

Perceived Barriers to Cervical Cancer Screening Uptake among Women of an Urban Community in South-Eastern Nigeria

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Abstract

Objective: This survey examined the barriers to cervical cancer screening uptake by adult women in Nnewi, a town located in southeast Nigeria. **Methods:** In this descriptive survey, data were collected from 379 women aged between 21 and 65 years using the adapted version of the Health Belief Model Scale for Cervical Cancer and Pap smear test questionnaire. **Results:** The major perceived barriers to the practice of cervical cancer screening were fear of the result (2.32±1.05), lack of knowledge of what pap smear is (2.32±0.90), and lack of information about when and where pap smear could be done (2.25±1.07). The logistic regression model showed that the following perceived barriers predicted uptake of cervical cancer screening ($P < 0.05$): time constraint ($P = 0.001$, OR= 3.368, CI= 1.455, 4.11); attitude of healthcare workers ($P = 0.008$, OR= 6.642; CI= 2.764, 18.196); knowledge of test frequency ($P = 0.005$, OR= 1.443; CI 0.946, 3.811); fear of result ($P = 0.001$, OR= 3.660, CI=0.679, 4.061); lack of information on when and where pap smear could be obtained ($P = 0.010$; OR= 6.732; CI= 2.286, 10.490); distance from test centre ($P = 0.003$; OR= 1.387; CI=0.126, 2.193); not knowing what it is for ($P = 0.024$, OR10.895, CI = 2.938, 14.401).

Keywords: Cervical cancer- barriers- screening uptake- South-east- Nigeria

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Introduction

There is growing evidence that women in low-income countries marginally suffer higher morbidity and mortality from preventable diseases (Abotchie, Mphil, and Shokar, 2009). It's reported that 1 in 4 deaths among adult women are caused by non-communicable diseases such as heart disease, cancer, and diabetes (Boutayeb, 2010) and it is worrisome the alarming rate of one of the most preventable cancers among women in low-income countries Al-Naggar et al., 2010). Cervical cancer mostly arises at the squamocolumnar junction, between the columnar epithelium of the endocervix and squamous epithelium of the ectocervix, a transformation zone where there is a metaplastic change (American Cancer Society, 2017). Its exact cause is not yet known but it is strongly associated with a viral infection of the human papillomavirus (HPV) species (Arby et al., 2011). HPV infections can progress to cause precancerous and cancerous lesions of the uterine cervix (American Cancer Society, 2017). The risk factors include HIV, multiparity, early initiation of sexual activity, multiple sex partners, smoking, low socioeconomic status, oral contraceptives, etc (world health organisation, 2022).

The 2010 global strategy for women and children

incorporated a plan to reduce deaths from cancers among women due to the overwhelming rate of death from such conditions. Globally, cervical carcinoma is among the commonest gynaecological malignancies (Bruni et al, 2015). With approximately 528,000 new cases diagnosed each year, it is a leading cause of death from genital malignancies in women (Bruni et al, 2015) and rated the 4th most common cause of cancer death for females worldwide and the 9th most common overall cause of death. More than 311 000 deaths in 2018 were attributed to cervical cancer (World Health Organization, 2019). According to the WHO (2022), the greatest burden of the disease occurs in the developing world where the mortality rate ranges from 13.3 per 100 000 in 2020. For instance, in India, cervical cancer is second the most common cancer and occupies the top rank among cancers in women constituting 34% of all women cancers (National Health Portal of India, 2021). In Nigeria, cancer of the cervix is the second most frequent cancer among women with an annual incidence of 14,089 and 8240 women dying from the disease yearly (Bruni, 2015).

The difference in the incidence of this disease in developed and developing countries is attributed to the effectiveness of national screening programmes of cervical

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cytological testing (Papanicolaou test) to identify cell abnormalities that may indicate or precede cervical cancer which is the only way to achieve a better prognosis (WHO, 2019) and a key aspect of its prevention (Dim, 2013). Despite this easy way out, death caused by this disease continued to be on the increase in African countries like Nigeria. It has been established that pre-cancerous lesions are detectable for 10 years or more and can be treated due to their slow progression from a precancerous lesion to cancer. Thus, cervical cancer prevention efforts worldwide have focused on screening women at risk of the disease and treating pre-cancerous lesions (WHO, 2022).

