

ORIGINAL RESEARCH ARTICLE

Determinants of treatment seeking behaviour for sexually transmitted infections in Nigeria

DOI: 10.29063/ajrh2021/v25i3.12

Utibe S Ebong^{1*} and Olusesan A Makinde²

Strategic Research Unit, Technical Services Directorate, Marie Stopes International Nigeria, Abuja, Nigeria¹; Viable Knowledge Masters, Gwarinpa, Abuja, Nigeria²

*For Correspondence: Email: utibeebong@yahoo.com; Phone: (+234) 8102166575

Abstract

About 376 million new cases of sexually transmitted infections (STI) are reported annually across the globe. Also, untreated STI result in increased risks of complications including HIV, infertility and congenital infections. In Nigeria, enabling factors for STI transmission has increased in recent times. Thus, good treatment seeking behaviour is critical for the management of STI among people with sexually transmitted infections in Nigeria. Secondary data from the 2018 Nigeria Demographic and Health Survey dataset were used. The survey was conducted across Nigeria following a-2 stage stratified cluster sampling design from a sample of 4,997 women and 653 men aged 15 – 49 years who reported an STI history. Only 46.1% of the men and 55.7% of the women sought treatment for STI. Men who reported having genital ulcer were 3 times more likely to seek treatment, and women with genital ulcers were 2 times more likely to seek treatment than those who did not have genital ulcers. There is the need to reinforce HIV/STI messaging and health education campaigns in order to sensitize more people on transmission, symptoms and treatment of STI. Also, equitable mechanisms for financing STI treatment should be incorporated into the Nigerian health system in order to increase access for people of poorer economic status. (*Afr J Reprod Health* 2021; 25[3]: 105-112).

Keywords: Health seeking behaviour; sexual health; sexual and reproductive health; predictors; HIV

Résumé

Environ 376 millions de nouveaux cas d'infections sexuellement transmissibles (IST) sont signalés chaque année dans le monde. De plus, les IST non traitées entraînent des risques accrus de complications, notamment le VIH, l'infertilité et les infections congénitales. Au Nigeria, les facteurs favorables à la transmission des IST ont augmenté ces derniers temps. Ainsi, un bon comportement de recherche de traitement est essentiel pour la gestion des IST chez les personnes atteintes d'infections sexuellement transmissibles au Nigeria. Les données secondaires de l'ensemble de données de l'enquête démographique et de santé du Nigeria 2018 ont été utilisées. L'enquête a été menée à travers le Nigeria selon un plan d'échantillonnage en grappes stratifié à 2 degrés à partir d'un échantillon de 4 997 femmes et 653 hommes âgés de 15 à 49 ans qui ont signalé des antécédents d'IST. Seuls 46,1 % des hommes et 55,7 % des femmes ont demandé un traitement pour les IST. Les hommes ayant déclaré avoir des ulcères génitaux étaient 3 fois plus susceptibles de demander un traitement, et les femmes ayant des ulcères génitaux étaient 2 fois plus susceptibles de demander un traitement que celles qui n'avaient pas d'ulcères génitaux. Il est nécessaire de renforcer les messages VIH/IST et les campagnes d'éducation sanitaire afin de sensibiliser davantage de personnes à la transmission, aux symptômes et au traitement des IST. En outre, des mécanismes équitables de financement du traitement des IST devraient être intégrés dans le système de santé nigérian afin d'améliorer l'accès pour les personnes de statut économique plus pauvre. (*Afr J Reprod Health* 2021; 25[3]: 105-112).

Mots-clés: Comportement de recherche de santé ; santé sexuelle; santé sexuelle et reproductive; prédicteurs; VIH

Introduction

About 376 million new cases of sexually transmitted infections (STIs) are reported annually across the globe; that is an estimated 1 million cases each day¹. Sexually transmitted infections have been known to largely contribute to the global disease burden and constitute the bulk of developmental and health issues in developing countries like Nigeria^{2,3}. Active sexual infections

are known to increase the likelihood of the transmission of the human immunodeficiency virus (HIV) – thus, causing a double jeopardy for the patient⁴. Unfortunately, majority of these STIs bear mild symptoms that may not be quickly identified as STI symptoms, that is, if identified at all¹. Globally, there are an estimated 240 million people living with hepatitis B, more than 500 million people living with herpes, 300 million women living with HPV infection, 87 million cases of

