



Knowledge of the Health Implications of Oral Sex among Registered Nurses in Nigeria: An Online Pilot Study

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Abstract

Introduction Oral sex is a pleasurable act that has its health implications, particularly sexually transmitted oral infections. In Nigeria, nurses constitute one of the at-risk population groups due to reports of risky sexual behavior among them. This study seeks to investigate the knowledge of nurses in Nigeria on the health implications of oral sex.

Methods This study was a survey of a pilot volunteer sample ($n = 129$) of registered nurses in Nigeria. The study tool was an anonymous questionnaire that was circulated electronically to nurses via social media platforms. Data collected was analyzed using the SPSS Version 20 software (IBM Corp, New York, New York, United States).

Results The majority (90.7%) of the 129 respondents had received training on oral health, 49.6% had engaged in oral sex before, and 58.1% were willing to engage in oral sex in future. History of previous oral health training was the only background characteristic found to be statistically significantly associated with the knowledge of oral sex-related health implications among nurses (p -value = 0.004); other characteristics (such as gender, age, and marital status) were not statistically significant (p -values >0.05). From multivariate analysis, history of oral health training was also found to be a statistically significant predictor of such knowledge (p -value = 0.015).

Conclusion Oral health knowledge is a significant determinant of the knowledge of oral sex-related health implications. This study also provides the preliminary evidence that forms the base on which further research should be conducted in this area.

Keywords

- ▶ oral sex
- ▶ knowledge
- ▶ nurses
- ▶ Nigeria

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Introduction

Sex is a pleasurable act common among adults. It commonly occurs in three different forms: anal penetrative sex, oral sex, and vaginal penetrative sex.¹ Anal penetrative sex occurs when a male penetrates his partner's anus with his penis; oral sex occurs when a person sucks or licks his/her partner's penis, vagina, or anus; and vaginal penetrative sex occurs when a penis enters a vagina.¹ Sexual activity, regardless of its form, when had unprotected, is risky and can be associated with over 35 sexually transmitted infections (STIs).¹⁻³ Common examples of such infections are chancroid, chlamydia, syphilis, lymphogranuloma venereum, gonorrhea, hepatitis, human papillomavirus (HPV) infection, and human immunodeficiency (HIV) viral infection.²⁻⁶

The global economic and health burden of STIs is enormous.³ In 2008 alone, ~498.9 million new cases of sexually transmitted chlamydia, syphilis, gonorrhea, and trichomoniasis were reported among individuals aged between 15 and 49 years.³ In 2016 alone, over 490 million people were estimated to have genital herpes, while 300 million women had HPV infection, a major etiological factor of anal and orogenital cancers.⁶⁻⁹ In 2020, ~374 million new cases of sexually transmitted chlamydia, syphilis, gonorrhea, and trichomoniasis were reported among individuals. Overall, more than one million individuals contract STIs on daily basis.⁶ This clearly depicts that STI is a problem of significant global public health concern.

Comparing the global age-standardized incidence rate of STIs in 1990 (9.32%) with that in 2019 (9.54%), it can be concluded that the global annual cases of STIs have increased in magnitude.⁷ Furthermore, a recent study on STI burden revealed that, in 2019, the global distribution of STI incidence was higher in males than females (male-female ratio—1.22:1), highest in Southern Africa (19.97%), and lowest in Western Europe (3.73%).⁷ However, in Nigeria, there is no known nationally representative data on the incidence of STIs within the past 2 years. Nonetheless, recent studies had reported a significant prevalence of STIs among samples of commercial sex workers (36.5%) and pregnant women (18.2%) in Nigeria.^{8,9}

The impact of STIs can be for long term with serious consequences.⁶ STIs, particularly gonorrhea, herpes, and syphilis, can increase one's risk of contracting HIV.⁶ Also, some STIs are one of the primary causes of chronic diseases like anal and orogenital cancers, infertility, hepatitis, and chronic kidney diseases.^{4,6,10-13} Furthermore, when STI is congenitally transmitted, it can cause congenital malformations, chest infections, sepsis, conjunctivitis, prematurity and low birth weight, and stillbirth of neonates.⁶

However, STIs are preventable and many of them are curable.^{2,5,6} STIs can be prevented through vaccination, condom use, and abstinence.⁶ After abstinence, condom use is probably the cheapest way of preventing STIs. However, condoms are only commonly used in vaginal and anal penetrative sex while it is rarely used in oral sex.¹⁴⁻¹⁶ By implication, this suggests that individuals who engage in oral sex are at higher risk of contracting STIs.

