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AN ASSESSMENT OF AWARENESS LEVELS AND HEALTHCARE CHALLENGES AMONG PROSTATE CANCER PATIENTS IN SELECTED TERTIARY HOSPITALS IN IMO STATE

Okoro I. L.[1*], Dozie U. W.[1], Uzoma F.C.[1], Izuchukwu C. B.[1], Iwuoha G.[1], and Orji S. M.[1]

[1]Federal University of Technology, Owerri

[*]**Corresponding author:** ifeanyiluke2@gmail.com

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Abstract

Among older men, prostate cancer is a main contributor to morbidity and death. This study evaluated patients with prostate cancer in particular tertiary hospitals in Imo State, Nigeria, regarding awareness and healthcare difficulties. With a sample size of 261, sociodemographic and socioeconomic data were gathered using a hospital-based, cross-sectional, and descriptive survey involving structured questionnaires. Analysis proceeded using descriptive statistics, with the Statistical Package for the Social Sciences (SPSS) Version 25.0 employed. Findings from the results show that most participants, 104(39.8%), were between the ages of 60 and 69; 244(93.5%) were married; 141(54.0%) had tertiary education, indicating a high level of education. Only 24(9.2%) had high awareness, while 240(92.0%) had heard of prostate cancer, and 216(82.8%) identified the PSA test. It was also seen that the distance to facilities and the financial burden of 200 (76.6%) were the main obstacles to healthcare. While difficulties in obtaining care were associated with occupation, income, and housing, awareness was much associated with age, marital status, and education ($P < 0.05$). Though the general awareness level was moderate at 66%, in-depth knowledge was limited. Cost and geographic accessibility are two major obstacles to care that still prevent efficient management. These results highlight the need for focused awareness campaigns, care subsidies, and better health facilities, particularly for Imo State's elderly and low-income communities.

Keywords: Prostate cancer, awareness, healthcare barriers, PSA test, Nigeria, socioeconomic factors.

Introduction

Prostate cancer is a malignant condition that affects the prostate gland and is often referred to as adenocarcinoma of the prostate (Dozie et al., 2022). The prostate is a small, approximately 20-gram fibromuscular gland located within the male reproductive system (Pita, 2023). Anatomically, it runs anterior to the rectum, below the bladder, above the perineal membrane, and behind the pubic symphysis (Singh & Bolla, 2023). Its main purpose is to generate and secrete proteolytic enzymes into semen, enhancing sperm motility and fertilization (Leslie, Soon-Sutton, & Khan, 2024).

Prostate cancer is a major public health concern worldwide, particularly among men aged 40 years and above, due to its increasing incidence, high mortality rate, and substantial treatment costs (Anaba, Necku, & Abile, 2022; Ariyo, Abiodun, Daramola, Ikeh, & Babalola, 2024). It is now recognized as the second most common type of cancer affecting men globally (Rawla, 2019; Morlando, Pelullo, & Di Giuseppe, 2017). Prostate cancer was responsible for about 1,276,106 cases and 358,989 deaths worldwide in 2018, according to statistics. These figures rose to 1,414,259 cases and 375,304 deaths by 2020, underscoring the critical need for increased awareness, early detection, and intervention initiatives (Wang et al., 2022).

Cancers affecting men, especially prostate cancer, are frequently overlooked in Nigeria, whereas cancers like breast and cervical cancer in women receive a lot of attention (Adibe, Aluh, Isah, & Anosike, 2017). The lack of organized prostate cancer screening and prevention initiatives may be the cause of this discrepancy in awareness. Due to a lack of public health initiatives, Ezeama and Enwereji (2023) observed that prostate cancer screening awareness is still low in many communities.

Regular screening is essential because early-stage prostate cancer usually shows no symptoms. Later on, symptoms like hesitancy, nocturia, hematuria, dysuria, and weak or interrupted urine flow can resemble those of benign prostate conditions. In more advanced cases, bone metastases may also be present, causing rib, back, or hip pain (Rawla, 2019). The Digital Rectal Examination (DRE) and the Prostate-Specific Antigen (PSA) blood test are the most popular screening techniques. According to Gift et al. (2020a), the PSA reference range in Nigeria is currently regarded as being between 0 and 4 ng/ml. Few studies have looked at men's knowledge of prostate cancer, their health-seeking behaviors, and the difficulties they face in accessing care, despite the disease's increasing prevalence in Nigeria, especially in Imo State. According to research by Maladze et al. (2023), underdiagnosis as a result of low awareness and inadequate healthcare infrastructure may be the cause of the lower incidence rates recorded in developing nations.

