



e-Journal of Media & Society

**RELATIONSHIPS BETWEEN HIV/AIDS KNOWLEDGE, ATTITUDE AND PRACTICE
AND MEDIA EXPOSURE ON HIV/AIDS: A CROSS SECTIONAL SURVEY OF
ADOLESCENT *ISLAMIYYA* GIRLS IN NORTHEAST NIGERIA**

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Abstract

Media exposure on HIV/AIDS among adolescents in the sub-Saharan Africa has been reported as low in the early 2000s but now given growth in infrastructure and development in technology and program appeal, there emerges a need for reassessment. Given that communication particularly through the media is considered as a major preventive strategy to addressing the spread of the epidemic, this study investigates the media exposure, knowledge, attitude and practice (KAP) of adolescent *Islamiyya* girls in Northeast Nigeria on HIV/AIDS as a predominantly Muslim society against the background of earlier studies which have shown that Muslim communities which were hitherto considered protected are now witnessing a rapid evidence of an advancing HIV/AIDS epidemic. And because of peculiar cultural and social practices women and girls are the worst affected. Media exposure on HIV/AIDS messages is considered a principal variable associated with safe attitudes and practice on the disease's prevention which was mainly investigated among the girls as potential mothers. The main objectives of the study were to determine the girls' patterns of media exposure and their KAP statuses in relation to HIV/AIDS through questionnaire survey. Based on Hierarchy of Effects model, hypotheses were posed to test the relationships between HIV/AIDS media exposure and HIV/AIDS knowledge, safe practice and safe attitudes among the girls, and relationship among the KAP variables. Survey will be administered on a sample of 487 *Islamiyya* girls in Bauchi. This 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.

Key words: HIV/AIDS; Mass media; Adolescent girls, knowledge; Attitude; Practice

Abstract

Media exposure on HIV/AIDS among adolescents in the sub-Saharan Africa has been reported as low in the early 2000s but now given growth in infrastructure and development in technology and program appeal, there emerges a need for reassessment. Given that communication particularly through the media is considered as a major preventive strategy to addressing the spread of the epidemic, this study investigates the media exposure, knowledge, attitude and practice (KAP) of adolescent *Islamiyya* girls in Northeast Nigeria on HIV/AIDS as a predominantly Muslim society against the background of earlier studies which have shown that Muslim communities which were hitherto considered protected are now witnessing a rapid evidence of an advancing HIV/AIDS epidemic. And because of peculiar cultural and social practices women and girls are the worst affected. Media exposure on HIV/AIDS messages is considered a principal variable associated with safe attitudes and practice on the disease's prevention which was mainly investigated among the girls as potential mothers. The main objectives of the study were to determine the girls' patterns of media exposure and their KAP statuses in relation to HIV/AIDS through questionnaire survey. Based on Hierarchy of Effects model, hypotheses were posed to test the relationships between HIV/AIDS media exposure and HIV/AIDS knowledge, safe practice and safe attitudes among the girls, and relationship among the KAP variables. Survey will be administered on a sample of 487 *Islamiyya* girls in Bauchi. This 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.

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INTRODUCTION

Africa south of Sahara bears the world's largest burden of HIV/AIDS. Major surveys on HIV/AIDS prevalence and young persons' behavioral patterns in Africa in recent years point that behavior change communication intervention attempts do not actually reap considerable impacts in cultivating desired sexual behavior response among the young despite hikes in the levels of awareness (Mulwo, 2008). For example according to Mulwo, (2008), in a cross sectional survey involving 9, 963 children, youths and adults by Human Sciences Research Council in 2002, it was reported that sexual relationships involving multiple partners were common among young persons living in informal urban areas in Africa, especially South Africa. Hence, prevalence of HIV was much higher among this age group as compared to all other age groups. And as far back as 1980s, Rapheal and Greig (1989) reported that young persons have been identified as resistant to messages on health promotion and as a result, they yield slowly to adopting healthy lifestyle behaviors, " campaigns designed to change behavior related to... pregnancy and STDs have demonstrated poor performance in the adolescent area"(p. 211). Going on to state that women are at the fore front and more prominent in terms of their vulnerability. Given that media interventions are considered a stupendous strategy against HIV/AIDS spread, this condition calls for a more rigorous interrogation of the subject matter. Again, there is also the gender dimension to the HIV/AIDS subject in Africa south of Sahara. As Harrison, 2005 and UNAIDS, (2006), reported, because of cultural factors, as compared to men, the prevalence of HIV among women is higher. According to Hoosen and Collins, (2004), women are more at risk in Africa possibly because of culturally and socially ascribed roles conferred on them which give them 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 encourage widespread rape, hat young girls are free from HIV coupled with the long standing myth that having sex with them could possibly cleanse a man's bad blood of HIV.