The average age of first oral sexual encounter is 17 years.¹⁴ This indicates that oral sexual practices usually begin at adolescence and early adulthood. Pertinently, the prevalence of oral sexual practices has been on the rise within the last decade.^{17,18}

Based on current data, at least five out of every ten adolescents and young adults in the United States of America are engaged in oral sex.^{15,16} However, in Nigeria, a pooled prevalence of oral sex practices in 1.7 to 47.2% of adolescents and adults has been found.¹⁹

In Nigeria, nurses constitute one of the STI risk population groups due to reports of risky sexual behavior among them.²⁰ However, there exists a dearth of published scientific data on the knowledge of oral sex-related health implications among nurses in Nigeria.

Aim

This pilot study aims to assess the knowledge of oral sex-related health implications among registered nurses in Nigeria.

Methods

This pilot study was an online cross-sectional survey conducted among registered nurses in Nigeria. This study also forms a part of the Campaign of Head and Neck Cancer Education (CHANCE) program.²⁰⁻³³ This study was conducted in compliance with the 1964 Helsinki Declaration on research involving human subjects. Institutional approval to conduct this study was obtained from the Research Committee, Department of Community Health, Aminu Musa Habib College of Health Science and Technology, Yauri, Nigeria.

The study tool was an anonymous electronic questionnaire (Google Form) that was developed from literature review and Delphi technique.^{2,20,21,28-42} The questionnaire has three sections: Informed Consent Section, Section A, and Section B. The Informed Consent Section digitally obtained informed consent from the participants. Section A obtained information on the background characteristics. Section B obtained information on knowledge of the health implications associated with oral sex using a set of 14 questions (— **Table 1**).

The sample size for the main study (from which the pilot sample size was obtained) was calculated using the Leslie Eq⁴³:

$$n = \frac{(Z_{\alpha/2})^2 pq}{e^2}$$

In the formula, n represents the sample size; $Z_{\alpha/2}$ which is equal to 1.96, represents the Z score value obtained from the confidence level, " p " represents the prevalence rate of oral sex, " e " is the margin of error which was 0.05, and " q " represents the compliment of p (i.e., $1 - p$).

The p -value was obtained from the lifetime oral sex prevalence of 75.6% reported in a recent study conducted

Table 1 Correct answers to questions used to test respondents' knowledge of oral sex

	Oral sex knowledge questions	Correct response
1	Oral sex is when you stimulate your partner's genitals and/or anus with your mouth, lips, or tongue	True ¹
2	Oral sex involves giving or receiving oral stimulation to the penis, the vagina, and/or the anus	True ¹
3	Oral sex is safe sex	False ^{2,6,7}
4	Unprotected oral sex is risky	True ^{2,6,7}
5	Which is a barrier used during oral sex?	Dental dam ³²
6	Bad oral health practices increase the chances of transmission of sexual pathogens during oral sex	True ^{33,34}
7	Oral lesions/ulcers increase the chances of transmission of sexual pathogens during oral sex	True ^{33,35}
8	Being exposed to the pre-ejaculate or ejaculate of an infected partner can increase the risk of getting a sexual pathogen	True ^{36,37}
9	Sexually transmitted infections can be transmitted via oral sex	True ³⁸
10	Syphilis has a high chance of being transmitted via oral sex	True ³⁸
11	Chlamydia has a high chance of being transmitted via oral sex	True ³⁸
12	Gonorrhea has a high chance of being transmitted via oral sex	True ³⁸
13	Human papillomavirus has a high chance of being transmitted via oral sex	True ³⁸
14	Hepatitis has a high chance of being transmitted via oral sex	True ³⁹

in United States among men and women (age: 15–44 years).¹⁶

From the Leslie formula:

$$n = \frac{(1.96)^2(0.754 \times 0.246)}{(0.05)^2}$$

a minimum sample size of 285 was obtained for the main study. However, to have a more representative sample size, the authors increased the sample size of the main study to a convenient size of 600 registered nurses. However, before the main survey (of 600 registered nurses) will be conducted, the authors found it worthy to conduct this pilot study using a minimum sample size of 120 registered nurses (which is 20% of the minimum sample size for the proposed main study).

