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PROSTATE CANCER SCREENING UPTAKE AMONG SECONDARY SCHOOL TEACHERS IN AKWA IBOM NORTH EAST SENATORIAL DISTRICT, NIGERIA

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Keyword: *Correlates of prostate cancer screening uptake, affordability of screening, availability of screening facilities and secondary school teachers*

Abstract: *The study investigated the relationship of prostate cancer screening uptake among secondary school teachers in Akwa Ibom North East Senatorial District, Nigeria. Two research questions and two hypotheses were formulated to guide the study. The study adopted a correlational research design. The population of the study comprised all the 2,006 male teachers from the 86 public secondary schools in Akwa Ibom North East Senatorial District. A sample size of 334 male teachers which represents 20 percent of the study population was selected using a multi-stage sampling procedure. For the study, the instrument titled: Correlates of Prostate Cancer Screening Uptake among Teachers Questionnaire (CPCSUTQ)" was used for data collection. This questionnaire was constructed based on the four-point rating scale as follows: Strongly Agree (SA) 4, Agree (A) 3, Disagree (D) 2, Strongly Disagree (SD) The respondents were asked to indicate by ticking (√) the extent to which they agree or disagree with the statements under the variables being studied. The instrument was validated by the experts to assess its face and content validity. To establish the reliability of the CPCSUTQ questionnaire, Cronbach's Alpha reliability technique was used. The overall reliability index for the instrument stood at 0.79 for independent variables and 0.82 prostate cancer screening uptake respectively. The questionnaire was administered on the respondents in their respective schools by the researcher together with two research assistants who were duly trained and informed. Data generated were analysed using Pearson Product Moment Correlation (PPMC) statistics using Statistical Package for Social Science (SPSS) software (version 25). The result obtained from the data analysis indicated that there is a significant relation of prostate cancer screening uptake among secondary school teachers in Akwa Ibom North East Senatorial District, Nigeria. The study recommended that health care providers should always educate the male populace about prostate cancer screening procedure and early diagnosis, as this will help the male teachers acquire knowledge, skill and understanding of the needfulness of prostate cancer screening.*

Introduction

The prevalence of prostate cancer have been receiving a deal of attention in the society in recent time. Prostate is a walnut sized gland which is part of the male reproductive system. It is located beneath the urinary bladder and in

front of the rectum. The function of the prostate is to produce fluid which nourishes and protects sperm cells in the semen. According to Young *et al.* (2015), the activity and growth of the prostate is regulated by a hormone called androgen (testosterone) produced by the testicles. The symptoms of prostate cancer include urinary problems, blood in urine, pain in the hips, groin, pelvis, spine, and difficulty in urinating and when ejaculating. Prostate cancer has seriously affected the life of most male populace particularly in Africa. World Health Organization (WHO, 2017) reported that Nigeria is one of the African countries with the highest incidence of prostate cancer among men.

Dawan (2010) described prostate cancer as cancer of the prostate gland, a small gland in men that is located below the urinary bladder and above the rectum. The prostate produces fluids that helps carry spermatozoa during ejaculation. As observed by Desousa *et al.* (2012) prostate cancer is characterized by both physical and psychological symptoms. Depression, anxiety, stress, fatigue, pain, and psychosocial factors all affect the patient with prostate cancer. Impotence, erectile dysfunction, sexual issues and incontinence are also present in these patients. The American Cancer Society (2018) reported that prostate cancer occurs in men between the ages of 40 to 60 years. As noted by Bloom *et al.* (2010), prostate cancer rates are 50 percent higher in African-American men as compared to among European-American men. Related mortality rates are twice as high among African American men as compared to among European-American men. The authors added that African men are at high risk of getting prostate cancer because of their inability to seek proper health care due to factors like poor financial status, lack of encouragement from household members among others.

Prostate cancer is a group of cancerous cells that begin most often in the outer part of the prostate. It is the development of cancer in the prostate gland in the male reproductive system. According to the National Cancer Institute (NCI, 2018), over 1.3 million new cases of prostate cancer occur in the world, with 20 countries having the highest rate of prostate cancer in 2018 till 2020. Most of the prostate cancers are slow growing while some others grow relatively faster. The cancer cells may spread from the prostate to other parts of the body particularly the bones and lymph nodes. In many African countries, Ferlay *et al.* (2013) noted that prostate cancer is the second leading cause of cancer death among men. Age adjusted incidence rates of prostate cancer have increased dramatically and this is largely because of the increased availability of screening measures for prostate specific antigen (PSA) in men without symptoms.

