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ORIGINAL ARTICLE

Knowledge, Attitude and Screening Practices of Prostate Cancer among Men in an Urban Community in Lagos, Nigeria

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Keywords

Knowledge;

Attitude;

Screening practices;

Prostate cancer;

Men;

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ABSTRACT

Background: Prostate cancer is a leading cause of cancer death worldwide. Prevalence rates of prostate cancer within Africa show Nigeria is ranked among countries with the highest prevalence. Improvement in the knowledge and attitude towards screening practices prevents millions of deaths yearly with a potential to prevent much more. This study assessed the knowledge, attitude and screening practices for prostate cancer among men in an urban community in Lagos, Nigeria.

Methods: This was a descriptive cross-sectional study among 270 men selected by multistage sampling technique. Data was collected using pretested interviewer-administered questionnaire and analyzed using Epi info 7.2 statistical software. Chi-square and Fisher's exact tests were used to determine statistical associations. A p-value of <0.05 was considered statistically significant.

Results: The mean age of the respondents was 49.4±8.0 years. Sixty-seven (24.8%) had no knowledge of risk factors for prostate cancer. Overall, 33 (15.2%) of the respondents had good knowledge while 28 (58.4%) had positive attitude. Only 24 (11.0%) had ever been screened. The major reason for lack of prostate cancer screening was lack of knowledge about the disease. Good knowledge (p<0.001) and positive attitudes (p=0.003) were significantly associated with good screening practices.

Conclusion: Although knowledge of prostate cancer was poor, attitude to prostate cancer screening was majorly positive. Sadly, this did not translate into good screening practices. There should be increased public awareness on prostate cancer and screening modalities available by relevant stakeholders to enhance uptake of prostate cancer screening to ameliorate the burden of the disease in Nigeria.

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INTRODUCTION

Prostate cancer (CaP) is one of the leading causes of cancer deaths worldwide.[1] According to the World Health Organization (WHO), prostate cancer was the third most common diagnosed malignancy in 2020 with 1,414,259 cases (7.3% of the total). The burden of prostate cancer is further expected to grow to 1.7 million new cases and 499,000 new deaths by year 2030 [1, 2] While various epidemiological data support the high incidence and mortality of this malignancy amongst the blacks, observations from developed countries

such as United States of America, Australia and Canada demonstrate a decrease in prostate cancer incidence due to multifactorial reasons, but believed to be primarily linked to improved screening uptake in these populations.[3, 4, 5] In contrast, there is a rising incidence with increased mortality reported in developing countries were most cancer victims are diagnosed at advanced stage. This highlights the need for increased awareness, better education and increased uptake of screening programs in these populations. [6, 7] Prevalence rates of prostate cancer within Africa show that Nigeria is ranked among the countries with the highest prevalence of prostate cancer.[5] A published data from southwestern Nigeria reports a hospital prevalence rate of 182.5 per 100,000 male admissions in 2010.[5] The true prevalence however in the Nigerian community is unknown.[8] A careful study of the disease shows that it is gradually taking a prominent position as an emerging epidemic in Nigeria[9] It is reportedly now the most commonly diagnosed malignancy among men with an annual age-adjusted incidence and mortality rates estimated at 22.7 and 18.6 per 100,000, respectively.[10] This accounts for 18.2% and 17.7% of all cancer-related diagnoses and deaths, respectively, in men in Nigeria.[10] More so, given Nigeria's status as the most populous country in Africa with an estimated population of over 200 million in 2022, the rates and percentages above translate to a significant burden in absolute numbers of men affected by prostate cancer.[10, 11, 12] Although the exact cause of prostate cancer is unknown, it is however associated with a number of risk factors.[13] Some established risk factors include advancing age, black race, a family history of prostate cancer and certain genetic polymorphisms.[14] Asymptomatic men with prostate cancer however, can be detected via screening for prostate cancer which include measurement of serum prostate specific antigen (PSA) and digital rectal examination (DRE). [15] Studies estimate that one-third of the cases of prostate cancer can be prevented and another third can be cured if detected early through screening.[16] Sadly men's intention to screen for prostate cancer have reported variable findings with screening intentions in some populations as low as 28%. [17, 18, 19] Knowledge of prostate cancer among Nigerian men is reportedly poor and routine prostate cancer screening is uncommon in Nigeria despite the rising incidence of the disease.[10] Assessing the knowledge, practice and uptake of screening for prostate cancer among at-risk men in the community remains pivotal in improving screening practices, early detection and treatment. [8] Despite reported increasing awareness of CaP among high risk population in Nigerian communities, [20] barriers such as ignorance, poverty, absence of screening programs, lack of health education, inadequate diagnostic facilities and assumption that lower urinary tract symptoms are part of normal ageing process prevent many men from early screening hence, late presentation with advanced disease.[8]