gonorrhoea, some 6 million cases of syphilis, 156 million sufferers of trichomoniasis, and 127 million cases of chlamydia¹. Of these eight, only the latter four are curable; thus making the contextual decision-making process to seek help – whether preventive for individuals who assess themselves to be at risk, or curative for individuals who have already contracted any of these diseases, all the more important⁵. Without good treatment seeking behaviour, patients will harbour the infection for longer periods which often results in increased likelihoods of co-morbidities or complications such as low birth weight, neonatal infections and infertility^{4,6}. Thus, treatment seeking behaviour is critical in the cure or management of STIs. However, for patients to seek out STI care, they must first have a good knowledge of sexually transmitted infections and their symptoms as treatment seeking behaviour is initiated when symptoms observed to be associated with STIs have been identified by the patient².

In Nigeria, enabling factors for the transmission of STI such as early sexual debut have slightly increased in recent times, particularly among men; from a median age of 21.1 as at 2013, to 21.8 as at 2018, while women typically debut sexual intercourse at age 17^{7,8}. Previous studies have revealed a positive correlation between early age of sexual debut and likelihood of sexually transmitted infections: the younger the age of sexual debut, the higher the likelihood of a sexually transmitted infection⁹. Thus, effective STI preventive measures and good treatment seeking behaviour are relevant to this population.

In its report, the Nigeria Demographic and Health Survey provided insights as to the prevalence of STI and proportion of men and women who sought for care for STI among Nigerian men and women of reproductive age but did not deep dive into the sources of care nor the determinants that influenced the decision to seek care among these patients. An extensive review of literature revealed that the emphasis of past studies on treatment seeking behaviour for STI centred on sub-populations such as youths, women and at-risk groups: truck drivers, men who have sex with men, female sex workers, women suffering intimate partner violence, etc^{1-4,6,10-25}. In addition to contributing to existing scientific knowledge on this subject, this study aims to identify the proportion of Nigerians within the reproductive age range who reported having sexually transmitted

infections and sought treatment as well as where they sought treatment, while identifying determinants of treatment seeking behaviour that apply at a population-scale. Given the association between treatment seeking behaviour and treatment outcomes⁴, the findings and recommendations of this study will be useful in guiding country-level policy and programme decisions regarding STI care in Nigeria.

Methods

Study design

The study followed a cross-sectional study design where secondary data from the Nigeria Demographic and Health Survey (NDHS) 2018 dataset were used for analyses. The 2018 NDHS was a nationally representative survey with a 2-stage cluster sampling design where all 36 states and Federal Capital Territory were divided into enumeration areas (EA) as primary sampling units for the survey, and 1,400 enumeration areas were randomly selected in the first stage of the cluster sampling, and 30 households per EA were systematically selected at the second stage²⁶. In all, a sample of 55,132 was randomly drawn from these 42,000 households. The sampling frame used for the 2018 NDHS was the Population and Housing Census (NPHC) of the Federal Republic of Nigeria, which was conducted in 2006 by the National Population Commission (NPC).

Given the subject of this study, only respondents aged 15 – 49 who reported to have had an STI or symptoms of an STI in the past year constituted the sample for analyses; thus, of the 55,132 only 5,650 constituted the sample for analysis based on the prior defined inclusion criteria: must be of reproductive age and must have reported having an STI or symptoms of STI.

Statistical analyses

The individual women and men's dataset from NDHS 2018 were used, and analyses were computed separately with findings disaggregated for women and men. The variable for assessing treatment seeking behaviour for STI care was created from existing NDHS variables regarding respondents who sought STI advice/treatment from private and public health facilities, private and public pharmacies and drug stores, as well as those

who sought from other sources (including traditional sources).

Also, a variable for comprehensive knowledge of HIV was created as defined by the 2018 NDHS: 1) identified two methods of preventing sexual transmission of HIV; 2) acknowledged that a healthy looking person can have HIV; and 3) rejected two common misconceptions about HIV transmission in Nigeria, which are, HIV can be transmitted through mosquito bites and by sharing food with an HIV infected person⁸.

