

Full Length Research Paper

Determinants of internet-based resources for sex education among in-school and out-of-school adolescents in Kogi State, Nigeria

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Sex education is a vital aspect of health education. It provides factual knowledge to assist adolescents to avoid sex related problems. Due to the sensitive nature of sex education many adolescents rely on internet resources for information on sex education because it offers information in a confidential manner. The study assessed and compared the determinants of internet based resources for sex education among in and out of school adolescents in Kogi State. The study was comparative cross-sectional in nature and involved comparison of selected in and out of school adolescents in Okene. Data was collected from 600 adolescents. Multistage sampling technique was used to select the required study subjects. Simple frequencies, chi-square and multivariate analysis were carried out. The mean age for in-school adolescents was 14.52± 2.17 years, while the mean age for out-of-school adolescents was 17.19± 1.54 years. Prevalence of internet use for sex education among the in-school adolescents was 41 and 59.2% for the out-of-school adolescents. The most searched sex education topic among in-school adolescents was sexual activities (73.5%) while sexual abuse (75.8%) was the most searched sex education topic among out-of-school adolescents. The determinants of use of internet-based resources for sex education among the in and out-of-school adolescents were curiosity, religiosity and less information from teachers. The study concluded that internet use for sex education is more prevalent among out of school adolescents compared to their in-school counterpart.

Key words: Sex education, adolescents, in-school, out of school, internet based resources, determinants.

INTRODUCTION

Adolescents are young individuals between of ages 10-19 years who are transitioning from children into adults. They are at a stage of life where they develop or undergo

physiological, psychological, social, cognitive and economical changes (Esere, 2008). Increase in sexual urge, changes in emotional responses and thoughts are

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the major characteristics of this stage of development which makes them curious, exploratory and a vulnerable group of people (Isiugo-Abanihe et al., 2015).

Adolescents need adequate guidance and information resources to steer through this essential phase of their physical, emotional and mental growth in order to imbibe good sexual habits and ideas (Labban, 2015). Many schools do not have guidance and counseling units where students can go to obtain information on sex related matters. Teachers and parents also are not comfortable discussing sex, sexuality and sexual health openly leaving adolescent students with inadequate information on sexuality (Ewenike and Nworgu, 2013; Simon and Daneback, 2013). This has caused adolescents to look for answers on their own, turning to peers, media, internet and other sources with questionable quality or accuracy of information and this situation increases the chances of adolescents indulging in risky sexual behaviours and experimentations (Esere, 2008).

Unlike adults, adolescents are likely to access information online because it is convenient, anonymity and non-inflicting attributes, make it an appealing information source to the adolescents, especially for sex education issues (Borzekowski and Rickert, 2001; Gould et al., 2002; Gray et al., 2005). This observation can be accommodated by the Uses and Gratification Theory, which emphasizes the significance of people's value for independence in the search.

Uses and Gratifications (U&G) theory is fast becoming a predominant tradition in media research because it focuses on why people use the media rather than on the content of the media (Blumler and Katz, 1974). It can be defined as an approach to understanding why and how people actively seek out specific media to satisfy specific needs. Formerly the U&G theory have been used in the context of radio, television and printed materials (McQuail, 2010). This present study is going to use the U&G theory in the context of social-media mediated communication. The theory assumes that the individual user of the media is active, has control and is goal-directed, as opposed to simply receiving media messages.

The media user can choose what is considered needful. U&G can be seen as part of a broader trend among media researchers, which is more concerned with what people themselves do with media, allowing for a variety of responses and interpretations. The media user intentionally or unintentionally takes the initiative to link gratification needs with his or her media choice and use, from among alternative media and other available sources based on the fact that such is able to decide on the information required, select such information and use it (Blumler and Katz, 1974; Papacharissi and Rubin, 2000). U&G views the media in terms of the gratification of social or psychological needs of the individual (Blumler and Katz, 1974).

School-based sexuality and reproductive health education is very important. In 2003, Nigeria adopted the Family Life and HIV Education (FLHE) sexuality education curriculum. Schools in all states were mandated to provide the FLHE curriculum. Previous studies reveal that despite been trained teachers were not able to conduct the sex education session effectively (Obiekea et al., 2013; Orji and Esimai, 2003).

