Research Paper

Assessing the moderating role of secular schooling in a structural model of HIV/AIDS media exposure, knowledge, attitude and practice using multi group PLS SEM analysis

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Abstract: In African societies like northern Nigeria, formal schooling is a colonial transplantation with which the communities are still struggling to come to terms, which is a port for the propagation of Western civilization. Research on media and health practices suggests a correlation between knowledge, attitudes, and practices related to HIV/AIDS and media exposure, but there is a dearth of literature on the role of formal schooling in these interrelationships. such interrelationships.   While different models of investigating community health issues abound, the cognitive, affective, and behavioural approach surveyed as KAP 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 etection. Researchers conducted a KAP survey on HIV/AIDS among 487 adolescent Islamiyya girls in Bauchi, Northern Nigeria, a predominantly Muslim community. The study finds that moderating does not directly predict HIV/AIDS practice; it does relate to the moderation of exposure to secular formal schooling. Exposure to HIV/AIDS media is a significant predictor of HIV/AIDS knowledge and attitudes. Thus, we concluded that media exposure is a necessary but not sufficient precursor to HIV/AIDS safe practice, and girls attending formal schools are more likely to comprehend mass media HIV/AIDS messages.

Keywords: Media Exposure; HIV/AIDS Knowledge; HIV/AIDS Attitude; HIV/AIDS Practice

INTRODUCTION

While studies on media and health practices have confirmed the interrelationships between knowledge, attitudes, and practices related to HIV/AIDS and media exposure, there is a dearth of literature on the role of formal schooling in these interactions. relationships. This study is an attempt to remedy such a paucity in the literature. HIV/AIDS prevention, which is the sixth item among the Millennium Development Goals, has continued to draw the attention of key stakeholders among national, regional, and global players because AIDS poses a serious challenge that can really devastate whole regions and crack decades of national development (Ugande, 2007). Sub-Saharan Africa bears the largest burden of HIV/AIDS (about 70%) (Bankole, Singh, Woog, & Wulf, 2004). According to a recent figure on HIV/AIDS prevalence, out of the 34 million global people living with the disease, 23.5 million (69 percent) are in sub-Saharan Africa. In Nigeria, the figure stood at 1.9 million people living with it, 74 000 new infections, and 51 000 AIDS-related deaths (Be-in-the-Know, 2021). Furthermore, reports from Global Information and Advice on HIV and AIDS, 2015, citing the UNAIDS Gap Report, 2014, indicate that nearly half of new infections in sub-Saharan Africa originate from South Africa, Uganda, and

Nigeria.

Curbing the HIV epidemic by focusing on adolescents' needs is an urgent priority. Adolescence presents a window of opportunity for introducing policies on media, educational programmes, and reproductive health services that could change the course of the HIV/AIDS epidemic in sub-Saharan Africa. Young people and their future contributions to society are critical to the survival and wellbeing of the entire sub-Saharan African region. Against this background, the World Health Organisation (cited in Bankole et al., 2004: 5) points out that "during early adolescence, HIV rates are the lowest of any period during the life cycle." The challenge is to keep them this way. Focusing on young people is likely to be the most effective approach to confronting the epidemic, particularly in high-prevalence countries." Extensive surveys have shown that adolescents are at greater risk of acquiring HIV than adults. For example, Bankole et al. (2004) stated that behavioural, psychological, and sociocultural factors make young people more vulnerable to HIV infection. Adolescence is a time when young people naturally explore and take risks in many aspects of their lives, including sexual relationships. For example, those who have sexual experience may change partners frequently, 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 their behavior. Marriage is also another factor that increases an adolescent girl's risk of contracting HIV in sub-Saharan Africa (UNFPA, 2023).

There are many ways to look into community health problems, but the cognitive, affective, and behavioural approach known as KAP seemed more appealing to researchers because it could help them find beneficial ways to solve health problems, especially by finding people who have false beliefs about diseases and emotional barriers that make it challenging to protect or prevent them. According to Launiala (2009), the KAP model's hallmarks are its accurate presentation of results, generalizability of results from a small sample to a larger population, ease of design, administration, and result interpretation. Even though it is very dangerous to assume a linear progression from knowledge to a favourable attitude and ultimately to safe practice, the KAP model presumes that decisions on behaviour change have cognitive and psychological dimensions.

Despite the growing acceptance and popularity of the KAP model in investigating social and community health issues, this study considers using the KAP model alone as theoretically inadequate, lacking full explanatory power. The KAP model's theoretical direction initially assumes that the knowledge variable will interact with the other variables of attitude and practice, providing insight into behaviour change. But the knowledge variable itself cannot exist independently of possible precursor variables such as media exposure or even interpersonal communication on HIV/AIDS, for example. Therefore, as a remedy, this study invokes the Advertising Research Foundation's (hereinafter referred to as ARF's) version of the Hierarchy of Effects (hereinafter, HoE) model to attempt a more exhaustive explanation of the subject. The ARF's HoE model assumes a linear progression from exposure to a source of information on HIV/AIDS (mass media in this case) to HIV/AIDS knowledge, a favourable attitude, and safe practice (Barry, 1987; Hanan, 2009).