In the early 2000s Bankole, Singh, Woog & Wulf (2004), assessing adolescents' media exposure and HIV/AIDS situation in sub-Saharan Africa, reported that in most countries fewer than one in ten women and men aged 15 -19 listen to radio, watch TV and or read a newspaper at least once a week. More horrendous, in many countries according to the report, large proportions have no weekly exposure to any mass media. Now in 2017, given improvements and development in infrastructure and increased literacy and program appeal and the popularity of home video particularly in Northern Nigeria (Larkin, 2004), there appears to be an emerging need for the reassessment of adolescents' media exposure in relation to HIV/AIDS, to ascertain whether the situation of their media exposure has remained the same or has changed, and the consequences of media exposure on their knowledge attitude and practice on HIV/AIDS.

Taking HIV/AIDS media campaign messages in part, citing Triandis (1994), Airhihenbuwa and Obregon (2000) pointed out that all media campaign models in combatting HIV/AIDS are individualist rather than collectivist in nature, based on social psychology, and "the corpus of social psychology is based on the behaviors of people in the Western cultures."(p. 10). This submission demands for literature and evidence on other people's attitude and behavior on HIV/AIDS (like those of northeastern Nigeria) which are germane to, or operate as mediator for media campaigns to be effective on attitude change and general practice. Such evidence from other peoples' behavior can also further contribute to theoretical formulations to accommodate media messaging targeting other peoples than Westerners. In addition, the media are adjudged as potent tool for HIV/AIDS awareness and increasing protective and preventive behavior, but 'media exposure' as a major predictor interacting with all other KAP variables appears to be conspicuously missing in all HIV/AIDS KAP studies in West Africa which is a potent conceptual or methodological gap. Linking or determining the relationships of media exposure with the other variables of KAP on HIV/AIDS could provide a new insight in dealing with the subject. Adolescent *Islamiyya* girls are girls aged 11 to 19 years attending non-formal or non-secular Islamic night schools in Northern Nigeria). The study investigated their *media exposure* (the aggregate of a respondent's responses to 11 questions on the extent of their attending to radio, TV, newspaper, home video or Hausa novel etc). 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 this

study in 5 point scale from *False* to *True*). The study also investigated *Islamiyya* girls' *favorable attitude* towards the disease (mental state of readiness in a respondent which help 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, this is represented by the aggregate of a respondent's responses to 5 point scale items on the HIV/AIDS disease 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 Likert 5 scale response items on HIV/AIDS safe practice Against the above backdrop this study set out to

- a) describe the adolescent *Islamiyya* girls HIV/AIDS media exposure, knowledge level, attitude and practice/behavior statuses;
- b) verify the relationships between HIV/AIDS media exposure and HIV/AIDS knowledge, HIV/AIDS favorable attitude and HIV/AIDS safe practice among the girls.