The hyperlink to the electronic questionnaire was circulated on three medical discussion forums on WhatsApp social media platforms of registered nurses in Nigeria. Multiple reminders were sent to these media platforms to remind the potential participants about the study. All participation was strictly online, completely voluntary, and anonymous. No participant was coerced to take part in the study. All participants were given the subject information sheet that explained the study in detail and they had the chance to ask questions before deciding to take part in the study. Prior to participation, all participants gave their informed consent electronically.

A total of 129 registered nurses completed the electronic questionnaire (Google Form). Data collected was exported to the Statistical Package for Social Sciences (SPSS) Version 20 software (IBM Corp, New York, New York, United States) for analysis. The frequency distributions of all variables were

determined. The respondents' knowledge of the health implications associated with oral sex was graded over a 14-point score. Respondents scoring below 7 points were graded as "having below average scores," while those scoring 7 points and above were graded as "having average and above average scores." Bivariate analysis and multivariate analysis of variables of interest were also conducted, and a *p*-value <0.05 was used to determine the level of statistical significance.

Results

The response rate to the study was 41.7% (129/311). The majority (62.0%) of the respondents were women, 43.4% were within the age bracket of 25 to 29 years, 64.3% were married, 77.5% were Christians, 51.9% were working in a government setting, 90.7% had received training on oral health, 49.6% had engaged in oral sex before, and 58.1% were willing to engage in oral sex in future (►Table 2).

The mean (standard deviation) knowledge score of the respondents concerning their knowledge of the health implications associated with oral sex was 10.8 (2.2). Furthermore, ►Table 3 depicts the bivariate associations between the respondents' background characteristics and their knowledge of the health implications associated with oral sex. Only the respondents' history of oral health training was found to be statistically significantly associated with their knowledge of the health implications associated with oral sex (*p*-value = 0.004); other characteristics (such as gender, age, and marital status) were not statistically significant (*p*-value >0.05).

Table 2 Background characteristics of the respondents

Variables (n = 129)	Frequency	Percentage (%)
Age (y)		
20–24	17	13.2
25–29	56	43.4
30–34	36	27.9
35–39	13	10.1
40 and above	7	5.4
Mean (SD) = 29.2 (4.9)		
Gender		
Male	49	48.0
Female	80	62.0
Marital status		
Single	83	64.3
Married	45	34.9
Divorced	1	0.8
Religion		
Christianity	100	77.5
Islam	27	20.9
Atheist/others	2	1.6
Years of practice		
1–9 y	116	89.9
≥ 10 y	13	10.1
Mean (SD) = 5.0 (4.2)		
Place of practice		
Public service	67	51.9
Private practice	47	36.4
Not currently practicing	15	11.6
Received oral health training		
Yes	117	90.7
No	12	9.3
History of engagement in oral sex		
Yes	64	49.6
No	65	50.4
Willingness to engage in oral sex		
Yes	75	58.1
No	54	41.9

Abbreviation: SD, standard deviation.

From multivariate analysis, history of oral health training was found to be a statistically significant predictor of the respondents' knowledge of the health implications associated with oral sex (p -value = 0.015) (– **Table 4**).

Discussion

This study yielded noteworthy findings. The majority of the respondents had received oral health training. This finding

contradicts existing reports about lack of oral health training among nurses and nursing students in Nigeria.^{20,44,45} Although oral health training is not an integral part of nursing education curriculum in Nigeria,⁴⁴ the majority of the respondents in this survey reported to have received such training. This suggests that they might have sought training on oral health through workshops, seminars, and other continuing professional development courses.

Almost half of the respondents had engaged in oral sex. The lifetime prevalence of oral sex recorded in this present study is higher than that reported in a similar study conducted among a sample of nursing students in Nigeria.²⁰ The suggested reasons why a higher oral sex prevalence was recorded in this present study may be because this study adopted the use of an anonymous online questionnaire that gave the respondents a deeper sense of privacy; second, a higher proportion of the respondents was married, unlike the other study.²⁰

Majority of the respondents were willing to engage in oral sex in future. However, the reasons why they were willing to engage in such act were not explored, as it was not a part of the scope of this study. This is an interesting research question that requires further investigation.