Like in past studies, variables like respondents' age, marital status, educational status, religion, STI history, wealth quintiles and comprehensive knowledge of HIV were used as predictors for treatment seeking behaviour for STI care in Nigeria. And in line with standard DHS analytical procedure, the men and women individual weights for Nigeria were used in all analyses to ensure adequate data representativeness for the Nigerian population, and additionally, the NDHS sample cluster design was also factored into the analyses using complex sample analyses (for chi-square and logistic regression) in order to reflect the effect of sampling in p value and confidence interval estimations. Descriptive analyses as well as chi-square test and logistic regression models were computed. The level of statistical significance was set at 95% ($p = 0.05$). Data analyses were computed using SPSS 20 software.

Results

Socio-demographic and sexual and reproductive health characteristics

The mean age of male respondents was found to be 34.86 ± 7.76 years, and 30.25 ± 8.43 years for women. More than half of the respondents were married (75% of men and 68% of women) and resident in rural locations (51% and 58% of men and women respectively) as seen in table 1. More men (62%) than women (46%) attained secondary and higher levels of education; similarly, 51% of the men were in the upper wealth categories as opposed to 39% of the women. Interestingly, more than half of the respondents self-reported an STI infection in the past year (56% of men and 54% of women).

Table 1: Distribution of demographic and sexual and reproductive health characteristics

Demographic characteristics	Percentage of men (n = 653)	Percentage of women (n = 4,997)
Age groups		
15 – 19	1.5	8.2
20 – 24	7.7	19.5
25 – 29	16.8	22.7
30 – 34	20.4	17.5
35 – 39	20.2	14.9
40 – 44	18.2	9.1
45 – 49	15.2	8.0
Place of residence		
Urban	48.5	42.0
Rural	51.5	58.0
Religion		
Catholic	13.0	14.3
Other Christian	39.1	31.4
Islam	46.9	53.9
Traditionalist	0.9	0.3
Other	0.2	0.1
Marital status		
Single (never been married)	17.9	26.1
Married	75.3	68.1
Co-habiting	4.4	1.7
Widowed	0.3	1.7
Divorced	1.1	1.1
Separated	0.9	1.3
Educational attainment		
No Education	21.3	39.6
Primary Education	16.2	14.6
Secondary Education	45.9	35.5
Higher Education	16.5	10.2
Wealth quintiles		
Lowest (Poorest)	12.3	18.6
Second (Poorer)	12.9	21.3
Middle	23.7	21.5
Fourth (Richer)	24.5	19.5
Highest (Richest)	26.6	19.1
Sexual and reproductive health characteristics		
Treatment seeking behaviour		
Had STI and sought care	46.1	55.7
Had STI but did not seek care	53.9	44.3
Comprehensive knowledge of HIV		
Yes	41.8	43.5
No	58.2	56.5
Self-reported STI in the past year		
Yes	56.0	54.3
No	44.0	45.7
Genital discharge in the past year		
Yes	54.4	77.1
No	45.6	22.9
Genital ulcers/sores in the past year		
Yes	37.1	43.4
No	62.9	56.6