Problems associated with prostate cancer screening alongside the reported paucity of local data on the knowledge of prostate cancer among at risk men as well as the documented poor knowledge even where awareness was present underscores the need for this study. [21, 22] This study assessed the knowledge, attitude and screening practices for prostate cancer among at risk men in Kosofe Local Government Area, an urban

community in Lagos, Nigeria with a 52% male population as at 2015 with projections predicting a urban sprawl in future. [23] Our study findings will add to the body of knowledge on prostate cancer and also provide data for future academic research.

METHODOLOGY

The study was a descriptive cross-sectional study conducted among men (aged 40 years and above) residing in Kosofe Local Government Area (LGA), Lagos State. The study was conducted over a two-month period from August to September 2019. Lagos State is located in the South-western geopolitical zone of the country.[24] It is the economic backbone of the country with the largest concentration of industries and financial institutions. It is a metropolitan city with Nigerians from different tribes and ethnicities residing alongside indigenes.[25] Kosofe LGA is located in the north east of Lagos State and serves as a main entry point into the state and so it has a large population of settlers among its indigenous population. The predominant tribes include the Ibos, Hausas and Yorubas while the predominant religions are Christianity and Islam. Kosofe LGA has three Local Council Development Areas (LCDA) which include Agboyi-Ketu LCDA, Ikosi-Isheri LCDA and Kosofe LCDA. The Local Council Development Area of interest is Kosofe LCDA and it is divided into 10 administrative wards.[24, 25] Health facilities in Kosofe LCDA include the public health facilities which comprises of five primary health centres and one secondary health. The LCDA also houses numerous privately owned facilities. The two most common tests used to detect prostate cancer in these health facilities are Digital Rectal Examination (DRE) and Prostate Specific Antigen (PSA). While many of the private facilities can provide both tests only the secondary facility within the LCDA can provide patients with a PSA test. Screening programs are sometimes carried out within these health facilities in the LCDA using these methods with educational resources distributed regularly at screenings, while referrals are made for appropriate patients to secondary and tertiary facilities. The Lagos State Government through the Ministry of Health since 2008 have conducted prostate cancer awareness and screening programs at different times of the year. The State Government has on record conducted seven rounds of this exercise since inception in 2008 with 5,223 men screened.[26]

The study was carried out among adult males who were 40 years of age and above. Although there are contradictory guidelines by medical organizations on screening for prostate cancer, the American Urological Association and the American Cancer Society recommend screening for all men aged 50 years and above with life expectancy >10 years and recommends starting screening at age 40-45 years for high-risked men such as African Americans and those with affected first degree relatives.[27] Respondents had to have been resident in the local council development area for at least 6 months. Health workers and men who had been diagnosed with prostate cancer were, however, exempted from the study.

The sample size was calculated using the Cochran formula for single proportion [28] where p was the proportion of respondents with good knowledge of prostate cancer (80%) [20] from a previous study at a confidence limit of 95%. The calculated sample size was adjusted for non-response, missing

questionnaires or incorrectly or incompletely filled questionnaires and a total of 271 was obtained. The participants were selected by multistage sampling; firstly using simple random sampling by balloting, two out of the ten administrative wards in Kosofe LCDA were selected. Secondly, ten main streets were selected out of over fifty streets in each selected ward using random data sampling by balloting. In stage three, fourteen houses out of about thirty houses in each street were selected by systematic sampling using a sampling fraction of two to eliminate possible clustered selection and reduce the probability of contaminating the data. In stage four, one household per house was selected and if more than one household was present, the household to be used was selected by simple random sampling done by balloting. Stage five was the selection of respondents. Within each household one eligible respondent for the study was selected by balloting and was administered a questionnaire.