Prostate cancer has serious affected the life of most male populace particularly in Africa. According to Ogundele and Ikuerowo (2015), Nigeria is one of the African countries with the highest incidence of prostate cancer among men.

It occurs in men between ages 40-69 years. Also, the World Health Organization (WHO, 2017) revealed that out of top 10 countries of the world with the disease, Nigeria is ranked as the 3rd highest with total death of 13,700 yearly, after US and India with 35,300 and 18,200 deaths respectively. This shows that Prostate Cancer (PC), an adenocarcinoma of the male prostate gland, is increasingly becoming an important health burden among men in Nigeria. The most worrying part is that it may initially cause no symptoms at the early stage, but in later stages, it may cause difficulty in urinating, blood in the urine, or pain in the pelvis. This makes prostate cancer one of the most dangerous diseases confronting men as they approach ageing.

Prostate cancer is a condition in which cells accumulate uncontrollably, the ability to regulate cell growth or death is lost, so instead of dying as they should, prostate cancer cells live longer than normal cells and form masses of abnormal cells known as tumors. Prostate cancer is fraught with both physical and psychological symptoms. Depression, anxiety, stress, fatigue, pain and psychosocial factors all affect the patient with prostate cancer. Impotence, erectile dysfunction, sexual issues and incontinence in these patients complicate matters further. According to Sharpley, *et al.* (2014). depression in prostate cancer is associated with men experiencing a loss of masculine identity, fatigue and pains. Kolade *et al.* (2017) and Adewoyin *et al.* (2018) in a study reported that knowledge of screening procedure among male civil servants significantly determined their involvement in prostate cancer screening and treatment of the disease.

Treatment modalities for prostate cancer are complex, and the diagnosis of untreated or inadequately managed cases is often usually poor, especially in developing countries like Nigeria, considering the high cost of medication and surgical intervention required to treat patients with a diagnosed condition. Thus, measures for controlling onset of prostate cancer and even other cancers is screening. As observed by Atulomah *et al.* (2010), prostate cancer screening among men has value in predicting how individuals are likely to respond if an intervention is designed to stimulate screening behaviour among men through innovative health promotion activities. Screening is aimed at diagnosing disease at an early state before symptoms start. This makes cancer easier to treat and is likely to be curable. Oladimeji *et al.* (2010) stated that three tests are commonly used for prostate cancer screening, that is, Digital Rectal Examination (DRE) and Prostate Specific Antigen (PSA) tests, or through biopsy, where a sample of prostate gland tissue is taken for histological examination, yet most men find it difficult to seek for screening at early stage.

Affordability of screening may also influence prostate cancer screening uptake of male teachers. The quality of lives for prostate cancer patients is determined by the cost of patients care. Especially in developing countries like

Nigeria where the cost of medication and surgical intervention required to treat patients with a diagnosed condition is exorbitant, Terwase *et al.* (2014) noted that the male workers in Nigeria usually show negative attitude towards prostate cancer screening uptake. This shows that an individual may have knowledge of screening and early diagnosis, but the perceived cost of prostate cancer screening in the health care system may deter any effort made towards seeking for proper screening uptake.

Expenditures on health are increasing worldwide and households often find it difficult in meeting medical attentions in health facility. Out-of-pocket expenses has become a major funding option of healthcare services, yet many live below the poverty line, earning less than US $ 1.00 per day (WHO, 2008). Treatment modalities for prostate cancer are proofing difficult, and the prognosis of untreated or inadequately managed cases is often usually poor especially in developing countries. Marks (2009) attributed this to the high cost of medication and surgical interventions required to treat patients with a diagnosed condition. According to the World Health Organization (WHO, 2008), about thirty percent of cancers are curable if detected early while thirty percent of cancer are treatable with prolonged survival if detected early; and thirty percent patients can be provided with symptom's management and palliative care if they have the finance to seek for proper health. This shows that the cost for medication and screening cancer may deter some people to go for early diagnosis of cancer.

The affordability of health services to a large extent is determined by the cost of the treatment. According to Onoka *et al.* (2011), financial cost of treatment highly affects the utilization of health care services by male populace. The authors further described cost as the amount needed to receive medical attention and the cost for any medicines or other complements required for treatment. The monetary expenditure on transportation, fees for medical services, and the cost of drugs and other complements have been found to have complex and sometimes unexpected effects on demand for services. In some developing countries like Nigeria, any money spent on travelling to a medical facility is a small part of the total real cost (cash price plus time costs) of transportation because, in such countries, most transportation to health services is by foot or on bicycle. As observed by Attah (2009) the high monetary cost of receiving medical services is singled out as a major obstacle to the utilization of health services, as most male workers seems not to be able to afford. This means that the effect of the monetary cost of the service itself on utilization is even more complex than the cost of transportation. In one of the studies conducted by Attah (2009) the author found a devastating effect of fee increases on the utilization of a public sector health facility by both male and female populace. This also

seems to affect male teachers' uptake of prostate cancer screening.