Although states were provided with some flexibility in FLHE naming and delivery, it has not been fully accepted in all secondary schools. Studies have observed that adolescents regularly seek sexual health information online. A study conducted by the Kaiser family foundation on U.S. adolescents found that 39% of the youngsters obtained data about birth control and protection from the net (Foundation and Magazine, 2004). Buhi et al. (2010) discovered that a high proportion (76.5%) of 1st-year university students had searched online for sexual health information (Buhi et al., 2010). Ybarra et al. (2006) collected data from a sample of all African teenage students in Uganda and reported that 35% of them had checked for HIV/AIDS facts on the web, whilst 20% had checked for conventional sexual health facts on the web (Ybarra et al., 2006). About 34.3% of teenagers in Ghana, were found to have sourced for sexual health information online (Borzekowski et al., 2006). In Nigeria, Nwagwu (2007) observed that 45% of female adolescents (in-school and out-of-school) in Imo state, used the internet to obtain information on reproductive health (Nwagwu, 2007).

Studies have revealed that adolescents seek sexual information online but reasons for this preferred source have not been identified by most studies. Hence, the need to assess and compare the determinants of the use of internet-based resources for sexual health education among in-school and out-of-school adolescents in Okene, Kogi State. An in-depth understanding of the determinants of internet use for sex education will help inform suppliers of sexual/reproductive health information and education such as public health bodies, the government, educators and corporations on the role of internet based resources for sexuality education and to put forward internet sources that closely suits the needs and liking of adolescents at the same time provide quality information. This is because adolescents would give priority to the works of professionals and be more inclined to the practice of their messages.

METHODOLOGY

The study was a comparative cross-sectional study done among in and out of school adolescents in Okene local government between August and November 2019. Okene is a major town in Kogi state with a land mass of about 328 km² and a human population of about 325,623 as at the 2006 census (Commission, 2006). Okene has an estimated population of about 70,524 adolescents (Commission, 2006) and is located on the coordinates: 07°33' North 06°14' East. Okene is a major trade center for cassava, palm oil and

kernels, maize, beans, yams, sorghum, cotton and groundnuts grown by the Ebira people. Ebira people are known for cotton and silk weaving. Okene town is the site of the Ebira ata's (king's) palace. Iron ore deposited in this area is shipped to Ajaokuta where the iron and steel complex is located. Okene is densely populated by Yoruba and Ebira people with a predominant Islam religion. In the local government area, there are about 16 public secondary schools and 19 private secondary schools. The study is concerned with two groups of respondents, namely the in-school, referring to adolescents who are currently in-school (JSS 1 to SSS3 in selected schools), and, out-of-school adolescents— adolescents who dropped out-of-school without completing their secondary education (who have been in selected trade centres for at least three months). Eligible respondents in school were selected using multi-stage sampling technique. The first stage involved selection of five public secondary schools and five private secondary schools were selected from Okene Local Government Area by simple random sampling (balloting). At the second stage, one arm of a class was selected using simple random sampling technique from each selected school.

At the third stage, in each selected arm class register was obtained from the class teacher and desired numbers of respondents were selected using systematic sampling technique based on the pre-determined number of respondents allotted to the school. For the out of school adolescents, Snow-ball sampling technique was used to recruit them from the selected trade centres. The minimum sample size was determined by using the formula for calculating sample size for the comparison of two independent proportions. Prevalence of internet use of 66 and 54% for in-school and out of school adolescents respectively from previous studies were used. The minimum sample per in-school and out of school adolescents was 300. Thus, making a total of 600 respondents in all. Data was collected using a pre-tested semi-structured interviewer administered questionnaire which was administered by trained research assistants. The questionnaire contains 3 sections. Section 1 and 2 is on socio-demographic characteristics of respondents. Section 3 is on Prevalence and use of internet for sex education among respondents. To ascertain the reliability of the questionnaire, the 35 items instrument was subjected to reliability analyses. The Cronbach's α reliability coefficient was 0.85 indicating that the items of the questionnaire had a high reliability.