Men in Imo State often lack sufficient knowledge about prostate cancer and may not recognize the early warning signs (Nwagwu, Ibebuike, & Nwokike, 2020). This leads to delays in diagnosis and treatment. Health-seeking behavior is significantly influenced by factors such as socioeconomic status, cultural beliefs, and access to healthcare services. It is closely linked to the health status of a nation and its economic development (Latunji & Akinyemi, 2018). Designing effective health education and intervention programs requires an understanding of these influences.

A six-month study using hospital records (December 2023 to May 2024) was conducted to identify the socio-demographic factors influencing prostate cancer awareness and assess the level of awareness about prostate cancer among patients and the specific challenges they

face in these facilities. The findings of this study will be used to inform targeted awareness campaigns, guide healthcare policy development, support care subsidies, and improve healthcare infrastructure in a bid for improvement in early detection and management of prostate cancer among men in Imo State. The Federal University Teaching Hospital, Owerri, and Imo State University Teaching Hospital, Orlu, are two major tertiary healthcare institutions in Imo State that serve diverse populations and offer an appropriate setting for investigating healthcare issues related to prostate cancer.

Materials and Methods

Study Design

This study employed a descriptive cross-sectional survey design with a prospective approach to assess prostate cancer awareness and the challenges faced by patients in selected tertiary hospitals in Imo State. The research aimed to identify socio-demographic factors influencing awareness and identify challenges patients face in accessing diagnosis, treatment, and care. The prospective and descriptive nature of the study ensured the generation of valid and representative data to inform improved healthcare outcomes, enhance patient care, and advance medical knowledge in hospital settings.

Area of Study

The study focused on Imo State University Teaching Hospital (IMSUTH), Orlu, and Federal University Teaching Hospital, Owerri (FUTH). IMSUTH, located in the Umuna Orlu Local Government Area of Imo State, is a tertiary hospital that provides medical care to residents and neighboring states. Established in 2004, it serves as a top referral facility for Imo State University's College of Medicine and Health Sciences. FUTH, located in Owerri Municipal Council, the capital of Imo State, serves as a major tertiary health institution for managing health conditions and training medical students in basic medical sciences. The hospitals have several offices, wards, and clinics, providing the necessary number of participants for the investigation (Nkwopara, 2020).

Study Population

The study population comprised men aged 40 years and above who visited for Prostate cancer diagnosis within the six months of this study at Imo State University Teaching Hospital, Orlu, and Federal University Teaching Hospital, Owerri, all in Imo State, as seen in Table 1. The study population consists of 749 men, all of whom were obtained from both hospitals' records.

Table 1: Study Population from both Hospitals Records

MONTHS	IMSUTH, ORLU	FUTH, OWERRI
DECEMBER	1	96
JANUARY	4	185
FEBRUARY	1	36
MARCH	2	135
APRIL	3	81
MAY	2	203
TOTAL	13	736
Study Population	749	

Source: Both Teaching hospital records for the past six months (December 2023-May 2024).

Inclusion Criteria

The study includes and is limited to men aged 40 years and above who attended Imo State University Teaching Hospital, Orlu, and Federal University Teaching Hospital, Owerri, for the last six months

(December 2023-May 2024), who came for diagnosis, and those already diagnosed with prostate cancer.

Exclusion Criteria
This study excludes male patients who are below 40 years of age who attend the hospital facilities.

Sample Size and Sampling Methods
Sample Size Calculation
The sample size was calculated using Taro

$$n = \frac{N}{1+N(e)2}$$

Yamane's formula.
A simplified formula to calculate sample size (Yamane, 1967), where:
(n) = sample size

(N) = population size

(e) = desired margin of error (as a proportion, typically between 0 and 1)
Given:
Population size (N) = 749
Desired margin of error (e) = 0.05

$$n = \frac{749}{1+749\ (0.05)^2}$$

$$= \frac{n \quad \frac{749}{1+749\,(0.0025)}}{\frac{749}{1+749\,(0.0025)}}$$

$$n = \frac{749}{1+1.8725}$$

$$n = \frac{749}{2.8725}$$

n = 260.748,

n = 261

So, according to Taro Yamane's formula, the sample size required was approximately 261. Since we can't have a fraction of a person, round up to the nearest whole number, giving a sample size of 261.

