more clearly understood through the gender dimension. Krueger

(2005) identified the key factors that made women or girls more vulnerable to infection as a result of the culture of silence surrounding sexuality, exploitative transactional and intergenerational sex, and violence against women within relationships. In most African cultures especially Muslim dominated areas, discussing sexuality is a taboo. Moreover, women's roles in sexual relationships are inconsequential; they are expected to submit to men at all times. They are considered passive participants in sexual interactions with no power to negotiate the practice of safe sex (use of condom and other protection) especially if they are spouses. Against this backdrop, Harrison (2005) and UNAIDS (2006) reported that because of cultural factors, as compared to men, the prevalence of HIV among women was higher in Africa. In addition, Hoosen and Collins (2004) submitted that women were more at risk in Africa possibly because of culturally and socially ascribed roles conferred on them, which placed them in a disadvantaged position with regard to decision making on safe sex; for example in negotiating the use of condom during sex. Because in such cultures, they are socially constructed as passive, submissive or subordinate. Other drivers of the HIV/AIDS epidemic among women according to Mulwo (2008) are the misconceptions which encouraged widespread rape; that for example young girls are immune to HIV, coupled with a long standing myth that having sex with them could possibly "cleanse a man's bad blood" i.e. HIV infection. The pandemic affects women

disproportionately, not just in the prevalence of infection, but also in the impact on those affected.

HIV/AIDS and Adolescence

Extensive surveys have shown that adolescents are at greater risk of acquiring HIV than adults. For example, Bankole, Singh, Woog, and Wulf (2004) stated that behavioural, psychological and socio cultural factors made young people more vulnerable to HIV infection. In essence, invariably this submission suggests that cognitive, affective and behavioural factors among adolescents form the fulcrum driving the HIV/AIDS epidemic; consequently an understanding of these factors among young people could provide pathways to halting the spread of the HIV/AIDS epidemic. Adolescence is a time when young people naturally explore and take risks in many aspects of their lives, including sexual relationships. Those who have sexual experiences may change partners frequently or desire to have many partners at the same time or carelessly engage in unprotected sex. Young people's chance or risk of contracting HIV is heightened by this behavior. Bolan, Ehrhardt, and Wesserhait (1999) stated that young women were physiologically more vulnerable to infection than older women because changes in the reproductive tract during puberty made the vagina and cervix of adolescents less resistant to infection. All the above submissions, ranging from social, cultural, psychological to physiological factors make young girls a special subject for study in the campaign to reverse the trend

of practicing unsafe sex, with consequences like HIV/AIDS, especially in West Africa.

While many models of investigating community health issues abound, the cognitive, affective and behavioral approach (KAP model) seemed more attractive to researchers because of its ability to reveal plausible pathways to addressing health concerns especially by identifying misconceptions about diseases and affective barriers or obstacles to prevention or protection. Buttressing this point, Bhattacharyya (1997), and Stone and Campbell (1984) (cited in Launiala, 2009) stated that the hallmark of the KAP model lay in its characteristically apt presentation of results, generalizability of findings from a small sample to the wider population, ease of design, administration and results interpretation. Even though it is very dangerous to assume linear progression from knowledge to favorable attitude and ultimately to safe practice, the KAP model presumes that decisions on behavior change have cognitive and psychological dimensions. Because this study is centered on the relationship of mass communication and the audience's cognitive, affective and behavioural approach towards HIV/AIDS, it was anchored on the Hierarchy of Effects (HoE) model. Hanan (2009) discussed the Advertising Research Foundation's HoE model as having relevance and application in HIV/AIDS prevention communication, and by extension, research. The model views individual behavior change in a linear sequence which commences with exposure to information (through communication

media) and assumes that knowledge, favorable attitudes and ultimately action in the form of trial and adoption of the desired behavior or practice will follow.

HIV/AIDS Situation in Sub-Saharan Africa

According to the recent figures of prevalence of HIV/AIDS in sub-Saharan Africa, 24.7 million people lived with the disease in 2013 with 4.7 million adult prevalence, 1.5 million new infections and 1.1 million AIDS related deaths. Nigeria's figures out of these totals stood at 3.2 million people living with the disease, 220 000 new infections and 210 000 AIDS related deaths. Further, South Africa, Uganda and Nigeria are reported to account for almost half of the new infections in 2013 in sub-Saharan Africa (Global Information and Advice on HIV & AIDS, 2014). In the late 90s, HIV/Syphilis Sentinel Survey by Nigeria's Federal Ministry of Health (1999) revealed that youth between the ages of 19 and 24 years who represented the productive and economically viable segment of Nigeria were most affected. Estimates from the survey indicated that 2.6 million Nigerians between 15 and 19 years (within which most *Islamiyya* girls fall) were already affected and that this figure was projected to rise to 4.9 million by 2003. According to National Action Committee on AIDS (NACA), (2004), in Nigeria, the epidemic had different faces across the states. Some states in the federation recorded prevalence rates of well over the national average of 4.7% while there was no state with a prevalence rate below 1%.