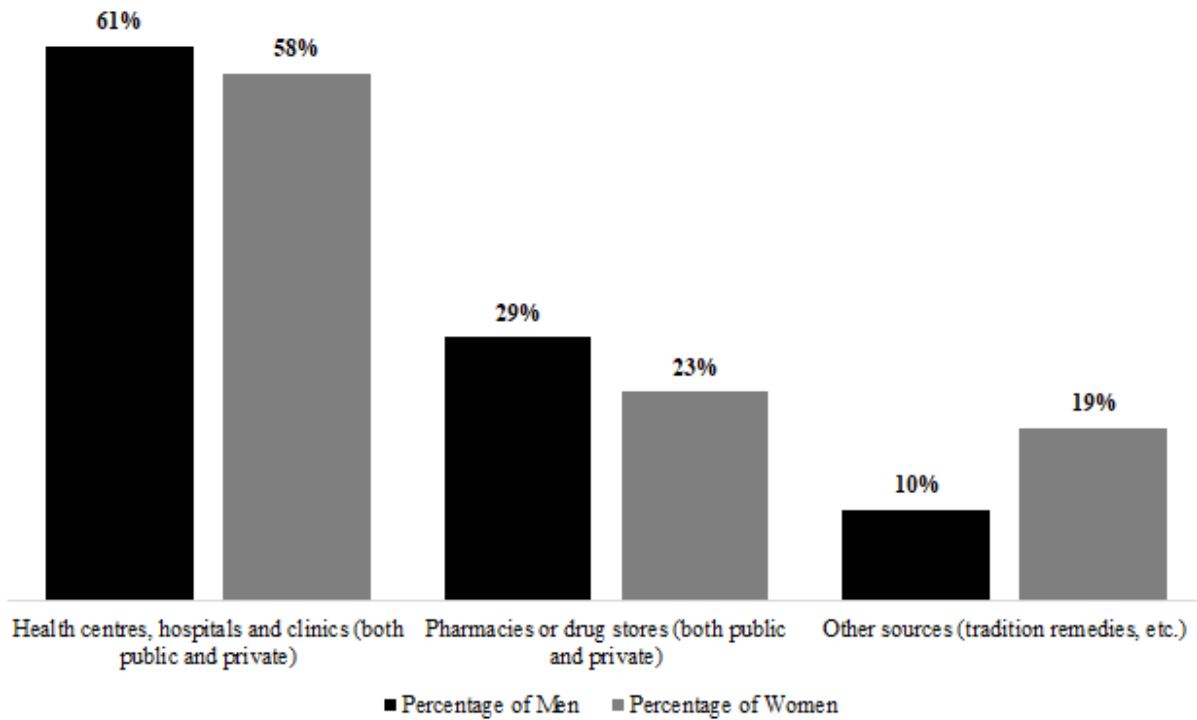


Figure 1: Treatment seeking behaviour for STI care by facility type

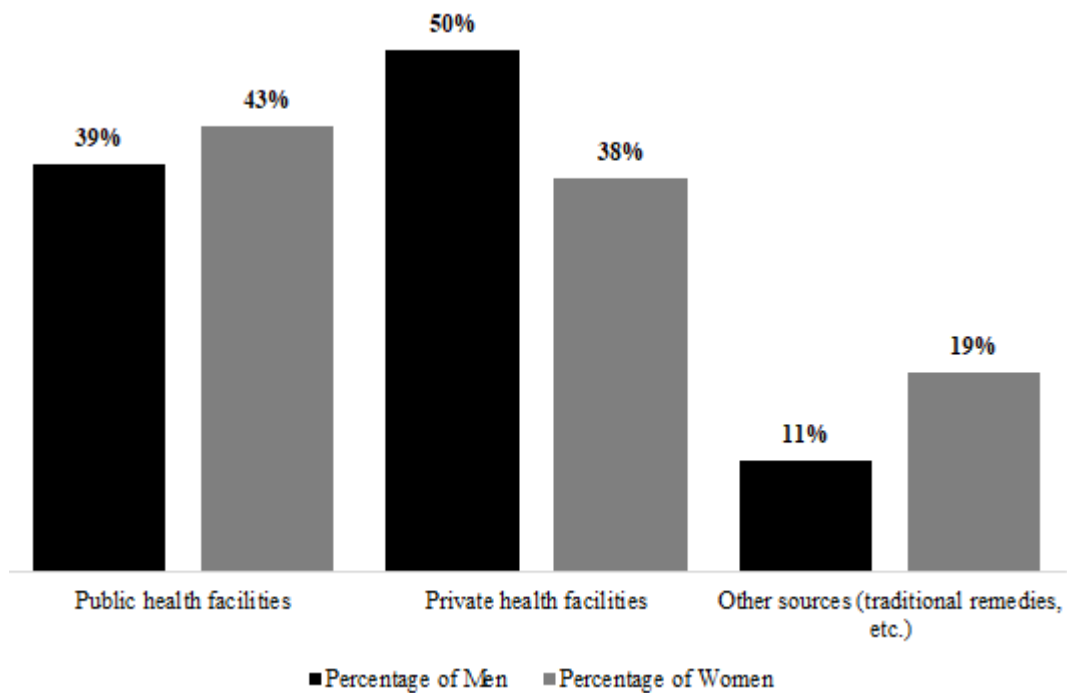


Figure 2: Treatment seeking behaviour for STI care by facility ownership

Treatment seeking behaviour for STI care

Among those who sought for STI care (46% of men and 56% of women with STI), 61% of the men and

58% of the women went to health centres, clinics or hospitals (whether private or public), whereas 29% and 23% of men and women respectively depended on pharmacies and drug stores for

treatment. Also, it was found that more women than men (19% vs 10%) sought for care outside the formal health system, for instance, from traditional remedies, as shown in Figure 1.

