

## CLIENT PERCEPTION OF THE QUALITY OF CERVICAL CANCER SCREENING SERVICES AT A CENTRE IN SOUTH-SOUTH NIGERIA.

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### Abstract

**Background:** The burden of cervical cancer unevenly rests on the developing world. It is estimated that about 80% of the nearly 500,000 incident cases and 273,000 deaths occur in developing countries.

Approximately 5% of these deaths occur in Nigeria. This bleak picture is further worsened by the lack of population-wide screening services for premalignant lesions of the cervix, cost implications in a vastly uninsured population and the concurrent HIV/AIDS pandemic.

Patients' perception of the quality of cervical cancer screening could be the link to the poor utilisation of these services in Nigeria and possibly the developing world.

**Objective:** The study objective was to critically evaluate patients' perception of the quality of cervical cancer screening services and compare their perception to their socio-demographic characteristics.

**Materials and Methods:** This is a cross-sectional study. Clients who had Pap smear test between 2013 and 2018 were offered a phone-based semi structured questionnaire evaluating their economic and demographic characteristics, and perception of the quality of the test.

**Results:** Of the 149 respondents 79.9% were married, 67.8% had a high socioeconomic status and 55.7% sought cervical screening as routine check-up. About 16% of respondents reported both 'good' and 'very poor' levels of satisfaction. 71.8%, 61.7% and 41.6% of respondents declared good level of satisfaction with doctors', nurses' and laboratory staff's attitude respectively. The odds of experiencing good satisfaction was increased among married respondents (OR = 2.30; 95% CI:1.01 – 5.21; p = .046), in high SES (OR = 2.97; 95% CI:1.36 - 6.47; p = .006) and those seeking cervical screening on routine check (OR = 2.59; 95% CI:1.21 - 5.56; p = .015) or on doctor's request (OR = 3.95; 95% CI:1.34 - 11.60; p = .013).

**Conclusions:** Poor uptake of cervical cancer screening is still a public health issue in most of the developing world. In this study, our model has shown that the perception of the quality of cervical cancer screening services amongst first time clients needs some improvement. We therefore recommend an improvement in the attitude of health care workers and a better overall explanation of screening processes.

**Keywords:** Cervical cancer, developing world, premalignant lesions, screening.

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### INTRODUCTION

The burden of cervical cancer unevenly rests on the developing world. Annually, about 80% of the 500,000 incident cases and 273,000 deaths occur in developing countries.<sup>1</sup> Approximately 5% of new diagnosis and deaths occur in Nigeria.<sup>2</sup> This bleak picture is further worsened by the lack of population-wide screening services for

pre-malignant lesions of the cervix<sup>1, 3</sup>, the poor knowledge base<sup>3</sup>, the cost implication in a vastly uninsured population<sup>4</sup> and the concurrent HIV/AIDS pandemic<sup>5</sup>. Cervical cancer screening is an expensive public health intervention that requires strong political will to actualise in most of the developing world where resources are also constrained.

Central to cervical cancer prevention is a fairly understood carcinogenesis. Human Papilloma Virus (HPV) infection and persistence is a necessary cause of premalignant lesions of the cervix.<sup>6,7</sup> When left untreated over a 15 to 20 year period, pre-cancer lesions caused by the persistent high-risk HPV infection can evolve to cancer.<sup>8</sup> Screening, therefore, is a viable and proven way of reducing the incidence of cervical cancer.

Papanicolaou (Pap) smear cytology screening method has remained central to identifying precancerous lesions since its introduction more than 70 years ago.<sup>9</sup> This has helped in achieving a massive reduction in the burden of cancer of the cervix, especially in the developed countries.<sup>10</sup> Other methods of screening include liquid-based Pap smear cytology test, Visual Inspection with Acetic acid (VIA), Visual Inspection with Lugol's Iodine (VILI), visual inspection with magnification (VIAM), High-risk HPV DNA testing (HrHPV) and colposcopy.