Data analysis

The questionnaires were sorted out, data entered into a computer manually and analysed using SPSS software version 20. Frequencies of variables were used to check for missed values and outliers. Univariate analysis was carried out to determine frequency distribution of the age groups, level of education of parents, occupation of parents, religion and ethnicity of respondents.

Bivariate analysis

Chi-square test was used to determine the prevalence of the use of internet for sex education among the in-school and out-of-school adolescents and the relationship between variables and internet use for sex education.

Multivariate analysis

Binary logistic regression was used to identify the determinants of use of the internet for sex education. The level of significance was set at $p < 0.05$.

Ethical consideration

Ethical clearance was obtained from Kogi state Ministry of Health's Research Ethics and Kogi State Ministry of Education prior to the commencement of the research. Students were given consent forms for their parents to indicate their agreement or refusal in allowing their wards/children to take part in the study. Approval was also gotten from all the principals/head of schools in which the study took place. Employers stood in as parents/guardians of adolescents working under them and consent was obtained from the out-of-school adolescents. Verbal assent was also obtained from the adolescents before the commencement of the study. The adolescents were informed of their voluntary participation in the study while anonymity, confidentiality and data security were assured.

RESULTS

Table 1 shows that about fifty percent of adolescents were within the age group of 10-14 years while 50.3% of the adolescents were within the age group of 15-19 years. The mean age of the adolescents (\pm SD) was 14.52 ± 2.17 years. Forty one percent of the respondents were in public school, while 58.7% were in private school. Fifty percent are male respondents and 49.7% are female respondents (ratio 1:1). There is a statistically significant difference in age of respondents in –school compared to those out of school.

Table 2 shows that five percent of adolescents were within the age group of 10-14 years, while the other 94.7% of the adolescents were within the age group of 15-19 years. The mean age of the adolescents (\pm SD) was 17.19 ± 1.54 years. Fifty five percent are male respondents and 45.3% are female respondents. Seventy percent of the out-of-school respondents were Muslims and 29.7% were Christians.

Table 3 shows that 59.2% of out-of-school adolescents use the internet for sex education as compared with 40.8% of in-school adolescents. There is a statistically significant difference in internet use between the in-school and out-of-school adolescent. Table 4 reveals the determinants of use of internet for sex education among in-school adolescents. Respondents aged 15-19 are about 3 times more likely to use the internet for sex education than the reference category (OR=2.546, $P=0.005$, CI=1.3 – 4.9). Also, respondents who are motivated by curiosity are 51 times more likely to seek online sexual health information than the reference category (OR=51.129, $P=0.000$, CI=11.6 – 225.5), respondents who are motivated by religiosity are 24 times more likely seek online sexual health information than the reference category (OR=24.772, $P=0.003$, CI=3.0 – 169.1). Finally, the respondents who are motivated by less information from teachers are 19 more times likely to seek online sexual health information than the reference category (OR=19.521, $P=0.007$, CI=2.3 – 169.1).

Table 5 reveals the determinants of use of internet for sex education among out-of-school adolescents. Results from Table 5 shows that respondents who are motivated

Table 1. Socio-demographic characteristics of respondents by school.

Variable	Out-school	In - school	Statistical indices
Age			
10-14 years	16(5.3)	149(49.7)	$\chi^2 = 147.624$
15-19 years	284(94.7)	151(50.3)	P-value= <0.001 Df=1
Sex			
Male	164(54.7)	149(49.7)	$\chi^2 = 1.5303$ P-value = 0.220
Female	136(45.3)	151(50.3)	Df=1
Religion			
Christian	89(29.7)	106(35.3)	$\chi^2 = 2.198$ P-value = 0.138
Islam	211(70.3)	194(64.7)	Df=1
Family Structure			
Monogamous	161(53.7)	189(63.0)	$\chi^2 = 5.367$ P-value = 0.020
Polygamous	139(46.3)	111(37.0)	Df=1

Table 2. Prevalence of the use of internet for sex education among in-school and out-of-school adolescents.