When disaggregated by facility ownership, it was also observed that half (50%) of the men went to private health facilities for STI care whereas most of the women (43%) received care from public health facilities as seen in Figure 2.

The chi-square test found that among men, there was a significant association between treatment seeking behaviour and self-reported STI ($p = 0.037$), genital ulcer ($p = 0.01$) and genital discharge ($p = 0.02$). whereas among women, all the sexual and reproductive health characteristics were significantly associated with treatment seeking behaviour ($p < 0.005$).

Lastly, a logistic regression analysis found that STI history was consistently significant among both men and women as seen in table 3. It was found that men with genital ulcers/sores were 3.1 times more likely to seek treatment ($p = 0.000$). Similarly, the odds of seeking treatment among women increased significantly with the presence of ulcers/sore (aOR = 1.650, $p = 0.000$). Contrarily, whereas women who had comprehensive HIV knowledge were 1.7 times more likely to seek treatment than those who did not have comprehensive HIV knowledge ($p = 0.000$); this relationship was not found to be significant among the men.

Discussion

Treatment seeking behaviour

Treatment seeking behaviour was observed to be better among Nigerian women than men. This was not unexpected as review of literature show a global trend of better health or treatment seeking behaviour among women than men²⁷⁻³⁰. A study among women in Beirut reported that more than half of women sought treatment and care services for sexual and reproductive health problems¹². In Nigeria, it was reported that more than two-thirds of the married women sought STI treatment whereas in Ghana, all of the females sought STI treatment^{15,16}. Also, in Iran, it was reported that more women than men sought for treatment for their STI symptoms⁴. All these validate the evidence that women generally have better health seeking behaviour than men and such was the report from this study⁴.

As regards treatment seeking behaviour by facility type, a pattern was observed particularly among women where traditional sources of care were sought after. It is not uncommon for STI patients to seek care outside the formal health system as found in this study as qualitative studies have reported patients seeking for STI treatment from herbalists, traditional healers, shrines, religious/faith houses^{17,20}. It is possible that this practice stems from socio-cultural beliefs in the potency of traditional remedies in the treatment or management of sexually transmitted infections. On the other hand, when patients did seek for care from the formal health system, the private sector was mostly utilised^{2-4,12,27}. This study found that more Nigerian men than women, frequented private facilities for STI treatment whereas more women than men went to public health facilities. A probable reason for this could be the associated costs for STI treatment in public and private health facilities as public facilities are likely to be cheaper than private health facilities. It has been reported that the average cost for comprehensive STI screening in Nigerian private health facilities is 25,000 Naira, although this amount varied across different Nigerian states³¹. Considering the obvious gaps in wealth distribution as seen in the respondents' demographic distribution, more men than women are expected to receive care from private health facilities because of the high cost of treatment. This could also explain why more women were found in this study, to seek treatment from traditional remedies where cost is likely to be minimal.

Predictors of treatment seeking behaviour for sexually transmitted infections

Given obvious STI symptoms, more patients were seen to seek out treatment as reported in this study. This behaviour was expected because the appearance of symptoms of an STI would trigger the need to seek out care, as compared to patients without noticeable symptoms². However, this behaviour then requires that the patient is knowledgeable of the signs and symptoms of STIs for him or her to initiate treatment; thus, the importance of a comprehensive STI education.

A study among female sex workers in 20 cities of Peru reported the presence of genital ulcers/sores and discharge to be a determinant for

Table 2: Association between treatment seeking behaviour and sexual and reproductive health characteristics

	Men			Women		
	% (n = 653)	X ²	p Value	% (n = 4,997)	X ²	p Value
Comprehensive HIV knowledge	41.8	1.653	0.251	43.5	110.191	0.000
Self-reported STI in the past year	56.0	5.896	0.037	54.3	55.015	0.000
Genital discharge in the past year	54.4	11.875	0.002	77.1	26.399	0.000
Genital ulcers/sores in the past year	37.1	16.127	0.001	43.4	65.774	0.000

Table 3: Predictors for treatment seeking behaviour for STI care by sexual and reproductive health characteristics