A pretested structured interviewer-administered questionnaire was used to collect data from the study subjects. The questionnaire was adapted from previous studies to collect socio-demographic data of the respondent.[29] The declarative, self and cognitive knowledge of prostate cancer was assessed using a total of 17 close-ended questions. Knowledge of prostate cancer was examined using questions based on the anatomy of the prostate gland, predisposing factors, symptoms and screening modalities. The respondents' attitude towards prostate cancer screening was assessed using 9 questions on a 5-point Likert scale, and the screening practices was assessed using 7 close-ended questions. The knowledge questions were graded either "Good" or "Poor" based on the 17 knowledge question constructs in the questionnaire. Each correct answer or option was awarded one mark (1) for a maximum of 17 marks. Scores below 9 were termed poor knowledge and scores of 9 and above were considered good knowledge. Respondents' attitude was graded using a 5-point Likert scale, from Strongly Agree to Strongly Disagree. Scores of 1, 2, 3, 4, 5 were assigned to 'strongly disagree' 'disagree' 'indifferent' 'agree', 'strongly agree' responses respectively on the Likert scale. The highest possible obtainable attitude score was 45, and a cut-off for positive or negative attitudes was based on the median score of 22. The median score was obtained using Microsoft Excel, by applying the median function and selecting the range of values in the dataset. Hence scores of 22 and below were termed "negative" attitude while scores over 22 were termed "positive" attitude.[30, 31] The level of screening practices was graded as "Good" or "Poor" based on the three (3) screening question constructs in the questionnaire. Each correct response was awarded one mark for a maximum of 3. Scores below 2 were termed poor screening and scores of 2 and above were considered good screening. The Chi-square and Fisher's exact tests were used for bivariate analysis to determine the factors that were significantly associated with knowledge, attitude and prostate cancer screening. Association was statistically significant if the two-tailed probability was less than 5% ($p<0.05$).

Ethical approval was obtained from the Health Research and Ethics Committee of LUTH (HREC Number: ADM/DCST/HREC/ APP/427). Permissions were obtained from the local council authorities at the locations where the study was conducted. Confidentiality of the participant

response was guaranteed by using numbers rather than names to identify the respondents and the questionnaire. The participants were given the assurance that the data collected would be solely used for research purposes. Participants were informed of the purpose of the study, their written consent obtained before carrying out the study and they could withdraw from the study at any time without any loss of benefits to which they were otherwise entitled.

RESULTS

A total of 271 questionnaires were administered to the respondents and retrieved. However, only 270 questionnaires were properly filled and were analysed thus yielding a response rate of 99.6%. The mean age of respondents was 49.4 ± 8.0 years. Majority of the respondents were Christians 178 (65.9%) and married 215 (79.6%). Just slightly above half 150 (55.6%) of respondents had attained up to a tertiary level of education. Majority of the respondents 136 (50.4%) were self-employed. (Table 1)

The majority of the respondent 219 (81.1%) were aware of prostate cancer. The most frequently stated source of information about prostate cancer was health workers 97 (42.9%) closely followed by broadcast media 63 (30.0%). One hundred and ninety-seven (72.9%) of the respondent did not know the location of the prostrate. Although majority, 141 (64.3%) knew that men were the affected group, most 162 (74.0%) however did not know any man who had been affected by the

Table 1: Socio-demographic characteristics of the respondents

Variables	Frequency (n=270)	Percent
Age (in years)		
40 - 50	108	40.0
50 – 60	136	50.4
> 60	26	9.6
Marital status		
Married	215	79.6
Separated	39	14.4
Single	14	5.2
Widowed	2	0.7
Highest level of education		
None	6	2.2
Primary	5	1.9
Secondary	109	40.4
Tertiary	150	55.6
Occupation		
Self-employed	136	50.4
Formal	118	43.7
Unemployed	16	5.9
Ethnic Group		
Yoruba	218	80.7
Igbo	47	17.4
Hausa	4	1.5
Urhobo	1	0.4
Religion		
Christian	178	65.9
Muslim	88	32.6
Traditional	4	1.5