The cardinal tenets of development media theory state that, in ideal circumstances, mass media should support governments in achieving set objectives on crucial issues like combating HIV/AIDS. This is especially true considering that the most effective way to combat the epidemic is to promote safe practices through advocacy. In this direction, mass media play a central role. Evidence on media reportage of HIV/AIDS in countries with high prevalence rates, like Nigeria, adds to existing literature on the role of the media and is expected to further guide global and national policy on HIV/AIDS prevention strategies. Furthermore, experts consider the media to be a powerful tool for raising HIV/AIDS awareness and enhancing protective and preventive actions. However, the absence of "media exposure to HIV/AIDS" as a significant independent variable and its interaction with other KAP variables in all HIV/AIDS KAP studies in West Africa presents a significant conceptual and methodological gap. Several studies, including Li, Wu, Lin, Guan, Rotheram-Borus, and Lu (2009), Bekalu and Eggrmont (2013), and similar ones by Moore (2008), Letamo (2011), and Aung et al. (2013), found a link between the HIV/AIDS KAP variables and media exposure. The studies also found that respondents got most of their information about HIV/AIDS from the media. However, it appears that no study has ventured beyond the direct effects to speculate on potential moderating factors that could influence the structural relationships between the constructs. This is because the empirical evidence on this topic isn't stable.

Previous studies on knowledge, attitude, and behaviour, for example, have focused on and analysed purely descriptive statistics or the classical test theory approach through the use of sum scores (e.g., Zhou, Sun, & Mantell, 2007). However, Bouanchaud (2011) asserts that the summed composite scores simplify calculations, necessitating a more robust statistical approach. He cites the disadvantages of the classical test theory approach, which assumes equal weights for all questionnaire items related to knowledge, attitude, and behaviour on HIV/AIDS. As a result, this study did not use the summed scores method. Instead, it used a structural model that accounted for the different item loadings in the outer model to look at media exposure and the KAP variables as reflective latent constructs.

Among the few studies that assessed relationships between media exposure constructs and HIV/AIDS knowledge, attitude, and practice are Li et al. (2009),

Sznitman et al. (2011), and Xiao et al. (2014). The majority of these studies, except for Bekalu and Eggrmont (2011), Rahnama (2009), and Mahtab (2010), figured out positive relationships among media exposure and KAP variables as theoretically assumed. Contextual differences, possibly related to cultural and religious underpinnings, could potentially explain these discrepancies between the empirical renderings. In Africa, where HIV/AIDS is most common, these kinds of studies are almost nonexistent. That's why the goal of this study is to give an empirical descriptive account and relationships between HIV/AIDS media exposure and HIV/AIDS KAP variables from Nigeria, a country in sub-Saharan Africa that is another unique cultural context. We posed the following hypotheses based on the previously discussed topics:

HIV/AIDS media exposure has a positive influence on HIV/AIDS behaviour and practice.
HIV/AIDS media exposure has a positive influence on HIV/AIDS knowledge.
HIV/AIDS media exposure positively affects HIV/AIDS attitudes.
HIV/AIDS knowledge positively affects HIV/AIDS attitudes.
HIV/AIDS knowledge positively affects HIV/AIDS practice.
H6 HIV/AIDS attitude positively affects HIV/AIDS behaviour and practice.

Formal secular schooling and HIV/AIDS KAP

This article focuses on the crucial issues of media exposure and HIV/AIDS KAP. While some literature suggests a positive relationship between media exposure and KAP, it also suggests that secular schooling experiences among adolescents may moderate these relationships. Related literature suggests a close relationship between education and young people's ability to protect themselves from HIV/AIDS. Therefore, empirical evidence suggests that formal schooling experience could moderate the impact of media exposure variability and HIV/AIDS knowledge and attitude on HIV/AIDS behavior. Bankole et al. (2004), citing UNICEF (2002), reported that the prevalence of HIV among young females 15 to 19 years old decreased with some schooling, but remained the same among women with no schooling experience in Zambia throughout the 1990s. According to the report, in many sub-Saharan African countries, higher proportions of adolescents who are not married and who are not in school engage in unprotected sexual intercourse than their counterparts in school. As it is, such findings could have damning implications for the HIV/AIDS epidemic future in the region, given the challenges, particularly the girl-child school enrolment. According to the report, most young women were not in school; only 7–12% are still in school in 12 countries in the region. Only Gabon and South Africa have a substantially appreciable percentage of adolescent girls attending school (70–80%).