Pap smear, although imperfect, is generally reliable and considered an effective approach to reducing cervical cancer incidence worldwide (Eke et al., 2012). In the United States, the number of cervical cancer deaths decreased by 70% between 1950 and 1970 and by more than 40% between 1970 and 1999. Similarly, in the United Kingdom, there has been a decline in mortality caused by cervical cancer recorded in 2008 than was reported 30 years earlier (Ferlay et al., 2013). This is largely attributable to Papanicolaou (Pap) smear test for cervical cancer screening Horn et al., 2019).

Cervical screening is a way of checking women regularly for changes in the cells of the cervix and the Papanicolaou test is the most widely used screening test method (Gomez, and Santos, 2007). The appropriate age to start screening is 21 years and should continue till the age of 65 years Hyacinth, et al., 2012; Brunel et al., 2016). A major challenge facing the developing world in combating this disease as confirmed by many studies is the fact that women in their large numbers do not go for regular cervical cancer screening (Isa, 2013). Studies in Nigeria by Jones et al (2015) and Nwabichie et al (2018) have also examined factors influencing women's participation in screening programmes and reasons given for non-participation included administrative failures, inconvenience clinic times, unavailability of a female screener, lack of awareness of tests' indications and benefits, considering oneself not to be at risk of developing cancer, fear of embarrassment, pain, fear of detection of cancer, and more importantly, beliefs (Motavalli et al., 2018). Apart from a similar study conducted among Nursing students nearly a decade ago (Ma, et al., 2013), such studies have not been conducted in Nnewi which is home to the largest tertiary institution in Anambra state. It has also been shown that individual belief influences people's participation in programmes to prevent and detect disease (Isa et al., 2013), hence the choice of study.

One of the theoretical models that could assess the beliefs of people regarding health behaviors is the Health Belief Model. This model which emerged in the late 1950s was used as an exploratory model to assess why people did not use preventive health services (Megan, and Jacqueline, 2015). Among the constructs of the health belief model is the perceived barrier (Megan, and Jacqueline, 2015). According to this construct, people tend to act if the anticipated benefits of taking such action, for instance going for cervical cancer screening, outweighs the barriers to action (Megan, and Jacqueline, 2015). The purpose of this study was to identify the barriers to uptake of cervical

cancer as well as find out if the barriers were related to their uptake of screening.

Materials and Methods

Participants and recruitment

This descriptive survey sampled 405 women aged 21 to 65 years. This sample size was derived using the power analysis formula. Meanwhile, the sampling involved a multistage approach; Nnewi, a famous urban town in Anambra South-east of Nigeria was randomly selected from the 21 local government areas in Anambra State. The next stage involved proportionate sampling to determine the number of women to draw from each of the four villages in Nnewi using the estimated population size from the local government statistics. In each village, a systematic sampling technique was used to locate the houses. The sampling interval was every 95th house determined by dividing the total population of women by the sample size. Using simple random sampling, the first household was selected and used as the starting point. The women in each household that met the following criteria were selected:

- Adult women between 21 and 65 years old
- Those residing in Nnewi
- Those present at the time of the study

The questionnaire was distributed in households among eligible participants.

Study Area

The study was carried out in Nnewi, Nnewi North Local Government, Anambra State. Nnewi is the second-largest city in Anambra State in South-eastern Nigeria (Modibbo et al, 2016) and the home to the largest tertiary health institution in the entire state. Nnewi spans over 200 square miles (520km²) in Anambra state (Isa et al., 2016). Nnewi North metropolitan city is commonly referred to as Nnewi central and comprises four autonomous quarters: Umudim, Otolo, Nnewichi, and Uruagu.

