

## Risk-bearing sexuality within the context of internet use among young people in Lagos metropolis

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*As internet penetration surges in different parts of the world, access to a wide range of subjects rises also. Matters of sexuality are no exceptions. While there is ample empirical evidence that youths seek knowledge about sexuality, and get involved in sexually stimulating and/or gratifying activities on the internet, the relationship between involvement in these online sexual activities (OSAs) and real life sexual behaviour remains a matter of polemic. Modelling theorists contend that exposure to sexuality related information propels acting out such information. Catharsis on the other hand holds the view that exposure to such information serves as safety valves for the peaceful release of imperfectly sublimated antisocial sexual drives. Using data gathered from young internet users involved in OSAs as well as those not involved within the city of Lagos, this study concludes that OSA is associated with involvement in risk-bearing sexual behaviours.*

**Keywords:** Adolescence, sexuality, cybersex, modelling, catharsis, University of Lagos, Nigeria

### Background of the study

The internet has featured frequently in the literature on adolescent sexuality in the recent past. Several studies have shown that adolescents use the internet for activities relating to gaining sexual knowledge and seeking and obtaining sexual satisfaction (Finkelhor, Mitchell and Wolak 2000; Longo, Brown, and Orcut, 2002; Wolak, Mitchell and Finkelhor, 2007). A particular study shows that 25 percent of adolescent internet users had been exposed to web-based pornography, even when they were not planning to do so and 20 percent had received sexual solicitation online (Finkelhor *et al.*, 2000). This suggests, in very clear terms, that internet sexuality does not depend solely on proficiency in the use of the internet or intent to access sexuality related information. In addition, an adolescent's interest in Online Sexual Activities (OSAs) may be kindled by mails from peers or adults who perceive them as easy preys since their parents hardly ever explore the internet with them (Wolak *et al.*, 2008). Some researchers have argued that prolongation of adolescence (as a result of longer years of formal education and prolonged economic dependence on parents and early physiological maturity) is one reason for involvement in OSAs (Arnett, 2000; Hedgepeth and Helmich, 1996; Denman, 2004). Other studies reveal that adolescents' preoccupation with self definition and management of negative feelings predispose them to OSAs (Freeman-Long, 2000; Longo *et al.*, 2002).

Beyond these factors that may predispose adolescents and young people generally to OSAs, studies have sought to identify specific factors that are associated with the behaviour. An exploration of exposure to internet pornography among young people in the United States reveals that males are more likely to seek sexually explicit materials online (Ybarra and Mitchell, 2005) and older adolescents are more likely to seek same than those in early adolescence (Ybarra and Mitchell, 2005; Wolak, Mitchell and Finkelhor, 2007). The study further shows that young people who report poor emotional bond with their caregivers are more likely to report online-seeking of pornography. Wolak *et al.* (2008) show through a study of young persons within the age bracket of 10 to 17 years that youth involvement in online sexual activities often leads to real life sex crimes in which the young people are abused. According to the findings of the research, most internet-initiated sex crimes involve adult men who meet adolescents online and seduce them into sexual encounters. The researchers argue further that although a new medium (the internet) is involved, this manner of non-forcible sex crime that predominates as a type of offense against young people is not particularly new (See Boyd and Alice, 2009 also). The researchers also hold the view that while adolescent immaturity may play a role in internet-initiated sex crimes, the victims cannot be considered unaware of the social complexities and the risks of internet use. Rather, as adolescents develop, they willingly opt for more complex and interactive internet use, the result being greater vulnerability to internet-initiated sex crime. A study by Barbovski (2009) documents the transfer of online initiated romantic encounters to real life instances, identifying the use of instant messaging, time spent online and positive social self concept as predictors.