In Nigeria, the uptake of cervical cancer screening is very low. Surveyed regions including Owerri in South-East Nigeria, Ilorin in North Central Nigeria, Jos in North Central Nigeria and Lagos in South-West Nigeria all have low uptake of screening at 7.1%, 8.0% 10.2% and 22.9% respectively<sup>3, 11, 12, 13</sup>. Poor knowledge and the lack of structured population-wide screening programmes are universally highlighted as the major causes of this low uptake in our environment. High uptake is essential for the success of the programme.<sup>14</sup>

The quality of cervical cancer screening services and patients perception and satisfaction of these services could be the missing link to the poor utilisation of this service in Nigeria and possibly the developing world. This is premised on the strength of 'word of mouth' advertisement and informal referral of clients by their associates whom themselves experienced the service.

Client/patient perception has gained significant attention over the years. The measurement of patient satisfaction through patient satisfaction surveys has helped the structuring of patient-oriented care by

incorporating patient perspectives to clinical practice. In addition to the apparent positive word of mouth advertisement, satisfied patients' impact on service marketing, satisfied patients are more likely to comply with treatment, take an active role in their own care, continue using medical care services and stay with a health provider and a specific system. Health professionals may also benefit from satisfaction surveys that identify potential areas for service improvement and health expenditure may be optimised through patient-guided planning and evaluation.<sup>15</sup>

Barriers to cervical cancer screening within Sub-Saharan Africa, though multifactorial, can partly be overcome through client friendly cervical cancer screening services.<sup>16</sup>

The aim of the study was to evaluate the patient's perception of the quality of cervical cancer screening services at the federal medical centre yenagoa. The objectives were to evaluate the socio-demographic characteristics of clients who screened for cervical cancer, and to evaluate the factors associated with client satisfaction to cervical cancer screening services at the Federal Medical Centre, Yenagoa.

## METHODOLOGY

The study was carried out at the Federal Medical Centre, Yenagoa, departments of obstetrics and gynaecology and Histopathology. The hospital is a 350-bed facility, a tertiary care hospital, which receives referrals from private clinics, hospitals and general physicians in and around Bayelsa state and adjoining Rivers and Delta state villages and towns. The hospital's obstetrics and gynaecology department is at the forefront of reproductive health management in south-south Nigeria. The outpatient clinics operate from Mondays to Fridays.

This is a cross-sectional study of first-time clients who had a Pap smear test at the FMC Yenagoa from 2013 to 2018.

Inclusion criteria for the study included women

who had a first-time pap smear test experience between 2013 and 2018; women  $\geq 18$  years of age, and women who were able to verbalise understanding of the study and provide informed consent. Women who refused consent and whose clinical records could not be retrieved were excluded from the study.

All eligible participants who had a complete screening experience at the FMC yenagoa within the study duration were identified through the hospital records. Each of the identified clients was administered a phone interview structured questionnaire to assess their perception of the quality of cervical cancer screening.

Patient satisfaction was assessed using 7 items/questions on the study instrument. Patient satisfaction with cervical screening services in the facility was measured with a 5-point Likert scale response to these seven questions: 1 = very dissatisfied, 2 = dissatisfied, 3 = neither dissatisfied nor satisfied, 4 = satisfied, 5 = very satisfied.

**The Seven questions are as follows:** What is your perception of the waiting time? What is your perception of the explanation of the procedure? How do you feel about the test proper? What is your perception of the explanation of the test result given to you? What is your level of satisfaction with the services rendered to you by the Doctor? What is your level of satisfaction with the services rendered to you by the Nurses? What is your level of satisfaction with the services rendered to you by the Laboratory staff?

Each scale was then scored according to the response on the 5-point Likert scale: 1 was scored as 1, 2 as 2 and so on. Total satisfaction score for each respondent was derived by summation of the scale scores for the 7 items which created a scale score ranging from 5 to 35. The mean and standard deviation of the total satisfaction scores were calculated and scores above 1 standard deviation from the mean, scores between the mean and 1 standard deviation above were graded as 'good' and 'fair' satisfaction levels respectively. Scores below the mean were similarly classified as 'poor' and 'very poor' satisfaction levels respectively.

The attitude of the staff (Doctors, Nurses and Laboratory staff) who attended to each respondent was further assessed by a 'Yes' or 'No' response to the following questions: Were the officers friendly? Did the officers show concern? Were the officers polite? Did the officers show interest?

