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KNOWLEDGE AND PERCEPTION OF PROSTATE CANCER SCREENING AMONG MALE EMPLOYEES OF A PRIVATE UNIVERSITY IN OGUN STATE, NIGERIA

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ABSTRACT: *Introduction: The burden of prostate cancer has steadily increased over the years. Patients in developed countries present with the disease early but contrastingly, men in developing countries present late leading to higher mortality in these countries. This variation in presentation is essentially because of differences in screening for the disease which usually depends on knowledge and perception of screening among men. This study assessed the knowledge and screening of prostate cancer screening among men in a tertiary institution in Nigeria. Methods: The study employs a descriptive cross-sectional study of 211 men who were selected using a convenience sampling method. Data was collected using a structured interviewer-administered questionnaire. Knowledge of prostate cancer was graded as adequate or inadequate while perception was categorised as good or poor both using mean scores. Data analysis was done using IBM SPSS version 22 and presented as tables. P< 0.05 was taken as statistically significant. Results: The mean age of participants was 55.90±7.80 years and most of them (98.6%) had tertiary education as the highest level of education. About three-fifths (58.8%) of the respondents had adequate knowledge while 41.2% had inadequate knowledge about prostate cancer screening. More than half (53.1%) of the respondents had a good perception of prostate cancer screening while 46.9% had a poor perception. The occupation had statistically significant associations with the perception of participants of prostate cancer screening. Conclusion: Knowledge and perception were good among participants who were mostly educated. Occupation was also significantly associated with perception. Educated men may be deployed as peer educators for prostate cancer.*

KEYWORDS: Knowledge, Perception, Prostate cancer screening, Male employees, Private university.

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INTRODUCTION

Prostate cancer is the main cause of cancer-related mortality in men who are 40 years or older [1]. The burden of prostate cancer has steadily increased over the years; hence, it has become the most common cancer among men, the second most common of all diagnosed cancers, and the sixth leading cause of cancer mortality globally [2]. It is more common in blacks and men of mixed race compared to Caucasians and Asians. The survey on prostate cancer prevalence in the United States of America revealed a higher prevalence of the cancer among African Americans at a rate of 248.5 per 100,000 as compared to White American men with a reported rate of 156.7 per 100,000 [3]. The incidence and mortality rates of prostate cancer by 2030 are projected to be 1.7 million and 499,000 respectively [1]. Prostate cancer is the most common cancer among Nigerian men with a reported hospital admission rate of 182.5 per 100,000 [4].

Most patients in developing climes present to the clinic with advanced and metastatic diseases leading to higher mortality rates [5]. There have been several explanations offered for this pattern including a lack of awareness and information, false beliefs about prostatic disorders, patients' poor healthcare-seeking behaviour, and poor screening practices [6]. High-income countries in contrast, have low mortality rates as a result of early detection due to routine screening [1].

Prostate cancer screening is an effort to diagnose the disease in asymptomatic men [7]. Measurement of blood prostate-specific antigen (PSA) and digital rectal examination (DRE) are the basis of prostate cancer screening. Increased survival benefits have been observed in large population-based studies when there's early intervention and treatment of prostate cancer when compared with no active intervention in men with the disease [7]. About one-third of prostate cancer cases are prevented by early screening and another one-third are well treated if detected by early screening [8]. This has led to the reported decline in mortality in some countries [9].

An initial vital step in enhancing screening procedures, early identification, and treatment is assessing the knowledge and acceptance of screening methods among community at-risk males for prostate cancer [1]. Apart from variability in the accessibility and availability of prostate cancer screening services, screening uptake may also be affected by negative perceptions and attitudes in underdeveloped and developed nations [5]. Understanding how people view prostate cancer and how that affects screening and treatment is therefore crucial for medical professionals as it illuminates current knowledge and offers valuable data for the establishment of public health interventions to reduce the burden of prostate cancer [5].

Presently, there is no formal programme addressing the problem of prostate cancer in Nigeria [7] and this may partially explain the poor awareness of the disease in the country. Moreover, much public health information is not directed at early detection and treatment [7]. All these have invariably translated to late presentation and reduced survival rate among men in the country [10]. This study aimed to assess the knowledge and perception of prostate cancer screening among male employees of a private university in Ogun State, Nigeria

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METHODOLOGY

Study Area, Study Design, Study Population, and Sample Size Estimation

This study was conducted at Babcock University, Ilishan-Remo, Ogun State, Nigeria. It is a private university owned by the Seventh-Day Adventist Church. The university commenced activity on September 17, 1959, as Adventist College of West Africa (ACWA). The Federal Government of Nigeria approved the university as one of the first three private universities in the country on the 20th of April, 1999. The university currently has a student population of about 10,000 and a staff population of about 1,500 excluding those on daily rates, wages, and fixed sum. The university is presently made up of 10 schools. The study participants were male employees of the university. Men who were at least 40 years old and who had spent a minimum of one month in the university were selected while men who were medical or paramedical personnel were excluded. The minimum sample size was determined using Cochran's formula z^2pq/d^2. A standard normal deviation of 1.96, a prevalence of 89.4% from a similar study in Tanzania [11], and a margin of error of 5% were used for the calculation and this gave a minimum sample size of 146. Correcting for a non-response rate of 20%, the sample size became 182. However, 211 men participated in this study.