Variable	In-School	Out-of-School	Total	Statistical indices
Use of internet for sex education				
Yes	137 (40.7%)	199 (59.3%)	336 (100%)	Chi-square (χ^2) = 26.001
No	163 (61.7%)	101 (38.3%)	264 (100%)	P-value= <0.001
Total	300 (50%)	300 (50%)	600 (100%)	

by curiosity are 29 times more likely to seek online sexual health information than the reference category (OR=29.202, P<0.000, CI=6.1 – 139.2), respondents who are motivated by religiosity are 5 times more likely to seek online sexual health information than the reference category (OR=4.602, P=0.043, CI=1.1 – 28.4). Finally, the respondents who are motivated by less information from teachers are 18 times more likely to seek online sexual health information than the reference category (OR=18.378, P=0.007, CI=2.1 – 138.9).

DISCUSSION

This study assessed and compared the prevalence and determinants of the use of internet-based resources for sex education among in-school and out of school adolescents in Okene, Kogi State. This study showed that adolescents are using the internet to get information on sexual/reproductive health (Barak and Fisher, 2001; Cooper, 1998; Goldman and Bradley, 2001). This study showed that forty- one percent of in-school adolescents and fifty-nine percent of out-of-school adolescents use the internet for sex education. This result is higher compared with the report of Nwagwu (2007) which

revealed that a quarter of in-school adolescent girls and more than half of the out of school adolescents in Imo State used the internet to get reproductive health information (Nwagwu, 2007). The increase use of internet as a source of information for sex education among adolescents in this study might be as a result of increase in accessibility and affordability of adolescents to phones on which internet can be accessed. The increase in the use of internet by the out of school adolescents compared to their out of school adolescents might be due to the increased availability and accessibility of computer or internet facilities at home and cybercafés.

Sexual activities was the most searched sex education topic with seventy four percent (73.5%) among the in-school adolescents, while sexual abuse (75.8%) is the most searched sex education topic among the out-of-school adolescents. The out-of-school adolescents might prefer getting sexual abuse information online because this type of topics could be seen as embarrassing and may raise a brow if they seek for such information from others.

Curiosity and religiosity are the two factors that determine the use of internet-based resources for sex education among both the in-school adolescents and the out-of-school adolescents. Curiosity could be as a result

Table 3. Determinants of use of internet for sex education among in-school adolescents.

Variable	Odds ratio	(95% Conf. Interval)		P-value
		Lower limit	Upper limit	
Age				
10-14 (RC)	1			
15-19	2.5463	1.3271	4.8858	0.005*
Curiosity				
No (RC)	1			
Yes	51.1286	11.5908	225.5341	0.000*
Religiosity				
No (RC)	1			
Yes	24.7721	3.0377	202.015	0.003*
Less information from teachers				
No (RC)	1			
Yes	19.5212	2.2538	169.0783	0.007*

Table 5. Determinants of internet use for sex education among in-of-school adolescents.

Variable	Odds ratio	(95% Conf. Interval)		P-value
		Lower limit	Upper limit	
Age				
10-14 (RC)	1			
15-19	2.5463	1.3271	4.8858	0.005*
Curiosity				
No (RC)	1			
Yes	51.1286	11.5908	225.5341	0.000*
Religiosity				
No (RC)	1			
Yes	24.7721	3.0377	202.015	0.003*
Less information from teachers				
No (RC)	1			
Yes	19.5212	2.2538	169.0783	0.007*

of the exploratory nature of adolescence. Secondary sexual growth, changes in hormonal secretion, emotional, cognitive and psychosocial development usually result in sexual curiosity and experimentation (Okpani and Okpani, 2000), hence their increased interest in the use of the internet for sex education. This agrees with a study by Daneback et al. (2012) where curiosity was reported to motivate young ones to use the internet for sex education (Markham et al., 2012). Curiosity, if left unrestrained could cause adolescents to engage in unhealthy behaviours and sexual experimentations

(Odeyemi et al., 2009).

Religiosity at home was another factor that was significant in determining the in-school and out-of-school adolescents' use of the internet for sex education. This could be because the religious affiliation and silence of parents/relatives at home makes it uncomfortable and embarrassing for adolescents to ask questions pertaining to sex and sexuality related matters. Parents themselves may be strict with their religion which mostly forbids premarital sex and so keeping sealed lips and are not willing to discuss sex related subjects with adolescents

Table 6. Determinants of internet use for sex education among out-of-school adolescents.