RELATED LITERATURE

The study of media use and HIV/AIDS knowledge by Bekalu and Eggrmon (2013) in northwestern Ethiopia delivered mixed results. Exploring the knowledge gap resulting from mass media use disparities in the study population, precisely checking the relationship between mass media exposure relating to HIV/AIDS and HIV/AIDS knowledge, the study found, in the total population of the respondents, mass media exposure is not a significant predictor of knowledge related to HIV/AIDS. But at the same time however, the study also showed that the knowledge gap between respondents with high education and those with low education is 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. Against such mixed results further studies in this regard are required to make clearer the roles and interdependence of such key variables of HIV/AIDS media exposure and knowledge. And in a related study earlier by Li, Wu, Lin, Guan, Rotheram-Borus, Lu (2009) in China however, results indicated that HIV/AIDS related mass media

exposure directly links with HIV/AIDS favorable attitudes and safe behavior, especially in stigmatizing attitude towards people living with HIV/AIDS. But at the same time again, the study also states: “Although there have been theoretical debates on how and why mass media communications influence behavior, there is considerable empirical evidence showing that the mass media can be used for attitude and behavioral changes associated with HIV/AIDS”(p. 1). In addition, the 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 have safe HIV practice. Moore (2008) also attempted to figure out a relationship between HIV/AIDS knowledge and favorable attitude and practice in the United States of America

This Study was inspired by Hierarchy of Effect model, Advertizing Research Foundation’s version as applied to health communication (Hannan, 2009). The Advertising Research Foundation developed a variant of the Hierarchy of Effects communication model which delineates the functions of exposure to messages Perception, knowledge, Attitudes and Action (translated as behavior or practice) concerning an idea service or product (Barry, 1987: 254).

In addition, the model was also relevant to HIV/AIDS prevention or public health mass communication as it provides a basic framework by focusing on step-by-step persuasion strategies keeping in mind the components of exposure to information, knowledge, attitude and behavior for creating awareness for behavior change (Baran & Davis, 2003).

Though having origin in advertising and marketing communication, Hanan (2009: 134) discussed the Advertising Research Foundation’s Hierarchy of Effects model as having relevance and application in HIV/AIDS prevention communication and by extension, research. This model views individual behavior change in a linear sequence which commences with exposure to information (through the media) and assumes that knowledge, favorable attitudes and ultimately action in form of trial and adoption of the desired behavior or practice will follow. The model as adopted and applied to HIV/AIDS communication by Hanan, (ibid), advocates for evaluating exposure to messages concerning HIV/AIDS on people’s knowledge, attitude and action (behavior) regarding the HIV/AIDS through surveys. Feedback from that research is used to decide when to transmit message design to produce other effects such as decision-making or action. Particularly, in the Advertising Research

Foundation's version of Hierarchy of Effects model as applied to health communication of HIV/AIDS as adopted by Hannan (2009), this study sought to clarify further the measure of the roles of exposure to HIV/AIDS information from the media in relation to the roles of HIV/AIDS knowledge and favorable attitudes on HIV/AIDS safe actions i.e. practice among the respondents. Based on the Hierarchy of Effects model and other literature above the following hypothesis were formulated and tested in a structural model

HYPOTHESES

Hypothesis	Statement
H1	<i>Islamiyya</i> girls' HIV/AIDS 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	The girls media exposure will have significant positive effect on their HIV/AIDS favorable attitude.
H4	HIV/AIDS knowledge among them has significant positive effect on their HIV/AIDS safe practice
H5	HIV/AIDS knowledge among them has significant positive effect on their HIV/AIDS favorable Attitude
H6	HIV/AIDS favourable attitude will have significant positive effect on their HIV/AIDS safe practice.

METHOD

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, Sample size was subjected to Post Hoc Power Analysis which yielded an estimated Power of 0.997 (Power $(1-\beta$ err prob.) = 0.997 at .05 alpha level. Classroom situation questionnaire administration was adopted and