In Nigeria, researchers have shown that adult care givers either fail to discuss matters sexuality with wards, or young people prefer not to discuss such issues with adult caregivers. Cultural norms prevent sex from being discussed publicly and the discussion of sexuality matters with children is often characterised by feelings of embarrassment and timidity

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(Ladipo, Ankomah, Anyanti and Omoregie, 2003; Bankole *et al*, 2007). It can be inferred that the restrictions faced by young persons in terms of access to information about sexuality related matters may make them seek such information on the internet. A study by Nwagwu (2007) explores the role played by the internet as a source of information on sexuality related issues among female adolescents. The study shows that there is preference for the internet as a source of information on reproductive health matters because of the privacy it offers, the relevance of the information, freedom of access, lack of alternatives, the variety of information and the ease of use. Another study shows that the majority of internet users in Nigeria access the internet from cafés, away from the prying eyes of adults (Kunnuji, 2010). Researchers have also argued that the general social context of internet use and the place of access in particular, have implications for how the internet is used (Slevin, 2000; Murdock and Golding, 2005).

On the real life sexual activities of adolescents, a national survey in Nigeria shows that about 41 percent and 84 percent of young females within the age brackets of 15 – 19 years and 20 – 24 years had had sex. Among boys within the 15 – 19 and 20 – 24 year age brackets, 20 percent and 63 had had sex, while among sexually experienced girls within the 15 – 19 and 20 – 24 age groups, 35 percent and 73 percent had had premarital sex in the last 12 months preceding the study. Furthermore, 15 percent of boys within the 15 – 19 age group had had sex in the last 12 months and 53 percent of young men within the age bracket of 20 – 24 years had had sex in the last 12 months. The study shows further that among sexually experienced youths (15 – 19 years, eight percent had contracted STIs in the last 12 months preceding the survey. For the 20 – 24 age group, one in ten had contracted an STI (Federal Ministry of Health [Nigeria], 2006). Studies have also shown that risky sexual activities such as multiple sexual partnerships and unprotected sex are not uncommon within this population (WHO, 2001; Sunmola, 2002). The puzzle this study seeks to unravel is to establish whether there is a relationship between involvement in OSAs and real life risky sexual behaviour among adolescents and young adults in Lagos metropolis. Put differently, the question may be asked whether young people involved in OSAs differ significantly from those not involved in OSAs in real life sexual practices with emphasis on risk-bearing sexual practices.

#### *Theoretical underpinnings: Modelling versus Catharsis*

We may want to ask: Are exposure to sexuality related information and involvement in OSA on one hand, and the real life sexual behaviour associated in any way? If they are, in what way are they related? Addressing these questions are two polemic explanations – the catharsis and modelling theories. It should be pointed out that these theories often treat pornography along side violence. This is justifiable against the premise that libidinal energy and aggression (or *eros* and *thanatos*) have a common origin (Marcuse, 1966) and are often found being manifested in similar ways. Secondly, in the media, pornography and violence/aggression are often presented together. It is important to present this as a caveat since many theorists have adopted this methodology which does not adequately distinguish between violence and pornography. The catharsis theory has its roots in the works of Freud, even though Freud never used the term catharsis (McCormack, 1978). The explanation: “temptations are merely increased by constant frustration, whereas an occasional satisfaction of them causes them to diminish, at least for the time being” (Freud, 1961 p.73) appears to be the basis for the catharsis perspective. According to the theory, “fantasy, dreams and jokes reveal our tabooed wishes which are, in turn, based on instincts sublimated for the sake of peace and social order” (McCormack, 1978 p. 545). Thus, pornography, like art, literature, religion and ideologies constitute a safety valve, an outlet which reduces the tension created by the imperfectly sublimated anti-social forces in the psyche (McCormack, 1978; Kelly, 2004). Put differently, exposure to sexually explicit materials (off- or online) prevents unconventional/socially inappropriate sexual behaviour by releasing sexual tension in the viewer. In explaining further the logic of the catharsis theory, it is argued that by defusing the volatile libidinal forces, pornography averts the possible destructive outcomes, and through the viewer’s projected fantasies or those presented him/her through the media, the delicate balance of his/her “inner psychic economy” is maintained and at the level of the society, social order is maintained as the sources of subversion are dissipated or displaced (McCormack, 1978). In summary, the catharsis theory posits that exposure to sexuality related information and involvement in OSA act as a means of releasing sexual urge rather than an impetus for acting out viewed sexual practices. A careful study of the catharsis theory reveals certain underpinning assumptions such as: (i) anti-social behaviour has its origin in human nature; (ii) the reduction of one’s drives is socially desirable; (iii) and men have a different sexual nature from women and that in men, sex and aggression are linked, and men have more difficulty than women in controlling their sexual and aggressive drives. Thus, nature, which makes women both powerless and sexually passive, spares them the need to cope with hostile impulses or erotic energies too great to be satisfied. Thus, there is emphasis on the sexuality of men by the theory of catharsis (McCormack, 1978).