	Men Adjusted OR (95% CI)*	p Value	Women Adjusted OR (95% CI)*	p Value
Comprehensive HIV knowledge				
No	Reference	Reference	Reference	Reference
Yes	1.311 (0.940 – 1.827)	0.110	1.753 (1.557 – 1.974)**	0.000
Self-reported STI in the past year				
No	Reference	Reference	Reference	Reference
Yes	2.433 (1.694 – 3.494)**	0.000	1.439 (1.279 – 1.619)**	0.000
Genital discharge in the past year				
No	Reference	Reference	Reference	Reference
Yes	2.533 (1.795 – 3.573)**	0.000	1.581 (1.380 – 1.812)**	0.000
Genital ulcers/sores in the past year				
No	Reference	Reference	Reference	Reference
Yes	3.144 (2.161 – 4.575)**	0.000	1.650 (1.468 – 1.853)**	0.000

*Adjusted logistic regression model controlled for the effects of respondents' comprehensive HIV knowledge and STI history

**Statistically significant association

treatment seeking behaviour as 64% of female sex workers with these symptoms sought for treatment from either private or public health service providers, while 32% self-medicated from medicines obtained from pharmacies, drug stores and even traditional remedies³². Similarly, another study found that the presence of symptoms was a predictor of treatment seeking behaviour among women, especially that women with bad vaginal odour were twice more likely to seek treatment than those with STI but without such symptoms³³.

Literature has shown that the presence of symptoms is motivation for patients to want to seek care^{33,34}. However, upon observing the presence of the symptoms, the perceived severity associated with those symptoms by the patient can greatly predict how soon treatment will be sought for by the patient³⁴. Considering the health belief model and its stipulation on knowledge as an influencer of perceived severity³⁵, it can then be deduced that sufferers of STI are more likely to seek out treatment when they are knowledgeable of

symptoms of the infections and such symptoms are also evident – such as genital sores/ulcers and discharges; in such cases, the patient is most likely to seek out treatment.

More so, given the association between treatment seeking behaviour and comprehensive HIV knowledge – which includes symptoms and means of transmission of the disease, the essence of good knowledge of STIs and their symptoms are then buttressed as people with such knowledge are more likely to seek treatment than those who do not as shown in this study.

Ethical consideration

The 2018 Nigeria Demography and Health Survey was approved by the National Health Research Ethics Committee of Nigeria and the ICF Institutional Review Board, and authorisation for this study was obtained from the Demographic and Health Surveys Program for the use of these datasets.

Conclusion

More women than men sought for treatment of STIs in Nigeria. However, considering the teeming proportions of men and women who sought for STI treatment from pharmacies, drug stores as well as traditional remedies, there is the risk of self-medication for the treatment of STIs among men and women of reproductive age in Nigeria. This practice is not uncommon among STI patients⁶, it is pertinent to investigate further into the patterns of self-medication for STI care among this population. The results from this study have highlighted the importance of knowledge of STI and symptoms. Thus, there is the need to reinforce STI messaging and health education campaigns in order to sensitize more Nigerians on transmission, symptoms and treatment of STIs. Lastly, equitable mechanisms for financing STI treatment – such as government subsidised fees for service, full coverage under health insurance schemes, etc., should be incorporated into the Nigerian health system in order to increase access for people of low economic status.

Contribution of authors

Utibe Ebong conceived and designed the study as well as collected and analysed the data. Olusesan Makinde reviewed the manuscript and made additional inputs to buttress the discussion. All authors mentioned in the article approved the manuscript.

References

1. World Health Organization. Sexually Transmitted Infections (STIs) Fact Sheet. WHO Newsroom. 2019 [cited 2019 Dec 29]. Available from: [https://www.who.int/news-room/fact-sheets/detail/sexually-transmitted-infections-\(stis\)](https://www.who.int/news-room/fact-sheets/detail/sexually-transmitted-infections-(stis))
2. Khan AA, Qayyum K and Khan A. Care seeking for STI symptoms in Pakistan. *J Pak Med Assoc* 2009;59(9):3.
3. Verma A, Kumar Meena J and Banerjee BA. Comparative Study of Prevalence of RTI/STI Symptoms and Treatment Seeking Behaviour among the Married Women in Urban and Rural Areas of Delhi. *Int J Reprod Med* 2015;2015:1–8.
4. Nasirian M, Karamouzian M, Kamali K, Nabipour AR, Maghsoudi A, Nikaeen R, Razzaghi AR, Mirzazadeh A, Baneshi MR and Haghdoost AA. Care Seeking Patterns of STIs-Associated Symptoms in Iran: Findings of a Population-Based Survey. *Int J Health Policy Manag* 2015 Aug 9;5(1):5–11.