487 girls turned up (about 97% response rate). The instrument was mainly adapted from World Health Organization's Health Behavior among School Children (HBSC) questionnaire on HIV/AIDS among young persons. Adapted from United Nations KAP-B instrument on HIV/AIDS, this study assessed HIV/AIDS media exposure in 5-point 13 items scale. The scale of HIV/AIDS knowledge was adapted from cross-national WHO instrument on HBSC which sought information on knowledge on HIV/AIDS causes, symptoms, modes of transmission, prevention and epidemiology made of 29 items (Thomson, Currie, Todd & Elton, 1999). The response scale of which was a 5 point False to True scale adapted from Rhodes and Wolitslci, (1989) as cited by Aiken (2002). HIV/AIDS favorable attitude and attitude to those living with the illness (Thomson, Currie, Todd & Elton, 1999), consisted of 12 items, responses to which was also adapted from Rhodes and Wolitslci (ibid). Respondents' safe behavior or practice on HIV/AIDS and intention to practice consisting of 17 items was developed by the researcher for cultural sensitivity purposes. Five medical doctors from Northern Nigeria and familiar with the customs, tradition and religion of the region filled arbiter analysis form on each of the items (variables: 1, essential, 2, useful but not essential, 3, not necessary). Lawshe's Content Validity Ratio was calculated for the items and all have CVR above zero. 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 were 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 and Structural Equation Modeling (SEM), keeping in line with the assessment indicators as envisaged in the objectives of the study. Objective 1 was analyzed with descriptive statistics and 2, with SEM using PLS path modeling. After deleting 11 outliers, data were Normal and analysis proceeded with 476 cases. In the assessment of the measurement model, 16 items survived for a fit model with loadings 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 are therefore retained. In structural equation

modelling, using 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 .

RESULTS

Remarkably, a high proportion of the respondents, 41%, indicated that mass media were their major sources of information on HIV/AIDS, as indicated in the Table 1 below, followed by secular school teachers, 17.2%, then *Islamiyya* school teachers, 11.3%. This finding corroborates the finding of Brodie, Hamel, Brady, Kates & Altman, (2004).which confirmed that in America also, mass media are considered as major sources of information on HIV/AIDS. However, curious in this finding is that only next to mass media, teachers were the major sources of information for the adolescent girls (secular school teachers for 17.2% and *Islamiyya* school teachers for 11.3%). This finding further indicates that even in the *Islamiyya* school system, teachers were concerned about HIV/AIDS, thereby discussing the disease with the girls. At the same time, this finding suggested that the *Islamiyya* system which pervades the whole of the northeastern Nigeria and some other parts of the whole Northern Nigeria as a whole, can be used as a conduit for passing information of safety and protection on HIV/AIDS. More study on this regard needed to be done.

Table 1 Major HIV Information Medium for the Respondents

Category	Frequency	Percent
Friends	52	10.9
Relatives	26	5.5
Parents	36	7.6
Islamiyya Teachers	54	11.3
Secular School Teachers	82	17.2
Mass media	195	41

Medical Health Workers	28	5.9
Other	3	0.6
Total	476	100

Objective 1 The *Islamiyya* girls’ patterns of media exposure and KAP statuses

In Table 2 below, the description of the adolescent *Islamiyya* girls’ patterns of media consumption was presented. The means of their media consumption for different media as contained in the table ranges from 1.31 for English newspaper, to 3.43 for DVD Hausa films on the response scale of 5. The least standard deviation from mean found is for exposure to newsmagazine (.695) while the largest standard deviation found was for watching satellite TV (1.382). This extent of dispersion from mean in watching satellite TV may be attributed to socio-economic status differentials among the respondents - not all of them have access to satellite television as ownership of satellite receiver among homes in Northeast Nigeria was in some way considered a sign of affluence.

Table 2 Respondents HIV/AIDS Media Exposure Descriptive Statistics

Media	N	Mean	Std. Deviation
Listen Radio	476	2.21	.892
Watch TV	476	2.16	1.009
Watch DVD Hausa Film	476	3.43	1.261
Watch Sat TV	476	2.47	1.382
Read English Newspaper	476	1.31	.716
Read Hausa Newspaper	476	1.71	.951
Read News Magazine	476	1.33	.695

Read Women Magazine	476	1.46	1.070
Read Health Magazine	476	1.55	.917
Read Hausa Novel	476	2.58	1.335
Read Eng Novel	476	1.93	1.139
Read English Text Book	476	2.92	1.208
Free Time for Media	476	2.32	1.036

The specific frequencies on the time spent in minutes per day for exposure to different media, for radio the mode is 1-30min. with the frequency of 266 girls (56%). TV mode 1-30min, 202 girls (42%), DVD Hausa Film 1-3hrs, 140 girls (29%), satellite TV 0min., 160 girls (34%), English newspaper 0min., 381 girls (80%), Hausa newspaper, 0mins, 53% (but 1-30mins, 33%), news magazine 0min, 368 girls (77%). The rest of the media also do not have significant percentages attending to them among the girls as is the case with the last three categories. However, the total media consumption per day 3hrs and above, 160girls (34%) was found to be appreciably remarkable.