Sampling Methods

A multistage sampling technique was adopted for this study to assess the level of awareness and challenges faced by prostate cancer patients in the selected tertiary hospitals in Imo State. The first stage involved the selection of tertiary hospitals in Imo State. There are three tertiary healthcare facilities in the state: Imo State Specialist Hospital and Imo State University Teaching Hospital, run by the state government, and the Federal University Teaching Hospital, Owerri, which is controlled by the federal government.

Two (2) out of the three (3) tertiary hospitals in Imo State were selected by the researcher using simple random sampling via balloting. The two hospitals selected were Imo State University Teaching Hospital, Orlu, and Federal University Teaching Hospital, Owerri.

The second stage was the collection of data from the hospitals' record unit during the six-month duration of this study, showing the population of patients who came for diagnosis and the number who were diagnosed after getting approval from their various ethical committees.

The third stage was the selection of patients within selected hospitals, by identifying all patients diagnosed with prostate cancer. Since the number of patients diagnosed was not large, we selected all the patients diagnosed with prostate cancer (census sampling) and those who came for treatment, after identifying potential patients, and randomly selected the desired number of patients from each hospital and administered the questionnaire to them every visiting day until the sample size was met for both hospitals.

Instruments for Data Collection
Secondary data collection was first used to gather data from respective hospital records. The Primary instrument for data collection was a self-administered

questionnaire, which was divided into three sections(A-C). Section A is for the socio-demographic information of the respondents. Section B is for the awareness and knowledge of the respondents. Section C is for challenges influencing the choice of health care providers.

Validity of Instruments

The questionnaire, as the instrument of data collection, was developed by the researcher and submitted to the project supervisor for proper scrutiny to ensure that the questionnaire met the objectives of the study before the distribution of 10 questionnaires for reliability testing.

Reliability of Instruments

The test-retest method was used to test the reliability of the questionnaire. The questionnaire was initially administered to 10 subjects in a similar study population, Imo State Specialist Hospital, Umuguma, Owerri, close to Federal University Teaching Hospital, Owerri, which shares similar characteristics. The process was repeated two weeks later, and the results were scaled and compared for consistency testing using the Cronbach Alpha test. The Cronbach's alpha is expressed as a correlation coefficient, and 0.86 was obtained.

Method of Data Collection

Data was collected from the results obtained from both teaching hospital records of prostate cancer patients for the six months of study, and also from questionnaires obtained on different occasions after informed consent had been obtained. Most of the men were allowed to fill out the questionnaires themselves, except for the few uneducated individuals and those with sight challenges, for whom questions were read, explained, and translated into Igbo for easier understanding. Their responses were then filled out by the researcher. Each questionnaire took about 5-10 minutes to complete.

Method of Data Analysis

Data was collected and entered into a computer. The data was analyzed using the Statistical Package for the Social Sciences (SPSS) Version 25.0. Descriptive statistics were done using simple percentages and pie charts, were used to describe the basic participants' characteristics. Chi-square test was used to test the hypothesis of the study, and a P-value of less than 0.05 was considered for an association to be statistically significant.

Ethical Consideration / Informed Consent

A letter of introduction and ethical clearance was obtained from the Department of Public Health Ethical Clearance Committee, Federal University of Technology, Owerri, before the research was conducted. The Ethical Clearance Committee of Imo State University Teaching Hospital, Orlu, and Federal University Teaching Hospital, Owerri, approved the study after a careful review of the methodology. Thereafter, a letter for permission to conduct the study was written to the Heads of Departments and the Chief Medical Directors of the above-named tertiary hospitals. The approval letters allowed the researchers to carry out their activity without any hindrance. Verbal consent for voluntary participation was obtained from each respondent. Therefore, the anonymity of the respondents is maintained, and none of their names are mentioned in the course of this research. The researcher also took into consideration the fundamental principles of ethical research, which include justice, beneficence, and respect for human dignity.

Results

Table 2 below shows the socio-demographic characteristics of respondents, in which a total of 261 respondents participated in the study with a 100% response rate. The age distribution

Table 2: Socio-demographic Characteristics of study participants (n=261)

Variables	Categories	Frequency (N= 261)	Percentage(%)
Occupation	Civil servant	56	21.5
	Farmer	40	15.3
	Trader	48	18.4
	Retired civil servant	112	42.9
	Others	5	1.9
Monthly income	Below #50,000	112	42.9
	Between #50000-#100,000	104	39.8
	Above #100,000	45	17.3
Management of health care expenses related to prostate cancer	Government assistant programs	36	13.8
	Seeking assistance from charity organizations	6	2.3
	Self-funding through a health savings account	120	46.0
	Others	99	37.9
Satisfaction with health insurance coverage(n=61)	Yes	30	49.2
	No	31	50.8
Housing category	Own a house	136	52.1
	On renting	80	30.7
	Others	45	17.2

was predominant in the 60-69 age group (39.8%), followed by the 70-79 age group (21.5%). Men who are married also dominated, with 244 in number (93.5%), and the Highest level of education was tertiary, with 141 (54.0%).