Data Collection

The instrument for data collection was an adapted version of the Health Belief Model Scale for Cervical Cancer and Pap Smear Test, the CPC-28 scale ('Papanicolaou, Cancer – 28/Creencias, Papanicolaou, Cancer – 28') – English version Ndikom, et al., 2012). Permission was sought through an email from the author before the use of the instrument. The following adaptations were made: the addition of the socio-demographic variables and three items to the barriers to uptake of screening, namely: 'Have you ever had Pap smear?' 'I have not taken a Pap test because I cannot afford the money paid for it, and 'I do not know what it is for'. In the end, the questionnaire contains two sections, the socio-demographic and the Barriers to uptake of test domains. Face and content validity of the instrument was established by experts in relevant fields and necessary changes were made based on their suggestions. The items were scored on a 4-point Likert scale, ranging from strongly agree (value 1), agree (value 2), disagree (value 3), and strongly disagree

(value 4). Lower mean scores represent strong barriers. Specifically, mean scores ≤ 2.5 suggest strong barriers to cervical cancer uptake.

Method of Data Analysis

Data obtained from the study were analyzed with the aid of the International Business Machine Statistical Package for Social Sciences (IBM SPSS) 22.0 software using the descriptive (means and percentages) and inferential statistics. Uptake of Pap smear was measured with two dichotomous indicators (yes/no). Under the scale for perceived barriers, positively worded items were reverse coded to reflect the same direction with others. Mean score - 1 to < 2.5 -High perception of barrier; and Mean score - ≥ 2.5 - Low Perception of barrier. Logistic regression was used to predict the influence of barriers to screening uptake. The dependent variable was screening uptake measured on a dichotomous scale of YES/NO in response to the question: Have you ever done pap test before? while each of the perceived barriers measured on an interval scale were the independent variables.

Results

Frequencies and percentage were deployed to analyse the age, educational status, religion, marital status, parity, sex, and occupation. Additionally, mean and standard deviation were used to analyse the mean age and parity. Table 1 shows that all the respondents were Christians and majority (71.2%) were forty years old or below; the mean age was 35.5years ± 10.32 ; most (86.8%) of the respondents attained not less than a secondary education; and currently married (72.3%) with 1-6 children (75.0%). Majority were self-employed (67.3%).

In Table 2, only 31(8.2%) had gone for cervical cancer screening. Out of the 31 respondents that have had a pap test, and 1(0.3%) did not remember when last she had a pap test, 6(1.6%) have had it for more than three years ago.

Table 3 shows the respondents' perceived barriers to the uptake of cervical cancer screening.

The identified barriers to uptake of screening were: not knowing how often one needs to do a pap test (2.32 \pm 0.90), fear of outcome of result (2.31 \pm 1.05). Other barriers were inadequate knowledge of what Pap test is (2.27 \pm 1.00), when and where it could be obtained as most strongly agreed or agreed to the statement: 'I have not taken pap test because I do not know when and where it is done (2.25 \pm 1.07). Grand mean = 2.84 \pm 0.516

P-value set at significance level of 0.05. OR is the odd ratio

Table 4: shows the result of binary logistic regression used to examine if any of the barriers predict of pap test. The items that predicted practice of pap smear include: time constraint to go for pap test (P $<$ 0.05) (P = 0.001, OR= 3.368, CI= 1.455, 4.11); treating people badly at the health centre (P= 0.008, OR= 6.642; CI= 2.764, 18.196); not knowing at what age it is necessary to get a pap test (P = 0.002, OR= 1.443; CI 0.946, 3.811); fear of result(P = 0.001, OR= 3.660, CI=0.679, 4.061); not knowing when and where it is done (P = 0.010; OR= 6.732; CI= 2.286,

Table 1. Socio-Demographic Characteristics of the Respondents and Practice of Cervical Cancer Screening

S/N	Items	Frequency	Percentage
1	Age		
	21-30	154	40.6
	31-40	116	30.6
	41-50	72	19
	51-60	29	7.7
	61-65	8	2.1
	Mean \pm SD	35.5 \pm 10.32	
2	Highest educational level		
	No formal education	16	4.2
	Primary education	34	9
	Secondary education	118	31.1
	Tertiary education	211	55.7
3	Religion		
	Christianity	379	100
4	Marital status		
	Single	77	20.3
	Married	274	72.3
	Separated	11	2.9
	Widowed	17	4.5
5	Parity		
	1-3children	139	36.7
	4-6children	145	38.3
	7-9children	11	2.9
	No children	84	22.2
	Mean \pm SD	3 \pm 1.94	
6	Occupation		
	Civil servant/public servant	104	27.4
	Farming	9	2.4
	Business woman/trading	180	47.5
	Seamstress/tailor	17	4.5
	Student	49	12.9
	Full-time housewife	7	1.8
	No job	13	3.4

10.490); the centre being far away from where people live (P = 0.003; OR= 1.387;CI=0.126, 2.193); not knowing what it is for (P = 0.001, OR10.895, CI = 2.938, 14.401).