Other scholars have maintained a mid-point by arguing that although exposure to sexually explicit materials may not have positive effects on the sexuality of viewers, they do not have negative effects. Exposure to pornography, the theorists argue, creates a mild, short lived erotic response (Byrne and Lamberth, 1970; Kelly, 2004). Further, it is argued

that the sexual acts portrayed in pornography are seldom imitated, and repeated exposure to erotic stimuli results in satiation rather than increased demand for sexual activity (Mann, Berkowitz, Sidman, Starr, and West, 1974). Giving credence to this position are reports showing that an antisocial sexual behaviour like rape is not higher in countries where pornographic materials are widely available. It may therefore, be argued from this point of view, that pornography merely reinforces already existing sexual beliefs and values (Kelly, 2004).

A sharply different theoretical position on the effect of exposure to sexually explicit materials is the modelling theory which asserts that when people are exposed to pornography, there is a great likelihood that they will imitate what they see (Kelly, 2004). In some of the works of Bandura and his associates, it has been shown that children learn through imitation (Bandura, Ross, and Ross, 1961; 1963). Using an experimental design, Bandura *et al.* (1961) argue that children imitate aggressive behaviour of models, particularly models with which they can identify. This goes to show that the use of movie stars, musicians and sportsmen in sexually explicit materials online can be too compelling for adolescents to contain, the result being the imitation of these “celebrities”. Bandura *et al.* (1963) argue that human beings learn antisocial behaviours in the media just the way they learn social behaviours. These behaviours/acts are absorbed into their permanent repertoire of responses and they can be activated without apparent cause or obvious provocation, just by the presence of subtle cues in a situation (McCormack, 1978). This negates the assumption by catharsis theory, that there are innate antisocial urges in man looking for outlet.

In modern society, acts of younger members of society are modelled after family members, members of the larger society and characters seen in the media. It is particularly worthy to note that deviant sexual acts are presented as rewarding in the media in general and online in particular (Siegel, 1995). When “celebrities” (many of whom are perceived as models by adolescent internet users) are featured in sexually explicit materials, adolescents tend to act out what they see the models do since some rewards (pleasure) are shown to be attached to the acts depicted online. In this vein, Pardun, L’Engle and Brown (2005), and Brown and L’Engle (2009) concluded based on the findings of different studies that adolescents exposed to pornography on the internet are more likely to be sexually active, report intentions to be sexually active and report permissive sexual attitudes than those with little or no exposure to pornography. A careful consideration of the studies will reveal that very little has been done in Africa and Nigeria in particular in terms of documenting adolescent online sexual behaviour. In addition, it is desirable to establish the extent to which online sexual activities associate with involvement in real life sexual practices in the study population.

## Methods

### Sample

Data for this study come from a larger survey of 648 adolescent users and 472 non-users of the internet within the city of Lagos, Nigeria. For the purpose of this analysis, only users of the internet are included. The respondents were selected through a multi-stage sampling exercise in which five Local Government Areas (LGAs) were randomly selected out of 16 LGAs. From each selected LGA, streets were listed and sampled randomly while households were systematically selected before eligible respondents were randomly drawn. Informed consent was sought and obtained from adolescents 18 years and above while parental consent was obtained for adolescents below the age of 18 years before interviews were conducted. All interviews were conducted outside hearing distance of third parties and only successful interviews (i.e interviews in which reliable information were obtained on the core concerns of the study) were processed for analysis using the Statistical Package for Social Sciences, Version 10. For ethical reasons, the study design and research instruments were subjected to institutional review at two levels. The first is a departmental postgraduate board of studies comprising sociologists, demographers and social research methodologists, while the second is a university postgraduate board of studies comprising 25 researchers/faculty members from the faculties of social sciences, law and education.