Russel (2014) averred that from a wide range of developing countries including Nigeria, cost of screening and other medical services in public primary health care facilities are only theoretically free. In practice, widespread corruption and bribery among the health service personnel makes the cost of such services much more expensive than they appear to be. Attah (2009) added that health personnel had demanded unofficial payment for free services. Such unofficial fees have been shown to deter utilization of health care facility services particularly when the amount of money spent far exceeds the legitimate charges.

Availability of screening facilities may likely influence prostate cancer screening uptake among male teachers. According to Atulomah *et al*. (2010), the physical presence of screening facilities which include the general structural establishment and supply, and availability of equipments for screening of disease such as prostate cancer are very essential since at a very basic level, screening facilities need to be available in order for people to receive treatments. In some developing countries, health agencies do conduct periodic free screening for prostate issues. For instance, Akinremi *et al*. (2014) noted that in some African countries like Kenya, Ghana, South Africa and even in Nigeria, health agencies do conduct free community health programme for prostate cancer using the common parameters of prostate-specific antigen (PSA) plus digital rectal examination (DRE). The structure, equipments and machinery used by health facilities for screening of prostate and other screening purposes has to be functional and attractive for efficient conduct of health exercise. When the screening facilities are available, conducive and found in good shape, Olarewaju *et al*. (2020) noted that such condition will motivate those who suffer prostate cancer to be willing to go for screening uptake.

In healthcare delivery, availability shows the number of health resources that are ready to be used by patients; for instance, the number of specialist services, physicians, and healthcare facilities (Penchansky and Thomas, 2010). This dimension is within the control of the government, planners and decision makers in the health sector who ensure the availability of screening facilities, general practice doctors, surgeons, nurses, dentist and medical laboratory scientists. Effective planning for equitable screening facility requires the knowledge of facility to patient ratio, physician to population ratio, nurses to population ratio, midwives to female population ratio. Sometimes it might be important to know the ratio of essential screening facility equipment to a target population. In locations that are prone to an outbreak of diseases, the ratio of screening facilities to the population is very vital in the plan for future outbreaks. According to Peters (2008), some health services do not operate throughout

the day, availability goes beyond the density of facilities and health personnel to include opening time, waiting times and material.

Availability of screening facilities is of paramount importance to victims of prostate cancer. It is believed that when screening facilities are available and equitably distributed with quality equipment, those living with illnesses would want to improve their health by visiting the facilities for quality living (Rizyada, 2012). Screening facilities could be described as highly available when public, private, non-governmental and community-based health facilities are provided for general health care. As explained by Shrestha (2010), screening facilities are those physical structures and supporting equipment established for provision of health services. It usually involves a structure with facilities for different health service needs, equipment such as cold chain facilities for storage, management and use in the provision of health services to the population.

Three health structures are supposed to provide remedies to people's illnesses. These are primary, secondary and tertiary health institutions. Primary Health Care (PHC) by policy arrangement is within the purview of Local Government, based on the residual operation of Local Government Authority. Primary health structures are unarguably the first point of call for the sick and injured persons. They undertake mild healthcare cases like treatment for malaria, fever, cold, nutrition disorder, among others. They are especially for milder health problems and health education. They also handle infant, maternal and pregnancy matters. The present study sought therefore to investigate correlates of prostate cancer screening uptake among secondary school teachers in Akwa Ibom North East Senatorial District.

Purpose of the Study

The major purpose of the study was to examine correlates of prostate cancer screening uptake among secondary school teachers in Akwa Ibom North East Senatorial District, Nigeria. Specifically, the study seeks to determine the relationship between:

i. Affordability of screening and prostate cancer screening uptake among secondary school teachers in Akwa Ibom North East Senatorial District.
ii. Availability of screening facilities and prostate cancer screening uptake among secondary school teachers in Akwa Ibom North East Senatorial District.

Research Questions

The following research questions were formulated to guide the study:

i. What is the relationship between affordability of screening and prostate cancer screening uptake among secondary school teachers in Akwa Ibom North East Senatorial District?
ii. What relationship exists between availability of screening facilities and

prostate cancer screening uptake among secondary school teachers in Akwa Ibom North East Senatorial District?