The study reveals that 42.9% of participants were retired civil servants, followed by 21.5% civil servants, 18.4% trading, and 15.3% farming. The median monthly income was below ₦50,000, with 39.8% earning between ₦50,000 and ₦100,000. The majority of respondents managed their healthcare expenses through self-funding, with 37.9% using other methods. Government assistance programs and charity organizations were the least common. Housing was predominantly owned by 52.1% of participants, with 30.7% renting and 17.2% owning.

Table 4: Awareness and Knowledge of Respondents (N = 261)

Variables	Categories	Frequency(N=261)	Percentage(%)
Heard of prostate cancer			
	Yes	240	92.0
	No	21	9.0
Knowledge of prostate cancer			
	Very Knowledgeable	24	9.2
	Knowledgeable	176	67.4
	Not knowledgeable at all	61	23.4
A PSA test allows you to locate cancer before the symptoms occur.			
	Yes	216	82.80
	No	23	8.80
	No Idea	22	8.40
A risk factor for prostate cancer			
	High-fat diet	208	79.7
	Regular Exercise	8	3.1
	Mediterranean Diet	15	5.7
	No idea	30	11.5
A factor not associated with an increased risk of prostate cancer.			
	Smoking	8	3.1
	Age	40	15.3
	Consuming alcohol in moderation	24	9.2
	Regular physical activity	176	67.4
	No idea	13	5.0
A factor not linked to an elevated risk of prostate cancer.			
	Family history	40	15.3
	High-fat diet	39	14.9
	Regular consumption of green tea	128	49.0
	Older age	30	11.5
	No Idea	24	9.3
Risk factors for developing prostate cancer			
	Having multiple sexual partners	128	49.0
	Practicing safe sex	24	9.2
	Limiting alcohol intake	56	21.5
	Maintaining a healthy weight	21	8.0
	No idea	32	12.3
Age most common risk of developing prostate cancer			
	40-49 years	80	30.7
	50-59 years	48	18.4

Table 3: Socio-economic information of study participants (N=261)

Variables	Categories	Frequency (N= 261)	Percentage (%)
Age in Years	40-49	7	2.7
	50-59	47	18.0
	60-69	104	39.8
	70-79	56	21.5
	Above 80 years	47	18.0
Marital Status	Single	4	1.5
	Married	244	93.5
	Divorced	3	1.2
	Widowed	10	3.8
Highest level of education	No formal education	8	3.1
	Primary school	72	27.6
	Secondary school	40	15.3
	Tertiary education	141	54.0

	60-69 years	88	33.7
	70 years and above	40	15.3
	No idea	5	1.9
Prevent the onset of prostate cancer.			
	Meat	16	6.1
	Physical activity	160	61.3
	Fatty diet	8	3.1
	Having multiple sexual partners	40	15.3
	No idea	37	14.2
Frequency of men undergoing prostate cancer screening			
	Every year	176	67.4
	Every two years	16	6.1
	Every five years	24	9.2
	Only if experiencing symptoms	32	12.3
	Not sure	13	5.0

Table 4 above reveals that 92.0% of men have heard of prostate cancer, with 76.6% being knowledgeable about it. A high-fat diet is a risk factor, while regular physical activity is not. Green tea consumption is not linked to an increased risk. Multiple sexual partners and 60-69 years of age are the most at risk. Physical activity can prevent prostate cancer onset, and annual prostate cancer screenings are common. Overall, men's awareness and knowledge of prostate cancer are varied.