Mean age (SD) = 49.4 (8.0) years

Table 2: Knowledge about risk factors of prostate cancer among respondents

Variables	Frequency	Percent
Knowledge on the Location of the prostate gland (n=270)		
I don't know	197	73.0
Under the bladder	48	17.8
In the scrotum	16	5.9
In front of the anus	5	1.8
In the intestine	4	1.5
Ever heard of prostate cancer? (n=270)		
Yes	219	81.1
No	51	18.9
Source of Information about prostate cancer (n=219)*		
Health worker	97	42.9
Broadcast Media	63	30.0
Friends	42	20.0
Family	17	8.1
Ever known anyone that had prostate cancer (n=219)		
No	162	74.0
Yes	57	26.0
Gender affected by prostate cancer (n=219)		
Men	141	64.3
Men and Women	35	16.0
Women	2	0.9
I don't know	41	18.7
Factors predisposing one to having prostate cancer (n=219)*		
Old age	104	38.5
Family History	87	32.2
Drinking Alcohol	76	28.1
Cigarette smoking	53	19.6
Diet	35	13.0
Black race	8	3.0
Exercise	1	0.4
I don't know	67	24.8
Which age should one become concerned about prostate cancer? (n=219)		
From 40 years and above	90	41.1
From 60 years and above	37	16.8
From 18 years and above	20	9.1
From puberty	8	3.7
From Birth	2	0.9
I don't know	62	28.3

Multiple responses allowed

disease. The most common predisposing factors known by the respondents include old age 104 (38.5%) family history 87 (32.2%) drinking alcohol 76 (28.1%) as shown in Table 2.

Only 14 (6.4%) of the respondent knew that people could have prostate cancer and present with no symptoms. Painful urination 124 (56.6%) and excessive urination at night 100 (45.7%) were the most known symptoms of prostate cancer among respondents. Majority of the respondents 127 (58.0%) were not aware of prostate cancer screening while over a quarter 45 (35.4%) of those aware of prostate cancer screening did not know any type of screening modality used in detecting the disease. (Table 3) Surgery 41 (54.6%) was the most known method of prostate cancer treatment among the respondents who knew about prostate cancer treatment methods. Overall, 33 (15.1%) had good knowledge of prostate cancer. (Table 4) Majority of the respondents 136 (62.1%) agreed that prostate cancer is a deadly disease while over

Table 3: Respondents' knowledge about symptoms and screening of prostate cancer

Variables	Frequency	Percent
A man may have prostate cancer and show no symptoms (n=219)		
No	33	15.1
Yes	14	6.4
I don't know	172	78.5
Symptoms of prostate cancer? * (n=219)		
Painful urination	124	56.6
Excessive urination at night	100	45.7
Blood in urine	58	26.5
Infertility	31	14.2
Headache	19	8.7
High temperature	18	8.2
Bone pain	3	1.4
Painful urination	124	56.6
Excessive urination at night	100	45.7
I don't know	69	31.5
Can prostate cancer be appropriately screened? (n=219)		
No	127	58.0
Yes	92	42.0
What prostate cancer screening tests do you know are available? (n=127)*		
Digital rectal examination (DRE)	34	26.8
Prostate specific antigen test (PSA)	23	18.1
Prostate biopsy	10	7.9
Ultrasound Scan	2	1.6
I don't know	45	35.4

Multiple responses allowed

Table 4: Knowledge on prevention and treatment of Prostate Cancer

Variables	Frequency	Percent
Prostate cancer is preventable? (n=219)		
Yes	123	56.2
No	11	5.0
I don't know	85	38.8
Preventive measures known(n=123) *		
Regular Screening	47	31.3
Eating right diet	46	30.7
Avoid many sexual partners	28	18.7
Genital hygiene	26	17.3
Use of condoms	3	2.0
Prostate cancer is treatable? (n=219)		
Yes	148	67.6
No	71	32.4
Stage at which it is most treatable(n=148)		
Anytime treatment is commenced	12	8.1
Early stage	99	66.9
Late stage	3	2.0
I don't know	35	23.6
Do you know of any method used in treating prostate cancer? (n=148)		
No	73	49.3
Yes	75	50.7
Methods of treatment known (n=75)*		
Surgery	41	54.6
Chemotherapy/drugs	13	17.3
Herbals/Traditional Medicine	11	14.6
Surgery, drugs and Radiotherapy	5	6.7
Radiotherapy	3	4.0
Radiotherapy and Surgery	3	4.0
Overall Knowledge Score (n=219)		
Poor	186	84.9
Good	33	15.1