In addition to the data obtained from the survey, two Focus Group Discussions (FGDs) were conducted, one with six purposively selected female adolescent internet users and the other with six purposively selected male adolescent internet users. Facilitators and note-takers were adolescents of the same sex as the participants with which they interacted. Excerpts from the discussions are employed in the discussion of the survey findings.

### Procedure

A standardized interview schedule containing questions on respondents’ background information, access to and use of the internet, recent exposure to sexuality related information, recent involvement in online sexual activities and real life sexual activities was administered to all the respondents in face to face interviews. Only respondents who supplied usable answers to key questions were processed for analysis.

## Measures

Two binary measures of real life sexual behaviour were used. The first is early initiation of sexual intercourse. Initiation of sexual intercourse before the age of 16 years is early onset of sexual activity in this study. Initiation of sexual intercourse after the age of 16 years was coded 0, while early onset of sex was coded 1 to make the measure suitable for logistic regression analysis. Another indicator of sexual behaviour used is multiple sexual partnerships in the last 12 months preceding the study. This measure is also in binary form, having persons with single sexual partners in one category coded "0" and those with multiple sexual partners in the other category coded "1". The analysis employs these two indicators of the dependent variable. The primary independent variable of interest – involvement in OSA – is measured in a binary categorical form. This creates two groups of adolescents who had used the internet for sexual gratification/stimulation or sexual knowledge. This was computed from several questions and persons categorised as those involved in OSA are those who had taken part in any of the activities. Exposure to sexually related was also measured. This is a more universal set involving adolescents who had been involved in OSAs and those who had been exposed to sexuality related information online without seeking such information.

## Analysis

The simple frequency and percentage analysis is used in the description of the respondents, their exposure and involvement to sexuality related information online while the logistic regression is used in explaining the likelihood of real life risk bearing sexual behaviour of adolescents. This makes room for a multivariate analysis. The "B" represents the coefficient of the independent variable in the model and shows whether the likelihood of the occurrence of the dependent variable increases or decreases as the independent variable changes from the first category to higher categories (Agresti and Franklin, 2009). "SE", the standard error gives the margin of error while the odds ratio tells how many times more or less a typical subject within a category of the independent variable is likely to report a given occurrence on the dependent variable in relation to a subject that falls within the reference category.

## Results

The socio-demographic characteristics of the respondents are presented in Table 1. The study included adolescents within the age bracket of 10 to 24 years, many (68 percent) of whom were holders of Senior Secondary Certificate. The study population cuts across adolescents within the age bracket of 10 to 19 years and young adults within the age bracket of 20 to 24 years. The sample represents a cross-section of adolescents resident in Lagos metropolis which include those from low and high income families, in-school and out-of-school adolescents, from different ethnic backgrounds including Yoruba, Igbo, Hausa and other minority ethnic groups in Nigeria.

The study shows the degrees of exposure to sexuality related information in Table 2. In addition, the table documents wilful participation in OSA such as discussion of sexuality related matters online, visiting sites with sexual contents, involvement in sexually stimulating and gratifying acts online (i.e cybering). A little above 46 percent of the respondents had been involved in one or more of such activities with males recording a significantly higher rate of involvement than female adolescent/young adult internet users. The study further shows greater sexual activity/penetrative sexual experience among persons involved in OSA than among those not involved in OSA (See Table 3). While 80.3 percent of those involved in at least one OSA were sexually active at the time of the survey, just 52.6 percent of adolescent/young adults not involved in OSA were sexually active. For all internet users, 65.4 percent were sexually active at the time of the survey. It can be argued that involvement in online sexual activities is associated with real life sexual activity.