Descriptive analysis of latent constructs

The main purpose of this section is to provide descriptive analysis for the reflective latent constructs of this study. This involves the computation of the Means and Standard Deviation for the latent constructs involved, which were measured all on 5 point response scales. Table 5.10 below showed 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) is considered low score; and scores of 3 (highest value 5-3/3) is considered high and literally those in between low and high are considered moderate.

Table 3 Descriptive Statistics of Latent Constructs

Variable	N	Mean	Std. Deviation
HIV Attitude	476	3.508	.981
HIV Knowledge	476	3.047	1.041
HIV Safe Practices	476	2.818	1.138
HIV Media Exposure	476	2.115	.893

As shown in Table 3, the overall range of the latent constructs' Means are between is 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, Table 5.10 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 depicted a moderate score for HIV/AIDS safe practice (Mean = 2.818, standard deviation = 1.138).

This descriptive statistics for latent constructs also shows a moderate score for HIV/AIDS media exposure (Mean = 2.115, standard deviation = .893), respondents having moderate level of media exposure generally. This finding shows a remarkable departure from the findings of Bankole, (2004), which reported that in most countries fewer than one in ten women and men aged 15 -19 listen to radio, watch TV and or read a newspaper at least once a week.

Hypothesis Testing

Hypothesis 1 predicted HIV/AIDS media exposure would have positive significant effect on HIV/AIDS safe practice. Results in Table 4 below depicted at 0.05 level of significance H1 was rejected, implying there is no direct positive significant relationship between HIV/AIDS media exposure and HIV/AIDS safe practice ($\beta = .010, t = .237, p > 0.05$).

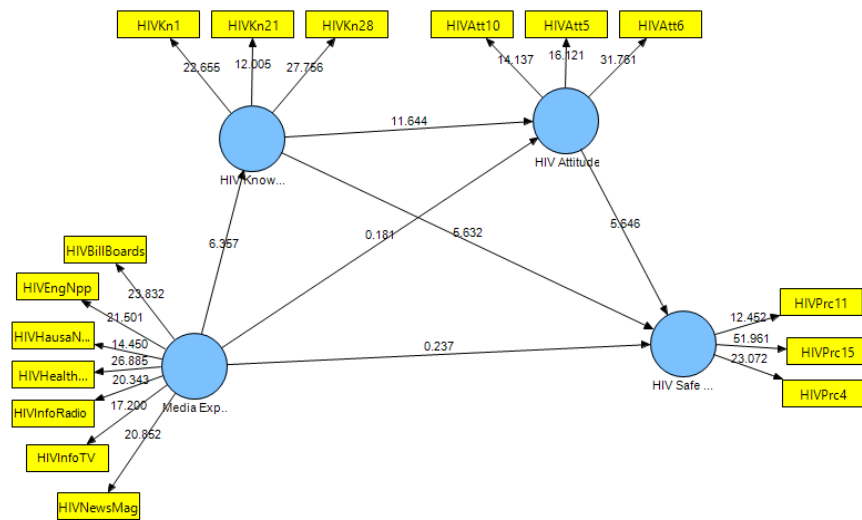


Figure 1 Structural Model

Table 4 Results of hypothesis testing

Hypotheses	Hypotheses Path	Path Coefficient	Standard Error	T Value	P Value	Decision
H1	Media Exposure -> HIV Safe Practices	.010	.043	.237	.406	Not Supported
H2	Media Exposure -> HIV Knowledge	.234	.037	6.357	.000	Supported
H3	Media Exposure -> HIV Attitude	-.008	.046	.181	.428	Not Supported
H4	HIV Knowledge -> HIV Safe Practices	.270	.048	5.632	.000	Supported
H5	HIV Knowledge -> HIV Attitude	.445	.038	11.644	.000	Supported
H6	HIV Attitude -> HIV Safe Practices	.271	.048	5.646	.000	Supported