Table 2. Practice of Cervical Cancer Screening

Items	Percentage	Frequency
7 Have you ever had a pap test		
No	348	91.8
Yes	31	8.2
8 If yes, when was the last time you had a pap test?		
I cannot remember		
Over three years	1	0.3
Between 2 to 3 years	6	1.6
Between 1 to 2years	1	0.3
Less than a year ago	8	2.1
9 What was the pap result		
Normal	31	8.2
Abnormal	0	0

Table 3. Women’ Perception of Barriers to Uptake of Cervical Cancer Screening

Items	SA (%)	A (%)	D (%)	SD (%)	Mean±SD
10.I do not have time to get a pap test	21 (5.5)	143 (37.7)	138 (36.4)	77 (20.3)	2.72±0.85
11.I have not taken pap test because they treat me badly in the health care center	11 (2.9)	6 (1.6)	196 (51.7)	166 (43.8)	3.36±0.66
12.I do not know at what age it is necessary to get a pap test	48 (12.7)	146 (38.5)	109 (28.8)	76 (20.1)	2.56±0.95
13.I have not taken pap test because when I go, I need to wait a long time to be seen	11 (2.9)	39 (10.3)	187 (49.3)	142 (37.5)	3.21±0.74
14. I do not know how often I need to get a pap test	63 (16.6)	182 (48.0)	84 (22.2)	50 (13.2)	2.32±0.90*
15. I have not taken pap test because I am afraid to find out if I have cancer	108 (28.5)	107 (28.2)	103 (27.2)	61 (16.1)	2.31±1.05*
16. I have not taken pap test because the health centre is only open when I cannot go	0 (0.0)	55 (14.5)	207 (54.6)	117 (30.9)	3.16±0.65
17. I have not taken pap test because I do not know when and where it is done	119 (31.4)	106 (28.0)	93 (24.5)	61 (16.1)	2.25±1.07*
18. I have not taken pap test because it is not done anywhere near where i live	42 (11.1)	134 (35.4)	129 (34.0)	74 (19.5)	2.62±0.92
19. I have not taken pap test because I am embarrassed to have a genital exam	10 (2.6)	22 (5.8)	186 (49.1)	161 (42.5)	3.31±0.70
20. I have not taken pap test because I cannot afford the amount paid for it	36 (9.5)	89 (23.5)	186 (49.1)	68 (17.9)	2.75±0.85
21. I have not taken pap test because it is difficult for me to get an appointment	10 (2.6)	77 (20.3)	159 (42.0)	133 (35.1)	3.09±0.81
22. I do not know what it is for	107 (28.2)	105 (27.7)	121 (31.9)	46 (12.1)	2.27±1.00*

Discussion

The findings of the study revealed that there was poor uptake (8.2%) of cervical cancer screening among the women in Nnewi which is similar to many other results of research conducted on this topic in Nigeria. For instance, a study on the utilisation of pap smear tests among federal civil servants in Northcentral Nigeria showed that the uptake rate was as low as 10.2% which is quite close to the rate of practice (8.2%) in the present study (Nguyen et al., 2011). Another study ported a higher level (22.9%) of uptake among female nurses working in a tertiary hospital (Nwobodo, and Ba-Break, 2015). This is higher than what was obtained in this study probably because of the subject characteristics such as being educated and health care professionals.

A study on analysis of the determinants of low cervical cancer screening uptake among Nigerian women found that practice was low. Out of the thirteen different studies in Nigeria on screening uptake, nine recorded less than 5.3% uptake while 4 recorded >5.3% against 75% in developed countries. The findings of this study are also in line with a study among rural and urban women in six provinces of the Democratic People’s Republic of Korea,

Oche et al., 2013) and another among clinic attendees in Trelawny, Jamaica, which all point towards low uptake of screening (Oyedunni, and Opemipo, 2012).