A 'Yes' response was scored 100 and a 'No' was scored zero. Perception of the attitude of officers was computed by summing up the scores of these four questions and dividing by 4 to create a range of scores between 0 and 100. Scores above 75 depict 'good' level of satisfaction with the officer's attitude, while between 50 and 75 reflect 'fair' level, below 50 was considered a 'poor' level of satisfaction.

The socioeconomic class in the study was deduced using Oyedeji's classification of social class, respondents' socioeconomic status was classified into three: low, middle and high. This classification uses a composite score of respondents' educational levels and occupational types of their spouses.

Educational levels of respondents as well as occupational types of their spouses were scored. The score ranged from 1 to 5 for educational level. A score of 1 stands for respondents who could barely read or write or were illiterates, while a score of 5 was for those with university education or its equivalent. For spousal occupational types, the score also ranges from 1 to 5 with 1 standing for the unemployed and students and 5 standing for professionals such as doctors, lawyers, and engineers. Respondents' scores from each of the occupational and educational categories were added together and rated over 10. Those who scored less than 5 points were grouped into low socioeconomic class, those who scored from 5 to 7 points were grouped into middle socioeconomic class, and those who scored between 8 and 10 points were grouped into high socioeconomic class. For unmarried clients, their occupation or that of their parental figures was considered.

#### DATAANALYSIS

Data from the study questionnaire was analyzed after entry and cleaning using the Statistical Package for Social Sciences (SPSS) version 22.0

Frequency distribution and percentages were calculated for categorical variables in the study, continuous variables are presented by the mean and standard deviation.

Endorsement frequencies (distribution of responses across various response options especially ceiling and flooring endorsement) and the internal consistency reliability (a measure of the degree of relatedness of all items within the scale) were also derived. The effect of explanatory variables like age, marital status, socioeconomic status, indication for screening on the dependent variable (level of satisfaction) was explored by binary logistic regression after the dependent variable was dichotomized (i.e. 'good' level of satisfaction was coded as '1' and otherwise coded as '0').

## RESULTS

A total of 149 respondents were sampled for this study. Cronbach's alpha ( $\alpha$ ), a measure of internal consistency reliability of items measuring satisfaction was 0.77 (which is above 0.70 generally considered acceptable). The mean age of the sampled population was 38.75 years (SD – 9.28years), ranging from 21 years to 69 years. Eighteen per cent of the clients were less than or at most 30 years, about 44% were 31 to 40 years, about 25% were 41 to 50 years and about 13% were greater than 50 years. Other sociodemographic patterns showed that majority of the patients were married (79.9%) and belonged to high

socioeconomic class (Table 1).

The mean waiting time of clients who had their first cervical cancer screening at our centre was 78 mins (SD - 14 mins). Majority of the patients (71.1%) reported waiting for less than 1 hour, while about 26% and 3% waited for 1 to 3 hours and greater than 3 hours respectively. Consequently, about 83% of the sampled population reported either been very satisfied or satisfied with the waiting time (table 2).

Tables 3, 4 and 6 show a detailed evaluation of the various tools. Overall, levels of client satisfaction evaluated in this study showed that about 17 per cent and 40% had good and fair levels of satisfaction respectively while about 44 % either had poor or very poor satisfaction. The levels of satisfaction of the clients to the attitudes of doctors, nurses and laboratory staff were also evaluated. Majority of the clients (71.8%) indicated good satisfaction with the doctor's attitude while about 62% and 42% indicated good satisfaction towards the attitude of nurses and laboratory staff respectively (Table 5).

Results of binary logistic regression showed that married women (OR - 2.30; 95% CI: 1.01 - 5.21; p - .046) and women of high socioeconomic status (OR - 2.97; 95% CI: 1.36 - 6.47; 0.006) were more likely to report 'good' level of satisfaction. Indications for screening were also found to be statistically significant in determining the respondents who indicated a 'good' level of satisfaction (Table 2 and 7).