Research Hypotheses

The following research hypotheses have been formulated to guide the study:

i. Affordability of screening does not have any significant relationship with prostate cancer screening uptake among secondary school teachers in Akwa Ibom North East Senatorial District.
ii. Availability of screening facilities does not have any significant relationship with prostate cancer screening uptake among secondary school teachers in Akwa Ibom North East Senatorial District.

Design of the Study

The study adopted a correlational research design. The population of this study comprised all the 2,006 male teachers from the 86 public secondary schools in Akwa Ibom North East Senatorial District. A sample size of 334 male teachers which represents 20 percent of the study population was selected using a multi-stage sampling procedure. For the study, the instrument titled: Correlates of Prostate Cancer Screening Uptake among Teachers Questionnaire (CPCSUTQ)" was used for data collection. This questionnaire was constructed based on the four-point rating scale as follows: Strongly Agree (SA) 4, Agree (A) 3, Disagree (D) 2, Strongly Disagree (SD) The respondents were asked to indicate by ticking (√) the extent to which they agree or disagree with the statements under the variables being studied. The instrument was validated by the experts to assess its face and content validity. To establish the reliability of the CPCSUTQ questionnaire, Cronbach Alpha reliability technique was used. The overall reliability index for the instrument stood at 0.79 for independent variables and 0.82 prostate cancer screening uptake respectively. The questionnaire was administered on the respondents in their respective schools by the researcher together with two research assistants who were duly trained and informed. Data generated were analysed using Pearson Product Moment Correlation (PPMC) statistics using Statistical Package for Social Science (SPSS) software (version 25).

Results

The results of this study are presented based on research questions and hypotheses.

Research Question 1

What is the relationship between affordability of screening and prostate cancer screening uptake among secondary school teachers in Akwa Ibom North East Senatorial District?

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Table 1: Correlation analysis of responses between affordability of screening and prostate cancer screening uptake among secondary school teachers

Variables	N	∑x ∑y	∑x² ∑y²	∑xy	r-value	Remark
Affordability of Screening (x)	334	6986	56211			
				57924	0.66	High Positive Relationship
Prostate Cancer Screening Uptake (y)	334	6605				
			57136			

Source: Field data (2021)

Result in Table 1 reveals a correlation value of 0.66. From the decision rule, it is seen that a high positive relationship occur between affordability of screening and prostate cancer screening uptake among secondary school teachers in Akwa Ibom North East Senatorial District. The implication of this result is that male teachers may likely ignore any effort towards seeking prostate cancer screening uptake due to perceived affordability of screening in the health care system.

Research Question 2

What relationship exists between availability of screening facilities and prostate cancer screening uptake among secondary school teachers in Akwa Ibom North East Senatorial District?

Table 2: Correlation analysis of responses between availability of screening facilities and prostate cancer screening uptake among secondary school teachers

Variables	N	∑x ∑y	∑x² ∑y²	∑xy	r-value	Remark
Availability of Screening Facilities (x)	334	6539	53461			
				69954	0.58	High Positive Relationship
Prostate Cancer Screening Uptake (y)	334	6605				
			57136			

Source: Field data (2021)

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Result in Table 2 reveals a correlation value of 0.58. From the decision rule, it is seen that a high positive relationship exists between availability of screening facilities and prostate cancer screening uptake among secondary school teachers in Akwa Ibom North East Senatorial District. The implication of this result is that male teachers will likely be willing to undertake prostate cancer screening if screening facilities are adequately available with good shape and vice versa.

Hypothesis 1

Affordability of screening does not have any significant relationship with prostate cancer screening uptake among secondary school teachers in Akwa Ibom North East Senatorial District.

Table 3: Pearson Product Moment Correlation analysis affordability of screening and prostate cancer screening uptake among secondary school teachers

Variables	N	∑x ∑y	∑x² ∑y²	∑xy	r-value	r-crit	Decision
Affordability of Screening (x)	334	6986	56211				
				57924	0.66*	0.194	Rejected H_o
Prostate Cancer Screening Uptake (y)	334	6605	57136				

* Significant; P<.05; df = 332; critical r = 0.194 , Source: Field data (2021)

Table 3 shows that the calculated r- value of 0.66 exceeds the critical value of 0.194 at the degree of freedom of 332 and at .05 significant levels. Hence, the null hypothesis is rejected, while the alternate hypothesis is retained. This means that there is a significant relationship between affordability of screening has significant relationship with prostate cancer screening uptake among secondary school teachers in Akwa Ibom North East Senatorial District.

Hypothesis 4

Availability of screening facilities does not have any significant relationship with prostate cancer screening uptake among secondary school teachers in Akwa Ibom North East Senatorial District.