Northern Nigeria being a Muslim dominated society; and the *Islamiyya* school system, because of religious considerations, happens to be more robust in capturing adolescents than secular schools, especially the girls, whose enrollment into formal schools is still a challenge in the region. Though more comprehensive in terms of capturing adolescents, to date no study has used the *Islamiyya* school system as a site for investigating vital social, media-related, or health-related issues like HIV/AIDS. In the light of the above, this study set out to determine the adolescent *Islamiyya* girls' media exposure and their knowledge, attitude and behavior/practice (KAP) towards HIV/AIDS.

Media Exposure and KAP on HIV/AIDS

In the early 2000s, Bankole et al. (2004), assessing adolescents' media exposure and HIV/AIDS situation in West Africa reported that in most countries fewer than one in ten women and men aged 15-19 listened to radio, watched TV and or read a newspaper at least once a week. More horrendously, in many countries in the region report Bankole et al. (2004), large proportions had no weekly exposure to any mass media. The picture of adolescent exposure to mass media presented here is unacceptable given that mass media messages on HIV/AIDS are recognized as a most potent vaccination against the epidemic. Young persons must learn to protect themselves, and in different societies, mass media are the major sources for information on self-protection. Today,

given improvements and development in infrastructure and increased literacy and program appeal in addition to the popularity of Hausa home video in Northern Nigeria (Larkin, 2004), there appears a case for the reassessment of adolescents' media exposure particularly as it affects their HIV/AIDS KAP.

A number of studies in the past investigated relationships among HIV/AIDS KAP variables (Tung et al., 2008; Bekalu & Eggrmon, 2013; Letamo, 2011; Li et al., 2009; Moore, 2008) and found relationships among these variables. These studies suggested that there seemed to be correlations among the HIV/AIDS KAP variables and that respondents' major sources of information were the mass media. A particular trend in the studies like, Bouanchaud (2011), Li et al. (2009), and Xiao, Li, Lin, and Tam (2015) which investigated relationships between media exposure and KAP was they showed relationships of media exposure with HIV/AIDS knowledge and that HIV/AIDS knowledge had relationship with the other KAP variables. These relationships indirectly suggest the mediation of HIV/AIDS knowledge in the path between HIV/AIDS media exposure and HIV/AIDS practice and HIV/AIDS attitude. The present study principally set out to detect such a mediation effect in a structural model. Isolating different roles for the different constructs of HIV/AIDS KAP and media exposure in a structural model could give further clarification to the subject and forge a new approach to addressing it.

The study of media use and HIV/AIDS knowledge in northwestern Ethiopia by Bekalu and Eggrmon (2013) delivered mixed results. Exploring the knowledge gap resulting from mass media use disparities in the studied population, precisely checking the relationship between mass media exposure relating to HIV/AIDS and HIV/AIDS knowledge, the study found that mass media exposure was not a significant predictor of HIV/AIDS knowledge. At the same time however, the study showed that the knowledge gap between respondents with high education and those with low education was inversely proportionate to the increase in HIV/AIDS media use. Invariably meaning, the knowledge gap between the two groups closes with the increase in HIV/AIDS media consumption.

In a different study earlier by Li, et al. (2009) in China however, results indicated that HIV/AIDS related mass media exposure directly linked with HIV/AIDS favorable attitude and safe behavior especially on the stigmatizing attitude towards people living with HIV/AIDS. The study states that “although there have been theoretical debates on how and why mass media communications influence behavior, there is considerable empirical evidence showing that mass media can be used for attitude and behavioral change associated with HIV/AIDS” (p. 1). In addition, a study by Thanavanh, Harun-Or-Rashid, Kasuya and Sakamoto (2013) in Lao asserted that students with medium and high level knowledge were more likely to exhibit

favorable attitudes to PLWH and were more likely to practice safe sex. Moore (2008) also found a relationship between HIV/AIDS knowledge and favorable attitude and practice in a study in the United States of America. Following from the postulations in the studies above therefore, especially with the caveat that HIV/AIDS knowledge and favorable attitudes may not only be a result of media exposure, in this study, the impact path from media exposure to HIV/AIDS safe practice and between media exposure and HIV/AIDS favorable attitude were hypothesized to be mediated by HIV/AIDS knowledge. This study attempts to clarify further in a distinct model, such relationships among *Islamiyya* girls in Northeast Nigeria, by hypothesizing that:

- H1 Islamiyya girls’ media exposure has significant positive effect on their HIV/AIDS safe practice.
- H2 The girls’ media exposure has significant positive effect on their HIV/AIDS knowledge.
- H3 Media exposure among them has significant positive effect on their HIV/AIDS favorable attitude.
- H4 HIV/AIDS knowledge among them will mediate in the effects of HIV/AIDS media exposure on HIV/AIDS safe practice
- H5 HIV/AIDS knowledge among them will mediate in the effects of HIV/AIDS media exposure on HIV/AIDS favorable attitude

METHOD

Adolescent *Islamiyya* girls in this study are aged 11 to 19 years attending non-formal or non-secular Islamic night schools in Northern Nigeria. This study investigated their *media exposure on HIV/AIDS* (the aggregate of a respondent's responses to a 14-item questionnaire on the extent of their attending to radio, TV, newspaper, home video or Hausa novel on messages on HIV/AIDS). The study investigated their *HIV knowledge level* (the respondent's knowledge of prevention, risk behavior, HIV basic facts, HIV testing, transmission and epidemiology, measured in a 29 item 5-point scale from *False* to *True*). This study also investigated the girls' *attitude towards the disease* (mental state of readiness in a respondent which helps prevent the transmission of HIV/AIDS and STDs among inhabitants of a community including tolerance for people with AIDS) (Lal, Vasan, Sarma, & Thankappan, 2000). In this study, it is represented by the aggregate of a respondent's responses to a 5-point scale 12 items on HIV/AIDS and people living with it. Their *HIV/AIDS safe practice* (referred to the behavior that reduces the respondents' risk or chance of contracting HIV/AIDS-including intention to practice), which is measured in this study by the aggregate of a respondent's responses to a 5-point scale response to 17 items on HIV/AIDS safe practice.

Sample

The survey was administered on a sample size of 500 adolescent *Islamiyya* girls drawn

through multi-stage probability sampling across 10 selected *Islamiyya* schools under *Riyala* (*Islamiyya* coordinating body in Bauchi, Northeast Nigeria). The sample size was subjected to post hoc Power Analysis which yielded an estimated Power (Power (1- β err prob.) = 0.997 at .05 alpha level. Classroom situation questionnaire administration was adopted, and 487 girls turned up (about 97% response rate).

The Survey Instrument

Adapted from Hirose, Nakaune, Ishizuka, Tsuchida, and Takanashi (1998), this study assessed media exposure on HIV/AIDS in a 14-item questions scale. Some of the items are: "How often do you obtain information on HIV/AIDS from radio?" "How often do you obtain information on HIV/AIDS from TV?". "How often do you obtain information on HIV/AIDS from women magazines?". After reviewing many articles to decipher the effects of general media exposure on behavior, Annenberg Media Exposure Research Group (2008) reported that studies revealed mixed results; some found substantial evidence for the effect of general media exposure, some found moderate effect while others found no effect. The report pointed out that studies have become more methodologically sophisticated recently; instead of investigating the effects of general media exposure or exposure to particular media genre, researchers have now begun to use specific exposure measures, for example 'exposure to sexual content'. The model tested in this study therefore considered the specific exposure of "media exposure on HIV/AIDS".

The scale of HIV/AIDS knowledge was adapted from the cross-national WHO instrument on Health Behavior in School Children (HBSC) which sought information on knowledge on HIV/AIDS causes, symptoms, modes of transmission, prevention and epidemiology. The construct was measured in this study with 29-items in such statements as: "A person will not get HIV/AIDS if the person is taking antibiotics". "Once infected with HIV a person can infect others for his/her entire life". "A new vaccine has recently been developed to prevent AIDS". "A person can be infected with HIV by having unprotected intercourse with someone who has HIV" (Thomson, Currie, Todd, & Elton, 1999). The response scale of these was a 5-point Completely False - Completely True scale adapted from Rhodes and Wolitslci (1989) (as cited in Aiken, 2002). Also adapted from WHO HBSC instrument, are the items on HIV/AIDS favorable attitude (Thomson et al., 1999). The scale included such statements as: "I need to know more about AIDS". "I usually specifically look for some media programs to gain more information and knowledge about HIV/AIDS". "Children with HIV should be allowed to go to school with non-infected children". "I don't feel sorry for people who caught AIDS because it is their own fault".