From the result of this study the poor practice could stem from a lot of reasons. Firstly, the knowledge factor: a good number (55.5%) did not know what Pap smear was all about as could be seen in Table 3. Understandably, the women were not likely to subscribe for what they do not know of. Besides, a cross-tabulation between those who have been screened and those who had never been screened showed that the population of those who had been screened was dominated (74%) by those who had tertiary education and civil servants. Secondly, a major barrier to the uptake of cervical cancer screening identified among the women is fear of the result: ‘I am afraid to find out that I have cervical cancer’. Another is that a great majority (64.6%) claimed that they do not know how often they should go for the screening, did not know at what age this test is necessary, and did not also know when and where to do the screening. All these relate to inadequate or poor knowledge of cervical cancer screening which could account for the low uptake of screening. A similar study reported lack of time, fear of the result, and not being sexually active as a reason

Table 4. Logistic Regression Model to Examine Barriers that Predict Cervical Cancer Screening and Uptake

Perceived barriers	P-value	R ²
I do not have time to get a pap test	0.001	1.761
I have not taken pap test because they treat me badly in the health care center	0.008	2.748
I do not know at what age it is necessary to get a pap test	0.002	2.272
I have not taken pap test because when I go, I need to wait a long time to be seen	0.065	0.53
I do not know how often I need to get a pap test	0.005	1.802
I have not taken pap test because I am afraid to find out if I have cancer	0.001	1.927
I have not taken pap test because the health centre is only open	0.486	0.304
I have not taken pap test because I do not know when and where it is done	0.01	1.856
I have not taken pap test because it is not done anywhere near where I live	0.003	1.625
I have not taken pap test because I am embarrassed to have a genital exam	0.07	0.372
I have not taken pap test because I cannot afford the amount paid for it	0.001	1.301
I have not taken pap test because it is difficult for me to get an appointment	0.001	1.92
I do not know what it is for	0.001	2.202

for not screening (Jones, 2015). Furthermore, another study on Health Beliefs associated with cervical cancer screening among Vietnamese Americans that being scared of having cervical cancer is among the factors that affected uptake of screening (Sedigheh, 2012). So, the empirical reasons for poor practice are multi-factorial and need to be explored further.

The most powerful predictor of poor uptake is not knowing what it is for. Other identified barriers to uptake of screening were not knowing how often one needs to get a pap test, fear of the result, evidenced by their agreement to the statement 'I have not taken pap test because I am afraid to find out if I have cancer. Another barrier is inadequate knowledge of what Pap test is, when and where it could be obtained as most strongly agreed or agreed to the statement: 'I have not taken pap test because I do not know when and where it is done. A great majority did not also know at what age it is necessary to get a pap test. This result is related to the low practice observed. The result suggests that the participants did not understand what pap smear is and have no idea how to obtain it. Most people did not know about this screening possibly because cervical cancer screening is not routinely taught during health education at the grassroots the way hypertension, malaria prevention, diabetes, danger signs in pregnancy, nutrition, etc. are done. The majority of the respondents were businesswomen who probably leave their homes early for their business only to come back in the evening and may never have the opportunity of hearing about this disease except if it is brought down to churches or in meetings. This evidence is further strengthened by the result of a regional study in Ethiopia which reported that only 21% of the participants had good knowledge of cervical cancer prevention (Kifle et al., 2020). In a qualitative study on awareness, perception, and factors affecting utilization of cervical cancer screening services among women in Ibadan, the subjects verbalized that teachings on cervical cancer are not integrated into the routine talks at the hospital (Urasa, and Djay, 2011).