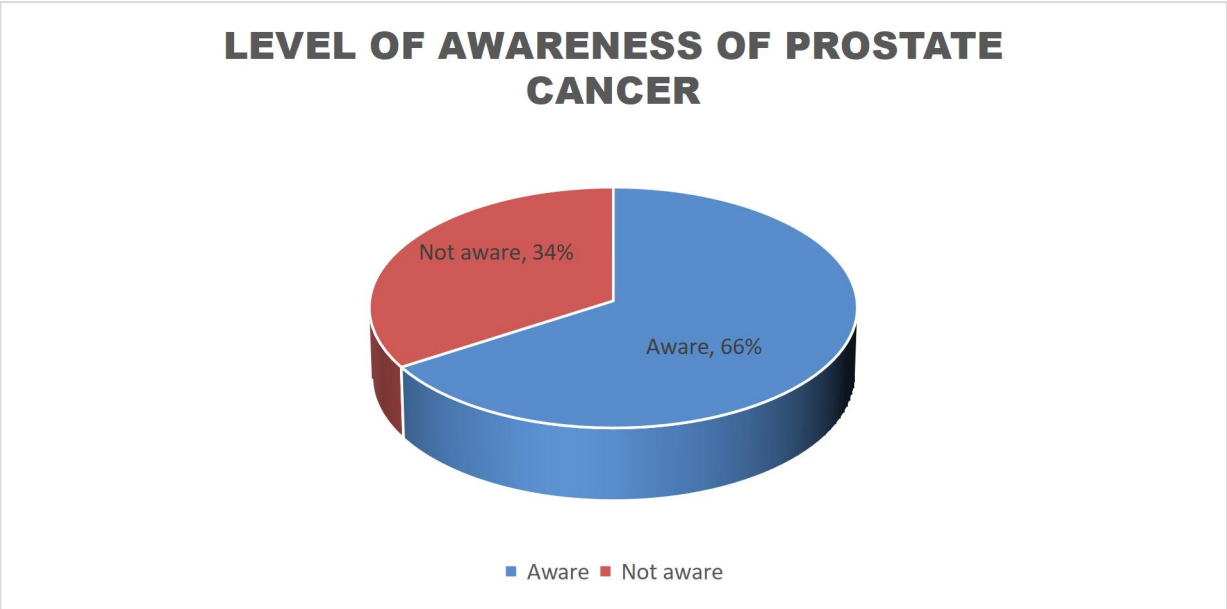


Figure 1: Level of Awareness of Prostate Cancer

The Figure 1 above shows respondents' awareness of prostate cancer, with 66% being moderately aware, with gaps in understanding less obvious risk factors and age risk, despite 34% not being aware

.

Table 5: Challenges influencing the choice of health care providers (N = 261)

Variables	Categories	Frequency (N=261)	Percentage(%)
Perception of the financial burden associated with prostate cancer care			
	Very high	144	55.2
	High	88	33.7
	Moderate	16	6.1
	Low	13	5.0
	Very low	-	-

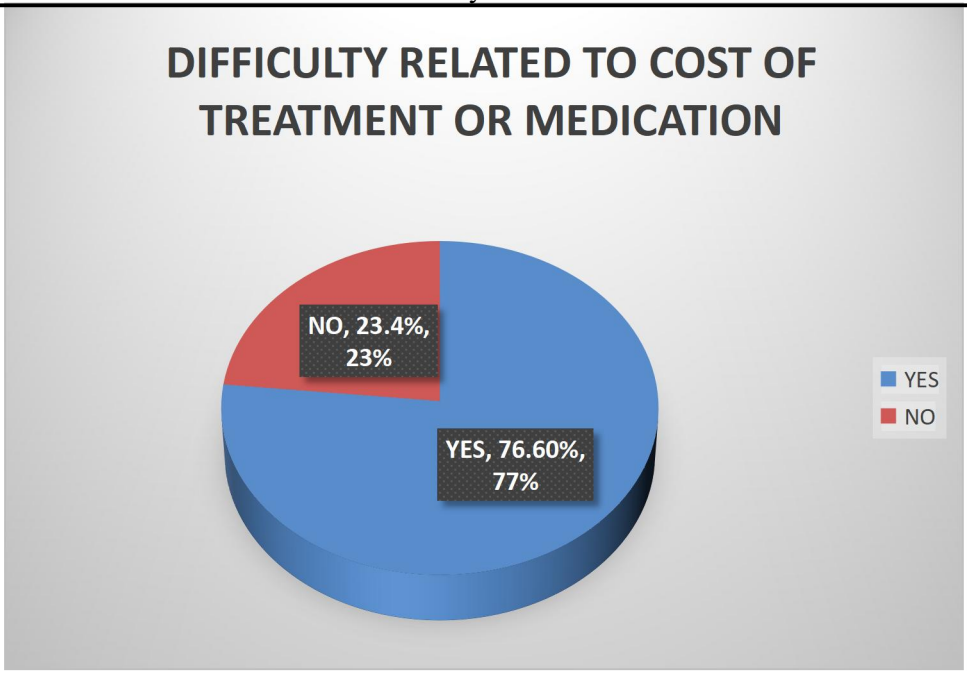


Figure 2: Difficulty related to the cost of treatment or medication is one of the challenges facing Prostate Cancer patients.