Sampling Method, Data Collection Tools, and Techniques, Study Measures

The convenience method was used to select participants for this study. All consented men who met the inclusion criteria were interviewed in the various departments and units in the university until the sample size was reached. A structured interviewer-administered questionnaire was used to collect data with the help of trained research assistants. The instrument was constructed from the review of similar literature and elicited information about the participants' socio-demographic characteristics, their knowledge and perception of prostate cancer and its screening. The instrument was pretested among 10 students at the university.

Data Management and Analysis

The questionnaires were cross checked for errors and cleaned. Data were entered into Statistical Package for Social Sciences (SPSS) software version 22 (IBM SPSS Inc., Chicago, IL) for analysis. There were eleven knowledge questions**.** Each correctly answered question was scored 1 point to make a maximum obtainable score of 11. The mean score was then calculated to be 6.6 approximated to be 7. Those who scored at least 7 (mean score) were considered to have adequate knowledge and those who scored less than 7 had inadequate knowledge. Perception was measured on the Likert scale. For positive statements, strongly agreed was scored as 5, agreed 4, undecided 3, disagreed 2, and strongly disagreed, 1. For negative statements, these scores were reversed with strongly agreed scoring lowest and strongly disagreed scoring highest. The maximum obtainable score was 25 and the mean score was calculated to be 15.1. Those who had 15 (mean score) and above were considered to have good perception and those below 15, had poor perception. Data summary was done using mean, standard deviation, and proportions. Chi-squares were used to test for associations between categorical variables. The level of significance was set at 5%. The analysed data were presented as frequency tables

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Ethical Consideration

Ethical approval was obtained from the Babcock University Health Research and Ethics Committee (BUHREC 678/23). Verbal and written informed consent was obtained from each participant. Strict confidentiality was maintained throughout the study.

RESULT

Table 1 shows the socio-demographic distribution of the respondents. The mean age was 55.90±7.80 years, ranging from 40 to 77 years. The age group 51-60 years had the highest proportion (62.1%) followed by the age group 61-70 years (19.5%). The majority of the respondents were married (99.1%), had tertiary education as the highest level of education (98.6%) and were Christians (90.0%). Concerning ethnicity, 76.8% were Yoruba, 15.6% Igbo, and 4.3% Hausa. Academic members of staff made up 87.7%.

Table 1: Socio-demographic Characteristics of Participants N=211

Variable	Frequency	Percentage
Age		
40-50	37	17.5
51-60	131	62.1
61-70	41	19.5
>70	2	0.9
Marital Status		
Married	209	99.1
Separated	2	0.9
Highest Education		
Secondary	3	1.4
Tertiary	208	98.6
Religion		
Christianity	190	90.0
Islam	21	10.0
Ethnicity		
Yoruba	162	76.8
Igbo	33	15.6
Hausa	9	4.3
Others	7	3.3
Occupation		
Academic	185	87.7
Non-Academic	26	12.3

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Table 2 shows that the majority (92.4%) of the participants knew about prostate cancer. Three-quarters (75.4%) of the participants knew that cervical cancer only affects men, while 12.3% thought otherwise. More than half (55.4%) of the participants have heard about the Prostate Specific Antigen (PSA), 37.9% did not know while 7.1% were unsure. Overall, 58.8% of the respondents had adequate knowledge while 41.2% had inadequate knowledge about prostate cancer screening.