Variable	Odds ratio	(95% Conf. Interval)		P-value
		Lower limit	Upper limit	
Curiosity				
No (RC)	1			
Yes	29.2019	6.1257	139.2094	0.000*
Religiosity				
No (RC)	1			
Yes	4.602	1.0523	28.4471	0.043*
Less information from teachers				
No (RC)	1			
Yes	18.3782	2.1511	138.8989	0.007*

believing that if they are kept in the dark they would not be promiscuous (Mturi, 2003; Odeyemi et al., 2009). This silence to sex related matters drive the inquisitive adolescents to look for answers to their questions on the internet where it is private, easily accessible, interactive, cheap, anonymous, non-punitive and equally able to give endless information on of sex and sexuality (Jackson et al., 2006; Nwagwu, 2007).

Age and less information from teachers are the additional determinants of use of internet among in – school adolescents. Less information from teachers predicted the adolescents' use of the internet for sex education. This is because sex education is not a subject in most schools' curriculum and only little is taught in social studies, health education and biology (Ewenike and Nworgu) which is not enough knowledge for adolescents. Obiekea et al. (2013) reported that sex education is inadequate because of a lack of professional teachers or counsellors on sex education, governments' failure to draw policy directives on sexuality education as a subject in the curricula, cultural biases, religion and lack of training for teachers in this field (Obiekea et al., 2013). Adolescents use the internet to access information that are inadequately addressed by teachers (Larkin et al., 2017) and this is in line with the report of the UK Department for Education (2010) which said that the sex education taught in school is limited and adolescents want to know more than what is taught in class (Education, 2010). Given the variety of information and ease of use of the internet, adolescents would go online to compensate or complement the inadequacies of teachers in school (Larkin et al., 2017).

Age was another factor that predicted the use of internet-based resources for sex education among the in-school adolescents. Adolescents within the age of 15-19 years were more likely to use the internet for sex education compared with adolescents within the age of 10-14 years. This is in line with studies by Nwagwu (2007) and Borzekowski et al. (2006) which reveal that older adolescents were the more likely to use the internet

for sex education compared to the younger ones (Borzekowski et al., 2006; Nwagwu, 2007). Usually, some adolescents who are within the age of 15-19 years might have finished their secondary school and are unable to access the formal sex education school taught in school (Simon and Daneback, 2013). These adolescents would more likely turn to the internet to get the information they need.

Limitation

The primary limitation of this study is that the exposure and outcome are simultaneously assessed. There is generally no evidence of a temporal relationship between exposure and outcome.

Implication for policy

A good understanding of the determinants of internet use for sex education will help inform policy makers on adolescents' sexual/reproductive health information to put forward internet sources that closely suits the needs and liking of adolescents at the same time provide quality information.

Conclusion

The study concluded that the prevalence of internet use for sex education is higher among the out-of-school adolescents compared to their in-school counterpart. The determinants of use of internet-based resources for sex education among the in and out-of-school adolescents were curiosity, religiosity and less information from teachers.

CONFLICT OF INTERESTS

The authors have not declared any conflict of interests.