Multiple responses allowed

Table 5: Attitude of respondents towards prostate cancer

Variables	Strongly Agree n (%)	Agree n (%)	Indifferent n (%)	Disagree n (%)	Strongly Disagree n (%)
Prostate cancer is a deadly disease	14 (6.4)	136 (62.1)	60 (27.4)	8 (3.7)	1 (0.5)
Any male of advancing age can have prostate cancer	3 (1.4)	66 (30.1)	53 (24.2)	73 (33.3)	24 (11.0)
There is a significant risk of me having prostate cancer	7 (3.2)	20 (9.1)	69 (31.5)	36 (16.4)	87 (39.7)
Prostate cancer only affects white people	0 (0.0)	79 (36.0)	85 (38.8)	48 (21.9)	7 (3.2)
Prostate cancer kills	0 (0.0)	108 (49.3)	65 (29.7)	41 (18.7)	5 (2.3)
I believe that going through regular prostate cancer screening ones future risk of prostate cancer is reduced	10 (4.6)	150 (68.5)	54 (24.7)	2 (0.9)	3 (1.4)
Men should be willing to undergo prostate cancer screening tests	11 (5.0)	83 (37.9)	117 (53.4)	7 (3.2)	1 (0.5)
Men should be willing to pay for prostate cancer screening	3 (1.3)	33 (15.1)	153 (69.9)	28 (12.8)	2 (0.9)
Prostate cancer screening test is not embarrassing	7 (3.2)	15 (6.9)	174 (79.5)	15 (6.8)	8 (3.7)
Overall Attitude Score					
Positive	128 (58.4)				
Negative	91 (41.6)				

n=219 *Multiple responses allowed

a quarter 60 (27.4%) were indifferent. About one-third of the respondents 73 (33.3%) disagreed that any man of advancing age could have prostate cancer. Over half of the respondents 150 (68.5%) agreed that prostate cancer screening reduces one's risk of having prostate cancer. Over half of the respondents were indifferent to men's willingness to undergo prostate cancer screening 117 (53.7%). Majority of respondents 153 (69.9%) were indifferent to payment for prostate cancer screening and only 6.9% (15) of the respondents considered Prostate cancer screening test to be embarrassing. Overall, 128 (58.4%) had positive attitude to prostate cancer (Table 5).

Majority of the respondents 195 (89.0%) had not been screened for prostate cancer. Out of the 24 who had been screened, majority 17 (70.8%) had been screened within the last two years. The most common reason for screening was recommendation by a doctor 20 (83.3%) while lack of knowledge 119 (61.0%), expensive cost 100 (51.3%) and preference to live in denial 98 (50.3%) were mostly cited for not screening. Less than half of respondents 79 (40.5%) indicated intent to screen in the future. (Table 6)

The knowledge of prostate cancer had a statistically significant association with respondents prostate cancer screening practices (p=<0.001). Eighteen (54.5%) of respondents that had good knowledge had good screening compared with 5 (2.7%) of those with poor knowledge. The attitude to prostate cancer had a statistically

Table 6: Respondents' screening practices on prostate cancer

Variable	Frequency	Percent
Ever been screened for prostate cancer? (n=219)		
Yes	24	11.0
No	195	89.0
Ever been screened for prostate cancer within the last 2 years? (n=24)		
Yes	17	70.8
No	7	29.2
Reason for undergoing prostate cancer screening* (n=24)		
My doctor recommended it	20	83.3
Family/Friends recommended it	6	25.0
I discovered I was at risk	4	16.7
What was done by the doctor during the screening process* (n=24)		
He inserted a gloved lubricated finger into my anus	24	100
He collected my blood sample	4	16.7
Results was explained by the doctor after the test (n=24)		
Yes	24	100.0
No	0	0.0
Outcome of the screening (n=24)		
Negative	24	100.0
Positive	0	0.0
Reason for not having ever been screened for prostate cancer (n=195)?*		
Don't know about it	119	61.0
It is expensive	100	51.3
I would rather not know	98	50.3
Not recommended by my doctor	84	43.1
I feel I am not at risk	33	16.9
It is embarrassing	1	0.5
Intention of getting screened in the nearest future? (n=195)?		
Yes	79	40.5
No	116	59.5
Overall screening practice scores		
Good	23	10.5
Poor	196	89.5