Table 2: Knowledge of participants about prostate cancer and screening N=211

Variable	Yes n (%)	No n (%)	Unsure n(%)
Knows about prostate cancer before	195 (92.4)	0 (0.0)	16 (7.6)
Prostate cancer affects only men	159 (75.4)	26 (12.3)	26 (12.3)
Familiar with the symptoms of prostate cancer	140 (66.4)	60 (28.4)	11 (5.2)
Have heard about prostate specific antigen (PSA)	116 (55.4)	80 (37.9)	15 (7.1)
Have heard about digital rectal exam (DRE)	84 (39.8)	44 (20.9)	83 (39.3)
PSA range of 0 – 4 ng/ml is normal	136 (64.5)	4 (1.9)	71 (33.6)
One can screen for prostate cancer	193 (91.5)	5 (2.4)	13 (6.2)
Early detection increases the survival rate of prostate cancer	175 (82.9)	8 (3.8)	28 (13.3)
Prostate cancer be treated if detected early	87 (41.2)	41 (19.4)	83 (39.3)
There is a limit to the number of PSA tests that can be done	15 (7.1)	63 (29.9)	133 (63.0)
There is a limit to the number of DREs that can be done	26 (12.3)	41 (19.4)	144 (68.2)
Knowledge Category		**n(%)**	
Adequate Knowledge		124 (58.8)	
Inadequate Knowledge		87 41.2	

Table 3 shows the respondents' perception of prostate cancer screening. Concerning the statement that performing DRE causes fear for patients, 3.3% of respondents strongly disagreed, 8.1% disagreed, 45% were undecided, 20.4% agreed and 23.2% strongly agreed. As regards the statement that the cost of prostate cancer is prohibitive, 15.6% strongly disagreed, 13.3% disagreed, 22.7% were undecided, 32.7% agreed and 15.6% strongly disagreed. Overall, 53.1% of the respondents had a good perception of prostate cancer screening while 46.9% had a poor perception.

Table 3: Perception of men towards prostate cancer screening. N=211

Variable	SD	D	U	A	SA
Performing DRE causes fear for the patient.	7 (3.3)	17 (8.1)	95 (45.0)	43 (20.4)	49 (23.2)
DRE is an intrusive procedure.	19 (9.0)	19 (9.0)	94 (44.5)	41 (19.4)	38 (18.0)
The cost of prostate cancer screening is prohibitive.	33 (15.6)	28 (13.3)	48 (22.7)	69 (32.7)	33 (15.6)
PSA tests should also be done for family members.	22 (10.4)	42 (19.9)	16 (7.6)	68 (32.2)	63 (29.9)

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A diagnosis of prostate cancer makes you terrified	71 (33.6)	74 (35.1)	4 (1.9)	22 (10.4)	40 (19.0)
Perception Category			**n (%)**		
Good Perception			112 (53.1)		
Poor Perception			99 (46.9)		

Table 4 shows there was no statistically significant relationship between socio-demographic characteristics of the participant and the knowledge of prostate cancer screening

Table 4: Participants' sociodemographic characteristics and bivariate relationship with knowledge of prostate cancer. N=211

Variable	Knowledge		Test Statistics x^2 (p)
	Adequate Knowledge	Inadequate Knowledge	
Age			
40-50	22 (59.5)	15 (40.5)	
51-60	79 (60.3)	52 (39.7)	
61-70	21 (51.2)	20 (48.8)	
>70	2 (100.0)	0 (0.0)	2.502 (0.475)
Marital Status			
Single			
Married	123 (58.9)	86 (41.1)	
Separated	1 (50.0)	1 (50.0)	0.064 (0.800)
Highest Education Level			
Secondary	3 (100.0)	0 (0.0)	
Tertiary	121 (58.2)	87 (41.8)	2.135 (0.144)
Religion			
Christianity	113 (59.5)	77 (40.5)	
Islam	11 (52.4)	10 (47.6)	0.393 (0.531)
Ethnicity			
Yoruba	90 (55.6)	72 (44.4)	
Igbo	22 (66.7)	11 (33.3)	
Hausa	7 (77.8)	2 (32.2)	
Others	5 (71.4)	2 (28.6)	3.345 (0.341)
Occupation			
Academic Staff	106 (57.3)	79 (42.7)	
Non-academic staff	18 (69.2)	8 (30.8)	1.340 (0.247)

Table 5 shows there was a statistically significant relationship between the occupation of the participant and the perception of prostate cancer screening

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Table 5: Participants' sociodemographic characteristics and bivariate relationship with perception of prostate cancer. N=211

Variable	Perception		Test Statistics x^2 (p)
	Good Perception	Poor Perception	
Age			
40-50	20 (54.1)	17 (45.9)	
51-60	72 (55.0)	59 (45.0)	
61-70	20 (48.8)	21 (51.2)	
>70	0 (0.0)	2 (100.0)	1.767 (0.429)
Marital Status			
Married	111 (53.1)	98 (46.9)	
Separated	1 (50.0)	1 (50.0)	0.008 (0.930)
Highest Education Level			
Secondary	1 (33.3)	2 (66.7)	
Tertiary	111 (53.4)	97 (46.6)	0.477 (0.490)
Religion			
Christianity	103 (54.2)	87 (45.8)	
Islam	9 (42.9)	12 (57.1)	0.979 (0.323)
Ethnicity			
Yoruba	88 (54.3)	74 (45.7)	
Igbo	17 (51.5)	16 (48.5)	
Hausa	5 (55.6)	4 (44.4)	
Others	2 (28.6)	5 (71.4)	1.843 (0.606)
Occupation			
Academic Staff	103	82	
Non-academic staff	9	17	4.060 (0.044)