The second hypothesis H2 predicted HIV/AIDS media exposure would have positive significant effect on HIV/AIDS knowledge. Results as shown in Table 4 and Figure 1 above showed that HIV/AIDS media exposure had a significant positive effect on HIV/AIDS knowledge ($\beta = .234$, $t = 6.357$, $p < 0.01$) which meant that at 0.01 alpha level, H2 was supported. Hypothesis 3 which predicted direct positive effect of HIV/AIDS media exposure on HIV/AIDS favorable attitude as indicated in Figure 5.4 and Table 5.14 above, was rejected at 0.05 level of significance ($\beta = -.008$ $t = .181$ $p > .05$).

Hypothesis 4 predicted a direct positive effect of HIV/AIDS knowledge on HIV/AIDS Safe practice, and as Table 4 depicts, there is significant positive effect of HIV/AIDS knowledge on HIV/AIDS safe practice ($\beta = .270$, $t = 5.632$, $p < .01$) hence, at .01 level of significance, H4

was supported. H5 predicted a direct positive effect of HIV/AIDS knowledge on HIV/AIDS attitude, the results as contained in Table 4 and Figure 1 above indicated that H5 was supported ($\beta = .445$, $t = 11.644$, $p < .01$) thereby indicating at 0.01 level of significance, H5 was supported.

HIV/AIDS safe attitude in H6 was predicted to have direct positive effect on HIV/AIDS safe practice in hypothesis 6 and results showed a significant positive effect of HIV/AIDS favorable attitude on HIV/AIDS safe practice ($\beta = .271$, $t = 5.646$, $p < 0.01$), therefore, at 0.01 level of significance H6 was supported.

DISCUSSION

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 has become much clearer in health communication campaigns. Over the years, the 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 on health communication. In consonance with these assertions, as is the case in the present 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. 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, Stanton, Venable ...and Romer (2011) on African American adolescents, which showed that mass media exposure had a remarkable effect on their STIs risk behavior. Apparent as they may seem, these differences in findings may only amount to contradistinction with the present study but not contradiction. Largely, 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 ignored by 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 obsession on condom use, which is likely to trigger desired response in sexually free societies.

Results for H2 found significant positive effect of media exposure on HIV/AIDS knowledge, which was consistent with the findings of Xiao, Li, Lin & Tam, (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, L., Rotheram-Borus, Lu, Wu, Lin, & Guan (2009). was also consistent on this point, except Bekalu and Eggremont, (2013) who found that, without controlling for any other variable, media exposure is not a significant predictor of HIV/AIDS knowledge in the total population of their sample. Their finding is almost a loner in the literature under this subject, and it is accompanied with gross implication on research. For example, in the present study respondents attested to being exposed to media HIV/AIDS messages, they reported that mass media were their major sources of information on HIV/AIDS. While H3 (which predicted significant positive effect of HIV/AIDS media exposure on HIV/AIDS favourable attitude was not supported; inconsistent with other literature and consistent with others as will be seen later, H4 (which predicted significant positive effect of HIV/AIDS knowledge on HIV/AIDS practice) was supported. Even though literature on this subject suggested that high knowledge does not automatically translate into safest practice, studies like Latemo, (2011) in Botswana found that the knowledge that something can be done to prevent becoming HIV/AIDS infected consistently significantly predicted safe sex behaviour among young people. HIV/AIDS knowledge as a significant predictor of HIV/AIDS safe behaviour (H4) and HIV/AIDS favourable attitude (H5) supported in this study, was also consistent with the findings of similar other previous studies like Rahnama, (2009) and Meundi, Amma, Ray and Shelly, (2008), but not consistent with Gańczak, Barss, Alfaresi, Almazrouei, Muraddad, & Al-Maskari, (2007) conducted in a similar Muslim dominated society. Except the latter, all the studies above tend to lend support to the structural model under assessment in the present study.