A questionnaire seeking to investigate respondents' safe behavior or practice on HIV/AIDS and intention to practice consisting of 17-item statements was developed for this study for cultural sensitivity and religious considerations.

Examples of such items: "From time to time, I conduct HIV screening test to be sure of myself." "Before marriage, I will not be shy to insist on the person marrying me to test for HIV screening". "Once a suitor approaches me with improper relationship, I cut my relationship with him even if I love him very much". "I use my day time for hawking to earn money for my parent". Five medical doctors from Northern Nigeria familiar with the custom, tradition and religion of the region filled an *arbiter analysis* form (experts scoring the relevance of each questionnaire item in terms of face and content validity for inclusion to measure a given construct). On each of the items (variables: 1, essential, 2, useful but not essential, 3, not necessary), Lawshe's Content Validity Ratio (CVR) was calculated and all items have a CVR above zero. Lawshe's CVR values ranged from -1 (perfect disagreement among arbiters) and +1 (perfect agreement among arbiters) In essence if an item's CVR is above zero it means more than 50% of the experts agreed that the item was essential. All 17 items were retained. Bouanchaud (2011) points out, "... we are assuming the scales of knowledge, attitude, behaviors and media exposure are all continuous, latent trait modeling is the most appropriate method to develop KAB/P and media indices" (p. 17). As considered by Bouanchaud's (2011) study, each of the media exposure and HIV/AIDS KAB/P variables was applied as latent variables, that is, each of them not measurable directly, however revealed partially through the battery of individual responses to survey questions.

Presentation and analysis of data were done using statistical descriptive tools to summarily describe the respondents' average media exposure and KAP on HIV/AIDS, and Structural Equation Modeling (SEM) to determine the effect of media exposure on other KAP variables and how HIV/AIDS knowledge among the respondents can play the role of go-between on how media exposure affects HIV/AIDS practice, keeping in line with the assessment indicators as envisaged in the objective of the study. After deleting 11 outliers, data satisfied the condition of Normality of distribution for carrying out analysis with SEM. Analysis proceeded with 476 cases. In the assessment of the measurement model to screen out items with inadequate loading to perform the SEM analysis, and to determine the reliability of the media exposure and KAP variables, sixteen items survived for a fit model, with loadings of more than .40 (Hair, Hult, Ringle & Sarstedt, 2014) (HIV/AIDS media exposure, 7 items, HIV/AIDS knowledge, 3, HIV/AIDS favorable attitude,3, HIV/AIDS safe practice,3).

Best indicators were therefore retained. In structural equation modeling, the use of a few best indicators was found to be always better according to Hayduk and Littvay (2012). The items retained in this survey's measurement model had loadings between 0.619 and 0.870 which is acceptable.

Reliability of Constructs

Table 1 shows the factor loadings of each item retained, the composite reliability and average variance extracted of each construct. Using composite reliability coefficient for estimating reliability, the interpretation was based on the rule of thumb suggested by Bagozzi and Yi (1988) and Hair et al. (2011) that coefficient of composite reliability should not be below the benchmark 0.70. Latent construct composite reliability coefficient for each latent construct as depicted in Table 1 ranged between 0.765 to 0.884; all above the minimum required level of 0.70, indicating acceptable or adequate internal consistency reliability of measures in the study.

Table 1
Results of reliability test

Code	Loading	AVE	Composite Reliability
HIV Attitude		0.530	0.771
HIVAtt10	0.682		
HIVAtt5	0.692		
HIVAtt6	0.805		
HIV Knowledge		0.523	0.765
HIVKn1	0.758		
HIVKn21	0.619		
HIVKn28	0.781		

Table 1 (continue)

Code	Loading	AVE	Composite Reliability
HIV Safe Practices		0.570	0.796
HIVPrc11	0.618		
HIVPrc15	0.870		
HIVPrc4	0.757		
Media Exposure		0.522	0.884
HIVBillBoards	0.748		
HIVEngNpp	0.727		
HIVHausaNpp	0.664		
HIVHealthMag	0.773		
HIVInfoRadio	0.718		
HIVInfoTV	0.682		
HIVNewsMag	0.741		

RESULTS AND DISCUSSION

Respondents' Overall KAP and Media Exposure on HIV/AIDS

The main purpose of this section is to provide a descriptive analysis for the reflective latent constructs of this study, which involves the computation of the Mean and Standard Deviation for the latent constructs. Table 2 below shows the results of the descriptive statistics. For easier interpretation, the scales were classified into three categories: Low scores, moderate scores and high scores. As Sassenberg, Matschke, and Scholl (2011) recommended, scores of less than 2 (3/3 + Lowest values) were considered low score; and scores of 3 (highest value 5-3/3) were considered high and those in between low and high were considered moderate.