Multiple responses allowed

Table 7: Association between respondents' knowledge/attitude and prostate cancer screening practices

Variable	Practice		χ^2	p-value
	Good (n=23) n (%)	Poor (n=196) n (%)		
Knowledge				
Good	18 (54.5)	15 (45.5)	80.188	<0.001
Poor	5 (2.7)	81 (97.3)		
Attitude				
Positive	20 (15.6)	108 (84.4)	8.600	0.003
Negative	3 (3.3)	88 (96.7)		

significant association with screening (p=0.003). Twenty (15.6%) of respondents that had positive attitude had good screening practice compared with 3 (3.3%) of those with negative attitude. (Table 7)

DISCUSSION

This study was conducted to assess the knowledge, attitude and screening practices of prostate cancer among at risk men in Lagos, Nigeria. The study findings showed that majority of the respondents were aware of prostate cancer. This finding of increased awareness has been reported in similar studies done in other countries.[32, 33] This implies that sensitization being done to the public is gradually yielding some progress. The overall poor knowledge however reported by majority of the respondents is similar with results obtained from studies conducted in other parts of the country where specific knowledge related to prostate cancer was low. [20, 34] This result, however, conflicts findings from a study carried out in Nigeria where male public servants had a high level of knowledge of prostate cancer.[35] Our finding may be attributed to lower education levels and limited access to information among respondents. This suggests the need for improved public sensitization campaigns using sources such as health workers and broadcast media reported to be commonly used by respondents.

Similar to our study which reports broadcast media as a source of information on prostate cancer, a study conducted in Rivers state, Nigeria reported respondents' source of information about prostate cancer screening was mostly via news media [11] While health care workers should be encouraged to continue to take advantage of their contact with at risk males and provide information on the disease and suggest screening methods, more efforts should be focused on utilizing other sources like broadcast, print and electronic media in dispersing these information as latest research findings suggests populations utilizes these sources these days to obtain health information even prior to a doctor's visit. These information sources can be applied to improve the health seeking behavior in developing countries. These sources of information are gradually becoming a reliable platform for sharing information to a large target audience in a timely manner due to its increasing user base.[36, 37]

Slightly over a quarter had no knowledge on symptoms of prostate cancer. Similar findings across Nigerian studies [34, 38, 39] and other African countries [15, 40] which report poor knowledge of prostate cancer symptoms may explain the poor recognition of the illness. Respondent's knowledge about the location of the prostate gland showed majority were unaware about the location of the prostate gland. This is similar to a study done in Ikenne, Nigeria in which less than one-fifth of the respondents could identify the location of the bladder. [29] It however conflicts with findings from a Ghanaian study[41] which revealed majority knew the location of the prostate. The lack of knowledge about the location of the prostrate and prostate cancer symptoms implies the risk of disregarding local symptoms such as urinary frequency, urgency, dysuria which often present due to the

enlargement of the prostate hence a risk of late presentation and consequently poor prognosis.[41]

The major reasons given for why respondents had undergone screening was that they were urged to by a doctor which is similar to a Lagos based study in which almost half of respondents identified doctor's influences in their decision to screen.[42] This finding is corroborated in a similar study conducted in Zambia where most of the respondent received information on prostate cancer from doctors. [43] This suggests many only get to hear about the disease during hospital visits and health outreaches from health workers. Prostate cancer when compared to other cancers such as female gynaecological malignancies is still gaining traction hence much is not being said about it on print, electronic and social media platforms as compared to female gynaecological malignancies such as cervical cancer. Less than a tenth of the respondents in our study disagreed to prostate cancer being a deadly disease. This is in contrast to a Ghanaian study in which a large majority disagreed.[42] A study conducted in Ikenne, Nigeria in contrast to our study also reported a sizeable majority disagreed that prostate cancer is a deadly disease.[29] These differences can be attributed to the differences in study location as an urban location like Lagos where our study was conducted provides respondents with more access to health information.