**Table 1 Sociodemographic characteristics of Respondents.**

Characteristics	Frequency (N = 149)	Percent (%)
<b>Age</b>		
< 30 years	27	18.1
31 - 40 years	66	44.3
41 - 50 years	37	24.8
>50 years	19	12.8
<b>Marital Status</b>		
Married	119	79.9
Unmarried (single, divorced, widowed)	30	20.1
<b>Socioeconomic Status</b>		
Low socioeconomic status	37	24.8
Middle socioeconomic status	11	7.4
High socioeconomic status	101	67.8

**Table 2 Indication for Screening, waiting time and Perception of waiting time.**

Characteristics	Frequency (N = 149)	Per cent (%)
<b>Indication for Screening</b>		
Routine Check	83	55.7
On doctor's request	24	16.1
Due to Symptoms	42	28.2
<b>Waiting Time</b>		
< 1 hour	106	71.1
1 - 3 hour	38	25.5
>3 hours	5	3.4
<b>Perception of waiting time</b>		
Very dissatisfied	7	4.7
Dissatisfied	2	1.3
Neutral	16	10.7
Satisfied	63	42.3
Very Satisfied	61	40.9

**Table 3 Item non-response rate, floor and ceiling endorsement, mean score and standard deviations of items on the interview guide.**

Item		Floor endorsement t (%)	Ceiling endorsement t (%)	Mean Score	SD
Perception of Waiting time	-	4.7	40.9	4.13	0.99
Perception of Explanation of Procedure		14.8	28.2	3.42	1.41
Satisfaction with the test Procedure	-	6.0	30.2	3.76	1.16
Perception of explanation of test result	-	14.8	28.2	3.53	1.35
Perception of Doctors' attitude	-	4.0	51.0	4.23	1.02
Perception of Nurses' attitude	-	-	36.2	4.11	0.79
Perception of Laboratory staff's attitude	-	-	36.2	4.05	0.83

**Table 4 Endorsement frequencies of response options to different satisfaction items on the interview guide.**

Item	Most negative » Most positive (%)				
	1	2	3	4	5
Perception of Waiting time	4.7	1.3	10.7	42.3	40.9
Perception of Explanation of Procedure	14.8	14.1	14.1	28.9	28.2
Satisfaction with the test Procedure	6.0	9.4	17.4	36.9	30.2
Perception of explanation of test result	14.8	5.4	20.1	31.5	28.2
Perception of Doctors' attitude	4.0	2.7	10.7	31.5	51.0
Perception of Nurses' attitude	-	1.3	22.1	40.3	36.2
Perception of Laboratory staff's attitude	-	-	31.5	32.2	36.2

Note - Very dissatisfied - 1, dissatisfied - 2, Neutral - 3, Satisfied - 4, very satisfied - 5.

**Table 5 Level of Client Satisfaction with Cervical Screening services in FMC, Yenagoa.**

Variable	Frequency (N = 149)	Percent (%)
<b>Level of Satisfaction with doctor s Attitude</b>		
Poor level of satisfaction	25	16.8
Fair level of Satisfaction	17	11.4
Good level of Satisfaction	107	71.8
<b>Level of Satisfaction with Nurse's attitude</b>		
Poor level of satisfaction	21	14.1
Fair level of Satisfaction	36	24.2
Good level of Satisfaction	92	61.7
<b>Level of Satisfaction with Laboratory staff's Attitude</b>		
Poor level of satisfaction	35	23.5
Fair level of Satisfaction	52	34.9
Good level of Satisfaction	62	41.6
<b>Overall satisfaction level with screening care</b>		
Very poor level of satisfaction	24	16.1
Poor level of satisfaction	41	27.5
Fair level of Satisfaction	59	39.6
Good level of Satisfaction	25	16.8

**Table 6 Mean, standard deviation and range of Scores for the different Concepts measured in the survey.**

Characteristics	Mean	Standard deviation	Range
Score for Doctors' attitude	8.46	2.97	0 - 10
Score for Nurses' attitude	8.41	2.59	0 - 10
Score for Laboratory staff's attitude	7.77	2.39	0 - 10
Total Satisfaction Score	27.23	5.05	15 - 35

**Table 7 Factors associated with Respondents who indicated a good level of satisfaction.**

Independent Variable - reference group	B coefficient	OR (95%CI)	p-Value
<b>Age group - &lt; 30 years</b>			
31 - 40 years	0.29	1.34 (0.55 - 3.30)	0.523
41 - 50 years	0.31	1.36 (0.50 - 3.70)	0.525
>50 years	-0.18	0.84 (0.26 - 2.71)	0.765
<b>Marital Status - Unmarried</b>			
Married	0.83	2.30 (1.01 - 5.21)	0.046*
<b>Socioeconomic status - low SES</b>			
Middle SES	0.31	1.37 (0.35 - 5.34)	0.651
High SES	1.09	2.97 (1.36 - 6.47)	0.006*
<b>Indication for Screening - Due to symptoms</b>			
Routine check	0.95	2.59 (1.21 - 5.56)	0.015*
On doctors' request	1.37	3.95 (1.34 - 11.60)	0.013*