5. Oberoi S, Chaudhary N, Patnaik S and Singh A. Understanding health seeking behavior. *J Family Med Prim Care*. 2016;5(2):463–4.
6. Irwin DE, Thomas JC, Spitters CE, Leone PA, Stratton JD, Martin DH, Zenilman JM, Schwebke JR and Hook EW. Self-treatment patterns among clients attending sexually transmitted disease clinics and the effects of self-treatment on STD symptom duration. The Study Group. *Sex Transm Dis* 1997 Jul;24(6):372–7.
7. National Bureau of Statistics (NBS) and United Nations Children's Fund (UNICEF). Multiple Indicator Cluster Survey 2016-17, Survey Findings Report. Abuja, Nigeria: National Bureau of Statistics and United Nations Children's Fund; 2017.
8. National Population Commission, ICF. Nigeria Demographic and Health Survey 2018. Abuja, Nigeria, and Rockville, Maryland, USA: NPC and ICF; 2019 [cited 2019 Sep 9]. Available from: <https://www.dhsprogram.com/pubs/pdf/FR359/FR359.pdf>
9. Gómez AM, Speizer IS, Reynolds H, Murray N and Beauvais H. Age differences at sexual debut and subsequent reproductive health: Is there a link? *Reprod Health*. 2008;5(1):8.
10. Olayinka AT, Shehu A, Shehu A and Shehu A. An Assessment of Sexually Transmitted Infection Management at the Primary Health Care Level in a Local Government in Northern Nigeria. *Int J Community Med Public Health* 2011;1(2):67–72.
11. Okonofua FE, Ogonor JI, Omorodion FI, Temin MT, Coplan PA, Kaufman JA and Heggenhougen HK. Assessment of health services for treatment of sexually transmitted infections among Nigerian adolescents. *Sex Transm Dis* 1999;26(3):184–90.
12. El-Kak F, Khawaja M, Salem M and Zurayk H. Care-seeking behavior of women with reproductive health problems from low-income areas of Beirut. *Int J Gynecol* 2009;104(1):60–3.
13. Bhawsar RD, Singh JP and Khanna A. Determinants of RTIs/STIs among women in Punjab and their health seeking behaviour. *J Fam Welfare*. 2005;51(1):24.
14. Okonofua FE, Coplan P, Collins S, Oronsaye F, Ogunsakin D, Ogonor JT, Kaufman JA and Heggenhougen HK. Impact of an intervention to improve treatment-seeking behavior and prevent sexually transmitted diseases among Nigerian youths. *Int J Infect Dis* 2003;7(1):61–73.
15. Udo IE, Henry V and Ahonsi BA. Intimate partner violence and uptake of HIV testing and STI treatment among married women in Nigeria. *Afr Pop Stud* 2018 May 22 [cited 2019;32(1)]. Available from: <https://aps.journals.ac.za/pub/article/view/1144>
16. Donkor A, Zago J, Asiedua E, Maimaiti N and Maimaiti N. Perceptions and Reproductive Health Seeking Behaviors of University of Ghana Female Students. *J Health Edu Res Dev*. 2018;06(263):2.
17. Temin MJ, Okonofua FE, Omorodion FO, Renne EP, Coplan P, Heggenhougen HK and Kaufman J. Perceptions of Sexual Behavior and Knowledge About Sexually Transmitted Diseases Among Adolescents in Benin City, Nigeria. *Int Fam Plan Perspect* 1999;25(4):186.