As shown in Table 2, the overall range of the latent constructs' Means are between 2.115 and 3.508. Specifically, the Mean and

Standard Deviation of HIV/AIDS favorable attitude are 3.508 and .981 in this respect. In turn, this suggested that the respondents tended to have moderate and close to high levels of HIV/AIDS favorable attitude. At the same time, the table also depicts that the Mean for HIV/AIDS knowledge was 3.047, with a Standard Deviation 1.041, also further suggesting that respondents had moderate HIV/AIDS knowledge. In addition the table depicts a moderate

Table 2
Descriptive statistics of latent constructs (N=476)

Construct	Mean(SD)
HIV Attitude	3.5 (±0.98)
HIV Knowledge	3.05 (±1.04)
HIV Safe Practices	2.82 (±1.14)
HIV Media Exposure	2.12 (±0.89)

score for HIV/AIDS safe practice (Mean = 2.818, Standard Deviation = 1.138). These descriptive statistics for latent constructs also showed a moderate score for HIV/AIDS media exposure (Mean = 2.115, Standard Deviation = .893). This finding showed a remarkable departure from the findings of Bankole, et al. (2004), which reported that in most countries in West Africa fewer than one in ten boys and girls aged 15-19 listened to radio, watch TV and or read a newspaper at least once a week

Assessment of the PLS-SEM Path Model

What follows is the assessment of the structural model tested in this study. Standard bootstrapping procedure of 5000 bootstrap samples with 476 cases was applied to determine the significance of path coefficients (Hair et al., 2014; Hair, Sarstedt, Ringle & Mena, 2012). Figure 1 and Table 3 depict the structural model estimate with mediation analysis for HIV/AIDS knowledge in the structural model.

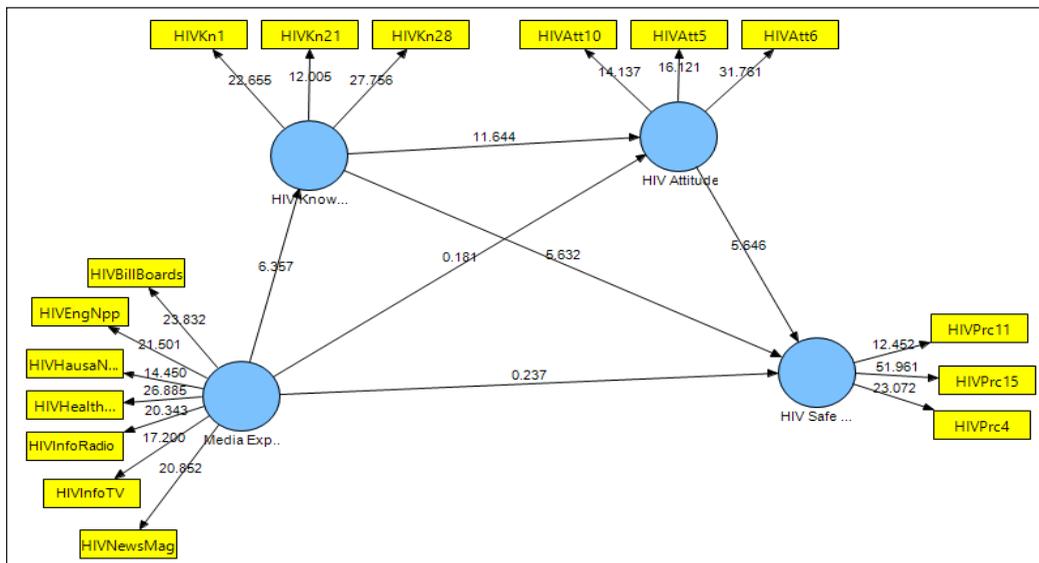


Figure 1. The Structural model with mediator variables

H1: Islamiyya Girls’ Media Exposure has Significant Positive Effect on Their HIV/AIDS Safe Practice

This study attempted to empirically verify the interrelationships among the constructs of media exposure to HIV/AIDS information, HIV/AIDS knowledge, HIV/AIDS attitude and HIV/AIDS safe practice or behavior.