Other possible barriers such as the attitude of the health workers or clinic hours, not having time to go for the test, and financial cost of the screening service were not perceived as barriers by the women. Since most have no idea what a Pap test is let alone going for it, they may not see the financial cost or attitude of the workers as barriers. similar barriers were observed in a study among nurses at University College, hospital, Ibadan, Nigeria where fear of the result, lack of awareness of where the test could be done, and not knowing about the test were identified (Jones, 2015). Evidence from a previous study show respondents were not aware of cervical cancer and were not utilizing the services (Urasa, and Djay, 2011). The major factors identified by the women were ignorance, illiteracy, belief in not being at risk, having many contending issues, nonchalant attitude to their health, financial constraint, and fear of having a positive result.

The result is also similar to the findings from a qualitative study of barriers to cervical cancer screening among Muslim and Christian Nigerians (Isa et al., 2016). The barriers reported by the women were fear of results and lack of awareness. In another study, it was found that

personal barriers to screening included lack of awareness and the belief that cervical cancer is not predictable which shows a lack of knowledge of cervical cancer (Nguyen, 2011; Urasa and Djay, 2011). The results of a study among college students in Ghana showed that the screening rate was as low as 12% and that women were unaware of local screening initiatives (US Preventive Services Task Force, 2012; Abu, and Arun, 2020). The major barriers identified were lack of awareness of the purpose of the pap test, concerns about what others think, and lack of information about how to obtain screening services. It was found that the most common reason for not participating among nurses in Tanzania was 'not knowing where to go for the test (WHO, 2014).

Barriers among at Vietnam included not understanding what is done during a pap test, being scared to know having cervical cancer; taking a pap test is an embarrassment; nonavailability of doctors at convenient times; belief that there is no need for a pap test when feeling well; and being confident in getting a test (Sedigheh, 2012). The most common reason for not assessing Pap smear screening services found in a similar study was the perception that the subjects were not at risk of the disease (Nnewi Advancement Charity UK, 2008). The issue of fear of result is transcultural and spans across different countries because many studies done on this topic in other areas have identified it as a major barrier. So far, according to the studies in Nigeria, the barriers common among women are lack of awareness about pap tests and fear of results. For other countries in addition to lack of awareness are the unpredictability of cervical cancer and concerns about what others think.

The study revealed that there is a positive relationship between perceived barriers and the practice of cervical cancer screening which implies that the higher the scores (higher scores represent low perception), the more likely the respondents are to practice the screening. In other words, the lower the perceived barriers, the higher the uptake of screening. This finding is in line with the postulations of the construct, perceived barrier under the health belief model. The barrier with the greatest magnitude of relation was 'not knowing what pap test is' and this is capable of masking other barriers because the women would not perceive barriers to something they are ignorant of. This finding agrees with the findings of another study where a significant relationship was found between perceived barriers and screening uptake (World Health Organization, 2014).

Limitations of the study

The limitation encountered was skepticism of people towards answering the questionnaire and the topic itself seemed to scare them due to the word 'cancer'. So, not all who were eligible accepted to participate in the study thereby extended the period of data collection. The study is quantitative in design and the instrument used was not able to capture all the belief-related factors that could result in low practice. There could be other barriers that were not contained in the instrument used in the study.

Ethical Consideration

Ethical permit was obtained from the Health Research Ethics Committee of the University of Nigeria Teaching Hospital Ituku-Ozalla. Before the collection of data, each prospective participant was informed of the nature of the study and its purpose, and utmost confidentiality was assured. It was also made clear that they can withhold consent at any time during the study and that they will not suffer any adverse consequences for declining to participate. Participants who gave verbal consent were included in the study.

In conclusion, the barriers are surmountable and could be addressed at the grass-root level. For conditions such as this, health promotion is the key to tackling it. Evidence from the research shows an informational gap in issues of cervical cancer. An issue as grim as cervical cancer should be popular among women, however, they are not familiar with it. Therefore, repurposing primary health care functions to take prevention roles as seriously is essential.

Author Contribution Statement

Every author listed here has contributed substantially to the making of this paper and have consented to this publication. Specifically, each author contributed as follows:

Chinenye Ubah- conceptualization, data collection, and data analysis; Prof. Ada Nwaneri- methods, review and editing; Prof Anarado - data collection, discussion; Dr Peace Iheanacho – data collection, review, and editing; Dr Linda Odikpo- validation, data collection, review, and editing.

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Conflicts of interests

No conflict of interest.

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