Furthermore, a typical adolescent/young adult in the study population is torn between compliance with the sexual norm of premarital chastity and contradictory information from diverse sources as shown in the remarks of a male adolescent/young adult internet user during the FGD. He argues that:

*The society says don't practice premarital sex...If it is against the norms and values of our society, why are they selling condoms... Why are they bringing in pornographic mags [magazines]? Why are we having pornographic materials on the internet and electronic media systems? (Male adolescent internet user).*

While it may be difficult to ascertain causality, the study has shown an association between online and real life sexual activities. The study also shows that in addition to its association with sexual activity, OSA is also associated with multiple sexual partnerships among sexually active adolescent/young adult internet users (See Table 4). To avoid a spurious confirmation of a relationship, the test suppresses nonusers of the internet and persons not sexually active. Of the 241 sexually active adolescent/young adults who were involved in OSAs, 83 percent had histories of multiple sexual partnership while of the 183 sexually active adolescents/young adults not involved in OSAs, 61.2 percent had histories of multiple sexual partnerships. For the entire sample of sexually active internet users, 73.6 percent had histories of multiple sexual partnerships. This goes to show that beyond the fact that adolescents/young adults involved in OSAs are more likely to be sexually active than those not involved, among the sexually active, there is greater sexual permissiveness in the

group of online sexually active adolescent/young adult internet users than there is among those not involved in online sexual activities. Persons involved in multiple sexual partnerships run greater risks of contracting STIs, it should be noted.

**Table 1** Socio-demographic characteristics of respondents

Socio-demographic variables		Frequency (%)
Sex distribution	Male	368 (56.8)
	Female	280 (43.2)
	Total	648 (100.0)
Age distribution (in years)	10 – 14	18 (2.8)
	15 – 19	226 (34.9)
	20 – 24	404 (62.3)
	Total	648 (100.0)
Religion	Christianity	488 (75.3)
	Islam	154 (23.8)
	Afr. Trad. Rel.	4 (0.6)
	Others	2 (0.3)
	Total	648 (100.0)
Ethnic origin	Hausa	11 (1.7)
	Ibo	161 (24.8)
	Yoruba	384 (59.3)
	Southern minority groups	62 (9.6)
	Northern minority groups	20 (3.1)
	No response	10 (1.5)
	Total	648 (100)
Educational qual.	None	1 (0.2)
	Primary	11 (1.7)
	Junior Secondary	79 (12.2)
	Senior Secondary	441 (68.1)
	OND/NCE	87 (13.4)
	BSc/HND	27 (4.2)
	Postgraduate	1 (0.2)
	Others	1 (0.2)
	Total	648 (100)
Occupational status	Student	373 (57.6)
	Apprentice	22 (3.4)
	Employed	95 (14.7)
	Not employed	158 (24.4)
	Total	648 (100)
Marital status	Single	631 (97.4)
	Married	17 (2.6)
	Total	648 (100)

**Table 2** Online exposure to sexuality related information and involvement in OSA

% saying yes	Female	Male	All users
	n = 280	n = 368	n = 648
Ever received e-mail in which sexual activities were discussed?	38.9	46.7	43.4
Ever received e-mail with pictures suggestive of sexual activity?	38.9	48.9	44.6
Ever received e-mail linking to website with sexual content?	34.6	50.3	43.5
Ever been asked for sexual intimacy through e-mail?	38.6	33.2	35.5
Ever sent an e-mail with sexual content to anyone?	17.1	18.8	18.1
Ever come across icons suggestive of sexual activity?	41.8	51.9	47.5
Ever got to a site with sexual contents without intending to do so?	39.6	46.7	43.7
Ever visited sites with sexual contents?	21.4	38.9	31.3
Do you discuss matters relating to sexual activity online?	20.7	25.8	23.6
Ever been involved in any sexually stimulating act online?	8.6	17.1	13.4
Ever satisfied sexual urge online?	3.9	4.6	4.3
Ever involved in at least one Online Sexual Activity	39.3	51.6	46.3

**Table 3** Frequency and percentage distribution of sexual activity by involvement in OSA

Real life sexual activity?	Sexually active online (%)	Not sexually active online (%)	Total (%)
Sexually active	241 (80.3)	183 (52.6)	424 (65.4)
Not sexually active	59 (19.7)	165 (47.4)	224 (34.6)
Total	300 (100)	348 (100)	648 (100)

**Table 4** Frequency and percentage distribution of sexual partnership by involvement in OSA

Sexual partnership?	Sexually active online (%)	Not sexually active online (%)	Total (%)
Single	41 (17.0)	71 (38.8)	112 (26.4)
Multiple	200 (83.0)	112 (61.2)	312 (73.6)
Total	241 (100)	183 (100)	424 (100)