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Table 4: Pearson Product Moment Correlation analysis between availability of screening facilities and prostate cancer screening uptake among secondary school teachers

Variables	N	∑x ∑y	∑x² value ∑y²	∑xy	r-value	r-crit	Decision
Availability of Screening Facilities (x)	334	6539	53461				
				69954		0.194	Rejected
			0.58*			H_0	
Prostate Cancer Screening Uptake (y)	334	6605					
			57136				

* Significant; P<.05; df = 332; critical r = 0.194

Table 4. shows that the calculated r-value of 0.58 exceeds the critical value of 0.194 at the degree of freedom of 332 and at .05 significant levels. Hence, the null hypothesis is rejected, while the alternate hypothesis is retained. This means that availability of screening facilities has significant relationship with prostate cancer screening uptake among secondary school teachers in Akwa Ibom North East Senatorial District.

Findings

The findings of the study are presented according to the research questions answered and null hypotheses tested.

i. Affordability of screening has a high positive relationship with prostate cancer screening uptake among secondary school teachers in Akwa Ibom North East Senatorial District.
ii. Availability of screening facilities has a high positive relationship with prostate cancer screening uptake among secondary school teachers in Akwa Ibom North East Senatorial District.
iii. Affordability of screening has a significant relationship with prostate cancer screening uptake among secondary school teachers in Akwa Ibom North East Senatorial District.
iv. Availability of screening facilities has a significant relationship with prostate cancer screening uptake among secondary school teachers in Akwa Ibom North East Senatorial District.

Source: Field data (2021)

Discussion of Findings

The researcher made a combined discussion of results gotten from the research questions and their corresponding hypotheses.

Affordability of Screening and Prostate Cancer Screening Uptake among Secondary School Teachers

Result from research question one and hypothesis one revealed that affordability of screening has a high positive and significant relationship with prostate cancer screening uptake among secondary school teachers in Akwa Ibom North East Senatorial District. This finding is in agreement with the finding of the study conducted by Okoronkwo *et al*. (2015), which showed that majority of male workers were found to ignore going for prostate cancer screening due to affordability of screening. Also, this finding is in consonance with that of Obieche and Odili (2016), who found among other things that, cost of screening, was a major hindrance to male staff involvement in screening of prostate cancer.

This finding is corroborating that of Anumudu *et al*. (2009). The authors found that most males particularly in developing countries like Nigeria have been unable to incur out-of-pocket payment for screening of cancer related diseases due to high cost of treatment. This is due to economic hardship and unequal distribution of income. Therefore, it is observed from the finding that the inability of male teachers to afford the cost of screening could influence prostate cancer screening uptake.

Availability of Screening Facilities and Prostate Cancer Screening Uptake among Secondary School Teachers

Result from research question two and hypothesis two revealed that availability of screening facilities has a high positive and significant relationship with prostate cancer screening uptake among secondary school teachers in Akwa Ibom North East Senatorial District. This finding is in agreement with the finding of the study conducted by Ajuba and Wash (2016), who found that availability and location of physical screening facilities or infrastructure had significant influence on people's tendency of seeking for quality health. This corroborates the finding of Adewoyin *et al*. (2018), that unavailability of screening facilities discourage most people from going for screening. Adebayo and Oladeji (2009) added in their initial finding that with the limited number of screening facilities available in the rural outskirts as well as professional health workers, most males particularly in the rural areas are always reluctant of going for prostate cancer screening since the facilities are not available for their prompt visit. Therefore, it is observed from this finding that availability of screening facilities is a significant determinant of prostate cancer screening uptake among male workers.

Conclusion

Based on the findings of the study, the following conclusions were drawn.

Affordability of screening has significant association with prostate cancer screening uptake among male teachers. Their perceived cost of screening has the tendency of influencing their prostate cancer screening uptake. Availability of the screening facilities has significant relationship with prostate cancer screening uptake among male teachers. When screening facilities are available and found in good shape, male teachers would be encouraged to seek for screening of prostate.

Recommendations

Based on the findings of the study, the following recommendations are made:

i. The cost of screening and other health services should be made affordable, available and accessible for male teachers to always respond for prostate screening.
ii. Federal and State Ministries of Health should ensure that screening facilities are equitably distributed to both rural and urban areas.
iii. Akwa Ibom State Ministry of Health should ensure that screening facilities are built in close proximity (distances not too far from access) so that male teachers as well as male staff working in other institutions can easily access and receive proper screening of prostate.
iv. Health care personnel and religious organization should always enlighten the male populace on benefits of seeking formal health care instead of accepting any available alternative treatment of cancer including that of prostate.

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