\*Statistically significant at p-value &lt; 0.05

## DISCUSSION

There are several barriers to cervical cancer screening and prevention within the west African subregion. This study evaluated the perception of first time clients of the quality of the service through phone based questionnaires. The basic principle of this study is the impact of satisfied or dissatisfied clients on positive or negative word of mouth marketing respectively<sup>18</sup>, and a possibly contribution to the low uptake of this service in our setting.

Clients' perception of the quality of cervical cancer screening services at our centre in south-south Nigeria were good, with 56.4% of the respondents reporting fair or good level of satisfaction. However, 43.6% had very poor or poor levels of satisfaction. This is possibly one of the reasons for the poor utilization of cervical cancer screening in our setting. Our findings contrast with a study in Malawi where all respondents undergoing screening using visual inspection with acetic acid were satisfied or very satisfied with the screening test.<sup>19</sup> They also reported no significant association with age, level of education and marital status. However, in our study, being married, a high socioeconomic status and indications for screening were found to be statistically significant among factors associated with respondents who indicated a 'good' level of satisfaction.

The overall client satisfaction was computed using 7 items (see methodology). The waiting time of clients was good as majority of clients reported haven been satisfied or very satisfied with the waiting time. Prolong waiting time has been identified as a barrier to cervical cancer screening in East Africa<sup>20</sup> and Nigeria<sup>21</sup>. Client perception and satisfaction level to the attitude of health care workers (doctors, nurses and laboratory staff) was observed and incorporated in the overall client satisfaction assessment. Seventy per cent of clients reported good level of satisfaction with doctors attitude, 61.7% reported good level of satisfaction with nurses and 41.6% reported good level with laboratory staff. Unfriendly health care services have been reported in the Sub-Saharan Africa as a

limiting factor to cervical cancer screening.<sup>22,23</sup>

This study also evaluated client perception of the point of service explanation of the procedure and the results. Client education through enlightenment of the various test components was part of the study items used to evaluate client satisfactvion. Majority of respondents were either satisfied or very satisfied with the explanation of procedure and the explanation of the test result (see table 4). Studies have identified poor knowledge as a barrier to cervical cancer screening.<sup>(21-25)</sup>

## CONCLUSION.

Poor uptake of cervical cancer screening is still a public health issue in most of the developing world. In this study, our model has shown that the perception of the quality of cervical cancer screening services amongst first time clients needs some improvement. We therefore recommend an improvement in the attitude of health care workers and a better overall explanation of screening processes.

## REFERENCES

1. Ferlay J, Shin HR, Bray F, Forman D, Mathers C, Parkin DM. Estimates of worldwide burden of cancer in 2008: GLOBOCAN 2008. *Int J Cancer* 2010;127:2893–2917.
2. Bruni L, Albero G, Serrano B, Mena M, Gómez D, Muñoz J, et al. Human Papillomavirus and Related Diseases in Nigeria. ICO/IARC Information Centre on HPV and Cancer (HPV Information Centre). Summary Report 10 December 2018.
3. Okunowo AA, Daramola ES, Soibi-Harry AP, Ezenwankwo FC, Kuku JO, Okunade KS, et al. Women's knowledge of cervical cancer and uptake of Pap smear testing and the factors influencing it in a Nigerian tertiary hospital. *J cancer Res Pract.* 2018 Sep 1;5(3):105–111.
4. Awosusi A, Folaranmi T, Yates R. Nigeria's new government and public financing for universal health coverage. *Lancet Glob Health.* 2015 Sep 1;3(9):514–515.
5. Clifford GM, de Vuyst H, Tenet V, Plummer M, Tully S, Franceschi S. Effect of HIV infection on human papillomavirus types