**Table 5** Frequency and percentage distribution of involvement in group sex by OSA

Group sex?	Sexually active online (%)	Not sexually active online (%)	Total (%)
Ever involved	39 (16.2)	7 (3.8)	46 (10.9)
Never involved	202 (83.8)	175 (96.2)	377 (89.1)
Total	241 (100)	182 (100)	423 (100)

**Table 6** Propriety of pre-marital heterosexual intercourse by involvement in OSA

	Sexually active online (%)	Not sexually active online (%)	Total (%)
Never proper	109 (36.3)	208 (59.8)	317 (48.9)
Sometimes proper	104 (34.7)	95 (27.3)	199 (30.7)
Always proper	63 (21.0)	22 (6.3)	85 (13.1)
Don't know	24 (8.0)	23 (6.6)	47 (7.3)
Total	300 (100)	348 (100)	648 (100)

**Table 7** Logistic regression predicting the likelihood of initiating sexual intercourse before the age of 16 years among adolescent internet users

Variables	B	S.E	Odds ratio
<b>Sex</b>			
Male (ref. cat.)	-	-	1.0
Female	-0.306	0.163	0.737
<b>Age</b>			
10 – 14 years (ref. cat.)	-	-	1.0
15 – 19 years	-1.199	5.090	0.302
20 – 24 years	-2.899	5.903	0.055
<b>Access to wealth (Monthly income)</b>			
None (ref. cat.)	-	-	1.0
Less than 10,000.00	-0.006	0.238	0.994
N 10,000.00 and above	-0.300	0.238	0.741
<b>Highest educational qualification</b>			
Pry/Junior secondary education (ref. cat.)	-	-	1.0
Senior secondary education	-0.691	0.227	0.501**
Tertiary education	-0.352	0.282	0.703
<b>Main source of information on sexuality</b>			
Parents (ref. cat.)	-	-	1.0
Peers	-0.097	0.253	0.908
School	0.246	0.368	1.279
The internet and other media	0.715	0.318	2.044*
Religious and other institutions	-0.449	0.484	0.638
<b>Parent-child communication</b>			
Parents discuss sexuality (ref. cat.)	-	-	1.0
Parents do not discuss sexuality	0.163	0.164	1.177
<b>Intensity of internet use</b>			
Frequent users (ref. cat.)	-	-	1.0
Occasional/Light users	0.499	0.162	1.646**
<b>Involvement in OSA</b>			
Involved in OSA	-	-	1.0
Not involved in OSA	-0.488	0.166	0.614**

Furthermore, there is a very sharp disparity between the level of involvement in group sex by those involved in OSA and those not involved. This is highly instructive on the role of OSA in the shaping of adolescent/young adult sexuality. It suggests that adolescents/young adults are very likely to experiment with what they see online. The argument could also be that adolescents who are sexually active and participate in risk-bearing sexual activities are more likely to be involved in online sexual activities. The former argument appears more plausible, however. Quite a high proportion (16.2 percent) of adolescent/young adults involved in OSA had taken part in group sex (See Table 5). For Adolescent/young adult internet users not involved in OSA, just 3.8 percent had ever taken part in group sex.

The study also considers the relationship between involvement in OSA and opinion on the propriety of premarital heterosexual intercourse as shown in Table 6. Forty nine percent of internet users perceived premarital heterosexual intercourse as never appropriate, 30.7 percent perceived it as sometimes proper, 13.1 percent said it is always proper while 7.3 percent gave non decisive responses to the question. For those involved in OSA, just 36.3 percent saw premarital heterosexual intercourse as never proper while 59.8 percent of those not involved in OSA saw it as never proper. Among internet users involved in OSA, 34.7 percent perceived premarital heterosexual intercourse as sometimes proper while 27.3 percent of those not involved in OSA saw it as sometimes proper. Furthermore, 21 percent of internet users involved in OSA saw premarital heterosexual intercourse as always proper while 6.3 percent of those never

involved saw it as always proper. A larger proportion of those involved in OSA (8 percent) were undecided and could not respond to the question on the propriety of premarital heterosexual intercourse, compared with 6.6 percent of internet users not involved in OSA who could not respond to the question on the propriety of premarital heterosexual intercourse.