REFERENCES

- Barak A, Fisher WA (2001). Toward an internet-driven, theoretically-based, innovative approach to sex education. *Journal of Sex Research* 38(4):324-332.
- Blumler JG, Katz E (1974). *The uses of mass communications: Current perspectives on gratifications research* (Vol. 1974): Sage Publications, Inc.
- Borzekowski DL, Rickert VI (2001). Adolescents, the Internet, and health: Issues of access and content. *Journal of Applied Developmental Psychology* 22(1):49-59.
- Borzekowski DL, Fobil JN, Asante KO (2006). Online access by adolescents in Accra: Ghanaian teens' use of the internet for health information. *Developmental Psychology* 42(3):450.
- Buhi ER, Daley EM, Oberne A, Smith SA, Schneider T, Fuhrmann HJ (2010). Quality and accuracy of sexual health information web sites visited by young people. *Journal of adolescent health* 47(2):206-208.
- Commission NP (2006). *Population and housing census of the Federal Republic of Nigeria. Priority tables, 1.*
- Cooper A (1998). Sexuality and the Internet: Surfing into the new millennium. *CyberPsychology and Behavior* 1(2):187-193.
- Education UDF (2010). *Consultations (Sex and Relationships Education Guidance)*
- Esere MO (2008). Effect of Sex Education Programme on at-risk sexual behaviour of school-going adolescents in Ilorin, Nigeria. *African Health Sciences* 8(2).
- Ewenike AE, Nworgu LN (2013). Effects of Sexuality Education Enriched Instructional Package on Students' Understanding of Health Related Topics in Biology.
- Foundation KF, Magazine S (2004). *Sex Smarts: Birth Control and Protection: The Henry J. Kaiser Family Foundation Menlo Park, CA.*
- Goldman JD, Bradley GL (2001). Sexuality education across the lifecycle in the new millennium. *Sex Education* 1(3):197-217.
- Gould MS, Munfakh JLH, Lubell K, Kleinman M, Parker S (2002). Seeking help from the internet during adolescence. *Journal of the American Academy of Child and Adolescent Psychiatry* 41(10):1182-1189.
- Gray NJ, Klein JD, Noyce PR, Sesselberg TS, Cantrill JA (2005). Health information-seeking behaviour in adolescence: the place of the internet. *Social Science and Medicine* 60(7):1467-1478.
- Isiugo-Abanihe UC, Olajide R, Nwokocha E, Fayehun F, Okunola R, Akingbade R (2015). Adolescent sexuality and life skills education in Nigeria: to what extent have out-of-school adolescents been reached? *African Journal of Reproductive Health* 19(1)101-111.
- Jackson LA, Von Eye A, Biocca FA, Barbatsis G, Zhao Y, Fitzgerald HE (2006). Does home internet use influence the academic performance of low-income children? *Developmental Psychology* 42(3):429.
- Labban S (2015). An Investigation Into Teachers' and Parents' Concerns of the Teaching of Sexuality and Sexual Health to Students at a Co-Ed Government Secondary School in the St. George East District.
- Larkin J, Flicker S, Flynn S, Layne C, Schwartz A, Travers R, Guta A (2017). The Ontario sexual health education update: perspectives from the Toronto teen survey (TTS) youth. *Canadian Journal of Education/Revue Canadienne De L'éducation* 40(2):1-24.
- Markham CM, Daneback K, Ross MW, Månsson SA (2012). The Internet as a source of information about sexuality. *Sex Education* 12, no. 5 (2012):583-598.
- McQuail D (2010). *McQuail's mass communication theory.* Sage publications.
- Mturi AJ (2003). Parents' attitudes to adolescent sexual behaviour in Lesotho. *African Journal of Reproductive Health*, pp. 25-33.
- Nwagwu WE. (2007). The Internet as a source of reproductive health information among adolescent girls in an urban city in Nigeria. *BMC Public Health* 7(1):354.
- Obiekea P, Ovri F, Chukwuma E (2013). Sexual education: an intervention and social adjustment programme for youths in secondary education in Nigeria. *African Research Review* 7(1):307-321.
- Odeyemi K, Onajole A, Ogunowo B (2009). Sexual behavior and the influencing factors among out of school female adolescents in Mushin market, Lagos, Nigeria. *International Journal of Adolescent Medicine and Health* 21(1):101-110.
- Okpani AO, Okpani JU (2000). Sexual activity and contraceptive use among female adolescents—A report from Port Harcourt, Nigeria. *African Journal of Reproductive Health* 4(1):40-47.
- Orji E, Esimai O (2003). Introduction of sex education into Nigerian schools: the parents', teachers' and students' perspectives. *Journal of Obstetrics and Gynaecology* 23(2):185-188.
- Papacharissi Z, Rubin AM (2000). Predictors of Internet use. *Journal of Broadcasting and Electronic Media* 44(2):175-196.
- Simon L, Daneback K. (2013). Adolescents' use of the internet for sex education: A thematic and critical review of the literature. *International Journal of Sexual Health* 25(4):305-319.
- Ybarra ML, Kiwanuka J, Emenyonu N, Bangsberg DR (2006). Internet use among Ugandan adolescents: implications for HIV intervention. *PLoS Medicine* 3(11).