18. Nasirian M, Baneshi MR, Kamali K and Haghdoost AA. Population-based survey on STI-associated symptoms and health-seeking behaviours among Iranian adults. *Sex Transm Infect.* 2016;92(3):232–9.
19. Lawan UM, Abubakar S and Ahmed A. Risk perceptions, prevention and treatment seeking for sexually transmitted infections and HIV/AIDS among female sex workers in Kano, Nigeria. *Afr J Reprod Health* 2012;16(1):61–7.
20. Manhart LE, Dialmy A, Ryan CA and Mahjour J. Sexually transmitted diseases in Morocco: gender influences on prevention and health care seeking behavior. *Soc Sci Med* 2000;50(10):1369–83.
21. Mmari KN, Oseni O and Fatusi AO. STI treatment-seeking behaviors among youth in Nigeria: are there gender differences? *Int Perspect Sex Reprod Health* 2010;36(2):72–9.
22. Bamgboye EA, Badru T and Bamgboye A. Transactional Sex between Men and Its Implications on HIV and Sexually Transmitted Infections in Nigeria. *Sex Transm Infect* 2017 [cited 2020 Feb 19]. Available from: <https://www.hindawi.com/journals/jstd/2017/1810346/>
23. Rosenheck R, Ngilangwa D, Manongi R and Kapiga S. Treatment-seeking behavior for sexually transmitted infections in a high-risk population. *AIDS Care* 2010;22(11):1350–8.
24. Xu J-J, Yu Y-Q, Hu Q-H, Yan H-J, Wang Z, Lu L, Zhuang M-H, Chen X, Fu J-H, Tang W-M, Geng W-Q, Jiang Y-J and Shang H. Treatment-seeking behaviour and barriers to service access for sexually transmitted diseases among men who have sex with men in China: a multicentre cross-sectional survey. *Infect Dis Poverty* 2017;6(1):15.
25. Oyeyemi OT, Fadipe O and Oyeyemi IT. *Trichomonas vaginalis* infection in Nigerian pregnant women and risk factors associated with sexually transmitted infections. *Int J STD AIDS* 2016;27(13):1187–93.
26. ICF International. *Sampling and Household Listing Manual*. In: *Demographic and Health Surveys Methodology* [Internet]. 2012. Available from: http://dhsprogram.com/pubs/pdf/DHSM4/DHS6_Sampling_Manual_Sept2012_DHSM4.pdf
27. Voeten HA, O'Hara HB, Kusimba J, Otido JM, Ndinya-Achola JO, Bwayo JJ, Varkevisser CM and Habbema JDF. Gender Differences in Health Care-Seeking Behavior for Sexually Transmitted Diseases: A Population-Based Study in Nairobi, Kenya. *J Sex Transm Dis* 2004;31(5):265–72.
28. Jaafar NI, Ainin S and Yeong MW. Why bother about health? A study on the factors that influence health information seeking behaviour among Malaysian healthcare consumers. *Int J Med Inform* 2017;104:38–44.
29. Rana RH, Alam F, Alam K and Gow J. Gender-specific differences in care-seeking behaviour among lung cancer patients: a systematic review. *J Cancer Res Clin Oncol* 2020;146(5):1169–96.
30. Galdas PM, Cheater F and Marshall P. Men and health help-seeking behaviour: literature review. *J Adv Nurs* 2005;49(6):616–23.
31. Eshemokha U. How much does STD test cost in Nigeria? Nigerian Health Blog. 2019 [cited 2020 Feb 14]. Available from: <https://nimedhealth.com.ng/2019/03/08/how-much-does-std-test-cost-in-nigeria/>
32. Gomez GB, Campos PE, Buendia C, Carcamo CP, Garcia PJ, Segura P, Whittington WL, Hughes JP, Ward H, Garnett GP and Holmes KK. Studying complex interactions among determinants of healthcare-seeking behaviours: self-medication for sexually transmitted infection symptoms in female sex workers. *Sex Transm Infect* 2010;86(4):285–91.
33. Adanu RMK, Hill AG, Seffah JD, Darko R, Anarfi JK and Duda RB. Sexually transmitted infections and health seeking behaviour among Ghanaian women in Accra. *Afr J Reprod Health* 2008;12(3). Available from: <https://www.ajol.info/index.php/ajrh/article/view/55642>
34. Meyer-weitz A, Reddy P, Van den borne HW, Kok G and Pietersen J. The determinants of health care seeking behaviour of adolescents attending STD clinics in South Africa. *J Adolesc* 2000;23(6):741–52.
35. Baum A, Newman S, Weinman J, West R and McManus C. In: Baum A (Ed) *Cambridge Handbook of Psychology, Health and Medicine*: Cambridge University Press, 1997, 710.