Further, H6 which predicted significant positive effect of HIV/AIDS attitude on HIV/AIDS practice was supported in consistency with the findings of Li et al., (2009) in China, but not consistent with the findings of Rahnama, (2009) conducted on UPM students (which showed

no significant correlation between HIV/AIDS attitudes and HIV/AIDS practice or behavior), though no effort was made by the author to adduce possible reasons for such rather inconsistent conclusion in the study, Rahnama's (2009) finding could be theoretically intriguing because behavior was considered a manifestation of attitude. Hence, there is a logical theoretical connection if someone's behavior on a particular thing followed from that person's attitude to it.

In the model examined in the present study, media exposure on HIV/AIDS demonstrated huge effect on HIV/AIDS knowledge and HIV/AIDS knowledge affects both HIV/AIDS favorable attitude and HIV/AIDS safe practice. Thence media exposure could be indirectly affecting HIV/AIDS attitude and practice. Broadly, two patterns are identified in media effect studies; how the media exert influence on attitudes and beliefs. Potter (2012) condensed these patterns as one in which media exerting weak or mild, yet persistent influence through the constant repetition of some messages over a prolonged period which gradual influence results in changes or modification in beliefs and opinions. Or, two, the media exert strong influence over short period, thereby creating an immediate sudden changes in beliefs, values or opinions.

Further explaining pattern one, Capella and Jamieson (1997), Cartwright (1949), Katz and Lazarsfeld (1955), Lasswell (1927), Hyman and Sheatslay (1947) and Sheufele (1999) as cited in Potter, (2012) posited that with constant supply of messages across long time, media exert huge influence on attitudes and beliefs by altering some and reinforcing others. In this process, the media begin to send pieces of information an individual requires to incorporate into one's present belief structures, " but where the new bit of information does not nicely fit into an existing category, thus the person needs to create a new category or change the arrangements of categories" (p. 160). These processes are theoretically assumed to influence behavior as postulated in the theories of the transmission model of HIV/AIDS behavior change communication such as Health Belief Model, Cultivation Theory, AIDS Risk Reduction Model, Reasoned Action Theory, Social Cognitive Theory and Emotional Response Theories.

CONCLUSION

The mass media remain major sources of HIV/AIDS information for majority of adolescent girls in Northeastern Nigeria and Hausa Home Video provides a potentially big window for mass media access to and addressing adolescents on HIV/AIDS. There was a significant improvement in adolescent media exposure generally in the Northeastern Nigerian part of African sub-Saharan region as compared to what obtained in the region up to 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 line with the improvements in literacy and media exposure among adolescents however, the press needed to pay more attention to HIV/AIDS protective or preventive stories instead of overemphasis on care for people living with HIV/AIDS, which is a reactionary approach.

Given the above conclusions and theoretical implications, there arose a need 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 2005, and still, the IMB model (National HIV/AIDS Behavior Change Communication 5 year strategy 2004 – 2008) guided the policy. The substantive findings and conclusions of this study was expected trigger 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. Moreover, media messages conceptualization process be subjugated to possible religious and cultural underpinning considerations to control for possible message misinterpretations. As it is concluded here that 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 could be 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, therefore 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.

LIMITATIONS

This study is limited by its cross sectional nature; the constraints posed by the urge and need to graduate on time (more especially being a student from a foreign land) and limited financial resources constrained the researcher from embarking into a longitudinal design on the subject. Purposely 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 a glimpse of evidence on the relationships of HIV/AIDS important cognitive, psychological and behavioral constructs operating at the background on avoidance or approaching the HIV/AIDS risk.

Again, due to financial constraints and *Boko Haram* insecurity predicaments pervading Northeastern Nigeria (Hamid & Baba, 2014), the study could not draw sample from the whole of Northeast Nigeria; which comprised of six states that have cultural and religious homogeneity. Nevertheless, in essence it will be conducted in Bauchi because it is the most populous state in the whole region of Northeast Nigeria and at the same time relatively more peaceful than all other states namely Borno, Yobe, Adamawa, Gombe and Taraba, which are afflicted by the *Boko Haram* tragedy (ibid). The results however, because of cultural and religious homogeneity of the whole Northeast Nigerian region, can be generalized to the entire geopolitical zone.

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