Exactly 200 (76.6%) of the patients said "yes," and that difficulty related to the cost of the treatment/medication was part of their challenges, while 61 (23.4%) said "no", the cost wasn't a factor.(See Figure 2).

Table 5 above shows that 88.9% of respondents said they felt comfortable communicating with their healthcare providers, and the majority (94.3%) said they had no language barriers. However, according to 76.6% of respondents, access to care for prostate cancer was greatly impacted by the distance to medical facilities. 54% disagreed with 46% who claimed that their choice of treatment was influenced by the provider's location. 88.9% of respondents said they had a high financial burden (33.7% said "high," and 55.2% said "very high"). Despite these difficulties, only 15.3% of patients considered switching providers due to quality issues, and 82.8% were satisfied or extremely satisfied with their care. Remarkably, 79.7% of the respondents stated that their healthcare decisions were influenced by the reputation of the provider.

Distance of the home from the healthcare facility offering prostate cancer treatment			
	Yes	200	76.6
	No	61	23.4
The location of healthcare providers has impacted your choice of treatment options.			
	Yes	120	46.0
	No	141	54.0
Feeling comfortable communicating with healthcare providers about prostate cancer diagnosis and treatment options.			
	Yes	232	88.9
	No	29	11.1
Language barriers encountered that hindered your access to information or care.			
	Yes	15	5.7
	No	246	94.3
Satisfaction with the quality of care provided by your chosen healthcare provider			
	Very satisfied	55	21.1
	Satisfied	161	61.7
	Neutral	32	12.3
	Dissatisfied	8	3.1
	Very dissatisfied	5	1.8
Consideration of switching or changing providers due to concerns about the quality of care			
	Yes	40	15.3
	No	221	84.7
The reputation of healthcare providers influences your decision-making process.			
	Yes	208	79.7
	No	53	20.3

From Table 6 above, the p-value (0.000) is much smaller than the typical significance level (0.05), and hence there is a statistically significant association between age and level of awareness, and between marital status and level of awareness. This means that marital status likely plays a role in determining or influencing the level of understanding, and the two variables are not independent. There is a statistically significant association between the highest level of education and prostate cancer knowledge rating. The Capital letter "A" in the table above represents a Significant Association, P< 0.05., Yes = Aware of prostate cancer; No = Not aware.

Table 6: Relationship Between Socio-Demographic Factors and Level of Awareness About Prostate Cancer Among Patients (N = 261)

Variables	Categories	Yes n (%)	No n(%)	Total n(%)	χ^2	df	Pvalue	Decision
Age(years)								
	40–49	3(1.1)	4(1.6)	7(2.7)				
	50-59	28(10.7)	19(7.3)	47(18.0)				
	60-69	85(32.6)	19(7.3)	104(39.8)				
	70-79	34(13.0)	22(8.4)	56(21.5)				
	Above 80	25 (9.6)	22(8.4)	47(18.0)				
Total		175(67)	86(33)	261(100)	26.71	4	0.000	A
Occupation								
	Civil servant	38 (14.6)	18 (6.9)	56 (21.5)				
	Farming	30 (11.5)	10 (3.8)	40 (15.3)				
Marital status								
	Single	2(0.8)	2(0.8)	4(1.6)				
	Married	190(72.8)	54(20.7)	244(93.5)				
	Divorced	1(0.4)	2(0.8)	3(1.2)				
	Widowed	6(2.2)	4(1.5)	10(3.7)				
Total		199(76.2)	62(23.8)	261(100)	18.46	3	0.000	A
Highest Level of Education								
	No formal education	3(1.2)	5(1.9)	8(3.1)				
	Primary education	40(15.3)	32(12.3)	72(27.6)				
	Secondary education	30(11.5)	10(3.8)	40(15.3)				
	Tertiary education	130(49.8)	11(4.2)	141(54.0)				
Total		203(77.8)	58(22.2)	261(100)	34.29	3	0.000	A

Table 7: Association Between Socio-Economic Status and Challenges (N = 261)