Hypothesis 1 predicted HIV/AIDS media exposure would have significant positive effect on HIV/AIDS safe practice. Results in Table 3 depict a 0.05 level of significance, H1 was rejected, implying there is no direct significant positive relationship between HIV/AIDS media exposure and HIV/AIDS safe practice ($\beta = 0.010, t = 0.237, p > 0.05$).

This result is not consistent with the results of Bouanchaud, (2011) which revealed that mass media exposure was a significant predictor of HIV/AIDS safe practice. Again, it is also not in consonance with the results of a related study conducted by Sznitman et al. (2011) on African American adolescents, which showed that mass media exposure had a remarkable effect on their STIs (sexually transmitted infections) risk behavior. Apparent as they may seem, these differences in findings may only amount to contradistinction with the present study but not contradiction. This is largely probably because of cultural and religious disparities. The scales for measuring HIV/AIDS safe practice differ. For example, Bouanchaud's (2011) scale was a binary variable of "ever used condom?", while the scale on condom use was deliberately completely ignored in this study because of religious sensitivity. This scenario could be explained away in that perhaps mass media could be a significant predictor of the HIV/AIDS practice of condom use because of media emphasis on condom use, which is likely to trigger desired response in sexually free societies, while not a predictor in other HIV/AIDS related practice than condom use.

H2: The Girls' Media Exposure has Significant Positive Effect on Their HIV/AIDS Knowledge

The second hypothesis H2 predicted HIV/AIDS media exposure would have significant positive effect on HIV/AIDS knowledge. Results as shown in Table 3 and

Figure 1, HIV/AIDS media exposure had a significant positive effect on HIV/AIDS knowledge ($\beta = 0.234$, $t = 6.357$, $p < 0.01$) which means that at 0.01 alpha level, H2 was supported.

Although empirical evidence using the Knowledge-gap hypothesis in HIV/AIDS studies has over the years revealed mixed results, Etemma et al. (1983) cited in Bekalu and Eggremont (2013) remarked that the application of the hypothesis had become much clearer in health communication campaigns. Over the years, this hypothesis, according to the author, has become a powerful tool for conceptualizing media effect research by researchers seeking definitive evidence on audience knowledge disparities accounted for by differentials in media use concerning health communication. In consonance with these assertions, as is the case in this survey, while HIV/AIDS media exposure was not found to have significant effect on HIV/AIDS safe practice, the results showed that HIV/AIDS media exposure was a significant predictor of HIV/AIDS knowledge.

Results for H2 found significant positive effect of media exposure on HIV/AIDS knowledge, which is consistent with the findings of Xiao et al. (2015) which detected that exposure to HIV/AIDS-related mass media information had significant relationship with HIV/AIDS knowledge and HIV/AIDS attitude. Apart from Xiao et al. (2015), Li et al. (2009) were also consistent on this point. Contrarily, Bekalu and Eggremont (2013) found that without

controlling for any other variable in their study, media exposure was not a significant predictor of HIV/AIDS knowledge. Their finding is perhaps the only one in the literature under this subject, and it is accompanied with implication on research.

H3: Media Exposure among the Girls Has Significant Positive Effect on Their HIV/AIDS Favorable Attitude

Hypothesis 3 which predicted direct positive effect of HIV/AIDS media exposure on HIV/AIDS favorable attitude, as shown in Figure 1 and Table 3, was rejected at 0.05 level of significance ($\beta = -0.008$ $t = 0.181$ $p > 0.05$).

The study did not find support for the hypothesis and was therefore inconsistent with Xiao et al. (2015). Studies like Letamo (2011) in Botswana found that the knowledge that something could be done to prevent HIV/AIDS infection, consistently significantly predicted safe sex behavior among young people. In spite of increased use of mass media for HIV/AIDS prevention, little was known on the resultant psychological effect among the public due to differentials in media consumption. For example, in a systematic review of articles published on this subject between 1983 and 2004, Escover-Chavez et al. (2005) found that only few studies, precisely 12 out of 2,522 (< 1%), actually examined the effects of mass media on adolescent sexual attitudes and behavior. The authors further submitted that none of these studies could serve as a basis for policy.