In the limited literature available, two mechanisms are primarily used to identify the presumed logical progression from exposure to secular schooling to HIV/AIDS protection. First, usually the most commonly assumed mechanism is the 'information-transfer' assumption, suggesting that exposure to formal schooling enhances a person's basic information about the physical causes and prevention of a disease. Moreover, Baker, Leon, & Collins (2010) expect this information to translate linearly into better decisions about risk and health. In the case of HIV/AIDS, it is assumed that information about basic facts on mother-to-child and heterosexual transmission of the virus and about condoms is taught in school or learned through school peer groups and clubs' mechanisms, leading to resolve and engagement in protective behavior. The "attitude-change" chain is the second most common theory explaining how things happen. This idea says that getting more education makes people more positive about HIV/AIDS and people who live with the syndrome. This positive attitude reduces stigma, making educated people more open and more likely to use protective strategies.

The aforementioned chains imply a linear relationship between formal school exposure and higher-order cognitive skills. These skills, sometimes referred to as better numeracy, are theoretically associated with improved risk assessment and enhanced decision-making (Baker et al., 2010). Formal schools primarily acquire numeric skills (ibid.), and while the Islamiyya, particularly in northern Nigeria, relies on Arabic and Islamic theology and jurisprudence, it lacks numeric skills entirely. Despite the various arguments, the evidence for a direct correlation between formal secular schooling and health attitudes and behaviours remains inconclusive.

Generally, literature on the relationship between exposure to formal schooling and health status has yielded unstable results, as indicated above. For example, according to Baker et al. (2010), there is much conjecture on the cause surrounding the widely reported suppositions about the association between formal schooling and health behavior. Scholars have frequently called for more rigorous research endeavors to gain a clearer scientific understanding of the role of schooling in this regard, but there has been virtually no effort to distinctly clarify this role. This study responds to this observation by examining broader media exposure and using the HIV/AIDS KAP model to provide a comprehensive explanation of the subject. The existing studies in this field primarily concentrate on regions other than West Africa. This study focused on the Nigerian Islamiyya system, which is a robust system that captures adolescent girls who do not attend formal secular schools as well as those who do. We deliberately selected this system to test the moderation of formal secular schooling

in media exposure, as well as the KAP model, the second object of this study. The propositions and assumptions adduced here, as discussed so far, form the basis for the hypothesis that follows.

H7 The structural relationships hypothesised between HIV/AIDS media exposure and HIV/AIDS will be stronger for Islamiyya girls with exposure to formal schooling than for those with no such exposure.

H7 breaks into three sub-hypotheses:
H7a The effects of HIV/AIDS media exposure on HIV/AIDS practice will be stronger for *Islamiyya* girls with exposure to secular schooling than for those with no such exposure.
H7b The effects of HIV/AIDS media exposure on HIV/AIDS knowledge will be stronger for *Islamiyya* girls with exposure to secular schooling than for those with no such exposure.
H7c The effects of HIV/AIDS media exposure on HIV/AIDS attitudes will be stronger for *Islamiyya* girls with exposure to secular schooling than for those with no such exposure.

Method

In this study, adolescent *Islamiyya* are girls between 11 and 19 years old who attend non-formal or non-secular Islamic night schools in Northern Nigeria. The study investigated the girls' exposure to HIV/AIDS media, based on their responses to a 14-item questionnaire about their exposure to HIV/AIDS messages in newspapers, TV, radio, Hausa novels, and home videos. The study examined the respondents' level of HIV knowledge, measuring their understanding of prevention, risk management, basic facts about HIV, HIV testing, epidemiology, and transmission on a 29-item, 5-point scale ranging from false to true. The study also investigated the girls' attitude toward the syndrome, which refers to their mental state of readiness to prevent the transmission of the HIV/AIDS syndrome among community members, including tolerance for individuals living with AIDS (Lal, Vasan, Sarma, & Thankappan, 2000). In this study, this construct is measured by the aggregate of a respondent's replies to 12 items on a 5-point scale on reaction to HIV/AIDS and people living with it. The respondents' practice of HIV/AIDS, which refers to their behavior that lowers their risk of contracting the disease, encompasses their intention to do so. This study measures the construct by aggregating the respondents' responses on a 5-point scale of 17 items related to HIV/AIDS safe practices.