- causing invasive cervical cancer in Africa. *J Acquir Immune Defic Syndr*. 2016 Nov 1;73(3):332.
6. Ghittoni R, Accardi R, Chiocca S, Tommasino M. Role of human papillomaviruses in carcinogenesis. *Ecancermedicalscience*. 2015;9.
  7. Crosbie EJ, Einstein MH, Franceschi S, Kitchener HC. Human papillomavirus and cervical cancer. *Lancet*. 2013 Sep 7;382(9895):889–899.
  8. Kyrgiou M, Shafi MI. Colposcopy and cervical intraepithelial neoplasia. *Obstet Gynaecol Reprod Med*. 2014;24(7):204–214.
  9. Vilos GA. The history of the Papanicolaou smear and the odyssey of George and Andromache Papanicolaou. *Obstetrics & Gynecology*. 1998;91(3):479–483.
  10. Catarino R, Petignat P, Dongui G, Vassilakos P. Cervical cancer screening in developing countries at a crossroad: Emerging technologies and policy choices. *World J Clin Oncol*. 2015 Dec 10;6(6):281.
  11. Ezem B U. Awareness and uptake of cervical cancer screening in Owerri, South-Eastern Nigeria. *Ann Afr Med* 2007;6:94–98.
  12. Idowu A, Olowookere SA, Fagbemi AT, Ogunlaja OA. Determinants of cervical cancer screening uptake among women in Ilorin, North Central Nigeria: a community-based study. *J Cancer Epidemiol*. 2016;2016.
  13. Hyacinth HI, Adekeye OA, Ibeh JN, Osoba T (2012) Cervical Cancer and Pap Smear Awareness and Utilization of Pap Smear Test among Federal Civil Servants in North Central Nigeria. *PLoS ONE* 7(10): e46583
  14. Benedet JL, Bender H, Jones III H, Ngan HYS, Pecorelli S. Staging classifications and clinical practice guidelines of gynaecologic cancers. *Int J Gynecol Obstet*. 2000;70:207–312.
  15. Ilioudi S, Lazakidou A, Tsironi M. Importance of patient satisfaction measurement and electronic surveys: methodology and potential benefits. *International Journal of Health Research and Innovation*. 2013;1(1):67–87.
  16. Lim JN, Ojo AA. Barriers to utilisation of cervical cancer screening in Sub Sahara Africa: a systematic review. *Eur J Cancer Care*. 2017;26(1):e12444.
  17. Oyedeji G, Socio-economic and cultural background of hospitalized children in Ilesha, Nigerian Medical Practitioner. 1985; 12:111–117.
  18. Anderson EW. Customer satisfaction and word of mouth. *J Serv Res*. 1998;1(1):5–17.
  19. Maseko FC, Chirwa ML, Muula AS. Client satisfaction with cervical cancer screening in Malawi. *BMC Health Serv Res*. 2014;14(1):420.
  20. Ngugi CW, Boga H, Muigai AW, Wanzala P, Mbithi JN. Factors affecting uptake of cervical cancer early detection measures among women in Thika, Kenya. *Health Care Women Int*. 2012;33(7):595–613.
  21. Ndikom CM, Ofi BA. Awareness, perception and factors affecting utilization of cervical cancer screening services among women in Ibadan, Nigeria: a qualitative study. *Reprod Health*. 2012;9(1):11.
  22. Mutyaba T, Fixelid E, Mirembe F, Weiderpass E. Influences on uptake of reproductive health services in Nsangi community of Uganda and their implications for cervical cancer screening. *Reprod Health*. 2007;4(1):4.
  23. Gatune JW, Nyamongo IK. An ethnographic study of cervical cancer among women in rural Kenya: is there a folk causal model? *International Journal of Gynecologic Cancer*. 2005 Nov 1;15(6):1049–1059.
  24. Fort VK, Makin MS, Siegler AJ, Ault K, Rochat R. Barriers to cervical cancer screening in Mulanje, Malawi: a qualitative study. *Patient Prefer Adherence*. 2011;5:125.
  25. William M, Kuffour G, Ekuadzi E, Yeboah M, ElDuah M, Tuffour P. Assessment of psychological barriers to cervical cancer screening among women in Kumasi, Ghana using a mixed methods approach. *Afr Health Sci*. 2013;13(4):1054–1061.