H4: HIV/AIDS Knowledge Will Mediate in the Effects of HIV/AIDS Media Exposure on HIV/AIDS Safe Practice

Studies by Tung et al. (2008), Li et al. (2009), Rahnama (2009), Letamo (2011), Sznitman (2011), Meundi, Amma, Rao, Shetty, and Shetty (2008), Xiao et al. (2015), Bouanchaud (2011), Bekalu and Eggremont (2013), and other related studies which examined relationships between components of KAP or the HoE theory, attempted to trace direct relationships between isolated constructs of the HoE theory (the Advertizing Research Foundation's version). Now, beyond the direct relationships discussed above, the present study, moved further to hypothesize theorized possible indirect relationships (mediating effects) between HIV/AIDS media exposure and HIV/AIDS safe practice and HIV/AIDS favorable attitude as an extension of theory. Hence, the possible mediating role of HIV/AIDS knowledge in the path between HIV/AIDS media exposure, HIV/AIDS practice and HIV/AIDS favorable attitude were traced and assessed. Hypotheses for both paths were supported.

In H4, HIV/AIDS knowledge was hypothesized to mediate the relationship between HIV/AIDS media exposure and HIV/AIDS safe practice. Results in Table 3 and Figure 1 show that HIV/AIDS knowledge significantly mediated between HIV/AIDS media exposure and HIV/AIDS safe practice ($\beta = 0.063$, $t = 4.048$, $p < 0.01$), indicating that H4 was supported at 0.01 level of significance. The result of this hypothesis further suggested that HIV/

AIDS media exposure could only have significant effect on HIV/AIDS safe practice by the mediation of HIV/AIDS knowledge affirming full mediation because the direct path between HIV/AIDS media exposure and HIV/AIDS practice was not supported as shown in Table 3.

H5: HIV/AIDS Knowledge will Mediate the Effects of HIV/AIDS Media Exposure on HIV/AIDS

Similar to H4, the mediation of HIV/AIDS knowledge between HIV/AIDS media exposure and HIV/AIDS attitude as predicted by H5 which was also supported at .01 level of significance ($\beta = 0.104$, $t = 5.233$, $p < 0.01$).

Therefore, while H1 detected no direct positive significant effect of HIV/AIDS mass media exposure on HIV/AIDS safe practice, H4 detected an indirect positive significant effect of HIV/AIDS mass media exposure on HIV/AIDS safe practice by the mediation of HIV/AIDS knowledge. In the same fashion, while HIV/AIDS media exposure is not a direct significant positive predictor of HIV/AIDS favorable attitude as hypothesized in H3, it is an indirect significant predictor of HIV/AIDS favorable attitude by the mediation of HIV/AIDS knowledge as hypothesized in H5, which was supported.

Table 3
Results of hypothesis testing

Hypotheses	Hypotheses Path	Path Coefficient	Standard Error	T Value	P Value	Decision
H1	Media Exposure -> HIV Safe Practices	0.010	0.043	0.237	0.406	Not Supported
H2	Media Exposure -> HIV Knowledge	.234	0.037	6.357	.000	Supported
H3	Media Exposure -> HIV Attitude	-0.008	0.046	.181	0.428	Not Supported
H4	Media Exposure -> HIV Knowledge -> HIV Safe Practices	0.063	0.016	4.048	.000	Supported
H5	Media Exposure -> HIV Knowledge -> HIV Attitude	0.104	0.020	5.233	.000	Supported

Implication

All the above supported mediation of relevant constructs find support in the postulations of media ‘Limited Effects’ theories, which revised the earlier notions of the media ‘Powerful Effects’ theories,

that assumed mass media had direct powerful effects on their audiences with no considerations of any limitations of those effects by any intermediary agent. So while the HoE theory is classified under the linear effect models (linear transmission models)

(Hanan, 2009), the theoretical implication of this study suggested evidence for explaining the HoE model under the media limited effects models, in that mass media exposure was not found to have direct effect on behavior. This finding could be interpreted as mass media exposure reinforcing HIV/AIDS knowledge to influence HIV/AIDS safe behavior and HIV/AIDS favorable attitude. This scenario is articulated by Klapper's (1960) terse assertion that mass media "campaigns do not influence people; their major effect is the reinforcement of existing attitude" (in Scheufele, 1999).

CONCLUSION

Based on the results of this study, it could be concluded that media exposure is a necessary but insufficient precursor for HIV/AIDS safe behavior and attitude. Media exposure actually reinforces other components of HIV/AIDS knowledge and perhaps, interpersonal discussions on HIV/AIDS through media agenda setting to affect HIV/AIDS favorable attitude and safe practice. It could also be concluded that there are established relationships among knowledge, attitude and practice relating to HIV/AIDS, and these variables relate positively with media exposure and HIV/AIDS knowledge, directly and others indirectly.