Sample

Out of a target population of 30,000 people (Maulud

1437 a.h. estimates from 2016 by Riyala), 500 teenage Islamiyya girls (11 to 20 years old) were chosen through a process called multi-stage probability sampling from Islamiyya schools in Bauchi, Nigeria, that are run by Riyala, an Islamiyya coordinating body. We listed the largest and most organised Islamiyya schools (with class registers, classes 1–5 or 6 and different arms of classes, e.g., A–E), and randomly selected 10 of them. Next, we chose two groups from each school, and within these groups, we chose two arms, such as 4c and 5b. We randomly selected 25 students from each of the two classes using the class registers. A post hoc power analysis was used to determine the statistical power of the sample size, which yielded an estimated power of 0.997 (Power (1-β err prob.) = 0.997 at the.05 alpha level). The sample includes 321 girls who attend secular formal schools and 155 girls who do not. More than 70% of them belong to the Hausa/Fulani ethnic group, the predominant one in Nigeria. We implemented the questionnaire in a classroom setting, and 487 girls participated, resulting in a 97% response rate.

The Instrument

We primarily adapted the questionnaire survey from the World Health Organization's Health Behaviour among School Children (HBSC) questionnaire on HIV/AIDS among young people, which included a binary variable item on the girls' formal schooling status. After reviewing a number of articles to decipher the effects of general media exposure on behaviour, Annenberg Media Exposure Research Group (2008) reported that studies revealed mixed results, with some finding substantial evidence for the effect of general media exposure, some finding a moderate effect, and others finding no effect. The report pointed out that studies have recently become more methodologically sophisticated; instead of investigating the effects of general media exposure or exposure to particular media genres, researchers now began to use specific exposure measures, for example, 'exposure to sexual content'. Following this conclusion, the study's tested model takes into account the specific measure of "HIV/AIDS media exposure." Again, after comparing various measures of media exposure, Romantan, Hornik, Price, Capella, and Viswarath (2008) suggested that the most useful measure is that of closed-ended, specific questions. For all the variables of media exposure, this study applied continuous scales as recommended by Bartholomew and Knott (1999). Bouanchaud's (2011) study considered each of the media exposure and HIV/AIDS KAB/P variables as reflective latent variables. This approach approximated each variable as a proxy, not directly measurable, but partially revealed through a battery of individual survey responses. Therefore, we adapted the scale on HIV/AIDS media exposure from Hirose, Nakaune, Ishizuka, Tsuchida, and Takanashi (1998), which meets these criteria.

Thomson et al., 1999 adapted the scale of HIV/AIDS knowledge from a cross-national WHO instrument on HBSC, which sought knowledge on HIV/AIDS causes, symptoms, modes of transmission, prevention, and epidemiology. The response scale was a 5-point Completely False–Completely True scale, adapted from Rhodes and Wolitslci (1989), as cited by Aiken (2002). The HIV/AIDS attitude and attitude toward those living with the syndrome (Thomson et al., 1999) consisted of 12 questions, the responses to which were also adapted from Rhodes and Wolitslci, ibid. In a similar study, Shokoohi et al. (2016) reported an internal consistency reliability Cronbach alpha coefficient of.751 for the HIV/AIDS knowledge construct and.867 for attitudes towards HIV/AIDS in a study of young people in Iran. Lee, Hornik, and Hennesy (2008) reported a Cronbach alpha reliability estimate for exposure to various legacy mass media, ranging from.54 to.66.

For this study, we developed 17 questionnaire items that elicited information on the respondents' safe behaviors regarding HIV/AIDS and their intention to practice. Five Hausa-speaking (Nigerian) medical doctors analyzed the items to ensure face and content validity (Creswell, 2012). The decision on retaining items was based on Lawshe's Content Validity Ratio calculations, in which the five doctors who are familiar with northern Nigeria's customs, traditions, culture, and religion, all drawn from the region, scored the questionnaire items in three categories: 1) Essential; 2) Not essential 3) Not necessary. We used Lewshe's formula (Ayre & Scally, 2014) to calculate the content validity screening of the 17 items, and we retained all of them. Lawshe's CVR values ranged from -1 (perfect disagreement among arbiters) to +1 (perfect agreement among arbiters). CVRs above zero indicate more than 50% of arbiters agreed the item was essential (Ayre & Scally, ibid.). All the items had CVRs above zero. Johns (2010) observed that a five-point response scale distorts results in social science research when scale points are below 5 or above 7. Several earlier studies on KAP HIV/AIDS in school-aged children have adapted the HBSC instrument, including Potsonen and Kontula (1999) in Finland, Thomson, Currie, Todd, and Elton (1999) in Scotland, Dias, Matos, Gonkalve (2005) in Portugal, and Gaczak et al. (2007) in the U.A.E.