Variables	Categories	Yes n(%)	No n(%)	Total n(%)	χ^2	df	P-value	Decision

	Trading	35 (13.4)	13 (5.0)	48 (18.4)				
	Retired civil servant	80 (30.7)	32 (12.2)	112 (42.9)				
	Others	3 (1.1)	2 (0.8)	5 (1.9)				
Total		186(71.3)	75(28.7)	261(100)	13.74	4	0.008	A
Monthly Income								
	Below ₦50,000	90 (34.5)	22 (8.4)	112 (42.9)				
	₦50,000–₦100,000	70 (26.8)	34 (13.0)	104 (39.8)				
	Above ₦100,000	25 (9.6)	20 (7.7)	45 (17.3)				
Total		185(70.9)	76(29.1)	261(100)	19.28	2	0.000	A
Housing Category								
	Own a house	75 (28.7)	61 (23.4)	136 (52.1)				
	On rent	60 (23.0)	20 (7.7)	80 (30.7)				
	Others	25 (9.6)	20 (7.7)	45 (17.2)				
Total		160(61.3)	101(38.8)	261(100)	14.15	2	0.001	A
Health Insurance								
	Yes	30 (11.5)	31 (11.9)	61 (23.4)				
	No	130 (49.8)	70 (26.8)	200 (76.6)				
Total		160(61.3)	101(38.7)	261(100)	9.02	1	0.003	A

From Table 7 below, it is seen that occupational status, income level, housing category, and health insurance coverage were all associated with difficulties in accessing care and managing treatment costs; in other words, lower income, inadequate housing, and lack of insurance are associated with greater financial and logistical burdens in prostate cancer care. There were statistically significant associations ($P < 0.05$) between some socioeconomic factors and the challenges faced by patients with prostate cancer. The

Capital letter “A” in the table above represents a Significant association at P < .05. Yes = Experienced healthcare-related challenges, No = Did not experience challenges, df =degree of freedom

Discussion

According to the study's sociodemographic findings, patients aged 60 to 69 had the highest prevalence of prostate cancer at 39.8%, followed by those aged 70 to 79 at 21.5%. This age distribution aligns with earlier research by Nwagwu et al. (2020) in Umugolo, Imo State, Nigeria, and Lonia et al. (2025) in the Oshana region of Namibia, both of which found that men over 60 had a higher incidence of prostate cancer. Given that men 60 and older are the highest-risk group, this highlights the necessity for age-targeted screening and educational initiatives. To promote early detection, public health planners should prioritize this population for PSA testing and awareness initiatives.

In line with Nwagwu et al. (2020), who reported that 70.3% of respondents were married, this study found that 93.5% of respondents were currently married. However, educational attainment was different from previous research: this study found that 54.0% of respondents had tertiary education, whereas earlier studies found that primary education was more common (47.8%). The findings of Edidiong et al. (2022) in Rivers State, where 47.45% had completed tertiary education, are comparable to this pattern. The moderate to high levels of awareness may be explained by the respondents' high educational attainment, which also implies that educational attainment supports health education initiatives. Prostate cancer information should, however, also be provided in ways that are understandable to those with lower literacy levels, such as through churches, community leaders, and vernacular radio, as not all populations possess such high levels of education.

According to socioeconomic data, 21.5% of respondents were still working, and 42.9% of respondents were retired civil servants. In contrast, Nwagwu et al. (2020) reported that the largest occupational group (31.1%) was civil servants. Significantly more respondents (42.9%) made less than ₦50,000 a month, and 46.0% said they had to pay for prostate cancer-related medical bills out of pocket. The percentage of respondents with health insurance who were satisfied with their coverage was just 49.2%.

This demonstrates the substantial cost of treating prostate cancer, pointing to the necessity for more comprehensive, reasonably priced, and adaptable health insurance coverage. Expanding insurance plans and fortifying health finance systems can lower out-of-pocket costs and increase access to care.

In terms of housing, 30.7% rented, 52.1% owned, and the remaining individuals had other housing arrangements. These numbers demonstrate the population's socioeconomic diversity and raise possible concerns about access to medical care. The correlation between treatment costs and housing status suggests that there are wider economic inequalities affecting healthcare outcomes and access. When creating health interventions, such as housing-linked community health outreach, policymakers must take these disparities into account.

In general, there were moderate levels of awareness and knowledge, as shown in Figure 1, “level of awareness of prostate cancer”. A sizable portion of respondents (92%) had heard of prostate cancer, and 82.8% acknowledged the Prostate-Specific Antigen (PSA) test as a diagnostic tool. These results are in line with awareness levels documented by Nwagwu et al. (2020) and Edidiong et al. (2022), who cited family members, medical professionals, and religious leaders as

information sources. This stands in stark contrast to Ogbetere et al. (2024), who found that only 41% of people in Southern Nigeria were aware of prostate cancer. While 67.4% of respondents showed general knowledge of the condition, only 9.2% of them rated themselves as extremely knowledgeable.