From the discussion, it is shown that the sexual mores of young internet users involved in OSA are different from those not involved in OSA. An explanation that can be given to this is that those involved in OSA have had their values shaped by the information to which they are exposed. The multivariate test also shows that involvement in OSA is a predictor of early onset of sexual intercourse and a history of multiple sexual partnerships (See Tables 7 & 8).

Gender, age, access to wealth and parent-child communication are not significant predictors of the initiation of sexual intercourse before the age of 16 years. Adolescent/young adults with secondary education were found, to be less likely to commence sexual intercourse before the age of 16 years than those with primary or junior secondary education. This was found to be significant at a significance level of 0.01. Adolescent/young adults with tertiary education were also found to be less likely to experience the onset of sexual intercourse before the age of 16 years than those with primary or junior secondary education, although this was not found to be significant at 0.05 level of significance. Similar to what was observed for the entire sample, adolescent/young adult internet users who mentioned the internet and other media as their main source of information on sexuality related issues were two times more likely to have initiated sexual intercourse before the age of 16 years than those who mentioned parents as their main source of information on matters of sexuality. Those who mentioned other sources such as peers, schools and religious institutions were not significantly more or less likely to have had their first sexual experience before the age of 16 years than those who mentioned parents.

Quite revealing is the part of the multivariate test that shows that occasional users of the internet were found to be more likely to have had their first sexual intercourse before the age of 16 years than frequent users. This relationship was found to be significant at 0.01 level of significance. This suggests that intensity of use may not necessarily be a factor in predicting early commencement of sexual intercourse. Rather, the nature of internet use is of greater importance as shown in Table 7. Those not involved in any OSA were found to be less likely to have had their sexual debut before the age of 16 years than those involved in OSAs. This was found to be significant at 0.01 level of significance.

**Table 8** Logistic regression predicting likelihood of multiple sexual partnerships (in the last 12 months) among sexually active adolescent internet users

Variables	B	S.E	Odds ratio
<b>Sex</b>			
Male (ref. cat.)	-		1.0
Female	-0.558	0.115	0.572***
<b>Age</b>			
10 – 14 years (ref. cat.)	-	-	1.0
15 – 19 years	1.068	3.106	2.909
20 – 24 years	1.522	3.104	4.583
<b>Level of autonomy</b>			
Living alone (ref. cat.)	-	-	1.0
Not living alone	-0.057	0.156	0.945
<b>Parent-child communication</b>			
Parents discuss sexuality (ref. cat.)	-	-	1.0
Parents do not discuss sexuality	0.060	0.122	1.062
<b>Intensity of internet use</b>			
Heavy users (ref. cat.)	-	-	1.0
Light users	-2.068	3.105	0.895
<b>Involvement in OSA</b>			
Involved in OSA	-	-	1.0
Not involved in OSA	-0.358	0.110	0.669**

➔ -  $P < 0.05$ ; \*\* -  $P < 0.01$ ; \*\*\* -  $P < 0.001$ ; ref. cat. – Reference category.



In addition to this observation, female internet users were found to be less likely to have multiple sexual partners than their male counterparts (Table 8). Adolescents'/young adults' level of autonomy (whether they stay alone or with parents and/or other adult care givers) has no significant effect on multiple sexual partnerships. Similarly, parent-child communication, age and intensity of internet use were found to have no significant effect on having multiple sexual partners. The study shows, however, that adolescent/young adult internet users who took part in at least one OSA were more likely to have multiple sexual partners than those not involved in OSAs. This was found to be significant at 0.01 level of significance. This finding goes to show that in addition to being associated with early sexual debut, OSAs also correlate with having multiple sexual partners, and on these two grounds adolescents/young adults involved in OSAs become more involved in risky sexual practices than those not involved in OSAs.