RESULTS AND DISCUSSION

Media Exposure and KAP on HIV/AIDS: A Descriptive Analysis

We structured this section into three parts: a brief descriptive hint of the latent constructs, the results of the structural paths' significance in the model, and the MGA moderation analysis. We provided a description of the respondents' distribution at three levels for media

exposure and HIV/AIDS knowledge constructs: high, moderate, and low. Related literature such as Naugle and Hornik (2014) and Nubed and Akoachere (2016) categorizes HIV/AIDS knowledge into good, moderate, and poor categories. We computed the construct of media exposure to HIV/AIDS to obtain an overall composite score for each respondent. We set the maximum score at 70 and divided the respondents into three categories based on their media exposure levels to HIV/AIDS. The result shows the majority of the respondents, 72%, have moderate HIV/AIDS media exposure, i.e., scoring between 23.31 and 46.62, and there is a marginal difference (2%) between the percentages of those with high HIV/AIDS exposure and those with low exposure, at 15% and 13%, respectively.

29 questionnaire items measured the respondents' knowledge of HIV/AIDS, with 145 serving as the maximum scoring point. We converted the composite scores, reflecting the overall knowledge score, into percentages and categorised them into three levels: good, fair, and poor. Respondents scoring ≥75% are categorised as having good HIV/AIDS knowledge, 51–74, moderate knowledge, and ≤50% poor knowledge (Nubed & Akoachere, 2016). At the same time, the majority of the respondents had moderate knowledge of HIV/AIDS (75% of them). The remarkable finding is that the majority (41%) reported mass media as their primary source of HIV/AIDS information, potentially attributing their moderate knowledge to media use. This finding corresponds with the findings of Gańczak et al. (2009), Aung et al. (2013), Xiao et al. (2015), Mahtab (2019), and Rahnama (2009).

We computed the respondents' overall HIV/AIDS attitude score and classified them into two categories: good and poor attitude. The maximum score was 70, and the mean score was 50. Any case below the mean score was considered to have a poor attitude, and cases above the mean value were considered to have a positive attitude (Nubed & Akoachere, 2016). The results indicate that a majority of the respondents, specifically 58%, exhibited a positive attitude towards HIV/AIDS. This result is consistent with Mahtab (2010) and Rahnama (2009), but inconsistent with Aung et al. (2013). We also categorised the respondent HIV/AIDS practice scores into two categories: safe practice and risky practice. The maximum score was 85, and the mean score was 51. Any case below the mean score was also considered risky practice, and cases above the mean value were considered safe practice (Nubed & Akoachere, 2016). The result breaks into exactly two equal groups: 50% with safe practice and 50% with risky practice. This result matches almost exactly with Aung (2009), which was conducted in secondary schools in Malaysia, where the result breaks exactly into equal halves. The result is also consistent with Rahnama (2009). Table 1 summarises the respondents' descriptive HIV/AIDS media exposure and KAP.

Table 1: Description of respondents by levels of HIV/AIDS media exposure, knowledge, attitude and practice

Variable	Range	Mean	SD	Percentage (N= 476)
HIV/AIDS media exposure		2.12	.89	
Low	0%-50%			15
Moderate	51%-74%			72
High	75%- 100%			13
HIV/AIDS knowledge		3.05	1.04	
Poor	0%-50%			14
Fair	51%-74%			75
Good	75%- 100%			11
Attitudes towards HIV/AIDS		3.51	.98	
Good	50 (mean composite score)-70(highest score)			58
Poor	0- 49 score			42
HIV/AIDS practice		2.82	1.14	
Safe practice	51(mean composite score)- 85 (highest score)			50
Risky practice	0-50 (scores)			50

PLS (SEM) Path Model Assessment

We followed the two-step procedure of estimating the PLS path modelling to test the hypotheses posed in the introduction of this article: we assessed the outer model and the inner model using the bootstrapping procedure (Henseler, Ringle, & Sinkovics, 2009; Awang, 2015). In this analysis, it is worth mentioning that Henseler and Serstedt (2013) indicated that the index of goodness-of-fit (GoF) for model validation is not suitable (see also Hair et al., 2014). For example, Hair, Ringle, and Sarstedt (2013) found the goodness-of-fit index unsuitable for the validation of PLS models when using simulated data, due to its inability to distinguish between invalid and valid models.

The outer model

Internal Consistency Reliability: Common estimators of the internal consistency and reliability of an instrument are the composite reliability coefficient and Cronbach's alpha (Peterson & Kim, 2013).
Table 2 shows the factor loadings of each item retained, their composite reliability, and the average variance extracted for each construct. The cut-off value of composite reliability was based on the rule of thumb suggested by Bagozzi and Yi (1988) and Hair et al. (2011) that the coefficient of composite reliability should not be below the benchmark. The composite reliability coefficient for each latent construct, as shown in Table 5, ranged
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from.765 to.884, all above the minimum required level of.70. This indicates that the measures in the present study have adequate internal consistency reliability. This, in a way, means that all items in a construct are actually measuring the same construct.