Based on the knowledge test conducted in this study, the majority of the respondents had average/above-average knowledge about the health implications associated with oral sex. This is an interesting finding. In Nigeria's adolescent and adult population, the prevalence of oral sex ranges from 1.7 to 47.2%.^{19,24} Worryingly, awareness about the health implications associated with oral sex is low in Nigeria.⁴⁶ Nurses can play a significant role in public health education regarding oral sex. Nurses are highly influential frontline health workers in Nigeria⁴⁵; hence, this critical position they occupy can be utilized to educate the public on oral sex and its associated risks.

However, this study has its limitations. First, the findings of this study were based on self-report; hence, there is a possibility of recall bias among the respondents. Second, this study was based on a small sample of nurses; hence, the findings obtained in this study should be generalized with caution.

Nonetheless, this study has its strength. To the best of the authors' knowledge, this was the first Nigerian study to explore nurses' knowledge on the health implications of oral sex. Hence, this study provides preliminary evidence that forms the base on which further research should be conducted in this area.

Conclusion

The prevalence of oral sex in this study is generally higher than that recorded among nursing students, adolescents, and general adult population groups in Nigeria. It was also observed that the majority of the surveyed nurses were willing to engage in oral sex in future, despite being knowledgeable about the health implications of oral sex; this foresees the need to investigate the reasons why they wished to have oral sex in future. Finally, oral health knowledge is a

Table 3 Respondents' background characteristics and knowledge of health implications associated with oral sex

Variables (n = 129)	<Average score (%)	≥Average score (%)	X ² (p-Value)
	n = 4 (3.1)	n = 125 (96.9)	
Age (y)			1.91 (0.753)
20–24	1 (5.9)	16 (94.1)	
25–29	1 (1.8)	55 (98.2)	
30–34	1 (2.8)	35 (97.2)	
35–39	1 (7.7)	12 (93.7)	
40 and above	0 (0.0)	7 (100.0)	
Gender			<0.25 (0.615)
Male	2 (4.1)	47 (95.9)	
Female	2 (2.5)	78 (97.5)	
Marital status			0.22 (0.896)
Single	3 (3.6)	80 (96.4)	
Married	1 (2.2)	44 (97.8)	
Divorced	0 (0.0)	1 (100.0)	
Religion			0.07 (0.967)
Christianity	3 (3.0)	97 (97.0)	
Islam	1 (3.7)	26 (96.3)	
Atheist/others	0 (0.0)	1 (100.0)	
Years of practice			0.46 (0.496)
1–9 y	4 (3.4)	112 (96.6)	
≥ 10 y	0 (0.0)	13 (100.0)	
Place of practice			3.82 (0.148)
Public service	4 (6.0)	63 (94.0)	
Private practice	0 (0.0)	47 (100.0)	
Not currently practicing	0 (0.0)	15 (100.0)	
Received oral health training			8.10 (0.004) ^a
Yes	2 (1.7)	115 (98.3)	
No	2 (16.7)	10 (83.3)	
History of engagement in oral sex			1.06 (0.302)
Yes	3 (4.7)	61 (95.3)	
No	1 (1.5)	64 (98.5)	
Willingness to engage in oral sex			0.48 (0.487)
Yes	3 (4.0)	72 (96.0)	
No	1 (1.9)	53 (98.1)	

Abbreviation: SD, standard deviation.

^aSignificant p-value.**Table 4** Linear regression of oral sex knowledge predictors

Models	B	SE	T	Sig.
Constant	10.663	1.219	8.747	<0.001
Number of years in practice	0.705	0.663	1.063	0.290
Place of practice	0.287	0.285	1.004	0.317
Received oral health training	-1.665	0.671	-2.479	0.015 ^a
History of oral sex engagement	0.792	0.533	1.486	0.140
Willingness to engage in oral sex	-0.337	0.554	-0.609	0.544

Abbreviations: B, standardized coefficient; SE, standard error; Sig, level of significance.

^aF (5,123) = 1.936, Sig = 0.093, R² = 0.073.

significant determinant of the knowledge of oral sex-related health implications.

Conflict of Interest

None declared.

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