Concerning awareness about prostate cancer screening modalities, less than half of respondent from our study were aware of available modalities. Prostate Specific Antigen PSA and Digital Rectal Examination DRE were by far the most common identified screening tests. This is similar to a study conducted in Burkina Faso where over three-fifths of the respondents did not know about any screening test.[33] In a similar study in Uganda, while about majority had heard about prostate cancer, less than one-tenth knew prostate specific antigen (PSA) test and digital rectal examination (DRE) respectively as screening tests for prostate cancer, and only a handful had ever been screened for prostate cancer.[15] This lack of awareness of screening methods for the disease particularly in developing country may explain the low screening rate and will therefore mean many men will be unaware of their status. It is therefore imperative that more efforts need to be concentrated across the African continent in prioritizing education of the populace about screening modalities for this disease

Only a few of the respondents in our study had ever been screened. This is similar to various Nigerian based studies such as those in Oyo State where under one-fifth had been screened and in Anambra where just slightly over 5% had undergone screening in the preceding year [20, 35] Similarly, very few respondents were reported to have been screened for prostate cancer in a Ugandan study.[15] An increased awareness on the need for frequent prostate cancer screening over time can explain the increase recorded in our study however PSA test uptake is still significantly lower when compared to developed countries. In this study, all of the screened respondents had undergone a DRE while less than one-fifth had undergone a PSA test which is similar to a Ugandan study in which a only a small minority were screened via PSA test.[15] Our finding was however In contrast to developed societies such as Italy where an overwhelming majority were reported to have had a PSA.[15] The significantly lesser number of respondents

utilizing PSA test may be due to poor health financing system in many sub-Saharan African countries which often force many to make out-of-pocket payments for the PSA screening test which may be unaffordable Increased government and NGO screening outreaches can help tackle the issue of PSA test cost by making tests available free or at subsidised rates..[44]

When asked on barriers to screening, majority of respondents indicated the lack of knowledge closely followed by the expensive cost of screening. This is corroborated by similar local studies conducted in Oyo and Lagos, Nigeria on barriers to screening in which majority of the respondents respectively identified their lack of knowledge as the major barrier.[20, 45] Barriers to prostate cancer screening have been extensively researched and broadly categorised into subthemes which include client-related, healthcare provider–related, and system-related barrier. Lack of knowledge which is implicated in all subthemes has been identified by many studies as a major barrier to prostate cancer screening.[45] Factors that often contribute to this lack of knowledge could be the low educational standards,[46] perceptions and beliefs [47] and poor health systems where majority lack access to competent health personnel to adequately inform them about the disease.[38] Over half of the respondents did not screen as they would rather not know. This appears to be tied to cultural beliefs and fatalistic attitudes of believing they are meant to get prostate cancer they will get it. Continuous dissemination of information on prostate cancer will help address these cultural beliefs and fatalistic attitudes.

On intention to screen in the near future, less than half of the respondents indicated interest. This finding is in contrast with a Kenyan study which reported an overwhelming majority of respondents indicated interest in future screening.[48] Despite ongoing efforts to increase prostate cancer awareness and screening in Nigeria, it is obvious that more needs to be done to ensure that men understand the disease and undergo screening. Factors such as access to screening facilities, financial constraints as well as individual's prostate cancer knowledge among other factors will continue to influence prostate cancer screening in future.

Limitations of the study: The most important limitation to this study is the possible selection bias in which those recruited in the study may not be representative of the entire population of men in Lagos State.

Conclusion: This study revealed many did not know about the risk factors, symptoms, preventive measures, screening and treatment methods of Prostate cancer. The overall attitude levels to prostate cancer was good however most had never been screened. Lack of knowledge of prostate cancer screening programs was the major barrier encountered in prostate cancer screening. These findings call for mass sensitization, awareness creation and educational programme gap by the local authorities in collaboration with the Ministry of Health at National and State levels and healthcare providers to bridge this knowledge. Government can also encourage screening by making screening free or highly subsidizing its cost hence breaking the barrier to prostate cancer utilization imposed by costs

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Authors' contributions: Study conceptualization and design, literature search, analysis & interpretation of results and manuscript review were performed by OIA, AS, OAT, FTO Data collection was performed by AS. Manuscript preparation and editing were carried out by OIA and AS. All authors read and approved the final draft.

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