Convergent Validity: Hair et al. (2006) emphasize the importance of determining the true representation of latent constructs by items and their correlation with other measures within the same latent Fornell and Larcker (1981) said that the average variance extracted (AVE) for each latent construct could be used to measure convergent validity. Chin (1998) said that for convergent validity to be acceptable, the AVE for each construct should be.50 or higher. **and** above. As a result, the AVE values shown in Table 5 above are above.50, indicating adequate convergent validity. This indicates correspondence between this study's constructs, which are theoretically related.

Discriminant Validity: According to Chin (1998), we compare indicator loadings to cross-loadings to determine the discriminant validity of the constructs, or the extent to which the constructs empirically discriminate against one another.   Furthermore, the indicator loadings must be greater than the cross loadings. Table 6 below shows the comparisons between indicator loadings and cross-loadings with other reflective indicators. The table shows that all indicator loadings were greater than the cross loadings, confirming the strength of discriminant validity for subsequent analysis

Table 2: Item factor loading, AVE and composite reliability of constructs

Item	HIV Knowledge	HIV Attitudes	HIV Practice	HIV Media Exposure
HIV Kn1 (Once infected with HIV a person can infect others for his/her entire life.)	.758			
HIV Kn21 (A person can get HIV from toilet seats.)	.619			
HIV Kn28 (If a person is tested positive for HIV/AIDS then the test center will have to tell all of his or her partners.)	.781			
Att10 (People with HIV should inform others about their infection.)		.682		
Att5 (I don't feel sorry for people who caught AIDS because it is their own fault.)		.692		
Att6 (People with HIV should be made to live apart from the general population.)		.805		
Prc11 (If I need a tattoo design I will not mind using a needle which has been used by my friend or sisters.)			.618	
Prc15 (Once I love a person very much I obey all his wishes to sustain happiness between us.)			.870	
Prc4 (Once a person loves me and I also love him, I agree to all his wishes since it is good to be good to those who loved you.)			.757	
How often do you obtain information on HIV/AIDS from Billboard				.748
How often do you obtain information on HIV/AIDS from EngNpp				.727
How often do you obtain information on HIV/AIDS from HausaNpp				.664
How often do you obtain information on HIV/AIDS from Healthmag				.773
How often do you obtain information on HIV/AIDS from Inforadio				.718
How often do you obtain information on HIV/AIDS from InfoTV				.682
How often do you obtain information on HIV/AIDS from NewsMag				.741
AVE	**.523**	**.530**	**.570**	**.522**
Composite reliability	**.765**	**.771**	**.796**	**.884**

Structural model assessment: The inner model

Relationships between HIV/AIDS Media Exposure and HIV/AIDS KAP among the respondents

We assessed the structural model using a standard bootstrapping procedure, applying 5000 bootstrap samples with 476 cases to approximate the path coefficient significance (Hair et al., 2014; Hair et al., 2012). Table 3 depicts the structural model estimate.

Hypothesis 1 predicted that HIV/AIDS media exposure would have a significant positive effect on HIV/AIDS safe practices. Results in Table 7 below show

H1 was rejected, implying there is no direct significant positive effect of HIV/AIDS media exposure on HIV/AIDS safe practice (β =.010, t =.237, p >0.05).

H2 predicted that HIV/AIDS media exposure would have a significant positive impact on HIV/AIDS knowledge. The results shown in Table 7 and Figure 1 above demonstrate that HIV/AIDS media exposure has a significant positive effect on HIV/AIDS knowledge (β =.234, t = 6.357, p<0.01). Results for H1 and H2 matched the findings of Bessinger, Katende, and Gupta (2004) in Uganda, except that the latter supported the effect of media exposure on HIV/AIDS campaigns on coIt was found that H3, which said that seeing HIV/AIDS in the

media would directly make people feel better about the disease, was not true (² = -.008 t =.181 >.05). On the other hand, H4 said that knowing about HIV/AIDS would directly make people safer when they were using it, and Table 7 shows that this is true (β =.270, t = 5.632, p<.01). 5.632, p<.01). Gemeda, Gandile, and Bikamo (2017) used confirmatory factor analysis of covariance-based structural equation modelling (CB-SEM) to find that knowledge and attitude about HIV/AIDS are not significant predictors of HIV/AIDS practice. This result does not agree with their findings. This discrepancy in findings could potentially be attributed to the authors' use of an HIV/AIDS knowledge and HIV/AIDS attitude scale, which current researchers view as problematic for measuring exogenous latent variables. The study employed a 5-point self-report scale, where each point represents a level of knowledge. In response to questions on HIV/AIDS knowledge, the scale ranges from 1 (don't know at all) to 5 (know very well). This is considered problematic because a respondent might report 'Know very well' to a question on HIV/AIDS when, in the actual sense, the respondent just feels he/she knows but does not know, and vice versa. This response scale cannot truly measure the extent of HIV/AIDS knowledge. According to numerous other studies (e.g., Thomson et al., 2009), the correct scale points are the False or True scale or the Completely False-Completely True scale, in which a respondent ticks whether a statement is true or false, and the scale points between Completely False and Completely True represent how certain the respondent is in his knowledge. The problematic nature of the HIV/AIDS knowledge and attitude measure in the study may have led to the inconsistent finding.