This suggests that while awareness is improving, there remain significant gaps in specific knowledge about the disease. Public health education campaigns must therefore go beyond general awareness to include targeted information about risk factors, prevention, and the importance of early screening.

For instance, 49.0% of respondents cited multiple sexual partners as a risk factor, 79.7% identified high-fat diets as a risk factor, and 49.0% identified green tea as protective. Additionally, 61.3% of respondents thought physical activity could prevent prostate cancer, and 67.4% supported yearly screening. The overall awareness score was 66%, suggesting a moderate level of awareness but ongoing gaps in specific knowledge.
These findings suggest that future campaigns should stress the value of routine screening as well as lifestyle-related preventative techniques. Myth-busting elements should be incorporated into health promotion initiatives to dispel widespread misunderstandings, such as fact versus myth posters, interactive question and answer sessions, testimonial videos from survivors, and expert-led radio and television discussions.

Financial barriers were a major obstacle to healthcare access, as reported by 76.6% of respondents in Figure 2, “difficulty related to the cost of treatment or medication”. Geographical barriers, such as the distance to specialized medical facilities, were also mentioned by 76.6% of respondents. These results are consistent with those of Okeke et al. (2022), Ogbetere et al. (2024), Muralidhar et al. (2016), and Owoo et al. (2022), who also noted that geographic and financial barriers were significant obstacles to care, especially in rural areas. This necessitates immediate legislative action to decentralize services for prostate cancer screening and treatment. Uptake would be enhanced by the establishment of mobile outreach services and easily accessible cancer care facilities at the community level, especially in underprivileged areas.

These restrictions jeopardize treatment adherence and follow-up in addition to affecting initial access to care. To guarantee continuity of care and raise patient survival rates for prostate cancer, these systemic barriers must be addressed. All things considered, the results highlight the significance of focused public health initiatives that tackle knowledge gaps and financial obstacles to prostate cancer treatment. Prostate cancer treatment outcomes and equity may be improved by increased health insurance coverage, subsidized screening programs, and improved education.

This study found a strong link between age and awareness of prostate cancer ($p < .001$), echoing the findings of Edidiong et al. (2022), who reported a similar association ($p = .019$). The research also showed that a person’s marital status and level of education significantly influenced how much they knew about the disease, highlighting the role of these sociodemographic factors in shaping health knowledge and behaviors. These findings suggest that who we are, our age, education, and personal life, can shape how well we understand health issues. It emphasizes the importance of creating public health campaigns that resonate with specific groups.

This study also found that socioeconomic status had a significant impact on healthcare challenges ($p < 0.05$). People

with lower incomes not only struggled more with accessing care but often lived farther from treatment centers, making it even harder to get the help they needed. These findings align with the work of Tomic et al. (2018), who observed that men with higher incomes, especially those over 65 without other health issues, were less likely to die from prostate cancer. The study also highlighted how housing status influenced treatment costs, pointing to larger disparities in health outcomes. On a more encouraging note, having health insurance made a big difference in easing financial strain, showing its role as a crucial safety net. All these insights highlight the need for stronger health insurance coverage, focused support for vulnerable groups, and policy changes that reduce both financial and geographic barriers to care.

Conclusion

The study reveals that prostate cancer patients in Imo State have moderate knowledge about the disease, risk factors, and screening methods, but still have significant gaps in understanding. Sociodemographic factors, physical distance, and financial constraints contribute to these disparities. Immediate improvements include enhanced public health education, improved health insurance coverage, and increased access to specialized care.

Recommendations

Public health organizations should start focused awareness campaigns, make PSA testing more affordable, make health insurance more accessible, build more treatment centers in rural areas, and incorporate information about prostate cancer into adult literacy programs to improve the outcomes of prostate cancer. Additionally, financial support should be offered to lessen the burden of care, and screening and treatment assistance should be incorporated into employee health benefit packages. Prostate cancer cases in Imo State's rural areas should be treated for free because the residents are more susceptible to the disease due to their high rates of poverty and lack of knowledge about contemporary healthcare options. Therefore, we implore the Niger Delta Development Commission (NDDC) and other relevant organizations to step in and provide financial support to those affected by conditions related to prostate health.

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