In Nigeria, mass media, for example the Hausa Home Video and *Nollywood* provide a potential window for addressing adolescents on HIV/AIDS. A significant improvement has been noticed in this study on adolescent media exposure generally

in the Nigerian part of West Africa as compared to what obtained in the region in the early 2000s as reported by Bankole et al. (2004). This situation could be attributable perhaps to improvements in communication infrastructure and increased literacy.

In spite of the well-acknowledged potential of mass media in HIV prevention, little is known in terms of the knowledge gap on HIV/AIDS that exists in societies because of disparities in media exposure and the concomitant effect of HIV/AIDS media use on attitude and behavior regarding HIV/AIDS. It is also concluded that fusing HIV/AIDS-related information in mass media can narrow the gap in HIV/AIDS knowledge in a given social milieu and address the challenges of negative HIV/AIDS attitudes and risky practice.

Given the above conclusions and theoretical implications, the need arises for more empirically based evidence to shape Nigeria's HIV/AIDS behavior change communication policy which was for a very long time based on the Fisher and Fisher's (1991) Information, Motivation and Behavioral Skills (IMB) model. The last time policy was revised on behavior change communication was in 2004, and even then, the IMB (linear) model (National HIV/AIDS Behavior Change Communication 5 year strategy 2004 – 2008) guided the policy. The substantive findings and conclusions of this study posed a trigger of implications on manipulating media in a desirable way to reinforce HIV/AIDS knowledge by closing knowledge gap disparities on HIV/AIDS among adolescents to achieve HIV/AIDS

favorable attitudes and safe behavior. As is concluded here, mass media do not have direct effect on attitude and behavior, they do have tremendous effect on knowledge, and knowledge according to the findings has effects on both attitude and behavior. It is recommended therefore, that media HIV/AIDS program planners and producers shift emphasis from designing programs directly targeting behavior change. The substance of the findings in the present study support designing programs aimed at directly influencing HIV/AIDS knowledge among adolescents, thereby indirectly targeting attitude and behavior change. For example, the media can emphasize on issue specific knowledge on HIV risky practices, and the knowledge that the practice is risky could perhaps motivate behavior change.

Limitation

This study is limited by its cross sectional nature; limited financial resources constrained the researcher from embarking on a longitudinal design on the subject. This will purposely be to uncover results that are more definitive and compare results across long periods to decipher more influences factoring on the HIV/AIDS knowledge attitude and practice associated with prolonged exposure to mass media HIV/AIDS messages. This study has nonetheless functioned as a pointer to future direction of research and given a glimpse of evidence on the relationships of HIV/AIDS related cognitive, psychological and behavioral constructs operating at the background on avoidance or approaching

HIV/AIDS risk. Further in terms of ruling clear causal relationship, this study is limited by its design, and as with many other research designs except experimentation, the independent variable (media exposure) cannot be manipulated to directly rule causal relationships. Again, due to financial constraints and the *Boko Haram* insecurity predicaments pervading many of the Northeast Nigerian states (Hamid & Baba, 2014), the study could not draw samples from the whole of Northeast Nigeria, but it strongly upholds that, due to cultural and religious homogeneity, the results can be generalized to the wider northeastern Nigeria being predominantly Hausa/Fulani Muslim.

In spite of the limitations, this study managed to contribute to the clarification of distinct roles of the constructs of the ARF's Hierarchy of Effects Model. The study has also contributed by providing a revelation to the point of comprehensive coverage of the girl-child in northern Nigeria in social science studies generally. Apparently all social science studies in northern Nigeria were conducted on girls attending formal schools, thereby neglecting a substantial portion, those who do not attend formal secular schools, like those who attend *Islamiyya* schools. Due to its pervasive nature, the *Islamiyya* system captures more comprehensively the girl-child in the region whose enrollment in formal secular schools is still a challenge. Because mass media exposure does not have a direct effect on HIV/AIDS safe practice, as witnessed in this study, it is possible some other HIV/AIDS

interpersonal communication channels are more effectual. It is recommended here that future researches in this regard explore such possibilities, using the same structural model or a different but similar one. There is also the need to further explore the possibilities of bidirectional relationships between HIV/AIDS media exposure and the hypothesized mediator variables tested in this study. Finally, there is the need for conducting similar studies in Christian dominated communities of Nigeria to see if results tally. It is also worthwhile to undertake a longitudinal design on the same subject in future for more adequate results.

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