Hypothesis 6 predicted that an HIV/AIDS safe attitude would have a direct positive effect on HIV/AIDS safe practice. The results show that an HIV/AIDS favorable attitude has a significant positive effect on HIV/AIDS safe practice (β =.271, t = 5.646, p < 0.01).

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. According to Bekalu and Eggremont (2013), over the years, researchers seeking definitive evidence on audience knowledge disparities accounted for by differentials in media use concerning health communication have increasingly used the hypothesis as a powerful tool for conceptualizing media effect research. Consistent with these claims, the current study confirms that, contrary to H1's prediction, HIV/AIDS media exposure did not directly impact HIV/AIDS safe practice, but it did significantly influence HIV/AIDS knowledge. This result is not consistent with the findings of Bouanchaud (2011) and Bessinger, Katende, and Gupta (2004), which revealed that mass media exposure was a significant predictor of HIV/AIDS safe practice. Sznitman et al. (2011) conducted a related study on African American adolescents, which revealed a remarkable effect of mass media exposure on their STI risk behavior. As 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 instance, Bouanchaud's (2011) scale featured a binary variable, "ever used a condom?" However, this study purposefully ignored the condom use scale due to religious sensitivity. Perhaps the media's fixation on condom use, which is likely to elicit a desired reaction in societies that prohibit sexual activity, could explain this scenario.

The H2 results showed that media exposure had a significant positive effect on HIV/AIDS knowledge. This was similar to the results found by Xiao et al. (2015), who found that exposure to HIV/AIDS-related mass media information had a significant relationship with HIV/AIDS knowledge and attitude. In addition to Xiao et al. (2015), studies by Li et al. (2009) and Bessinger, Katende, and Gupta (2004) also supported this finding, with the exception of Bekalu and Eggremont (2013), who found that media exposure did not significantly predict HIV/AIDS knowledge, even after controlling for any other variables in the study. Their findings stand out in the literature on this subject, potentially leading to significant implications for future research.

Table 3: Results of hypothesis testing

Hypotheses	Hypotheses Paths	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

Moderating role of exposure to secular schooling in the effect of media exposure on KAP on HIV/AIDS

The objective of investigating the moderating role of formal schooling in the above structural paths gives rise to hypothesis 7. The study used group comparison method or multi-group analysis for determining moderating effects. Literally, the direct relationship between HIV/AIDS media exposure and HIV/AIDS safe practice; between HIV/AIDS media exposure and HIV/AIDS knowledge and between HIV/AIDS media exposure and HIV/AIDS favorable attitude were compared across two groups of respondents attending formal schools and those who were not. The differences in the model parameters obtained between the two groups of data i.e. the group with exposure to formal schooling experience and those without such exposure are interpreted as moderating effect.

Table 4 below presents the values for the differences between the group with formal schooling and the group without formal schooling. The table showed group comparisons between respondents with formal schooling and respondents with no formal schooling. As the table above indicates, among the 3 hypothesized interaction effects of formal schooling, only one is supported at alpha significance level p< .10 i.e. there is significant

moderating effect of formal schooling between HIV/AIDS media exposure and HIV/AIDS safe practice (Path 1: β = .096, Path 2: β = -.046, Path1 – Path2 = .142, t = 1.451, p<0.1). This means that formal schooling is a factor that enhances the effect of HIV/AIDS media exposure on HIV/AIDS safe practice among the respondents. Put in other words, media exposure makes the respondents attending formal schools have more HIV/AIDS safer practice than those without formal secular schooling. This result in part matches perfectly with the assertion of Baker et al. (2010) discussed earlier.

On the significant moderating role of formal schooling between media exposure and HIV/AIDS practice detected in this study, the study is consistent with the results of the systematic review by Kirby (2002) of studies on the impact of school involvement on adolescent sex risk-taking. Among other key findings in the study, involvement in and attachment to school and plan by in-school adolescents for high educational attainment correlate with less sexual risk-taking and lower pregnancy rate. The review also showed that some school programs demonstrated appreciative results in cutting down sexual behavior and increasing the use of condom and contraceptives. Overall, the review showed evidence for the impact of school on sexual risk behavior and other STIs behavior.