## Discussion

This research exercise set out primarily to explore the relationship between involvement in OSAs and the real life sexual behaviour of adolescent/young adults in Lagos metropolis with emphasis on involvement in risky sexual activities. Based on findings from tests both at the bivariate and multivariate levels, the study concludes that involvement in OSAs in the study population is associated with involvement in risky sexual activities. This can be interpreted to mean that young people's sexual risk taking propels them to be involved in online sexual activities. It is also possible to interpret this to mean that young people's sexual mores are shaped by the information to which they are exposed when they get involved in online sexual activities. Finally, there could be a third variable, not considered by this study, that affects online sexual activities and sexual risk taking, the implication being that when the third variable is controlled for, the relationship between online sexual activities and sexual risk taking in real life will cease to exist. To follow the first probable argument requires demonstrating that as young people become more sexually active and more involved in sexual risk taking, they seek, naturally, to explore sexuality related information on the internet. Their search for sexuality related information and involvement in online sexual activities may arise out of the desire to learn new ways of doing what they do in real life. It may also arise from the failure of real life sexual experiences to meet their urges which may increase as they become more sexually active.

On the other hand, it could be argued that when young persons are exposed to sexuality related information on the internet and/or involved in online sexual activities, their sexual mores are shaped by the information to which they have been exposed. The third hypothetical interpretation that can be conjectured from the observed association is that a completely different variable (religious inclinations for instance) may be responsible for adolescents' and young adult's online sexual activities and real life risk taking sexual behaviour simultaneously. The religious inclinations of an individual may be responsible for the nature of online activities involved in. On the other hand, this variable may influence the degree of sexual experimentation among young people in real life situations. It might be possible, for instance, that adolescents who are very religious are less likely to be involved in OSAs. Their adherence to/conformity with religious teachings may also reduce the likelihood that they will take part in online sexual activities. Under this kind of hypothetical situation, controlling for adherence to religious teachings may reveal that there is no relationship between online and real life sexual activities.

There is insufficient evidence to conclude either way from the findings of this study. The study has shown, however, that the two variables are associated and reproductive health care givers and clinicians may benefit from having this knowledge about the relationship between online and real life sexual behaviour of adolescents and young persons in metropolitan Lagos. It further reveals that there is an association between OSAs and the sexual mores of adolescents. As shown in Table 6, adolescents and young adults involved in OSAs are more likely to consider pre-marital heterosexual intercourse as sometimes or always proper than those not involved in OSAs. This will help care-givers better understand the nature of the reproductive health needs of this population. The study also shows an emerging dimension of adolescent sexual behaviour in urban parts of Nigeria with the rise of internet penetration in many cities in the country. This contribution to knowledge also underscores the need for further studies on the nature of the relationship between online and real life sexual activities. It shows the need for studies designed to examine whether there is a causal relationship between online and real life sexual activities or not.

## Limitations

A major limitation of this study is its reliance on self reports. Although the participants were persuaded to give only honest responses, the possibility that some of them were not honest cannot be ruled out particularly because of the nature of the subject matter. It is perceived that adolescents may respond to questions to create the impression that they are not deviants. In addition, male adolescents may have over-reported their involvement in sexual activity since some perceive this as an indicator of masculinity while female adolescents may have underreported it. Using other means of

validating the sexual activities of adolescents may, however, raise other ethical questions and it is for this reason that the study limited itself to self reports. Also, the study focused on metropolitan Lagos and it may not be appropriate to generalize the findings to non-metropolitan parts of Nigeria. Finally, the study design lacks the capacity to establish a causal relationship between the variables of interest, leaving the researcher with the option of merely showing the plausible implication of the association established between the variables.

## Conclusion

There is an empirically established association between involvement in OSA and real life sexual behaviour of adolescents in Lagos metropolis. Adolescents involved in OSAs are more likely to report that they are involved in early onset of sexual intercourse and multiple sexual partnerships. While this does not translate into causation, it provides a guide to clinicians, reproductive health care personnel and adult care givers who seek to help young people with their sexuality on a major predictor of risky sexual behaviour. The study suggests that adolescents who are involved in OSAs have greater involvement in risk bearing sexual activities in real life, when early onset of sexual activities and multiple sexual partnerships are considered as indicators of sexual risk taking.

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