DISCUSSION

In this current study, the mean age of respondents was 55.90±7.80 years. Most respondents were married (99.1%) and had tertiary education at the highest (98.6%) level. Academic members of staff made up 87.7% of participants. The majority (92.4%) of the participants claimed to know about prostate cancer. Three-quarters (75.4%) of the participants knew that cervical cancer only affects men, while 12.3% thought otherwise. More than half (55.4%) of participants have heard about the Prostate Specific Antigen (PSA). Overall, 58.8% of the respondents had adequate knowledge while 41.2% had inadequate knowledge about prostate cancer screening. On the other hand, just over half (53.1%) of the respondents had a good perception of prostate cancer screening while 46.9% had a poor perception. Participants' occupation had a statistically significant association with perception towards prostate cancer while none of the participants' sociodemographic characteristics was significantly associated with knowledge of cervical cancer screening.

Our study revealed that about three-fifths (58.8%) of the respondents had adequate knowledge of prostate cancer and its screening. This is similar to the findings from a study conducted in Enugu State, Nigeria by Adibe et al. [7] where 57.8% of respondents had a high knowledge level of prostate cancer. The high level of knowledge observed in this current study may be

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because the study was conducted among employees within a university where most of the respondents are literate. According to Kuyinu et al. [12], health literacy is higher among university graduates. On the other hand, Atulomah [13] reported that less than two-fifths (39.2%) of the participants in his study had good knowledge of prostate cancer and its screening. This low level of knowledge in his study may be because it was carried out in a rural area, a region associated with lower literacy levels [14]. Other Nigerian studies which reported lower levels of knowledge compared to our study were conducted in Oshodi, Lagos State Nigeria (26.8%) [15] and Obi-Akpor Local Government Area of River State, South South Nigeria [16]. These studies were community-based and this may explain the lower knowledge among participants compared to this current study. Moreover, most (90%) of the participants in this current study were Christians. This proportion was higher than many other Nigerian studies [6,15,17,18] and could be because our study was conducted in a Christian-owned tertiary institution.

None of the participants' sociodemographic characteristics was statistically significantly associated with their level of knowledge. This finding has some similarity with a study conducted by Yeboa-Asiamah et al. [19] in Ghana, where no statistically significant association was reported between age and knowledge of prostate cancer screening among the participants. It, however, contrasts the report by Adesina in Kwara State, North Central Nigeria where age, education, and occupation of participants were all significantly associated with the knowledge of prostate cancer screening among men [18].

Over half (53.1%) of the participants in this current study had a good perception of prostate cancer screening while 46.9% had a poor perception of prostate cancer screening. This finding is much lower than what was reported in another similar study among university employees in southeast Nigeria where as much as 88% of the participants had a good perception of prostate cancer screening [7]. This may suggest that, though the proportion of participants in this current study with good perception is above average, it does not commensurate with what is expected among individuals with the level of education and exposure found in this current study. This implies the need for educational intervention in the context of improving the perceptions of men in the study areas towards prostate cancer. Other studies in Ibadan, Nigeria [17] and Belize [20] reported poor perception among men while a study in Lagos State, Nigeria reported good perception of prostate cancer among men which was similar to our study [15]. Occupation was statistically significantly associated with the perception of prostate cancer in this current study. This was similar to the study conducted in Canada where prostate cancer risks were associated with occupation [21].

The cross-sectional design of this study makes it difficult to assess temporal relationships between participants' characteristics and the outcome variables of knowledge and perception of prostate cancer screening. Other study opportunities for this subject may include mixed study designs to further explore men's perceptions of prostate cancer.

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CONCLUSION

Higher proportions of men had adequate knowledge of prostate cancer as compared to those who had inadequate knowledge. Similarly, a higher proportion of men had a good perception of prostate cancer compared to those who had a poor perception. Occupation was shown to be associated with the perception of prostate cancer. Education of the men is likely to be associated with these findings. There is a need to provide more school enrolment opportunities for young boys to improve literacy levels among men generally. Then, since educated men have a propensity for better knowledge and perception, prostate cancer education and awareness need to be scaled up among them to leverage this propensity. Lastly, educated men need to be deployed as prostate cancer champions and peer educators.

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