Table 4: PLS Multi-group Analysis (PLS-MGA) group comparisons between group 1 with formal schooling and group 2 with no formal schooling

Hypothesis	Relationship	Group 1: Formal Schooling		Group 2: No Formal Schooling		Group 1 vs. Group 2			
		Path1	SE(Path1)	Path2	SE(Path2)	Path1-Path2	t Value	Significance Level	p. Value
H7	Media Exposure -> HIV Safe Practices	.096	.058	-.046	.074	.142	1.451	*	0.074
H7	Media Exposure -> HIV Knowledge	.181	.049	.289	.161	-.107	0.819		0.207
H7c	Media Exposure -> HIV Attitude	.050	.060	-.033	.089	.083	0.783		0.217
	N	321		155					

Note: path1 (b1) and path2 (b2) are path coefficients of group 1 and group 2, respectively; SE(path1) and SE(path2) are the standard error of path1 and path2, respectively. *p<.10.

Possible explanation for this study's finding on the moderating effect of formal schooling could be alluded to yet other mechanisms for the impact of schooling on safe behavior apart from those identified by Baker et al. (2010) (i.e. effect of learning numeracy on risk assessment).Kirby (2002) summarized that other important mechanisms to this effect have empirical support. For example, school time is so structured that there is no free time for students to engage in illicit STI-risky sex practices. In addition, though how the school affects selection of friends is not fully understood according to Kirvy, evidence shows that in doing that, sometimes schools regulate adolescent sexual behavior. Further, schools generally create environments that decrease sexual risk-taking because it increases adolescents' attachment and interaction with adults who discourage risk-taking behavior. Moreover, schools make adolescents to believe in the future and in so doing, they plan for higher education and lifelong careers. The idea here is young persons who plan and have higher educational ambitions are driven by those ambitions to avoid sexual risk-taking which most of the times leads to STIs and early child-bearing. Studies reviewed also point out that schooling increases adolescents' self-esteem, communication competency and arms them with refusal skills (against unprotected sex). These factors therefore are also possible explanation for the impact path in this studies structural model between the moderator (secular formal schooling) and the endogenous latent variable (HIV/AIDS practice) in modeling moderation.

The finding in this study is however not consistent with the findings of an experimental study on the subject in Turkey, in which Ergene, Çok, Tümer and Ünal found significant differences in all the variables of knowledge, attitude and practice as predicted by peer education. While the current study did not detect a significant moderating effect of formal schooling (the major agent of peer education) on HIV/AIDS knowledge and attitude of the respondents, the results of the two studies are consistent on significant differences on HIV/AIDS practice/behavior. The finding in the present study is also not consistent with the finding of the review of several studies in Iran by Behjati, Ayatollahi (2005), Taheri, Maleki, Baharvand, Tabatabaei (2009), Mazloumi, Abbasi (2006), that high knowledge of HIV/AIDS was limited to high-school students, while on the other hand, the review byTaj, Roushan (2004), Montazeri (2005), Roudsari, Kazemzadeh, Rezaeie, Ghabili, Shoja, Kamran (2008) reported that HIV/AIDS knowledge among the general population of young people give fairly low scores(cited in Shokoohi et al., 2016) Against this backdrop, in addition to Bakeret al.'s (2010) mechanismdiscussed earlier,Feldman and Madjasco (2005) adduced the evidence that in-school adolescents ideally should have better knowledge and attitude in their development, largely as a result of peer socialization in extra-curricular

activities in schools. Though the authors suggested the need for overarching theory in the subject that pinpoints the mechanism through which the moderating effect of such activities takes place. They submitted that by participating in in-school extra-curricular activities, adolescents generate social and human capital through academic clubs; athletics; membership of cheerleading or drill team; school newspaper or yearbook; music, drama, or debate; and vocational clubs.

CONCLUSION

Based on the key findings of this investigation it is therefore concluded that media exposure is a necessary but not a sufficient precursor on HIV/AIDS safe practice, given that the relationship between the constructs can be significant only by the moderation of exposure to formal schooling among the *Islamiyya* girls. Further, it can also be concluded that the theoretical gap between the in-school and out-of-school girls in terms of HIV/AIDS knowledge and attitude closes with increased media exposure. This is clear from the moderation analysis, which reveals no significant differences between the two groups in terms HIV/AIDS knowledge and attitude, while mass media remain their major sources of information on HIV/AIDS. This conclusion means, with constant supply of HIV/AIDS messages over the media, it makes no difference whether a girl is attending formal school or not in terms of HIV/AIDS knowledge and attitude. Finally, the implication of the result of this study on the HoE model is the theoretical linear effect assumed of HIV/AIDS media exposure on HIV/AIDS KAP was only empirically true of HIV/AIDS knowledge. By the moderation of exposure to formal schooling, the effect also holds true on HIV/AIDS behavior/practice. This study recommends further investigation into the potential specific mediation roles of HIV/AIDS knowledge and HIV/AIDS attitude on the impact of media exposure on HIV/AIDS practice, as the study found no significant direct relationship between these constructs.

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